Westchester
MEDICAL CENTER
ADVANCED LABORATORY SERVICES

Advanced Laboratory Services Manual

1/22/25

Version: 01/22/2025

Advanced Laboratory Services Manual

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Message from Humayun Islam, M.D., Ph.D.
Laboratory Medical Director,
Department of Pathology and Laboratory Medicine

Our mission as a department is to deliver patient-centered, physician-friendly services in a fiscally responsible manner.

This manual is intended to simplify access to the full range of pathology and laboratory medicine services offered at Westchester Medical Center. It includes an updated testing compendium and appendices, current specimen requirements, and updated leadership and contact information.

We hope that you find this reference manual helpful. We welcome your comments and suggestions regarding this manual and our other services.

Overview of Clinical and Anatomical Procedures

Westchester Medical Center's hospital-based board certified clinical and anatomic laboratory offers a broad menu of routine and esoteric procedures. Our laboratories offer testing in the following areas:

- ANATOMIC PATHOLOGY
- BLOOD BANK AND TRANSFUSION MEDICINE
- COAGULATION - ROUTINE AND SPECIAL
- CHEMISTRY - ROUTINE AND SPECIAL
- CYTOLOGY
- CYTOGENETICS
- ENDOCRINOLOGY
- FLOW CYTOMETRY
- HEMATOLOGY - ROUTINE AND SPECIAL
- IMMUNOLOGY - DIAGNOSTIC AND SPECIAL
- IMMUNOHISTOCHEMISTRY
- MICROBIOLOGY
- MOLECULAR PATHOLOGY
- ONCOLOGY MARKERS
- THERAPEUTIC DRUG MONITORING
- TOXICOLOGY
- TRANSPLANT IMMUNOLOGY
- URINALYSIS
- VIROLOGY

The laboratory is backed by the unique and substantial resources of Westchester Medical Center and serves healthcare providers throughout the medical community. Since roughly 100% of the laboratory testing is performed on site, we are able to optimize our testing schedules and provide excellent turnaround times for your patients' results. This broad in-house capability, coupled with extensive and advanced instrumentation, electronic communication and a skilled team of laboratory professionals, enables Westchester Medical Center's laboratory to deliver the highest level of quality and service, around the clock, seven days a week.

Quality Assurance Program

The Westchester Medical Center laboratory maintains the highest standards of quality at all times. Besides the routine distribution of unknown samples, technologists stringently monitor the results of standards and controls on every run. Our system utilizes a number of specific measurable events which are used to monitor and assess the quality and appropriateness of the laboratory procedures we perform. Some of those key metrics are:

- Quantity not sufficient (QNS)
- Test not performed
- Turnaround time (TAT)
- Corrected reports
- Specimen processing errors
- Phone response time (Alert Values)
- Customer complaints
- Proficiency testing evaluation

In addition to these internal controls and metrics, Westchester Medical Center subscribes to the following proficiency testing and accreditation programs set by:

- New York State Department of Health (NYSDOH)
- CLIA
- College of American Pathologists (CAP)
- American Society for Histocompatibility and Immunogenetics (ASHI)

Accreditations & Licenses

Westchester Medical Center
100 Woods Road
Valhalla, NY, 10595

New York State Department of Health	PFI-2438
College of American Pathologists	1238801-01
American Society for Histocompatibility and Immunogenetics (ASHI)	07-1-NY-20-1
CLIA	33DO72113

Westchester Medical Center Outpatient Laboratory
19 Bradhurst Ave, Suite 1700
Hawthorne, NY, 10532

New York State Department of Health	PFI-6067
CLIA	33D2309524

Westchester Medical Center Respiratory Care Department
100 Woods Road,
Valhalla, NY, 10595

New York State Department of Health	PFI-2439
CLIA	33D0683161

Anatomic Pathology

General Information

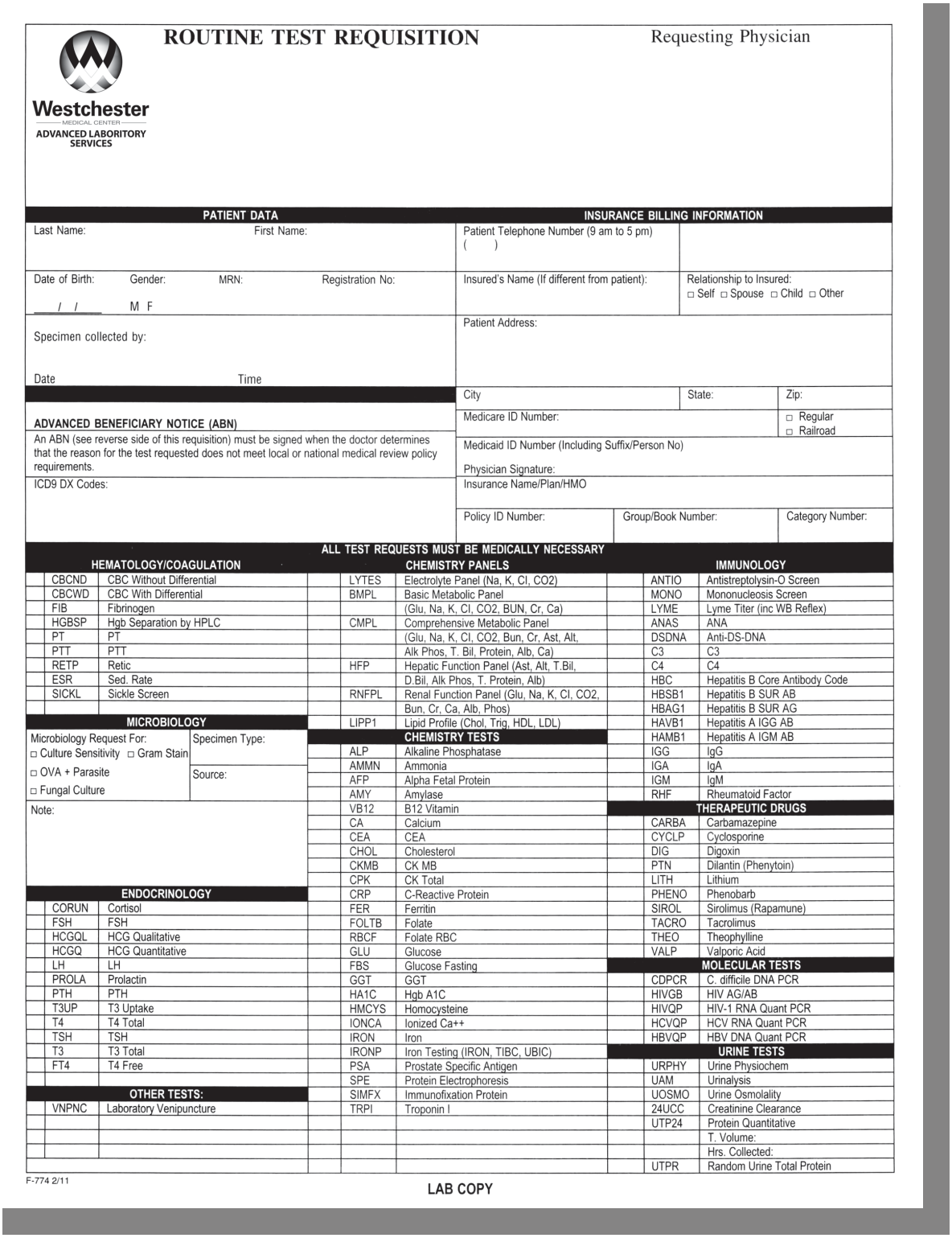
Address: Westchester Medical Center
Department of Pathology
100 Woods Road
Valhalla, NY, 10595

Members and Contact Information

Name	Title	Phone #
Rocky Granthier, MPH, MBA, HTL(ASCP)	Administrative Director, Laboratory Services	(914) 493-5876 (718) 360-6252
Dariusz Borys, MD, FCAP	Chief of Anatomic Pathology	(914) 493-6680
Kathleen Bunosso	Anatomic Pathology Manager	(914) 493-7267 (203) 751-1301
Anatomic Pathology		(914) 493-7431

Laboratory Test Request Forms

Routine Test Requisition



ROUTINE TEST REQUISITION — Requesting Physician

Westchester MEDICAL CENTER
ADVANCED LABORATORY SERVICES

PATIENT DATA

Last Name: First Name:

Date of Birth: Gender: MRN: Registration No:

___/___/___ M F

Specimen collected by:

Date Time

ADVANCED BENEFICIARY NOTICE (ABN)

An ABN (see reverse side of this requisition) must be signed when the doctor determines that the reason for the test requested does not meet local or national medical review policy requirements.

ICD9 DX Codes:

INSURANCE BILLING INFORMATION

Patient Telephone Number (9 am to 5 pm) ( )

Insured's Name (If different from patient):

Relationship to Insured: □ Self □ Spouse □ Child □ Other

Patient Address:

City | State: | Zip:

Medicare ID Number: □ Regular □ Railroad

Medicaid ID Number (Including Suffix/Person No)

Physician Signature:

Insurance Name/Plan/HMO

Policy ID Number: | Group/Book Number: | Category Number:

ALL TEST REQUESTS MUST BE MEDICALLY NECESSARY

HEMATOLOGY/COAGULATION

CBCND	CBC Without Differential
CBCWD	CBC With Differential
FIB	Fibrinogen
HGBSP	Hgb Separation by HPLC
PT	PT
PTT	PTT
RETP	Retic
ESR	Sed. Rate
SICKL	Sickle Screen

MICROBIOLOGY

Microbiology Request For: □ Culture Sensitivity □ Gram Stain □ OVA + Parasite □ Fungal Culture

Specimen Type:

Source:

Note:

ENDOCRINOLOGY

CORUN	Cortisol
FSH	FSH
HCGQL	HCG Qualitative
HCGQ	HCG Quantitative
LH	LH
PROLA	Prolactin
PTH	PTH
T3UP	T3 Uptake
T4	T4 Total
TSH	TSH
T3	T3 Total
FT4	T4 Free

OTHER TESTS:

VNPNC	Laboratory Venipuncture

CHEMISTRY PANELS

LYTES	Electrolyte Panel (Na, K, Cl, CO2)
BMPL	Basic Metabolic Panel (Glu, Na, K, Cl, CO2, BUN, Cr, Ca)
CMPL	Comprehensive Metabolic Panel (Glu, Na, K, Cl, CO2, Bun, Cr, Ast, Alt, Alk Phos, T. Bil, Protein, Alb, Ca)
HFP	Hepatic Function Panel (Ast, Alt, T.Bil, D.Bil, Alk Phos, T. Protein, Alb)
RNFPL	Renal Function Panel (Glu, Na, K, Cl, CO2, Bun, Cr, Ca, Alb, Phos)
LIPP1	Lipid Profile (Chol, Trig, HDL, LDL)

CHEMISTRY TESTS

ALP	Alkaline Phosphatase
AMMN	Ammonia
AFP	Alpha Fetal Protein
AMY	Amylase
VB12	B12 Vitamin
CA	Calcium
CEA	CEA
CHOL	Cholesterol
CKMB	CK MB
CPK	CK Total
CRP	C-Reactive Protein
FER	Ferritin
FOLTB	Folate
RBCF	Folate RBC
GLU	Glucose
FBS	Glucose Fasting
GGT	GGT
HA1C	Hgb A1C
HMCYS	Homocysteine
IONCA	Ionized Ca++
IRON	Iron
IRONP	Iron Testing (IRON, TIBC, UBIC)
PSA	Prostate Specific Antigen
SPE	Protein Electrophoresis
SIMFX	Immunofixation Protein
TRPI	Troponin I

IMMUNOLOGY

ANTIO	Antistreptolysin-O Screen
MONO	Mononucleosis Screen
LYME	Lyme Titer (inc WB Reflex)
ANAS	ANA
DSDNA	Anti-DS-DNA
C3	C3
C4	C4
HBC	Hepatitis B Core Antibody Code
HBSB1	Hepatitis B SUR AB
HBAG1	Hepatitis B SUR AG
HAVB1	Hepatitis A IGG AB
HAMB1	Hepatitis A IGM AB
IGG	IgG
IGA	IgA
IGM	IgM
RHF	Rheumatoid Factor

THERAPEUTIC DRUGS

CARBA	Carbamazepine
CYCLP	Cyclosporine
DIG	Digoxin
PTN	Dilantin (Phenytoin)
LITH	Lithium
PHENO	Phenobarb
SIROL	Sirolimus (Rapamune)
TACRO	Tacrolimus
THEO	Theophylline
VALP	Valporic Acid

MOLECULAR TESTS

CDPCR	C. difficile DNA PCR
HIVGB	HIV AG/AB
HIVQP	HIV-1 RNA Quant PCR
HCVQP	HCV RNA Quant PCR
HBVQP	HBV DNA Quant PCR

URINE TESTS

URPHY	Urine Physiochem
UAM	Urinalysis
UOSMO	Urine Osmolality
24UCC	Creatinine Clearance
UTP24	Protein Quantitative
	T. Volume:
	Hrs. Collected:
UTPR	Random Urine Total Protein

F-774 2/11

LAB COPY

Blood Bank Test Requisition Form

WMC Health | Westchester Medical Center
Westchester Medical Center Health Network

BG0002

REQUEST FOR BLOOD BANK LABORATORY TESTS

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Specimen will NOT be acceptable unless information requested below is completed. **Collect One Pink or Purple Top (EDTA) Tube. Cord Blood Study may be sent in Red Top Tube with NO additive.**

- ☐ Type and Screen
- ☐ ABO/Rh Verification
- ☐ DAT (Direct Antiglobulin Test)
- ☐ Suspected Transfusion Reaction Workup
- ☐ Cord Blood Study (Valhalla Only)
- ☐ Fetal Screen (**Valhalla Only**)
- ☐ Antibody Titer (**Valhalla Only**):: _____ (Please Specify the antibody)
- ☐ Other (Please Specify): _____

REQUESTED BY: (MUST BE COMPLETE D BY PHYSICIAN/NP/PA IF TEST(S) NOT REQUESTED ELECTRONICALLY)

REQUESTING PROVIDER'S NAME: _____

SIGNATURE: _____ **DATE:** _____

PATIENT NAME: _____ (LAST) / _____ (FIRST) / _____ (MIDDLE)

MR #: _____ **DATE OF BIRTH:** _____

AGE:: _____ **SEX:** _____

FIN/ BILLING #: _____

LOCATION: _____ **TELEPHONE #:** _____

DIAGNOSIS:

I HAVE TAKEN A BLOOD SPECIMEN FROM ABOVE NAMED PATIENT AND HAVE VERIFIED PATIENT IDENTIFICATION

COLLECTOR'S NAME: _____

COLLECTION DATE: _____ **COLLECTION TIME:** _____

I HAVE INDEPENDENTLY VERIFIED PATIENT IDENTIFICATION

VERIFIER'S NAME: _____

SPECIMEN TUBE WITHOUT COMPLETE AND CORRECT PATIENT IDENTIFIERS, COLLECTOR'S ID AND DATE & TIME OF COLLECTION WILL BE REJECTED

Cytology & FNA Requisition

Westchester MEDICAL CENTER

CYTOLOGY & FNA REQUISITION

Requesting Physician

NAME: _____

CONTACT #: _____

PATIENT DATA				INSURANCE BILLING INFORMATION	
Last Name:	First Name:			Patient Telephone Number(9 am to 5pm)	
Date of Birth ___/___/___	Gender M F	MRN	Registration No	Insured's name (If different from patient)	Relationship to insured: ☐ Self ☐ Spouse ☐ Child ☐ other
Specimen collected by: Date	Time			Patient address	
ICD10 DX CODE				City	State / Zip
				Medicare ID Number	☐ Regular ☐ Railroad
Physician Signature				Medicare ID Number (including suffix /Person No)	
				Insurance name /Plan/HMO	
				Policy ID Number:	Group/Book Number: / Category Number:

NON GYN CYTOLOGY TESTS

FLUIDS

- ☐ ASCITES /PERITONEAL
- ☐ PLEURAL LT__RT__
- ☐ PERICARDIAL
- ☐ PELVIC WASHING
- ☐ CYST FLUID, SITE _____
- ☐ JOINT/SYNOVIAL, SITE_____
- ☐ CSF
- ☐ BREAST NIPPLE DISCHARGE

URINARY

- ☐ VOIDED
- ☐ CATHETRIZED
- ☐ CYSTOSCOPY
- ☐ URETERAL LT__RT__
- ☐ URETHRAL
- ☐ BLADDER WASHING LT__RT__

GASTROINTESTINAL

- ☐ ESOPHAGEAL BRUSHING
- ☐ ANAL / RECTAL BRUSH PAP
- ☐ ANAL / RECTAL BRUSH PAP + HPV MOL ASSAY
- ☐ OTHER

RESPIRATORY

- ☐ SPUTUM
- ☐ BRONCHIAL WASHING LT___RT___
- ☐ BRONCHIAL BRUSHING LT___RT___
- ☐ BRONCHIALVEOLAR LAVAGE LT___RT___

- ☐ SPECIAL STUDIES
  - ___PNEUMOCYSTIS
  - ___FUNGUS
- ☐ OTHER

- ☐ OTHER_____

FINE NEEDLE ASPIRATION TESTS

- ☐ THYROID LT___RT___
- ☐ THYROID FNA, REFLEX MOLECULAR TEST
- ☐ BREAST LT___RT___
- ☐ SALIVARY GLAND
- ☐ LUNG
- ☐ LIVER
- ☐ PANCREAS

- ☐ LYMPHNODE SITE: _____
- ☐ SOFT TISSUE
- ☐ OTHER

- ☐ IMMEDIATE ASSESSMENT
- ☐ MOLECULAR TESTING

(SPECIFY)_____

PERTINENT CLINICAL INFORMATION

SIZE OF THE MASS:

- ☐ SOLITARY_____CM
- ☐ MULTIPLE_____TO _____CM
- ☐ SOLID
- ☐ CYSTIC

☐ CHEMOTHERAPY ☐ RADIATION ☐ SURGERY

FNA Gross Description:

Fine Needle Aspiration was performed on _____. Total numbers of passes were _____.
Specimen was received fresh for intraprocedural assessment and _____smears were prepared.
_____ were stained with DQ for immediate assessment and remaining smears were routinely stained with Pap stain.
The remainder of the specimen was approx. _____in volume and transferred into ____. 1 thin prep / 1 cell block was prepared.
The intraoperative consultation performed by Dr. _____: "**Adequate / Inadequate for evaluation**"/ Defer for permanent.
Additional material received in RPMI, which was _____ml/mm in volume /size. Specimen sent for flow cytometry.
Additional material received fresh, which was _____ml in volume. Material sent for Molecular studies.

Surgical Pathology Requisition

SURGICAL PATHOLOGY REQUISITION

WESTCHESTER MEDICAL CENTER
ADVANCED LABORATORY SERVICES

PATIENT DATA				INSURANCE BILLING INFORMATION	
Last Name:	First Name:			Patient Telephone Number (9 am to 5 pm) ( )	
Date of Birth: ___/___/___	Gender: M F	MRN:	Registration No:	Insured's Name (If different from patient):	Relationship to Insured: □ Self □ Spouse □ Child □ Other
Specimen collected by:_____ Date: _____ Time_____				Patient Address:	
				City:	State: Zip:
Attach Accession Sticker:				Medicare ID Number:	□ Regular □ Railroad
				Medicaid ID Number (Including Suffix/Person No) Physician Signature:	
				Insurance Name/Plan/HMO:	
				Policy ID Number:	Group/Book Number: Category Number

ADEQUATE PATHOLOGY EVALUATION REQUIRES CLINICAL HISTORY

CLINICAL INFORMATION – (eg. pertinent radiologic findings, lab data, prior biopsies & surgery, etc.)
TYPE OF PROCEDURE (DIAGRAM WHERE APPROPRIATE)

ICD-10 Code: _____

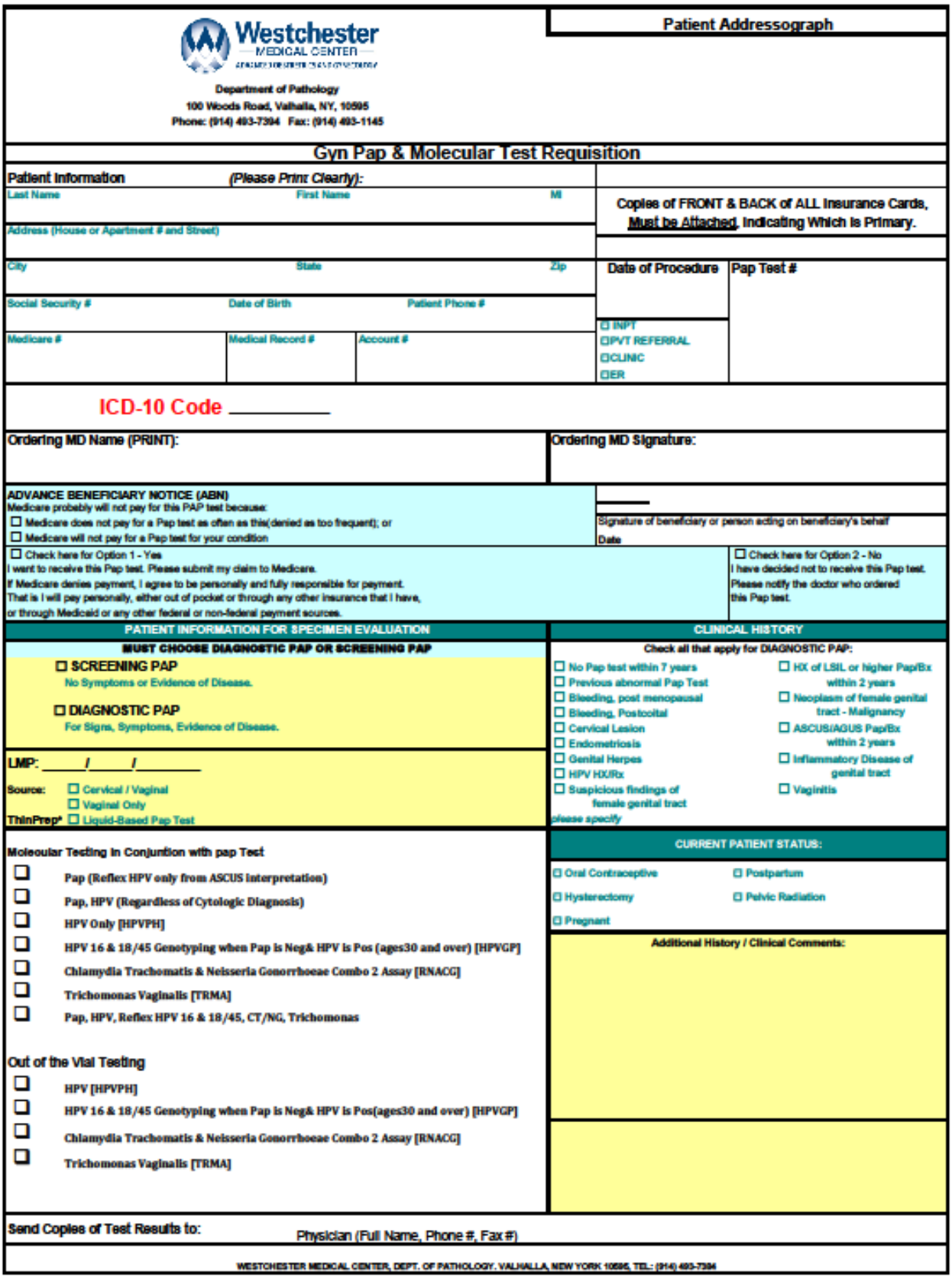
SURGICAL PROCEDURE (provide diagram where appropriate):	PRE-OPERATIVE DIAGNOSIS: POST OPERATIVE DIAGNOSIS: _____ PHYSICIAN'S SIGNATURE

Report Copies To:

Tissue Source & Specific Site (eg; R arm, ascending colon, cx@9:00)

Requisition Completed by (Print Legibly- Name & Phone Number)	Date:	Time:

Gyn Cytology Requisition



Westchester MEDICAL CENTER

Department of Pathology
100 Woods Road, Valhalla, NY, 10595
Phone: (914) 493-7394 Fax: (914) 493-1145

Patient Addressograph

Gyn Pap & Molecular Test Requisition

Patient Information *(Please Print Clearly):*

Last Name | First Name | MI

Address (House or Apartment # and Street)

City | State | Zip

Social Security # | Date of Birth | Patient Phone #

Medicare # | Medical Record # | Account #

Copies of FRONT & BACK of ALL Insurance Cards, Must be Attached, Indicating Which is Primary.

Date of Procedure | Pap Test #

☐ INPT
☐ PVT REFERRAL
☐ CLINIC
☐ ER

ICD-10 Code _____

Ordering MD Name (PRINT):

Ordering MD Signature:

ADVANCE BENEFICIARY NOTICE (ABN)
Medicare probably will not pay for this PAP test because:
☐ Medicare does not pay for a Pap test as often as this(denied as too frequent); or
☐ Medicare will not pay for a Pap test for your condition

Signature of beneficiary or person acting on beneficiary's behalf
Date

☐ Check here for Option 1 - Yes
I want to receive this Pap test. Please submit my claim to Medicare.
If Medicare denies payment, I agree to be personally and fully responsible for payment.
That is I will pay personally, either out of pocket or through any other insurance that I have,
or through Medicaid or any other federal or non-federal payment sources.

☐ Check here for Option 2 - No
I have decided not to receive this Pap test.
Please notify the doctor who ordered this Pap test.

PATIENT INFORMATION FOR SPECIMEN EVALUATION

MUST CHOOSE DIAGNOSTIC PAP OR SCREENING PAP

☐ **SCREENING PAP**
No Symptoms or Evidence of Disease.

☐ **DIAGNOSTIC PAP**
For Signs, Symptoms, Evidence of Disease.

LMP: ____/____/_____

Source: ☐ Cervical / Vaginal
☐ Vaginal Only
ThinPrep® ☐ Liquid-Based Pap Test

CLINICAL HISTORY

Check all that apply for DIAGNOSTIC PAP:

☐ No Pap test within 7 years
☐ Previous abnormal Pap Test
☐ Bleeding, post menopausal
☐ Bleeding, Postcoital
☐ Cervical Lesion
☐ Endometriosis
☐ Genital Herpes
☐ HPV HX/Rx
☐ Suspicious findings of female genital tract
please specify

☐ HX of LSIL or higher Pap/Bx within 2 years
☐ Neoplasm of female genital tract - Malignancy
☐ ASCUS/AGUS Pap/Bx within 2 years
☐ Inflammatory Disease of genital tract
☐ Vaginitis

Molecular Testing in Conjunction with pap Test

☐ Pap (Reflex HPV only from ASCUS Interpretation)
☐ Pap, HPV (Regardless of Cytologic Diagnosis)
☐ HPV Only [HPVPH]
☐ HPV 16 & 18/45 Genotyping when Pap is Neg& HPV is Pos (ages30 and over) [HPVGP]
☐ Chlamydia Trachomatis & Neisseria Gonorrhoeae Combo 2 Assay [RNACG]
☐ Trichomonas Vaginalis [TRMA]
☐ Pap, HPV, Reflex HPV 16 & 18/45, CT/NG, Trichomonas

Out of the Vial Testing

☐ HPV [HPVPH]
☐ HPV 16 & 18/45 Genotyping when Pap is Neg& HPV is Pos(ages30 and over) [HPVGP]
☐ Chlamydia Trachomatis & Neisseria Gonorrhoeae Combo 2 Assay [RNACG]
☐ Trichomonas Vaginalis [TRMA]

CURRENT PATIENT STATUS:

☐ Oral Contraceptive
☐ Postpartum
☐ Hysterectomy
☐ Pelvic Radiation
☐ Pregnant

Additional History / Clinical Comments:

Send Copies of Test Results to: Physician (Full Name, Phone #, Fax #)

WESTCHESTER MEDICAL CENTER, DEPT. OF PATHOLOGY, VALHALLA, NEW YORK 10595, TEL: (914) 493-7394

Cytogenetics Requisition

CYTOGENETICS REQUISITION

WESTCHESTER MEDICAL CENTER
ADVANCED LABORATORY SERVICES

ACCESSION NO: _____

DATE RECEIVED/INITIALS: __/__/____AM/PM

REQUESTING PHYSICIAN (PRINT): _____

PHYSICIAN CONTACT NUMBER: _____

PATIENT DATA

Last Name: First Name:

Date of Birth: Gender: MRN: Registration No:

/ / M F

Specimen collected by: _____

Date: _____ Time _____

INSURANCE BILLING INFORMATION

Patient Telephone Number (9 am to 5 pm)
( )

Insured's Name (If different from patient):

Relationship to Insured:
□ Self □ Spouse □ Child □ Other

Patient Address:

City: State: Zip:

Medicare ID Number:
□ Regular
□ Railroad

Medicaid ID Number (Including Suffix/Person No)

Insurance Name/Plan/HMO:

Policy ID Number: Group/Book Number: Category Number:

ADVANCED BENEFICIARY NOTICE (ABN)
An ABN (see reverse side of the requisition) must be signed when the doctor determines that the reason for the test requested does not meet local and national medical review policy requirements.

ICD-10 DX Code(s):

SPECIMEN/CLINICAL INFORMATION

Specimen Type:

☐ Bone Marrow ☐ Peripheral Blood ☐ POC
☐ Fresh Tissue ☐ FFPE Tissue slides ☐ Skin
☐ Lymph Node ☐ Mass ☐ Others

Specify Others and/or Site: _____

Clinical History:

Indication for Study/Diagnosis:

Status:
☐ New Diagnosis ☐ Post Therapy ☐ Remission ☐ Relapse
☐ Staging ☐ Post BMT: ___ Male Donor; ___ Female Donor

SPECIFIC TEST ANALYSIS

CANCER CYTOGENETIC TESTS:

Conventional Cytogenetics (**Chromosome Analysis**): ☐ Yes ☐ No

FISH TESTS: The FISH test can be ordered individually or as a group of FISH profile.

AML FISH:	☐ t(8;21) (RUNX1T1/RUNX1) ☐ t(9;22) (BCR/ABL)	☐ t(15;17) (PML/RARA) ☐ Trisomy 8	☐ Inv(16), t(16;16) (CBFB) ☐ -5/-5q (EGR1)	☐ 11q23 (MLL) ☐ del 7q / monosomy 7
ALL FISH	☐ t(12;21) (ETV6/AML1)	☐ 11q23 (MLL)	☐ t(9;22) (BCR/ABL)	
CLL FISH	☐ del 13q/monosomy 13	☐ Trisomy 12	☐ del 17p (TP53)	☐ del 11q (ATM)
CML FISH:	☐ t(9;22) (BCR/ABL)	☐ Trisomy 8		
MDS (FISH):	☐ del 5q/monosomy 5	☐ del 7q / monosomy 7	☐ Trisomy 8	☐ del 20q
ALLOGENIC BMT:	☐ XX/XY: Post transplant			
☐ **ALK**	☐ **ROS1**	☐ Other (Specify): _____		

POSTNATAL TESTS:

Conventional Cytogenetics (**Chromosome Analysis**): ☐ Yes ☐ No

☐ Mosaicism Study

FISH TESTS: ☐ DiGeorge/VCF Syndrome ☐ Prader-Willi/Angleman syndrome ☐ SRY Deletion ☐ Williams syndrome

☐ Aneuploidy FISH (Chromosomes13, 18, 21, X, Y) ☐ Others (specify): _____

PHYSICIAN SIGNATURE OF CONSENT REQUIRED BELOW
I certify that the patient specified above and/or their legal guardian has been informed of the benefits, risks, and limitations of the laboratory test(s) requested. I have answered this person's questions. I have obtained informed consent from the patient or their legal guardian for this testing.

Physician's Printed Name: _____

LAB COPY

Note: For cytogenetics tests, **informed consent is required** for postnatal cases (see next two forms).

Informed Consent – Blood/Skin Biopsy

Informed consent for chromosome analysis and/or fluorescence in situ hybridization (FISH) on blood/skin biopsy.

WESTCHESTER MEDICAL CENTER
DEPARTMENT OF PATHOLOGY
100 WOODS ROAD, VALHALLA
NEW YORK, NY 10595
TEL : (914) 493-1100
FAX: (914) 493-1145

CYTOGENETICS LABORATORY

Informed Consent for Chromosome Analysis and/or Fluorescence In Situ Hybridization (FISH) on Blood/Skin Biopsy

I, _____, hereby request cytogenetic testing for me/or my child (name of child if applicable) _____. I have received verbal and/or written information from my physician or/and had the opportunity to talk to a genetic counselor. This test has been explained in language that I understood, the nature of the cytogenetic testing that I am/or my child is about to undergo.

I understand that the **Chromosome analysis** or karyotyping is a test that evaluates the number and structure of a person's chromosomes in order to detect abnormalities.

I understand that the **Fluorescence in situ hybridization** (**FISH**) is a test that "maps" the genetic material in a person's cells. This test is used to visualize specific genes or portions of genes. This test is used for understanding a variety of chromosomal abnormalities and other genetic mutations.

I understand that peripheral blood/skin biopsy samples will be taken from me/or my child. I understand that the samples will be used for determining if I have/or my child has a chromosome abnormality.

The nature of chromosome and FISH analyses has been explained to me and the accuracy of the test and its limitations have been detailed. I understand that although the likelihood of an incorrect diagnosis or a misinterpretation of the chromosome or FISH result is extremely small infrequent errors may occur. The likelihood of this occurring has been estimated to be less than 1%.

No test will be performed on my sample other than the one(s) authorized by my doctor.

No test results will be reported to anyone other than my doctor.

I give consent to have my specimen be used anonymously by the laboratory for the purposes of quality control or for research related to genetic disease.

Please check the box below to consent. If you do not consent your sample will be discarded within 60 days of completion of the testing.

☐ I agree to have my sample used anonymously for research by the laboratory._____ ***Initials.***

I understand that this testing may yield results that are of unknown clinical significance and that parental or other relatives blood samples may be also be tested to determine whether a specific finding was inherited.

I understand that further testing or additional physician consults may be warranted.

The results of my/or my child's test will be explained to me by a genetic counselor or by my physician who will have the opportunity to discuss my results with a clinical geneticist.

I have had the opportunity to have all of my questions answered. If I am signing this form on behalf of a minor for whom I am the legal guardian, I am satisfied that I have received enough information to sign on his or her behalf. I understand that this consent is being obtained in order to protect my right to have all of my questions answered before testing. I also understand that the results of this testing will become part of my medical record and may only be disclosed to individuals who have legal access to this record or to individuals who I designate to receive this information.

_____ _____
Signature of Person Being Tested (or guardian) Date

_____ _____
Witness Date

(Prepared February, 2015)

Informed Consent – Products of Conception (POC)

Informed consent for chromosome analysis and/or fluorescence in situ hybridization (FISH) on products of conception (POC) tissue.

WESTCHESTER MEDICAL CENTER
DEPARTMENT OF PATHOLOGY
100 WOODS ROAD, VALHALLA
NEW YORK, NY 10595
TEL : (914) 493-1100
FAX: (914) 493-1145

CYTOGENETICS LABORATORY

Informed Consent for Chromosome Analysis and/or Fluorescence In Situ Hybridization (FISH) on Products of Conception (POC) Tissue.

Studies on tissue from first trimester miscarriages indicate that 50 - 60% of these early losses result from chromosome abnormalities and in second trimester losses 20% result from chromosome abnormalities. Most of these are sporadic in nature, and therefore, do not incur an increased risk for chromosomal abnormalities in future conceptions. In a small percentage of couples (less than 5%), one of the parents carries a rearrangement of his/her chromosomes which predisposes future pregnancies to a higher risk chromosomal abnormalities.

Chromosome studies on this miscarriage have been recommended by my doctor as part of his/her evaluation for the cause of my miscarriage. I am aware that the tissue may not grow in the laboratory. I have been told that in this event, the laboratory will perform fluorescence in situ hybridization (FISH) with a panel of probes that detects approximately 80% of the abnormalities present in POC specimens. This testing takes approximately two weeks. I have been told that in a small number of cases, the laboratory will not be able to perform chromosome analysis or FISH on the specimen and will be unable to provide an analysis.

The nature of cytogenetic testing has been explained to me and the accuracy of the test and its limitations have been detailed. I understand that while results obtained from this testing are usually highly accurate, infrequent errors may occur. The likelihood of this occurring has been estimated to be less than 1%.

I understand that this testing may yield results that are of unknown clinical significance and that parental or other relatives blood samples may be also be tested to determine whether a specific finding was inherited.

No test will be performed on my sample other than the one(s) authorized by my doctor.
No test results will be reported to anyone other than my doctor.

I understand that further testing or additional physician consults may be warranted.

I give consent to have my specimen be used anonymously by the laboratory for the purposes of quality control or for research related to genetic disease.

Please check the box below to consent. If you do not consent your sample will be discarded within 60 days of completion of the testing.

☐ I agree to have my sample used anonymously for research by the laboratory._____ *Initial*

The results of my test will be explained to me by my physician or by a genetic counselor, who will have the opportunity to discuss my results with a clinical geneticist.

I have had the opportunity to have all of my questions answered and genetic counseling has been offered to me prior to testing. I understand that this consent is being obtained in order to protect my right to have all of my questions answered before testing. I also understand that the results of this testing will become part of my medical record and may only be disclosed to individuals who have legal access to this record or to individuals who I designate to receive this information.

_____ _____
Signature of Person Being Tested (or guardian) Date

_____ _____
Witness Date

(Prepared: February, 2015)

Flow Cytometry Requisition

FLOW CYTOMETRY REQUISITION

WESTCHESTER MEDICAL CENTER
ADVANCED LABORATORY SERVICES

REQUESTING PHYSICIAN (PRINT): _____

PHYSICIAN CONTACT NUMBER: _____

PATIENT DATA

Last Name: First Name:

Date of Birth: Gender: MRN: Registration No:

___/___/___ M F

Specimen collected by: _____

Date: _____ Time _____

Attach Accession Sticker:

INSURANCE BILLING INFORMATION

Patient Telephone Number (9 am to 5 pm)
( )

Insured's Name (if different from patient):

Relationship to Insured:
□ Self □ Spouse □ Child □ Other

Patient Address:

City: State: Zip:

Medicare ID Number:

□ Regular
□ Railroad

Medicaid ID Number (Including Suffix/Person No)

Insurance Name/Plan/HMO:

Policy ID Number: Group/Book Number: Category Number:

SPECIMEN/CLINICAL INFORMATION

Specimen Type:

☐ Bone Marrow ☐ Peripheral Blood ☐ Lymph Node

☐ Others

Specify Others and/or Site:

_____

Clinical History:

ICD-10 DX Code(s):

Status:

☐ New Diagnosis ☐ Post Therapy ☐ Remission
☐ Post transplant ☐ Staging ☐ Relapse

FLOW CYTOMETRY TEST REQUESTED:

☐ Acute leukemia ☐ Lymphoma screen

☐ MDS ☐ Plasma Cell Dyscrasia

☐ Other

Other (Specify): _____

NOTES: _____

LAB COPY

Client & Transport Services

Client Services

The laboratory is available 24 hours a day, seven days a week to respond to your inquiries and requests. **The client service specialists at (914) 493-7979 are HIPAA trained and extremely knowledgeable about the laboratory and its suite of services.** We are committed to providing prompt, courteous service with the highest standards.

INFORMATION PROVIDED BY CLIENT SERVICE SPECIALISTS:

- STATUS OF TESTS
- TEST MENU
- TEST RESULTS
- SPECIMEN REQUIREMENTS
- ADD-ON TESTS
- PATHOLOGIST REFERRALS
- SPECIMEN COLLECTION SUPPLIES
- SCHEDULING A STAT COURIER PICK-UP

Transport Services

Regularly scheduled courier pick-up services are provided by the Westchester Medical Center transport. A courier will provide direct specimen pick-up, a temperature-controlled environment for specimens in transit, and delivery of patient reports and specimen collection supplies.

FOR PICK-UPS CALL (914) 493-7777

Billing Policies and Procedures

Patient Billing

Foremost procedures requested, Westchester Medical Center Advanced Laboratory Services will bill patients or third-party insurance directly. The test requisition form must include the patient name, address, telephone number, and guarantor information.

Third Party Billing

Westchester Medical Center Advanced Laboratory Services will bill third party, Medicare, and Medicaid directly. For these billing types of the following information is required:

1. Date of phlebotomy
2. Patient's date of birth, sex, age, and marital status
3. Relationship to insured
4. Patient's telephone number
5. Responsible party's name if different than insured
6. Insured's mailing address
7. Referring physician's name (please include middle initial), address, NPI and UPIN #
8. Applicable ICD-10 codes
9. Complete name, address and telephone number of the primary insurance
10. Complete name, address and telephone number of the secondary insurance company
11. Group and policy numbers
12. Insurance identification numbers for Medicare, Medicaid and third-party payer's
13. Patient's signature
14. Physician's signature **required** for all testing ordered

Medical Necessity

The Health Care Financing Administration (HCFA) is responsible for administering the Medicare Program throughout the United States. Medicare does not cover routine screening tests and will only pay for tests that meet Medicare coverage criteria. Medicare will only pay for those tests which it considers reasonable and necessary, and supported by the patient's medical record. To document medical necessity of the ordered tests, physicians must provide ICD-10 codes specific to the patient's condition on the specific date of service.

Advanced Beneficiary Notices

If reimbursement denied for improper documentation of medical necessity, Medicare prohibits the laboratory from billing the patient unless an Advanced Beneficiary Notice (ABN) has been signed and dated by the patient PRIOR to the provision of service.

The ABN insures the patient is informed of Medicare's medical necessity policy, reviews why payment may be denied on the specific tests being ordered, and requires both the patient's and physician's signature. A copy of the Westchester Medical Center Advanced Laboratory Services ABN may be found on the back of the laboratory test requisition, and is required for Medicare patients anytime a test highlighted is ordered. The ABN should be signed and dated after the requisition has been completed. To insure complete compliance on both the laboratory's and the physician's part, the physician must enter the appropriate ICD-10 codes to document the medical necessity of the tests being ordered.

Advanced Beneficiary Notice

WESTCHESTER MEDICAL CENTER 100 Woods Road Valhalla, NY

Patient Name:

Advance Beneficiary Notice of Noncoverage (ABN)

NOTE: If Medicare doesn't pay for the laboratory tests 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 below laboratory tests:

Laboratory Test(s)	Reason Medicare May Not Pay:	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 laboratory tests 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.

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

☐ **OPTION 1.** I want the _____ 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 _____ 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 _____ listed above. I understand with this choice I am **not** responsible for payment, and **I cannot appeal to see if Medicare would pay.**

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.

Signature:	Date:

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0938-0566. The time required to complete this information collection is estimated to average 7 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. If you have comments concerning the accuracy of the time estimate or suggestions for improving this form, please write to: CMS, 7500 Security Boulevard, Attn: PRA Reports Clearance Officer, Baltimore, Maryland 21244-1850.

Form CMS-R-131 (03/11) Form Approved OMB No. 0938-0566

Supply Requests

Westchester Medical Center facilitates the provision of necessary supplies for the drawing, collection, and submission of samples for both specialty miscellaneous testing and routine testing. To obtain these supplies, please contact distribution at 914-493-7225. It is important to note that the specimen collection supplies offered by Westchester Medical Center Advanced Laboratory Services are intended exclusively for collecting specimens to be submitted to the WMC laboratory.

WESTCHESTER MEDICAL CENTER
Advanced Laboratory Services

LABORATORY OUTREACH SUPPLY ORDER FORM

LOC:		TEL:	
ADDR:		NAME:	
DATE:			

SPECIMEN TUBES

- ☐ SST
- ☐ RED
- ☐ GRAY
- ☐ BLUE
- ☐ LAV
- ☐ PINK
- ☐ GREEN (LI)
- ☐ GREEN (NA HEP)
- ☐ YELLOW ACD (A)
- ☐ YELLOW ACD (B)

NEEDLES

- ☐ 21G 1-1/4
- ☐ 22G 1-1/4
- ☐ VACUTAINER HOLDERS

REQUISITIONS

- ☐ ROUTINE TEST
- ☐ CUSTOM TEST
- ☐ CYTOLOGY & FNA
- ☐ GYN CYTOLOGY
- ☐ SURGICAL PATHOLOGY

SPECIMEN BAGS

- ☐ ROUTINE BAGS
- ☐ STAT BAGS

CULTURE SWABS

- ☐ MINI TIPS (GREEN TOP) These are for nasal.
- ☐ CULTURETTE (WHITE TOP)
- ☐ CULTURETTE (2 SWABS W/RED TOP)
- ☐ UNIVERSAL TRANSPORT MEDIA
  Viral, chlamydia,mycoplasma

GLUCOLA

- ☐ LEMON/LIME 50G
- ☐ ORANGE 50G

CYTOLOGY & SURGICAL PATHOLOGY

- ☐ FORMALIN (SM)
- ☐ FORMALIN (LG)
- ☐ FROSTED SLIDES (FOR BONE MARROWS)
- ☐ SLIDE HOLDERS (50/BX)
- ☐ THIN PREP VIALS & BROOMS
- ☐ THIN PREP BRUSHES
- ☐ PROSTATE BIOPSY KITS (12 Vials)

MISCELLANEOUS

- ☐ APTIMA UNISEX SWAB (FOR CTNG DNA)
- ☐ APTIMA URINE COLLECTION (FOR CTNG DNA)
- ☐ AZF FIXATIVE (EACH)
- ☐ BLOOD CULTURE BOTTLES (SET)
- ☐ O&P KITS (EACH)
- ☐ PETRI DISHES (FOR BONE MARROWS)
- ☐ PETRI DISHES (NON-STERILE)
- ☐ POVIDONE IODINE SWABS (FOR BLOOD CULTURE) (EACH)
- ☐ SAFE T PRO (PEDI OFFCS ONLY)
- ☐ TAPE, MICROPORE 3M (ROLL)
- ☐ TAPE, TRANSPOR 3M (ROLL)
- ☐ TENDERFOOT (FOR HEEL STICK)
- ☐ TOURNIQUETS
- ☐ URINE CUPS (STERILE)
- ☐ URINE CUPS (NON-STERILE)
- ☐ URINE WIPES
- ☐ 24-HR URINE CONTAINERS (EACH)

Specimen Collection Quick Reference Guide (WMC Valhalla) *

Vacutainer Tube	Color & Additive(s)	Inversions / Clotting time	Tests Commonly Associated
	**LIGHT GREEN** Lithium heparin with gel for plasma separation	8 x N/A**	Acetaminophen Amylase Bilirubin (fractionated) BMP / CMP / General Chemistry CRP C3/C4 Cortisol Ethanol Ferritin Hepatic function panel (LFTs) HIV Ag/Ab Iron Panel (Iron, TIBC, transferrin) LDH Lipase Lipid Profile Magnesium Osmolarity, serum Phosphorus Procalcitonin (within 8 hrs. of draw) Salicylate level T3 T4 (free, total) TSH Vitamin D (25-OH) Uric Acid
	**DARK GREEN** Lithium heparin*	8 x N/A**	Phenylketonuria Ammonia (on Ice)
	**PURPLE** K_2EDTA	8 x N/A**	BNP Carbon monoxide level CBC ESR HgbA1c hs Troponin-I Histamine Immunosuppressants (Tacrolimus, Cyclosporine) Parathyroid Hormone (within 24 hrs. of draw) Reticulocyte Count Body fluid
	**PINK** K_2EDTA	8 x N/A**	Type & Screen ABORh verification Direct antiglobulin test (DAT) Suspected Transfusion Reaction Workup Fetal Screen Antibody Titer

	**GRAY** Sodium Fluoride/ Potassium Oxalate	8-10x N/A**	Lactic Acid (on ice) Glucose
	**LIGHT BLUE** Sodium citrate (3.2%)	3-4 x N/A**	Anti-thrombin III Activity Anti-thrombin III Ag Coagulation tests Factor V Factor VIII (along with other factors) D-Dimer Fibrinogen Protein S Protein C PT/INR aPTT
	LIGHT BLUE Whole blood only	**DO NOT MIX!** N/A**	Rotem *Note: Hand delivery. Do not use a pneumatic tube as it interferes with testing.*
	**Marble or Gold (SST)** Clot activator and gel for serum separation.	5 x 30 MIN	AFP ANA Diagnostic Immunology Folate Hepatitis Panel Hep B Surface Ag/Ab Hep B Core Ab Panel Hep C Ab Rheumatoid Factor Vitamin B12
	**RED** Silicone coated (glass)	5 x 60 MIN	AFP ANA Cardiolipin Ab Ceruloplasmin Cord Blood Double Stranded DNA (Anti-dsDNA) EBV Ab Panel Folate Hepatitis Panel Hep A Ab Panel Hep B Surface Ag/Ab Hep B Core Ab Panel Hep C Ab Vitamin B12 Body Fluid
	**ROYAL BLUE** K_2EDTA (plastic)	8 x N/A**	Lead Mercury
	ROYAL BLUE Clot Activator (serum)	5 x 30 MIN	Zinc

*Table 1. *Not inclusive of all test available. **No clotting time required.*

Specimen Labeling Requirements

Patients must be identified utilizing two patient identifiers (i.e., first and last name and medical record number and/or date of birth).
All specimens must be labeled in the presence of the patient. Specimens for the blood bank must have the collector's identification and the date and time of collection, in addition to the two patient identifiers.

Order of Specimen Collection

ORDER OF DRAW	Tube/Bottle	Additive

WMC Test Menu

The latest version of our test directory can be found at the WMC Laboratory Service webpage by accessing https://www.westchestermedicalcenter.org/laboratory-services or The Beat.
All available test offerings by WMC Laboratories may not be listed due to new procedures that are developed throughout the year. For information about unlisted tests, please contact our Laboratory Call Center at 914-493- 7384.

In addition to our Laboratory Test Menu below we partner with several reference laboratories for selected laboratory testing to offer a comprehensive test menu. Send out test are performed by the following Reference laboratories:

- BioReference Test Directory: https://www.bioreference.com/wmcdirectory/
- Mayo test catalog: https://www.mayocliniclabs.com/test-catalog
- Quest Diagnostics Test Directory: https://testdirectory.questdiagnostics.com/test/home
- ARUP Test Directory: https://www.aruplab.com/testing
- Eurofins test menu: https://www.eurofins-viracor.com/clinical/test-menu/
- Versiti test menu: https://versiti.org/diagnostic-labs-test-menu

The Instant Laboratory Report can be reviewed or downloaded on the Laboratory web site/

https://labs.wcmc.com/LIVE5.ws/swp/office/#/ . It is also available on the Beat with instructions for use.
https://onfirstup.com/wmchealth/wmchealth/contents/25641924

List of Critical Values

Laboratory	Parameter	Critical Low Result	Critical High Result	Comments
Clinical Laboratory	Glucose (mg/dL)	≤ 53	≥ 350	*
	Calcium (mg/dL)	≤ 7.0	≥ 12.5	*
	Sodium (mEq/L)	≤ 120	≥ 160	*
	Potassium (mEq/L)	≤ 2.5	≥ 6.0 (≥ 6.5 pre-dialysis) (≥ 7.0 in the NICU)	Always called
	CO2 (mEq/L)	≤ 10	≥ 40	*
	BUN (mg/dL)		≥ 100 (≥ 150 if known renal)	*
	Ionized Calcium (mg/dL)	≤ 3.5	≥ 6.1	*
	Lactate (mmol/L)		≥ 2.1	*
	Magnesium (mg/dL)	≤ 1.2	≥ 10.0	*
	Troponin-I High sensitivity (ng/L)		≥ 64 ng/L (Algorithm)	Patients from ED and OPD
	WBC (ANC per µL)	≤ 18 yrs old: ≤ 500 Adults: ≤ 2,000	≥ 30,000	* / **
	Blast (% CBC or CSF)	any		*
	Hemoglobin (g/dL)	≤ 7		Always called
	Platelets (per µL)	≤ 20,000	≥ 1,000,000	* / **
	INR		> 4.5	*
	aPTT (seconds)		≥ 100	*
	Abnormal CSF cell count (per µL)	> 5 cells/ µL Neonates: > 30 cells/ µL		*
	Sterile Body Fluid	Positive gram stain		
	Blood Culture	Positive blood culture		First positive of a set
	Blood parasites	Positive		
	Digoxin (ng/ml)		≥ 2.5	*
	Lithium (mEq/L)		≥ 1.5	*
	Cyclosporine (ng/ml)		≥ 1,500	
	Theophylline (ng/ml)		≥ 25.0	
	Phenytoin (ug/ml)		≥ 30.0	
	Tacrolimus (ng/ml)		≥ 20	
	Sirolimus (ng/ml)		≥ 15.0	
	Acetaminophen (ug/ml)		≥ 50	
	Urinalysis		4+ Ketonuria	
Laboratory	**Parameter**	**Critical Result**	**Critical Result**	**Comments**
Respiratory	ABG/VBG (pH)	< 7.10	> 7.59	Always called
	Arterial CO2 (mmHg)	< 19	> 75	
	Arterial O2 (mmHg)	< 40		
	ABG/VBG Ionized Calcium (mg/dL)	≤ 3.5	> 6.2	
	ABG/VBG Sodium (mEq/L)	< 120	> 160	
	ABG/VBG Potassium (mEq/L)	< 2.5	> 6.0	
	ABG/VBG Lactate (mmol/L)		> 2	
	ABG/VBG tHgb (g/dL)	< 6.9		
	ABG/VBG Glucose (mg/dL)	< 53	> 350	
Anatomic Pathology	-Uterine contents (abortion) without villi or trophoblast -Fat in endometrial curettage -Mesothelial cells in heart biopsy -Fat in colonic endoscopic polypectomy -Acute transplant rejection -Unexpected findings (malignancy) -Bacteria or fungi in CSF cytology -AFB -Bacteria in heart valve or bone marrow -Invasive organisms in surgical pathology samples in immunocompromised patients			Always called

* These Critical Laboratory Values are called: i) When they are FIRST found and ii) A SECOND time to ensure that the medical team is aware of these abnormal results. Iii) They are called AGAIN when they recur after the parameter has been improved or normalized.

* * Persistent critical WBC or Platelet values in known hematology-oncology patients do not need to be called.

Core Clinical Laboratory

General Information

Address: Westchester Medical Center
Department of Pathology, Core Laboratory, Macy Pavilion, RM 1J11, 1J14
100 Woods Road
Valhalla, NY, 10595

Phone: (914) 493 - 8765

Open Hours: 24 hours per day, 7 days per week

Laboratory Staff and Contact Information

Name	Title	Phone #
Humayun Islam, M.D., Ph. D	Director, Laboratory Services	(914) 493-6680
Ljiljana Vasovic, M.D.	Chief of Clinical Pathology Director, Outpatient Laboratory Services	(914) 493-5472 (914) 538-0750
Rocky Granthier, MPH, MBA, HTL(ASCP)	Administrative Laboratory Director	(845) 242-1428
Kristy Greene	Pre-Analytical Manager	(914) 493-1063
Nicole DiLello	Pre-Analytical Supervisor	(914) 493-8910
Judy Gabot, MBA, MT(AMT)	Manager, Core Laboratory	(914) 493-7992
Roseann Morris-Rose, MS, MLS(ASCP)	Supervisor, Core Laboratory (Chemistry, STAT, Diagnostic Immunology)	(914) 493-8873
Jessey Mahon, MPA, MLS(ASCP)	Supervisor, Core Laboratory (Hematology, Coagulation, Flow Cytometry)	(914) 493-6718
Asiya Habibullah, MLS(ASCP)	Lead Technologist, Flow Cytometry Laboratory	(914) 493-8698
Pre-analytical Department		(914)493-8766
Chemistry Department		(914) 493-1186
Coagulation Department		(914) 493-3840
Flow Cytometry Department		(914) 493-8640
Hematology Department		(914) 493-1907
Special Chemistry (Diagnostic Immunology) Department		(914) 493-7386
Special Hematology Department		(914) 493-1475
STAT Department		(914) 493-7223

List of CMS Approved Chemistry Panels

Comprehensive Metabolic Panel	**Reference Range(s)**
Glucose	70 - 105 mg/dL
Sodium	135 - 145 mEq/L
Potassium	3.5 - 5.1 mEq/L
Chloride	98 - 107 mEq/L
Carbon dioxide (CO_2)	22 - 30 mEq/L
BUN	6.0 - 22 mg/dL
Creatinine	Male: 0.72 - 1.25 mg/dL Female: 0.57-1.11 mg/dL
Calcium	8.4 - 10.2 mg/dL
ALT	6 - 55 U/L
AST	4 - 35 U/L
ALP	14 days old: 90-273 U/L <1-year-old: 134-518 U/L 1-10 years old: 156-369 U/L 10-13 years old: 141-460 U/L 13-15 years old: 62-280 U/L 15-17 years old: 89-365 U/L 17-19 years old: 48-95 U/L 19+ years old: 40-150 U/L
Total Bilirubin	0-2 days old: 0.0 - 10 U/L 2-5 days old:0.0 - 15 U/L 5-7 days old:0.0 – 10 U/L 7 days old - Adult: 0.2 – 1.3 U/L
Total Protein	6.4 - 8.3 g/dL 1 month-1 year: 5.1 - 7.3 g/dL 1 year - 24 years: 5.6 - 7.5 g/dL
Albumin	3.4-4.8 g/dL

Basic Metabolic Panel	**Reference Range(s)**
Glucose	70 - 105 mg/dL
Sodium	135 - 145 mEq/L
Potassium	3.5 - 5.1 mEq/L
Chloride	98 - 107 mEq/L
Carbon Dioxide (CO_2)	22 - 30 mEq/L
BUN	6.0 - 22 mg/dL
Calcium	8.4 - 10.2 mg/dL

Electrolyte Panel	**Reference Range(s)**
Sodium	135 - 145 mEq/L
Potassium	3.5 - 5.1 mEq/L
Chloride	98 - 107 mEq/L
Carbon Dioxide (CO_2)	22 - 30 mEq/L

Hepatic Function Panel	Reference Range(s)
AST	4 - 35 U/L
ALT	6 - 55 U/L
Total Bilirubin	0-2 days old: 0.0 - 10 U/L 2-5 days old:0.0 - 15 U/L 5-7 days old:0.0 – 10 U/L 7 days old - Adult: 0.2 – 1.3 U/L
Direct Bilirubin	0.1 - 0.6 mg/dL
ALP	14 days old: 90-273 U/L <1-year-old: 134-518 U/L 1-10 years old: 156-369 U/L 10-13 years old: 141-460 U/L 13-15 years old: 62-280 U/L 15-17 years old: 89-365 U/L 17-19 years old: 48-95 U/L 19+ years old: 40-150 U/L
Albumin	3.4-4.8 g/dL
Total Protein	6.4 - 8.3 g/dL 1 month-1 year: 5.1 - 7.3 g/dL 1 year - 24 years: 5.6 - 7.5 g/dL
Globulin	2.9 – 4.0 g/dL

Renal Function Panel	Reference Range(s)
Albumin	3.4-4.8 g/dL
Calcium	8.4 - 10.2 mg/dL
Phosphorus	2.3 - 4.7 mg/dL
Carbon Dioxide (CO_2)	22 - 30 mEq/L
Chloride	98 - 107 mEq/L
Creatinine	Male: 0.72 - 1.25 mg/dL Female: 0.57-1.11 mg/dL
Sodium	135 - 145 mEq/L
Potassium	3.5 - 5.1 mEq/L
BUN	6.0 - 22 mg/dL
Glucose	70 - 105 mg/dL

Lipid Panel	Reference Range(s)
Cholesterol	<18 years: 90 - 180 mg/dL >18 years: 125 - 240 mg/dL
Triglycerides	30 - 200 mg/dL
HDL	> 60 mg/dL
LDL	< 150 mg/dL

General Laboratory

Hematology

Test Name	Specimen Container & Special Instructions	Reference Ranges
Anaplasma phagocytophilum (HGE smear)	Potassium EDTA (lavender top)	Negative
Babesia microti smear	Potassium EDTA (lavender top)	Negative
Blood parasite screen	Potassium EDTA (lavender top)	Negative
CBC (Complete Blood Count) WBC/RBC/HGB/HCT/MCV	Potassium EDTA (lavender top)	See Table Below p. 33 (CBC Age- specific Reference Ranges)
CSF Cell Count	1 mL fluid sterile tube	Adult: 0-5 WBC/µL Lymphocytes 28-96/µL Monocytes: 16-56/µL Neutrophils: 0-7/µL. Newborn: 0-30 WBC/µL Lymphocytes 0-38/µL Monocytes: 50-94/µL Neutrophils: 0-8/µL
Ehrlichia (HGE) Smear	Potassium EDTA (lavender top)	Negative
Eosinophils (Urine)	Random urine	None seen
Platelet Count **Quantitative Mean Platelet Volume - MPV**	Potassium EDTA (lavender top)	160,000-410,000 platelets/µL 9.8-12.8 fL
Reticulocyte Count	Potassium EDTA (lavender top)	0.5-1.5%
Sedimentation Rate - ESR	Potassium EDTA (lavender top)	Female: <50 years old: < 20 mm/hr >50 years old: <30 mm/hr Male: <50 years old: <15 mm/hr >50 years old: <20 mm/hr
Sickle Cell Screen	Potassium EDTA (lavender top)	Negative
Synovial Fluid Cell Count/Diff	Sterile container	WBC Count: <200 cells/µL, Differential: <25% Neutrophils.
WBC Differential	Potassium EDTA (lavender top)	Neutrophils: Female: 14-49 years old: 36-73% 49+ years old: 40-76% Male: 14-49 years old: 32-70% 49+ years old: 34-76% Lymphocytes: Female: 14-49 years old: 18-53% 49+ years old: 17-50% Male: 14-49 years old: 21-55% 49+ years old: 16-50% Monocytes: 0-11% Eosinophils: 0-5% Basophils: 0-2% Bands: 0-3% Immature Granulocytes: 0-3% For pediatric neutrophil percentage and lymphocyte percentage, see patient report.

Coagulation

Test Name	Specimen Container & Special Instructions	Reference Ranges
Anti-Thrombin III	Sodium citrate (light blue top)	80-120%
Anti-Xa, Low Molecular Weight Heparin, and Unfractionated Heparin	Sodium citrate (light blue top)	UFH, Anti-Xa: 0.3-.7 IU/mL Heparin LMW, Anti-Xa: 0.5-1.0 IU/mL
D-Dimer quantitative	Sodium citrate (light blue top)	< 500 ng/mL
Fibrinogen	Sodium citrate (light blue top)	200-400 mg/dl
Heparin Antibody (HIT)	Sodium citrate (light blue top)	Negative
Activated Partial Thromboplastin Time (aPTT)	Sodium citrate (light blue top)	25 - 36.5 sec
Prothrombin Time - Correction with Normal Plasma	Sodium citrate (light blue top)	9.4 – 12.5 sec
PT - Prothrombin Time & INR	Sodium citrate (light blue top)	9.4 – 12.5 sec INR 0.90-1.10
PT and aPTT Correction (Mixing) Studies	Sodium citrate (light blue top)	PT: 9.4 - 12.5 sec aPTT: 12.0 - 36.5 sec
Thrombin Time	Sodium citrate (light blue top)	10.3 - 16.6 sec

Special Hematology & Coagulation

Test Name	Specimen Container & Special Instructions	Reference Ranges
Cryoglobulin	2 full 10 ml Red top tubes, Keep WARM during transport Deliver to lab IMMEDIATELY (must clot at 37 degrees)	Negative
Factor VIII Inhibitor (Bethesda)	Sodium citrate (light blue top)	0 Bethesda Units
Hemoglobin Separation by HPLC	Potassium EDTA (lavender top)	Hgb A: 80 - 98% Hgb A2: 1.5 - 3.5% Hgb F: 0-3 months old: 40 - 85% 3-6 months old: 8 - 40% 6 months -1 year: 1 - 8% Adult: 0 - 2%
Platelet Aggregation	Four or five sodium citrate (light blue top) tubes (27 ml). *By appointment only. (914) 493-1475 Samples must be brought to the lab by 9:30 AM. Notify Special Hematology x1475 before drawing.	Normal
vonWillebrand Activity	Sodium citrate (light blue top)	50-150%
vonWillebrand Antigen	Sodium citrate (light blue top)	50-150%
Intrinsic Coagulation Pathway (Factors VIII, IX, XI, XII) & Extrinsic Coagulation Pathway (Factors II, V, VII, or X) Evaluation	Sodium citrate (light blue top) *Recommend two tubes for all factors	II: 60-130% V: 60-130% VII: 60-130% VIII: 50-150% IX: 60-130% X: 60-130% XI: 60-130% XII: 60-130%
Protein C	Sodium citrate (light blue top)	65-150%
Protein S	Sodium citrate (light blue top)	57-131%

STAT Lab

Test Name	Specimen Container & Special Instructions	Reference Ranges
Calcium (Ionized)	Lithium heparin (green top)	4.60-5.32 mg/dL
Fetal Fibronectin	Cervical swab (in media provided by manufacturer)	Negative within gestational weeks 22-34.
Fluid Crystal Identification	Potassium EDTA (lavender), SST, sterile container	None Present
Gastric Occult	Gastric aspirate and vomits only	Negative
Guaiac (Occult Blood)	Stool smear	Negative
Human Chorionic Gonadotropin (Qualitative Urine)	Random urine	Negative
Osmolality (Serum or plasma)	Serum (red top) or Lithium heparin (green top)	280-295 mOsm/kg
Osmolality (Urine)	Random urine	50-1200 mOsm/kg
P2Y12 - Plavix (% inhibition)	2 Greiner collection tubes (3.2% Sodium Citrate)	P2Y12 Assay Baseline: 194-418 PRU Expected Result: Risk of Events: 230-350 PRU Optimal Therapeutic Range: 100-230 PRU Risk of bleeding <100 PRU. (updated: 8/21/2012).
pH (Fluid)	Sterile container	Synovial: 7.35-7.45 Urine: 4.50-8.00 CSF: 7.25 - 7.40 Feces: 7.00-7.50 Pleural Fluid: 6.80-7.60 Pericardial Fluid: 6.80-7.60 Ascites Fluid: 6.80-7.60
Platelet Function Aspirin. ARU - Aspirin Reaction Units	2 Greiner collection tubes (3.2% Sodium Citrate)	Therapeutic: 350-549 ARU Non-therapeutic: 550-700ARU
RPR w/ Titer and Reflex Confirmation (Reference Laboratory)	Serum (red top)	Non-reactive
Sweat Test (Chloride)	0.2 mL centrifuge microtainer *By appointment call x7585	Normal: ≤ 29 mmol/L Intermediate: 30-59 mmol/L Consistent with Cystic Fibrosis: ≥ 60 mmol/L
Whole Blood Potassium	Lithium heparin (green top)	3.5-5.0 mEq/L

Urinalysis

Test Name	Specimen Container & Special Instructions	Reference Ranges
Urine Analysis, Routine	Random Urine	Spec. Gravity 1.000 - 1.035 pH: 5.0 - 9.0 Protein (qual): Negative Glucose: Negative Ketones: Negative Blood: Negative Urobilinogen: Normal Nitrites: Negative Leukocytes: Negative Microscopic: WBC: 0 - 5/HPF RBC: 0 - 2/HPF Bacteria: None seen/HPF Epithelial: Occasional/HPF
Urobilinogen, Qualitative	Random urine, protect from light by wrapping in aluminum foil.	0.2 - 1.0 Ehrlich U.

Diagnostic Immunology

Test Name	Specimen Container & Special Instructions	Reference Ranges
ANA Screen w/reflex to titer	Serum (red top), SST	Negative
ANCA-C (Anti-PR3) (C-ANCA)	Serum (red top), SST	≤ 20 Units
ANCA-P (Anti-MPO) (P-ANCA)	Serum (red top), SST	Negative (<20 Units)
Anti - RNP	Serum (red top), SST	Negative (<20 Units)
Anti - SM	Serum (red top), SST	Negative (<20 Units)
Anti - SSA Sjogren Ab-RO	Serum (red top), SST	Negative (<20 Units)
Anti - SSB Sjogren Ab-LA	Serum (red top), SST	Negative (<20 Units)
Anticardiolipin (IgG)	Serum (red top), SST	IgG <15.0 GPLU/mL
Anticardiolipin (IgM)	Serum (red top), SST	IgM <12.5 MPLU/mL
Cryptococcal antigen, Serum, CSF	Serum (red top), SST CSF (sterile)	Negative
Total IgE	Serum (red top), SST	<0.10 kU/L
Lyme Line Blot IgG/IgM (*Borrelia burgdorferi*)	Serum (red top), SST	Negative
Measles (Rubeola) IgG Ab	Serum (red top), SST	Negative
Rubella IgG Ab	Serum (red top), SST	Negative
Serum Protein Electrophoresis	Serum (red top), SST	Refer to patient report.
Serum Immunofixation	Serum (red top), SST	Refer to patient report.

Chemistry & Immunology

Test Name	Specimen Container & Special Instructions	Reference Ranges
Acetaminophen (Tylenol)	Lithium heparin (green top)	10.0 - 25.0 ug/mL
Acetone - Blood	Lithium heparin (green top)	Negative
Albumin	Lithium heparin (green top)	3.4 - 4.8 g/dL
Albumin, urine (microalbumin)	24 hr collection or random urine	< 30.0 mg/dL Male: < 2.5 mg/dL Female: < 3.5 mg/dL
Alcohol/Ethyl	Lithium heparin (green top) or urine	Serum: <10 mg/dL [Neg] Urine: <13 mg/dL
Alkaline Phosphatase	Lithium heparin (green top)	14 days old: 90 - 273 U/L <1-year-old: 134 - 518 U/L 1-10 years old: 156 - 369 U/L 10-13 years old: 141 - 460 U/L 13-15 years old: 62 - 280 U/L 15-17 years old: 89 - 365 U/L 17-19 years old: 48 - 95 U/L 19+ years old: 40 - 150 U/L
Alpha-Fetoprotein (male & non-pregnant female)	Serum (red top), SST	0.00 - 8.78 ng/mL
Amikacin	Lithium heparin (green top) PEAK: 30-60 min past infusion point TROUGH: just before next dose	Random: <25.0 ug/mL Therapeutic Level: Peak: 20 - 25 ug/mL Trough: 5 - 10 ug/mL

Test Name	Specimen Container & Special Instructions	Reference Ranges
Ammonia (Blood)	Lithium heparin (green top) ***on ice** *Deliver to lab immediately*. Do not use ammonium heparin (microtainer)	10 - 35 um/L
Amphetamine/Methamphetamine Screen (Semi-Quant) Urine	Random urine-plastic container	Negative
Amylase (2 hr Urine)	2-hour timed urine	6.5 - 48.0 U/hr
Amylase (Blood)	Lithium heparin (green top)	22 - 100 U/L
Anti-Thyroid Peroxidase Ab	Serum (red top), SST	< 35 IU/mL
Barbiturates/Metabolites Screen (Semi-Quant.) urine	Random urine	Negative
Benzodiazepines/Metabolites Screen (Semi-Quant.) Urine	Random urine	Negative
Bicarbonate (CO2)	Lithium heparin (green top)	22 - 30 mEq/L
Bilirubin (Direct)	Lithium heparin (green top). *Protect from light	0.1 - 0.6 mg/dL
Bilirubin (Total)	Lithium heparin (green top) *Protect from light	0-2 days old: 0.0 - 10 U/L 2-5 days old:0.0 - 15 U/L 5-7 days old:0.0 – 10 U/L 7 days old - Adult: 0.2 – 1.3 U/L
BNP (B Natriuretic peptide)	Potassium EDTA (lavender top)	0.0 - 100 pg/mL
BUN - Blood Urea Nitrogen	Lithium heparin (green top)	6.0 - 22 mg/dL
C Reactive Protein	Lithium heparin (green top)	0.0 - 0.50 mg/dL
CA 125	Serum (red top), SST	0.0 - 35.0 U/mL
CA 15-3	Serum (red top), SST	≤ 32.4 U/mL
Caffeine	Lithium heparin (green top)	5 - 20 ug/mL (neonates)
Calcium (Blood)	Lithium heparin (green top)	8.4 - 10.2 mg/dL
Calcium (Urine)	24 hr. collection & random urine	24hr Urine: <300 mg/24 hrs. Random Urine: 2.0-21.0 mg/dL
Cannabinoids/Metab (Marijuana) Screen, (Semi-Quant) Urine	Random urine	Negative
Carbamazepine (Tegretol)	Lithium heparin (green top)	4.0 - 12.0 ug/mL
Carcinoembryonic Antigen (CEA)	Serum (red top), SST	0.0 - 10.0 ng/mL *Not an absolute test for cancer. Use with clinical evaluation.
Cerebrospinal Fluid (CSF) Total Protein	CSF (sterile)	15 - 45 mg/dL
Chloride (Blood)	Lithium heparin (green top)	98 - 107 mEq/L
Chloride (Urine)	24 hr. collection or random urine	140 - 250 mEq/24 hrs. No range established for random urine.
Cholesterol (Total)	Lithium heparin (green top)	<18 years: 90 - 180 mg/dL >18 years: 125 - 240 mg/dL
CK-MB Quantitative	Lithium heparin (green top)	0.0 - 6.6ng/mL
Cocaine (Metabolites) Urine	50 ml Random urine plastic container	Negative
Complement C3, serum	Lithium heparin (green top)	<14 years old: 80 - 173 mg/dL >14 years old: 83 - 180 mg/dL
Complement C4, serum	Lithium heparin (green top)	<14 years old 13 - 46 mg/dL >14 years old: 18 - 45 mg/dL
Cortisol (Blood)	Lithium heparin (green top)	AM: 3.7 - 19.4 ug/dL PM: 2.9 - 17.3 ug/dL
COVID - IgG	SST, Serum (red top) or Potassium EDTA (lavender top)	Negative

Test Name	Specimen Container & Special Instructions	Reference Ranges
CPK, (Creatine Phosphokinase)	Lithium heparin (green top)	Male: 30 - 200 U/L Female: 29 - 168 U/L
Creatinine (Blood)	Lithium heparin (green top)	Male: 0.72 - 1.25 mg/dL Female: 0.57-1.11 mg/dL
Creatinine (Urine)	24 hr. collection or random urine	Male: 1.00 - 2.0 g/24 hrs. Female: 0.8 - 1.8 g/24 hrs. No range established for random urine.
Creatinine Clearance	Timed urine **and** Lithium heparin (green top) *The serum and urine specimens must be submitted together.*	66 - 163 ml/min/1.73m^2
Cyclosporine A (CSA)	Potassium EDTA (lavender top)	Therapeutic Range: 140 - 420 ng/ml
Digoxin	Lithium heparin (green top) *Specimen should be drawn 6-12 hours after Digoxin administration	Therapeutic Range: 0.8 - 2.0 ng/ml
Dilantin (Phenytoin). Quantitative	Lithium heparin (green top)	Therapeutic Range: 10 - 20 ug/ml
Drug Screen	Random urine. Presumptive detection of: Amphetamine, Barbiturate, Benzodiazapine, Cannabinoids, Cocaine Metabolites, Ethanol, Methadone, Phencylidine.	Negative
EGFR (Estimated Glomerular Filtration Rate)	Serum (red top) or Lithium heparin (green top)	≥ 60 ml/min/1.73m^2 eGFR values<60 ml/min/1.73m^2 may indicate renal dysfunction. Clinical correlation is recommended.
Estradiol	Lithium heparin (green top)	FEMALES: Follicular Phase: 21.0 - 251.0 pg/mL Luteal Phase: 21.0 - 312.0 pg/mL Ovulation Phase: 38.0 - 649.0 pg/mL Postmenopausal: <10.0 - 28.0 pg/mL Postmenopausal on HRT: <10.0 - 144.0 pg/mL Pregnancy/First Trimester: 215 - >4300 pg/mL. MALES: 11.0 - 44.0 pg/mL. CHILDREN 1 - 10 Years: Males: <5.0 - 20.0 pg/mL Females: 6.0 - 27.0 pg/mL. *Note:* Patients undergoing FULVESTRANT therapy should not be tested with the ABBOTT ARCHITECT Estradiol assay. Patients treated with MIFEPRISTONE should not be tested with the ARCHITECT Estradiol assay for up to two weeks after last treatment
Ferritin	Lithium heparin (green top)	Males: 18 - 370 ug/L Females: 9 - 120 ug/L
Folate, serum (Folic Acid)	Serum (red top) *Time-sensitive	7.0 - 31.4 ng/mL
Follicle Stimulating Hormone (FSH)	Lithium heparin (green top)	FEMALES: Normally Menstruating: Follicular Phase 3.6 - 21.6 mIU/mL Mid-Cycle Phase 4.9 - 20.8 mIU/mL Luteal Phase 1.1 - 13.9 mIU/mL Post-Menopausal: 2.6 - 150.0 mIU/mL MALES 1.4 - 13.6 mIU/mL.
Free Light Chains, Kappa/Lambda w/ Ratio	Serum (red top), SST	Kappa FLC: 2.37 – 20.73 mg/L Lambda FLC: 4.23 – 27.69 mg/L Kappa/Lambda Ratio: 0.26 – 1.65
Gentamicin	Lithium heparin (green top) *PEAK: 1 hr. after IM, or 30-60 min after end of infusion *TROUGH: immediately before next dose *RANDOM: Any time	Peak: 5 - 10 ug/mL Trough: 0.5 - 2.0 ug/mL Random: <10 ug/ml
GGT-Gamma Glutamyl Transpeptidase	Lithium heparin (green top)	Male: 12 - 64 U/L

Test Name	Specimen Container & Special Instructions	Reference Ranges
		Female: 9 - 36 U/L
Glucose Tolerance Test	Gray top tube Submit separate tubes for fasting, 1 hr., 2 hrs., 3 hrs.	Interpreted by physician
Glucose, Blood	Lithium heparin (green top) or gray top tube	70 - 105 mg/dL
Glucose, CSF	CSF (sterile)	40 - 70 mg/dL
Glucose, Urine Quantitative	24 hr. collection or random urine	50 - 300 mg/24 hrs. No range established for random urine.
Glycohemoglobin (HbA1C)	Potassium EDTA (lavender top)	4.0 – 5.6%
Haptoglobin	Lithium heparin (green top)	13 - 281 mg/dL
HDL	Lithium heparin (green top)	> 60 mg/dL
Hepatitis A Antibody, Total	Serum (red top), SST	Non-reactive
Hepatitis A Virus M Antibody (HAV AB-M) IgM	Serum (red top), SST	Non-reactive
Hepatitis B Core Antibody, HBcAB	Serum (red top), SST	Non-reactive
Hepatitis B Surface Antibody, HBsAB	Serum (red top), SST	Non-reactive
Hepatitis B Surface Antigen, HBsAG	Serum (red top), SST	Non-reactive
Hepatitis C AB (HCV)	Serum (red top), SST	Non-reactive
HIV Ag/Ab Combo (>2 yrs.)	Lithium heparin (green top)	Non-reactive
Homocysteine	Lithium heparin (green top)	5-15 umol/L
Human Chorionic Gonadotropin (beta hCG), Qualitative	Lithium heparin (green top)	Non-Pregnant: Negative: <5mIU/mL Indeterminate: 5 - 25 mIU/mL Positive: > 25mIU/mL
Human Chorionic Gonadotropin (Beta HCG), Quantitative	Lithium heparin (green top)	Non-Pregnant: <5.0 mIU/mL Indeterminate: 5 - 25 mIU/mlL Pregnant: >25 mIU/mL Pregnancy: 2-4 weeks: 800 - 10,000 mIU/mL 7-8 weeks.: 20,000 - 200,000mIU/mL At term: 55,000 - 60,000 mIU/mL
Immunoglobulin IgG	Lithium heparin (green top)	Male: 414 - 1777 mg/dL Female: 528 - 1736 mg/dL 0-30 days: 391 - 1765 mg/dL 1 month-1 year: 205 - 498 mg/dL 1-2 years: 475 - 1210 mg/dL
Immunoglobulin IgM	Lithium heparin (green top)	Adult: 25.0 - 251.0 mg/dL Newborn: 6.0 - 21.0 mg/dL 3 month – 1 year: 17.0 - 143.0 1 – 2 years: 41.0 - 183.0 mg/dL
Immunoglobulin IgA	Lithium heparin (green top)	Adult: 43-383 mg/dL <3 months: 1 - 34 mg/dL 3 months - 1 year: 8 - 91 mg/dL 1-12 years: 21 - 291 mg/dL 12-17 years: 63-484 mg/dL
Insulin	Serum (red top) *Fasting	Fasting: 6-27 uIU/mL
Iron (Total)	Lithium heparin (green top) *Avoid hemolysis	Male: 60 - 160 ug/dL Female: 40 - 145 ug/dL
Iron Binding Capacity (Includes Serum Iron and % Saturation)	Lithium heparin (green top) *Avoid hemolysis	275 - 365 ug/dl
Lactate (Lactic Acid)	Sodium fluoride (gray top) **on ice*** Deliver to laboratory immediately	0.5 - 2.0 mmol/L

Test Name	Specimen Container & Special Instructions	Reference Ranges
Lactate Dehydrogenase (LDH)	Lithium heparin (green top) or CSF sterile tube *Avoid hemolysis	125 - 220 U/L, No established range for CSF.
LDL	Lithium heparin (green top)	< 150 mg/dL
LH, Luteinizing Hormone	Serum (red top), SST	FEMALES: Follicular Phase:1.8 - 11.8 mIU/mL Mid Cycle Phase 7.6 - 89.1 mIU/mL Luteal Phase 0.6 - 14.0 mIU/mL Post-Menopausal: 5.2 - 62.0 mIU/mL MALES 0.6 - 12.1 mIU/mL UNKNOWN 0.6 - 89.1 mIU/mL
Lidocaine	Lithium heparin (green top)	1.5 - 5.0 ug/ml
Lipase, Serum	Lithium heparin (green top)	8 - 78 U/L
Lipid Profile: Trig/Chol HDL, LDL	Lithium heparin (green top) *Fasting sample- REQUIRED	See Patient Report
Lithium, Serum	Serum (red top)	Therapeutic: 0.6 - 1.2 mEq/L
Magnesium, Blood	Lithium heparin (green top)	1.6 - 2.6 mg/dl
Magnesium, Urine	24 hr. collection urine	72.9 - 121.5 mg/24 hrs.
Methadone/ Metab. (Semi-Quant.), Urine	Random urine	Negative
Methotrexate	Serum (red top)	Therapeutic range variable. See Patient Report
Myoglobin, Blood	Lithium heparin (green top)	Male: 0 - 154.9 ug/L Female: 0 - 163.0 ug/L
Opiates/Metabolites Urine, Semi-Quantitative	Random urine	Negative
Parathyroid Hormone (PTH), Intact	Lavender top tube	8.7 - 77.1 pg/ml
Phencyclidines/Metabolites Urine (Semi-Quantitative)	Random urine	Negative
Phenobarbital	Lithium heparin (green top)	15 - 40 ug/ml
Phosphorus, Inorganic - Urine	24 hr. collection or random urine	0.4 - 1.3 g/24 hrs. No established range for random urine.
Phosphorus, Inorganic - Blood	Lithium heparin (green top)	2.3 - 4.7 mg/dL
Potassium, Blood	Lithium heparin (green top)	3.5 - 5.1 mEq/L
Potassium, Urine	24 hr. collection and random	25 - 125 mEq/L No range established for random urine
Prealbumin	Serum (red top), SST	11 - 34 mg/dL
Procalcitonin	Lithium heparin (green top)	0.0 - 0.09 ng/mL
Progesterone	Lithium heparin (green top)	FEMALES Normal Menstruating Females: Follicular <0.1 - 0.3 ng/mL Ovulation 0.8 - 3.0 ng/mL Luteal 1.2 - 15.9 ng/mL Pregnant Females: 1st trimester 20.8 - 147.3 ng/mL 2nd trimester 22.5 - 95.3 ng/mL 3rd trimester 27.2 - 242.5 ng/mL Postmenopausal Females: <0.1 - 0.2 ng/mL MALES - <0.1 - 0.2 ng/mL
Prolactin	Lithium heparin (green top)	Male: 2.6 - 18.1 ng/mL Female: 1.2 - 29.9 ng/mL

Test Name	Specimen Container & Special Instructions	Reference Ranges
Protein Total, CSF	CSF (sterile)	15 - 45 mg/dL
Protein, Total, Blood	Lithium heparin (green top)	6.4 - 8.3 g/dL 1 month-1 year: 5.1 - 7.3 g/dL 1 year - 24 years: 5.6 - 7.5 g/dL
Protein, Total, Urine	24 hr. collection or random urine	24hr Urine: < 150 mg/24 hours Random Urine: 1 - 14 mg/dL
Rheumatoid Factor	Serum (red top), SST	< 30 IU/mL
Salicylates, Blood	Lithium heparin (green top)	Therapeutic: 10.0 - 20.0 mg/dL
SGOT (AST)	Lithium heparin (green top)	4 - 35 U/L
SGPT (ALT)	Lithium heparin (green top)	6 - 55 U/L
Sirolimus	Potassium EDTA (lavender top)	See Patient Report
Sodium, Blood	Lithium heparin (green top)	135 - 145 mEq/L
Sodium, Urine	24 hr. collection or random urine	75 - 200 mEq/24 hrs. No established range for random urine.
Syphilis w/ Reflex to RPR	Serum (red top), SST	Nonreactive
T-3 (Triiodothyronine) Total	Lithium heparin (green top)	79 - 149 ng/mL
T-4 (Thyroxine)	Lithium heparin (green top)	4.5 - 12 ug/dL
T-4 Free (Thyroxine)	Lithium heparin (green top)	0.7 - 1.9 ng/dL
Tacrolimus (FK 506)	Potassium EDTA (lavender top)	Therapeutic Range: Kidney Transplant: 5 - 15 ng/mL Liver Transplant: 10 - 20 ng/mL
Testosterone (Total)	Serum (red top), SST	See Patient Report
Theophylline	Lithium heparin (green top)	6 - 20 ug/mL - Therapeutic
Thyroid Stimulating Hormone (TSH)	Lithium heparin (green top)	0.350 - 4.7 mIU/L
Thyroxine Uptake (TUP)	Lithium heparin (green top)	0.7 - 1.3 TUP
Total PSA - Prostate Specific Ag	Serum (red top), SST	0 - 4 ng/mL
Transferrin	Lithium heparin (green top)	Male: 174 - 364 mg/dL Female: 180 - 382 mg/dL
Triglycerides	Lithium heparin (green top) *16 hr. fasting specimen	30 - 200 mg/dL
Troponin-I, High sensitivity	Lithium heparin (green top)	0.0 - 0.02 ng/mL
Urea Nitrogen - Urine	24 hr. Collection or random urine	12 - 20 g/24 hrs. No established range for random urine.
Uric Acid, Blood	Lithium heparin (green top)	Male: 3.5 - 7.2 mg/dL Female: 2.6 - 6.0 mg/dL
Uric Acid, Urine	24 hr. Collection or random urine	250 - 750 mg/24 hrs. No established range for random urine.
Valproic Acid	Lithium heparin (green top)	Therapeutic: 50 - 100 ug/mL
Vancomycin	Lithium heparin (green top) *Trough & random in separate tubes	Trough: 10 - 20 ug/mL Random: Re-dosing may be indicated if value is less than 15.0 ug/mL
Vitamin B-12	Serum (red top), SST	213 - 816.0 pg/mL
Vitamin D 25 Hydroxy	Lithium heparin (green top)	30 - 80 ng/ml

CBC Age-specific Reference Ranges

MALES			
TEST	**SEX**	**AGE**	**NORMAL**
WBC	M	0-1 D	9-30
WBC	M	2-7 D	9.4-34
WBC	M	1-4 W	5-21
WBC	M	1-2 M	5-19.7
WBC	M	2M-2Y	5.50-18
WBC	M	2-6 Y	6-17.5
WBC	M	6-16 Y	5.30-15.0
WBC	M	16-21Y	4.50-10.50
WBC	M	21-49 Y	4.50-10.80
WBC	M	49-128 Y	4.80-10.80
RBC	M	0-1 M	5.00-6.30
RBC	M	1-9 M	4.70-5.90
RBC	M	9M-4Y	3.80-5.20
RBC	M	4-14 Y	3.60-5.50
RBC	M	14-25 Y	4.00-5.20
RBC	M	25-49 Y	4.20-5.50
RBC	M	49-128 Y	4.70-6.10
HGB	M	0-1 M	18.5-21.5
HGB	M	1-6 M	15.5-18.5
HGB	M	6-9 M	13.3-16.3
HGB	M	9M-4Y	12.0-14.0
HGB	M	4-14 Y	10.5-14.2
HGB	M	14-25 Y	12.3-14.9
HGB	M	25-49 Y	12.3-16.0
HGB	M	49-128	14.0-18.0
HCT	M	0-1 M	53-65
HCT	M	1-9 M	44-56
HCT	M	9M-4Y	39-52
HCT	M	4-14 Y	36-46
HCT	M	14-25 Y	36-46
HCT	M	25-49 Y	38-47
HCT	M	49-128 Y	40.8-46.9
MCV	M	0-6 M	95-115
MCV	M	6M-1Y	92-110
MCV	M	1-14 Y	89-102
MCV	M	14-49 Y	80-95
MCV	M	49-128 Y	80-94

FEMALES			
TEST	**SEX**	**AGE**	**NORMAL**
WBC	F	0-1 D	9-30
WBC	F	2-7 D	9.4-34
WBC	F	1-4 W	5-21
WBC	F	1-2 M	5-19.7
WBC	F	2M-2Y	5.50-18
WBC	F	2-6 Y	6-17.5
WBC	F	6-16 Y	5.30-15.0
WBC	F	16-21Y	4.50-11.50
WBC	F	21-49 Y	4.50-10.80
WBC	F	49-128 Y	4.80-10.80
RBC	F	0-1 M	5.30-6.30
RBC	F	1-9 M	5.30-6.30
RBC	F	9M-4Y	4.70-6.00
RBC	F	4-14 Y	3.70-5.10
RBC	F	14-25 Y	3.60-5.10
RBC	F	25-49 Y	3.80-5.10
RBC	F	49-128 Y	3.90-5.20
HGB	F	0-1 M	18.0-21.0
HGB	F	1-9 M	15.8-18.9
HGB	F	9M-2Y	12.8-14.8
HGB	F	2-14 Y	10.3-14.1
HGB	F	14-25 Y	11.5-14.5
HGB	F	25-49 Y	11.6-15.0
HGB	F	49-128	12.0-16.0
HCT	F	0-1 M	51-65
HCT	F	1-6 M	42-56
HCT	F	6M-4Y	32-51
HCT	F	4-14 Y	36-50
HCT	F	14-25 Y	36-47
HCT	F	25-49 Y	36-45
HCT	F	49-128 Y	37-47
MCV	F	0-3 M	94-114
MCV	F	3-9 M	92-112
MCV	F	9M-2Y	92-107
MCV	F	2-14 Y	87-101
MCV	F	14-49 Y	80-96
MCV	F	49-128 Y	81-99

UNITS:	WBC	RBC	Hgb	Hct	MCV
	$10^3/\mu L$	$10^6/\mu L$	g/dL	%	fL

Blood Bank Transfusion Medicine

The Blood Bank & Transfusion services department at Westchester Medical Center supports an adult and pediatric Level I trauma and transplant center academic hospital of over 600 beds. Pretransfusion testing and laboratory testing of donated blood prior to transfusion is performed to ensure that recipients receive the safest possible blood products.

Open Hours: 7 days/week
24h Phone: 914-493-7610

Sadiqa Karim, M.D.
Chief of Transfusion Medicine

Kanan Patel, MBA, MT(ASCP)
Blood Bank Manager, Blood Bank/Transfusion Services

Test Description	Specimen Container
ABO/Rh Verification	Lavender or pink top tube
Antibody Titer	Lavender or pink top tube
Cord Blood Study	Red top tube
Direct Antiglobulin Test (DAT)	Lavender or pink top tube
Fetal Screen	Lavender or pink top tube
Suspected Transfusion Reaction Workup	Lavender or pink top tube
Type & Screen	Lavender or pink top tube
Type & Screen (neonatal)	Lavender or pink top tube

Biochemical Genetics

The Biochemical Genetics department at Westchester Medical Center supports screening and testing for genetic and metabolic conditions for children and adults.

Open Hours: 5 days/week, M-F
Phone: (914) 493-8780

David Kronn, M.D.
Section Chief of Advanced Medical Genetics

Angel Zhu, Clinical Lab Technologist (CLT)
Biochemical Genetics Laboratory

Test Name:	Analysis of Plasma Amino Acids
Test Code:	AAPLS
CPT:	82139
Synonyms:	N/A
Laboratory:	WMC Biochemical Genetics Laboratory
Availability:	Mon - Fri
Turnaround Time:	1 - 7 days, within 24 hours for stat order
Specimen:	Whole Blood; Plasma
Volume:	1-3 ml
Minimum Volume:	1 ml
Container:	Green top (sodium heparin) tube for whole blood. Plastic plasma tube for plasma.
Collection:	Fasting specimen preferred, at least 3 hours.
Storage Instruction:	Specimens should be transported to lab at 2° to 8° C as soon as possible after collection. Whole blood specimen that are not transported or processed right away can be stored at 2° to 8° C for up to 24 hours. Plasma specimen can be frozen at -20°C or below for up to 7 days.
Specimen Rejection:	Wrong tube used; inadequate specimen volume; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete label that does not have essential patient identification information.
Reference Range:	Negative
Linearity Range: Clinical Use:	0 – 1000 µM
Limitation:	These tests are used for the quantitation of amino acids in human plasma.
Methodology:	The amino acids are separated on an ion exchange column, derivatized with ninhydrin and measured by BIOCHROM 30+ AMINO ACID ANALYSER spectrophotometrically.
Additional Information:	N/A

Test Name:	Phenylketonuria and Tyrosinemia (PKU), Maple Syrup Urine Disease (MSUD)
Test Code:	PKU/MSUD1
CPT:	84030 – Phenylalanine; 84510 – Tyrosine; 82136 – MSUD
Synonyms:	N/A
Laboratory:	WMC Biochemical Genetics Laboratory
Availability:	Mon - Fri
Turnaround Time:	1 - 7 days, 24 hours for stat order
Specimen:	Whole Blood; Plasma
Volume:	1-3 ml
Minimum Volume:	1 ml
Container:	Green top (sodium heparin) tube for whole blood. Plastic plasma tube for plasma.
Collection:	Fasting specimen preferred, at least 3 hours.
Storage Instruction:	Specimens should be transported to lab at 2° to 8° C as soon as possible after collection. Whole blood specimen that are not transported or processed right away can be stored at 2° to 8° C for up to 24 hours. Plasma specimen can be frozen at -20°C or below for up to 7 days.
Specimen Rejection:	Wrong tube used; inadequate specimen volume; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete label that does not have essential patient identification information.
Reference Range:	Negative
Linearity Range: Clinical Use:	0 – 1000 µM
Limitation:	These tests are used for the quantitation of amino acids in human plasma.
Methodology:	The amino acids are separated on an ion exchange column, derivatized with ninhydrin and measured by BIOCHROM 30+ AMINO ACID ANALYZER spectrophotometrically.
Additional Information:	N/A

Molecular Diagnostics Laboratory

General Information

Address: Westchester Medical Center
Department of Pathology Molecular/Virology Lab Macy Pavilion, RM 1447, 1455 & 1391
100 Woods Road
Valhalla, NY 10595

Phone: (914) 493-1090

Open Hours: 7 days/week, 8:00AM - 10:00 PM

Laboratory Staff and Contact Information

Name	Title	Phone #
Humayun Islam, M.D., Ph. D	Director, Laboratory Services	(914) 493-6680
Vishnu Chaturvedi, Ph. D, FECMM, FADLM	Chief Microbiology and Molecular Diagnostics	(914)-493-8914
Rocky Granthier, MPH, MBA, HTL(ASCP)	Administrative Laboratory Director	(845)-242-1428
Christine Zeren, MT(ASCP)	Supervisor, Molecular	(914) 493-5631
Dr. Jian Zhuge	Assistant Chief of Molecular/Virology	(914) 493-8520
Virology Lab Phone		(914) 493-1090

Molecular Diagnostics Laboratory

Table of Contents

Molecular Test Name[$]	Test Code[$]	Acceptable Specimen*	Test Restrictions	Test Schedule	Turn-Around-Time
Babesia microti DNA PCR	BABDP	EDTA blood (2ml)		Mon & Thur	1-5 days
C. difficile DNA PCR	CDPCR	Stool, liquid or soft (5 g or 5 ml)	No formed stool	Daily, 7 days/wk	1 day
HBV DNA viral load	HBVQP	EDTA blood (5ml) or plasma (2ml)		Mon & Thur	1-5 days
HCV RNA viral load	HCVQP	EDTA blood (5ml) or plasma (2ml)		Tue, Fri	1-5 days
HIV-1 RNA viral load	HIVQP	EDTA blood (5ml) or plasma (2ml)	Not validated for patients <19 years	Mon, Wed	1-5 days
CMV DNA quant. PCR	CMVQR	EDTA blood (5ml) or plasma (2ml)	No urine	M-F, Daily	1-3 days
EBV DNA viral load	EBVQR	EDTA blood (3ml) or plasma (1ml)	No urine	Mon, Wed, Fri	1-3 days
BKV DNA viral load-Plasma	BKVQR	EDTA blood (3ml) or plasma (1ml)		Mon, Wed, Fri	1-3 days
BKV DNA viral load-Urine	BKVQU	Urine (10ml)		Mon, Wed, Fri	1-3 days
SARS-CoV-2 PCR, Roche	COVQL	Nasopharyngeal Swab		Daily	1-3 days
SARS-CoV-2 PCR, Cepheid	COVCP	Nasopharyngeal Swab		Daily	2 hours
SARS-CoV-2/Flu/RSV PCR	CQUAD	Nasopharyngeal Swab		Daily	2 hours
Meningitis/Encephalitis Multiplex PCR, CSF	MEPCR	CSF (Non-centrifuged, lumbar puncture only) 1-2mL	No centrifugation	Daily	3 hours
Respiratory Multiplex PCR	RMPCV	Nasopharyngeal swab		Daily	2 hours
Pneumonia Panel Multiplex PCR	PNPCR	Bronchoalveolar lavage (BAL)-like specimens, Sputum-like specimens.		Daily	1 day
Gastrointestinal Multiplex PCR	GIPCR	Stool in FecalSwab™ Collection Tube		Daily	1 day
Factor V Leiden mutation	FVLED	EDTA blood (2ml)		M-F, Daily	1-3 days
Prothrombin (FII) mutation	PROMU	EDTA blood (2ml)		M-F, Daily	1-3 days
NGC Focus Panel for Solid Tumor	FOCUS	15 sections of unstained FFPE slides and 1 HE slide.		Bi-weekly	4-14 days
JAK2 V617 mutation	JAK2V	EDTA blood or bone marrow (2ml)		Variable	2-7 days

* Refer to the enclosed instructions for more detail information.

[$] For outpatient, please order test by writing test name or test code listed above on the requisition form.

Test Name:	**Babesia microti DNA PCR**
Test Code:	BABDP
CPT:	87798
Synonyms:	*Babesia* PCR; *B. microti* DNA PCR, qualitative
Test Include:	Nucleic acid amplification test for detection of *B. microti* DNA in blood
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday and Thursday
Turnaround Time:	1-5 days
Specimen:	EDTA whole blood
Volume:	2 ml blood
Minimum Volume:	0.5 ml blood
Container:	Lavender top (EDTA) tube
Collection:	Collect 2 ml EDTA whole blood and transport to laboratory at room temperature within 24 h of collection, or keep specimen refrigerated.
Storage Instruction:	Keep specimen refrigerated after receiving in the lab. Specimens should be aliquoted and stored at least two aliquots with 200 ul each at -20C or below if not tested within 7 days.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; leaking specimen; improper storage, excessive delay in transport; specimen with no label or incomplete label that does not have essential patient identification information.
Reference Range:	Negative
Linearity Range:	N/A
Clinical Use:	This is a qualitative assay for rapid detection of *Babesia microti* DNA in human EDTA blood specimens collected from patients suspected of having babesiosis and other tick-borne diseases. It is intended to use as an aid in the diagnosis and management of human babesiosis.
Limitation:	This assay has been validated only for whole blood specimens using EDTA as anticoagulant. The performances of the assay for whole blood specimens using other anticoagulants and other specimen types (i.e., plasma, serum, body fluids) are not established. The test has a limit detection of 0.000065% parasitemia (3-7 parasites/µl of blood). Patients infected with *B. microti* but have an extremely low parasitemia may not be detected. A negative PCR result cannot rule out the diagnosis of babesiosis. New *Babesia* species or rare *B. microti* variants (mutants at the primer or probe-binding sites) may not be detected. Microscopic examination of Giemsa-stained smears are always recommended for patients suspected with Babesiosis and other blood parasitic infections.
Methodology:	Real-time PCR, qualitative
Additional Information:	The *Babesia microti* DNA PCR is a rapid, multiplex real-time PCR assay performed on the 7500 Fast Dx Real-Time PCR System. The assay utilizes real-time PCR to amplify simultaneously a portion of the 18S rDNA sequences specific for *Babesia microti* and a fragment of human DNA as internal control. The test was developed and validated for in vitro diagnostic use; its performance characteristics were established by the Department of Pathology Laboratory.

Test Name:	**Clostridium difficile toxigenic DNA PCR**
Test Code:	CDPCR
CPT:	87493
Synonyms:	*C. difficile* PCR; *C. difficile* DNA real-time PCR; *C. difficile/Epi Assay*
Test Include:	Nucleic acid amplification for detection of *C. difficile* toxigenic gene B (*ctdB*)
Laboratory:	Molecular Diagnostics
Availability:	8am-8pm everyday
Turnaround Time:	1 day
Specimen:	Stool, unformed (liquid or soft)
Volume:	5 ml of liquid stool, or 5-gram unformed stool.
Minimum Volume:	0.5 ml of liquid stool, or 0.5-gram unformed stool.
Container:	Clean container. A sterile container is recommended.
Collection:	Collect 5 grams **unformed stool** or 5 ml of **liquid stool** specimen in a clean container. A minimum of 0.5 g or 0.5 ml are required. *An unformed stool is defined as a stool that takes the shape of the container.* Deliver specimens to the laboratory in room temperature or refrigerated in 2 h.
Storage Instruction:	Store stool specimens at a refrigerator before testing. Store specimen in the lab at 2-8°C before testing. The specimen is stable for up to 5 days when stored at 2-8°C, or for up to 24 hours when kept at room temperature (20-30°C)
Specimen Rejection:	Formed stool specimens; duplicate stool specimens within 7 days; leaking specimen; improper storage, excessive delay in transport; Unlabeled or inadequate labeled specimen.
Reference Range:	Negative
Linearity Range:	N/A
Clinical Use:	This test is intended for use as an aid in the diagnosis of *C. difficile* infection (CDI) and *C. difficile* associated disease (CDAD). **Request this test only in patients with clinically significant diarrhea (≥3 loose stools over 1–2 days). ONE STOOL SPECIMEN** per patient within 7 days is recommended.
Limitation:	This test is not intended for testing of cure in patients with CDI or CDAD. Healthy neonates and children ≤ 1 year of age have high rates of colonization with toxigenic *C. difficile*. Testing in patients ≤1-year-old is not recommended and requires ID approval.
Methodology:	Real-time PCR, qualitative
Additional Information:	The test is performed using the Cepheid GeneXpert® test system for detection of the *C. difficile* toxin B gene sequences. Although the 027/NAP1/BI strains can be identified, detection of 027/NAP1/BI strains of *C. difficile* is presumptive and is solely for epidemiological purposes and is not intended to guide or monitor treatment for *C. difficile* infections. To get timely test report, deliver specimen to the lab before 9:00AM or 1:00PM on weekday for the same day result.

Test Name:	HBV DNA Quantitative PCR
Test Code:	HBVQP
CPT:	87517
Synonyms:	HBV DNA viral load; Hepatitis B virus DNA quantitation
Test Include:	Nucleic acid amplification test for quantitating HBV DNA in plasma
Laboratory:	Molecular Diagnostics
Availability:	Twice per week (usually performed on Monday and Thursday)
Turnaround Time:	1-5 days
Specimen:	EDTA blood
Volume:	4-5 ml blood (2 ml plasma)
Minimum Volume:	2 ml blood (0.65 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant.
Storage Instruction:	Whole blood in sterile tubes using EDTA as the anticoagulant may be stored and/or transported for up to 24 hours at 2°C to 25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Transfer plasma to a sterile polypropylene tube. Upon separation plasma samples may be stored in secondary tubes for up to 6 days at 2°C to 8°C or up to 12 weeks at ≤ -18°C. For long-term storage up to 6 months, temperatures at ≤ -60°C are recommended. Plasma samples are stable for up to four freeze/thaw cycles when frozen at ≤ -18°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 24 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or inadequate labeled specimen will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	10.00 - 1,000,000,000 IU/mL (1.00 - 9.00 log10 IU/mL)
Clinical Use:	This test is intended for use as an aid in the management of patients with chronic HBV infection undergoing antiviral therapy. It is not intended for use as a screening test for the presence of HBV in blood or blood products or as a diagnostic test to confirm the presence of HBV infection.
Limitation:	This test has been validated for use with only human plasma collected in EDTA anticoagulant. Testing of other specimen types may result in inaccurate results.
Methodology:	Real-time PCR
Additional Information:	The test is performed using Roche Cobas® 6800 HBV Test. It is an in vitro nucleic acid amplification test that quantitates all major genotypes of HBV.

Test Name:	HCV RNA Quantitative PCR
Test Code:	HCVQP
CPT:	87522
Synonyms:	Hepatitis C virus RNA quantitation; HCV RNA viral load
Test Include:	Nucleic acid amplification test for quantitating HCV RNA in plasma
Laboratory:	Molecular Diagnostics
Availability:	Tuesday and Friday
Turnaround Time:	1-5 days
Specimen:	EDTA blood
Volume:	4-5 ml blood (2 ml plasma)
Minimum Volume:	2 ml blood (0.65 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant.
Storage Instruction:	Whole blood in sterile tubes using EDTA as the anticoagulant may be stored and/or transported for up to 24 hours at 2°C to 25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Transfer plasma to a sterile polypropylene tube. Upon separation plasma samples may be stored in secondary tubes for up to 6 days at 2°C to 8°C or up to 12 weeks at ≤ -18°C. For long-term storage up to 6 months, temperatures at ≤ -60°C are recommended. Plasma samples are stable for up to four freeze/thaw cycles when frozen at ≤ -18°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 24 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or inadequate labeled specimen will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	15.00 - 100,000, 000 IU/mL (1.18 - 8.00 log10 IU/mL)
Clinical Use:	This test is intended for use as an aid in the management of HCV-infected individuals undergoing anti-viral therapy. It is not intended for use as a screening test for the presence of HCV in blood or blood products or as a diagnostic test to confirm the presence of HCV infection. The detection and quantitation of HCV RNA offers a measure of active viremia in antibody-positive chronic HCV infected patients undergoing antiviral therapy. Current guidelines support the importance of measuring HCV RNA levels at baseline prior to treatment (baseline), at intervals during treatment (4, 12, 24 weeks) to assess antiviral response, and after treatment is completed to assess the efficacy of the treatment.
Limitation:	This assay can detect HCV RNA in EDTA plasma at concentration of 11 IU/ml with a positivity rate greater than 95% using the first WHO International Standard. The overall limit of detection for HCV genotypes 1 to 6 using clinical specimens is 15 IU/mL. This test has been validated for use with only human plasma with EDTA-anticoagulant.
Methodology:	Real-time PCR
Additional Information:	The test is performed using Roche Cobas® 6800 HCV. It is an in vitro nucleic acid amplification test that quantitates all major subtypes of HCV.

Test Name:	HIV-1 RNA Quantitative PCR
Test Code:	HIVQP
CPT:	87536
Synonyms:	HIV-1 RNA viral load; Human immunodeficiency virus-1 RNA quantitation
Test Include:	Nucleic acid amplification test for quantitating HIV-1 RNA in plasma
Laboratory:	Molecular Diagnostics
Availability:	Monday and Wednesday
Turnaround Time:	1-5 days
Specimen:	EDTA blood
Volume:	4-5 ml blood (2 ml plasma)
Minimum Volume:	2 ml blood (0.65 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant.
Storage Instruction:	Whole blood collected in EDTA tubes may be stored and/or transported for up to 24 hours at 2°C to 25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Transfer plasma to a sterile polypropylene tube upon separation EDTA plasma samples may be stored in secondary tubes for up to 6 days at 2°C to 8°C or up to 12 weeks at ≤ -18°C. For long-term storage up to 6 months, temperatures at ≤ -60°C are recommended. Plasma samples are stable for up to four freeze/thaw cycles when stored frozen at ≤ -18°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 24 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or inadequate labeled specimen will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	20.00 - 10,000,000 copies/mL (1.30 - 7.00 log10 copies/mL)
Clinical Use:	This test is intended for use in conjunction with clinical presentation and other laboratory markers of disease progress for the clinical management of HIV-1 infected patients. The test can be used to assess patient prognosis by measuring the baseline HIV-1 RNA level or to monitor the effects of antiretroviral therapy by measuring changes in EDTA plasma HIV-1 RNA levels during the course of antiretroviral treatment.
Limitation:	This test is not intended for use as a screening test for the presence of HIV-1 in blood or blood products or as a diagnostic test to confirm the presence of HIV-1 infection. Its performance has neither been evaluated with specimens containing HIV-1 group N, nor with specimens containing HIV-2.
Methodology:	Real-time PCR
Additional Information:	The test is performed using Roche Cobas® 6800 HIV-1. It is an in vitro nucleic acid amplification test that quantitates all major subtypes of HIV-1 group M and HIV-1 group O. One copy of HIV-1 RNA is equivalent to 1.67 International Units (IU) based on the WHO 1st International Standard for HIV-1 RNA.

Test Name:	**Epstein-Barr virus (EBV) DNA Quantitative PCR**
Test Code:	EBVQR
CPT:	87799
Synonyms:	EBV DNA viral load; EBV DNA quant real-time PCR; EBV PCR
Test Include:	Nucleic acid amplification test for quantitating EBV DNA in plasma
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday, Wednesday, Friday
Turnaround Time:	1-3 days
Specimen:	EDTA blood; EDTA plasma
Volume:	3 ml EDTA-blood (1.0 ml plasma)
Minimum Volume:	1.0 ml EDTA-blood (0.35 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant.
Storage Instruction:	Whole blood using EDTA as the anticoagulant may be stored and/or transported for up to 24 hours at 2-25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Upon separation plasma samples may be stored for 24 hours at 2-30°C in primary or secondary tubes. Storage in primary or secondary tubes for up to 6 days at 2-8°C. Storage in secondary tubes for up to 6 months at -15°C to -80°C. Plasma samples are stable for up to four freeze/thaw cycles when frozen at -15°C to -80°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 24 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or incomplete label that does not have essential patient identification information will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	35.00 - 100,000,000 IU/mL (1.54 -8.00 log10 IU/mL)
Clinical Use:	This test is intended for use in the detection and quantification of EBV specific DNA in human blood specimens. Quantitative EBV DNA PCR testing provides a “viral load” value useful for the early detection and management of EBV infections and diseases. EBV is intended for use as an aid in the management of EBV in transplant patients. In patients undergoing monitoring of EBV, serial DNA measurements can be used to indicate the need for potential treatment changes and to assess response to treatment.
Limitation:	The performance characteristics were established only for human EDTA plasma samples; The limit of quantitation (LOQ) of this assay is 35 IU/mL (or 1.54 log10 IU/mL) of plasma. Recommendations regarding monitoring EBV viral load post-transplant and medically relevant EBV DNA thresholds vary among transplant type and transplant institutions. While elevated EBV viral load may suggest post-transplant lymphoproliferative disorders (PTLD), the diagnosis of PTLD is made based on histological evaluation of tissue biopsy. PTLD may be present without detectable EBV viral load, and an increase in EBV viral load is not necessarily diagnostic of PTLD.Due to the potential for variability in EBV DNA measurements across different EBV assays, it is recommended that the same device be used for the serial quantitation of EBV DNA when managing individual patients.
Methodology:	Real-time PCR, quantitative
Additional Information:	The test is performed using the Roche Cobas® 6800 EBV Test kit. Result of EBV DNA quantitative PCR is reported as International Unit (IU) per mL.

Test Name:	Cytomegalovirus (CMV) DNA Quantitative PCR
Test Code:	CMVQR
CPT:	87497
Synonyms:	CMV DNA viral load; CMV DNA quant real-time PCR; CMV PCR
Test Include:	Nucleic acid amplification test for quantitating CMV DNA in plasma
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday through Friday, Daily
Turnaround Time:	1-3 days
Specimen:	EDTA blood; EDTA plasma
Volume:	4-5 ml EDTA-blood (2.0 ml plasma)
Minimum Volume:	2.0 ml EDTA-blood (0.5 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant. **Specimen must be delivered to the Received Lab by 9:00AM on a test day if the same day result is desired.**
Storage Instruction:	Whole blood using EDTA as the anticoagulant may be stored and/or transported for up to 36 hours at 2-25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Plasma samples may be stored and/or transported for up to 6 days at 2-8°C or up to 12 weeks at -20°C ± 2°C. For long-term storage up to 6 months, temperatures at -75°C ± 15°C are recommended. Plasma samples are stable for up to four freeze/thaw cycles when frozen at -20°C ± 2°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 36 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or incomplete label that does not have essential patient identification information will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	34.50 - 10,000,000 IU/mL (1.54 -7.00 log10 IU/mL)
Clinical Use:	This test is intended for use in the detection and quantification of CMV specific DNA in human blood specimens. Quantitative CMV DNA PCR testing provides a “viral load” value useful for the early detection and management of CMV infections and diseases. It has been used to demonstrate the relationship between viral load and risk of CMV disease in several studies. It has been reported that patients with a baseline CMV viral load <18,200 IU/mL are likely to resolve CMV disease more rapidly than those who have a higher baseline viral load.
Limitation:	The performance characteristics were established only for human EDTA plasma samples; The limit of quantitation (LOQ) of this assay is 34.5 IU/mL (or 1.54 log10 IU/mL) of plasma. The clinical cutoff viral load for differentiating CMV infection from disease and for initiating anti-CMV therapy has not established. The CMV viral load results may not be comparable among different laboratories since various reference materials may be used as the assay calibrators; however, monitoring of the CMV viral load results from the same laboratory has shown significant value in patient management.
Methodology:	Real-time PCR, quantitative
Additional Information:	The test is performed using the Roche Cobas® 6800 CMV Test kit. Result of CMV DNA quantitative PCR is reported as International Unit (IU) per mL, which is traceable to the human CMV W.H.O. International Standard for Nucleic Acid Amplification Techniques (1st International Standard, NIBSC No. 09/162).

Test Name:	BK Virus (BKV) DNA Quantitative PCR-Plasma
Test Code:	BKVQR
CPT:	87799
Synonyms:	BKV DNA viral load; BKV DNA quant real-time PCR; BKV PCR
Test Include:	Nucleic acid amplification test for quantitating BKV DNA in plasma
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday, Wednesday, Friday
Turnaround Time:	1-3 days
Specimen:	EDTA blood; EDTA plasma
Volume:	3 ml EDTA-blood (1.0 ml plasma)
Minimum Volume:	1.0 ml EDTA-blood (0.35 ml plasma)
Container:	Lavender top (EDTA) tube
Collection:	Whole blood should be collected in sterile tubes using EDTA as the anticoagulant.
Storage Instruction:	Whole blood using EDTA as the anticoagulant may be stored and/or transported for up to 24 hours at 2-25°C prior to plasma preparation. Separate plasma from whole blood by centrifugation at 800-1,600 g for 20 min at room temperature. Upon separation plasma samples may be stored for 24 hours at 2-30°C in primary or secondary tubes. Storage in primary or secondary tubes for up to 6 days at 2-8°C. Storage in secondary tubes for up to 6 months at -15°C to -80°C. Plasma samples are stable for up to four freeze/thaw cycles when frozen at -15°C to -80°C.
Specimen Rejection:	Blood collected in green top (heparin) tube; inadequate specimen volume; plasma not separated from blood within 24 h of collection; leaking specimen; improper storage, excessive delay in transport; unlabeled or incomplete label that does not have essential patient identification information will not be processed unless the discrepancy can be corrected.
Reference Range:	Not Detected
Linearity Range:	21.50 - 100,000,000 IU/mL (1.33 -8.00 log10 IU/mL)
Clinical Use:	This test is intended for use in the detection and quantification of BKV specific DNA in human blood specimens. BKV is intended for use as an aid in the management of BKV in transplant patients. In patients undergoing monitoring of BKV in EDTA plasma, serial DNA measurements can be used to indicate the need for potential treatment changes and to assess viral response to treatment.
Limitation:	The performance characteristics were established only for human EDTA plasma samples; The limit of quantitation (LOQ) of this assay is 21.5 IU/mL (or 1.33 log10 IU/mL) of plasma. Due to the potential for variability in BKV DNA measurements across different BKV assays, it is recommended that the same device be used for the serial quantitation of BKV DNA when managing individual patients.
Methodology:	Real-time PCR, quantitative
Additional Information:	The test is performed using the Roche Cobas® 6800 BKV Test kit. Result of BKV DNA quantitative PCR is reported as International Unit (IU) per mL.

Test Name:	BK Virus (BKV) DNA Quantitative PCR-Urine
Test Code:	BKVQU
CPT:	87799
Synonyms:	BKV DNA viral load; BKV DNA quant real-time PCR; BKV PCR
Test Include:	Nucleic acid amplification test for quantitating BKV DNA in urine
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday, Wednesday, Friday
Turnaround Time:	1-3 days
Specimen:	Urine; Urine stabilized in Cobas® PCR Media
Volume:	10-50 ml Urine
Minimum Volume:	If not enough volume of urine (4.3 mL) is available for diluting in the Cobas® PCR Urine Sample tube, urine may be diluted manually with Cobas® PCR Media. Before testing with Cobas® BKV, at least 0.5 mL of neat urine must be manually diluted in Cobas® PCR Media (1:1 ratio).
Container:	Urine collection cup or Cobas® PCR Media Tube
Collection:	10 to 50 mL of the initial urine stream into a urine collection cup. Urine specimens must be transferred into the Cobas® PCR Media tube (stabilized) immediately.
Storage Instruction:	If specimens cannot be transferred immediately, they can be stored at 2ºC to 30ºC for up to 24 hours. Once the urine samples are stabilized in Cobas® PCR Media, samples may be stored for up to 90 days at 2-30°C.
Specimen Rejection:	Untested urine specimens must show the top of the liquid level between the two black lines on the Cobas® PCR Media tube label window. If the liquid level is above or below these lines, the specimen has not been collected properly and cannot be used for testing. Leaking or broken tube, inadequate storage or transport.
Reference Range:	Not Detected
Linearity Range:	200 - 100,000,000 IU/mL (2.30-8.00 log10 IU/mL)
Clinical Use:	This test is intended for use in the detection and quantification of BKV specific DNA in human urine specimens. BKV is intended for use as an aid in the management of BKV in transplant patients. In patients undergoing monitoring of BKV in EDTA plasma, serial DNA measurements can be used to indicate the need for potential treatment changes and to assess viral response to treatment.
Limitation:	The limit of quantitation (LOQ) of this assay is 200 IU/mL (or 2.30 log10 IU/mL) of urine. Due to the potential for variability in BKV DNA measurements across different BKV assays, it is recommended that the same device be used for the serial quantitation of BKV DNA when managing individual patients.
Methodology:	Real-time PCR, quantitative
Additional Information:	The test is performed using the Roche Cobas® 6800 BKV Test kit. Result of BKV DNA quantitative PCR is reported as International Unit (IU) per mL.

Test Name:	**SARS-CoV-2 PCR, Roche**
Test Code:	COVQL
CPT:	87635
Synonyms:	COBAS SARS-CoV-2 RT-PCR
Test Include:	Qualitative detection and identification SARS-CoV-2
Laboratory:	WMC Molecular/Virology Laboratory
Availability:	Daily
Turnaround Time:	1-3 day
Specimen:	Nasopharyngeal swab
Volume:	3 ml
Minimum Volume:	0.6 ml
Container:	UTM/VTM tube
Collection:	Collect one nasopharyngeal swab (NPS) and place swab specimen to one universal transport medium (UTM) tube provided by the laboratory.
Storage Instruction:	Specimen collected in UTM or VTM should be stored at 2-25ºC and processed within 48 hours. If longer storage is required, the specimens should be kept at -20 ºC or below.
Specimen Rejection:	Any non-nasopharyngeal swab specimens; NPS not in VTM tube; inadequate specimens; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete label; adult inpatients without Infectious Disease approval.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	A Detected result is considered a positive test result for COVID-19. This indicates that RNA from SARS-CoV-2 was detected and that the patient is considered infected with the virus and presumed to be contagious.
Limitation:	A Not Detected (negative) test result for this test means that SARS-CoV-2 RNA was not present in the specimen above the limit of detection. However, it does not rule out the possibility of COVID-19 and should not be used as the sole basis for patient management decisions.
Methodology:	An Indeterminate result means not all of the testing targets were detected. This could be due to a sample with viral concentrations near the limit of detection of the test or other factors. An additional sample collection may be considered.
Additional Information:	Detection of SARS-CoV-2 RNA may be affected by sample collection methods, patient factors (e.g., presence of symptoms), and/or stage of infection.

Test Name:	**CEPHEID SARS-CoV-2 plus PCR**
Test Code:	COVCP
CPT:	87635
Synonyms:	Cepheid SARS-CoV-2 plus RT-PCR
Test Include:	Qualitative detection and identification SARS-CoV-2
Laboratory:	WMC Molecular/Virology Laboratory
Availability:	Daily
Turnaround Time:	2 Hours
Specimen:	Nasopharyngeal swab
Volume:	3 ml
Minimum Volume:	0.3 ml
Container:	UTM/VTM tube
Collection:	Collect one nasopharyngeal swab (NPS) and place swab specimen to one universal transport medium (UTM) tube provided by the laboratory.
Storage Instruction:	Specimens can be stored at room temperature (15-30°C) for up to 48 hours and refrigerated (2-8°C) up to seven days until testing is performed. If longer storage is required, the specimens should be kept at -20 ºC or below.
Specimen Rejection:	Any non-nasopharyngeal swab specimens; NPS not in VTM tube; inadequate specimens; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete labels; adult inpatients without Infectious Disease approval.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	A Detected result is considered a positive test result for COVID-19. This indicates that RNA from SARS-CoV-2 was detected and that the patient is considered infected with the virus and presumed to be contagious. A Not Detected (negative) test result for this test means that SARS-CoV-2 RNA was not present in the specimen above the limit of detection. However, it does not rule out the possibility of COVID-19 and should not be used as the sole basis for patient management decisions. An Indeterminate result means not all of the testing targets were detected. This could be due to a sample with viral concentrations near the limit of detection of the test or other factors. An additional sample collection may be considered.
Limitation:	Detection of SARS-CoV-2 RNA may be affected by sample collection methods, patient factors (e.g., presence of symptoms), and/or stage of infection. As with any molecular test, mutations within the target regions of Cobas® SARS-CoV-2 could affect primer and/or probe binding resulting in failure to detect the presence of virus.
Methodology:	Real-time PCR
Additional Information:	This test is performed using an FDA-approved (EUA) kit. Cepheid Xpert Xpress SARS-CoV-2. The test is designed to amplify and detect unique sequences in nucleocapsid (N2) and envelope (E) targets. Nasopharyngeal swab is the only type of specimen acceptable for testing.

Test Name:	CEPHEID SARS-CoV-2/Flu/RSV plus PCR
Test Code:	CQUAD
CPT:	87635, 87636, 0241U
Synonyms:	Cepheid SARS-CoV-2/Flu/RSV plus
Test Include:	Qualitative detection and identification SARS-CoV-2, influenza A, influenza B, and/or respiratory syncytial virus (RSV)
Laboratory:	WMC Molecular/Virology Laboratory
Availability:	Daily
Turnaround Time:	2 Hours
Specimen:	Nasopharyngeal swab
Volume:	3 ml
Minimum Volume:	0.3 ml
Container:	UTM/VTM tube
Collection:	Collect one nasopharyngeal swab (NPS) and place swab specimen to one universal transport medium (UTM) tube provided by the laboratory.
Storage Instruction:	Specimens should be processed and tested as soon as possible. If storage is required, specimen stability is as follows: - Room Temperature (15-25°C) ≤48 hours - Refrigerated (2-8°C) ≤7 days - Frozen (≤-15°C) ≤30 days
Specimen Rejection:	Any non-nasopharyngeal swab specimens; NPS not in VTM tube; inadequate specimens; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete labels; adult inpatients without Infectious Disease approval.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	The Xpert Xpress CoV-2/Flu/RSV plus test is a rapid, multiplexed real-time RT-PCR test intended for the simultaneous qualitative detection and differentiation of RNA from SARS-CoV-2, influenza A, influenza B, and/or respiratory syncytial virus (RSV) in nasopharyngeal swab specimens collected from individuals suspected of respiratory viral infection. An Indeterminate result means not all of the testing targets were detected. This could be due to a sample with viral concentrations near the limit of detection of the test or other factors. An additional sample collection may be considered.
Limitation:	Detection of SARS-CoV-2 RNA may be affected by sample collection methods, patient factors (e.g., presence of symptoms), and/or stage of infection. As with any molecular test, mutations within the target regions of Cobas® SARS-CoV-2 could affect primer and/or probe binding resulting in failure to detect the presence of virus.
Methodology:	Multiplex Real-time PCR
Additional Information:	This test is performed using an FDA-approved (EUA) kit. Cepheid Xpert Xpress SARS-CoV-2/Flu/RSV plus. The test is designed to amplify and detect unique sequences in the following: nucleocapsid (N) and envelope (E) and RNA-dependent RNA polymerase (RdRP) genes of the SARS-CoV-2 virus genome, influenza A matrix (M), influenza A basic polymerase (PB2), influenza A acidic protein (PA), influenza B matrix (M), influenza B non- structural protein (NS), and the RSV A and RSV B nucleocapsid. Nasopharyngeal swab is the only type of specimen acceptable for testing.

Test Name:	**Meningitis/Encephalitis Multiplex PCR, CSF**
Test Code:	MEPCR
CPT:	87483 (effective 1/1/2017)
Synonyms:	MEPCR; Meningitis/Encephalitis PCR; Meningitis PCR panel; Encephalitis PCR panel; *Escherichia coli* PCR, CSF; *Haemophilus influenzae* PCR, CSF; *Listeria monocytogenes* PCR, CSF; *Neisseria menigitidis* PCR, CSF; *Streptococcus agalactiae* PCR, CSF; *Streptococcus pneumoniae* PCR, CSF; *Cytomegalovirus* (CMV) PCR, CSF; *Enterovirus* PCR, CSF; *Herpes simplex virus 1*(HSV-1) PCR, CSF; *Herpes simplex virus 2* (HSV-2) PCR, CSF; *Human Herpesvirus 6* (HHV-6) PCR, CSF; *Human Parechovirus* PCR, CSF; *Varicella-zoster virus* (VZV) PCR, CSF; and *Cryptococcus neoformans/gattii* PCR, CSF.
Test Include:	Qualitative detection and identification of *Escherichia coli* (w/ K1 capsular antigen only), *Haemophilus influenzae, Listeria monocytogenes, Neisseria menigitidis* (encapsulated only), *Streptococcus agalactiae, Streptococcus pneumoniae*, *Cytomegalovirus (CMV), Enterovirus, Herpes simplex virus 1(HSV-1), Herpes simplex virus 2 (HSV-2), Human Herpesvirus 6 (HHV-6), Human Parechovirus, Varicella-zoster virus (VZV),* and *Cryptococcus neoformans/gattii.*
Laboratory:	WMC Virology Laboratory
Availability:	Daily
Turnaround Time:	3 Hours
Specimen:	CSF (Non-centrifuged, lumbar puncture only)
Volume:	1-2 ml
Minimum Volume:	0.5 ml
Container:	Sterile collection tube
Collection:	Collect 1-2 mL of CSF to a sterile collection tube via standard lumbar puncture. Specimens should **NOT** be centrifuged. CSF collected via medical device (e.g. shunt) is unacceptable for this test.
Storage Instruction:	Transport specimen at 4°C with ice pad (preferred) or room temperature to the laboratory as soon as possible, but no later than 24 hours after collection. If delayed transport (>1 day) is expected, keep specimen refrigerated and transport to the laboratory in 4°C.Specimens should be processed and tested with the BioFire ME panel as soon as possible. Specimen can be stored at refrigerator temperature (2-8°C) for up to 7 days from the time of collection.
Specimen Rejection:	Any non-CSF specimens; CSF specimens collected via shunt or other indwelling medical device; insufficient volume (<200 microliters); specimen without label or label lack essential patient information; other conditions specified in the laboratory QM/QC program.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	The detection of viral, bacterial and/or yeast targets provides direct evidence for the presence of individual microorganism in clinical sample and can be used as an aid for the diagnosis in individuals suspected of central nervous system (CNS) infections.

Limitation:

The performance of this test has not been established for CSF specimens from patients without signs and/or symptoms of meningitis and/or encephalitis. The viral, bacterial and yeast nucleic acids detected by this assay may persist in vivo independent of organism viability. Results from this test must be correlated with the clinical, epidemiological and other laboratory data available for evaluating the patient.

A positive result does not imply that the corresponding organisms are infectious, or are the causative agents for clinical symptoms. The detection of analyte target(s) does not rule out co-infection with other organisms.

Negative results may be due to infection with pathogens that are not detected by this test or, improper specimen collection, transport or handling. A negative result does not exclude the possibility of viral, bacterial or yeast infection.

Cross-reactivity between *Enterovirus* and *Human Rhinoviruses* may occur; caution should be exercised during specimen collection to avoid contamination with rhinoviruses associated with respiratory infection. Other possible cross-reactivity may include those between *H. influenzae* and *H. haemolyticus*, and between *C. neoformans/gattii* and *C. amylolentus*. In addition, this test cannot distinguish the latent or active infection of HHV-6 and CMV.

Only *E. coli* strains possessing the K1 capsular antigen will be detected. Only encapsulated strains of *N. meningitidis* will be detected.

Methodology: Multiplex real-time PCR

Additional Information: An Infectious Disease Approval is required for all inpatients. Consult Infectious Disease for approval prior to order this test.
This test is performed using an FDA-approved Meningitis/Encephalitis Panel kit.
CSF from lumbar puncture is the only type of specimen acceptable for testing. This test is not intended for use with CSF collected from indwelling medical devices (e.g. shunt).

Test Name:	**Respiratory Multiplex PCR**
Test Code:	RMPCV
CPT:	87633, 87798, 87486, 87581
Synonyms:	Respiratory panel PCR
Test Include:	Qualitative detection and identification of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), *Adenovirus, Coronavirus (229E, HKU1, NL63 and OC43), human Metapneumovirus (hMPV), human Rhinovirus/Enterovirus, Influenza virus A (subtype H1, H3 and H1/2009), Influenza virus B, Parainfluenza viruses 1-4, Respiratory syncytial virus (RSV), Bordetella pertussis, Chlamydophila penumoniae* and *Mycoplasma pneumoniae*.
Laboratory:	WMC Molecular/Virology Laboratory
Availability:	Daily
Turnaround Time:	2 Hours
Specimen:	Nasopharyngeal swab
Volume:	3 ml
Minimum Volume:	0.3 ml
Container:	UTM/VTM tube
Collection:	Collect one nasopharyngeal swab (NPS) and place swab specimen to one universal transport medium (UTM) tube provided by the laboratory.
Storage Instruction:	*At room temperature for up to 4 h*ours (15-25 °C) Refrigerated for up to 3 days (2-8 °C) Frozen (≤-15 °C or ≤-70°C) (for up to 30 days)
Specimen Rejection:	Any non-nasopharyngeal swab specimens; NPS not in VTM tube; inadequate specimens; leaking specimens; improper storage; excessive delay in transport; specimens with no label or incomplete labels; adult inpatients without Infectious Disease approval.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	The detection of respiratory virus and bacteria provides direct evidence for the presence of individual microorganism in clinical sample and can be used as an aid for the diagnosis in individuals suspected of respiratory tract infections.
Limitation:	The viral and bacterial nucleic acids detected by this assay may persist *in vivo* independent of organism viability. Results from this test must be correlated with the clinical, epidemiological and other laboratory data available for evaluating the patient. A positive result does not imply that the corresponding organisms are infectious, or are the causative agents for clinical symptoms. The detection of analyte target(s) does not rule out co-infection with other organisms. A negative result does not exclude the possibility of viral or bacterial infection. This test cannot reliably differentiate between human Rhinovirus and Enterovirus. The Coronavirus OC43 assay may cross-react with Coronavirus HKU1. Recent administration of a nasal influenza vaccine may cause false positive results for Influenza A and/or Influenza B.
Methodology:	Multiplex real-time PCR
Additional Information:	This test is performed using an FDA-approved Respiratory Panel kit. BioFire Respiratory Panel 2.1 (RP 2.1). Nasopharyngeal swab is the only type of specimen acceptable for testing.

Test Name:	**Gastrointestinal Multiplex PCR**
Test Code:	GIPCR
CPT:	87507
Synonyms:	Gastrointestinal panel
Test Include:	Qualitative detection and identification of *Campylobacter* (C. Jejuni/C.coli/C. upsaliensis), *Plesiomonas shigelloides, Salmonella, Vibrio (V. parahaemolyticus/V. vulnificus/v. cholera, including specific I.D. of Vibrio cholera), Yersinia enterocolitica, Enteroaggregative Escherichia coli (EAEC), Enteropathogenic Escherichia coli (EPEC), Enterotoxigenic Escherichia coli (ETEC) lt/st, Shiga-like toxin-producing Escherichia coli (STEC) stx1/stx2 (including specific identification of the E. coli O157 serogroup within STEC), Shigella/Enteroinvasive Escherichia coli (EIEC), Cryptosporidium, Cyclospora cayetanesis, Entamoeba histolytica, Giardia lamblia, Adenovirus* F40/41*, Astrovirus, Norovirus* GI/GII*, Rotavirus A, Sapovirus* (Genogroups I, II, IV and V).
Laboratory:	WMC Virology Laboratory
Availability:	Daily
Turnaround Time:	1 day
Specimen:	Stool in FecalSwab™ Collection Tube / Cary-Blair Transport Media
Volume:	2 ml containing 0.5 g of soft stool or 0.5-mL of liquid stool
Minimum Volume:	0.5 ml (or 0.5 gram) stool
Container:	Sterile collection tube; FecalSwab™ Collection Tube / Cary-Blair Transport Media
Collection:	Collect fresh stool to a sterile container and deliver to the lab within 2 hrs of collection; or use flocked swab provided in the FecalSwab collection kit obtained from the laboratory to transfer 0.5-mL of liquid or 0.5 gram of soft stool specimen to the FecalSwab collection tube containing 2-mL of Carey-Blair transport medium.
Storage Instruction:	At room temperature for up to 4 days. Refrigerated for up to 4 days.
Specimen Rejection:	Any non-stool specimens; stool specimens collected in the wrong collection media; stool samples in fixative (e.g., formalin or polyvinyl alcohol; PVA); insufficient volume; specimen without label or label lack essential patient information; stool in FecalSwab transport tube for >2 days at room temperature or >4 days at 2-8°C; other conditions specified in the laboratory QM/QC program. Duplicate stool specimen collected within 7 days will be rejected if not justified by the requesting physician.
Reference Range:	Not Detected
Linearity Range:	N/A
Clinical Use:	The detection of viral, bacterial and/or parasitic targets provides direct evidence for the presence of individual microorganism in clinical sample and can be used as an aid for the diagnosis in individuals suspected of gastrointestinal infections.

Limitation: The viral, bacterial and parasitic nucleic acids detected by this assay may persist in vivo independent of organism viability. Results from this test must be correlated with the clinical, epidemiological and other laboratory data available for evaluating the patient. A positive result does not imply that the corresponding organisms are infectious, or are the causative agents for clinical symptoms. The detection of analyte target(s) does not rule out co-infection with other organisms. Negative results may be due to infection with pathogens that are not detected by this test or, improper specimen collection, transport or handling. A negative result does not exclude the possibility of viral, bacterial or parasitic infection. This test will only detect Enteroaggregative *E. coli* (EAEC) strains carrying the *aggR* and/or *aatA* gene on the pAA plasmid.

Please request the C. difficile PCR to be performed on the Cepheid GeneXpert system if an infection of *C. difficile* is suspected.

Methodology: Multiplex real-time PCR

Additional Information: **An Infectious Disease Approval is required for all inpatients.** Consult Infectious Disease for approval prior to order this test. Request without ID/GI approval will be rejected and requesting physician will be notified.

This test is performed using an FDA-approved Gastrointestinal Panel kit.
Rectal/stool swab in Cary Blair medium is the only type of specimen acceptable for testing.
Call Virology Laboratory at (914) 493-1090 for more information.

Test Name:	**Pneumonia Panel Multiplex PCR**
Test Code:	PNPCR
CPT:	87633
Synonyms:	Pneumonia Panel PCR
Test Include:	**The following bacteria are reported semi-quantitatively with bins representing approximately 10^4, 10^5, 10^6, or ≥10^7 genomic copies of bacterial nucleic acid per milliliter (copies/mL) of specimen:** Acinetobacter calcoaceticus-baumannii complex, Enterobacter cloacae complex, Escherichia coli, Haemophilus influenzae, Klebsiella aerogenes, Klebsiella oxytoca, Klebsiella pneumoniae group, Moraxella catarrhalis, Proteus spp., Pseudomonas aeruginosa, Serratia marcescens, Staphylococcus aureus, Streptococcus agalactiae, Streptococcus pneumoniae, Streptococcus pyogenes. **The following atypical bacteria, viruses, and antimicrobial resistance genes are reported qualitatively:** Chlamydia pneumoniae, Legionella pneumophila, Mycoplasma pneumoniae, Adenovirus, Coronavirus, Human Rhinovirus/Enterovirus, Human Metapneumovirus, Influenza A, Influenza B, Parainfluenza Virus, Respiratory Syncytial Virus, CTX-M, IMP, KPC, NDM, OXA-48-like, VIM, mecA/C and MREJ.
Laboratory:	WMC Molecular Diagnostics
Availability:	Daily 7 am – 6 pm
Turnaround Time:	1 Day
Specimen:	Bronchoalveolar lavage (BAL)-like specimens, Sputum-like specimens
Volume:	1-3 mL
Minimum Volume:	Approximately 0.2 mL (200 µL) of specimen material will be captured by the Sample Swab for transfer into the test.
Container:	Sterile container
Collection:	BAL and mini-BAL collected according to standard technique, induced and expectorated sputum, as well as endotracheal aspirate (ETA) collected according to standard technique.
Storage Instruction:	If storage is required, specimens can be held: Refrigerated for up to 1 day (2–8°C).
Specimen Rejection:	Unlabeled or incomplete labeled specimens on requisition and specimen container with less than two patient identifiers; Leaking specimen; Specimen with insufficient quantity (less than 0.2-mL) Inappropriate packing, transport or stored specimens as specified in the laboratory specimen collection, handling and testing guideline. Miscellaneous per Department Specimen Rejection policies and criteria.
Reference Range:	Not detected
Linearity Range:	N/A
Clinical Use:	Simultaneous detection and identification of multiple respiratory viral and bacterial nucleic acids, as well as select antimicrobial resistance genes, in bronchoalveolar lavage (BAL)-like specimens (BAL or mini-BAL) obtained from individuals suspected of lower respiratory tract infection.

Limitation: Results from this test must be correlated with the clinical, epidemiological and other laboratory data available for evaluating the patient. A positive result does not imply that the corresponding organisms are infectious, or are the causative agents for clinical symptoms since viral and bacterial nucleic acids may persist in vivo independent of organism viability.
A negative result does not exclude the possibility of viral or bacterial infection. Negative test results may occur from the presence of sequence variants in the region targeted by the assay, the presence of inhibitors, technical error, sample mix-up or an infection caused by an organism not detected by the panel. Test results may also be affected by concurrent antiviral/antibacterial therapy or levels of organism in the specimen that are below the limit of detection for the test or below the reportable level for bacterial analytes. Negative results should not be used as the sole basis for diagnosis, treatment, or other patient management decisions.

Methodology: Multiplex real-time PCR

Additional Information: This test is performed using an FDA-approved BioFire Pneumonia Panel.

Test Name:	**Factor V Leiden Mutation PCR**
Test Code:	FVLED
CPT:	81241
Synonyms:	Factor V mutation; Factor V Leiden mutation
Test Include:	Qualitative detection and genotyping
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday - Friday
Turnaround Time:	1-3 days
Specimen:	EDTA whole blood
Volume:	2 ml blood
Minimum Volume:	0.5 ml blood
Container:	Lavender top (EDTA) tube
Collection:	Collect 2 ml EDTA whole blood and transport to laboratory at room temperature within 6 h of collection, or keep specimen refrigerated.
Storage Instruction:	Keep specimen refrigerated after receiving in the lab. Do not centrifuge and separate plasma.
Specimen Rejection:	Order without signed copy of Informed consent form (HC-1070-10); Blood collected in green top (heparin) tube; inadequate specimen volume; leaking specimen; improper storage, excessive delay in transport; specimen with no label or incomplete label that does not have essential patient identification information.
Reference Range:	Factor V Leiden Mutation Negative
Linearity Range:	N/A
Clinical Use:	Factor V Leiden is the most common inherited cause of thrombophilia. A point mutation at position 1691 of the Factor V gene, referred to as Factor V Leiden mutation, causes an Arginine to Glutamine substitution at position 506 (R506Q) in the Factor V protein and renders it partially resistant to inactivation by activated protein C (APC). Individuals who have one copy of the mutation (heterozygous) are at a 4-8-fold increased risk of thrombosis and individuals who have two copies of the mutation (homozygous) are at a 40-80-fold increased risk of thrombosis.
Limitation:	Since genetic variation and other factors can affect the accuracy of direct mutation testing, these results should be interpreted in conjunction with other clinical and laboratory data.
Methodology:	Real-time PCR, qualitative
Additional Information:	**Signed WMC Informed Consent Form (HC-1070-10) is required for this test.** This test is performed using the Cepheid Xpert® Factor II & Factor V Assay kit.

Test Name:	**Prothrombin G20210A Mutation PCR**
Test Code:	PROMU
CPT:	81240
Synonyms:	Factor II mutation; Prothrombin mutation
Test Include:	Qualitative detection and genotyping
Laboratory:	WMC Molecular Diagnostics
Availability:	Monday - Friday
Turnaround Time:	1-3 days
Specimen:	EDTA whole blood
Volume:	2 ml blood
Minimum Volume:	0.5 ml blood
Container:	Lavender top (EDTA) tube
Collection:	Collect 2 ml EDTA whole blood and transport to laboratory at room temperature within 6 h of collection, or keep specimen refrigerated.
Storage Instruction:	Keep specimen refrigerated after receiving in the lab. Do not centrifuge and separate plasma.
Specimen Rejection:	Order without signed copy of Informed consent form (HC-1070-10); Blood collected in green top (heparin) tube; inadequate specimen volume; leaking specimen; improper storage, excessive delay in transport; specimen with no label or incomplete label that does not have essential patient identification information.
Reference Range:	Prothrombin G20210A Mutation Negative
Linearity Range:	N/A
Clinical Use:	The G20210A mutation in the Factor II (Prothrombin) gene is the second most common inherited risk factor for thrombosis. Individuals who have one copy of the mutation are at a 3-6-fold increased risk for thrombosis and individuals who have two copies are at an even more increased risk.
Limitation:	Since genetic variation and other factors can affect the accuracy of direct mutation testing, these results should be interpreted in conjunction with other clinical and laboratory data.
Methodology:	Real-time PCR, qualitative
Additional Information:	**Signed WMC Informed Consent Form (HC-1070-10) is required for this test.** This test is performed using the Cepheid Xpert® Factor II & Factor V Assay kit.

Test Name:	**Focus Cancer Panel for Solid Tumor**
Test Code:	FOCUS
CPT:	81455
Synonyms:	AmpliSeq for Illumina Focus Panel. Focus Panel, Solid Tumor Panel, NGC Panel, Somatic Mutations
Test Include:	To detect multiple types of variants that are frequently mutated in 52 genes with known relevance to solid tumors, including single nucleotide variants (SNVs), insertion/deletions (indels), and copy number variants (CNVs) in DNA samples, and gene fusions in RNA samples.
Laboratory:	WMC Molecular Diagnostics
Availability:	Bi-weekly
Turnaround Time:	4-14 days
Specimen:	Formalin-Fixed Paraffin-Embedded tissue block or unstained slides
Volume:	15 sections of unstained FFPE slides and 1 HE slide
Minimum Volume:	15 sections of unstained FFPE slides and 1 HE slide
Collection:	Unstained slides can be recut and stored at room temperature until processing
Storage Instruction:	Keep specimen at room temperature after receiving in the lab.
Specimen Rejection:	If the received specimen is deemed unacceptable for testing, including inadequate/incorrect /lack of patient identification, inadequate sections, poor fixation or decalcified in acid, inadequate tumor content (<10% tumor cells for SNVs, INDEL and Fusion calls; and <20% for CNVs), the specimen will be rejected or will be referred to alternative testing methods when available.
Reference Range:	No any somatic mutations detected in this Focus Panel
Linearity Range:	N/A
Clinical Use:	Testing for these mutations may provide information for diagnosis, prognosis, treatment response prediction and therapeutic drug selection for the patients with solid tumor.
Limitation:	**1.** This method is suited for the detection of known, recurrent mutations in hotspot regions, CNVs and fusions. It is not designed to detect mutations located elsewhere than the specified genomic positions. **2.** It is also not well suited to detect large insertions, deletions. **3.** The analytical sensitivity of the assay is at 5% allele frequency for SNV/INDEL and fusion call (within 95% confidence interval) in a wild-type background. Therefore, a minor mutant allele population (<5%) may not be detected by this assay. **4.** This assay may not detect the SNV/INDEL/FUSION mutations in the FFPE tissues with a percentage of tumor cells less than 10%, or CNV if the tumor content is less than 20%.
Methodology:	Next-generation sequencing.
Additional Information:	AmpliSeq for Illumina Focus Panel on MiSeqDx is a sensitive assay to detect **5% mutations** for SNV/INDEL and FUSION in a background of normal alleles at 500x coverage **and 2.5 or 1.5 copy number of gene amplification or loss** in formalin-fixed paraffin embedded tissue.

Test Name:	**JAK2 V617F Mutation**
Test Code:	JAK2V
CPT:	81270
Synonyms:	Janus kinase 2; JAK2 gene analysis; p.Val 617Phe (V617F) variant
Test Include:	Detection of JAK2 V617F mutation
Laboratory:	WMC Molecular Diagnostics
Availability:	Variable
Turnaround Time:	2-7 days
Specimen:	EDTA -whole blood or bone marrow
Volume:	2.0 mL
Minimum Volume:	0.5 mL
Container:	Lavender-top tube with EDTA as anti-coagulant
Collection:	Collect EDTA whole blood or bone marrow and transport to laboratory at room temperature or refrigerated within 6 h of collection. Keep sample refrigerated if transport delay is expected.
Storage Instruction:	The specimen should be processed within 24 hours if stored at room temperature or within 7 days if refrigerated at 4°C.
Specimen Rejection:	Hemolysis (which inhibits PCR), inadequate sample volume, incorrect specimen collection tube type, i.e., heparin (green topped), evidence of specimen tampering, broken tubes or transportation containers and incorrect/absent patient identification.
Reference Range:	Negative for JAK2 (V617F) mutation
Linearity Range:	N/A
Clinical Use:	The JAK2 V617F mutation has been detected in ~95% of patients with polycythemia vera (PV), ~50% of those with essential thrombocythemia (ET) and primary myelofibrosis (PMF). Results of this test must always be interpreted in the context of clinicopathologic data. The result should not be used as the sole diagnostic test.
Limitation:	The detection limit for this assay is 0.1% of JAK2 V617F DNA in a background of wild type DNA.
Methodology:	ARMS-PCR
Additional Information:	JAK2 V617F mutation can be found in ~1% of normal individuals without evidence of myeloid neoplasms. The clinical significance of such mutation is not clear. Therefore, this test should not be used alone for the diagnosis of PV, ET, and IMF. Clinical correlation is recommended.

Cytogenetics

Specimen	Collection & Transport Method	Comments
1. Postnatal:		
Peripheral Blood	**Whole blood** must be collected aseptically in the **green top** (**sodium heparin)** **Children and adult: 3-5 mL** **Infant: 2-3 mL** **Note: Invert the tube several times to prevent clotting.** **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, Clotted.**	Transport the specimen ASAP to the lab with the appropriately filled requisition and informed consent forms. **Note: Delay in shipping/delivery may compromise cell viability and results. The laboratory will make every attempt to culture the specimen.**
Skin biopsy:	Decontaminate skin. A piece (**4 mm^3**) of skin obtained aseptically at biopsy should be placed in the sterile container with RPMI medium or sterile saline solution. **Note:** Biopsy specimens are best taken by **punch biopsy** to include the full thickness of dermis. Please see below. 1. Wash biopsy site with an antiseptic soap. 2. Thoroughly rinse area with sterile water. 3. Do not use alcohol or iodine preparations. 4. A local anesthetic may be used. **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin.**	Transport the specimen ASAP to the lab with the appropriately filled requisition and informed consent forms. **Note: Delay in shipping/delivery may compromise cell viability and results. The laboratory will make every attempt to culture the specimen.**
Products of conception (POC)/Still Birth:	Aseptically, collect **1-3 cm^3 piece** of placental tissue (including **10-25 mg chorionic villi**) and 1 cm^3 biopsy specimen of muscle/fascia from the thigh in the sterile screw-top container with RPMI medium or sterile saline solution. If multiple specimen types are sent, send each specimen in a separate container. If autopsy is performed: Facia lata, diaphragm, tendon, skin, tissue from internal organs (if fresh), chest wall cartilage (particularly if macerated) or placenta from fetal side. If no autopsy is performed: Placenta from fetal side is preferred (e.g. villi). **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin.**	Transport the specimen ASAP to the lab with the appropriately filled requisition and informed consent forms. **Note: Delay in shipping/delivery may compromise cell viability and results.** The laboratory will make every attempt to culture the specimen.
2. Cancer:		
Peripheral Blood	**Whole blood** must be collected aseptically in the **green top** (**sodium heparin)** Collect **5-7 mL** **Note: Invert the tube a few times to prevent clotting.** **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin, Clotted.**	Transport the specimen ASAP to the lab with the appropriately filled requisition form. **Note: Delay in shipping/delivery may compromise cell viability and results.** The laboratory will make every attempt to culture the specimen.
Bone Marrow	Collect **2-3 ml** aseptically in the **green top** (**sodium heparin)** **Note: Invert the tube a few times to prevent clotting.** **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin, Clotted.**	Transport the specimen ASAP to the lab with the appropriately filled requisition form. **Note: Delay in shipping/delivery may compromise cell viability and results.** The laboratory will make every attempt to culture the specimen.

Specimen	Collection & Transport Method	Comments
Solid Tumor	A **0.5 cm^3 – 1 cm^3** of tumor biopsy should be collected using aseptic procedures, avoid areas of necrosis. Place the specimen in a sterile screw-top tissue container with sterile RPMI medium or sterile saline. **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin.**	Transport the specimen ASAP to the lab with the appropriately filled requisition form. **Note: Delay in shipping/delivery may compromise cell viability and results.** The laboratory will make every attempt to culture the specimen.
Lymph Node	**Minimum 10 mm^3** of solid tumor biopsy obtained by aseptic method in sterile screw-top container filled with sterile RPMI medium. **Room temperature (Ambient): Preferred** **Stability: Ambient: 24 hours; refrigerated: 48 hours old*** **Unacceptable: Frozen, in formalin.**	Transport the specimen ASAP to the lab with the appropriately filled requisition form. **Note: Delay in shipping/delivery may compromise cell viability and results.** The laboratory will make every attempt to culture the specimen.

***NOTE:** *If the sample cannot be sent immediately after drawing or collecting, it should be kept **at room (ambient) temperature or 4º C** until it is ready to be transported or mailed. (Every precaution should be observed to prevent freezing of the sample. If the sample is kept in a regular refrigerator, make sure the sample is **away from the freezer chest** or **shelf** to avoid chance freezing).

If specimen collection time is greater than 72 hours, testing may be compromised. The laboratory will make every attempt to culture the specimen.

HLA

Test Name	Specimen Container & Special Instructions	Reference Ranges
Auto Crossmatch (recipient vs. self)	1 Red top & 3 Yellow tops ACD from Recipient.	See Patient Report
Class I Antibody Identification	1 Red top tube (clotted blood from recipient)	See Patient Report
Class II Antibody Identification	1 Red top tube (clotted blood) from Recipient	See Patient Report
HLA B27	2 Yellow top ACD tubes	See Patient Report
HLA Flow Cross match (donor vs. recipient (s))	Recipient: 1 Red top tube. Living Donor: 3 Yellow top (ACD) tubes; Deceased Donor: Spleen, Lymph node or Peripheral Blood 3 yellow top (ACD tubes)	See Patient Report
HLA-ABC & DRDQDP (Class I and II) Typing	5 Yellow top tubes (ACD Solution)	See Patient Report
HLA-ABC (Class-I) Typing	3 Yellow top tubes (ACD Solution)	See Patient Report
HLA-DR (Class-II) Typing	3 Yellow top tubes (ACD Solution)	See Patient Report

Flow Cytometry

Test Name	Specimen Container & Special Instructions	Reference Ranges
Immune Cell Function	Sodium heparin (green top), Potassium EDTA (lavender top) Deliver to: Anatomic Pathology and immediately bring it, with complete appropriate form, to the attention of technologist, clerk, resident, or pathologist. **Do not leave the specimen in the laboratory without telling anyone**	See Patient Report
Leukemia/Lymphoma Markers - Immunophenotyping	Sodium heparin (green top), Potassium EDTA (lavender top), bone marrow, tissues, fluid Deliver to: Anatomic Pathology and immediately bring it, with complete appropriate form, to the attention of technologist, clerk, resident, or pathologist. **Do not leave the specimen in the laboratory without telling anyone**	See Patient Report

Microbiology

Source	Specimen	Collection & Transport Method	Comments
Anaerobic	Abscesses	Aspirate pus and transport in red top tube (RTT) (without separator) or anaerobic transport container. Transport immediately.	Expel air from syringe before inoculating RTT. Transport containers available in Microbiology lab. Do not refrigerate. Swabs are inadequate.
	Body Fluids	Decontaminate skin. Collect 1 ml of fluid. Transport immediately in red top tube, other sterile container, or anaerobic transport container.	Same. Do not put in blood culture bottles.
	Tissue	Surgically remove adequate size piece of tissue and transport in anaerobic or another sterile container. Transport immediately.	Add no more than 0.5 ml sterile saline to prevent drying if necessary for small piece of tissue.
	Wound	Debride necrotic tissue. Biopsy sample from leading edge or below debrided tissue. Transport in anaerobic transport container.	Do not sample non-debrided necrotic areas. Swabs often inadequate. (If swab, 2 required if stain and culture needed)

Source	Specimen	Collection & Transport Method	Comments
Body Fluids	Bile	Surgically aspirate or obtain from drainage line at least 1 ml. Transport in sterile container or Anaerobic Transport container.	For anaerobes use anaerobic transport container. Swabs inadequate.
	Blood	Decontaminate skin with 70% alcohol and then 2% tincture of iodine (wait 1 min.). Disinfect rubber stoppers of bottles. **2-3 sets of blood cultures within 24 hours recommended.** For adults, collect 20 ml by sterile venipuncture. Put 10 ml into each of two blood culture bottles. For pediatric patients, collect 1-10 ml per set of blood culture. Inoculate the aerobic culture bottle first if less than the recommended volume of blood is drawn. Contact Microbiology Lab for detailed instructions.	Palpate vein before decontamination. Transport immediately, do not refrigerate. No more than 3x cultures within 24 hours are acceptable except for prior approval by ID or Microbiology. This system will detect most candidemias. For unusual fungi and cryptococcus, see Mycology section. Blood cultures are incubated routinely for 5 days. Specify on requisition slip or call microbiology lab if prolonged incubation time needed for recovery of certain fastidious organisms.
	Bone Marrow	Decontaminate skin. Collect 1 ml or more by sterile percutaneous aspiration. Transport in blood bottles or purple top tube or isolator tube if systemic fungemia suspected (if 3 ml or more).	Purple top vacutainer recommended for smear for histoplasmosis.
	Cerebrospinal Fluid	Decontaminate skin. Collect at least 1 ml by sterile lumbar puncture. Transport immediately in sterile CSF Centrifuge tube.	Collect shunt CSF in a sterile CSF centrifuge tube or other sterile centrifuge tube. Do not refrigerate.
	Other fluids (Synovial, pleural, peritoneal, pericardial, dialysate, other)	Collect aseptic aspiration at least 1 mL of fluid and transport in sterile tube	For anaerobic culture, send in red top tube or anaerobic vial. Swabs inadequate.

Source	Specimen	Collection & Transport Method	Comments
Catheter Tips	Intravenous Penrose, Arterial vascular	Decontaminate skin surface, remove catheter. Aseptically cut a 1-4-inch segment. Transport in sterile container.	**Do not add any fluid.** Transport immediately to prevent drying.
	Foley	Not recommended for culture.	Specimen rejected by microbiology.

Source	Specimen	Collection & Transport Method	Comments
Ear	External	Clean surface of external canal. Obtain swab, scraping or fluid aspirate. Transport in sterile container or culture swab.	Collect material from inflammation margin, preferably fresh secretions.
	Internal	Cleanse external canal. Obtain drainage fluid by tympanocentesis. Transport in sterile container.	Submit fluid if volume allows.

Source	Specimen	Collection & Transport Method	Comments
Eye	External	Cleanse skin around eye. Use sterile curettes for conjunctival or corneal scrapings and directly inoculate appropriate media. (ophthalmology)	Transport immediately. Giemsa and gram stains may be requested. Proper curettes may be obtained from ophthalmology. Swabs are often inadequate.
	Internal	Surgically obtain fluid with syringe. Transport immediately in red top tube. May be transported immediately in other sterile tube.	Label whether left or right eye. Do not use a swab.

Source	Specimen	Collection & Transport Method	Comments
Gastrointestinal	Bile	See body fluids.	
	Colostomy Ileostomy	Obtain several mL by aspiration. Transport immediately in sterile container.	Swabs not recommended. Do not use fixative if culture is requested.
	Gastric aspirate	Not acceptable for routine bacterial culture.	TB cultures are sent to the county health department.
	Gastric Biopsy	Obtain biopsy from Antral tissue and transport in sterile container with 0.5 ml of saline.	For *Helicobacter pylori* only.
	Rectal swab	Obtain 3 swabs on consecutive days. Transport immediately. Stool is preferred.	Not useful to detect enteric pathogen carriers, not suitable for ova and parasites.
	Stool	At least 1g obtained on up to 3 consecutive samples. Transport in clean waxed cardboard or another suitable container.	For culture do not add fixative. For Inpatients admitted for more than 3 days, Infectious Disease approval required.
	Stool for clostridium difficile	Stool sample in clean container.	Accept up to 3 stools within 5 days. Test not useful to monitor therapy.
	Perianal for VRE or other surveillance organisms	Swab of the perianal area.	Request 'Surveillance culture' and specify the organism(s) to be ruled out. Contact IC and Microbiology Lab if cultures for multiple patients needed.

Source	Specimen	Collection & Transport Method	Comments
Genital	Cervix	Obtain cervical exudate by aspiration or swab. Transport immediately.	Two swabs required (vaginal and rectal) for group B Strep screen. Tests for chlamydia and *N. gonorrhoeae.*
	Endometrium Placenta	Obtain curettings, aspiration, or placental tissue and transport immediately in a sterile container.	External contamination high when obtained through the vagina.
	Lesions (for Treponemes/Darkfield)	Notify Laboratory (7503) prior to collection. Prepare skin by soaking well with sterile saline gauze. Gently scrape lesion and collect non-bloody serous exudate onto coverslip. Place coverslip onto slide (add a small drop of saline if needed to prevent drying). **Slide must be wet!**	Transport immediately to laboratory since motility is only seen on warm specimens. Special culture techniques required for chancroid.
	Vagina	Use speculum, no lubricant and aspirate or swab mucosa in vaginal canal. Transport on culture swabs. Smear performed to determine presence of vaginitis or vaginosis.	Routine culture commonly for *Gardnerella*, high Group B Strep and yeast only. Direct wet mount needed for Trichomonas.
	Urethra	Cultures for *N. gonorrhoeae/C. trachomatis*	

Source	Specimen	Collection & Transport Method	Comments
Respiratory	Bronchial	Aspirate secretions through bronchoscope. Transport in sterile tracheal container.	
	Nasopharynx	Pass thin wire/flexible swab through nose gently into nasopharynx. Rotate and remove. Transport swab immediately.	*Bordatella pertussis* PCR or culture requires special transport medium. Contact the receiving lab to obtain kit before sampling (914) 493-8785.
	Nose	Insert swab 1 inch into nose and gently rotate. Transport in culture swab.	Culture for *S. aureus* carriers only. Specify culture for MRSA or *S. aureus.*
	Oral Cavity	Rinse mouth, obtain swab of mucosal surface or aspirate abscess exudate. Send exudate in Anaerobic Transport Vial.	Mucosal surface for yeast, Exudate for Anaerobic cultures and Actinomyces.
	Sputum	Instruct patient to cough deeply and expectorate sputum sterile collection cup. Transport promptly.	Gram stain done routinely. Saliva contaminated into specimens (OC) will be rejected.
	Throat	Swab areas of exudation or inflammation. Do not touch oral mucosa or tongue. Rub tonsillar crypts vigorously. Transport on culture swabs.	Culture for beta strep only, and *Haemophilus* in children younger than 4 years old.
	Tracheal Aspirate	Same as sputum.	
	Transtracheal Aspiration	Aspirate exudate with sterile catheter/needle in trachea. Transport in red top tube or anaerobic vial.	Anaerobic cultures always performed. Transport immediately.
	Tuberculosis		Referred to County Health Department.

Source	Specimen	Collection & Transport Method	Comments
Urine	Clean catch, midstream urine	Clean genital area well, void 20-25 mL, then collect specimen in a sterile cup. Transport within 2 hours or refrigerate.	Early morning specimen is best. Urinalysis should also be performed. Do not collect urine from a urine collection bag.
	Indwelling catheterized	Discard first 10-15 ml and collect specimen in sterile container. Transport within 2 hours or refrigerate.	May be collected by aspiration through tubing. Never from collection bag. One usually sufficient for diagnosis. Indicate "catheterized" on requisition.
	Suprapubic aspiration	Collect several mL by sterile bladder needle aspiration or straight (in and out) catheterization. Transport within 2 hours or refrigerate.	Anaerobic performed upon request only. **Do not call 'straight catheterized' if the sample is collected from an indwelling catheter.**

Source	Specimen	Collection & Transport Method	Comments
Wounds	Abscesses	See "Anaerobic." For aerobic culture only. Obtain exudate and transport in sterile container.	Do not refrigerate. Swab may be inadequate. One specimen per site per day accepted. If swab, 2 required for stain.
	Burns/Decubiti	Clean surface with 70% alcohol. Swab or aspirate deeper areas. Transport in sterile container only.	Swabs may be inadequate due to colonization on contaminants. Decubiti unacceptable without justification.
	Pus, Exudate, Drainage	Clean and debride area as needed. Obtain fresh specimen, preferably by syringe aspiration. Transport immediately.	For anaerobic cultures, use anaerobic transport container. Swabs inadequate. If swab, 2 required for stain.
	Superficial wound	Clean surface with 70% alcohol. Swab or aspirate deeper areas. Do not collect lesion surface. Transport in sterile container or culture swab.	Notify lab if wound is a bite.
	Tissue	See "Anaerobic"	
	Umbilicus	Swab area and transport in culture swab.	Culture for *Staphylococcus aureus.*
	Serum Bactericidal Assay	Contact microbiology lab (x8997) if request approved by Infectious Disease Attendings.	Need special order. Consult Infectious Disease for approval.

Source	Specimen	Collection & Transport Method	Comments
Mycology	Skin/Hair/Nails	Obtain scrapings, cuttings or clippings and transport to laboratory in clean paper envelope or sterile container.	Direct examination for fungal elements and culture performed routinely.
	Actinomycotic Lesions	Collect by syringe and transport anaerobically.	Request must state "For Actinomyces."
	Blood	For most common Candidemias, the routine blood culture system is adequate. For unusual fungi (filamentous, Cryptococcus, dimorphic), obtain isolator tubes from microbiology laboratory. Prepare skin as for routine blood culture. Obtain minimum 7.5 mL for adult size isolator tube and minimum 0.5 mL for pediatric isolator tube.	Isolator tubes are obtained from microbiology laboratory after approval by infectious disease. Do no refrigerate tubes. Transport to the lab ASAP. Please indicate if *Malassezia furfur* is being ruled out.
	CSF	Same as for routine CSF cultures. Must request India Ink and/or fungal culture.	At least 1 mL required. Cryptococcal antigen done by request only.
	Other	Collect as for routine specimens but request fungal culture.	
	Candidiasis (monilia, yeast)	For culture or direct smear, send specimen in sterile container. Usually vaginal or oral swab.	Fresh, moist specimen required for direct smear. KOH not routinely performed for yeast.
	Cryptococcus	Send CSF for culture or antigen testing. Serum for antigen only.	See serology section.
	Dermatophytes	Obtain skin scrapings, nail clippings, hair cuttings, and transport in a clean paper envelope.	KOH preparation routinely performed.
	Fungal cultures	Most specimens collected in the same manner as routine specimens. See Part I, Bacteriology.	For special requests, notify laboratory.
	India Ink	Obtain CSF aseptically and transport immediately.	Test must be specifically requested, Cultures also performed. For *Cryptococcus spp*.
	KOH	See "Dermatophytes"	Performed routinely for skin, nails, and hair and tissue biopsy samples. For other specimens, (e.g. BAL) KOH Performed per request only.
	Serology (fungal)	3-5 mL serum	Test performed by NYSDOH

Source	Specimen	Collection & Transport Method	Comments
Parasitology	Malaria smear and other blood parasites	Obtain several drops from a finger stick and prepare 2 thin and 2 thick smears, or obtain 3-5 mL blood in heparin tube, or purple top.	Optimal time of specimen is at the beginning of fever spikes. Thick smear may not be performed if purpose top is used.
	Ova & Parasite Examination	At least 5g of fresh first morning stool. Transport in clean waxed container or fecal transport system.	Three stools collected on alternate days recommended. For amoeba, call lab for PVA fixative or deliver fresh (≤ 20 minutes) stool. For inpatients admitted more than 3 days, Infectious Disease approval required.
	Pinworm (Scotch Tape Test)	Obtain sample by pressing sticky side of clear tape onto perianal region. Place tape onto glass slide and transport to lab immediately.	Swab of perianal region may be used.
	Pneumocystis	Preferred specimen is a slide touch preparation of lung Biopsy Tissue. Bronchial brushings, bronchial lavage, or tissue may be sent in a sterile container.	Direct fluorescent microscopy assay (DFA) performed at the County Lab.
	Toxoplasma	Collect tissue and transport in sterile container. For lice, mites, ticks, etc., collect hair or scrapings onto microscope slide with a cover slip.	Giemsa stain only.
	Cryptosporidium; Cyclospora; Isospora	At least 1g of fresh stool. Transport in a clean container.	Examined by modified acid fast stain.
	Microsporidia	At least 1g of fresh stool. Transport in clean container.	Must request microsporidia test and obtain Infectious Disease approval.

Source	Specimen	Collection & Transport Method	Comments
Direct Microscopic Examination	Buffy coat smear (HGA)	Collect blood using aseptic technique in EDTA tube	Smear examined for intragranulocytic inclusions
	Darkfield (Treponema)	Obtain clear serous exudate from scraping of lesion.	Fresh specimens yield best results and must be Transport immediately on microscope slide with coverslip.
	Giemsa	Obtain appropriate specimen and transport in sterile container	For detection of Pneumocystis, Toxoplasma, or for histoplasma, place on slide and transport in slide box.
	Gram Stain	Obtain appropriate specimen and transport in sterile container. Swabs not recommended for gram stain unless duplicate sent.	Performed on all body fluids, CSF, Sputum, and non-swab aspirates. Urine and blood not performed. May be performed on other specimens upon request and where appropriate.
	India ink	Sterile CSF centrifuge tube	Performed upon request only
	Malaria	See "Ova and Parasite"	
	Scotch Tape	See "Ova and Parasite"	
	Treponemes	See "Darkfield"	
	Trichomonas	See "Wetmount"	
	Wetmount	Obtain appropriate specimen and deliver immediately while moist or place on slide with coverslip and deliver while moist.	For yeasts (Monilia) and Trichomonas.

Source	Specimen	Collection & Transport Method	Comments
Serology	Antistreptolysin O	3-5 mL blood in red top tube. Transport within 12 hours.	Negative, Up to 200 IU/ml. Titer obtained on all screen positive sera.
	Bacterial antigens by latex agglutination	At least 1 mL of CSF or urine in sterile container. 3-5 mL blood (serum) in red top tube. Transport immediately.	Negative, latex agglutination. Performed STAT when requested 7 days/week. Requires Infectious Disease approval.
	Cryptococcal Antigen (serum)	1 mL of CSF or 3-5 mL of blood in red top tube. Transport immediately.	Negative, latex agglutination. STAT upon request. Test not standardized for urine.
	Febrile agglutinins (Brucella, Francisella)	No longer performed by WMC Laboratory.	Sent to NYSDOH. Requires patient history. Form required.
	Fungal serology	3-5 mL of blood (serum) in red op tube. Transport to receving lab.	Sent to NYSDOH Requires patient history. Form required.
	Heterophile antibody	See "Monospot"	
	Lyme serology	3-5 ml of blood (serum) in red top tube. Acute and Convalescent when available. For CSF Lyme antibody testing a serum specimen is also required.	Non-Reactive Lyme serology done by 2-step testing ELISA done as a first step followed by separate IgG and IgM western blots on ELISA reactive samples.
	HGE serology	3 - 5 ml of blood in red top tube (serum)	Non-reactive Tested by IFA. Titers obtained in all positives
	Monospot	3-5 ml of blood (serum) in red top tube. Transport within 12 hours.	Negative, hemagglutination. Titers obtained on all positives
	Parasite serology	3-5 ml of blood (serum) in red top tube. Transport to receiving lab.	Sent to N.Y. State Dept Health requires patient history. Form required.
	Syphilis serology	3-5 ml of blood (serum) in red top tube.	
	VDRL	1 ml of CSF. Transport immediately or see "Syphilis serology".	
	Viral serology	3-5 ml of blood (serum) in red top tube. Transport to receiving lab.	Specific virus must be requested individual tests performed.

Source	Specimen	Collection & Transport Method	Comments
Virology	Respiratory Virus DFA with reflex to viral culture	Nasal swab in UTM, Nasopharyngeal swab in UTM, Nasal/NP Wash/Tracheal Aspirate 1 mL in UTM	Screens for and identifies: influenza A & B, Parainfluenza 1-3, RSV, Adenovirus, hMPV
	Influenza culture	Nasal swab in UTM, nasopharyngeal swab in UTM, Nasal/NP Wash, tracheal aspirate, BAL bronchial wash, 1 mL in UTM	Screens for and identifies: Influenza A & B only
	RSV Culture	Nasal swab in UTM, nasopharyngeal swab in UTM, Nasal/NP Wash, tracheal aspirate, BAL bronchial wash, 1 mL in UTM	Screens for and identifies: RSV only
	Respiratory Multiplex PCR	Nasopharyngeal swab in UTM	Screen for Influenza A (subtyped), Influenza B, Parainfluenza HPIV4, RSU, Adenovirus, hMPV, B. pertussis, C. pneumoniae, M. pneumoniae, Coronavirus (229E, HKUI, NL63 and C43), Rhinovirus/Enterovirus

Surgical and Cytology

Examination Requested on Tissue Specimens	Fixative	Delivery Instructions
Routine – Biopsies or small surgical specimens **[Rush Endomyocardial transplant, Renal & Liver Biopsies-see below:] (Breast specimens-see below:)**	10% neutral buffered formalin	Anatomic Pathology
Routine – large specimens such as stomach, colon, breast, lung, heart, liver, spleen, placenta, kidney, etc.	Fresh*	Anatomic Pathology Do not leave specimens without informing anyone.
Frozen Section	Fresh*	**Regular Work Hours**: Call laboratory ahead of time. Bring specimens to Anatomic Pathology immediately and **hand deliver** to accessioning person. **After Hour (After 5 pm on weekdays) & Weekends/Holidays**: Please call and inform the On-Call Pathology resident (beeper numbers are posted on iCare call schedule) **at least 1 hour before** the expected arrival of specimen in Pathology. Again, specimen should be hand delivered to On Call resident. Do not leave specimens without informing anyone.
Bone Marrow biopsies	Fresh*	Anatomic Pathology & then add B5 fixative in to specimen container and document fixation time. **Do not leave the specimen in the laboratory without telling anyone.**
RUSH BIOPSY: The AP Laboratory provides RUSH biopsy services for Endomyocardial transplant, Renal & Liver Biopsies, when clinically indicated.	Kidney – Fresh or saline* Liver & Endomyocardial transplant 10% Neutral Buffered Formalin	Call laboratory ahead of time and consult to a pathologist; specimens should be brought to Anatomic Pathology immediately. **Please note** – Specimen must be delivered by **12 noon** on weekdays &Requisition form **MUST** clearly indicate "**RUSH SPECIMEN".**
Breast	10% Neutral Buffered Formalin	Anatomic Pathology. Specimen should be immersed in fixative within one hour of biopsy or resection. If the specimen delivery is delayed the tumor should be bisected prior to immersion in fixative, ensuring that identity of margins is retained; alternatively margins maybe submitted separately. **The time of removal of the tissue from body and the time of immersion of the tissue in fixative should be recorded on request slip and submitted to the laboratory**
Gynecologic pap test	Collected in PAP vials	Deliver to frozen section / accessioning room with cytology requisition form.
Flow Cytometry	Fresh* or in saline	Anatomic Pathology and immediately bring it, with complete appropriate form, to the attention of technologist, clerk, resident, or pathologist. Do not leave the specimen in the laboratory without telling anyone.
Cytogenetics, Freezing	Fresh*	Anatomic Pathology immediately with completed appropriate forms. Do not leave the specimen in the laboratory without telling anyone.

Examination Requested on Tissue Specimens	Fixative	Delivery Instructions
Immunofluorescence, Electron Microscopy (e.g., skin punch biopsy	Fresh* or in saline	Call laboratory ahead of time and speak to a pathologist. EM or IF request needs to be documented on requisition form. Bring to Anatomic Pathology immediately.
Cardiac Biopsy	10% Neutral Buffered Formalin	Anatomic Pathology immediately. Specimens needs to be received by 2 pm on weekdays to be processed the same day.
Skeletal Muscle	Fresh*	Call laboratory ahead of time and speak to a pathologist; specimens should be brought to Anatomic Pathology immediately after excision (before 2PM on weekdays). Do not leave the specimen in the laboratory without telling anyone.
Nerve Biopsy	Fresh*	Call laboratory ahead of time and speak to a pathologist; specimens should be brought to Anatomic Pathology immediately after excision (before 2PM on weekdays). Do not leave the specimen in the laboratory without telling anyone.
At night, weekends, or holidays		Keep specimens with requisition & hand deliver to off hours staff in Anatomic Pathology. Call (914) 839-0511 if not at station.
When in doubt as to what to do…		Talk to a staff pathologist or if off hours, call Anatomic Pathology resident on call.

Non-gynecologic cytology specimens:

Examination Requested on Tissue Specimens	Fixative	Delivery Instructions
Body fluids (pleural, peritoneal, pericardial fluids, etc) Volume: 50 ml aliquot + another 50 ml for special studies.	Submit fresh without fixative. No fixative needed for up to 2 weeks if refrigerated.	Deliver to frozen section / accessioning room with cytology requisition form.
Washings (bronchial, pelvic, bladder etc.,) Volume: 50 ml aliquot + another 50 ml for special studies.	Submit fresh without fixative. If delayed, refrigerate up to 24 hours. Add equal amount of 50% alcohol or cytolyt if delayed for more than 24 hours	Deliver to frozen section / accessioning room with cytology requisition form.
Cyst fluids (Pancreatic cyst, ovarian cyst, breast cyst, synovial fluid etc.,) Volume: Entire volume that is aspirated.	Submit fresh. If delayed, refrigerate up to 24 hours. Add equal amount of 50% alcohol or cytolyt If delayed for more than 24 hours.	Deliver to frozen section / accessioning room with cytology requisition form.
CSF Volume: minimum 1ml, preferable 3 ml, ideally 10 ml.	**CSF** Volume: minimum 1ml, preferable 3 ml, ideally 10 ml.	Deliver to frozen section / accessioning room with cytology requisition form.
Urine Volume: 25 ml to 100 ml	Submit fresh (1-12 hours). If delayed, Refrigerate up to 24 hours. Add equal amount of 50-70% ethanol or cytolyt if delayed for more than 24 hours.	Deliver to frozen section / accessioning room with cytology requisition form.
Fine needle aspiration (palpable lesions, brushing smears, Buccal smear etc.,)	- Place slides in 95% alcohol for PAP stain; Provide air dry slide for Diff Quik stain. The needle wash can be submitted in cytolyt - preservative.	Deliver to frozen section / accessioning room with cytology requisition form.

WMC Outpatient Laboratory (OPL)

General Information

Address: Westchester Medical Center
Department of Pathology
19 Bradhurst Avenue, Suite 1700
Hawthorne, NY 10532

Phone: (914) 493 – 5472 Fax: (914) 231-0031
Open Hours: M-F, 8:00 am - 5:00 pm

Laboratory Staff and Contact Information

Name	Title	Phone #
Ljiljana Vasovic, M.D.	Director, Outpatient Laboratory Services	(914) 493-5472 (914) 538-0750
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Rocky Granthier, MPH, MBA, HTL(ASCP)	Administrative Laboratory Director	(845) 242-1428
Judy Gabot, MBA, MT(AMT)	Manager, Laboratory	(914) 493-7992
Jessey Mahon, MPA, MLS(ASCP)	Supervisor, Laboratory	(914) 493-6718

Test Menu*

Test Name	Specimen Container & Special Instructions	Reference Ranges
CBC (Complete Blood Count)		
WBC/RBC/HGB/HCT/MCV	Potassium EDTA (lavender top)	See Table p. 37 (CBC Age- specific Reference Ranges)
HH (Hemoglobin & Hematocrit)		
WBC Differential	Potassium EDTA (lavender top)	Neutrophils: Female: 14-49 years old: 36-73% 49+ years old: 40-76% Male: 14-49 years old: 32-70% 49+ years old: 34-76% Lymphocytes: Female: 14-49 years old: 18-53% 49+ years old: 17-50% Male: 14-49 years old: 21-55% 49+ years old: 16-50% Monocytes: 0-11% Eosinophils: 0-5% Basophils: 0-2% Bands: 0-3% Immature Granulocytes: 0-3% For pediatric neutrophil percentages and lymphocyte percentages, see patient report.

* Under certain circumstances, additional testing including, but not limited to, pathologist's review, may be added-on and sent to the WMC Valhalla campus.

Respiratory Care Laboratory

General Information

Address: Westchester Medical Center
Respiratory Care Laboratory
100 Woods Road
Valhalla NY, 10595

Phone: (914) 493 – 7517

Fax: (914) 493 – 1501

Open Hours: 24/7

Laboratory Staff and Contact Information

Name	Title	Phone #
Sadiqa Karim, M.D.	Medical Director	(914) 493-6822
Adam Sodikoff	Administrative Lab Director	(914) 493-6433
Domenick Perruccio	Lab Manager	(914) 493-1989

Test Menu

Test Name	Specimen Container & Special Instructions	Reference Ranges
Blood Gases (Arterial, Venous, Mixed Venous, Cord Venous, and Cord Arterial)	1 mL or 3 mL Heparinized Syringe or Pre-heparinized Capillary Tube (for any sample type)	pH (arterial): 7.35 – 7.45 pH (venous): 7.31 – 7.41 pCO_2 (arterial): 35 – 45 mmHg pCO_2 (venous): 41 – 51 mmHg pO_2 (arterial): 80 – 100 mmHg pO_2 (venous): 30 – 40 mmHg tHgb (male): 12.3 – 16.0 g/dL tHgb (female): 11.6 – 15.0 g/dL Na: 135 – 145 mEq/L K: 3. 5 – 5.1 mEq/L Ionized Calcium: 4.5 – 5.3 mg/dL Lactate: 0.5 – 2.0 mmol/L Glucose: 70 – 105 mg/dL O_2Hb (arterial): 94 – 100% COHb (arterial): 0.5 – 1.5% MetHb (arterial): 0.0 – 0.5% SO_2 (artieral): 90 – 100% SO_2 (venous/mixed): 60 – 80%