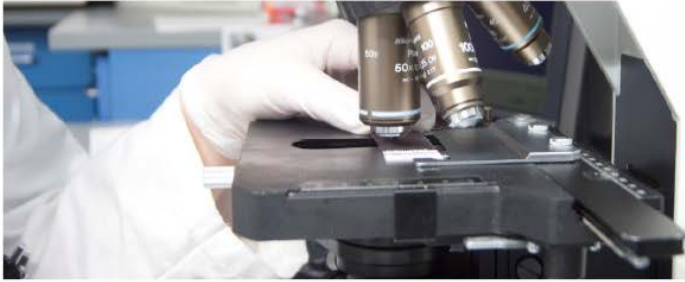


**{ Laboratory  
Services }** *we do that here*



## **2016 NMC Laboratory Services Directory**



To Our Community Healthcare Professionals,

We want to thank all of our customers for the opportunity to provide high quality Laboratory Services to our community. We hope that you find this reference guide useful and informative. It includes specimen collection techniques and specific test requirements for some of the most commonly requested assays. Through our partnership with the University of Vermont Medical Center Laboratory and Mayo Medical Laboratories, we are able to offer you a complete test menu. We encourage you to contact the Laboratory at (802) 524-1070 with any questions you may have about the tests listed in this guide and/or any other testing needs.

Sincerely,



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Thomas Suppan, MD  
Medical Director



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David E. Blin, MT (ASCP) MBA  
Director – Laboratory Services

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## **NMC Laboratory Mission, Vision, Values and Belief Statements**

### **Mission**

To assist NMC in providing exceptional health care to our community by providing quality diagnoses and diagnostic support services.

### **Vision**

The NMC Laboratory will be the sole provider of quality (defined as accurate, timely, state-of-the-art and reasonably priced testing from a broad menu which is performed and delivered by professional, competent individuals who are personal, friendly, helpful, compassionate and customer-service oriented) Laboratory referral services for the community we serve.

### **Values**

We value continual learning, maintaining a technological edge, individual and personal responsibility for continuous improvement, adherence to high quality standards, professionalism and pushing the limits to excel.

### **Belief Statement**

We believe that our first priority is the patient. We strive to perform diagnostic tests accurately and as quickly as possible. In order to provide the best possible service, personnel are kept aware of new methods, changes in procedures advances in clinical research in addition to reviewing old methods and concepts. This is at least partially attained by taking advantage of seminars, workshops and short courses available from professional societies, governmental agencies and diagnostic reagent and equipment manufacturers. It is with the patient's welfare in mind that we strive to attain the highest level of accuracy and proficiency.

### **NMC Laboratory Quality Performance**

Our Laboratory is staffed with certified Medical Technologists/Technicians. We have ongoing participation in the College of American Pathologists Inter-Laboratory Survey and Quality Assurance programs.

#### **Accreditations and Licensure**

College of American Pathologists	#11829-01
Joint Commission	#7089165600
CLIA	#47D0660970

### **NMC Laboratory Consultation Support Staff**

Pathologist/Medical Director	Thomas Suppan, MD	524-1074
Director	David Blin, MT (ASCP) MBA	524-1233
Technical Supervisor	William Hobkirk, MT (ASCP) MS	524-1283
Client Support Supervisor	Courtney L. Hodet, MT (ASCP) MPH	524-8881
Blood Bank Specialist	Gale E. Soltys, MT (ASCP)	524-1070 x4385
Chemistry Specialist	Tommasina D. Bissonnette, MT (DHHS)	524-1070 x4383
Hematology Specialist	Patricia D. Tyler, MT (ASCP)	524-1070 x4382
Histology Specialist	Diane Weishaar, HT (ASCP)	524-1070 x4349
Microbiology Specialist	Edith A. Allard, MT (AMT)	524-1070 x4336
Pathology Office (Technical Assistant)	Kelly Ross	524-1074

### **Northwestern Screening Services – Urine Toxicology Collection Site**

We are very pleased to announce the opening of a new urine toxicology specimen collection site conveniently located at 100 Lake Street in Saint Albans. We offer witnessed specimen collection services from 7:30 am to 4 pm Monday through Friday. Providers referring patients to NSS must provide a valid laboratory requisition prior to specimen collection. Urine Toxicology screening will be performed by the NMC Lab. Presumptive positive screens will be sent to our reference laboratories for a more definitive confirmation using either LC/MS or GC/MS testing methods.

Screening and/or confirmation testing is intended for clinical management of the patient. Testing is NOT intended for legal purposes.

### **Patient Identification**

Identifying patients correctly is the number one Joint Commission National Patient Safety Goal. Correct Patient Identification is also a priority for our accrediting agency (CAP). NMC requires that at all specimens, aliquots, orders, and requisitions have at least two unique identifiers prominently displayed. **The patient's full legal name and date of birth are required.** Specimens, aliquots, requisitions, or orders that are incomplete, incorrect, or are mismatched will be rejected. Nicknames and partial names are not acceptable

### **Hours of Laboratory Operation**

The Laboratory is open 24/7/365 for Emergency Department and Inpatient testing.

Our Outpatient phlebotomy area is currently located in Doctors Office Commons Unit 1. Patients presenting for testing are greeted at our reception area, directed to patient registration and then to our phlebotomy area.

Our Outpatient hours of operation are:

Monday-Friday 6 am – 6 pm (open through the lunch hour)

Saturday 8 am – noon

Closed Sundays and all major holidays except by special prior arrangement with the Laboratory.

Requests for STAT tests will be honored for assays that are included on the STAT List. To request any test that is **not** included on the following, the requesting provider must consult the Pathologist or Supervisory personnel.

### **NMC Laboratory Testing Requisitioning**

Laboratory testing is available on a routine, stat or timed basis 24/7/365.

The Laboratory utilizes a variety of methods to obtain orders for Laboratory testing. The Inpatient Units and the Emergency Department have direct bi-directional interfacing for ordering to and test resulting from the Laboratory.

All Referral Sites (Provider Offices, Long-term Care Facilities, and Clinics etc.) orders are received via a NMC Laboratory Requisition or the sites' electronic printout of requested testing. Results are returned via the interfaces linked to the sites' EMR, by fax or by printed hard-copy.

In the event of a protracted LIS downtime, orders are received and results returned via hard-copy or fax. Requisitions and results are entered into the LIS when available and results released and reported in the normal manner.

### **NMC Laboratory Testing via Standing Orders**

Standing orders for recurring testing may be established by submitting a signed Faxable Order Form, Laboratory Testing Requisition or signed prescription (may require follow-up for missing information) or other provider-specific order form. The order must include a clear start and end date with the frequency of testing to be performed. Standing orders are good for no more than one (1) year. The provider will be requested to renew and/or modify the order when the order is set to expire. Expired orders standing orders will not be honored and will necessitate contacting the provider before testing takes place.

### **NMC Laboratory Testing via Telephone and/or Add-on Testing**

It is always preferable that all orders be faxed to the Laboratory at (802)524-1098. When a provider phones the Laboratory with testing orders, a Technologist will complete a Confirmation of Verbal Test Order/Modification three-part form. Testing will be performed as requested. Federal Law mandates that written documentation must be provided for all telephone orders. A copy of the form will be sent to the provider for verification and signature. We ask that this be done in timely manner and the form mailed back to NMC Laboratory or faxed to the (802)524-1098.

### **Specimen Retention and Availability**

Specimens are held for 72 hours post analysis and add-on testing will be honored within this time frame dependent upon the stability of the test analyte requested and the availability of adequate specimen volume for the add-on testing requested.

### **Order Cancellation**

Cancellations received prior to test set-up/processing will be honored and the patient account will be credited. Due to the costs associated with patient testing, requests received after set-up/processing cannot be honored and will be billed to the patient account. Crediting of a patient account may occur at the discretion of the Laboratory Manager but must meet regulatory compliance guidelines.

### **Results Availability**

Most **routine** testing performed at NMC is performed on the day of receipt and usually within four (4) hours of receipt. The one major exception to this are all Microbiology cultures, which require a minimum of twenty-four(24) hours and up to ten(10) days for some specialized culture handling.

**STAT** testing results are available within one (1) hour of receipt unless performed at one of our reference laboratories. STAT test results are released immediately into the EMR and are phoned, faxed or printed to ordering provider upon request.

Testing sent to one of our **reference** laboratories is generally completed within twenty-four (24) to seventy-two (72) hours of receipt at NMC. Exceptions include testing of an esoteric nature and cultures requiring up to eight(8) weeks for final reporting.

**Surgical specimen** turnaround times vary depending upon specimen type and time of receipt. Most turnaround times should not exceed seventy-two (72) hours.

Patient results are available to the **ordering provider ONLY** unless specified on the order. Patients may obtain a copy of testing performed by contacting Health Information Management at 524-1060.

### **Results Reporting.**

Results are provided via computer interface, printer, fax, or courier - dependent upon provider preference for mode of delivery and/or request at time of order.

Corrected results (amended from the previous finalized report) are clearly indicated on all reports.

STAT results are immediately available in the EMR and are called, faxed or printed to the provider as soon as completed upon request.

Abnormal results (either low or high of established numerical range, or abnormal from the normal population) and critical values are indicated on the reports. **All critical values are phoned immediately to the requesting provider or the covering provider.**

In the event of a protracted LIS downtime, orders are received and results returned via hard-copy or fax. Requisitions and results are entered into the LIS when available and results released and reported in the normal manner

### **Testing Supplies**

All collection supplies (tubes, needles, adaptors and other necessary collection materials) are **provided for all testing to be performed at NMC**. Supplies may be obtained by submitting a completed Laboratory Supply Requisition form. Supplies are delivered by the courier.

### **Specimen Transport**

All specimens are to be transported in a sealed specimen biohazard bag with paperwork placed in the outside pouch and transported in a biohazard-labeled cooler from outside of NMC. Courier handling includes the use of a secondary biohazard bag for each provider's location to facilitate intra-Laboratory processing.

It is the responsibility of the person collecting the sample to ensure that specimens are packaged properly. Leaking containers or biohazard bags that are visibly contaminated may be rejected. It is inherently unsafe to send a syringe needle to the Laboratory (even if it is capped). **Samples with syringe needle attached will automatically be rejected.**

### **Courier**

NMC contracts with a courier service to provide for the transport of supplies to the ordering site and specimens from the ordering site. Courier use is to be initiated through the Laboratory. When transporting blood, urine or other specimens to the NMC Laboratory, the specimens are transported in a secondary biohazard bag inside a cooler with ice packs and delivered to the Laboratory as soon as possible. The only exception to this is the occasional specimen that must be kept at ambient temperature.

### **Billing Questions**

Please call Patient Financial Services at 524-1221

## **STAT Laboratory Testing**

### **BLOOD BANK**

Direct Coombs (newborn)  
Transfusion Reaction work-up  
Type & Crossmatch  
Type & Screen

### **CHEMISTRY**

Acetone  
Alkaline Phosphatase  
Amylase  
BUN  
Calcium  
C-Reactive Protein (CRP)  
CKMB  
CK  
Creatinine  
CSF Protein  
Electrolytes  
Free T4  
Glucose (serum or CSF)  
Lactic Acid  
LDH  
Lipase  
Magnesium  
Quantitative hCG  
SGOT (AST)  
SGPT (ALT)  
Total Bilirubin  
Troponin I (CTNI)  
TSH

### **HEMATOLOGY**

BNP(B-Type Natriuretic Peptide)  
Body Fluid cell count/diff (ED only)  
CBC (or any part)  
CSF (cell count/differential)  
D-Dimer  
Fibrinogen  
Protome  
PTT

### **MICROBIOLOGY**

Blood Cultures  
Gram Stains: (for only the following)  
CSF  
Joint Fluid  
Sputum

### **URINALYSIS**

Urinalysis  
Urine Microscopic

### **SEROLOGY**

Mono Test  
Qualitative hCG - urine or serum (ED only)  
RSV

### **TOXICOLOGY**

Acetaminophen  
Digoxin  
Dilantin  
Ethanol  
Phenobarbital  
Salicylate  
Theophylline  
Urine Drug Screen (MEDTOX)

### **TESTS REFERRED TO UVMMC\***

Ammonia \*  
Lithium \*  
Platelet Function Analysis \*  
Vancomycin – trough\*  
Gentamycin\*  
Tobramycin\*

\* Turn-around-times for tests performed at UVMMC may be more than an hour due to the need to transport the sample to a reference lab.

**Critical Values Listing** - Subject to change. Consult Lab report for most current ranges

TEST	LOW	HIGH	REFERENCE RANGE
Absolute Neutrophilic Count (See WBC)	<0.5	-	1.4-6.5 x 1000/mm <sup>3</sup>
Bicarbonate (Total CO <sub>2</sub> )	<10	>40	21-32 mmol/L
BUN	-	>104	9-20(M) 7-18(F) mg/dL
Calcium	<6.6	>11.5	8.4-10.2 mg/dL
Chloride	<80	>120	98-107 mmol/L
Creatinine	-	>7.4	0.8-1.5(M) 0.7-1.2(F) mg/dL
CSF Glucose	<37		40-75 mg/dL
D-Dimer		>599	0 – 599 ng/mL
Digoxin	-	>2.2	0.9-2.0 ng/mL
Fibrinogen	<100	>600	199-527 mg/dL
Glucose	<50	>500	75-110(M) 65-105(F) mg/dL
Hematocrit	<20	>60	42-52%(M) 37-47%(F)
Hemoglobin	<7	>20	14-18(M) 12-16(F) g/dL
INR Warfarin Therapy		>4.0	1.5-3.5
Lithium	-	>1.5	0.6-1.2 mEq/L
Magnesium	<1.0	>4.7	1.6-2.3 mg/dL
Magnesium – FBC only (Patient on MgSO <sub>4</sub> )		>7.0	4.0 – 7.0 mg/dL
Phenobarbital	-	>60	15-40 ug/mL
Phenytoin	-	>20	10-20 ug/mL
Phosphorus	<1.0	>8.0	2.5-4.5 mg/dL
Platelets	<40,000	-	140,000-440,000/mm <sup>3</sup>
Potassium	<3.0	>6.2	3.6-5.0 mmol/L
PTT	<10	>60	23.3-37.8 sec
Salicylates		>30.0	2.8-20.0 mg/dL
Sodium	<120	>155	137-145 mmol/L
Theophylline		>20	10-20 ug/mL
Total Bili/Newborn		>15	1.0-10.5 mg/dL
Troponin I		>0.12	< 0.034 ng/mL
Uric Acid		>12.7	3.5-8.5(M) 2.5-7.5(F) mg/dL
WBC (see Absolute Neutrophilic Count)	<2.0	>40.0	4.8-10.8 x 1000/mm <sup>3</sup>

## QUALITATIVE CRITICAL VALUES

**HEMATOLOGY:** Blasts, new leukemia findings, sickle cells, and all positive D-Dimers.

**MICROBIOLOGY:** Positive culture and/or Gram stain from CSF, blood, body cavity fluid, stool cultures, vaginal strep screens (in-house patients only).

**MICROSCOPY/URINALYSIS:** Elevated CSF WBC, malignant cells, strongly positive glucose and ketones in urine, pathologic crystals (urate, cysteine).

**BLOOD BANK:** Incompatible cross match, positive antibody screen, hemolysis and/or a positive direct antiglobulin test (DAT) in the investigation of an acute transfusion reaction.

<b>MISC:</b> New diagnoses of HIV and other serious infectious diseases.
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**REFERENCES:** Clinical Services Policy, "Critical Tests and Values"

Study May 2008: "Correlation Between Initial and Repeat Troponin I ES Values"

## **Collection of Blood Specimens-Venipuncture**

### **Equipment and Supplies:**

- Evacuated Collection Tubes - The tubes are designed to fill with a predetermined volume of blood by vacuum. The rubber stoppers are color coded according to the additive that the tube contains. Various sizes are available. Blood should **NEVER** be poured from one tube to another since the tubes can have different additives or coatings.
- BD Safety Push Button Blood Collection Set and BD Eclipse Safety Needle - The gauge number indicates the bore size: the larger the gauge number, the smaller the needle bore. Needles are available for evacuated systems and for use with a syringe, single draw or butterfly system. Safety needles are designed to blunt the sharp end after blood collection to prevent accidental needle sticks.
- Holder/Adapter - use with the evacuated collection system.
- Disposable Tourniquet
- Alcohol Wipes - 70% isopropyl alcohol.
- Povidone-iodine wipes/swabs - Used if blood culture is to be drawn.
- Gauze sponges - for application on the site from which the needle is withdrawn.
- Adhesive bandages / tape - protects the venipuncture site after collection.
- Sharps container - needles should **NEVER** be broken, bent, or recapped. Needles should be placed in the sharps container **IMMEDIATELY** after their use.
- Vinyl Gloves - worn to protect the patient and the phlebotomist. Choose an appropriate size. Gloves that are too large should not be used, as the additional space at the fingertips can get caught in tourniquets and can interfere with fine motor skills required for phlebotomy. Latex gloves should not be used due to the risk of allergies to the patient and the phlebotomist.
- Syringes - may be used in place of the evacuated collection tube for special circumstances.

**Sample:**

Review the requisition or orders to determine which tests need to be performed and select the appropriate tube type.

Tube Type	Color
Blood Culture – Aerobic	Blood Culture Bottle - grey cap / blue rim
Blood Culture – Anaerobic	Blood Culture Bottle - orange cap / gold rim
Trace Metals	Royal Blue Top
Sodium Citrate *	Light Blue Top *
Non-gel separator serum tube	Red Top
Clot activated and gel separator serum tube	Tiger Top or Orange Top
Sodium or Lithium Heparin	Light or Dark Green Top
EDTA	Lavender
EDTA – for Blood Bank	Pink Top
ACDA or ACDB	Pale Yellow Top
Sodium or Potassium Oxalate	Gray Top

Vacutainer tubes have a vacuum which draws the blood into the tube through the stopper. When the vacuum is broken, the only way the tube can be used is to take off the stopper and fill it. Laboratory personnel will be glad to demonstrate how to use the Vacutainer system.

\*Light blue stopper tubes for coagulation testing requires that the tube be COMPLETELY FULL (to the top of the fill line on the tube). If the tube is not filled completely the specimen is unacceptable for coagulation testing.

Specific amounts of each anticoagulant are determined by the manufacturer.

**Special Safety Precautions**

Standard Precautions will be used during sample collections and when handling open specimens. This includes the use of gloves when performing phlebotomy.

Laboratory personnel will adhere to all NMC Isolation/Precautions protocols.

Clean up any blood spills with a disinfectant such as freshly made 10% bleach.

Hand hygiene is performed in view of the patient prior to phlebotomy, after removing gloves, and at the completion of the phlebotomy process.

## Quality Control

- Vacutainer tubes are QC'd by the manufacturer during production.
- Visually inspect that the tube tops are secure to ensure that the vacuum is intact.
- Review the expiration date. Do not use if the tube has expired.
- Any concerns about the integrity of tubes should be documented (including lot number and expiration date) and brought to the attention of supervisory staff.

## Procedure:

### Patient Identification

1. In a professional and courteous manner, greet the patient and identify yourself
2. For outpatients, ask the patient to sit in one of the phlebotomy chairs. For inpatients ensure that the patient is in a comfortable position in the bed and that the bed is adjusted ergonomically for the phlebotomist.
3. Review the Laboratory requisition or provider orders.
4. Ask the patient to state their name and date of birth (DOB).
5. Order tests in the LIS and obtain labels. For clients without the ability to print computer generated labels, ensure that the patient's full legal name, DOB, date/time, and collector's initials are written on the tube immediately after collection at the patient's side.
6. Verify the name and DOB against the requisition, labels, and all other paperwork
7. Verify patient identification against the patient's wristband if available.
8. Verify and document any items about the patient's condition that may be relevant to the testing being performed (fasting vs. non-fasting for chemistry samples, current medications such as anticoagulants or "blood thinners" for coagulation samples, history of transfusions or pregnancies for blood bank samples, etc.)

## Equipment and Tube Selection

1. Choose the appropriate tube types and place them in an accessible location near the patient.
  - a. Unusual or special tests should be researched prior to phlebotomy.
  - b. Special handling instructions for many tests are outlined in the LIS and/or on the labels.
  - c. Special handling instructions should be printed, reviewed, and then sent with the specimen.
  - d. Online references should be followed as these are generally more up-to-date than printed test directories
2. Select and assemble the appropriate blood collection device. The preferred method for routine blood draws is a single use safety needle. For difficult sticks on patients with fragile or collapsible veins, a butterfly setup may be used. On rare occasions, a syringe and needle may be necessary for special collections.

## Venipuncture Site Selection

Although the larger and fuller median cubital and cephalic veins of the arm are used most frequently, the basilic vein on the dorsum of the arm or dorsal hand veins are also acceptable for venipuncture. Foot veins are a last resort and require a written order because of the higher probability of complications.

Certain areas are to be avoided when choosing a site:

- Extensive scars from burns and surgery - it is difficult to puncture the scar tissue and obtain a specimen.
- The upper extremity on the side of a previous mastectomy - test results may be affected because of lymphedema.
- Hematoma - may cause erroneous test results. If another site is not available, collect the specimen distal to the hematoma.
- Intravenous therapy (IV) / blood transfusions - fluid may dilute the specimen, so collect from the opposite arm if possible. Otherwise, satisfactory samples may be drawn below the IV by following these procedures:
  - Contact the Charge Nurse and request that the IV be turned off for at least 2 minutes before venipuncture.
  - Apply the tourniquet below the IV site. Select a vein other than the one with the IV.
  - Perform the venipuncture. Draw 5 ml of blood and discard before drawing the specimen tubes for testing.
-

- Cannula/fistula/heparin lock -. In general, blood should not be drawn from an arm with a fistula or cannula without consulting the attending physician. Laboratory personnel do not collect samples from these sites. Consult with the Charge Nurse to coordinate collection by qualified personnel.
- Edematous extremities - tissue fluid accumulation alters test results.

### Vein Selection

Palpate and trace the path of veins with the index finger. Arteries pulsate, are most elastic, and have a thick wall. Thrombosed veins lack resilience, feel cord-like, and roll easily.

- If superficial veins are not readily apparent, you can apply a warm, damp washcloth or hand towel to the site for 5 minutes, and/or lower the extremity to allow the veins to fill.

### Phlebotomy

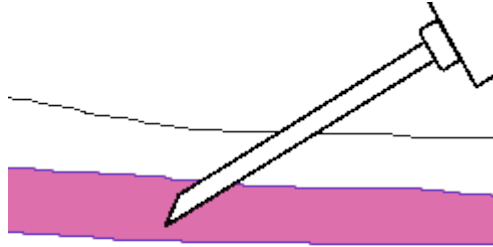
Please draw tubes from patient in the following order.

Order	Tube Type	Color	Immediately Mix by Gentle Inversion
1	Blood Culture - Aerobic	Blood Culture Bottle - grey cap / blue rim	8 to 10 times
2	Blood Culture - Anaerobic	Blood Culture Bottle - orange cap / gold rim	8 to 10 times
3	Trace Metals	Royal Blue Top	8 to 10 times
4	Sodium Citrate *	Light Blue Top *	3 to 4 times
5	Non-gel separator serum tube	Red Top	5 times
6	Clot activated and gel separator serum tube	Tiger Top or Orange Top	5 times
7	Sodium or Lithium Heparin	Light or Dark Green Top	8 to 10 times
8	EDTA	Lavender	8 to 10 times
9	ACDA or ACDB	Pale Yellow Top	8 to 10 times
10	Sodium or Potassium Oxalate	Gray Top	8 to 10 times

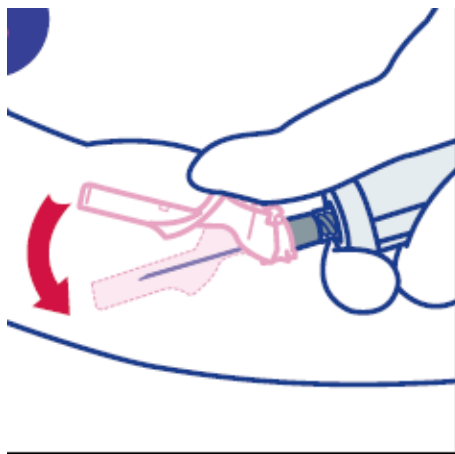
**\*Note: Sodium Citrate tube must be allowed to fill completely. See chart at end of this procedure.**

- Apply the tourniquet 3-4 inches above the selected puncture site. Do not place too tightly or leave on more than 1 minute.
- The patient should make a fist without pumping the hand.
- Select the venipuncture site. Prepare the patient's arm using an alcohol prep. Cleanse in a circular fashion, beginning at the site and working outward. Allow to air dry.
- Inform the patient that they may feel slight pain or "a pinch".

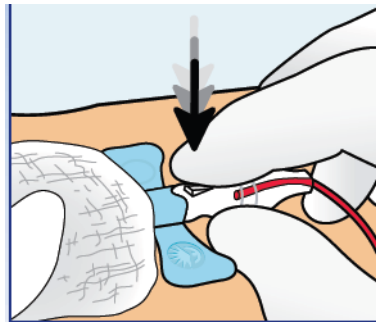
- Grasp the patient's arm firmly using your thumb to draw the skin taut and anchor the vein. The needle should form a 15 to 30 degree angle with the surface of the arm. Swiftly insert the needle through the skin and into the lumen of the vein. Avoid trauma and excessive probing.



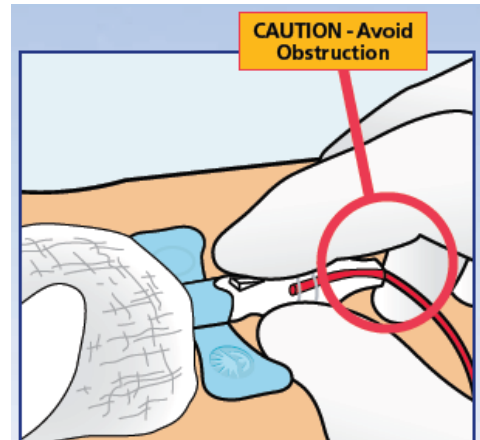
- Collect the tubes in the proper order from chart above.
- When the last tube to be drawn is filling, remove the tourniquet.
- Remove the needle from the patient's arm using a swift backward motion.
- Press down on the gauze once the needle is out of the arm, applying adequate pressure to avoid formation of a hematoma. Instruct the patient to continue to apply pressure to the gauze for at least 5 minutes to prevent bruising. This is especially important with patients on anticoagulant therapy, as they may be more prone to bleeding and subsequent bruising.
- Immediately after removing needle from vein, position thumb squarely on pink safety shield thumb pad and push pink safety shield forward to cover needle. An audible click may be heard. Lock shield into place and inspect. DO NOT attempt to engage safety shield by pressing against a hard surface.



For butterfly needles, activate the push button safety mechanism prior to withdrawing from the vein. Detailed instructions are outlined below.



**The device is designed to be activated while the needle is still in the patient's vein.** Place your gauze pad or cotton ball on the venipuncture site. Allow gauze pad or cotton ball to cover nose of front barrel. Following the collection procedure, **and while the needle is still in the vein**, grasp the body with the thumb and middle finger. Activate the button with the tip of the index finger.



To ensure complete and immediate retraction of device, make sure to keep fingers and hands away from the end of the blood collection set during retraction. Do not impede retraction.

- Dispose of contaminated materials/supplies in designated sharps containers.
- Mix and label all appropriate tubes at the patient bedside. Under no circumstances should samples be labeled prior to collection or at a later time after the phlebotomist or patient has left the room.
- The collector's initials or signature, date, and time should be written on the tube, the order sheet/requisition, and recorded in the LIS.
- Inform the patient that Laboratory results will be made available to their provider. Based on the tests ordered, provide the patient with an estimate for when the results will be available to the provider. Patients are encouraged to contact their provider directly. Alternatively, patients may obtain copies of their medical record through Health Information Management.
- Deliver specimens promptly to the Laboratory.

## Discussion:

### To prevent a hematoma:

- Puncture only the uppermost wall of the vein
- Remove the tourniquet before removing the needle
- Use the major superficial veins
- Make sure the needle fully penetrates the upper most wall of the vein.  
(Partial penetration may allow blood to leak into the soft tissue surrounding the vein by way of the needle bevel)
- Apply pressure to the venipuncture site

### To prevent hemolysis (which can interfere with many tests):

- Mix tubes with anticoagulant additives gently by inversion 5-10 times. **Do not shake.**
- Avoid drawing blood from a hematoma
- Avoid drawing the plunger back too forcefully, if using a needle and syringe, and avoid frothing of the sample
- Make sure the venipuncture site is dry
- Avoid a probing, traumatic venipuncture

### Indwelling Lines or Catheters:

- Potential source of test error
- Most lines are flushed with a solution of heparin to reduce the risk of thrombosis
- Discard a sample at least three times the volume of the line before a specimen is obtained for analysis

**Hemoconcentration:** An increased concentration of larger molecules and formed elements in the blood may be due to several factors:

- Prolonged tourniquet application (no more than 2 minutes)
- Massaging, squeezing, or probing a site
- Long-term IV therapy
- Sclerosed or occluded veins

### **Prolonged Tourniquet Application:**

- Primary effect is hemoconcentration of non-filterable elements (i.e. proteins). The hydrostatic pressure causes some water and filterable elements to leave the extracellular space.
- Significant increases can be found in total protein, aspartate aminotransferase (AST), total lipids, cholesterol, iron
- Affects packed cell volume and other cellular elements

### **Patient Preparation Factors:**

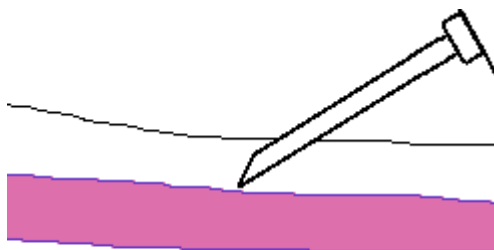
- Therapeutic Drug Monitoring: different pharmacologic agents have patterns of administration, body distribution, metabolism, and elimination that affect the drug concentration as measured in the blood. Many drugs will have "peak" and "trough" levels that vary according to dosage levels and intervals. Check for timing instructions for drawing the appropriate samples.
- Effects of Exercise: Muscular activity has both transient and longer lasting effects. The creatine kinase (CK), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and platelet count may increase.
- Stress: May cause transient elevation in white blood cells (WBC's) and elevated adrenal hormone values (cortisol and catecholamines). Anxiety that results in hyperventilation may cause acid-base imbalances, and increased lactate.
- Diurnal Rhythms: Diurnal rhythms are body fluid and analyte fluctuations during the day. For example, serum cortisol levels are highest in early morning but are decreased in the afternoon. Serum iron levels tend to drop during the day. You must check the timing of these variations for the desired collection point.
- Posture: Postural changes (supine to sitting etc.) are known to vary lab results of some analytes. Certain larger molecules are not filterable into the tissue, therefore they are more concentrated in the blood. Enzymes, proteins, lipids, iron, and calcium are significantly increased with changes in position.
- Other Factors: Age, gender, and pregnancy have an influence on laboratory testing. Normal reference ranges are often noted according to age.

## TROUBLESHOOTING GUIDELINES:

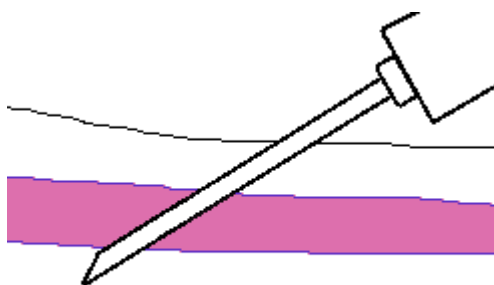
“Fishing” for a vein is strongly discouraged, however these simple techniques may be used to improve success during a difficult phlebotomy.

### IF AN INCOMPLETE COLLECTION OR NO BLOOD IS OBTAINED:

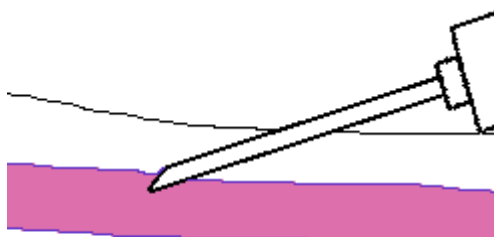
- Change the position of the needle. Move it forward (it may not be in the lumen)



or move it backward (it may have penetrated too far).



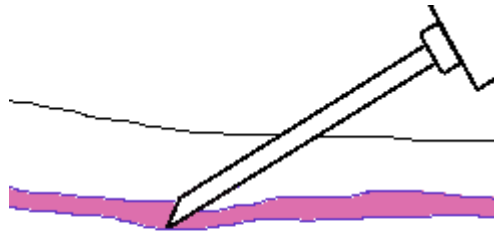
- Adjust the angle (the bevel may be against the vein wall).



- Loosen the tourniquet. It may be obstructing blood flow.
- Try another tube. There may be no vacuum in the one being used.
- Re-anchor the vein. Veins sometimes roll away from the point of the needle and puncture site.

#### **IF BLOOD STOPS FLOWING INTO THE TUBE:**

- The vein may have collapsed; resecure the tourniquet to increase venous filling. If this is not successful, remove the needle, take care of the puncture site, and redraw.

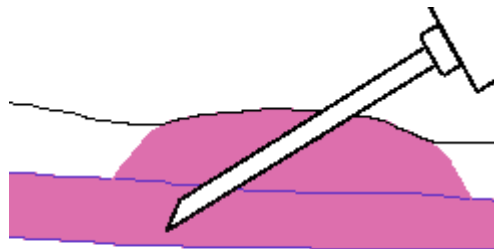


- The needle may have pulled out of the vein when switching tubes. Hold equipment firmly and place fingers against patient's arm, using the flange for leverage when withdrawing and inserting tubes.

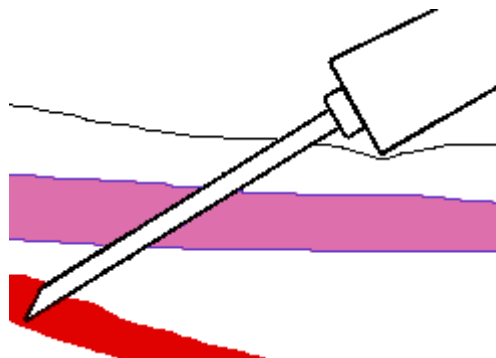
#### **PROBLEMS OTHER THAN AN INCOMPLETE COLLECTION:**

- A hematoma forms under the skin adjacent to the puncture site - release the tourniquet immediately and withdraw the needle. Apply firm pressure.

Hematoma formation may be a problem in older patients.



- The blood is bright red (arterial) rather than venous. Apply firm pressure for more than 5 minutes.



### **EMLA Cream use on Pediatric Patients**

EMLA cream (2.5% lidocaine, 2.5% prilocain) is a topical anesthetic that is used to reduce distress, anxiety, and pain associated with phlebotomy in pediatric outpatients. EMLA cream is applied to the venipuncture site 30 to 60 minutes prior to the phlebotomy procedure.

Providers wishing to utilize EMLA cream may apply the anesthetic in their office prior to sending the patient to the Laboratory. Providers are encouraged to assess the phlebotomy site in advance of applying the EMLA cream to avoid the need perform phlebotomy on an alternate site that has not been treated with the anesthetic.

Alternatively, providers may submit written and signed orders for the use of EMLA cream at NMC. The anesthetic will be applied by nursing staff from the Family Birthing Center.

Prior to performing phlebotomy, the phlebotomist will use sterile gauze to remove the EMLA cream from the phlebotomy site. Gloves must be worn to avoid anesthetizing the phlebotomist's fingers or hand.

## References:

Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard – Sixth Edition, H3-A6, Vol. 27 No. 26,

“Blood Collection: Routine Venipuncture and Specimen Handling” Mercer University School of Medicine, Online Phlebotomy Tutorial, 8/30/10.

BD Vacutainer Push Button Blood Collection Set Quick Reference Guide, Becton Dickinson Company, P/N VS7104-4, 11/07, downloaded 8/30/10.

[http://www.bd.com/vacutainer/pdfs/VS7104\\_Push\\_Button\\_Inservice\\_Poster.pdf](http://www.bd.com/vacutainer/pdfs/VS7104_Push_Button_Inservice_Poster.pdf)

BD Vacutainer Eclipse Blood Collection Needle Quick Reference Guide, Becton Dickinson Company, P/N VS7424-2 03/07,

<http://www.bd.com/vacutainer/pdfs/VS7424-2EclipseQRC.pdf>, downloaded 08/30/10.

“EMLA cream as a topical anesthetic before office phlebotomy in children.” Young SS, Schwartz R., Sheridan MJ., South Med J. 1996 Dec;89(12):1184-7.

“Safety net: juggling the gains, losses of phlebotomy routines” Karen Lusky, CAP Today, June 2004, downloaded 7/12/2011.

## Related Documents

Blood Draw Tube Order (Laboratory Policy)

Laboratory Infection Control Guidelines (Laboratory Policy)

## Fill Guidelines for Blue Top Tubes

BD Vacutainer™ Plus Plastic Citrate Tube

**BD Vacutainer™ Plus Plastic Citrate Tube Draw Volume Guide**

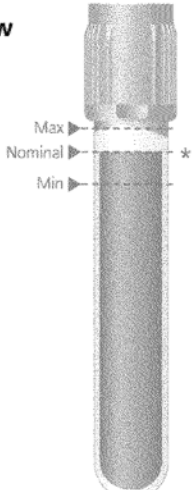
*Ensure proper draw volume by holding tube up to this guide.*

*Sufficient volume achieved if blood drawn falls within the dashed minimum and maximum fill lines illustrated on the tubes pictured to the right.*

**Note:** The quantity of blood drawn into evacuated tubes varies with altitude, ambient temperature, barometric pressure, tube age, venous pressure and filling technique.

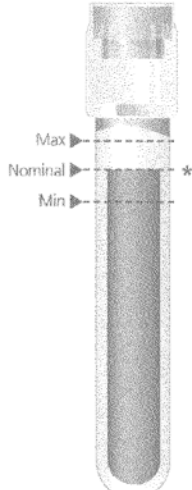
\* ±10% draw and fill accuracy. NCCLS Dec. '96, Doc. H1-A4, Vol. 16, No. 13

Ref. # 363083



**2.7mL Draw Tube**  
13mm x 75mm  
Full Draw

Ref. # 363080



**1.8mL Draw Tube**  
13mm x 75mm  
Full Draw

### **Procedure for Centrifugation of Gel Barrier Tubes(Serum and Plasma)**

1. After the specimen is collected, slowly invert gel barrier tubes 6-8 times to insure proper mixing of clot activator. This minimizes latent fibrin formation in serum.
2. Blood tube should sit upright 20-25 minutes before centrifugation to form an adequate clot. Do not allow tubes to sit longer than 30 minutes to ensure integrity of sample.
3. Tilt the tube gently after sitting to check that clot is formed and loose in the tube.
4. Balance the centrifuge. Test tubes with equal volumes must be placed opposite each other. (A tube with water can be used for accurate balancing.)
5. Spin for 10 minutes at a minimum of 2500 RPMs.
6. After centrifugation, gently invert gel barrier tubes 2-3 times to ensure that a complete barrier has formed between the red cell clot and serum.
7. If serum still contains RBC's, re-spin the specimen to ensure complete cell separation from the serum or plasma.

### **Collection of Blood Specimens-Fingerstick**

- Gloves are mandatory for this process. Wash hands prior to donning gloves.
- Choose a finger that is not cold, cyanotic or swollen. If the patient's hands are cold, wrap one of them in a warm to hot towel for 10 to 15 minutes before the puncture is performed. Puncture should be at the tip of the fourth or ring finger of the non-dominant hand.
- Gently massage the finger five or six times from the base to the tip to aid blood flow.
- With alcohol swab, cleanse the ball of the finger. Allow to completely air dry or wipe with clean gauze.
- Remove the lancet (or automatic incision-making device) device from its package.
- Hold the patient's finger firmly with one hand and trigger the device halfway between center of the ball of the finger and its side.
- The cut should be **perpendicular** to the finger prints to produce a large, round drop of blood. Wipe the first drop of blood away with clean gauze. Allow blood droplets to form and drip into the micro sample tubes, without allowing the tubes to come in contact with the finger. A free flowing puncture is essential to obtain accurate test results. Do **NOT** use excessive squeezing to obtain blood.
- Collect in proper order as follows: lavender top, green top, red top, and yellow top. Mix well during collection to prevent clotting of specimen.
- Gently massage the finger from the base to tip to obtain the proper amount of blood for the tests required but DO NOT SQUEEZE.
- Each type of micro sample has a different collection tube and blood volume requirement. Check requirements.
- Dispose of the device in a puncture proof container.
- Label the blood tubes at the patient's side by hand or with computer generated label.

### **Collection of Urine Specimens-Clean Catch**

*ALL URINE SHOULD BE BROUGHT OR DELIVERED TO THE LABORATORY AS SOON AS COLLECTED OR REFRIGERATED TO ELIMINATE OR MINIMIZE BACTERIAL GROWTH.*

*Urine specimens for chemical analysis (dipstick) are stable for two (2) hours at room temperature and twenty-four (24) hours refrigerated at 2-4 C*

*Urine specimens for microscopic analysis are stable for two (2) hours at room temperature and twenty-four (24) hours refrigerated at 2-4 C*

#### **FEMALE**

- Remove all necessary garments
- Wash hands thoroughly with soap and water, rinse and shake excess water off. DO NOT DRY HANDS AT THIS TIME.
- Separate labia (folds covering opening from which you urinate) with one hand. With the other hand, take a single cleansing towel and cleanse the meatus (opening from which you urinate) and surrounding area using downward stroke (front to back). Discard the towel in the wastebasket.
- Repeat with the second towel, remembering to keep the labia well separated throughout the entire procedure.
- Begin to urinate in the toilet, and then catch a stream of urine directly in the container. Avoid any contact with the rim or the inside of the container.
- Wash and dry hands.
- Bring container with specimen back to Laboratory personnel.

#### **MALE**

- Remove all necessary garments.
- Wash hands thoroughly with soap and water, rinse and shake excess water off. DO NOT DRY HANDS AT THIS TIME.
- Hold foreskin back with one hand. With other hand, use a cleansing towel and cleanse the meatus (opening through which you urinate) well using a circular stroke from center to outside. Discard towel in wastebasket.
- Repeat with the second towel, remembering to keep foreskin held back throughout the entire procedure.
- Begin to urinate in the toilet, and then catch a stream of urine directly in the container. Avoid any contact with the rim or inside of the container.
- Wash and dry hands.
- Bring container with specimen back to the Laboratory personnel.

### **Collection of Urine Specimens-(other than clean catch)**

*ALL URINE SHOULD BE BROUGHT OR DELIVERED TO THE LABORATORY AS SOON AS COLLECTED OR REFRIGERATED TO ELIMINATE OR MINIMIZE BACTERIAL GROWTH.*

*Urine specimens for chemical analysis (dipstick) are stable for two (2) hours at room temperature and twenty-four (24) hours refrigerated at 2-4 C*

*Urine specimens for microscopic analysis are stable for two (2) hours at room temperature and twenty-four (24) hours refrigerated at 2-4 C*

### **INFANTS AND CHILDREN**

A sterile disposable apparatus (i.e. U-bag) can be used to obtain specimens after the proper cleansing of the genitalia.

### **CATHETER**

Tapping the catheter tube:

- Wash the tubing well with 70% alcohol sponge.
- Puncture tube with needle and syringe.
- Withdraw about 20 cc of urine, place into the container and close lid tightly.

### **SUPRA-PUBIC PUNCTURE (TO BE DONE ONLY BY PHYSICIAN)**

- Allow patient's bladder to become full before attempting procedure.
- Paint skin of patient with iodine and allow drying. Area covered is from point midline about 1/3 the distance from symphysis to umbilicus.
- Pass needle through skin into bladder maintaining negative pressure on syringe after inserting through skin.
- Obtain urine and place in container and bring to Laboratory.

### **Directions for Collecting a 24 hour Urine Specimen**

PATIENT: \_\_\_\_\_ DOB: \_\_\_\_\_

LOCATION: \_\_\_\_\_ PHYSICIAN: \_\_\_\_\_

<input type="checkbox"/> VMA	<input type="checkbox"/> CORTISOL - TOTAL	<input type="checkbox"/> PHOS
<input type="checkbox"/> CATECHOLAMINE	<input type="checkbox"/> OXALATE	<input type="checkbox"/> CALCIUM
<input type="checkbox"/> METANEPHRINE	<input type="checkbox"/> CITRATE	<input type="checkbox"/> NA/K
<input type="checkbox"/> 17-HETOSTEROIDS	<input type="checkbox"/> CYSTINE	<input type="checkbox"/> TOTAL PROTEIN
<input type="checkbox"/> 5 HIAA	<input type="checkbox"/> MAGNESIUM	<input type="checkbox"/> CREATININE CLEARANCE
<input type="checkbox"/> ALDOSTERONE	<input type="checkbox"/> URIC ACID	<input type="checkbox"/> PORPHYRINS
<input type="checkbox"/> OTHER	<input type="checkbox"/> OTHER	<input type="checkbox"/> OTHER

LABORATORY PERSONNEL - SEE BACK OF FORM FOR SPECIAL INSTRUCTIONS

PRESERVATIVE: ☐ REFRIGERATE: ☐

OTHER: \_\_\_\_\_

NOTE: Even if otherwise preserved, specimen should always be refrigerated.

#### INSTRUCTIONS FOR COLLECTION:

- At START of collection patient must void and discard specimen. Record this date and time as "Collection Begun".
- Save all urine for twenty-four (24) hours.
- After exactly twenty-four (24) hours, patient should void and add urine to collection. Record this date as "Collection Complete".

INITIALS OF PERSON PROVIDING SUPPLIES/INSTRUCTIONS TO PATIENT: \_\_\_\_\_

\*\*\*\*\*TO BE COMPLETED BY PATIENT

\*\*\*\*\*

COLLECTION BEGUN: DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

COLLECTION COMPLETE: DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

PATIENT SIGNATURE: \_\_\_\_\_

**Panels Section**

ANEMIA I PROFILE					
ANEM1	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENTS	8 ml	5 ml serum	3 ml serum	Tiger top	Refrigerate
	3 ml blood	3 ml whole blood	1 ml whole blood	Purple top	
NOTES: Tests included are: Ferritin; Folate; Iron; Retic Count; Vitamin B12					

<b>ANEMIA II PROFILE</b>					
<b>ANEM2</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENTS	8 ml blood	5 ml serum	3 ml serum	Tiger tops	Refrigerate
	3 ml blood	3 ml whole blood	1 ml whole blood	Purple top	

NOTES: Tests included are: CBC/Diff; Folate; Iron; TIBC Retic Count; Vitamin B12

<b>ARTHRITIS PROFILE 1</b>					
<b>ARTHP1</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENTS	8 ml blood	5 ml serum	3 ml serum	Tiger Top	Refrigerate
NOTES: Tests included are: ANA; Rheumatoid Factor; Uric Acid					

<b>ARTHRITIS PROFILE 2</b>					
<b>ARTHP2</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENTS	8 ml blood	5 ml serum	3 ml serum	Tiger top	Refrigerate
	3 ml blood	3 ml whole blood	1 ml whole blood	Purple top	
NOTES: Tests included are: ANA; Rheumatoid Factor; ESR; Uric Acid					

<b>BASIC METABOLIC PROFILE (cpt 80048)</b>					
<b>BMP</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Calcium; CO <sub>2</sub> ; Chloride; Creatinine; Glucose; Potassium; Sodium; BUN					

<b>CARDIAC PROFILE (NMC in house use only)</b>					
<b>CARD</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood and	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
	3.5 ml whole blood	1 ml Plasma	1 ml Plasma	Lt. GreenTop Heparin	Refrigerate
NOTES: Tests included are: Creatine Kinase; Creatine Kinase MB; Troponin I					

<b>CHEM 12</b>					
<b>CHEM12</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Albumin; Alkaline Phosphatase; AST/SGOT; Bilirubin Total; BUN; Calcium (includes calculated calcium); Cholesterol; Creatinine; Glucose; Phosphorous; Protein, total; Uric Acid					

<b>COMPREHENSIVE METABOLIC PROFILE (cpt 80053)</b>					
<b>CMP</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Albumin; Alkaline Phosphatase; ALT/SGPT; AST/SGOT; Bilirubin Total; BUN; Calcium (includes calculated calcium); Chloride; CO <sub>2</sub> ; Creatinine; Glucose; Potassium; Protein, total; Sodium					

<b>ELECTROLYTE PROFILE (cpt 80051)</b>					
<b>LYTES</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Chloride; CO <sub>2</sub> ; Potassium; Sodium - calculations Anion gap					

<b>ER SCREEN (NMC in house use only)</b>					
<b>ERSCRE</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	5 ml Blood	2 ml Serum	2 ml Serum	Tiger Top	Refrigerate
	3 ml blood	2.5 ml whole blood	1 ml whole blood	1 Purple Top	Refrigerate
NOTES: Tests included are: BUN; CBC with Differential; Chloride; CO <sub>2</sub> ; Creatinine; Glucose; Potassium; Sodium;					

<b>HEPATIC FUNCTION PANEL (cpt 80076)</b>					
<b>HFP</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Albumin; Alkaline Phosphatase; ALT/SGPT; AST/SGOT; Bilirubin, Direct; Bilirubin, Total; Protein, Total					

<b>HEPATITIS PANEL – (Hepatitis ABC Profile)</b>					
<b>HEPPAN</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	8 ml Blood	5 ml Serum	3 ml Serum	Tiger Top	Refrigerate
<p>NOTES: Tests included are: Hepatitis A Antibody, IgG and IgM; Hepatitis B Surface Antigen *; Hepatitis B Surface Antibody; Hepatitis B surface Antibody Quant Hepatitis B core Antibody, IgG and IgM; Hepatitis C Antibody</p> <p>* If Hepatitis B Surface Antigen (HBsAg) is positive, a Hepatitis B Surface Antigen confirmation (cpt 87341) will be performed at additional cost</p> <p>* If Hepatitis C Antibody (HCAB) is positive, a Hepatitis C PCR quantification (cpt 87522) will be performed at additional cost</p> <p>* If Hepatitis A Antibody is positive, a Hepatitis A IgM (cpt 86709) will be performed at additional cost</p>					

<b>IRON PANEL</b>					
<b>IRONP</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	3 ml Serum	2 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Iron; Total Iron Binding Capacity - Calculations included are: % Saturation					

<b>LIPID PROFILE (cpt 80061)</b>					
<b>LIPID</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate
NOTES: Tests included are: Cholesterol, Total; HDL, Triglycerides - Calculations included are: LDL; VLDL					

<b>PRENATAL I PROFILE – Obstetrics Panel (cpt 80055)</b>					
<b>PREN1</b>	COLLECT	SUBMIT	MINIMUM	COLLECTION CONTAINER	STORAGE
SPECIMEN REQUIREMENT	6 ml blood	6 ml whole blood	2 ml whole blood	Preferred: Pink Top (Blood Bank Tube)  Alternate: Red Top	Refrigerate
	8 ml blood	5 ml serum	5 ml serum	1 Tiger Top	Refrigerate
	3 ml blood	2.5 ml whole blood	1 ml whole blood	1 Purple Top	Refrigerate
NOTES: Tests included are: CBC with differential; Hepatitis B Surface Antigen; RPR; Rubella; Type and Screen (Mandatory proper Blood Bank Labeling required)					

**Obstetric Panel with HIV – Obstetrics Panel with HIV (cpt 80081)**

<b>PRENHIV</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	6 ml blood	6 ml whole blood	2 ml whole blood	Preferred: Pink Top (Blood Bank Tube)  Alternate: Red Top	Refrigerate
	8 ml blood	5 ml serum	5 ml serum	1 Tiger Top	Refrigerate
	3 ml blood	2.5 ml whole blood	1 ml whole blood	1 Purple Top	Refrigerate

NOTES: Tests included are: CBC with differential; Hepatitis B Surface Antigen; RPR; Rubella; HIV Antibody; Type and Screen (Mandatory proper Blood Bank Labeling required)

**RENAL PROFILE (cpt 80069)**

<b>RENAL</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate

Tests included are: Albumin; BUN; Calcium (includes calculated calcium); Chloride; CO<sub>2</sub>; Creatinine; Glucose; Potassium; Phosphorous; Sodium

**SMAC CHEMISTRY PROFILE**

<b>SMAC</b>	<b>COLLECT</b>	<b>SUBMIT</b>	<b>MINIMUM</b>	<b>COLLECTION CONTAINER</b>	<b>STORAGE</b>
SPECIMEN REQUIREMENT	5 ml Blood	1 ml Serum	1 ml Serum	Tiger Top	Refrigerate

NOTES: Tests included are: Albumin; Alkaline Phosphatase; ALT/SGPT; AST/SGOT; Bilirubin Total; BUN; Calcium (includes calculated calcium); Chloride; Cholesterol; CO<sub>2</sub>; Creatinine; Glucose; Potassium; Protein, total; Sodium

**Reflex Testing**

Reflex testing occurs when initial test results are positive or outside normal parameters indicating the need for additional testing is medically appropriate for patient care. NMC Laboratory will provide reflex testing as listed below when the ordering provider has ordered one of these tests and the listed criteria are met. Reflex testing usually incurs an additional charge and the ordering provider can request that reflex testing not be performed by indicating their wishes at the time the potentially reflexed test is initially ordered.

Testing Ordered	Criteria	Reflexed Test
Antibody Screen	Positive	Antibody Identification
ANA	Positive	ANA Titer
Cascade TSH *	Abnormal	Cascade Free T4
Cascade Free T4 *	Normal or Low with low TSH	Total T3
Cell Count, Body Fluids	WBCs present at trigger level	Differential
Culture Routine	If two swabs submitted	Gram Stain
Culture	Growth of Pathogen	Susceptibility
Direct Coombs	Positive	Anti-IgG and Anti-IgM
Drug Abuse Screen Urine	Positive	Confirmation
HBsAg	Positive	Confirmation
HAAb	Positive	HAIGM Ab
HIV Antibody	Positive	Western Blot
Rheumatoid Factor	Positive	Titer
RPR	Positive	RPR Titer/FTA Abs
Urinalysis	Positive for WBCs, Nitrates, Protein, and/or Blood	Microscopic
Urinalysis C&S if Indicated	<ul style="list-style-type: none"> <li>Positive for WBCs or Nitrates on dipstick</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>Positive for protein or blood <b>AND</b> <ul style="list-style-type: none"> <li>≥ 10 WBCs/hpf</li> </ul> <b>AND</b> Bacteria ≥ 2+/hpf</li> </ul>	Culture

**\*Please see Thyroid Cascade Testing at NMC on next page**

### **Thyroid Cascade Testing at NMC**

When a Cascade TSH is ordered, testing starts with a TSH.

If TSH is normal, testing ceases; TSH reported.

If TSH is low a Free T4 is performed and reported (additional charge).

*Low TSH and high Free T4 indicate hyperthyroidism.*

Low TSH ( $<0.01$  uIU/mL) and a normal or low Free T4 cascades to a Total T3 (additional charge).

*Low TSH and normal or*

*low Free T4 indicates T3 toxicosis.*

High TSH cascades to Free T4 (additional charge).

*High TSH indicates hypothyroidism.*

## Blood Bank: General Statements

- ❖ Requirements for labeling: In order to be accepted by the Blood Bank, all specimens must be properly labeled and accompanied by a coordinating, properly completed requisition form (paper or electronic).  
(Mislabelled specimens will not be accepted for Blood Bank testing).

Labels must include the following information:

1. Patients full name (first and last).
  2. Patients date of birth (DOB) is required, along with an identification# (medical record#) if available.
  3. Date collected and time of collection.
  4. Initials and /or NMC ID # of collector.
- ❖ Component Special Attribute requests: Orders for patients requiring special blood components (ex. Irradiated, CMV negative etc) must be specified by practitioner on patient transfusion orders (Physician Order: Administration of Blood Products form OR an electronic order).
  - ❖ Any patient who is identified as having clinically significant antibody(s) or history of such will be transfused with red cells that are found to be antigen negative for the clinically significant antibody(s) identified. (Patients who have known clinically significant antibody(s) and who are scheduled for non-emergent surgery will be automatically cross matched for 2 units of compatible red blood cells before surgery).
  - ❖ Note: Transfusion ready, compatible blood cannot be guaranteed unless the provider has ordered a pre op type and screen ( crossmatched if applicable) , and testing is completed BEFORE the day of surgery.
  - ❖ Emergent Release: In cases where emergent transfusion /infusion of a product becomes necessary, and /or special attribute products are not readily available, a provider must complete an Emergent Release form taking responsibility for transfusion of the products.
  - ❖ Any person who is weak D positive will be considered Rh positive.
  - ❖ Rho-Immune Globulin: only the 300 microgram dose is available at NMC Blood Bank.
  - ❖ A provider must submit a completed Physician order: Administration of Rho-Immune Globulin form to the lab each time Rho –Immune Globulin is indicated and ordered. ( paper or electronic)

- ❖ Outpatient Transfusion: Providers must follow the OP Transfusion protocol listed in the NMC Blood Product Administration Policy.

### **Outpatient Transfusion Procedure**

1. Practitioner (or office) calls NMC Surgical Services (6:30am – 5:00pm @ 524-1295) OR Shift Administrator (5:00pm – 6:30am @ 524-1072) to schedule an Outpatient Transfusion, and provides patient's name, date of birth, and name of ordering practitioner.
2. NMC Surgical Services or Patient Access (whichever is appropriate) schedules date and time for transfusion, verifies practitioner's privileges and informs practitioner's office of scheduled transfusion date/time. Routinely available times are **Tuesdays, Wednesdays, & Thursdays at 0900 and 1100 and 13:00** (*Additional times are available for patients needing "urgent" transfusions*)
3. Practitioner (or office) notifies patient of the day and time selected, and instructs the patient to report to the **Surgical Services** registration desk **OR** the **Emergency Department registration** desk (only for urgent transfusions after 5:00pm or on weekends) 30 minutes in advance of the appointment on the date assigned.
4. Patient has blood specimens collected **at least one day (but not more than 48 hours) prior to blood administration**
5. If patient has had blood drawn, and properly labeled\*\*\* within past 2 days, call the Lab to add on testing and fax completed NMC **Physician Order: Administration of Blood Products** form to the Lab at **524-1098**.

**OR**

- Practitioner (or office personnel) draws the patient's blood, properly labels tubes\*\*\*, and sends to NMC Laboratory with orders for a type and screen and cross match(s) for requested number of units on a Lab Requisition.

**\*\*\* (Properly labeled tubes include: patient's full first and last name, DOB, date and time drawn, and initials and/or employee number of the phlebotomist.)**

**OR**

- Practitioner (or office) refers patient to NMC Outpatient Lab for blood collection; times available are Monday thru Friday 6 am – 6 pm or Saturday 8 am - noon. Patient is instructed to report to the **Outpatient Registration Desk** with written blood test orders.

6. Practitioner's office faxes the *completed* NMC **Physician Order: Administration of Blood Products** form to the **Laboratory** as soon as possible and includes date and time of the appointment given by NMC Surgical Services or Admitting in the space provided on the form. **Special attributes required/requested are also communicated on this form: ex CMV neg., Irradiated, etc and MUST BE RECEIVED IN LAB BY 1PM THE DAY BEFORE SCHEDULED TRANSFUSION so that products can be acquired from the AMERICAN RED CROSS.**

**The ordering practitioner is contacted by the staff placing the order in the HIS if the Physician Order: Administration of Blood Products form is not complete. The Order cannot be placed until all required fields for the transfusion process are completed.**


7. NMC Laboratory staff reviews the order for completeness and criteria. The Laboratory notifies the Practitioner (office), and Surgical Services or Admitting (whichever is applicable) if there are any technical problems or delays associated with the planned transfusion. The Practitioner (office) is, in turn, responsible for notifying the patient of any appointment changes that result from blood match issues.
8. Surgical Services, or Admitting (after 5:00pm M-F and anytime on weekends) pre-admits patient, assigns time/date enters orders in the HIS for transfusion and completes and delivers "OP Transfusion packet" in a red file folder to the lab. The transfusion query questions in HIS are entered at the time of order from the completed **Physician Order: Administration of Blood Products form.**
9. Laboratory staff will prove indication, and complete testing and tagging of the blood units and OP Transfusion checklist (Lab section). Laboratory personnel then bring patient's "OP Transfusion packet" to Surgical Services (Ambulatory surgery Nurse Station from 6am – 9:30 PM M-F) or to Clinical Services Administration on weekends and from 9:30pm to 6am M-F). Included in "OP transfusion packet" are: \*\*
  - o Copy of **Physician Order: Administration of Blood Products** form (physician's order) for inpatients only. (POABP for OP transfusion is faxed by ordering MD to the Lab).
  - o **Informed Consent for Administration of Blood Products** (consent form), ( use patient labels)
  - o **Patient Transfusion Education Sheet** (use patient labels)
  - o OP Transfusion checklist (Interdepartmental tool).

The "OP Transfusion packet" remains in Clinical Services Administration until day of transfusion.

10. The Shift Administrator/Clinical Services Administration and the Charge RN determine the room and bed assignment, and communicate decision to appropriate staff.

**11. On the date of scheduled transfusion:**

- Shift Administrator distributes the patient's "OP transfusion packet" to the nursing unit selected to perform transfusion.
- Surgical Services or Patient Access staff escorts patient, upon arrival, to assigned room.

Patient Name: _____ Date of Birth: _____ Ordering Provider: _____ Hgb, Plt count &/or PT/PTT results used to verify indication before component release must be current (w/in 72 hrs of transfusion) and performed at NMC.	Transfusion questions: 1. Does Pt have any known antibodies? <input type="checkbox"/> Yes (Anti - _____) <input type="checkbox"/> No <input type="checkbox"/> None Known 3. Questioner's Initials and Date: _____ _____ / ____ / ____	
<b>Physician Orders: Administration of Blood Products</b>		

1. Date to be transfused: \_\_\_\_ / \_\_\_\_ / \_\_\_\_      ☐ Patient specimen drawn in PROVIDER's office. Will arrive with courier  
 2. DIAGNOSIS: \_\_\_\_\_ ICD-10 Code: \_\_\_\_\_

Allergies / Reactions:

PRODUCT ORDERED	REASON (Indication for Transfusion)
<b>TRANSFUSE</b> <b>Red Blood Cells (RBCs)</b> <input type="checkbox"/> Packed <input type="checkbox"/> Pre-filtered Leukoreduced RBC's _____ # Units Special Attributes: <input type="checkbox"/> CMV negative units <input type="checkbox"/> Irradiated units <input type="checkbox"/> Autologous Units	<input type="checkbox"/> Hgb <8.0 gm/dl <input type="checkbox"/> Hgb is 8-10 gm/dl and patient bleeding &/or undergoing chemotherapy <input type="checkbox"/> Hgb is 8-10 gm/dl and the patient ≥65 years of age <input type="checkbox"/> Hgb decreased by more than 2 gm/dl <input type="checkbox"/> Patient transfused intra-operatively and post-op Hgb < pre-op Hgb <input type="checkbox"/> Special Circumstance. (Ordering PROVIDER must call Pathologist for approval) Specify: _____ <b>Current Type and screen and crossmatching are required</b>
<b>TRANSFUSE</b> <b>Platelet Pheresis</b> <input type="checkbox"/> _____ # Doses (1 dose Leukoreduced platelet pheresis is equivalent to 4 to 8 platelet concentrates) <input type="checkbox"/> CMV Negative <input type="checkbox"/> Irradiated Platelets not routinely stocked in Lab. Must be ordered as needed	<input type="checkbox"/> Platelet count <10,000 with or without active bleeding <input type="checkbox"/> Platelet count <20,000 with active bleeding consistent with platelet deficit or when patient is receiving chemotherapy with or without active bleeding <input type="checkbox"/> Platelet count <50,000 in patient acutely bleeding or scheduled for invasive procedure <input type="checkbox"/> Massive transfusion. (One blood volume transfused within 12 hours) <input type="checkbox"/> Bleeding with prolonged bleeding time (presumed qualitative defect) <input type="checkbox"/> Special circumstances. (Ordering PROVIDER must call Pathologist for approval) Specify: _____ <b>Current ABO and Rh testing is required</b>
<b>TRANSFUSE</b> <b>Fresh Frozen Plasma</b> <input type="checkbox"/> _____ # Units	<input type="checkbox"/> Coagulopathy with PT >15 secs or PTT >50 secs <input type="checkbox"/> Replacement of isolated or multiple clotting factors as necessary <input type="checkbox"/> Massive blood transfusion with bleeding (one blood volume transfused within 12 hours) <input type="checkbox"/> Treatment of ITP <input type="checkbox"/> Emergent reversal of Warfarin effect with PT >30 secs <input type="checkbox"/> Special circumstances. (Ordering PROVIDER must call Pathologist for approval) Specify: _____ <b>Current ABO and Rh testing is required</b>
<b>TRANSFUSE</b> <b>CRYOPRECIPITATE</b> <input type="checkbox"/> _____ # Doses (1 dose = 5 to 6 units) Cryoprecipitate not routinely stocked in the Lab. Must order as needed.	<input type="checkbox"/> Decreased Factor VIII level documented by appropriate Lab data <input type="checkbox"/> Von Willebrand's disease documented by a positive or suggestive history and appropriate laboratory testing <input type="checkbox"/> Use for specific coagulation factor deficiency <input type="checkbox"/> Bleeding with Fibrinogen <100 mg/dl <input type="checkbox"/> Special circumstances. (Ordering PROVIDER must call Pathologist for approval) Specify: _____ <b>Current ABO and Rh testing is required</b>
<input type="checkbox"/> OTHER <input type="checkbox"/> History and Physical sent to Surgical Services <input type="checkbox"/> Hotline Fluid warmer	Premedication orders: _____ <input type="checkbox"/> Benadryl _____ mg po x1 <input type="checkbox"/> Tylenol _____ mg po x1 <input type="checkbox"/> Normal Saline 250-500 ml KVO for IV line <input type="checkbox"/> Diet: Per patient request unless otherwise ordered <input type="checkbox"/> Patient may be discharged after transfusion is complete, unless otherwise ordered <input type="checkbox"/> H&H post transfusion. (Special instructions: _____) <input type="checkbox"/> Other: _____

I have ordered these products for this patient in the belief the products are in the patient's best interest, and have discussed the necessity for these products with the patient or his/her guardian unless an emergency situation exists.

Provider Signature \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Time: \_\_\_\_ AM / PM



Name: \_\_\_\_\_  
DOB: \_\_\_\_\_



**Physician Order: Administration of Rh<sub>0</sub>(D)-Immune Globulin (RhoGam®)**

Allergies / Reactions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date to be injected: \_\_\_\_\_  
(Schedule with and fax to Surgical Services)

☐ RhoGAM® 300 microgram dose (1 vial) ☐ Additional vials (specify quantity) \_\_\_\_\_

**Transfusion questions (order is not complete unless all three questions are answered):**

1. Has Patient been pregnant or transfused in the last 3 months?  
☐ Yes ☐ No ☐ Not Known
2. Does Patient have any known antibodies?  
☐ Yes (Anti - \_\_\_\_\_) ☐ No ☐ Not Known
3. Questioner's Initials and Date: \_\_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Indication:**

Antepartum:

- ☐ One full dose vial administered to ALL Rh-negative women with pregnancy at twenty-eight (28) weeks gestation.
- ☐ One full dose vial for: Specify gestation: \_\_\_\_\_ weeks. <sup>(1)</sup>  
☐ Abortion ☐ Ectopic pregnancy  
☐ Miscarriage ☐ Abdominal trauma  
☐ Vaginal hemorrhage
- ☐ One full dose vial after amniocentesis (except if infant is Rh negative or mother has anti-D not due to antepartum Rh<sub>0</sub>(D)-Immune Globulin administration) <sup>(1)</sup>

Postpartum:

- ☐ All Rh-negative mothers with Rh-positive infants <sup>(1)</sup>
- ☐ Fetal maternal hemorrhage greater than or equal to 15 ml of red blood cells. <sup>(1)</sup>

Other:

- ☐ Rh-positive platelets administered to an Rh-negative patient <sup>(2)</sup>

I have discussed with the patient the benefits and risks of administering this product.

Physician Signature \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

(1) Includes ABO/Rh and Fetal Screen. Based on blood bank history, may also include antibody screen. Positive Fetal Screen will reflex to Kleihauer-Betke assay to determine additional dosage.

(2) Includes ABO/Rh. May also include antibody screen if no recent blood bank history is on file.



## **Microbiology**

### **Culture Collection Aerobic (Routine)**

#### **\*\*\* UTILIZE A DUAL SWAB CULTURE COLLECTION SYSTEM KIT \*\*\***

1. With aseptic technique, open the wrapper and remove the media tube and swabs.
2. Obtain specimen from site, selecting most purulent area possible.
3. Be sure to utilize both swabs in collection to obtain purulent material on each swab to provide a swab for culture and one for gram stain.
4. Aseptically remove cap from media tube and discard.
5. Insert swabs into the gel at bottom of tube and firmly push cap into tube.
6. Label specimen completely.
7. Complete test requisition or order in HIS.
8. Indicate site/source on requisition.
9. Transport to Laboratory ASAP in a specimen biohazard transport bag.

### **Culture Collection Anaerobic (Routine)**

#### **\*\*\* UTILIZE A DUAL SWAB ANAEROBIC CULTURE COLLECTION SYSTEM KIT \*\*\***

1. With aseptic technique, open the wrapper and remove the media tube and swabs.
2. Obtain specimen from deep within site, selecting most purulent area possible.
3. Be sure to utilize both swabs in collection to obtain purulent material on each swab to provide a swab for culture and one for gram stain.
4. Aseptically remove screw cap from media tube.
5. Quickly insert swabs into tube and into gel and break off at scored shaft of swab.
6. Quickly replace and tighten down the screw cap.
7. Label specimen completely – at a minimum include full legal name and DOB
8. Complete test requisition or order in HIS.
9. Indicate site/source on requisition.
10. Transport to Laboratory ASAP in a specimen biohazard transport bag.

### **Collection of Feces(Stool) for Enteric Pathogens Culture**

#### **Procedure:**

1. Collect stool sample into a clean container such as a disposable cup or basin.
2. Using culture swab system supplied by the laboratory (containing a gel-type transport medium) insert swab into center of specimen, coating end of swab and obtaining about one gram of stool (pea-sized).
3. Insert swab into transport tube completely until end of swab is into gel and cap is tightly in place. Leave swab in the tube.
4. If stool is liquid, pour an amount about equal to half a thimble full into the tube, then insert swab into the tube, pushing the stool down into the gel and sealing cap tightly.
5. Write patient's name, DOB, and the date/time of collection on the label.
6. Transport the specimen to the laboratory as soon as possible. If transport is delayed then refrigerate the specimen until transport can be arranged.

### **Sputum Culture Collection – Patient Instructions**

Please follow instructions carefully. You have been given a sterile container. For best results, we ask the first thing in the morning, as you get up, you do the following:

1. BEFORE breakfast, rinse mouth several times with water. Cough deeply and expectorate directly into plastic specimen container. (Obvious saliva or post nasal drip discharge is not satisfactory for culture).
2. For patients with scanty sputum, it may take 15-60 minutes of intermittent coughing before an adequate sample may be obtained. For those who experience difficulty, sputum coughed up at any time of the day may be used.
3. The patient's name, DOB, and the date/time of collection must be written on the label.
4. Deliver to the Laboratory immediately for processing.

Please feel free to call us at 524-1070 if you have any questions regarding this procedure.

**Microbiology Specimen Requirements**

SPECIMEN	CONTAINER	COMMENTS
CULTURE, ANAEROBIC	StarSwab Anaerobic Transport System	<b><u>Preferred method is to inject fluid into anaerobic transport tube using BD safety device. Tissue samples may also be placed in the anaerobic transport tube.</u></b> If fluid or tissue cannot be obtained, use the Starswab swabs and place them into the anaerobic transport media gel.
CULTURE BLOOD (ADULT)  10 yrs and older	Bactec Silver (Aerobic) and Bactec Gold (Anaerobic) bottle	1 set = 1 silver and gold  blood culture bottles filled with 8-10 ml blood. <b>Do not overfill.</b>
CULTURE BLOOD (PEDI)  newborn - 9 yrs	Bactec Pedi Plus (pink) blood culture bottle	1 set = 1 pink blood culture bottle filled with 1-5 ml of blood  <b>Do not overfill</b>
CULTURE - GC	MTM II Agar	Must indicate source. Contact Laboratory for assistance.  <b>Do not refrigerate</b> specimen - Transport to Lab ASAP.
CULTURE – GENITAL	Transport swab in Amies media	Indicate source (vaginal, cervical, etc.)
GRAM STAIN	Variable depends on site of collection	If specimen is collected in transport swab then a separate transport swab should be obtained for culture and gram smear.

**Microbiology Specimen Requirements continued**

<b>SPECIMEN</b>	<b>CONTAINER</b>	<b>COMMENTS</b>
CULTURE - GROUP B BETA STREP SCREEN	Transport Swab in Amies media	Indicate source (i.e. vagina, cervical etc.)
KOH PREP	Submit specimen in sterile red top tube	Dry swabs are <b>unacceptable</b> - MUST Indicate source
MRSA SCREEN	Variable dependent on site of collection	MUST indicate MRSA screen on requisition
SENSITIVITIES	Variable	Performed in conjunction with culture but are dependent on organisms isolated. Do not need to order.
CULTURE - ROUTINE	Transport Swab in Amies media	Indicate source (i.e. right leg, left thumb etc.)
CULTURE - SPINAL FLUID	Sterile spinal fluid collection tube	<b>Do not refrigerate.</b> Transport to lab ASAP.
CULTURE - SPUTUM	Clean catch urine container	Gram smear preliminary reported on Inpatients only. <b>Do not refrigerate.</b>
CULTURE - STOOL	Transport Swab in Amies media only	Refrigerate – sample is acceptable for 24 hours if refrigerated.
CLOSTRIDIUM DIFFICILE TOXIN	Clean catch container	Refrigerate – sample is acceptable for 24 hours if refrigerated.
STOOL FOR WBC	Transport Swab in Amies media	If ordered with a stool culture - Submit two swabs
CULTURE - STREP SCREEN , GROUP A	Transport Swab in Amies media	
CULTURE - URINE	Clean catch urine container, catheter collection container. No syringe with needles.	Refrigerate – sample is acceptable for 24 hours if refrigerated. Indicate collection technique (ie. clean catch, cath, suprapubic, or cysto).
RSV (respiratory syncytial virus)	Clean catch urine containers	Swabs are not acceptable nasopharyngeal washes, and aspirates - bloody specimens are not acceptable.
WET PREP	Submit specimen in sterile saline red top tube with saline	Dry swab(s) are <b>unacceptable</b> - Must indicate source. Transport to Lab ASAP

### **Microbiology Specimen Storage Temperatures**

<b>ROOM TEMPERATURE SPECIMENS</b>	<b>REFRIGERATE SPECIMENS**</b>
Spinal Fluid	Strep Screens
Blood Cultures	Urine Cultures
GC Cultures	Stool Cultures
Sputum Cultures	Wound Cultures
Anaerobic Cultures	
Gen Probes	

## **Hematology**

### **COLLECTION OF BODY FLUIDS**

#### **SPINAL FLUIDS**

The specimen is collected by lumbar puncture and should be placed in 3-4 sterile spinal fluid tubes. These tubes should be kept at room temperature and delivered to the Laboratory ASAP.

#### **TUBE GUIDELINES**

TUBE #1	SEND OUT OR ADDITIONAL TESTING (Extra cell count if requested)
TUBE #2	CSF PROTEINS, GLUCOSE
TUBE #3	GRAM SMEAR AND CULTURE
TUBE #4	CELL COUNT AND DIFFERENTIAL (IF NEEDED)

The physician may request an additional cell count and/or alter the test scheduled. If an alteration has occurred, please clearly indicate on the requisition the tube number and testing ordered. Laboratory staff will document the change via comments accompanying the lab results.

#### **SYNOVIAL FLUIDS See \*\*\*NOTE\*\*\* on next page**

The specimen is usually collected in a large syringe and should be placed in the following:

1. Plain RED TOP tube for gross examination.
2. PURPLE TOP TUBE (containing EDTA) for cell count, differential and crystal examination.
3. GREEN TOP TUBE (containing heparin) for Chemistry testing.
4. Place a minimum of 1mL of the fluid into an anaerobic transport tube if a routine and/or anaerobic culture is ordered.

**PLEURAL FLUIDS    See \*\*\*NOTE\*\*\* on next page**

The collected pleural fluid should be placed into the following:

1. RED TOP TUBE to observe for clotting.
2. PURPLE TOP TUBE (containing EDTA) for cell count, differential and crystal examination
3. GREEN TOP TUBE (containing heparin) for a Chemistry testing.
4. Place a minimum of 1mL of the fluid into an anaerobic transport tube if a routine and/or anaerobic culture is ordered.
5. Please submit any remaining fluid to the Laboratory if Cytology testing is required.

NOTE:            Cell counts on partial or fully clotted specimens are suboptimal and may affect results. Requests for counts on these types of specimens may require approval and will be reported with a disclaimer.

**\*\*\* NOTE \*\*\***

**It is inherently unsafe to send a syringe NEEDLE to the Laboratory (even if it is capped).**

**Samples with syringe NEEDLES attached will automatically be rejected.**

## **Histology**

### **Tissue Gross/Microscopic Exemption List**

#### **PURPOSE:**

In accordance with the JCAHO (Joint Commission on Accreditation of Healthcare Organizations) Standards and CAP (College of American Pathologist) guidelines, this policy identifies and defines the handling of tissue specimens with respect to: (a) exemption from submission to the Department of Pathology for gross and/or microscopic examination, (b) specimens whose examination can be limited to gross examination only, and specimens requiring both gross and microscopic examination.

#### **POLICY:**

It is the purpose of the surgical pathology department to inspect and analyze tissue samples obtained from patients, either in the operating room, ambulatory surgical unit, or physician offices as a means of identifying disease states and rendering pathologic diagnoses. Unless otherwise noted below, all tissue samples removed during a surgical procedure must be submitted to the department of pathology for examination by both gross inspection and microscopic examination.

The specimens listed below require gross examination only. However, at the discretion of the surgical pathologist, these specimens may require microscopic examination:

- Biomedical devices
- Calculi, various sites
- Extra-ocular muscle for corrective surgical procedures
- Hernia sac(s) and cord lipomata
- Nasal bone and cartilage
- Prosthetic breast implants
- Teeth
- Tonsils and adenoids in children 16 years of age or less
- Varicose veins

The specimens identified below may be exempt from submission to the pathology department given that alternative means of documentation of their removal and handling are provided by the surgical services through the guidance of the Medical Staff.

- Accessory digits
- Bone segments removed for corrective or reconstructive orthopedic procedures
- Bone from total knee replacements
- Torn menisci
- Bunions and hammer toes
- Cataracts
- Dental appliances
- Fat removed via liposuction
- Foreign bodies such as bullets that may be provided directly to law enforcement personnel for medicolegal purposes
- Foreskin from newborn infants
- Medical devices such as catheters, gastrostomy tubes, stents, etc., that have not contributed to patient illness, injury or death
- Middle ear ossicles
- Orthopedic debridement tissue
- Orthopedic hardware
- Placentas that do not meet criteria for examination
- Skin or normal tissue during cosmetic or reconstructive surgery
- Teeth
- Therapeutic radioactive sources
- Normal toenails or fingernails that are incidentally removed

#### References:

- 1) Weibel E. Pathological findings of clinical value in tonsils and adenoids. *Acta Otolaryngol.* 1965; 60:331-338.;
- 2) Wolkomir AF, et al, Selective microscopic examination of gallbladders, hernia sacs and appendices. *Am Surg.* 1991; 57:289-292;
- 3) Boutin P, Hogshead H. Surgical pathology of the intervertebral disc; is routine examination necessary? *Sping.* 1992; 17:1236-1238
- 4) Cornell WB, Levin HS. The inguinal hernia sac: trash or treasure? *Anatomic pathology II check sample, APII-9.* Chicago, IL: American Society of Clinical Pathologists, 1993:17(4);
- 5) DeLong WH, Grignon DJ. Pathologic findings in ribs removed at the time of radical nephrectomy for renal cell carcinoma. *Int J Surg Pathol.* 1994; 1:177-180;
- 6) College of American Pathologists. Policies and guidelines manual. Northfield, IL: CAP, 1997:Appendix m;

- 7) Raab SS. The cost-effectiveness of routine histologic examination. Am J Clin Pathol. 1998; 110:391-396;
- 8) Zarbo RJ, Nakleh RE: Surgical pathology specimens for gross examination only and exempt from submission. A College of American Pathologists Q-Probes study of current policies in 413 institutions. Arch Pathol Lab Med. 1999; 123:133-139.

## **SPECIMEN COLLECTION and HANDLING FOR ANATOMIC SURGICAL PATHOLOGY**

**PURPOSE:** The purpose of specimen collection and handling is outlined below.

1. To ensure that hospital departments and outside sources submitting specimens to the surgical pathology department follow the established methods to guard against clerical and/or processing errors.
2. To ensure that collection, handling and transport of all specimens is consistent in maintaining tissue integrity and proper patient identification
3. To provide the pathologist and pathologist's assistant with pertinent clinical and historical information to aide in the dissection and pathologic diagnosis.

**POLICY:** The following protocol will be utilized by:

All hospital department staff submitting specimens to pathology

All outside sources submitting specimens to Pathology

All Pathology personnel

### **PROCEDURE:**

#### **SPECIMEN CONTAINER LABELING AND REQUISITONS:**

##### **Specimen container labeling:**

Specimen containers, including multi-specimens (i.e., Multiple colon bx), **MUST** contain the following information:

- a. Patient's full first and last names (no nicknames).
- b. Patient's medical record and hospital number
- c. Patient's date of birth
- d. Physician's name and/or location
- e. Specimen source
- f. Date collected

Place label on container (*i.e. not on cover or lid*)

### **Requisitions:**

All specimens submitted to surgical pathology **MUST** have a completed, accurate and legible requisition accompany the tissue sample. The requisition **MUST** contain the following information:

- g. Patient's full first and last names (no nicknames).
- h. Patient's medical record and hospital number
- i. Patient's date of birth
- j. Date specimen collected
- k. Physician's name
- l. Additional physician names to receive copies of pathology report
- m. Clinical information, including ICD-9 diagnosis code if sent from outside source

All specimens (both Surgical Pathology and Cytopathology) must be accompanied by a patient History and Physical (H&P) and/or Endoscopy report as means of providing adequate and timely clinical history essential to rendering a proper and adequate diagnosis.

**NOTE:** The Surgical Pathology and Cytopathology reports are medical consultations. The type and amount of clinical data provided may significantly affect the accuracy and relevance of the pathologic diagnosis in addition to such issues as the time and extent of initial tissue processing by the Pathologist.

## **SPECIMEN PICK-UP and RECEIPT**

1. Pick-up of specimen will be done by the pathology staff at routine intervals throughout the day and a final pick-up by the end of the shift at 2:00PM.
2. Any specimen collected after the last pick-up time:
  - a. OR – leave specimen and requisition in transfer refrigerator for AM pick-up.
  - b. Outpatient - leave specimen and requisition on collection tray for AM pick-up.
  - c. Referrals - place specimen and requisition in gray tissue specimen holding bin in laboratory office for AM pick-up.
3. All Specimens **MUST** have an accompanying completed, accurate and legible requisition.
4. OR Surgery - requisitions and specimen labels are verified by the pathology technicians at time of pick-up.
5. Referrals - requisition and specimen labels are verified by the pathology technicians after the specimen is received.
6. Surgical pathology specimens are irretrievable therefore all attempts from any incomplete requisitions, mislabeled specimens, or other discrepant conditions, will be handled as unacceptable until discrepancies are corrected. Specimen will NOT be destroyed. The proper collecting unit and/or originating facility will be notified of discrepancy and an incident form and accountability form submitted. (see Unacceptable specimens) (See Specimen Identification Policy).

## **ROUTINE SPECIMENS:**

### **Fixative - 10% Zinc Formalin**

1. Specimens requiring routine processing submitted to surgical pathology for examination will be submitted:
  - a. In 10% zinc formalin.
  - b. In an appropriate sized container.
  - c. In a sufficient quantity of formalin to achieve a 10:1 ratio of formalin to specimen.
2. All specimens must be submitted with completed, accurate and legible requisition. (Specimen labeling and requisition).
3. All specimens containers must be properly labeled (Specimen labeling and requisition).
4. History and Physical (H&P) must be submitted with specimen.
5. X-ray film must be submitted with Breast needle loc and Breast core biopsy specimens or available online in the Radiology Department Synapse module.

**GASTROINTESTINAL BIOPSIES:** These biopsies are obtained in Outpatient Surgical Services Department in the Endoscopic Examination Rooms.

**Fixative –** Hollande's Fixative for all routine biopsies (including all polyps)

10% Zinc Formalin for all tumor biopsies

1. Gastrointestinal biopsies are submitted in Hollande's fixative or 10% Zinc Formalin (see above)
2. Submit a completed, accurate and legible requisition. (Specimen labeling and requisition).
3. Specimen containers must be properly labeled (Specimen labeling and requisition).
4. Endoscopic report must be submitted in all specimens.

**LYMPH NODES:** Please contact Pathology in advance to optimize specimen handling.

**Fixative-** Submit Fresh

1. Submit ALL lymph nodes in the fresh state for intra-operative consultation.
2. Submit a completed, accurate and legible BLUE requisition, include OR room phone extension (Specimen labeling and requisition).
3. Specimen containers must be properly labeled (Specimen labeling and requisition).

**SENTINEL LYMPH NODES:**

**Fixative-** Submit 10% Zinc Formalin unless frozen consultation is requested by surgeon

1. Submit sentinel lymph nodes in 10% zinc formalin.
2. Submit a completed, accurate and legible surgical pathology requisition.
3. Specimen containers must be properly labeled (Specimen labeling and requisition).

**NOTE:** Due to negligible radiation in the sentinel lymph nodes no special handling is required.

### **URATE CRYSTALS (gout):**

**Fixative**-100% Ethyl Alcohol

1. Submit specimen for uric acid crystals in 100% Ethyl alcohol.
2. Submit a completed, accurate and legible requisition. (Specimen labeling and requisition)
3. Specimen containers must be properly labeled. (Specimen labeling and requisition)
4. History and Physical (H&P) must be submitted with specimen.

### **PLACENTAL / FETAL DEMISE (UNDER 20 WEEKS):**

**Fixative**- **NONE** - Submit Fresh

1. Placental specimens and Fetal demise under 20 weeks are submitted **Fresh**, no fixative.
2. Specimens must be refrigerated until gross inspection.
3. Submit a completed, accurate and legible requisition. *Include gestation date and pertinent clinical information.* (See Specimen labeling and requisition)
4. Specimen containers must be properly labeled. (See Specimen labeling and requisition)
5. History and Physical (H&P) must be submitted with specimen.
6. If Cytogenetics is requested, please contact Histology for the proper specimen transport vial.

**NOTE:** For Fetal Demise **over** 20 weeks, please see Autopsy Protocol.

### **AMPUTATED LIMBS:**

**Fixative** – Submit Fresh

1. Wrap in an under pad and place in labeled bio hazard bag.
2. Submit a completed, accurate and legible requisition.
3. Specimen bio hazard bag must be properly labeled.
4. History and Physical (H&P) must be submitted with specimen.
5. Place in OR transfer refrigerator

### **SPECIAL TISSUE HANDLING:**

1. Conditions under which special handling may be desirable:
  - a. frozen section diagnosis
  - b. necessity for touch preps
  - c. estrogen-progesterone receptor assays
  - d. immunohistochemistry
  - e. electron microscopy
2. Tissue must be submitted rapidly to anatomic pathology. The specimen must be submitted fresh and transported in an appropriately sized container containing normal saline or wrapped in gauze soaked with normal saline.
3. The pathologist must be notified in advance of specimen acquisition so that rapid tissue processing can be performed and tissue autolysis minimized.
4. Typical specimens requiring Special Tissue Handling:
  - a. any tissue requiring Frozen Section Diagnosis

**NOTE: The purpose of Frozen Section Diagnosis is to provide information that will affect intraoperative or immediate medical management of the patient.**

- (a) Factors that affect the extent of intraoperative surgery as a result of the frozen section diagnosis.
- (b) factors accessing adequacy of margins of resection.
  - b. breast tissue lesions suspicious for malignancy with the potential for sending tissue for estrogen/progesterone receptor assays.
  - c. lymph node biopsies in which lymphoma is a possible differential diagnosis.
  - d. lesions of unknown etiology in which tissue must be processed for possible immunohistochemical and/or electron microscopic studies.
  - e. fresh tissue for gross examination or inspection by the pathologist
  - f. fresh tissue for culture

### **TISSUE FOR CYTOGENETICS:**

**Fixative** – Submit Fresh, Saline, or Hanks Solution

1. Fresh specimens must be refrigerated.
2. Submit a completed, accurate and legible requisition. *For placental / fetal tissue - Include gestation date and pertinent clinical information.* (Specimen labeling and requisition)
3. Specimen containers must be properly labeled. (Specimen labeling and requisition)
4. History and Physical (H&P) must be submitted with specimen.

### **TISSUE FOR FLOW CYTOMETRY:**

**Fixative** – Submit Fresh, Saline, or RPMI solution

1. Fresh specimens must be refrigerated.
2. Submit a completed, accurate and legible requisition. *For placental / fetal tissue - Include gestation date and pertinent clinical information.* (Specimen labeling and requisition)
3. Specimen containers must be properly labeled. (Specimen labeling and requisition)
4. History and Physical (H&P) must be submitted with specimen.

### **SUBMITTING TISSUE FOR CULTURE:**

1. The most stable environment for obtaining tissue culture is the immediate operating environment.
2. Abscess lesions can be cultured using sterile culturette swabs immediately upon incision and delivery immediately to the laboratory.
3. Solid lesions suspicious for bacterial or viral infection (e.g. granulomas of M.Tuberculosis) can be submitted as solid tissue fragments in a sterile petri dish and delivered immediately to the laboratory.
4. Specimens for anaerobic culture should be submitted with a capped syringe (if aspirated) or in a suitable anaerobic transport medium if a swab is used.

## **BODY FLUID HANDLING:**

Various body fluids can be processed by the laboratory for Cell Counts, Chemical analysis, Microbiology, and/or Cytology.

### **CELL COUNTS:**

2-3 mL of fluid is placed into a tube with anticoagulant (heparin or liquid EDTA) for microscopic examination and cell count. (See Body Fluid Count Peritoneal, Pleural & synovial procedures)

**\*\*\*NOTE:** Oxalated and powdered EDTA should not be used because they can produce artifacts in the microscopic examination for crystals.

### **CHEMICAL ANALYSIS:**

Approximately 5 mL of fluid into a plain (red-top) tube for chemical studies (if ordered).

### **FLUID CULTURE:**

Body fluids (with the exception of urine) are best collected for **routine** and **anaerobic** culture by injecting the fluid into a “Starswab Anaerobe” vial. Both aerobe and anaerobic organisms can be recovered by this method. (See Collection of Cultures- Submission Requirements)

**CAUTION:** Care should be taken not to allow air bubbles into the syringe (gas exchange from the air bubble into the fluid may result in contamination of the specimen. DO NOT submit syringes with needles.

## **CYTOLOGY:**

### **Method A: Preferred method**

1. Express the aspirated material into a tube of CytoLyt cytology fixative supplied by the Histology/Pathology department or into a container of 50% ethanol.
2. Aspirate a small amount of fixative into the barrel of the syringe and rinse the needle into the fixative.

**Method B:** Submit fresh unfixed aspirated fluid in the syringe **immediately** to the laboratory.

**Method C:** See Aspiration cytology

## **ASPIRATION CYTOLOGY:**

1. Fine needle aspiration cytology of tumors is rapidly evolving as an inexpensive, highly accurate and reproducible diagnostic methodology.
2. Biopsies are best performed using a 22 gauge or narrower needle attached to a 20 cc syringe (used to provide vacuum).
3. Biopsies should be confined to the lumen of the needle and care should be taken to avoid aspirating tissue into the syringe.
4. The vacuum is then slowly released. The needle is disconnected from the syringe and air is aspirated into the syringe. The needle is then reattached to the syringe and a drop of tissue is then forced out into a clean glass slide. Using a second slide smears are made in a manner identical to that of a peripheral blood smear.
5. Two slides are immediately placed into 95% ethanol and two slides are allowed to air dry.
6. After the slide preparations are completed, 95% ethanol (1-2 cc) is then aspirated into the syringe, to rinse the lumen, and then expressed into a specimen container containing 50% ethanol and submitted for cell block analysis.

## **REFERENCES:**

Theory and Practice of Histotechnology; 2<sup>nd</sup> edition  
Sheehan, Hrapchak, (1980) Theory and Practice of Histotechnology; 2<sup>nd</sup>  
UVM Medical Center Pathology Lab.

## **Related Procedures:**

NMC Body Fluid Count Peritoneal, Body Fluid Count Pleural & Body Fluid Count Synovial procedures  
NMC Collection of Cultures- Submission Requirement

## **Miscellaneous Referral Testing**

### **INSTRUCTIONS FOR OVA & PARASITE ANALYSIS COLLECTION**

1. IMPORTANT: please read and follow all directions.
2. CAUTION: solutions are poisonous - do not drink.
3. PLEASE: DON'T urinate on the specimen or in the collection container. DON'T urinate in the tubes, DON'T pass the specimen directly into the tube, DON'T pass the specimen into a toilet. DO - COLLECT THE SPECIMEN AS DIRECTED.
4. The stool should be passed into a clean, DRY container. Use a bed pan or place a large plastic bag into a waste basket to catch the specimen. A clean margarine tub, clean wide mouthed jar or a clean milk carton with the top cut off can also be used.
5. Open the tube containing the liquid. Using the collection spoon build into the lid of the tube, place small scoopfuls of stool from areas which appear bloody, slimy or watery into the tube until the contents rise to the red line. If the stool is formed (hard), please try to sample small amounts from each end and the middle.
6. Mix the contents of the tube with the spoon, then twist the cap tightly closed and shake the tube vigorously until the contents are well mixed. REPEAT INSTRUCTIONS 5 AND 6 FOR EACH TUBE WHICH CONTAINS LIQUID.
7. If one of the tubes has no liquid in it, fill it to the red line with stool as above but do not mix or shake this tube.
8. CHECK ALL CAPS TO BE CERTAIN THEY ARE TIGHTLY CLOSED.
9. Mark the labels on the tubes with the identification information requested. Also check the box on the label which looks most like the specimen when collected. Mark the label on the carton or bag with the required information. Return the collection kit to your physician or laboratory.
10. Wash your hands thoroughly. If any liquid from the tubes gets on your skin or in your eyes, flush with plenty of running water. If irritation develops, consult a physician.

ANTIDOTE IF SWALLOWED: Dilute by drinking 2-4 glasses of water. Immediately contact an emergency facility, poison information center, or a physician to receive medical attention. Save the reagent vial; label information will be helpful for determining appropriate medical treatment.

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TYPE	ABO Type	18 days						Daily; Available STAT	<b>See Blood Type(ABO&amp;Rh)</b>		
ACET	Acetaminophen	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
ACETONE	Acetone	None - Fresh Specimen Required		Serum Gel	Tube allowed to fill	2 mL	Acetest	Daily; Available STAT		Refrigerate	NMC
AFPQM	AFP Quad Markers (AFP, hCG, uE3 and DIA)		<b>Patient information form REQUIRED</b>	Serum Gel	Tube allowed to fill	2 mL			<b>Incomplete information will result in the generation of a report without interpretation</b>	Refrigerate	MAYO
AFPTM	AFP Tumor Marker				Tube allowed to fill	2 mL	Chemiluminescence				UVMMC
ALB	Albumin	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Reflectance Spectrophotometry	Daily		Refrigerate	NMC
ETOH	Alcohol(Ethanol)	24 hours	<b>DO NOT prep site with alcohol wipe or other alcohol cleansers</b>	Serum Gel Green Top	Tube allowed to fill	2 mL	Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
ALKP	Alkaline Phosphatase	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
ATRY	Alpha 1 Antitrypsin			Serum Gel	Tube allowed to fill	2 mL	Rate Nephelometry				UVMMC
ALT	ALT (SGPT)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT	<b>Grossly hemolysed specimens are UNACCEPTABLE</b>	Refrigerate	NMC
	Aminophylline								<b>See Theophylline</b>		
AMM	Ammonia		<b>MUST be drawn at NMC Laboratory</b>	Green top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	STAT Availability from UVMMC; Results available in about two hours from collection	<b>See Special Collections Instructions requirements</b>	Frozen immediately at NMC	UVMMC
AMY	Amylase	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
U24AMY	Amylase Urine 24 hour	72 hours		24 hour urine	Entire 24 hour collection	Entire 24 hour collection	Enzymatic	Daily	<b>Random testing also available. ( No Reference Range established) SUBMIT ENTIRE 24HR COLLECTION</b>	Refrigerate during collection	NMC

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UAMY	Amylase Urine Random	72 hours		Clean Catch	30 mL	20 mL	Enzymatic	Daily	No Reference Range established	Refrigerate during collection	NMC
	ANA								See Anti Nuclear Antibody		
ANCA	ANCA (Anti-Neutrophilic Cytoplasmic Antibody)			Serum Gel	Tube allowed to fill	2 mL	Immunofluorescence			Refrigerate	UVMC
ANEM1	Anemia 1 (I) Panel								See Panels Section for contents of this panel		
ANEM2	Anemia 2 (II) Panel								See Panels Section for contents of this panel		
	Anti-Cardiolipin Antibody								See Cardiolipin Antibody		
DNADS	Anti-DNA (Double Stranded)			Red Top Serum Gel	Tube allowed to fill	2 mL	ELISA			Refrigerate	UVMC
ENA	Anti-ENA Extractable Nuclear Antibody (Anti Sm and Anti-RNP)			Serum Gel	4 mL	2 mL	Immunodiffusion			Refrigerate	UVMC
MITAB	Anti-Mitochondrial Antibody(AMA)			Serum Gel	4 mL	2 mL	Immunofluorescence			Refrigerate	UVMC
ANA	Anti-Nuclear Antibody(ANA)			Serum Gel	4 mL	2 mL	Immunofluorescence		REFLEXED TESTING Positives will be titered and pattern noted	Refrigerate	UVMC
PHOSP	Anti-Phospholipid Antibody		MUST be drawn at NMC Laboratory	Draw 1-Gel tube 3-Blue Tops	Tube allowed to fill	Tube allowed to fill	Multiple Methods			Refrigerate serum. Freeze three(3) coag aliquots	UVMC
	Anti-RNP								See Anti-Sm		
SMAB	Anti-Smooth Muscle Antibody(AMSA)			Serum Gel	4 mL	2 mL	Laser Photometry			Refrigerate	UVMC
THYRAB	Anti-Thyroglobulin			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		Included in Anti Thyroid Testing	Refrigerate	UVMC
THYABS	Anti-Thyroid Antibodies (Thyroperoxidase and Thyroglobulin)			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
ABID	Antibody Identification	18 days	Tubes MUST be properly labelled	Draw 1-Pink, 2-Red and 2-Lavender Tops	Tubes allowed to fill	Full tube	RBC agglutination by test tube method		REFLEXED TESTING See Special Instructions-Special Labeling Sent to ARC for difficult antibody workups.		
ABS	Antibody Screen (Indirect Coombs)	18 days	Tube MUST be properly labelled	Pink Top	Tube allowed to fill	Full tube	RBC agglutination by test tube method	Daily; Available STAT	See Special Instructions-Special Labeling	Refrigerate	NMC
ARTHP1	Arthritis 1 Panel								See Panels Section for contents of this panel		

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ARTHP2	Arthritis 2 Panel								<b>See Panels Section for contents of this panel</b>		
SGOT	AST (SGOT)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT	<b>Hemolysed specimens are UNACCEPTABLE.</b>	Refrigerate	NMC
	B 27								<b>See HLA B-27</b>		
BC	Bacterial Culture Blood Adult (>10 years of age)		<b>DO NOT overfill</b>	Bactec Blood Culture Bottles AER/ANA Adults >= 10 years: Two(2) sets per episode from different sites	20 mL Fill bottles to indicator line (8-10 mL)	20 mL Fill bottles to indicator line (8-10 mL)	Bactec 9050	STAT Collection Available Five day incubation post collection before final result; positives processed and phoned to provider STAT	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Held for 5 days. Positives reported STAT. Maximum 2 episodes per 24 hour period.</b>	Room Temp	NMC
BC	Bacterial Culture Blood Pediatric (Newborn - 10 years)		<b>DO NOT overfill</b>	Bactec Blood Culture PEDI BOTTLE 0-9 years One(1) per episode	5 mL Fill bottles to indicator line (1-5 mL)	5 mL Fill bottles to indicator line (1-5 mL)	Bactec 9050	STAT Collection Available Five day incubation post collection before final result; positives processed and phoned to provider STAT	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Held for 5 days. Positives reported STAT. Maximum 2 episodes per 24 hour period.</b>	Room Temp	NMC
EARCULT	Bacterial Culture Ear and Gram Smear			Modified Amies Swab	Variable	Variable	Culture	Negatives held three(3)days; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated.</b>	Refrigerate	NMC
EYECULT	Bacterial Culture Eye and Gram Smear			Modified Amies Swab	Variable	Variable	Culture	Negatives held three(3)days; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated.</b>	Refrigerate	NMC
RCULT	Bacterial Culture Routine (Aerobic) and Gram Smear			Modified Amies Swab	Variable	Variable	Culture	Negatives held three(3)days; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated.</b>	Refrigerate	NMC
ANACULT	Bacterial Culture Routine (Anaerobic)			Starswab ANA Transport System	Inject fluid into tube using BD safety device or place swab in gel	Variable	Culture	Negatives held 48 hours or ten(10) days by special request; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Indicate source on requisition.</b>	Room Temp	NMC

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FECBD	FECAL BACTERIAL PATHOGENS, PCR Replaces Bacterial Culture, Stool and Bacterial Culture, Stool for E.Coli 0157:H7		PCR testing of all indicated organisms.	Para-Pak C&S Cary-Blair Media	Stool	Stool	PCR	Negatives held 72 hours; positives resulted as available	Tests for Salmonella, Shigella, E. coli 0157:H7 (Shiga Toxin producing E.Coli), Campylobacter	Refrigerate	FAHC
FECCX	Bacterial Culture, Stool For Unusual Pathogens		Reflex identification and susceptibility testing of all indicated organisms.	Para-Pak C&S Cary-Blair Media	Stool	Stool	Culture		Reported when positive, negatives final at 48 hours. Tests for Aeronomonas, Plesiomonas, Yersinia and Vibrio Spp.	Refrigerate	UVMCC
CSFCULT	Bacterial Culture CSF and Gram Smear		<b>DO NOT refrigerate Transport ASAP to Laboratory</b>	Sterile CSF Tube	2 mL	1 mL	Culture	Negatives held 72 hours; positives resulted as available	<b>REFLEXED TESTING</b> Identification and susceptibilities on isolated organisms as indicated. Gram smear always performed STAT. If India Ink is requested, see Cryptococcal Antigen	Room Temp	NMC
STOCULT	Bacterial Culture Feces (NMC)			Modified Amies Swab	Stool	Stool	Culture	Negatives held 72 hours; positives resulted as available	<b>REFLEXED TESTING</b> Identification and susceptibilities on isolated organisms as indicated. ***Please submit a 2nd swab if smear for WBC's is requested*** <b>ONLY SPECIMENS SUBMITTED IN MODIFIED AMIES SWABS ARE ACCEPTABLE</b> Tests for Salmonella, Shigella and	Refrigerate	NMC
BFCULT	Bacterial Culture, Body Fluid and Gram Smear			Modified Amies Swab	2 mL	1 mL	Culture	Negatives held 72 hours; positives resulted as available	<b>REFLEXED TESTING</b> Identification and susceptibilities on isolated organisms as indicated. Held for 72 hrs. Indicate on the requisition the source: i.e. left knee, right elbow, peritoneal, etc.	Room Temp	NMC

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GENCULT	Bacterial Culture Genital and Gram Smear			Modified Amies Swab	Variable	Variable	Culture	Negatives held 72 hours; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Indicate source: i.e. vaginal, cervical, penile, urethral, etc.</b>	Room Temp	NMC
GBS	Bacterial Culture Group B Beta Strep			Modified Amies Swab	Variable	Variable	Culture	Negatives held 72 hours; positives resulted as available	Indicate source: i.e. vaginal, cervical etc.	Refrigerate	NMC
NASCULT	Bacterial Culture Mouth Nasal Nasopharyngeal			Modified Amies Swab	Variable	Variable	Culture	Negatives held 72 hours; positives resulted as available	Indicate site on the requisition.	Refrigerate	NMC
MRSA	Bacterial Culture MRSA Screen			Modified Amies Swab or variable depending on site	Variable	Variable	Culture	Negatives held 48 hours; positives resulted as available	<b>***Please clearly mark MRSA SCREEN on requisition.*** Indicate source on the requisition.</b>	Refrigerate	NMC
GCCULT	Bacterial Culture Neisseria Gonnorrhea (GC Screen)		<b>Allow MTM plate to come to ROOM TEMP before inoculating</b>	MTM II Media	Variable	Variable	Culture		<b>Transport to Lab ASAP Contact Laboratory for assistance. Indicate source on requisition DO NOT refrigerate inoculated plate</b>	Room Temp	NMC
SPUCULT	Bacterial Culture Sputum	Must be received within 4 hours of collection.		Clean Catch	2 mL	1 mL	Culture	Negatives held 72 hours; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Gram smear is ALWAYS performed. Preliminary gram smear results are reported on all NMC Inpatients.</b>	Room Temp	NMC
SS	Bacterial Culture Strep Screen			Modified Amies Swab	Variable	Variable	Culture	Negatives held 48 hours; positives resulted as available	<b>Report includes presence or absence of Group A Beta strep and quantitation if present</b>	Refrigerate	NMC
	Bacterial Culture Susceptibility		<b>Not available without culture</b>						<b>Performed as reflex when indicated in conjunction with culture.</b>		

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UCULT	Bacterial Culture Urine				30 mL	10 mL	Culture	Negatives held 48 hours; positives resulted as available	<b>REFLEXED TESTING Identification and susceptibilities on isolated organisms as indicated. Indicate Clean Catch, Catheter, Suprapubic or Cysto source. Includes a colony count and sensitivity when applicable.</b>	Refrigerate	NMC
BMP	Basic Metabolic Panel (BMP)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry/Ion-specific electrodes	Daily; Available STAT	<b>Hemolysed specimens are UNACCEPTABLE. See Panels Section for analyte components.</b>	Refrigerate	NMC
CBIL	Bilirubin, Conjugated (BC)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily	<b>Protect sample from light</b>	Refrigerate	NMC
BILIU	Bilirubin, Unconjugated (BU)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrometry	Daily	<b>Protect from light</b>	Refrigerate	NMC
NBILIP	Bilirubin, Neonatal BC, BU, Total (Newborn Screen)	72 hours		Amber Pediatric	Tube filled to maximum fill line	N/A	Colorimetric Reflectance Spectrometry	Daily; Available STAT	<b>Moderate to severe hemolysis DOES interfere with analysis.</b>	Refrigerate	NMC
TBIL	Bilirubin, Total	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrometry	Daily; Available STAT	<b>Protect from light</b>	Refrigerate	NMC
	Bleeding Time		<b>No longer available</b>						<b>See Platelet Function Analysis</b>		UVMC
	Blood Type (ABO and Rh)	18 days	<b>Tube MUST be properly labelled</b>	Pink Top	Tube allowed to fill	Full tube	RBC agglutination by test tube method	Daily; Available STAT	<b>See Special Instructions- Special Labeling</b>	Refrigerate	NMC
	Blood Urea Nitrogen	72 hours						Daily; Available STAT	<b>See BUN</b>		
UBLO	Blood Urine	2 hours at room temp/24 hours refrigerated									
	BMP							Daily; Available STAT	<b>See Basic Metabolic Panel</b>		
BNP	BNP	7 hours		Lavender Top	3 mL	2 mL	Triage-Immunoassay	Daily; Available STAT			NMC
	Body Fluid Cytology								<b>See Special Instruction Section-Anatomic Pathology</b>		U
	Bone Marrow								<b>See Special Instruction Section-Anatomic Pathology</b>		NMC

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	Bordetella Pertussis Culture-REFERRALS			State Laboratory collection kits			Culture Media Innoculation		Kits available directly from Vermont State Health Department Laboratory		VSHDL
	Breast Cytology								See Special Instruction Section-Anatomic Pathology		
	Bronchial Brush Cytology								See Special Instruction Section-Anatomic Pathology		
	Bronchial Wash Cytology								See Special Instruction Section-Anatomic Pathology		
BUN	BUN Serum (Blood Urea Nitrogen)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
C3	C3 Complement			Serum Gel	4 mL	2 mL	Rate Nephelometry				UVMC
C4	C4 Complement			Serum Gel	4 mL	2 mL	Rate Nephelometry				UVMC
CA125	CA 125			Serum Gel	4 mL	2 mL	Immunometric			Refrigerate	UVMC
CA19	CA 19-9			Serum Gel	4 mL	2 mL	Immunometric			Refrigerate	UVMC
CA2729	CA 27-29			Serum Gel	4 mL	2 mL	Chemilluminescence			Refrigerate	UVMC
CACAL	Calcium Calculated (from calcium and albumin assay)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
CA	Calcium Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
U24CA	Calcium Urine 24hr	72 hours		24 hour urine	Entire 24 hour collection	Entire 24 hour collection	Colorimetric Reflectance Spectrophotometry	Daily	Record date and time of start and completion on the requisition	Refrigerate during collection	NMC
UCA	Calcium Urine Random	72 hours		Clean Catch	30 mL	20 mL	Colorimetric Reflectance Spectrometry	Daily	No Reference Range available	Refrigerate	NMC
ICA	Calcium Ionized Plasma			Green Top	Tube allowed to fill	Tube allowed to fill	Ion-Specific Electrode	STAT Availability from UVMC; Results available in about two hours from collection	Do not open the tube		UVMC
	Carbamazepine								See Tegretol		
	Carbon Dioxide Blood	72 hours							See CO2(Bicarbonate)		
	Carbon Monoxide								See Carboxyhemoglobin		
CARBHGB	Carboxyhemoglobin (Carbon Monoxide)		Contact NMC Respiratory Therapy Department								
CARD	Cardiac Profile	72 hours	NMC EMD/ Inhouse Only	Serum Gel AND Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry/ Immunoassay	Daily; Available STAT	See Panels Section for analyte components.	Refrigerate	NMC
CARD1	Cardiac 1 STAT		NMC EMD/ Inhouse Only						See Panels Section for contents of this panel		

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CARD3	Cardiac 3 STAT		NMC EMD/ Inhouse Only						See Panels Section for contents of this panel		
CARDAB	Cardiolipin Antibody (Phospholipid Antibodies IgG and IgM)			Serum Gel	4 mL	2 mL	Enzyme-Linked Immunoassay		REFLEX TESTING If positive, specimen will be titered.	Refrigerate	UVMC
CTSH	Cascade TSH	72 hours		Serum Gel	Tube allowed to fill	2 mL	Immunoassay	Daily; Available STAT	REFLEX TESTING TSH reflexed to FT4 reflexed to TT3 dependent upon results obtained. Patient only charged for the testing performed		NMC
CBC	CBC/CPO Hemagram (WBC,RBC,HCT, HGB, RBC Indices, PLT)	24 hours		Lavender Top Pediatric EDTA vial	Tube allowed to fill 0.5 mL in pediatric EDTA vial	2 mL in Lavender Top 0.375 mL in pediatric EDTA vial	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
CBCD	CBC/Diff Hemagram/Diff (CBC plus 5-part automated diff)	24 hours		Lavender Top Pediatric EDTA vial	Tube allowed to fill 0.5 mL in pediatric EDTA vial	2 mL in Lavender Top 0.375 mL in pediatric EDTA vial	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
CBCMD	CBC/Manual Differential (CBC plus manual differential)/ 12 hours due to smear prep time limitations	12 hours due to smear prep time limitations		Lavender Top Pediatric EDTA vial	Tube allowed to fill 0.5 mL in pediatric EDTA vial	2 mL in Lavender Top 0.375 mL in pediatric EDTA vial	Automated Cell Counter and Manual Differential Count	Daily; Available STAT		Refrigerate	NMC
CEA	CEA (Carcinoembryonic Antigen)			Serum Gel	4 mL	2 mL	Enzyme Immunoassay			Refrigerate	UVMC
BFCC	Cell Count Fluid								See Fluid Cell Count		
CHEM12	Chem 12	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily	See Panels Section for analyte components.	Refrigerate	NMC
CHPROP	Chlamydia Trachomatis Amplified Probe Genital (Genprobe)			Aptima Collection Kit	Variable	Variable	Amplified Nucleic Acid Probe		Indicate site on the requisition. NOT recommended for sexual abuse cases.Chlamydia culture is recommended for sexual abuses cases.	Refrigerate	UVMC
	Chlamydia Trachomatis Amplified Probe Urine (Uripobe)			Aptima Collection Kit (Yellow)	Variable	Variable	Amplified Nucleic Acid Probe		MUST fill to indicator space on vial.	Refrigerate	UVMC
	Chlamydia Trachomatis Amplified probe, Vaginal			Aptima Collection Kit (Orange)	Variable	Variable	Amplified Nucleic Acid Probe		Only for Vaginal Sources and not acceptable for patients under 16 years	Refrigerate	UVMC

# Laboratory Services Directory

Northwestern Medical Center

Saint Albans, VT 05478

(802) 524-1070

Test ID	Reporting Name	Specimen Storage Time for Add-on Requests	Special Patient Prep Indicated	Collection Container Preferred Acceptable	Sample Collection Volume	Minimum Sample Amount	Methodology	Days Performed	Special Collection Notes(i.e. timing of collection, special handling etc)	Storage Requirements Collection Time to Laboratory Receipt	Testing Facility
MCRNA	Chlamydia Trachomatis Amplified probe, misc sources			Aptima Collection Kit	Variable	Variable	Amplified Nucleic Acid Probe		<b>MUST specify source</b>	Refrigerate	MAYO
	Chlamydia Trachomatis Culture			Copan Swab in M-50 Transport Media	Variable	Variable	Cell Culture Inoculation		<b>Recommended for sexual assault cases.</b>	Refrigerate	UVMMC
CL	Chloride	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Ion-Specific Electrode	Daily; Available STAT		Refrigerate	NMC
URCL	Chloride Urine 24 hour or Random			24 hour collection or random collection	30 mL	20 mL	Ion-Specific Electrode		<b>No reference range for random specimens</b>	Refrigerate	UVMMC
CHOL	Cholesterol	72 hours	<b>12 hour fast preferred</b>	Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
HDL	Cholesterol-HDL	72 hours	<b>12 hour fast preferred</b>	Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily		Refrigerate	NMC
	Cholesterol-LDL	72 hours	<b>12 hour fast preferred</b>	Serum Gel Green Top	Tube allowed to fill	2 mL	CALCULATED RESULT	Daily	<b>Included in a Lipid Profile</b>		NMC
	Chorionic Gonadatropin	72 hours						Daily; Available STAT	<b>See HCG</b>		
CHROM	Chromosome Analysis-Blood		<b>MUST be performed at NMC Laboratory</b>	Special Green Top	6 mL	3 mL	Microscopy, Karotyping		<b>A complete patient history is required.</b>	Room Temp	UVMMC
CHROM	Chromosome Analysis-Bone Marrow		<b>Contact Laboratory for special collection container</b>	Bone Marrow tube(RPMI)	4 mL	1 mL	Microscopy Karotyping		<b>A complete patient history is required.</b>	Room Temp	UVMMC
CHROM	Chromosome Analysis-Tissue		<b>Contact Laboratory for special collection container</b>	Hanks Solution	2 mL	1 mL	Microscopy, Karotyping		<b>Specimen types: Products of conception,skin or fascia. A complete patient history is required. SPECIMENS IN FORMALIN ARE UNACCEPTABLE</b>	Room Temp Refrigerate if >24 before transport to FAHC	UVMMC
CHROM	Chromosomes Analysis -Amniotic Fluid		<b>Contact Laboratory for special collection container</b>	Conical tube	30 mL	10 mL	Microscopy, Karotyping		<b>A complete patient history is required.</b>	Room Temp	UVMMC

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CK	CK (Creatine Kinase)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT	<b>Hemolyzed specimens are UNACCEPTABLE</b>	Refrigerate	NMC
CKMB	CKMB Isoenzyme	72 hours		Green top	Tube allowed to fill	2 mL	Immunoassay	Daily; Available STAT	<b>Hemolyzed specimens are UNACCEPTABLE</b>	Refrigerate	NMC
CDIFF	Clostridium Difficile Antigen/Toxin			Sterile Clean Catch	5 mL	2 mL	Enzyme Immunoassay		<b>Non-formed specimen REQUIRED. List previous antibiotic therapy. Refrigerate specimen and deliver to NMC Laboratory IMMEDIATELY</b>	Refrigerate	NMC
	CMP							Daily	<b>See Comprehensive Metabolic Panel</b>		
CMVIGG	CMV (Cytomegalovirus) Antibody IgG			Serum Gel	4 mL	2 mL	ELISA			Refrigerate	UVMC
CO2	CO2(Bicarbonate) Blood Carbon Dioxide	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Ion-Specific Electrode	Daily; Available STAT		Refrigerate	NMC
CMP	Comprehensive Metabolic Panel (CMP)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry/Ion-specific electrodes		<b>Hemolysed specimens are UNACCEPTABLE. See Panels Section for analyte components.</b>	Refrigerate	NMC
	Coombs Direct	18 days						Daily; Available STAT	<b>See Direct Antiglobulin</b>		
	Coombs Indirect	18 days						Daily; Available STAT	<b>See Antibody Screen</b>		
CBS	Cord Blood Screen (ABO, Rh, DAT)	18 days	<b>Tubes MUST be properly labelled</b>	Lavender Top and Red Top	Tubes allowed to fill	2 mL	RBC agglutination by test tube method	Daily; Available STAT	<b>See Special Instructions-Special Labeling</b>	Refrigerate	NMC
CORT	Cortisol			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
CPEP	C-Peptide		<b>Fasting specimen REQUIRED</b>	Red Top Serum Gel Tube	4 mL	2 mL	Immuno-electro-chemiluminometric			Frozen for shipment at NMC	UVMC
	CPK	72 hours						Daily; Available STAT	<b>See CK</b>		
CRP	C-Reactive Protein	72 hours		Serum Gel Red Top	4 mL	2 mL	Immunorate Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
	Creatine Phosphokinase	72 hours							<b>See CK</b>		
CREAP	Creatinine with GFR	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	2-point rate reflectance	Daily; Available STAT		Refrigerate	NMC
CRCL	Creatinine Clearance	72 hours	<b>A serum specimen is REQUIRED for the calculation.</b>	24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Calculation	Daily		Refrigerate during collection	NMC

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U24CREA	Creatinine Urine 24 hours	72 hours		24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Reflectance Spectrophotometry	Daily		Refrigerate during collection	NMC
UCREA	Creatinine Urine Random	72 hours		Clean Catch	30 mL	20 mL	2-point rate reflectance	Daily	No Reference Range available.	Refrigerate	NMC
	Crossmatch	18 days	<b>Tubes MUST be properly labelled</b>	Pink Top	6 mL	4 mL	RBC agglutination by test tube method	Daily; Available STAT	See Special Instructions-Special Labeling	Refrigerate	NMC
	CRP							Daily; Available STAT	See C-Reactive Protein		
CRYPTOC	Cryptococcal Antigen			Sterile CSF Tube	1 mL	0.5 mL			Latex Agglutination		UVMC
BFCRYS	Crystal Exam Synovial Fluid			Lavender Top	1-3 mL	1 mL	Polarized Light Evaluation	Daily Monday-Friday	Testing performed weekdays 8-4pm by NMC Pathologist	Refrigerate	NMC
CSFCC	CSF Cell Count and Differential			Sterile CSF Tube	1-3 mL	1 mL	Manual Cell Count by Hemocytometer	Daily; Available STAT	Deliver specimen to lab IMMEDIATELY	Room Temp	NMC
CSFP	CSF Profile							Daily; Available STAT	See Panels Section for content of this panel		
	CSF Protein							Daily; Available STAT	See Total Protein CSF		
CYCLO	Cyclosporine			Lavender Top	3 mL	1 mL	Fluorescent Polarization Immunoassay			Refrigerate	UVMC
	DAT	18 days							See Direct Coombs		
DIMER	D-Dimer	24 hours		Lavender Top	3 mL	2 mL	Fluorescent Immunoassay	Daily; Available STAT	1+ Hemolysis ok 1+ Lipemia ok	Refrigerate	NMC
DHEAS	DHEA-Sulfate			Serum Gel	4 mL	2 mL	Chemiluminescent Assay			Refrigerate	UVMC
	Dialysis Iron Panel								See Panels Section for contents of this panel		
DIFF	Differential Blood Manual	12 hours due to smear prep time limitations		Lavender Top	Tube allowed to fill	2 mL	Wright's Smear microscopy	Daily; Available STAT		Refrigerate	NMC
DIGO	Digoxin	72 hours		Red Top Serum Gel Green Top	Tube allowed to fill	2 mL	Immunoassay - multipoint immunorate	Daily; Available STAT		Refrigerate	NMC
DILA	Dilantin(Phenytoin)	72 hours		Red Top Serum Gel Green Top	Tube allowed to fill	2 mL	Immunoassay - multipoint immunorate	Daily; Available STAT		Refrigerate	NMC
	Dilute Russell Viper Venon Time		<b>MUST be performed at NMC Laboratory</b>				Clot Based Kit		Only available as part of the Lupus Anticoagulant Work-up Panel	Frozen immediately at NMC	UVMC
DAT	Direct Coombs (Direct Antiglobulin Test) DAT	72 hours	<b>Tubes MUST be properly labelled</b>	Pink Top	Tube allowed to fill	6 mL	RBC agglutination by test tube method	Daily; Available STAT	See Special Instructions-Special Labeling	Refrigerate	NMC

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DRUG6	Drug Screen-6			Clean Catch	50 mL	30 ML			REFLEX TESTING Tests for the following: Amphetamines, Barbiturates, Benzodiazepines, Cocaine, Cannabinoids and Opiates. Amphetamines and Benzodiazepines confirmed at an additional charge.	Refrigerate	UVMC
MEDTOX	Drug Screen-Drugs of Abuse (with no confirmation) MedTox	48 hours fresh; specimen is frozen and kept 7 days if any drug detected for possible confirmation request	To be utilized for drug screening only	Clean Catch	30 mL	20 mL	Immunoassay	Daily; Available STAT	Tests for: Amphetamine, Barbiturates, Benzodiazepines, Buprenorphine, Cocaine(Benzoyllecgonine) THC(Cannabinoids), Methadone, Methamphetamine, Opiates, Oxycodone, Phencyclidine, Propoxyphene and Tricyclic Antidepressants.	Room Temp	NMC
	EBV Antibody Panel								See Epstein Barr Antibodies Panel		
LYTES	Electrolytes(Lytes) Na, K, Cl, CO2, Anion Gap	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Ion-Specific Electrode	Daily; Available STAT	Hemolysed specimens are UNACCEPTABLE	Refrigerate	NMC
	Electrophoresis Urine 24 hour or random			24 hour urine collection or clean catch container for random collection	Entire 24 hour volume or 20 mL of random	Entire 24 hour volume or 20 mL of random	Electrophoresis		REFLEX TESTING First morning void(spot) or 24 hr collection are preferable. Random samples also acceptable. Includes: Total Protein and Electrophoresis. Reflex to immunofixation if indicated.	Refrigerate	UVMC
HGBEL	Electrophoresis Hemoglobin			Lavender Top	3 mL	2.5 mL	Electrophoresis				UVMC
SPEP	Electrophoresis Serum			Serum Gel	4 mL	2 ML	Electrophoresis		Includes: Total Protein and Electrophoresis	Refrigerate	UVMC
	ENA								See Anti ENA		UVMC
UEOS	Eosinophils Urine	2 hours		Clean Catch	20 mL	10 mL	Hansel's Stain and Microscopic Evaluation		Urine must be processed and slides prepared for analysis within two(2)hours of collection.	Refrigerate	UVMC

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ESR	ESR (Erythrocyte Sedimentation Rate)	24 hours		Lavender Top	Tube allowed to fill	2 mL	Modified Westergren	Daily; Available STAT	<b>Specimens stable: 24 hr refrigerated 5 hr room temperature</b>	Refrigerate	NMC
ESTRA	Estradiol			Serum Gel tube	4 mL	2 mL	Chemiluminescent Immunoassay		<b>Stable 24 hrs refrigerated.</b>	Frozen for shipment from NMC	UVMC
	Ethanol	72 hours							<b>See Alcohol</b>		
	Ethosuximide								<b>See Zaronitin</b>		
F5LE	Factor 5 Leiden Mutation			Lavender Top	4 mL	2 mL	PCR, FRET Probes and Melt Analysis			Refrigerate	UVMC
OCBLD	Fecal Occult Blood			Hemoccult Card	Stool	Stool	Hemoccult	Daily	<b>Random sample.</b>	Room Temp	NMC
OCBLDP											
	Feces C Difficile	24 hours						Daily; Available STAT for Inpatients/EMD	<b>See Clostridium difficile Toxin</b>		
	Feces for Polys							Daily	<b>See WBC Feces(Stool)</b>		
FER	Ferritin			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay	Daily	<b>Moderately hemolysed specimens are UNACCEPTABLE.</b>	Refrigerate	NMC
FLM	Fetal Lung Maturity Amniotic Fluid			Clean Catch	5 mL	5 mL	Automated Cell Counter		<b>PLEASE CONTACT LAB PRIOR TO COLLECTION TO INSURE IMMEDIATE PROCESSING. Place specimen on ice immediately after collection and deliver to Lab STAT. Available STAT from FAHC</b>	On Ice	FAHC
	Fibrin Split Products	2 hours						Daily; Available STAT	<b>See D-Dimer</b>		
FIB	Fibrinogen	2 hours		Blue Top	Tube allowed to fill	Full tube	Photo-Optical	Daily; Available STAT	<b>Underfilled tubes are UNACCEPTABLE. Mix well by gentle inversion after collection. Specimen MUST be received in lab within 1 hour of collection. Specimen may be draw at NMC Lab outstation.</b>	Refrigerate	NMC
	Fine Needle Aspirate								<b>See Special Instructions Section-Anatomic Pathology</b>		
	FLM								<b>See Fetal Lung Maturity</b>		
	Flourescent Treponemal AB								<b>See FTA</b>		
BFCC	Fluid Cell Count			Lavender Top	1-3 mL	1 mL	Manual Cell Count by Hemocytometer	Daily; Available STAT	<b>Submit to laboratory PROMPTLY. Cells deteriorate upon standing.</b>	Refrigerate	NMC

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BFDIFF	Fluid Differential ORDERABLE BY LABORATORY ONLY			Lavender Top	1-3 mL	1 mL	Manual Cell Enumeration by Modified Wright's Stain	Daily: Available STAT	<b>Submit to laboratory PROMPTLY. Cells deteriorate upon standing.</b>	Refrigerate	NMC
FOLI	Folate		<b>Fasting specimen preferred</b>	Serum Gel	4 mL	2 mL	Chemiluminescent Immunassay	Daily	<b>Hemolysed specimens are UNACCEPTABLE.</b>	Refrigerate	UVMC
FSH	Follicle Stimulating Hormone			Serum Gel	4 mL	2 mL	Chemiluminescent Immunassay			Refrigerate	UVMC
	Free T4 (Free Thyroxine)	72 hours						Daily; Available STAT	<b>See T4 Free</b>		
FTI	Free Thyroxine Index (FTI/T7)			Serum Gel	10 mL	2 mL	Calculation	Daily	<b>Calculated from T3 and T4.</b>	Refrigerate	NMC
	Frozen Section								<b>See Special Instructions Section-Anatomic Pathology</b>		
	FSH								<b>See Follicle Stimulating Hormone</b>		
FTA	FTA (Flourescent Treponemal Ab)			Serum Gel	4 mL	2 mL	Fluorescence			Refrigerate	VSHDL
	FTI								<b>See Free Thyroxine Index</b>		
FUNGO	Fungus Culture /Smear -Respiratory (Smear is optional)			Sterile Clean Catch	Sputum	Sputum	Culture Media Inoculation & Stain		<b>REFLEX TESTING Positives reported immediately.Negatives FINAL at 28 days. Isolation and identification reflexed.</b>	Refrigerate	UVMC
FUNGAL	Fungus Culture /Smear -Skin and Nails(Smear is optional) KOH performed upon request.			Sterile Clean Catch	Skin/Nails	Skin/Nails	Culture Media Inoculation & Stain		<b>REFLEX TESTING Positives reported immediately.Negatives FINAL at 28 days. Isolation and identification reflexed.</b>	Refrigerate	UVMC
	Fungus Culture/Smear-Other (Smear is optional)			Sterile Clean Catch	Variable	Variable	Culture Media Inoculation & Stain		<b>REFLEX TESTING Positives reported immediately.Negatives FINAL at 28 days. Isolation and identification reflexed.</b>	Refrigerate	UVMC
FUNGT	Fungus Culture/Smear-Tissue(Smear is optional)			Sterile Clean Catch	1 gram tissue	0.2 grams tissue	Culture Media Inoculation & Stain		<b>REFLEX TESTING Positives reported immediately.Negatives FINAL at 28 days. Isolation and identification reflexed.</b>	Refrigerate	UVMC

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FUNGB	Fungus Culture-Blood			Isolator tube	10 mL	1 mL	Culture Media Inoculation		<b>REFLEX TESTING</b> Positives reported immediately.Negatives FINAL at 28 days. Isolation and identification reflexed.Most yeast are recovered by this method.	Room Temp	UVMC
	Gamma Glutamyl Transpeptidase							Daily	See GGT		
	Gamma GT							Daily	See GGT		
GCPROP	GC Amplified Probe Genital (Genprobe)			Aptima kit: Orange for Vaginal, Clear for endocervical and urethral.			Amplified Nucleic Acid Probe		Indicate source on requisition. <b>NOT recommended for sexual abuse case, culture recommended.</b>	Refrigerate	UVMC
	GC Amplified Probe Urine (Uripobe)			Aptima kit with pipet (yellow)	MUST fill to between indicator lines		Amplified Nucleic Acid Probe		Failure to correctly fill vial will result in rejection of specimen	Room Temp	UVMC
	GC Amplified probe, Vaginal			Aptima Collection Kit (Orange)	Variable	Variable	Amplified Nucleic Acid Probe		<b>Only for Vaginal Sources and not acceptable for patients under 16 years</b>	Refrigerate	UVMC
MGRNA	GC Amplified probe, misc sources			Aptima Collection Kit	Variable	Variable	Amplified Nucleic Acid Probe		<b>MUST specify source</b>	Refrigerate	MAYO
GC	GC Screen Culture		<b>Allow MTM plate to come to ROOM TEMP before inoculating</b>	MTM II Media			Culture		Contact Laboratory for assistance. Transport immediately to Laboratory at ROOM TEMPERATURE. Indicate source on requisition.	Room Temp	NMC
GHP	General Health Panel								See Panels Section for content of this panel		
	Gentamicin Peak, Random or Trough			Serum Gel	4 mL	2 mL	Chemiluminescent Immunassay		Collect: -Peak IV 30 minutes after IV dose - Peak IM 60 minutes after IM dose - Trough immediately before dose	Refrigerate	UVMC
GTT3G	Gestional Diabetes Screen								See Glucose 1hr Gestional Screen		
GGTP	GGT	72 hours		Serum gel	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily		Refrigerate	NMC

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GIARDP	Giardia Antigen with Cryptosporidium			O&P collection vial	5 mL	1 mL	Fluorescent Microscopy			Room Temp	UVMC
GLU	Glucose	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily; Available STAT	<b>Tube MUST be spun within 30 minutes of collection to prevent glycolysis and decrease in glucose level. Hemolysed specimens are UNACCEPTABLE.</b>	Refrigerate	NMC
BFGLU	Glucose Body Fluid			Sterile Tube without additive	1-3 mL	1 mL	Colorimetric	Daily	<b>INVERT TUBE several times to prevent clotting. Indicate source of fluid</b>	Refrigerate	NMC
CSFGLU	Glucose CSF			Sterile CSF Tube	1-3 ML	1 mL	Colorimetric	Daily; Available STAT		Refrigerate	NMC
1HRPC	Glucose Tolerance 1 hour PP/PC (Gestational Screen)			Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily Monday-Friday	<b>For patients at NMC Laboratory, by appointment ONLY, Monday-Friday See Special Instructions GTT Testing</b>	Refrigerate	NMC
GTT2	Glucose Tolerance 2 hour			Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily Monday-Friday	<b>For patients at NMC Laboratory, by appointment ONLY, Monday-Friday See Special Instructions GTT Testing</b>	Refrigerate	NMC
GTT5	Glucose Tolerance 5 hour			Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily Monday-Friday	<b>For patients at NMC Laboratory, by appointment ONLY, Monday-Friday See Special Instructions GTT Testing</b>		
GTT3G	Glucose Tolerance-3hr (Gestional)			Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric	Daily Monday-Friday	<b>For patients at NMC Laboratory, by appointment ONLY, Monday-Friday See Special Instructions GTT Testing</b>	Refrigerate	NMC
	Glycohemoglobin							Daily	<b>See Hemoglobin A1C</b>		

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GS	Gram Stain			Amies Transport Swab or various depending on site	Variable	Variable	Gram Stain	Daily; Available STAT for CSF, Joint Fluids and Sputums only	<b>TWO swabs MUST be submitted if a gram smear AND culture are ordered</b>	Refrigerate	NMC
HAPT	Haptoglobin			Serum Gel	4 mL	2 mL	Rate Nephelometry		<b>Hemolysed specimens are UNACCEPTABLE</b>	Refrigerate	UVMC
	HCG Qualitative			Serum Gel	Tube allowed to fill	2 mL	Immunoassay	Daily; Available STAT		Refrigerate	NMC
HCG	HCG Quantitative, Serum			Serum Gel	Tube allowed to fill	2 mL	Immunoassay	Daily; Available STAT	<b>Please indicate on requisition approximate</b>	Refrigerate	NMC
HCGTM	HCG Tumor Marker			Serum Gel	4 mL	2 mL	Immunometric			Refrigerate	UVMC
UPREG	HCG Urine	48 hours						Daily; Available STAT	<b>See Pregnancy Test Urine</b>		
HCT	HCT(Hematocrit)	24 hours		Lavender Top	3 mL	2 mL	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
	HDL Cholesterol	72 hours						Daily	<b>See Cholesterol HDL</b>		
HPYL	Helicobacter Pylori IgG Antibody			Serum Gel	4 mL	2 mL	ELISA			Refrigerate	UVMC
	Hemagram/ 24 hours							Daily; Available STAT	<b>See CBC</b>		
	Hemagram and Differential/ 24 hours							Daily; Available STAT	<b>See CBC/Diff</b>		
HGBAICP	Hemoglobin A1C/ Glycohemoglobin	72 hours		Lavender Top	Tube allowed to fill	2 mL	Endpoint	Daily	<b>***DO NOT SPIN***</b>	Refrigerate	NMC
	Hemoglobin Electrophoresis								<b>See Electrophoresis Hemoglobin</b>		
HFP	Hepatic Function Panel/HFP/Liver	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily	<b>See Panels Section for analyte components.</b>	Refrigerate	NMC
HAAB	Hepatitis A Antibody Total			Serum Gel tube	4 mL	2 mL	Immunometric		<b>REFLEX TESTING Samples testing positive for the antibody will have IgM performed at an additional cost.</b>	Refrigerate	UVMC
HEPPAN	Hepatitis ABC Panel			Serum Gel	6 mL	4 mL	Immunometric		<b>See Panels Section for content of this panel</b>	Refrigerate	UVMC
HBCAB	Hepatitis B Core Antibody Total			Serum Gel	4 mL	2 mL	Immunometric			Refrigerate	UVMC
HBSAB	Hepatitis B Surface Antibody			Serum Gel	4 mL	2 mL	Immunometric			Refrigerate	UVMC

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HBSAG	Hepatitis B Surface Antigen			Serum Gel	4 mL	2 mL	Immunometric		<b>REFLEX TESTING</b> Samples testing positive for the antigen will have confirmatory testing performed at an additional cost.	Refrigerate	UVMC
HCABRX	Hepatitis C Antibody			Serum Gel	4 mL	2 mL	Immunometric		<b>REFLEX TESTING</b> Samples testing positive for the antigen will have HepC-PCR confirmatory testing performed at an additional cost.	Refrigerate	UVMC
MUCVIRAL	Herpes Simplex by PCR (HSV)			M-6 Transport Medium and Copan Flocked swab	Copan swab or 0.5 mL fluid		PCR		Place swab, vesicular fluid or tissue in M-5 medium Culture examined for Herpes Simplex ,NOT HERPES ZOSTER	Refrigerate	UVMC
HSVAB	Herpes Simplex Virus Antibodies			Serum Gel	0.8 mL	1 mL	Immunometric			Refrigerate	MAYO
HGB	HGB(Hemoglobin)	24 hours		Lavender Top	Tube allowed to fill	2 mL	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
HIV	HIV 1&2 Antibody		<b>SIGNED CONSENT FORM IS REQUIRED PRIOR TO TESTING</b>	Serum Gel tube	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
HLAB27	HLA B27		<b>MUST be performed at NMC Laboratory</b>	Lavender Top Whole Blood	3 mL	1 mL	Complement Mediated Cytology		<b>MUST BE COLLECTED MONDAY-THURSDAY ONLY AND ARRIVE AT UVMC WITHIN 24 HRS</b>	Room Temp	UVMC
HOM	Homocysteine		<b>BEST to be performed at NMC Laboratory 8 hour fast required</b>	Lavender Top	3 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate immediately upon collection until plasma removed	UVMC
HSCR	hs-CRP (Highly Sensitive CRP)			Serum Gel	4 mL	2 mL	Near infrared particle immunoassay		<b>Green top NOT acceptable</b>	Refrigerate	UVMC
	HSV								<b>See Herpes Simplex PCR</b>		
	Human Chorionic Gonadotropin								<b>See HCG</b>		
	Human Immunodeficiency Virus Antibody								<b>See HIV 1&amp;2 Antibody</b>		
IGA	IgA			Serum Gel	4 mL	2 mL	Rate Nephelometry		<b>Green top NOT acceptable</b>	Refrigerate	UVMC

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IGE	IgE			Serum Gel	4 mL	2 mL	Near infrared particle immunoassay		<b>Green top NOT acceptable Lipemia not acceptable</b>	Refrigerate	UVMC
IGG	IgG			Serum Gel	4 mL	2 mL	Rate Nephelometry			Refrigerate	UVMC
IGM	IgM			Serum Gel	4 mL	2 mL	Rate Nephelometry			Refrigerate	UVMC
IMMUNO	Immunodeficiency Panel			Green Top Lavender Top	4 mL 3 mL	2 mL 2 mL	Flow Cytometry		<b>MUST BE COLLECTED MONDAY -THURSDAY ONLY Includes: CD3, CD4, CD8 and Absolute CD4.</b>	Room Temp	UVMC
	Immuno-electrophoresis Serum			Serum Gel	4 mL	2 mL	Electrophoresis with Antisera			Refrigerate	UVMC
	Immuno-electrophoresis Urine						Electrophoresis with Antisera		<b>First morning void preferable</b>	Refrigerate	UVMC
IG	Immunoglobulins			Serum Gel	4 mL	2 mL	Rate Nephelometry		<b>Includes: IgA, IgG and IgM</b>	Refrigerate	UVMC
	Indirect Antiglobulin								<b>See Antibody Screen</b>		
	Indirect Coombs								<b>See Antibody Screen</b>		
	Infectious Mononucleosis	72 hours							<b>See Monotest</b>		
INSU	Insulin		<b>Fasting specimen preferred</b>	Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		<b>Green top or lavender top NOT acceptable</b>	Refrigerate	UVMC
IRON	Iron			Serum Gel	4 mL	2 mL	Colorimetric Reflectance Spectrometry		<b>Included in an Iron Profile.</b>	Refrigerate	UVMC
TIBC	Iron Binding Capacity(TIBC)		<b>Draw before 10 AM</b>	Serum Gel	4 mL	2 mL	Colorimetric Reflectance Spectrophotometry		<b>Included in an Iron Profile</b>	Refrigerate	UVMC
	Iron Panel(Profile)								<b>See Panels Section for content of this profile</b>		
IRONP	Iron Saturation (Transferrin Saturation)			Serum Gel	4 mL	2 mL	Calculation from Iron and TIBC assay values		<b>Included in an Iron Profile</b>	Refrigerate	UVMC
KB	Kleihauer-Betke Test			Lavender Top	3 mL	2.5 mL	Acid Elution of Adult Hemoglobin		<b>Available STAT for FAHC</b>	Refrigerate	UVMC
KOHP	KOH		Skin Scrapings required	Red Top with 0.5-1.0 mL saline	Variable	Variable	Microscopic Examination	Daily; Available STAT	<b>DRY SWABS ARE UNACCEPTABLE Transport to Laboratory ASAP Indicate source</b>	Room Temp	NMC
	LA Antibodies								<b>See Anti SS Antibodies</b>		
LAC	Lactic Acid		<b>MUST be performed at NMC Laboratory</b>	Chilled Green Top	Tube allowed to fill	Full tube	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT	<b>Transport on ice</b>	On Ice	NMC
	Lactic Acid Dehydrogenase							Daily; Available STAT	<b>See LDH</b>		
LTT	Lactose Tolerance Test							Daily; Monday-Friday	<b>Call NMC Laboratory for Special Instructions</b>		

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BFLDH	LDH Fluid			Sterile Tube without additive	1-3 mL	1 mL	Rate Reflectance Spectrophotometry	Daily	Indicate fluid source	Refrigerate	NMC
LDH	LDH/Lactate Dehydrogenase Blood	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily; Available STAT	Hemolysed specimens are UNACCEPTABLE	Refrigerate	NMC
LEAD	Lead Blood			Lavender Top Microtainer EDTA	Allowed to fill	2 mL for tube and 500 uL for Microtainer	Atomic Absorption/ Graphite Furnace		***DO NOT SPIN***	Refrigerate	UVMC
LH	LH/Lutenizing Hormone			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
LIP	Lipase	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Rate Reflectance Spectrophotometry	Daily: Available STAT	Grossly lipemic specimens are UNACCEPTABLE	Refrigerate	NMC
LIPID	Lipid Panel	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily	See Panels Section for analyte components.	Refrigerate	NMC
LITH	Lithium			Serum Gel	4 mL	2 mL	Ion Selective Electrode	STAT Availability from UVMC; Results available in about two hours from collection	Available STAT upon request	Refrigerate	UVMC
LUPUSC	Lupus Anticoagulant Work-up		<b>MUST be performed at NMC Laboratory</b>	Blue Top - tube must be filled to line	Collect four(4) tubes	3 tubes	Photo Optical and dVRT -Clotting Assay		testing available depends on initial results.	Frozen in coagulation aliquot tubes	UVMC
	Luteinizing Hormone								See LH		
LYME	Lyme Disease Antibody(IgG&IgM without differentiation)			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		REFLEX TESTING Western Blot performed on positives	Refrigerate	UVMC
	Lytes							Daily: Available STAT	See Electrolytes		
U24MG	Magnesium Urine 24hr	72 hours	<b>24 hr container available from NMC Laboratory</b>	24 hr urine container	Entire 24 hr collection	Entire 24 hr collection	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate during collection	UVMC
MG	Magnesium Serum	72 hours		Serum Gel Green Top	4 mL	2 mL	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT	Hemolysed specimens are UNACCEPTABLE	Refrigerate	NMC
UMG	Magnesium Urine Random	72 hours		Clean Catch	50 mL	30 mL	Colorimetric Refelctance Spectrophotometry		No Reference Range available for random specimens	Refrigerate	UVMC
MICALB	Microalbumin Random/24 hour			24 hour urine/Sterile Clean Catch	Entire 24 hr collection/ 50 mL	Entire 24 hr collection/ 50 mL	Endpoint		Urine creatinine and ratio reported. Blood in sample will affect results.	Refrigerate	NMC

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	Microscopic Urine	2 hours room temp 24 hours refrigerated						Daily; Available STAT	<b>See Urine Microscopic</b>		
MONO	Monotest	72 hours		Red Top Serum Gel Lavender top	Tube allowed to fill	2 mL	Hemagglutination	Daily; Available STAT		Refrigerate	NMC
OCBLD	Occult Blood Feces(Stool) SINGLE COLLECTION SUBMISSION	14 days on Hemocult card		Hemocult Card	Feces to cover application area	Feces to cover application area	Hemocult	Daily	<b>Single Collection</b>	Room Temp	NMC
OCBLDP	Occult Blood Feces(Stool) THREE COLLECTION SUBMISSION	14 days on Hemocult card		Hemocult Card	Feces to cover application area	Feces to cover application area	Hemocult	Daily	<b>Three separate collection from three separate bowl movements</b>	Room Temp	NMC
GASOB	Occult Blood Gastric(Emesis)	4 days		Gastrocult Card	Feces to cover application area	Fluid to cover application area	Gastrocult	Daily		Room Temp	NMC
OSMOS	Osmolality-Serum			Serum Gel tube	4 mL	2 mL	Freezing Point Depression			Refrigerate	UVMC
OSMOU	Osmolality-Urine			Clean Catch	50 mL	30 mL	Freezing Point Depression			Refrigerate	UVMC
OPP	Ova and Parasite Exam		If patient has not traveled outside of the U.S. order Cryptosporidium/ Giardia antigen test.	O&P Total-Fix Collection vial	10 mL	1 mL	Concentration, Trichrome Stain and Microscopic Exam		<b>Cryptosporidia, Cyclospora and Microsporidia require separate test request(s).</b>	Room Temp	UVMC
	PAP Smear Diagnostic								<b>See Thin Prep Diagnostic</b>		UVMC
	PAP Smear Screening								<b>See Thin Prep Screening</b>		UVMC
PTHIN	Parathyroid Hormone Intact		<b>MUST be performed at NMC Laboratory</b>	Serum Gel tube	4 mL	2 mL	Chemiluminescent Immunoassay			Frozen immediately at NMC	UVMC
	Partial Thromboplastin Time/PTT	4 hours						Daily; Available STAT	<b>See PTT</b>		
	Paternity Testing								<b>TESTING NOT AVAILABLE AT NMC Contact DNA Diagnostic Lab AT 1-800-362-2368 for information.</b>		
PATHH	Pathology Review Hematology		<b>Completed Request Form required</b>					Daily; Monday-Friday			

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PATHB	Pathology Review Body Fluid		<b>Completed Request Form required</b>					Daily; Monday-Friday			
STLPHRED	pH and Reducing Substances Stool			Sterile Clean Catch	10 grams	5 grams	Copper Sulfate Clinitest Reduction/ PH paper	Daily		Refrigerate	NMC
	pH Body Fluid										
UPH	pH Urine	48 hours		Clean Catch container	30 mL	20 mL	Chemical Dipstick	Daily; Available STAT		Refrigerate	NMC
PHEN	Phenobarbital			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay	STAT Availability from UVMMC; Results available in about two hours from collection		Refrigerate	UVMMC
	Phenytoin							Daily; Available STAT	<b>See Dilantin</b>		
PHOS	Phosphorous Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
UPHOS	Phosphorous Urine	72 hours		24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate during collection	NMC
PIN	Pinworm Prep (Enterobius vermicularis)		<b>Contact Lab to obtain kit and instructions</b>					Daily		Room Temp	NMC
PLTAB	Platelet Antibody Panel			Red Top Tube	1 mL	2.0 mL				Frozen	Mayo
PLT	Platelet Count			Lavender Top	Tube allowed to fill	2 mL	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
PFA	Platelet Function Analysis		<b>MUST be collected at NMC Laboratory</b>	Lavender Top	Tube allowed to fill	3 mL	Platelet Aggregation	STAT Availability from UVMMC; Results available in about two hours from collection	<b>Do not use butterfly collection devices.</b>		UVMMC
POSTVAS	Post Vas Sperm Check			Clean Catch	Entire Collection		Microscopic Examination	Daily Monday-Friday	<b>Submit entire ejaculate. Deliver to NMC Laboratory ASAP</b>	Room Temp	NMC
K	Potassium Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Ion-Specific Electrode	Daily; Available STAT	<b>Hemolysed specimens are UNACCEPTABLE</b>	Refrigerate	NMC

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UK	Potassium Urine Random	72 hours		Sterile Clean Catch	30 mL	20 mL	Ion-Specific Electrode	Daily	No Reference Range available	Refrigerate	NMC
U24K	Potassium Urine 24 hour	72 hours		24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Ion-Specific Electrode	Daily		Refrigerate during collection	NMC
PREALB	Prealbumin			Serum Gel	4 mL	2 mL	Rate Nephelometry			Refrigerate	UVMC
UPREG	Pregnancy Test Urine	48 hours		Sterile Clean Catch	30 mL	20 mL	Chromatographic Immunoassay	Daily; Available STAT	First morning specimen preferred	Refrigerate	NMC
PREN1	Prenatal 1 Panel							Daily	See Panels Section for content of this panel		
PRENHIV	Prenatal Panel with HIV							Daily	See Panels Section for content of this panel		
PRPH	Primidone(Mysoline) includes Phenobarbital			Red Top	6 mL	3 mL	Immunoassay			Refrigerate	UVMC
PROG	Progesterone			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
PROL	Prolactin			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
	Prostatic Specific Antigen							Daily	See PSA		
	Protein Body Fluid							Daily	See Total Protein Body Fluid		
PROTC	Protein C Functional		MUST be performed at NMC Laboratory	2-Blue Tops	Tube allowed to fill	Tube allowed to fill	Clot Detection				UVMC
CSFTP	Protein CSF							Daily; Available STAT	See Total Protein CSF		
PROTS	Protein S Functional		MUST be performed at NMC Laboratory	2-Blue Tops	Tube allowed to fill	Tube allowed to fill	Clot Detection				UVMC
TP	Protein Serum	72 hours						Daily	See Total Protein Serum		NMC
U24TP	Protein Urine 24 hr	72 hours						Daily	See Total Protein Urine 24 hr		
UTP	Protein Urine Random							Daily	See Total Protein Urine Random		
UPRO	Protein Urine Spot	48 hours						Daily; Available STAT	See Protein Urine Random		
PCRAT	Protein/Creatinine Ratio	72 hours		Clean Catch	50 mL	30 mL		Daily	Calculation from Albumin and Creatinine Assay		NMC
FAHPT50	Prothrombin Time 50/50 Mix	24 hours		Blue Top - tube must be filled to line	2.7 mL Tube must be filled to line	Full Tube	Photo-Optical		Mix well by gentle inversion IMMEDIATELY after collection. UNDERFILLED TUBES ARE UNACCEPTABLE	Refrigerate	UVMC

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PT	Prothrombin Time/PT with INR	24 hours		Blue Top - tube must be filled to line	2.7 mL Tube must be filled to line	Full Tube	Photo-Optical	Daily; Available STAT	Mix well by gentle inversion IMMEDIATELY after collection. UNDERFILLED TUBES ARE UNACCEPTABLE	Refrigerate	NMC
PSA	PSA Diagnostic (Prostate Specific Antigen)			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay	Daily		Refrigerate	NMC
PSAS	PSA Screen (Prostate Specific Antigen)			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay	Daily		Refrigerate	NMC
	PTH, Intact								See Parathyroid Hormone Intact		
PTT	PTT(Partial Thromboplastin Time)	4 hours	Must be assayed within four(4) hours of collection	Blue Top - tube must be filled to line	2.7 mL Tube must be filled to line	Full Tube	Photo-Optical	Daily; Available STAT	Mix well by gentle inversion IMMEDIATELY after collection. UNDERFILLED TUBES ARE UNACCEPTABLE	Refrigerate	NMC
QUIN	Quinidine			Red Top	4 mL	2 mL	Immunoassay			Room Temp	UVMC
	RA							Daily	See Rheumatoid Factor		
	RAST Testing								Contact NMC Laboratory for more information		
RBC	RBC Count	24 hours		Lavender Top	3 mL	2 mL	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
RENAL	Renal Panel	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry/Ion-specific electrodes	Daily	Hemolysed specimens are UNACCEPTABLE. See Panels Section for analyte components.	Refrigerate	NMC
	Respiratory Syncytial Virus Antibody							Daily; Available STAT	See RSV Antibody		
RETIC	Reticulocyte Count	24 hours		Lavender Top	3 mL	2 mL	Automated Cell Counter	Daily	Includes observed and corrected count based on gender and hematocrit	Refrigerate	NMC
	Rh Type							Daily; Available STAT	See Blood Type		
RF	Rheumatoid Factor RA/RF	8 days		Red Top Serum Gel	6 mL	2 mL	Latex Agglutination	Daily	REFLEX TESTING Positives will be titered	Refrigerate	NMC
RFTITER	Rheumatoid Factor Titer(ordered only as reflex to RF)	8 days		Red Top Serum Gel	6 mL	2 mL	Latex Agglutination	Daily	NOT ORDERABLE Performed as REFLEX TESTING on positives ONLY	Refrigerate	NMC
RHOGWKU	RHOImmune Globulin(RhoGAM) Antepartum 28 at weeks		Tube MUST be properly labelled	Pink Top	6 mL	Full Tube	Red Blood Agglutination by Test Tube Method	Daily	See Special Instructions- Special Labeling	Refrigerate	NMC
RHOGC	RHOImmune Globulin(RhoGAM) Complete		Tube MUST be properly labelled	Pink Top	6 mL	Full Tube	Red Blood Agglutination by Test Tube Method	Daily	See Special Instructions Special Labeling	Refrigerate	NMC

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RHO	RHOImmune Globulin(RhoGAM)		<b>Tube MUST be properly labelled</b>	Pink Top	6 mL	Full Tube	Red Blood Agglutination by Test Tube Method	Daily	<b>See Special Instructions Special Labling</b>	Refrigerate	NMC
RHO	RHOImmune Globulin(RhoGAM) Post Partum										
RPR	RPR/Syphilis Serology			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
RSV	RSV/Respiratory Syncytial Virus	48 hours		Sterile Clean Catch container or suction mucous trap	3-4 ml	3-4 ml	Enzyme Immunoassay	Daily: Available STAT	<b>Nasopharyngeal washings, aspirates and tracheal aspirates. Swabs and bloody specimens are UNACCEPTABLE. Deliver to NMC Laboratory IMMEDIATELY post collection</b>	Refrigerate	NMC
RUBE	Rubella IgG Antibody			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
RUBEO	Rubeola IgG Antibody			Serum Gel	4 mL	2 mL	ELISA			Refrigerate	UVMC
SAL	Salicylate			Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
	Sedimentation Rate Westergren (ESR)	24 hours						Daily; Available STAT	<b>See ESR</b>		
	SGOT	72 hours						Daily; Available STAT	<b>See AST</b>		
	SGPT	72 hours						Daily; Available STAT	<b>See ALT</b>		
	Sjogren Antibodies								<b>See Anti DNA (Single Stranded)</b>		
	Sm Antibody								<b>See Anti Smith</b>		
SMAC	SMAC Panel (Profile)	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry/Ion-specific electrodes	Daily	<b>Hemolysed specimens are UNACCEPTABLE. See Panels Section for analyte components.</b>	Refrigerate	NMC
	Smooth Muscle Antibody								<b>See Anti Smooth Muscle Antibody</b>		
NA	Sodium Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Ion-Specific Electrode	Daily; Available STAT	<b>Hemolysed specimens are UNACCEPTABLE</b>	Refrigerate	NMC
U24NA	Sodium Urine 24 hr	72 hours		24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Ion-Specific Electrode	Daily		Refrigerate	NMC
UNA	Sodium Urine Random	72 hours		Clean Catch	30 mL	20 mL	Ion-Specific Electrode	Daily	<b>No Reference Range available</b>	Refrigerate	NMC
BFSG	Specific Gravity Body Fluid			Clean Catch	30 mL	20 mL	Refractometer	Daily		Refrigerate	UVMC
USG	Specific Gravity Urine			Clean Catch	30 mL	20 mL	Chemical Dipstick	Daily; Available STAT		Refrigerate	NMC
	SPEP								<b>See Electrophoresis Serum</b>		
	Sperm Presence (Post Vasectomy)								<b>See Post-Vas Sperm Check</b>		

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	Sputum Cytology								<b>See Special Instructions Section-Anatomic Pathology</b>		
	SS Antibodies								<b>See Anti SS Antibodies</b>		
	Stool for WBC								<b>See WBC Feces(Stool)</b>		
	Susceptibilities								<b>See Bacterial Culture Susceptibility</b>		
	Synovial Crystals							Daily Monday-Friday	<b>See Crystal Exam Synovial Fluid</b>		
	Syphilis Serology								<b>See RPR</b>		
FT3	T3(Triiodothyronine) Free			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMMC
TT3	T3(Triiodothyronine) Total			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMMC
FT4	T4 Free	72 hours		Serum gel	4 mL	2 mL	Immunoassay	Daily; Available STAT		Refrigerate	NMC
	T4(Thyroxine)	72 hours		Serum Gel Green Top	4 mL	2 mL	Immunoassay	Daily	<b>Hemolysed specimens are UNACCEPTABLE.</b>	Refrigerate	NMC
	T7								<b>See Free Thyroxine Index Calculated result</b>		
TEG	Tegretol (Carbamazepine)			Serum Gel	4 mL	2 mL	Rate Reflectance Spectrophotometry			Refrigerate	UVMMC
TEST	Testosterone			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMMC
TTEST	Testosterone Free and Total			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMMC
THEO	Theophylline	72 hours		Red Top Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily; Available STAT		Refrigerate	NMC
	Thin Prep Diagnostic			Thin Prep collection kit	Follow Directions		Thin Prep analysis			Room Temp	UVMMC
	Thin Prep Screening			Thin Prep collection kit	Follow Directions		Thin Prep analysis			Room Temp	UVMMC
	Thyroxine Free	72 hours						Daily; Available STAT	<b>See Free T4</b>		
	Thyroid Antibodies								<b>See Anti Thyroid Antibodies</b>		
	Thyroid Binding Globulin(TBG)								<b>See Thyroglobulin</b>		
	Thyroid Stimulating Hormone	72 hours						Daily	<b>See TSH</b>		
	Thyroid Testing Casade/Cascade TSH			Serum gel	Tube allowed to fill	Full tube	Immunoassay	Daily	<b>Dry swabs are UNACCEPTABLE Indicated source on requisition. Deliver to Laboratory IMMEDIATELY</b>	Refrigerate	NMC

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	Thyroxine							Daily	See T4(Thyroxine)		
	TIBC								See Iron Binding Capacity		
TOBP	Tobramycin Peak			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		Collect: -Peak IV 30 minutes after IV dose -Peak IM 60 minutes after IM dose		
TOBT	Tobramycin Trough			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		Collect: -Trough immediately before dose	Refrigerate	UVMC
CSFTP	Total Protein CSF			CSF Tube	1-3 mL	1 mL	Colorimetric Reflectance Spectrophotometry	Daily; Performed STAT		Refrigerate	NMC
TP	Total Protein Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
U24TP	Total Protein Urine 24 hours	72 hours		24 hour collection	Entire 24 hour collection	Entire 24 hour collection	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
UTP	Total Protein Urine Random	72 hours		Clean Catch	30 mL	20 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
	Total T3								See T3 Total		
TOXP	Toxemia Panel								See Panels Section for analyte components.		
TRAN	Transferrin			Serum Gel	4 mL	2 mL	Rate Nephelometry			Refrigerate	UVMC
TRIG	Triglycerides	72 hours		Serum gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily			
	Triiodothyronine								See T3 Total		
	Triiodothyronine, Free								See T3 Free		
CTNI	Troponin I	72 hours		Green Top	Tube allowed to fill	2 mL	Immunoassay - immunometric	Daily; Available STAT		Refrigerate	NMC
TSH	TSH	72 hours		Serum gel	Tube allowed to fill	2 mL	Immunoassay - immunometric	Daily; Available STAT		Refrigerate	NMC
CTSH	TSH Cascade	72 hours						Daily	See Cascade TSH		
TS	Type & Screen includes ABO,Rh and Antibody Screen	18 days	Tube MUST be properly labelled	Pink Top	Tube allowed to fill	Full tube	Red Blood Agglutination by Test Tube Method	Daily; Available STAT	See Special Instructions- Special Labeling	Refrigerate	NMC
	Urea Nitrogen							Daily; Available STAT	See BUN		

# Laboratory Services Directory

Northwestern Medical Center

Saint Albans, VT 05478

(802) 524-1070

Test ID	Reporting Name	Specimen Storage Time for Add-on Requests	Special Patient Prep Indicated	Collection Container Preferred Acceptable	Sample Collection Volume	Minimum Sample Amount	Methodology	Days Performed	Special Collection Notes(i.e. timing of collection, special handling etc)	Storage Requirements Collection Time to Laboratory Receipt	Testing Facility
URIC	Uric Acid Serum	72 hours		Serum Gel Green Top	Tube allowed to fill	2 mL	Colorimetric Reflectance Spectrophotometry	Daily		Refrigerate	NMC
U24URIC	Uric Acid Urine 24hr	72 hours	<b>Container available from NMC Laboratory</b>	24 hour urine	Entire 24 hr collection	Entire 24 hr collection	Colorimetric Reflectance Spectrophotometry	Daily	<b>Indicate start and completion date and times on the requisition</b>	Refrigerate during collection	NMC
UURIC	Uric Acid Urine Random	72 hours		Sterile Clean Catch	30 mL	20 mL	Colorimetric Reflectance Spectrophotometry	Daily	<b>No Reference Range available for random specimens</b>	Refrigerate	NMC
	Urine Eosinophils								<b>See Eosinophils Urine</b>		
UAM	Urinalysis Routine with Microscopic	2 hours room temp or 24 hours refrigerated	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Clean Catch or Cath collection vial	30 mL	20 mL	Chemical Dipstick with phase microscopy	Daily; Available STAT	<b>REFLEX TESTING of urine culture if indicated. Indicate collection technique.</b>	Refrigerate	NMC
UAMCS	Urinalysis Routine with Microscopic C&S if indicated	2 hours room temp or 24 hours refrigerated	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Clean Catch or Cath collection vial	30 mL	20 mL	Chemical Dipstick with phase microscopy	Daily; Available STAT	<b>REFLEX TESTING of urine culture if indicated. Indicate collection technique.</b>	Refrigerate	NMC
UA	Urinalysis Routine	2 hours room temp or 24 hours refrigerated Specify C&S if indicated if reflex culture is desired based on urinalysis reflex culture criteria	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Sterile Clean Catch or Cath collection vial	30 mL	20 mL	Chemical Dipstick with phase microscopy if indicated	Daily; Available STAT	<b>REFLEX TESTING Microscopic performed based on dipstick results Indicate collection technique.</b>	Refrigerate	NMC
UACS	Urinalysis Routine with Microscopic if indicated C&S if indicated	2 hours room temp or 24 hours refrigerated Specify C&S if indicated if reflex culture is desired based on urinalysis reflex culture criteria	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Sterile Clean Catch or Cath collection vial	30 mL	12 mL	Chemical Dipstick with phase microscopy if indicated	Daily; Available STAT	<b>REFLEX TESTING of microscopic and/or C&amp;S if indicated. Indicate collection technique.</b>		

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UBLO	Urine Blood	2 hours room temp or 24 hours refrigerated Specify C&S if indicated if reflex culture is desired based on urinalysis reflex culture criteria	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Sterile Clean Catch or Cath collection vial	30 mL	20 mL	Chemical Dipstick	Daily; Available STAT		Refrigerate	NMC
	Urine Cytology								See Special Instructions Section-Anatomic Pathology		
UMIC	Urine Microscopic <b>Specify C&amp;S if indicated</b> if reflex culture is desired based on urinalysis reflex culture criteria	2 hours room temp or 24 hours refrigerated Specify C&S if indicated if reflex culture is desired based on urinalysis reflex culture criteria	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Sterile Clean Catch or Cath collection vial	30 mL	12 mL	Microscopic Exam using phase contrast	Daily; Available STAT	Automatic cultures are performed ONLY IF ordered as C&S if indicated	Refrigerate	NMC
U24TP	Urine Protein 24 hour	72 hours						Daily	See Total Protein Urine 24 hours		
UPRO	Urine Protein Random(Spot)	2 hours room temp 24 hours refrigerated	Clean Catch, Catheter, Cytoscopic or Suprapubic collection required VOIDED NOT ACCEPTED	Sterile Clean Catch or Cath collection vial	30 mL	12 mL	Chemical Dipstick	Daily; Available STAT	Indicate collection technique	Refrigerate	NMC
	Urine Protein Total							Daily	See Total Protein Urine		
	Uriprome Chlamydia								See Chlamydia Amplified Probe Urine (Uriprome)		
	Uriprome GC								See GC Amplified Probe (Uriprome)		
	Valproate								See Valproic Acid		
VALP	Valproic Acid (Valproate, Depakote, Depakene)			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay			Refrigerate	UVMC
VANCO	Vancomycin Peak			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		Collect: - Peak IV 30 minutes after IV dose -Peak IM 60 minutes after IM dose	Refrigerate	UVMC
VANCOT	Vancomycin Trough			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay		Collect: -Trough immediately before dose	Refrigerate	UVMC
	Vanillylmandelic Acid-Urine								See VMA		

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VARIGG	Varicella IgG			Serum Gel tube	4 mL	2 mL	ELISA			Refrigerate	UVMC
B12	Vitamin B12			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay	Daily		Refrigerate	NMC
VD250H	Vitamin D 25-OH			Serum Gel	4 mL	2 mL	Chemiluminescent Immunoassay				UVMC
VMA	VMA (Vanillylmandelic Acid)		<b>24 hr container available from NMC Laboratory</b>	24 hour urine	Entire 24 hour collection		LC-MS/MS				UVMC
VWAG	Von Willebrand Factor Antigen		<b>MUST be performed at NMC Laboratory</b>	Blue Top	Three(3) frozen 0.5 mL double spun plasma aliquots	Two(2) frozen 0.5 mL double spun plasma aliquots	Immunoassay		<b>Submit two(2) frozen 0.5 mL aliquots of double spun plasma</b>	Frozen	UVMC
WBC	WBC Blood	24 hours		Lavender Top	Tube allowed to fill	2 mL	Automated Cell Counter	Daily; Available STAT		Refrigerate	NMC
STOWBC	WBC Feces(Stool)			Modified Amies Swab	Feces	Feces	Gram Stain	Daily	<b>If Stool Culture is also requested, two(2) swabs must be submitted</b>	Refrigerate	NMC
WET	Wet Prep		Swab in sufficient saline to cover tip. Excess saline may affect results.	Red Top with 0.5-1.0 mL saline	Variable	Variable	Microscopic Exam	Daily; Available STAT	<b>Dry swabs are UNACCEPTABLE Indicated source on requisition. Deliver to Laboratory IMMEDIATELY.</b>	Room Temp	NMC