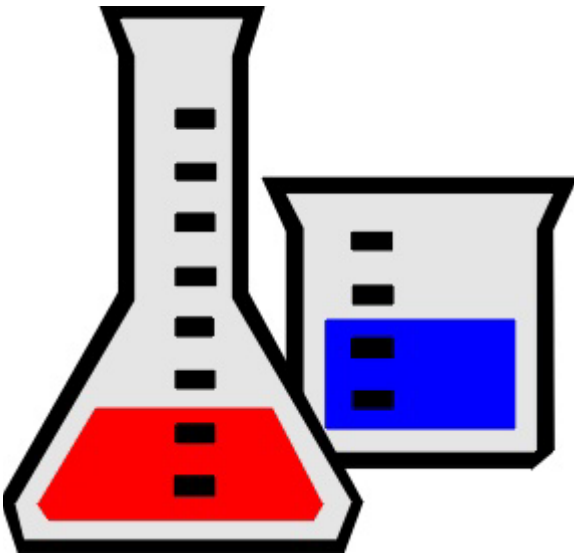


Mount Nittany Medical Center  
State College, PA 16803  
(814) 234-6117

**LABORATORY  
MOUNT NITTANY MEDICAL CENTER  
1800 E. PARK AVENUE  
STATE COLLEGE, PA 16803**



- **Specimen Requirements**
- **Revision date:  
July 2023**
- **Additional test  
information including  
performance specifications  
will be made available  
upon request.**

*Phone (814) 234-6117*

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## **Specimen Collection**

When more than one tube of blood is drawn from a patient, a specific order of collection is important in reducing the effects of additive carryover or cross-contamination from one tube to the next; and anticoagulant contamination from possible back flow. Blood collection tubes have color-coded stoppers that indicate the type of anticoagulant, if present, in the tube.

Blood collected in anticoagulants must be mixed thoroughly by inverting the tube gently ten times, or until the anticoagulant is dissolved. Always check the expiration dates of the blood collection tubes before using. Tubes that are out of date may not draw the proper amount which can affect coagulation studies and have adverse effects on other procedures.

### **Order of Draw:**

1. Blood Culture
2. Coagulation tube
3. Serum tube with or without clot activator, with or without gel
4. Heparin tube with or without gel plasma separator.
5. EDTA tubes
6. Oxalate/fluoride tube

NOTE: Plastic serum tubes containing a clot activator may cause interference in coagulation testing.

<b>Color of tube by order of draw</b>	<b>Additive/preservative</b>
Light Blue	Sodium Citrate
Dark Blue (metal free)	None
Yellow or Red plastic Serum Separator	Barrier Gel
Red plastic serum tubes	Clot Activator
Dark Green 6ml	Sodium Heparin
Green plastic plasma separator	Lithium Heparin
Lavender /purple/ white PPT	EDTA
Pink	EDTA
Dark Blue with EDTA	EDTA
Gray	Sodium Fluoride/K Oxalate

**SPECIMEN REQUIREMENTS AND PRESERVATIVES:**

All specimens must be clearly labeled as follows: NAME (last, first), 2<sup>nd</sup> identifier such as date of birth, DATE & TIME of collection, initials of collector, and Social Security number if specimens are for any Blood Bank procedures. If not indicated otherwise, transport to the laboratory within 2 hours, or separate the plasma/serum from the cells. **This can be accomplished by using a serum or plasma separator tube, and centrifuging. The serum must be removed from the red top tubes within two hours of collection.** Exceptions to this rule are: Protimes, APTT, Blood Bank, Glucose, and Ammonia. See the following information:

DEPARTMENT	TEST	TUBE	SPECIAL INSTRUCTIONS
Hematology	CBC- no diff	Lavender	8 hrs room temp; > 8 hrs refrigerate up to 24 hrs.
	CBC- w/diff	Lavender	8 hrs room temp; > 8 hrs refrigerate up to 12 hrs. Smear must be made within 8 hours.
	Sed Rate	Lavender	24 hrs refrigerated or Room Temp
	Synovial Fluid Analysis	EDTA	4 Hours Room Temperature; 24 hours refrigerated
Blood Bank	Type & Rh	Pink- min 3 ml	No serum separator or clot activator tubes
	Antibody Screen	Pink- min 3 ml	No serum separator or clot activator tubes
	Crossmatch	Pink- min 3 ml	No serum separator or clot activator tubes
	Anti-D Profile	Pink- min 3 ml & Lavender	No serum separator or clot activator tubes
Coagulation*  <b>All Light Blue tubes MUST be filled to the line!</b>	Protime (PT)	Light Blue- Must fill tube to fill line	24 hrs room temp; spun or unspun. Cannot be refrigerated.
	APTT	Light Blue- Must fill tube to fill line	8 hrs room temp if patient not receiving heparin. 4 hrs if patient receiving heparin; Can be spun or unspun; Cannot be refrigerated.
	D-Dimer	Light Blue- Must fill tube to fill line	4 hours room temp; Can be spun or unspun; 24hrs refrigerated if spun and plasma removed.
	Fibrinogen	Light Blue- Must fill tube to fill line	2 hrs room temp or refrigerated
	Platelet Function Test	Light Blue- Must fill tube to fill line	Requires two tubes; 4 hours room temp. 21, 20, 19 Gauge needle only! DO NOT use Butterfly! DO NOT spin.
	Xa	Light Blue- Must fill tube to fill line	4 hr room temp; spun or unspun
Chemistry	Glucose	Green Lithium Heparin	Spin within 10 min of collection; spun specimen acceptable for 8 hrs room temp or 72 hrs refrigerated.

Chemistry  
 Cont'd

CK	Green Lithium Heparin	4 hrs room temp; 12 hrs refrigerated. Hemolyzed specimen unacceptable. Separate plasma or serum from cells within 2 hours
Lipid Profile	Green Lithium Heparin	3 days refrigerated; Separate plasma or serum from cells within 2 hours
HA1C	Lavender	24 hrs room temp; 7 days refrigerated. Do not spin!
Ammonia	Green on Ice	Centrifuge within 30 min of collection and place on ice; transport immediately. Stable 3hr. refrigerated
Electrolytes and CO2	Green Lithium Heparin	Na,K,Cl: 7days refrigerated CO2: Must be spun and separated within 1 hr. Stable capped/recapped 12-24 hours. Hemolyzed specimen unacceptable.
Drug Levels	Red- No serum separator tube	8 hrs room temp; 24 hrs refrigerated; separate serum from cells within 2 hrs.
BNP	White PPT or Lavender	7 hours room temp; 24 hrs refrigerated; separate plasma from cells within 2 hours.
Ferritin	Green Lithium Heparin	8 hrs room temp; 2 days refrigerated; separate plasma from cells within 2 hours
Free PSA	Yellow SST	24 hrs refrigerated; Separate plasma or serum within 3 hours
BHCG	Yellow SST or Green Lithium Heparin	8 hrs room temp; 48 hrs refrigerated separate plasma from cells within 2 hours
Troponin	Green Lithium Heparin	4 hrs room temp; 2 days refrigerated; must be spun within 2 hrs
CEA	Red or Yellow w/SS	Spin and separate within 2 hrs; 8 hrs room temp. 24 hrs refrigerated
Cortisol	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; 8 hrs room temp. 24 hrs refrigerated
Estradiol	Red or Yellow w/SS	Spin and separate within 2 hrs; 8 hrs room temp. 7 days refrigerated
Folate	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; No hemolysis; 8 hrs room temp; 24 hrs refrigerated
FSH	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; 8 hrs room temp. 24 hrs refrigerated
LH	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; 8 hrs room temp. 48 hrs refrigerated

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Progesterone	Red or Yellow w/SS	Spin and separate within 2 hrs; 8 hrs room temp. 48 hrs refrigerated
Testosterone	Red- No serum separator tube	Spin and separate within 2 hrs; 7 days room temp.; 21 days refrigerated
Prolactin	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; 8 hrs room temp. 48 hrs refrigerated
Free T4 TSH	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; Free T4: 8 hrs room temp, 24 hrs refrigerated TSH: 18 hrs room temp, 7 days refrigerated
Free T3	Red or Yellow w/SS	Spin and separate within 2 hrs; 8 hrs room temp. 24 hrs refrigerated
T4 Total	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; 7 days room temp and refrigerated
Hep B surf Ab	Red or Yellow w/SS	Spin and separate within 24 hrs; 5 days room temp.; 14 days refrigerated
HbsAg	Red or Yellow w/ SS	Spin and separate within 24 hrs; 7 days room temp.; 14 days refrigerated
Hep C	Red or Yellow w/SS	Spin and separate within 24 hrs; 72 hrs room temp.; 14 days refrigerated
HIV	Red or Yellow w/SS	Spin and separate within 24 hrs; 72 hrs room temp.; 5 days refrigerated
B12	Red or Yellow w/SS or Green Lithium Heparin	Spin and separate within 2 hrs; No hemolysis; 8 hrs room temp; 24 hrs refrigerated
PTH (Intact)	White PPT or Lavender	<b>Spin and separate from cells within 2 hours.</b> Stable 8 hrs room temp; 24 hrs refrigerated
Vitamin D	Red or Yellow w/ SS	Spin and separate within 2 hrs; 72 hrs room temp; 7 days refrigerated
Insulin	Red or Yellow w/SS	Spin and separate within 2 hrs; 8 hrs room temp. 24 hrs refrigerated
Rubella (IgG)	Red or Yellow w/ SS	Spin and separate within 2 hrs; 8 hrs room temp, 48 hrs refrigerated
Serology	Lyme	Red or Yellow w/SS 2 hrs room temp; 5 days refrigerated. Must be separated from cells within 2 hrs.
	ANA- sent to Reference Lab	Red or Yellow w/SS 4 days room temp; 7 days refrigerated.
	RPR	Red or Yellow w/SS 5 days refrigerated. Must be separated from cells within 2 hours
	Mono Test	Red or Yellow w/SS 48 hrs refrigerated. Must be separated from cells within 2 hrs.

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Urinalysis	Urine	Sterile leak proof container; 2 hrs unrefrigerated. Should be delivered promptly after collection. Can be processed up to 48 hours after collection if kept refrigerated. Minimum amount: >2ml.
Semen Analysis	Semen	Must be scheduled through MNMC Centralized Scheduling Dept (6106) See enclosed collection procedure

## COLLECTION PROCEDURE FOR SEMEN ANALYSIS

### Important information

- Must be scheduled through Centralized Scheduling (234-6106) and specimens are only accepted Monday through Friday 8 AM – 4 PM
- Specimen should be delivered to the Outpatient Laboratory within one hour of collection.
- A doctor's order must accompany the specimen.

### **How to collect the specimen:**

1. Do not have sexual activity (intercourse or masturbation) for 2-7 days before specimen collection.
2. For specimen collection masturbation is the most satisfactory method.
3. Collect specimen in a clean, wide mouth container. Do not use a condom, lubricants or anything else that may contaminate the specimen. Coitus interruptus does not yield a satisfactory specimen.
4. Keep the specimen warm at about body temperature. This may be done by keeping the specimen container close to the body.
5. Bring the specimen to the Outpatient Laboratory within one hour of collection.
6. After delivering the specimen to the Outpatient Laboratory, you will need to go to Patient Registration and register.

Please complete the following information about the person who provided the specimen:

- Name: \_\_\_\_\_
- Date of birth: \_\_\_\_\_
- Type of specimen:  Infertility OR  Vasectomy
- Time of collection: \_\_\_\_\_
- Collection technique: \_\_\_\_\_
- Was any portion of the ejaculate lost? \_\_\_\_ yes \_\_\_\_ no
- Days of abstinence prior to collection: \_\_\_\_\_
- Current medications (if any): \_\_\_\_\_  
\_\_\_\_\_
- Wife's name (if applicable): \_\_\_\_\_

*"This information is periodically reviewed and may change as new health information becomes available. It is intended for general audiences. Since each individual's needs are unique, please talk with your doctor or nurse about your personal health concerns or needs."*



## **Fetal Fibronectin Collection**

### **EQUIPMENT:**

**COLLECTION KIT-** The specimen collection kit contains specimen collection devices consisting of a sterile Dacron swab and a specimen transport tube containing 1 ml extraction buffer. The specimen collection device is intended for collection of cervicovaginal specimens for Fetal Fibronectin (fFN) testing. Specimens should be obtained only during a speculum examination. This collection kit is the only acceptable collection system that can be used.

### **PROCEDURE:**

1. During a speculum examination, prior to any examination or manipulation of the cervix or the vaginal tract, lightly rotate the Dacron swab across the posterior fornix of the vagina approximately 10 seconds to absorb cervicovaginal secretions. Subsequent attempts to saturate the swab may invalidate the test.
2. Remove the swab and immerse Dacron tip in buffer. Break the shaft (at the score) even with the top of the tube.
3. Align the shaft with the hole inside the tube cap and push down tightly over the shaft, sealing the tube.  
**Warning:** The shaft must be aligned to avoid leakage.
4. Attach a label to the specimen transport tube that includes patient's name, ID#, date and time of collection.
5. Send the tube to the laboratory for testing. Transport specimens at 2-25 degree C.
6. Specimens not tested within 8 hours of collection must be stored refrigerated at 2-8 degree C and assayed within 3 days of collection. Do not expose to temperatures above 25 degree C.

### **LIMITATIONS:**

1. **Bloody sample:** Testing a bloody sample may lead to a false positive result.
2. If a patient has had sexual intercourse within 24 hours prior to sample collection, a false positive may result.
3. Do not contaminate the swab or cervicovaginal secretions with lubricants, soaps, disinfectants or creams. These substances may interfere with absorption of the specimen by the swab or with the antibody-antigen reaction of tests.

**Note:** Label containers used for blood and other specimens in the presence of the patient and at the time of collection. Labels will include at least the patient's name and ID number, specimen source, date and time of collection, and initials of the person labeling the specimen. Please refer to the laboratory's Specimen Labeling and Rejection Policy

## **Occult Blood, Fecal**

### **Principle:**

#### **Fecal**

The Laboratory is using the Hemocult SENSE test as a diagnostic aid to monitor patients for bleeding with iron deficiency anemia or recuperating from surgery, peptic ulcer, ulcerative colitis and other conditions. It is also used in screening programs for colorectal cancer.

#### **Gastric “Gastrocult”**

This is a rapid screening test designed for detecting the presence of occult blood and determining the pH of gastric aspirate or vomitus. As with any occult blood test, the results of the Gastrocult test cannot be considered conclusive evidence of the presence or absence of upper gastrointestinal bleeding or pathology.

### **Patient Preparation:**

Patient should be placed on a meat-free, high residue diet starting 48 hours prior to the day of testing and continuing through the test period. This diet can increase the accuracy of the test results and may provide roughage to help uncover “silent” lesions, which bleed intermittently.

#### **Food to eat:**

apricots, apples, bananas, celery, lettuce, oranges, pears, peaches, plums, raisins, raspberries, strawberries, tomatoes

#### **Foods, Drugs and Vitamins to Avoid:**

Red meat (beef, lamb), including processed meats and liver, raw fruits and vegetables not listed above.

Vitamin C in excess of 250 mg/day

Aspirin or aspirin containing products (>325 mg/day)

Alcoholic beverages in excess

### **Specimen Collection Procedure:**

- Fecal:**
1. Check expiration date of slide to be used. Do not use if expired. Attach patient I.D. label or clearly print patient I.D. information in area on front of each slide.
  2. Care must be taken to not contaminate materials or personnel with stool specimen. Hands, gloves and working area should be clean and free of blood.
  3. Do NOT collect specimen during a menstrual period or while patient has bleeding hemorrhoids.
  4. Inspect paper in circles to make sure it is pale beige in color. It will lose its sensitivity and discolor if exposed to sunlight, fluorescent light, UV light or heat.
  5. Do not refrigerate. Store at room temperature.
  6. A small fecal sample is applied to the guaiac paper of the Hemocult SENSE slide as a THIN SMEAR using the applicator stick provided. To increase the probability of detecting occult blood, separate samples should be

taken from two different sections of each fecal specimen and applied to Box A and Box B. Cover at least  $\frac{3}{4}$  of the circled areas.

7. Many patients may be instructed to prepare their own slides without the use of a bedpan. Give them an applicator stick to use and instruct them to collect the specimen from toilet tissue or a collection device given to them.

8. Since bleeding from gastrointestinal lesions may be intermittent, fecal samples for testing should be collected from three consecutive bowel movements or three bowel movements closely spaced in time.

**Slide Storage & Stability:**

Do not refrigerate. Store at room temperature. Note expiration date on back of slide. Rotate stock to avoid expiration before use.

Once inoculated, the slides must be tested within 14 days.

**Gastric “Gastrocult”**

Either gastric aspirate obtained by nasogastric intubation or vomitus is an appropriate sample for testing. A small portion of the specimen should be submitted to the laboratory in a plastic 4.5 oz. screw-cap container.

Fecal occult blood slides are not designed for use with gastric samples. Factors common to gastric samples such as low pH, high drug concentrations, metal ions or plant peroxidase in food may affect the function of fecal Guaiac-based occult blood tests. Gastrocult slides, not distributed or used outside of Mount Nittany Medical Center Laboratory, are designed to function reliably in the presence of these factors.

**Note:** Label containers used for blood and other specimens in the presence of the patient and at the time of collection. Labels will include at least the patient's name and ID number, specimen source, date and time of collection, and initials of the person labeling the specimen. Please refer to the laboratory's [Specimen Labeling and Rejection Policy](#)

**Urinalysis**

Urinalysis testing is one of the most useful procedures available to the physician as an indicator of health or disease, especially in the areas of metabolic and renal disorders. Routine urine specimens should arrive in the Laboratory for testing within 2 hrs at room temperature or refrigerated up to 48 hrs at 2-8°C to avoid alteration of the urinary constituents. Decomposition of urine regularly occurs in urine specimens that remain at room temperature for over sixty minutes. Bacteria may utilize any glucose in the urine, and the urea-splitting organisms convert urea to ammonia, producing an alkaline urine. Casts decompose in alkaline and/or hypotonic urine and red blood cells may be lysed. Marked changes in pH may also affect other cellular components.

The specimen must be collected in a sterile container with a tightly sealed lid and properly identified with the patient's name, date of birth, location, and specimen source.

**TO AVOID SPECIMEN REJECTION BY THE LABORATORY:**

1. All specimens submitted for testing must be identified and labeled accurately.
2. Must be refrigerated immediately and delivered to lab within 48 hrs or delivered to the laboratory within 2 hours of voiding if kept at room temperature.

***Changes that occur in urine as it decomposes***

<b>RESULT</b>	<b>REASON</b>
Changes in color	Breakdown or alteration of chromogen or other urine constituents such as hgb.
Changes in odor	Bacterial growth, decomposition
Increased turbidity	Increased bacteriuria, crystal formation, precipitation of amorphous material
Falsely low pH	Glucose converted to acids and alcohols by bacteria and yeast
Falsely elevated pH	Breakdown of urea by bacteria, producing Ammonia
False negative glucose	Utilization by bacteria
False negative ketone	Volatilization of acetone, Breakdown of acetoacetate by bacteria
False negative bilirubin	Destroyed by light
False negative urobilinogen	Destroyed by light
False positive nitrite	Nitrite converted to nitrogen, which evaporates
Increased bacteriuria	Bacteria multiplying in specimen
Disintegration of cells or casts	Unstable environment, especially when urine is alkaline and/or hypotonic.

## Specimen Collection

A first morning specimen is the most concentrated and best for nitrite, protein and microscopic examination. The urine should be a clean-catch midstream collection. Specimens from infants and young children can be collected in a disposable U-bag apparatus. The collection container must be sterile, clean and dry.

Random specimens are most convenient and are good for chemical screening and microscopic examination.

If the specimen is likely to be contaminated by vaginal discharge or hemorrhage, recollect a clean-voided specimen. It may be necessary to pack the vagina or use a tampon in some cases, especially when examination of the urinary sediment is critical.

Postprandial specimens are collected after a meal and are good for glucose screening.

**Note:** Label containers used for blood and other specimens in the presence of the patient and at the time of collection. Labels will include at least the patient's name and ID number, specimen source, date and time of collection, and initials of the person labeling the specimen. Please refer to the laboratory's [Specimen Labeling and Rejection Policy](#)

## **24 Hr Urine Collection**

### **EQUIPMENT:**

24-hour urine collection container.

Consult the test procedure to determine if a special preservative is required. The Laboratory will provide a container with the proper preservative for each test and the container will be labeled with the preservative

### **SPECIMEN COLLECTION PROCEDURE:**

1. All voided urine during a precise 24-hour period is placed in a container, which is labeled with the patient's name, date of birth, collection dates and time.

Examples: John Doe DOB 01-02-03

Begin: 6-14-23 0800 hrs.

Ended: 6-15-23 0800 hrs.

2. Consult the laboratory to determine if a special preservative is required. The Laboratory will provide a container with the proper preservative for each test and the container will be labeled with the preservative. If a special preservative is not indicated, the container must be kept chilled in the refrigerator or kept in a pan of ice water to preserve the chemical components present.
3. When you are ready to begin the collection, have patient completely empty bladder and DISCARD this urine. Record time. This is the starting time of the 24 hour collection and all urine formed by the kidneys from now until the same time the next day must be placed in the large chilled container.
4. If any specimen is lost during the collection period, the quantitative test results will be in error and of no value to the physician or patient, so start another collection.
5. No specimen will be accepted in the Laboratory without a complete patient identification label. The patient's height and weight must be documented in the computer or paper requisition for creatinine clearance tests. A blood sample is also required (green PST tube).

*MICROBIOLOGY COLLECTION INSTRUCTIONS*

**GENERAL INSTRUCTIONS**

1. Proper specimen collection is extremely important in acquiring valid microbiology results. Some etiologic agents are recovered at specific source/body sites, therefore appropriate specimen would need to be collected. Specimen sites are subject to specimen contamination and need to be collected as aseptically as possible. Whenever possible specimen material should be obtained before antibiotics or other antimicrobial agents have been administered. Prompt delivery of specimens to the laboratory is necessary if subsequent results are to have etiological validity. Fastidious organisms may not survive any significant delay.
2. Body fluid, exudates, or tissue from sites of possible infection is preferable to a culturette swab of the site.. Ideally tissue specimens should be placed in a sterile container with a small amount of sterile saline for transport.
3. Check outdates of all culturettes and transport devices. Do not use if expired. Immerse specimens collected on a culturette swab in the transport media to prevent drying. Any tissue specimens submitted must be clearly labeled as such, otherwise the specimen may not be retrieved from the transport media.
4. EXCEPTIONS: Genital/Rectal culturette specimen for Beta Strep Group B must be submitted in LIM broth.
5. Specimens must be clearly labeled with the patient's full name, specimen site and source, date and time of collection; include two patient identifiers. Please refer to the Specimen Labeling and Rejection Policy. All specimens should be transported to the laboratory in a tightly sealed container in a biohazard transport bag. Specimens received in the laboratory with evidence of spillage where the transport container has been contaminated, will be rejected. The submitting physician or inpatient area will be notified of the rejection and a new specimen will be requested.
6. When a body fluid, sputum, or tissue is submitted, one specimen is usually sufficient for multiple culture types (ex., routine, fungus and acid fast). However, it is advisable to submit separate specimen if Cytology is ordered. If the sample material is collected using a culturette swab, a separate swab should be obtained for each culture type.
7. Anaerobic cultures are only performed on appropriate specimens. Specimen materials from areas of the body likely to be contaminated with excessive normal flora are unacceptable for anaerobic culture as these sites may yield misleading information (i.e. throat, nasopharyngeal, sputum, bronchial., feces, rectal, vaginal, cervical, urine and specimens and sites contaminated with intestinal contents

**MICROBIOLOGY COLLECTION REQUIREMENTS**

Delivery to the Lab must occur within 24 hours unless otherwise stated (Sensitivities done when appropriate) \*= Gram Stain included

SOURCE/BODY SITE	Collection container/device	Specimen type and Recommended Collection volume	General instructions	Time allowable before processing
BLOOD cultures, Adult	BACTEC Aerobic and Anaerobic vial  Reference: Policy-Guide to Phlebotomy Blood Cultures	16 -20 ml blood per set (8-10 ml per bottle)	Two sets, separate sites, Room temperature, document collection time and source/ site	Immediate delivery preferred
BLOOD culture- Pediatric: <16 years old	BACTEC- Peds Plus vial	1-3 ml-blood per bottle	Room temperature	Immediate delivery preferred
CSF for culture and Biofire Meningitis Panel*	Sterile tube. Biofire ME panel requests <b>must</b> include an order for bacterial culture	>1 ml CSF, lumbar Puncture Fluid	The 2 <sup>nd</sup> tube of the set is the preferred tube for Microbiology requests	Immediate delivery, room temperature
Cath Tip	Sterile container	1-2 inch distal end of catheter	Intravascular only, NO FOLEY	Immediate delivery preferred, room temperature
Normally sterile body fluids*  Pleural, Peritoneal Pericardial Synovial	Sterile container	Fluid 50- 100ml, when available.	Large volumes should be transferred to smaller containers and delivered to the Lab immediately.	Immediate delivery preferred, room temperature
Body Tissues, and aspirates, deep wounds*	Sterile container preferred  (aspirate in Eswab is acceptable)	Exudate, abscess contents, drainage and body tissue	When collected by needle aspiration, remove needle and replaced with sterile cap.	Immediate delivery preferred./ BD E swabs w/i 48 hrs room temperature
Surface wound Culture*	BD-ESwab Collection Transport swab	Skin, blister,rash,ear,eye	Aerobic culture only-NO anaerobic culture*	48 hours/room temperature



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<b>SOURCE/BODY SITE</b>	<b>Collection container/device</b>	<b>Specimen type and Recommended Collection volume</b>	<b>General instructions</b>	<b>Time allowable before processing</b>
Lower Respiratory Tract Culture*	Sterile leak-proof container	5-10mL Sputum, 10- 50ml Bronchial Lavage, Lung Aspirates	Sputum Early AM deep cough collection is recommended. Sputum cultures are screened by gram stain for acceptability.	8 hours
Upper Respiratory tract-Bacterial* Culture	BD ESwab for culture	Throat, Nasopharyngeal, Sinus aspirates		48 hours/room temperature
Throat for rapid Group A Strep (Cepheid PCR)	BD Eswab	Rub the posterior of the tonsil, soft palate, back wall of the lower pharynx.	Transport immediately to the Lab preferred.	48 hours
Nasopharyngeal - Influenza A/B, RSV & Covid-19 PCR (Cepheid Combo Test)	Nylon flocked nasopharyngeal swab submitted in 1 - 3mL UTM	1 or 3mL UTM NP preferred. NP wash & aspirates also acceptable.	Insert NP swab into each side of nares until resistance is met; rub the surface of the nasopharynx	Immediate delivery preferred. Refrigerated up to 7 days.
Nasopharyngeal - Biofire Upper Respiratory panel –multiplexed Nucleic Acid panel )	Nylon flocked nasopharyngeal swab submitted in 3mL UTM	3 mL UTM	Insert NP swab into each side of nares until resistance is met; rub the surface of the nasopharynx	Immediate delivery preferred. Refrigerated up to 3 days.
Nares for MRSA PCR surveillance	Copan double transport swab	Anterior nares		24 hours room temp./ refrigerated (2-8 <sup>o</sup> ) C w/in 5 days

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SOURCE/BODY SITE	Collection container/device	Specimen type and Recommended Collection volume	General instructions	Time allowable before processing
Urine Culture	Sterile container or urine C&S Transport Tube. The preservative tube must contain 4 ml and should not be overfilled (over 5 ml)	1- 50 ml Mid -Stream, Clean Catch, Catherized,Suprapubic Aspiration . <b>Reference: Clinical Resource Manual procedure, Collection of Urine Specimen)</b>	First morning voided urine preferred Method of collection should be indicated on the order/requisition.	Non-preserved- Immediate transport (less than 2 hrs or refrigeration up to 24 hrs)/ In transport preservative (up to 48 hrs)
Stool pathogen testing -- Biofire multiplexed Nucleic Acid GI Panel	Fresh stool in sterile container— <b>unpreserved-immmediate delivery</b>	Refer to Stool Specimen Requirement Chart for outpatient preservative and transport requirements & instructions	Nucleic acid based test for the detection of multiple bacteria, viruses and regional parasites.	Immediate delivery preferred on first day of hospital/ER admission.
Stool for C difficile	Fresh stool in sterile container-- immediate delivery unpreserved	Unformed liquid specimen		< 24 hours
Genital culture*	BD-Eswab for culture	Vaginal, cervical, endocervical,urethral		Immediate delivery preferred, 24 hrs, room temperature
Female Genital: Group B Streptococcus screen	Collect vaginal/cervical specimen on culturette and break off swab in Lim broth supplied by Lab	Vaginal/cervical	Test is for identification of carriers of GBS in obstetrical patients	Lim broth Immediate transport/-w/i 24 hrs./ A culturette (no Lim) –w/i 4 hours, room temp.
Trichomonas wet prep exam	Collect with swab and immediately break off in 5 ml of room temperature saline tube.	Vaginal, urethral	Transport in 1-3mL ml room temp. sterile saline with tight fighting lid.	< than one hour-room temperature

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**Microbiology Stool Specimen Requirements**

**GI Enteric Pathogen Panel**

Only one stool sample tested within a 7 day time frame. Should not have stool submitted after third day of hospital admission for pathogens other than C difficile.

**C Difficile:**

Only one stool sample will be tested within a 48 hour time frame.

Follow-up testing is not routinely recommended as test of cure. Following a positive C difficile (PCR+/toxin+) result, additional testing will be accepted only after a seven day interval.

**Ova & Parasite (stool): Testing for non endemic stool parasites**

Stool specimens must be as fresh as possible. Pertinent clinical history may be helpful. Patients with diarrhea developing after hospital admission rarely, if ever, has parasites as the cause of diarrhea. It is recommended that three specimens be examined for Ova & Parasite. Collect each specimen at an interval of three days (48 to 72 hours) since the previous collection. The irregular passage of the diagnostic stages of parasites dictates the timing of collection.

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 814.234.6117

**STOOL COLLECTION INSTRUCTIONS**

Your doctor requested laboratory tests to be done on your bowel movements (stool). In order to do these tests correctly we need a sample of your stool. Please follow the instructions below

**INSTRUCTIONS FOR SAMPLE KITS:**

1. Sample kits are available from your doctor or Mount Nittany Medical Center Laboratory. Please bring your order with you, so that we may give you the correct sample kit. Sample kits do not need to be refrigerated unless specified.
2. Read the instructions with the sample kit. If you do not understand the instructions, call the hospital laboratory at 814.231.7300 between the hours of 8:00 AM and 4:00 PM.
3. If you are not able to get a sample kit, use a clean glass or plastic container with a wide opening and lid that seals the container. These samples must be refrigerated, kept cool during transport, and delivered to the laboratory. Refer to the chart below.
4. Collect stool on a clean dry surface. Do not allow stool to contact toilet water. Use plastic wrap under toilet seat or get a collection device from the hospital laboratory.
5. Label the container with your full name, date of birth, date, and time of the bowel movement.
6. If several tests are ordered, use the shortest time to get the sample to the hospital. Refer to the chart below.
7. Your doctor may order ova and parasite collection for three different samples. Collect three samples from three different bowel movements. Each bowel movement must be at least 48 hours apart. The first sample should be brought to the laboratory as soon as possible. If you are using sample kits, you may keep specimen #2 until specimen #3 is collected and deliver them together as long as the processing time frame is not exceeded.
8. When delivering your stool sample, register in person at the hospital Patient Registration. Our hours are Monday through Friday 7:00 AM to 7:00 PM. Saturday hours are 7:00AM to 12:00 PM.

**FOLLOW THE GUIDELINES BELOW FOR THE SAMPLE(S) NEEDED**

TEST REQUEST	MINIMUM AMOUNT	TIME ALLOWED BEFORE PROCESSING	
		Un-Preserved	Preserved
<b>Ova and Parasite and/or Fecal Leukocyte Testing (OP Crypto, OP Giag, OP Isos+Cyclos, OP Smears+Conc)</b>	Total-Fix Vials up to fill line, or 1tsp (5 ml) liquid stool, or formed stool 4 cm in diameter (About the size of a walnut).	O&P specimens must be in Total-Fix Preservative (Sent to Reference Lab)	14 days room temperature
<b>Enteric Pathogen testing GI Panel</b>	Preserved C&S Vial up to fill line, or ¼ tsp (1 ml) liquid stool, or formed stool 1 cm in diameter (About the size of a pea) <b>AND</b> unpreserved stool sample in a sterile container.	24 hrs refrigerated 1 hr not refrigerated	4 days refrigerated
<b>Stool Culture</b>	Preserved C&S Vial up to fill line, or ¼ tsp (ml) liquid stool, or formed stool 1 cm in diameter (About the size of a pea).	Stool Culture specimens must be in Cary-Blair Preservative/C&S Stool Transport Vial (Sent to Reference Lab)	4 days room temperature
<b>Clostridium Difficile PCR</b>	1 tsp (5ml) liquid stool or unformed soft stool 1 cm in diameter (about the size of a marble). Formed stool unacceptable.	5 days refrigerated 24 hours not refrigerated	
<b>Clostridium Difficile PCR with Reflex to Toxin</b>	1 tsp (5ml) liquid stool or unformed soft stool 1 cm in diameter (about the size of a marble). Formed stool unacceptable.	24 hrs refrigerated	
<b>Rotavirus Antigen</b>	1 tsp (5ml) liquid stool or formed stool 1 cm in diameter (about the size of a marble).	72 hrs refrigerated 1 hr not refrigerated	
<b>Fecal Fat, Qual</b>	1 tsp (5ml) liquid stool or formed stool 1 cm in diameter (about the size of a marble).	5 days refrigerated	
<b>Calprotectin</b>	1 tsp (5ml) liquid stool or formed stool 1 cm in diameter (about the size of a marble).	7 days refrigerated	
<b>H. Pylori Antigen</b>	1 tsp (5ml) liquid stool or formed stool 1 cm in diameter (about the size of a marble).	3 days refrigerated	

**ACID FAST BACILLI, Mycobacteria, (TB culture)**

**Sputum AFB: (Expectorated Deep Cough or Bronchial Lavage)**

1. Collect 5 to 10 ml of an early morning sputum with as little oral or nasal contaminate as possible
2. Send to lab in sterile leak proof container.
3. 3 specimens collected on successive days are recommended.
4. Suitable specimens may be obtained by induction of cough with inhalant of warm aerosolized sterile sodium chloride solution 10%.
5. Submit as soon as possible. Do not refrigerate unless there is a greater than 1 hour delay in processing.

**Urine AFB:**

1. Collect in early morning
2. Collect at least, 50 ml of cleanly-voided midstream urine.
3. Neither 24 hour urines nor urines in preservative are acceptable for acid-fast bacilli.
4. Immediate delivery to the lab preferred. Specimen processing within 2 hours recommended as pH in urine kills the acid fast bacteria. Refrigerate specimen prior to processing.

**Blood/Bone Marrow AFB:**

Collect 10 ml of blood in NA Heparin tube. Send collected specimen to the Lab immediately. Testing will be performed at a Reference Lab.

**Other Body sites for AFB:**

Fluid, exudate, abscess contents, drainage, and tissue, are preferred, rather than swabs, for Mycobacteria culture. When collected by needle aspiration, clear any bubbles from the syringe, remove the needle and replace with a sterile cap, and transport to the Laboratory. Collect at least 50 cc (up to 100 cc) of fluid, if possible, and send to the laboratory in a sterile container. Large containers containing body fluids should not be sent to the laboratory routinely. Instead, transfer to smaller containers and transport to the laboratory.

***NOTE: Specimens sent on BD ESwab Collection Transport System swabs are not recommended for AFB culture and will not be processed at Mount Nittany Lab. The lab will forward these specimen to Mayo Reference lab for testing.***

**FUNGAL CULTURE COLLECTION:**

Specimens are to be collected aseptically, placed in sterile containers, and transported to the Lab promptly. Should a delay in transport exceed 2 hrs, refrigerate specimens at 4°C, with the exception of CSF (25° - 30°C), Blood (25° - 30°C), and Dermatology specimens (15° - 30°C).

**NOTE:** *Specimens collected in BD Eswabs from sites other than Nasopharynx, mouth, throat, vaginal or stool are unacceptable for Fungal/yeast culture and will be forwarded to Mayo reference lab for testing,.*

1. **FUNGAL CUTANEOUS SPECIMENS:** Specimen should be stores at room temperature 15-30 °C
  - a. **Hair** - (mark on the container that it contains hair)
    - i. Infected hairs can easily be removed and sent in a sterile container
    - ii. Uninfected hair is more difficult to remove
    - iii. Hair is plucked out by the roots with sterile forceps.
    - iv. The best specimens include the hair roots
  - b. **Skin**- (mark on the container that it contains skin)
    - i. The skin should be cleansed with an alcohol swab
    - ii. Epidermal scales at the active border should be removed with a sterile
    - iii scalpel.
  - c. **Nails**
    - i. Place the scrapings in a sterile container and send to the lab
    - ii. The nails should be cleansed with an alcohol swab
    - iii. The outermost layer should be removed by scraping with a scalpel
    - iv. Deeper scrapings, debris under the edges of infected nails, and nail clippings are also suitable for culture
2. **KOH Preparations:**

Only keratinized tissue is acceptable for KOH preps. All other specimens submitted for fungal culture will be examined by the gram stain method for the presence of yeast or hyphae.
3. **NASOPHARYNX, MOUTH THROAT, VAGINA OR STOOL** are screened for yeast only and can be sent in BD Eswabs
4. **FUNGAL URINE CULTURE:**
  - a. Suprapubic aspirates and catheterized specimens are the most suitable for urine fungal culture
  - b. BUT properly collected midstream clean-catch urines are acceptable
  - c. Early morning specimens are preferable

- d. Twenty-four hour specimens and indwelling catheter bag specimens are unacceptable
- e. Specimens should be in a sterile container and sent to the lab promptly
- f. If transport is delayed by 2 hrs then refrigerate at 4°C

**5. FUNGAL BLOOD CULTURE:**

For yeast, such as Candida, collect in same manner as for routine blood cultures. In cases of suspected systemic mycosis (Fungus), collect 10 ml blood or Bone Marrow in a non-serum separator lithium or sodium heparin tube. Submit to the lab as soon as possible.

If there is a delay in transport or processing exceeding 2 hours, store the blood at 25°-30°C.

**6. FUNGAL RESPIRATORY:**

(Sputum, bronchial washings, tracheal lavage, bronchial lavage, tracheal aspirates, and lung biopsy). Before a sputum specimen is collected, the patient's teeth must be extensively brushed or their dentures must be removed. The mouth should be cleansed with a mouthwash or several rinses of sterile water or saline. Specimens expectorated from deep cough or induced by aqueous aerosol are satisfactory. Nasopharyngeal secretions, saliva or oral secretions are unsatisfactory. The first morning sputum is optimal. Approximately 5 - 10 ml is collected in a sterile leak-proof container and sent to the lab immediately. Twenty-four hour sputum specimens are not acceptable for fungal culture. Aspirations, lavages, and biopsies are collected aseptically by physicians. Specimens should be collected in sterile containers and sent to the lab immediately.

If delay in transport or processing exceeds 2 hrs, specimens should be refrigerated at 4°C.

**7. FUNGAL/YEAST CSF:**

A request for Cryptococcal Antigen should be ordered with a suspected fungal infection. An order for Routine Culture and/or Fungal Culture must also be placed.

Immediate delivery to the lab is recommended.

Store CSF at room temperature.

**PARASITE COLLECTION (other than Stool)**

**1. BLOOD PARASITES: Examined for Plasmodium (Malaria), Babesia, Trypanosoma and Microfilaria ONLY!**

Blood for the detection of parasites should be collected in EDTA (lavender top) tubes. The degree of parasitemia may vary with time. Should clinical suspicion for malarial infection remain high, several specimens collected at varying intervals may be appropriate. Optimal collection time would be immediately prior to fever spike. Notify the Laboratory when a malarial smear is requested and include travel history if available. Laboratory personnel will collect the appropriate blood samples and prepare thick and thin smears within 1 hour of collection.

**2. URINE for SCHISTOSOMIASIS:**

Collect 50 cc of fresh random urine, preferably between noon and 3pm (the time of peak egg secretion) and transport to the Laboratory immediately for processing. The test will be sent to the reference lab

**3. PINWORM PADDLE FOR ENTEROBIUS VERMICULARIS**

Specimens should be obtained within a few hours after the individual retires or early in the morning before a bowel movement or bath. Ova of the pinworm are rarely encountered in the stool because the female migrates to the perianal region to deposit ova.

Obtain pinworm paddle from Laboratory. It has a flat plastic surface and one side is sticky. The paddle is attached to a plastic cap and inserted into a plastic tube.

Remove the paddle from the tube and press the sticky surface against several areas of the perianal region. Replace the paddle in the tube and deliver it to the Laboratory. The test will be sent to a reference lab.



**Panther Specimen Collection**

Test Name	Source	Container	Stability
<b>BV (Bacterial Vaginosis)</b> **Not for less than 14 years old.	Vaginal	Aptima Multitest Swab	30 days at 2-30°C
<b>CT/GC (Chlamydia-Gonorrhea)</b> **Not for less than 14 years old.	Vaginal	Aptima Multitest Swab	60 days at 4-30°C
	Throat	Aptima Multitest Swab	60 days at 4-30°C
	Rectal	Aptima Multitest Swab	60 days at 4-30°C
	Endocervical/Urethral	Aptima Unisex Swab	60 days at 2-30°C
	Urine (F/M)	Aptima Urine Collection Kit	Transfer w/in 24 hrs of collection; stable 30 days at 2-30°C once in Aptima tube
	PreservCyt Solution liquid Pap specimens	Thin Prep vial	Transfer to Aptima tube w/in 30 days of collection; stable 30 days at 2-30°C once in Aptima tube
<b>CV/TV (Candida &amp; Trichomonas Vaginalis)</b> **Not for less than 14 years old. To be used for symptomatic patients	Vaginal	Aptima Multitest Swab	30 days at 2-30°C
<b>HPV</b> **Not intended for use as a screening device for women under age 30 with normal cervical cytology.	PreservCyt Solution liquid Pap specimens	Thin Prep vial	Transfer to Aptima tube w/in 30 days of collection; stable 60 days at 2-30°C once in Aptima tube
<b>HPVGT</b> **Has not been evaluated for HPV vaccinated individuals.	PreservCyt Solution liquid Pap specimens	Thin Prep vial	Transfer to Aptima tube w/in 30 days of collection; stable 60 days at 2-30°C once in Aptima tube
<b>M gen (Mycoplasma genitalium)</b>  **Not for less than 15 years old.	Vaginal	Aptima Multitest Swab	60 days at 2-30°C
	Endocervical/Urethral	Aptima Unisex Swab	60 days at 2-30°C
	Urine (F/M)	Aptima Urine Collection Kit	Transfer w/in 24 hrs of collection; stable 30 days at 2-30°C once in Aptima tube
<b>SARS-CoV-2</b>	NP, nasal, or OP swab	UTM (red cap liquid)	4 days at 2-8°C
<b>TV (Trichomonas Vaginalis)</b> **Not for less than 14 years old. To be used for asymptomatic <b>and</b> symptomatic patients **All male and urine trich specimens to be sent to Quest (“TRICH MALE” or “TRICH URINE” test codes)	Vaginal	Aptima Multitest Swab	60 days at 2-30°C
	Endocervical	Aptima Unisex Swab	60 days at 2-30°C
	PreservCyt Solution liquid Pap specimens **must be transferred to Aptima tube prior to cytology processing	Thin Prep vial  25	Transfer to Aptima tube w/in 30 days of collection; Stable 14 days at 15°C - 30°C or 30 days at 2°C - 8°C once in Aptima tube
<b>Flu A, B/RSV</b>	NP swab	UTM (red cap liquid)	4 days at 2-8°C

**VIROLOGY CULTURE (Virus):**

Most viral agents require the presence of viable tissue cells in the sample collected. A special transport media capable of stabilizing and supporting tissue cells during the transportation time must be used for most specimens other than Blood, CSF, Pericardial Fluid and Urine. Viral/Chlamydia Transport Media (VCM) is available from the laboratory. VCM is stored at room temperature (25°- 30°C) before use. All specimens must be transported in sealed leak-proof biohazard bags.

If a delay in transport to the Laboratory is unavoidable, refrigerate the inoculated VCM vial and deliver to the laboratory within 24 hours of collection.

When requesting more than one viral culture type per specimen site, collect and inoculate one VCM media vial per site.

All viral cultures are sent to Quest for processing.

1. **Blood:** During the early acute phase of infection, collect 10 - 20 ml of blood into sterile non- serum separator sodium heparin tubes. Do not place in VCM media.
2. **Spinal or Pericardial Fluid:** Collect up to 2-3 ml of fluid in a sterile tube. Do not transfer to a VCM media vial.  
(Exception: Herpes - transfer to VCM media vial)
3. **Urine:** Collect 10-50 ml of clean voided first morning urine in a sterile container. Do not transfer to a VCM media vial.

**4. Viral Nasopharyngeal Swabs:**

Insert nylon flocked nasopharyngeal [swab](#) into the nares until resistance is met at the level of the turbinate; and then vigorously swab the entire surface of the nasopharynx. Repeat the process on the other side with the same swab. Insert nylon flocked NP swab into UTM (Universal Transport Media) Tube. The swab and medium are packaged together as a kit. Contact Lab for kit.

**5. Nasopharyngeal Washings:**

- Children age 3 years to 18 years: Instill 2-4 ml of normal or phosphate buffered sterile saline into each nostril with the head hyperextended and the patient to not to swallow.  
Then tilt the head forward; allowing the fluid to run out of the nares into a sterile container.
- Infants and Toddlers: Place the child supine. Using a (needleless) syringe instill 0.2 - 0.3 ml of sterile saline into each nares, one at a time. Aspirate contents with a small sterile bulb syringe and place into a sterile container. Repeat until an adequate specimen of 0.5 to 1 ml is obtained.

**6. Nasopharyngeal aspirations:**

- Using a flexible, sterile pipette, aspirate material from the nasopharynx.

**BORDETELLA PERTUSSIS:**

**1. Bordetella Culture:**

a. Outpatient Collection:

Obtain *special* [ESwab Collection and Transport System](#) from the laboratory. Nasopharyngeal swabs (the ESwab cap is unscrewed and removed, the swab applicator stick is securely attached to the cap) are inserted through the nostril over into the nasopharynx.

**Immediate** inoculation of the ESwab is required as *Bordetella pertussis* is susceptible to drying. To inoculate, place swab into the ESwab vial. Bend or cut shaft-leaving swab in agar. Recap vial and send to lab as soon as possible (do not refrigerate)

**2. Bordetella PCR (DNA Testing):**

- a. Stand-alone Reference Lab Testing: Nasopharyngeal swab or Nasopharyngeal aspirate.
- b. Biofire Respiratory Panel: Nasopharyngeal swab in 3 mL UTM (viral transport medium):
  - Nasopharyngeal for Biofire Upper Respiratory panel PCR (Simultaneously identifies nucleic acids from 22 different viruses and bacteria associated with the upper respiratory tract including Covid-19.)

## **CYTOPATHOLOGY:**

Cytology GYN, Non-GYN and Fine Needle Aspirations can be ordered on line through Meditech

The Cytology laboratory will receive specimens from 0700 until 1500 Monday through Friday. All unfixed specimens should be submitted before 1430, if possible. Fixed specimens (pap smears) will be accepted at any time. Always submit a separate specimen for Cytology and do not combine with Microbiology. If there is a delay in transport, refrigerate. Specimens are accepted only from physicians, physician assistants or nurse practitioners authorized by law.

## **GYNECOLOGICAL CYTOLOGY:**

### **Conventional Pap Smears:**

Material is smeared directly onto a labeled slide and immediately sprayed with a spray fixative or immersed in 95% ethyl alcohol. Label slide with patient's name and date of birth. A legible and accurately completed request form must accompany each specimen.

### **Thin Prep Pap Test:**

The Thin Prep Pap test (TPPT) sample is obtained from the ectocervix using a plastic spatula. Rinse the spatula into the PreservCyt Solution vial by swirling the spatula vigorously in the vial 10 times. Discard the spatula. Obtain a sampling from the endocervix using an endocervical brush device. Insert the brush into the cervix until only the bottommost fibers are exposed. Slowly rotate 1/4 or 1/2 turn in one direction. DO NOT OVER-ROTATE. Rinse the brush in the same PreservCyt Solution by rotating the device in the solution 10 times while pushing against the PreservCyt vial wall. Swirl the brush vigorously to further release material. Discard the brush. Tighten the cap so that the torque line on the cap passes the torque line on the vial. Record the patient's name, date of birth and ID number on the vial.

### **HPV DNA Typing:**

Can be ordered when submitting a TPPT. Reflex testing can be ordered if the pap results are Ascus or atypical glandular cells. HPV DNA Typing can also be ordered regardless of the pap diagnosis. Carefully select the appropriate box on the GYN requisition. The accompanying requisition slip should be completed with all pertinent clinical history and information

**NON-GYNECOLOGICAL CYTOLOGY:**

**Urine:**

1. Clean catch midstream specimen, collected in a clean, dry container with a securely closed lid. (A first morning urine or a 24-hour urine collection is not acceptable due to cellular degeneration. If the specimen is delivered after hours as stated above please refrigerate.)
2. Label the specimen with the patient name, date, collection time, collector's initials and ID if available and submit with a Non-Gyn cytology requisition.
3. Deliver promptly to the laboratory.

**Bladder Washing:** Send to the laboratory immediately after collection.

**Urethral and Renal Brushing:** Procedure is the same as Bronchial Washings.

**Body Cavity Fluid:**

Fluid specimens should be submitted in a clean, dry container which has been securely closed and properly labeled. All specimens should be submitted before 1430 hours if possible. If collected after hours, over the weekend, or during holiday hours, the specimen must be refrigerated

**Fine Needle Aspiration:**

Requests for fine needle aspiration collection by a pathologist will only be performed on palpable masses. These procedures must be scheduled through the Cytology department by calling 234-6115. Inpatient FNA requests can be found online. Otherwise the fine needle aspiration specimen is submitted with a completed Non-GYN Cytology requisition. All submitted slides must be labeled with the patient's name and date of birth. Air-dried or spray fixed slides will be accepted. Specimens comprised of significant fluid (i.e. cyst fluid) must be refrigerated or CytoLyt fixative can be added to the fluid (50-50 mix) for preservation. CytoLyt can be provided by calling 234-6115. Specimens may be submitted anytime.

**Cerebral Spinal Fluid:** The collected specimen is taken directly to the Laboratory.

**Sputum:**

1. Upon awakening have the patient cough deeply and expectorate all the sputum into the cup. Patient is to continue until 4 ml is collected being careful not to contaminate the outside of the cup.
2. If ordered x3. Repeat for three days, using a fresh container each day.
3. Submit specimen with a Non-Gyn cytology requisition.

**Bronchial Washing and Brushings:**

The brush specimen may be smeared directly onto a labeled glass slide then immediately fixed by immersing into 95% ETOH or by spray fixative. The brush is rinsed/agitated in a tube containing Normasol and sent to Cytopathology department.

**Gastric and Esophageal Brushings:** The procedure is the same as Bronchial brushings.

**Nipple Discharge:**

Express material from the nipple and gently smear on a glass slide. Properly label slides with patient's name, date of birth, site of the lesion, left or right. Air-dried or spray fixed slides will be accepted. Submit with a non-gyn cytology requisition. These may be submitted to the Laboratory at any time.

**Tzanck Smears:**

Scrape the margins of an ulcer or denuded base of a vesicle. Gently smear on a glass slide. Properly label slides with patient's name, date of birth and submit with a non-gyn cytology requisition with site of lesion information. Air dried or spray fixed slides will be accepted. These may be submitted to the lab at any time.

**Pancreatic Cyst Fluid:**

Submit **ONLY CYST FLUID** in a labeled tube. If Saline rinses are submitted, place in a separate tube labeled " RINSE".

Send to the laboratory ASAP after collection.

## HISTOPATHOLOGY

There are several benefits in having a pathologist examine tissue removed by a physician or surgeon. Besides providing diagnostic, prognostic and quality assurance information, a permanent record of what was removed is established.

### COLLECTION SPECIFICATIONS:

1. Except for the cases defined below, specimen biopsy must be submitted in formalin and must be accompanied by properly completed requisition for Pathology.
2. SPECIMEN CONTAINERS
  - a. Must be labeled on the body of the container (not on the lid)
  - b. The label must contain the following (without exception):
    - i. Patient's full name
    - ii. Unique identification number
    - iii. Person's gender
    - iv. Date-of-birth and age
    - v. The date the specimen was obtained
    - vi. The organ/tissue site
3. SPECIMEN REQUISITION
  - a. Must include the following:
    - i. The patient's full name
    - ii. A unique identification number (SS#) (SS# not on inpatients)
    - iii. Patient's gender/sex
    - iv. Patient's date-of-birth
    - v. Name of submitting physician
    - vi. Other pertinent clinician information
    - vii. Date-of-collection
    - viii. Site of specimen
    - ix. Brief clinical history
    - x. Preoperative and/or postoperative diagnoses
  - b. Specimen requisition forms will be provided on request
4. The patient's social security number is necessary to retrieve all historical data.
5. Also, include all pertinent insurance information.

### ROUTINE SURGICAL TISSUE:

Tissue removed must be immediately placed in 10% Formalin. Any delay in preserving the tissue in this manner will result in significant distortion of the cellular architecture and may make interpretations either difficult or impossible. For breast, lymph node, kidney biopsy, nerve biopsy, muscle biopsy, bone marrow biopsy and testicular biopsies for infertility see below

### FOREIGN BODIES AND CALCULI:

Foreign bodies (if free of tissue) and calculi (i.e. kidney, ureteral or bladder stones) may be submitted without fixative.

### FROZEN SECTION AND STAT GROSS EXAM BY PATHOLOGIST:

Tissue must be delivered immediately to the laboratory with NO FIXATIVE. A Frozen Section requisition with complete patient identification must be submitted with the specimen. Laboratory personnel should be notified of the frozen section or gross examination request. DO NOT leave the tissue on the counter without notifying someone.

**BREAST SPECIMENS:**

The time the specimen is removed (either by biopsy or by excision) from the patient must be recorded. Needle core biopsies should then be submitted into 10% formalin. The time the core biopsy is submitted into formalin should also be recorded. Excision specimens should be sent fresh immediately to the Pathology laboratory. The time removed and the time in formalin should be written on the Pathology Requisition form. These times are needed for any potential estrogen, progesterone and HER2/neu testing of carcinomas.

**LYMPH NODE BIOPSIES:**

In cases of suspected lymphoma or lymphadenopathy of unknown etiology, lymph node biopsies must be delivered immediately to the laboratory fresh, wrapped in Telfa pad moistened with saline, without fixative. Laboratory personnel must be notified of the delivery. Lymph nodes with known diagnosis of metastatic disease or suspected metastatic disease may be submitted in formalin if no frozen section is required.

**KIDNEY BIOPSIES:**

Must be scheduled 24 hours in advance of the biopsy. A pathologist or pathologist assistant will assist with specimen collection at the bedside. The specimen should not be placed in fixative. The pathologist and nephrologist will decide how the specimen is to be divided for routine histology, electron microscopy and fluorescence studies.

**MUSCLE BIOPSIES AND NERVE BIOPSIES:**

Must provide the laboratory a 24 hour notice prior to the biopsy. These specimens are sent to Therapath Neuropathology Lab for processing. The tissue should be brought to the histology laboratory ASAP with no fixative on the specimen. The tissue should be sent on saline moistened gauze. Notify the laboratory personnel of delivery

**BLOOD AND BONE MARROW SPECIMENS:**

Flow cytometry, cytogenetics and other special testing on these specimens is performed by an outside reference laboratory. Every effort should be made to acquire these specimens early in the day since they must first be processed at MNMC. In general, these should be submitted by 3:00 p.m. In unusual circumstances, these can be sent out later at night and on weekends.

**TISSUE FOR CYTOGENETICS:**

This includes products of conception and other specimens needing cytogenetics (placenta's, fetal demise and unusual neoplasms). The tissue should be submitted in saline as soon as possible. For fetal demise cases it is preferable if the clinical team excises a small amount of skin and submits it in saline as soon as possible to maintain maximum cellular viability.



Mount Nittany Medical Center  
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**AMPUTATION OF A LIMB:**

These specimens should be wrapped in at least one large, properly labeled, biohazard bag and sent immediately to the Pathology laboratory. No fixative is necessary.

**CMS APPROVED PANELS:**

Physicians should target their test ordering to only those tests related to a specific symptom or disease condition. Medicare pays for only medically necessary tests and not routine screening tests. All requests must include Diagnosis and ICD-9 codes.

The following are the only profiles offered at Mount Nittany Medical Center. Any tests required that are not a part of these profiles must be ordered separately. Custom profiles are not available.

**BASIC METABOLIC:**

BUN  
Chloride  
CO2  
Creatinine  
Glucose  
Potassium  
Sodium  
Calcium

**ELECTROLYTES:**

Chloride  
CO2  
Potassium  
Sodium

**RENAL:**

Albumin  
BUN  
Calcium  
Chloride  
Creatinine  
Glucose  
Phosphorus  
Potassium  
Sodium  
CO2

**COMPREHENSIVE**

**METABOLIC:**

Albumin  
Alk. Ph'tase  
Bilirubin  
BUN  
Calcium  
Chloride  
CO2  
Creatinine  
Glucose  
Potassium  
Protein  
SGOT  
SGPT  
Sodium

**HEPATIC FUNCTION**

**(LIVER):**

Albumin  
Alk. Ph'tase  
Direct & Total Bilirubin  
SGOT  
SGPT  
Total Protein

**LIPID:**

Cholesterol  
HDL  
Triglycerides

**HEPATITIS:**

Hepatitis A virus ab IgM  
Hepatitis B Surface ag  
Hepatitis B Core ab, IgM  
Hepatitis C

**OBSTETRIC:**

CBC with Diff  
Hepatitis B Surface ag  
Rubella ab  
RPR  
Type, Rh and Ab Screen

## **SPECIMEN TRANSPORT BY MNMC COURIER**

### **PURPOSE:**

To define the proper procedure to be used to maintain the integrity of specimens transported to Mount Nittany Medical Center for the purpose of performing clinical laboratory procedures.

### **GUIDELINES:**

1. Specimens are transported by courier from outpatient phlebotomy stations that are staffed by employees of the Mount Nittany Medical Center Laboratory. This courier may also stop in physicians' offices to pick up specimens that have been obtained the same day.
2. Specimens are prepared for transport by the staff at the outpatient facilities.
3. Specimens containing a barrier gel are centrifuged, placed in an upright position in provided transport packaging, and maintained at 1° - 6° C.
4. Lavender tubes can be placed in the provided transport container.
5. Pro-Times and PTTs are **NOT** centrifuged and are kept at Room Temperature. Pro-times are stable for 24 hours. PTT's are stable for 8 hrs.
6. Other specimens that require freezing are centrifuged and the specimens frozen.
7. Urines are transported in a clean catch container and urine cultures are transferred to a urine culture kit for preservation.
8. All specimens are placed in biohazard bags. Refrigerated specimens are placed in a cooler along with frozen transport media to maintain the temperature.  
Frozen specimens are packed in ice and placed in the cooler for transport.
9. Specimens are transported back to the laboratory, as soon as possible, for processing.
10. Specimens coming from physicians' offices are treated the same, although no provisions are provided for frozen specimens from the physicians' offices. Patients who require tests in which specimens must be frozen shortly after collection must report to the outpatient laboratory at the Medical Center for specimen collection..