

# Laboratory-General Specimen Collection and Handling Guidelines

## Contents:

[Orders/Requests](#)  
[Patient Preparation](#)  
[Specimen Containers](#)  
[Specimen Quality](#)  
[Order of Draw](#)  
[Specimen Transport](#)  
[Specimen Rejection](#)

## General Lab Sample/Source:

[Whole Blood](#)  
[Plasma](#)  
[Serum](#)  
[Urine](#)  
[Fecal \(Stool\)](#)  
[Body Fluid](#)  
[Cerebrospinal Spinal Fluid](#)  
[Synovial Fluid](#)

## Microbiology

### Sample/Source:

[Abscess \(Deep aspirate\)](#)  
[Abscess \(superficial swab\)](#)  
[Acid Fast Bacillus \(AFB\)](#)  
[Anaerobic](#)  
[Aspirate, drainage, cyst fluid, or pustule](#)  
[Biopsy, Bone, Tissue](#)  
[Blood \(Adult\)](#)  
[Blood \)Pediatric](#)  
[Blood for Acid Fast Bacillus \(AFB\)](#)  
[Body Fluids](#)  
[Bronchial Washing Lavage](#)  
[Catheter Tip](#)  
[C. difficile Toxin B](#)  
[Chlamydia/Gonorrhea Amplified Detection](#)  
[Cryptococcal Antigen](#)  
[Cerebral Spinal Fluid \(CSF\)](#)  
[Ear \(outer\)](#)  
[Ear \(inner\)](#)  
[Eye \(Conjunctive\)](#)  
[Foreign Bodies](#)  
[Fungus \(Mycology\) \(fluid or material\)](#)  
[Fungus \(Mycology\) \(skin, hair, or nails\)](#)  
[Genital Tract \(female\)](#)  
[Group A Strep](#)  
[Group B Strep](#)  
[Helicobacter Pylori](#)  
[Influenza Antigen](#)  
[Lactoferrin](#)  
[Legionella](#)  
[MRSA Surveillance](#)  
[Mycoplasma/Ureaplasma](#)  
[Nasal](#)  
[Ova and Parasite](#)  
[Bordetella Pertussis \(Whooping Cough\)](#)  
[Pinworm](#)  
[Rotavirus](#)  
[Sexual Transmitted Disease \(STD\)](#)  
[Sputum](#)

## Microbiology continued.

[Stool](#)  
[Throat or Pharynx](#)  
[Tuberculosis \(TB\)](#)  
[Urine](#)  
[Viral](#)  
  
[Wound](#)

## Cytology (Cytopathology)

[Aspiration, Fine Needle](#)  
[Aspiration, Cyst Fluids](#)  
[Submission of slide](#)  
[Tips on making smears](#)  
[Body Cavity Fluids](#)  
[Breast Nipple Secretions](#)  
[Brushing Specimens](#)  
[Cerebrospinal Fluid \(CSF\)](#)  
[Ectocervix, Endocervical canal, Vaginal pool](#)  
[Pap Smear, Conventional](#)  
[Pap Smear, Liquid Base](#)  
[Sputum Specimens](#)

[Vaginal Wall \(Maturation Index\)](#)  
[Washing Specimens](#)

## Histology (Anatomic Pathology)

[Routine Submission](#)  
[Fresh Specimen](#)  
[Surgical Specimen and Microbiology test\(s\)](#)  
[Breast Tissue](#)  
[Brushing Specimens](#)  
[Bronchial Washing and Brushings](#)  
[Muscle Biopsy](#)  
[Renal Biopsy \(Kidney\)](#)  
[Bone Marrow](#)  
[Cytogenics](#)  
[Flow Cytometry](#)  
[Frozen Section](#)  
[Permanents, Blocks, Slides](#)  
[Gross Only Examination](#)

## Blood Bank (Immunohematology)

[ABO Group & Rh Type](#)  
[Antibody Detection, RBC](#)  
[Antibody Titer](#)  
[Direct Coombs](#)  
[Elution & Antibody](#)  
[RhoGam](#)  
[RH Type Only](#)  
[Type & Screen](#)  
[Type and Crossmatch](#)  
[Transfusion Products](#)  
[Transfusion Reaction](#)  
[Crossmatch](#)  
[Delivery and transport](#)  
[Returning Unused Blood](#)  
[Pre-Admission Testing](#)  
[Emergency Issue of Blood Products](#)

## Laboratory-General Specimen Collection and Handling Guidelines

### Orders/Requests:

Requisition must include:

- Patient's full legal name,
  - Date of birth (DOB),
  - Attending/Ordering physician,
  - Date and time of collection,
  - Specific test(s) requested – (e.g., Do Not request CMV Antibody – clarify IgG or IgM Antibody)
  - Specimen site and source when indicated,
  - Clinical symptoms or Diagnosis (ICD-10)
- Instruct patient to bring insurance information and photo identification when visiting a Patient Service Center to expedite their visit. If specimens will be collected in the office, attach a copy of patient demographics and insurance information to the requisition.

### Patient Preparation:

- Many tests require that the patient be prepared in some specific way to ensure useful results. Highest quality results begin with the quality of the specimen that has been submitted for analysis. We want to provide you with the most useful information possible. If you have questions about patient preparation for any test, refer to our Test Directory or contact The Client Response Center at 216-844-5227 option 1 for further assistance.
- Fasting requirements:
  - For the majority of test(s) performed on serum, plasma or whole blood, a fasting specimen is preferred. Fat particles contained in Non-fasting specimens often interfere with many analytical procedures. Fasting is defined as no consumption of food or beverage, other than water, for eight (8) to twelve (12) hours.
- Provocation tests:
  - Some tests require the patient to ingest a substance. The most common are the Glucose Tolerance Tests where the patient drinks a solution containing glucose, and blood specimens are obtained before and at various times after the drink to measure the concentration of glucose in plasma or serum.

### Specimen Containers:

- Label container with:
  - Patient's full legal name,
  - Patient DOB,
  - Date and time of collection,
  - Initials of the person collecting the sample (for Blood bank specimens),
  - Specimen source and specific site as appropriate for non-blood specimens (Microbiology, Histology, etc.)
- Label the container not the lid or biohazard bag
- When submitting glass slides, label the frosted end using a pencil with Patient's full name and DOB
- If smears are prepared from different areas label each slide appropriately.
- Specimen Containers:

## Laboratory-General Specimen Collection and Handling Guidelines

### Specimen Quality:

- Specimen quality is extremely important for accurate results.

The following specimen quality issues must be taken into consideration when drawing, storing and transporting blood specimens:

- Hemolysis: is the breakage of the red blood cells (RBC) membrane, causing the release of the hemoglobin and other internal components into the surrounding fluid. Hemolysis is visually detected by showing a pink to red tinge in serum of plasma.



Hemolysis can occur from various sources: autoimmune hemolytic anemia, transfusion reaction or improper specimen collection, specimen processing, or specimen transport.

Test results from all laboratory disciplines can be affected by hemolysis, especially chemistry.

Immediately after collections gently invert specimen tubes with clot activator 5 times to ensure the distribution of the clot activator within the sample, and allow the specimen to clot for a full 30 minutes in a vertical position. Serum tubes without clot activator should be allowed to clot for 60 minutes in a vertical position. Do not centrifuge specimens at higher speed or for longer than necessary. Serum tubes should be centrifuged and separated promptly if they will not be delivered to the laboratory within four (4) hours of collection. Many analytes (e.g. - glucose, potassium, LDH, most enzymes, etc.) are affected by hemolysis and/or prolonged contact with the clot. Other causes of hemolysis could be the choice of the collection needle gauge size. The size should dependent on the patient's physical characteristics and the amount of blood drawn. Use a properly sized needle; 20-22 gauge needles work best for routine collections. Avoid using a collection needle that is too small or too large. The use of a small-bore needle, results in a large vacuum force applied to the blood, may cause shear stress on the red blood cells, causing them to rupture. The use of a large bore needle may result in a much faster and more forceful flow of blood through the needle, resulting in hemolysis. Other causes are prolonged tourniquet time could cause the interstitial fluid to leak into the tissue and cause hemolysis. Cleansing the venipuncture site with alcohol and not allowing the site to dry may also cause hemolysis.

Also, do not remove the needle from the vein with the vacuum tube still engaged.

Exposure to excessive heat or cold can cause RBC rupture and hemolysis.

- Inadequate Draw/Quantity Not Sufficient (QNS): Hematology and coagulation test(s) require a full tube of blood. The ratio of anticoagulant to blood is specific for the volume of specimen. Coagulation test(s) will not be performed on short-draws. Short draw hematology tubes will result in RBC crenation, reduced MCV and hematocrit, and possible changes to WBC morphology, platelet, and total WBC count.
- Clotted Specimens: All hematology, coagulation, and other whole blood specimens drawn in tubes with anti-coagulate must be free of clots. Clots, large or small, will lead to erroneous results for these test(s).
- Lipemia: can falsely elevate ALT (SGPT), AST (SGOT) and interfere with most testing affecting test results.

It can also affect the results for CBC's. Lipemia is defined as excess lipids or fats in the blood. Lipemic serum will appear turbid or milky. The large particles causing lipemia will interfere with instrument methods that are based on light detection or scatter. Again, it is the responsibility of the Medical Laboratory Technologist to report any findings of lipemia so that results can be interpreted with this in mind. In some cases, lipemia can be avoided simply by having the patient fast for 8 hours prior to the sample being drawn. In disease processes where the liver is unable to remove the chylomicrons from the blood, the appearance of lipemic serum may be unavoidable.



## Laboratory-General Specimen Collection and Handling Guidelines

- Poor Preservation/Old specimens:  
Specimen(s) that have been collected and submitted in a blood collection tube, transport media, or collection kit that was past its expiration date or samples that have been submitted past the stability indicated in the test directory.

### Order of Draw:

Blood collection tubes must be drawn in a specific order to avoid cross-contamination of additives between tubes and to maintain sterility when blood cultures are drawn. The recommended order is as follows:

- Clear (Discard) Tube - For special coagulation tests (i.e. platelet function tests or clotting factor assays) it is generally recommended that a discard tube be drawn before drawing a Light Blue (Sodium Citrate) tube. For routine coagulation tests, this is not necessary. When drawing coagulation tests using a butterfly, a discard tube must be drawn first only to prime the line.
- Blood Cultures (1 Blue and 1 Purple bottle) or (1 Yellow bottle for hard to draw patients including infants and elderly patients)
- Light Blue (Sodium Citrate) Note: must be filled to the draw line.
- Gold (SST Serum Separator)
- Red (Clot Activator)
- Mint Green (PST) Lithium Heparin Plasma Separator tube.
- Dark Blue (Navy/Clot Activator)
- Green (Heparin/Lithium)
- Dark Blue (Navy/EDTA)
- Lavender (Purple/EDTA)
- Pink (K2EDTA)
- Grey (Potassium oxalate/sodium fluoride)

### Specimen Transport:

- Specimens must be processed, stored and transported at the temperature indicated in our Test Directory.
- Please indicate special temperature requirements to your courier to ensure specimen integrity is maintained during transport.

### Specimen Rejection:

- Specimens will be rejected when:
  - Specimen is not accurately and properly identified.
  - Specimens that are received in an incorrect container, collected improperly.
  - Specimens collected in expired collection media, tube or kit.
  - Insufficient specimen volume received to perform testing.
  - They are not accompanied by a requisition/order.
  - The quality/integrity of the sample is suboptimal or too old to yield accurate results.

## Laboratory-General Specimen Collection and Handling Guidelines

### General Lab Sample/Source:

- **Whole blood:**

Applies to:

Light Blue (Sodium Citrate suggested concentration is 3.2%)  
Lavender (Purple/EDTA)  
Green (Sodium or Lithium Heparin)  
Yellow (SPS) or ACD solution B  
Dark Blue (Navy/EDTA)  
Grey (Potassium Oxalate/Sodium Fluoride)

- Whole blood is drawn into tubes that contain anticoagulant. Fill the tube until the vacuum stops.
- After the tube is filled, it must then be gently inverted 5-6 times to ensure adequate mixing and prevent coagulation. The entire tube must be submitted for testing, do not split the specimens. Be sure to distinguish between yellow top tubes used for genetic testing and those for microbiology, they are not interchangeable.
- Navy Blue (EDTA) should not be confused with Navy Blue that contains no additive. Sodium Citrate tubes used primarily for coagulation testing must be filled to the required volume of the tube in order to maintain the appropriate concentration of citrate anticoagulant in the plasma to be tested.
- Occasionally a Red top tube is required of the whole blood specimen.
- *Always consult the test directory or contact the Client Response Center at 216-844-5227 option 1.*

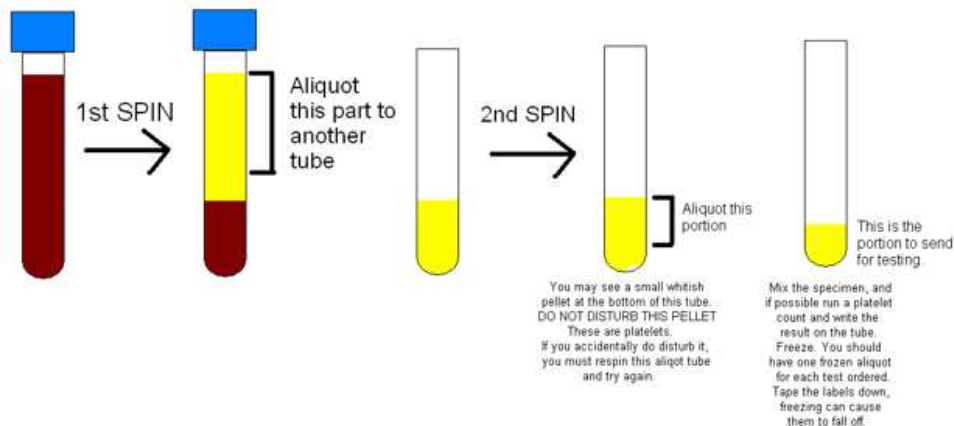
- **Plasma**  
**Platelet Poor Plasma:**

Applies to:

Light Blue (Sodium Citrate suggested concentration is 3.2%)

- Specimens are drawn into tubes that contain anticoagulant. The plasma is obtained by drawing a whole blood specimen with subsequent centrifugation to separate the plasma.
- After drawing the specified tube, gently invert 5-6 times to ensure adequate mixing and prevent coagulation.
- Some specimens may require immediate centrifugation, separation and freezing. Other may need to be double centrifuged to completely remove platelets. This is also known as Platelet poor plasma.
- Centrifuge 10 minutes at 3000 rpm. Transfer the plasma into an appropriate transport tube. Trace mineral test(s) requires trace element free transport tube.
- Clearly label specimens as "plasma" or "platelet poor plasma" when the plasma has been separated prior to transport.
- Indicate time of aliquot and the platelet count on tube.
- It is important to distinguish between plasma and serum as plasma contains clotting factors.
- *Always consult the test directory or contact the Client Response Center at 216-844-5227 option 1.*

### Procedure for Producing Platelet Poor Plasma



## Laboratory-General Specimen Collection and Handling Guidelines

- Serum:**

Applies to: Red (no additive) Gold (SST/Serum Separator tube)
---

- Specimens are drawn into tubes that contain no additives or anticoagulants.
- Serum is obtained by drawing the blood into a red top or serum separator tube, allowing it to clot (about 30 minutes), and centrifuging to separate the serum.
- Centrifuge for 10 minutes at 3000 rpm.
- Transfer the serum into a properly labeled plastic transport.
- Do not use gel or serum separator tubes for drug levels as the drug may be absorbed into the gel. Hemolyzed, lipemic, or icteric specimens may cause erroneous results.
- *Always consult the online test menu or contact the Client Response Center at 216-844-5227 option 1.*

- Urine:**

Applies to: Random, First morning, clean catch and 24 hour, timed specimens.
---

- Urine specimens for routine urinalysis require 15 mL of urine in a screw-capped, plastic urine container, or collection kit supplied by the laboratory.
- Keep specimens refrigerated if indicated. All urine specimens should be collected as clean catch urine specimens.
- The first voided morning specimen is preferred. 24 hour urines should be returned in the original collection container without aliquoting.
- Secure caps tightly to prevent leakage. Certain test(s) require a special collection kit or container.
- Consult the test directory for specimen specifics including volume and storage requirements for testing on random urines and urine aliquots. See patient collection brochures.

- Fecal (Stool):**

Applies to: Random collection. 24 , 48 or 72 hour collection
--

- Random collections may require various preservative media if not delivered immediately.
- See the test directory for additional test(s) and specific instructions.



Stool Pathogens PCR  
(Campylobacter, Salmonella, Shigella Vibrio, Shigella toxin 1 & 2 (E. Coli), Norovirus GI/GII Rotavirus, Yersinia.

Avoid antacids, barium, bismuth, antibiotics, anti-malarial agents, antidiarrheal medication or oily laxatives prior to specimen collection. Avoid contamination with urine or water. Place 5 mL stool in enteric transport Media. Cary Blair (Green cap) immediately after collection. Fill to the line on the container. Transport to lab within 48 hours of collection. Refrigerate.



Giardia/Cryptosporidium ag

(examination of stool for Cryptosporidium, Cyclospora and Isospora)  
Transfer 5 g of stool within one hour of collection into Para-Pak Clean vial.

Clostridium diff. toxin B

Random (soft or liquid) stool in a clean preservative free container  
Unacceptable: formed stool.

Ova and Parasite  
(Travel History)

Transfer 2 g of stool within one hour of collection into Alcorfix (min:1g)

## Laboratory-General Specimen Collection and Handling Guidelines

- **Body Fluid:**

Applies to: Pleural, Peritoneal, Pericardial. Sterile fluids only.
---

- EDTA tube (Lavender) for hematology cell counts, differential. Fluid should be added to the tube immediately after collection to avoid clot formation.
- Gently invert tube 5-10 times to ensure adequate mixing of fluid and the anticoagulant.
- Heparinized tube (Green) for chemistry testing. Fluid should be added to the tube immediately after collection to avoid clot formation.
- Gently invert tube 5-10 times to ensure adequate mixing of fluid and the anticoagulant.
- Use a plain sterile tube or container for microbiology testing. When submitting ascites fluid add 8-10 mL in aerobic (blue) blood culture bottle. Swabs should only be submitted when unable to aspirate.
- Additional tubes or containers with suitable preservative will be used for Cytological examination for tumor cells.

- **Cerebrospinal Spinal Fluid, CSF:**

Applies to: Cerebrospinal Spinal Fluid, CSF
--

- Specimens are usually collected in four sterile tubes, label 1, 2, 3, and 4 in the order in which they are withdrawn.  
The tubes are usually disbursed for analysis as follows:
- Tube #1 Chemistry and serology tests this tube should never be used for Microbiology since it is most likely to contain skin contaminants.
- Tube #2 Microbiology
- Tube #3 Cell counts
- Tube #4 Miscellaneous or referral test request. Specimens must be transported to the laboratory within 1 hour of collection to prevent deterioration of cells and glucose.

- **Synovial Fluid**

Applies to: Synovial, Joint
--------------------------------

- Normal synovial fluid will not clot; however fluid from a diseased joint may contain fibrinogen and form a clot. Therefore, both anticoagulant and non-anticoagulant specimens should be collected.
- Recommended specimen containers:  
EDTA tube (Lavender) for hematology cell counts, differentials and viscosity. Immediately after collection, an aliquot of synovial fluid may be added directly from the aspirating syringe into the tube.  
Heparinized (Green) for chemistry and immunologic tests. Fluids should be added to the tube immediately after collection to avoid clot formation. Gently invert the tube 5-10 times to ensure adequate mixing of the fluid and the anticoagulant. Use a plain preservative free sterile tube or container for microbiology testing and crystal examination.  
Plain Red (no additive) for referral testing.

# Laboratory-General Specimen Collection and Handling Guidelines

## Microbiology

When planning to collect specimens for microbiological analysis, please keep the following in mind:

- Select **appropriate specimen** for site of infection.
- **Aseptic collections** (avoid adjacent tissues) obtain an appropriate amount of material in the proper container.
- If you are unsure of the proper method of collection of a specimen, call the laboratory client services **before obtaining the specimen.**
- If you are looking for a specific organism, contact the laboratory for proper collection and submission.
- Gram stain only orders are not recommended. A culture needs to be performed as well.
- Copan eSwab system is a liquid based multi-purpose collection and transport system that maintains viability of aerobic, anaerobic, and fastidious bacteria. The eSwab system consists of a flocked swab and a screw-capped transport tube containing 1 mL of liquid Amies medium. eSwab collects and releases more specimen, improving the recovery of pathogens. The eSwab system generates 1 mL of patient sample, providing a uniform sample for culture and reducing the need to collect multiple swabs.
- eSwab is easy to use.
  - Put on gloves
  - Perform positive patient ID.
  - For wounds, prepare the collection site by debriding and/or rinsing with non-bacteriostatic saline as needed.
  - Open the peel pouch.
  - Remove the tube and label with two patient identifiers at the bed side.
  - Remove the swab-to prevent contamination, avoid touching the shaft above the pink molded breakpoint.
  - Collect the patient sample with the swab.
  - Remove the cap from the tube and insert the swab all the way to the bottom.
  - Holding the swab close to the rim of the tube, break the shaft at the pink break point line while keeping the tube away from your face.
  - Screw the cap tightly to prevent leaking.
  - Dispose of the remainder of the shaft in a regular trash receptacle.
  - Apply patient identification label or write patient information on the tube label.
  - Place the tube in a specimen biohazard bag and place requisition in the side pouch.
  - Transport to lab, ambient (room temperature).
- Sterile containers: Sterile screw cap containers or containers with secure lids can be used for tissues, fluids, aspirates, and urine, sputum, and stool specimens. Make sure the lids are screwed on tightly. Specimens should be refrigerated up to 24 hours to prevent overgrowth of normal flora.
- DO NOT Refrigerate CSF or Genital cultures.
- A Gram Stain is included on most specimen types, sterile sources, sputum, abscesses, and wounds.
- All cultures are screened for Anaerobes, cultures are performed routinely on appropriate specimen, e.g. abscess, body fluid, tissue/biopsy, bronchial brush, pelvic organisms.
- All specimens are to be placed in a secondary container, leak proof biohazard transport bag.
- Sensitivities are ordered when 3 or less pathogen (s) are isolated from any site. Sensitivities will not be performed on normal skin flora or organisms for which there are no guidelines for reporting.
- Gram stain, organism identification, and susceptibility test(s) are billed separately.
- Identification and susceptibilities performed on positive cultures when appropriate.
- Submit separate specimens when multiple test(s) are ordered.
- **All cultures are screened for Anaerobes, cultures are performed routinely appropriate specimen, e.g. abscess, body fluid, issue/biopsy, bronchial brush, pelvic organisms.**  
**Not suitable for anaerobic cultures are: sputum, rectal swab, nasal or throat, urethral swab, urine.**





# Laboratory-General Specimen Collection and Handling Guidelines

## Microbiology Sample/Source:

- **Abscess (Deep aspirate)**
  - **Order: Miscellaneous Culture (MISCC)**  
Patient Prep: Cleanse area with 70% alcohol or water to remove surface exudate and skin contamination. Aspirate into syringe or insert swab deep into lesion and sample lesion's advancing stage.  
Send as much volume as possible. Transport in syringe with needles removed or place in sterile tube, Aspirate material from wall. Avoid surface material, and sample the deepest portion of the infected site.  
**Container: Sterile Screw-cap container, capped syringe, or Copan eSwab.**  
All cultures are screened for Anaerobes, cultures are performed routinely on appropriate specimen, e.g. abscess, body fluid, tissue/biopsy, bronchial brush, pelvic organisms.  
See test directory for test specific stability and transport.)
- **Abscess (superficial swab)**
  - **Order: Miscellaneous Culture (MISCC)**  
Patient Prep: Wipe area with sterile saline or 70% alcohol.  
Not acceptable for mycobacteria culture unless separate swabs with sufficient material are collected.  
For cellulites lesions take specimen for area of maxim inflammation,  
Collect 2-4 swabs for bacterial/Fungal cultures. Aspirate needed for mycobacteria culture.  
Special Instructions: Preferred specimen is aspirate. Aspirate lesion or swab at the leading edge of wound.  
Container: Sterile preservative free container or collect one Copan eSwab.  
All cultures are screened for Anaerobes, cultures are performed routinely on appropriate specimen, e.g. abscess, body fluid, tissue/biopsy, bronchial brush, pelvic organisms.  
See test directory for test specific stability and transport.
- **Acid Fast Bacillus (AFB) Culture and AFB Stain**
  - **Order: Culture, Acid Fast Bacillus (AFB) and Stain (AFBC)**
  - **Order: Culture, Acid Fast Bacillus (AFB) Urine (AFBUR)**  
Special Instructions: Recommended collections of early morning urine or sputum on each of three consecutive days are optimum.  
See test directory for test specific stability and transport.  
**Place each specimen in an individually sealed bag.**  
**Respiratory Specimens:** Transfer (for each collection) 5-10 mL to a sterile container. (Min: 1 mL) Submit only one same site sample per a 24 hour period  
**Body Fluids:** Transfer 5 mL to a sterile container. (Min: 1 mL culture only)  
**CSF:** Transfer 5 mL to a sterile container. (Min: 1 mL culture only. Min: 5 mL culture and stain)  
**Gastric Aspirates:** Must be neutralized (pH7) with sodium carbonate if transport is delayed for more than four hours. Transfer 5-10 mL to a sterile container. (Min: 1 mL)  
**Tissue:** Transfer to a sterile container. (Min: Visible)  
**Urine:** Transfer at least 40 mL to a sterile container. (Min: 10 mL culture only. Min: 40 mL culture and stain)

## Laboratory-General Specimen Collection and Handling Guidelines

- **Aspirate, drainage, cyst fluid, or pustule**

Patient Prep: Wipe area with sterile saline or 70% alcohol.

Container: Sterile preservative free container or collect one Copen eSwab

- **Order: Order: Miscellaneous Culture (MISCC)**

See test directory for test specific stability and transport.

- **Biopsy, Bone, Tissue**

Patient Prep: Disinfect skin

Special Instructions: Separate specimens for Microbiology, Histology and Cytology are preferred.

Container: Sterile preservative free container. Do not let specimen dry out. Submit wrapped in a sterile saline moistened (damp) non-adherent material. Do not use gauze.

All cultures are screened for Anaerobes, cultures are performed routinely on appropriate specimen, e.g. abscess, body fluid, tissue/biopsy, bronchial brush, pelvic organisms.

When possible, specimens for anaerobic culture should be placed in an anaerobic collection tube.

- **Order: Order: Miscellaneous Culture (MISCC)**

The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.

See test directory for test specific stability and transport.

- **Blood (Adult)**

**Blood Culture**

Patient Prep: Aseptic draw.

Special Instructions:

Two culture sets per febrile episode should be submitted.

No more than two blood culture sets per 24 hours.

Container: Whole blood in Bact/Alert Bottles.

One set consists of both one blue (mint) aerobic and one purple anaerobic (maroon) bottle (adults), 5mL minimum, 10mL preferred per bottle. DO NOT REFRIGERATE

Blood cultures should be obtained prior to the initiation of antimicrobial therapy. If more than one Culture is ordered, the specimen should be drawn at separate intervals or separate venipuncture sites/ Collect 2 sets (4 bottles) from 2 different sites or 30 minutes apart from the same site.

Patient Prep: Aseptic draw.

Special Instructions: No more than two blood culture sets per 24 hours.

(10-20L per set for adults) Additional sets require Lab consultation.

Container: Whole blood in Bact/Alert Bottles.

One set consists of both one blue aerobic (mint) and one purple anaerobic (maroon) bottle (adults), 5 mL minimum, 10 mL preferred per bottle.

- **Order: Blood Culture (BLDC)**

Collect 2 sets (4 bottles) from 2 different sites or 30 minutes apart from the same site.

See test directory for test specific stability and transport.

Positive cultures are reported as soon as detected.

- **Order: Legionella Species, Culture (LEGC)**

**Blood:** Transport blood in SPS tube

## Laboratory-General Specimen Collection and Handling Guidelines

- **Blood for Acid Fast Bacillus (AFB)**
- **Blood for Fungus**
  - **Order: Blood for Acid Fast Bacillus (AFBBL)**
  - **Order: Blood for Fungus (FUNBL)**
    - Patient Prep: Aseptic draw.
    - Special Instructions: none
    - Supply: Collection tube/bottle provided by the laboratory
    - Container: AFB Whole blood. Transport 5 mL in BD Bactec Myco/Lytic Culture Vial.
    - Fungus Whole Blood: Transport 7 mL in tube in yellow (Wampole Isolator tube).
    - Or Bone Marrow: Transport 7 mL in tube yellow (Wampole Isolator tube).
    - Submit separate specimens when multiple test(s) are ordered.**
    - See test directory for test specific stability and transport.**
    - Identification is performed on positive cultures at an additional charge.
    - Susceptibility testing is performed by request only.

Note: BD Bactec bottle-Prior to use, each vial should be examined for evidence of contamination such as cloudiness bulging or depressed septum or leakage. Do not use any vial showing evidence of contamination, leakage or damage. DO NOT use any collection tube or vial after expiration date

- **Blood (Pediatric)**
  - Patient Prep: Aseptic draw.
  - Special Instructions: No more than two blood culture sets per 24 hours.
  - Container: Whole blood in Bact/Alert Bottles.
  - Pediatric patients collect 1.0-4mL into one yellow bottle or one blue aerobic (mint)
  - \*Low volume will result in decreased recovery of pathogens.
  - **Order: Blood Culture** (Culture, Bacterial Culture, Blood Culture, Culture, Blood).
  - See test directory for test specific stability and transport.

- **Body Fluids**
  - **Order: Culture Fluid Bacterial (FLUID)**
  - **Order: Culture Peritoneal Dialysate Fluid (PDFLC)**
    - Patient Prep: Disinfect skin before aspirating specimen.
    - Special Instructions: Source of fluid is required.
    - Container: 2-10 mL in sterile container preservative free. Secure lid tightly.
    - Also 8-10 ml may be put into blood culture bottle. Ascetic fluid only.
    - Acutal fluid must also be submitted for gram stain and culture.
    - Swabs should only be submitted when unable to aspirate fluid.**
    - Submit separate specimens when multiple test(s) are ordered.**
    - See test directory for test specific stability and transport.

- **Bronchoscopy Specimens**
  - **Order: Miscellaneous Culture (MISCC)**
  - **Order: Miscellaneous Culture (MISCC)**
    - Collection 2-10 mL BAL OR biopsy tissue. Min: 1cc
    - Place in sterile container. Use non-bacteriostatic saline for irrigation.
    - See test directory for test specific stability and transport.

## Laboratory-General Specimen Collection and Handling Guidelines

- **Bronchial Washing Lavage**

Patient Prep: You will get the best results if you provide a sample first thing in the Morning, before you have food or drink. Provide a sample with the sputum from the deepest part of your chest.

Special Instructions: Prior to providing the sample, you will be instructed to rinse your mouth with water or saline. This clears out microorganisms from your mouth.

As you cough up the sputum, you will deposit it into a sterile collection cup.

Container: Sterile preservative free container.

- **Order: Respiratory Culture, SM Lower (RESPL)**
- **Order: Influenza Virus A and B (INFLP)**
- **Order: Respiratory syncytial PCR (RSVPC)**
- **Parainfluenza PCR (PARP1)**
- **Respiratory Virus Panel (RVPVI).**

See test directory for test specific stability and transport

- **Cerebral Spinal Fluid (CSF)**

Patient Prep: Decontaminate skin.

Container: Cerebrospinal Fluid, properly labeled sequential number #2 or #3 collection tube.

Transport 1.0 mL of CSF in a properly labeled, **sterile transport tube**.

Clearly mark transport vial contents as "CSF".

- **Order: Cerebrospinal Fluid (CSF) Culture**

Herpes Simplex Virus PCR Qua; CSF (HSVQL)

Group B Strep Antigen (CSF) (GPB)

Cryptococcal Antigen, Screen (CRYAG)

Streptococcus pneumonia antigen CSF (SPAG)

See test directory for test specific stability and transport

- **Ear (outer)**

Patient Prep: Clean canal with sterile saline.

Special Instructions: Firmly rotate swab in outer canal. Include fresh secretion from deeper area if possible.

Container: Sterile preservative free container or collect one Copen eSwab

- **Order: Miscellaneous Culture**

See test directory for test specific stability and transport

- **Ear (inner)**

Patient Prep: Clean canal with mild detergent or sterile saline.

Special Instructions: Use swabs to collect material from ruptured ear drum or aspirate material behind drum with syringe (preferred specimen).

Container: Copan Swab or Aspirate in a sterile preservative free container.

- **Order: Miscellaneous Culture**

See test directory for test specific stability and transport

## Laboratory-General Specimen Collection and Handling Guidelines

- **Eye (Conjunctive)**

Patient Prep: Clean skin around eye with mild antiseptic.

Remove makeup with sterile cotton and saline.

Special Instructions: Use swabs premoistened with saline. Sample both eyes.

Collect BEFORE anaesthetic is applied.

Special Instructions: Use swabs premoistened with saline. Sample both eyes.

Collect BEFORE anaesthetic is applied.

**Fluid:** Transfer to a sterile preservative free container.

**Swab:** Transfer to bacterial transport media. Copan Swab or Aspirate in a sterile preservative free container

**Scrapings:** Place directly on culture media plates. Media is available from the Micro for direct inoculation, particularly for corneal scrapings.

- **Order: Miscellaneous Culture (MISCC)**

See test directory for test specific stability and transport

- **Foreign Bodies**

Patient Prep: Disinfect skin before removal.

Special Instructions: Avoid contamination with normal flora from skin, rectum, vaginal tract, or other body surfaces.

Container: Sterile preservative free container.

- **Order: Sterility Culture (STERC)**

Applies to: IUD, prosthetic valve, surgical hardware, tubing

See test directory for test specific stability and transport

- **Fungus (Mycology)**

Patient Prep: None

Special Instructions: None

Container: Sterile preservative free container.

- **Order: Fungal Culture** (Culture, Fungus, Mold Culture, Yeast Culture.)

See test directory for test specific stability and transport.

Identification performed on mould isolates.

Yeast identification is reported by request only.

Identification of moulds and/or yeasts on positives is billed separately from culture.

Applies to material or fluid from anybody site, except blood, hair, nails, or skin.

- **Fungus (Mycology)**

Patient Prep: None

Special Instructions: None

Container: Sterile preservative free container.

- **Order: Fungal Culture, Skin, Hair, or Nails** (Culture, Dermatophyte Culture, Dermal Culture, Trichophyton, Culture, Fungal Culture, Skin, Hair, or Nails).

See test directory for test specific stability and transport

Identification performed on mould isolates.

Yeast identification is reported by request only.

Identification of moulds and/or yeasts on positives is billed separately from culture.

## Laboratory-General Specimen Collection and Handling Guidelines

- **Genital**

Patient Prep: Do NOT use lubricant.

Aspirate or swab secretions or mucus membranes.

**Special Instructions:** Disinfect skin or remove old mucus before collection of specimen.

- **Order: Genital Culture** (Culture, Urogenital; Culture, Genital).

Container: Copen eSwab or sterile screw top container.

- **Order: Vaginal Pathogen DNA (Direct Probes)** **Preferred test:** Vaginal pathogens associated with vaginitis/vaginosis (Gardnerella vaginalis, Candida species, Trichomonas Vaginalis.)

Not recommended as stand -alone test for sexually transmitted infection testing or screening.

Container: Copen eSWAB.

- **Order: Streptococcus (Group B) Culture** (Beta-hemolytic Streptococcus, Streptococcus (Group B)

Patient Prep: Disinfect skin or remove old mucus before collection of specimen.

Special Instructions: Vaginal/Rectal swab. Do not swab the cervix or collect using a speculum.

Swab lower vagina followed by the rectum using the same swab.

Prenatal screening at 35-37 weeks gestation.

Container: Copen eSwab

Susceptibilities performed upon request.

See test directory for test specific stability and transport

- **Order: Chlamydia trachomatis and Neisseria gonorrhea (GCCHA)**

- **Order: Trichomonas, Amplified Detection (TRICA)**

Patient Prep: Clean the endocervix with large white swab.

Special Instructions: Aptima combo 2 assay transport media must be used.

Swabs or Urine

Container: Transfer swab or urine to APTIMA Combo 2 Assay transport media.

Large white swab is for preparatory cleaning of the endocervix and is unacceptable for testing.

Submit blue swab only.

Applies to Endocervical, or vaginal swab, first catch urine, or male urethral.

See test directory for test specific stability and transport

Supply: Collection/transport media provided by the laboratory.

**Note:** Chlamydia trachomatis and Neisseria gonorrhea (GCCHA) testing is also available in combination with

Thin prep pap testing. Test must be ordered in conjunction with pap. Once pap test process is complete no additional testing can be added.

- **Legionella**

Patient Prep: None

Special Instructions: None

Order: Legionella Species, Culture (LEGC)

Respiratory specimens: Abscess material, aspirates, BAL, fluids, secretions, sputum, or tissue; OR pericardial fluid or blood in SPS Vacutainer® tube for microbiology.

**Blood:** Transport blood in SPS tube.

**Fluid:** Transfer to a sterile container. Place each specimen in an individually sealed bag. (Min. 0.5 mL)

**Tissue:** Place on gauze moistened with sterile non-bacteriostatic saline to prevent drying and transport in sterile container.

- **Order: Legionella pneumophila Antigen, Urine (LEGUR)**

5 mL random urine

- **Order: Legionella PCR Panel (LEGPC)** Viracore (Eurofins clinical Diagnostics)

## Laboratory-General Specimen Collection and Handling Guidelines

**Respiratory:** Respiratory specimen: Bronchoalveolar lavage (BAL), bronchial brushings, nasopharyngeal swab, sputum, tracheal aspirates or pleural fluid.

Fluid: Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL)

Swabs: Place in viral transport media.

- **Order: Legionella pneumophila DFA (LEGAG) (ARUP)**

Pericardial fluid, respiratory, or tissue specimens.

**Fluid:** Prepare two duplicate slides. OR transfer 1 mL fluid to a sterile container.

**Tissue:** Transfer tissue to a sterile container and place on gauze moistened with sterile non-bacteriostatic saline to prevent drying.

See test directory for test specific stability and transport

- **MRSA Surveillance**

Patient Prep: None

Special Instructions: None

Container: Copen eSwab or into a clean, preservative free sterile container.

- **Order: Staphylococcus Surveillance Culture (MRSA screen) (STAPH)**

**Applies to: Methicillin resistant Staphylococcus aureus carriers.**

Nasal preferred, Axilla or groin also acceptable.

See test directory for test specific stability and transport

- **Nasal** (Nasal aspirate or nasopharyngeal swab)

Patient Prep: None.

Special Instructions: None

- **Order: Influenza Virus A and B Rapid (INFLP) (Flu, Influenza, Influenza Virus A and B Rapid, Influenza A and B, Rapid Ag, Rapid, Flu)**

Container: Nasopharyngeal swab (viral transport media) or sterile preservative free container.

PC

- **Order: Respiratory Syncytial Virus Rapid Ag (RSVPC)**

Container: Nasopharyngeal swab (viral transport media) or sterile preservative free container.

Test detects: RSV

And/or

- **Order: Respiratory Viral Panel (RVPVI)- Viracore (Eurofins clinical Diagnostics)**

BAL, Bronch Washing, Nasal Aspirate, Nasal Swab, Nasopharyngeal, Nasal Wash, Trach aspirate, Trach wash in viral transport media.

Container: Nasopharyngeal swab (viral transport media) or sterile preservative free container.

See test directory for test specific stability and transport.

- **Order: Bordetella pertussis PCR (BPPC2)**

Patient Prep: None

Special Instructions: None

**Fluid:** Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL)

**Swabs:** Place in viral transport media.

Nasopharyngeal swab (viral transport media) or sterile preservative free container.

CDC-recommended test for the diagnosis of pertussis in nasopharyngeal swab and nasal wash specimens.

See test directory for test specific stability and transport

- **Order: Staphylococcus Surveillance Culture (MRSA screen) (STAPH)**

Container: Copen eSwab or into a clean, preservative free sterile container.

See test directory for test specific stability and transport

## Laboratory-General Specimen Collection and Handling Guidelines

### **Order: Adenovirus PCR Qualitative (ADEPC)**

Nasopharyngeal swab or aspirates

Container: Nasopharyngeal swab (viral transport media) or sterile preservative free container

### **Order: Parainfluenza PCR (PARP1)**

Nasopharyngeal swab or aspirates

Container: Nasopharyngeal swab (viral transport media) or sterile preservative free container

- **Pinworm**

- **Order: Pinworm (scotch tape test, cellulose tape test, enterobiasis test, Enterobius vermicularis)**

Patient Prep: Recommend first a.m. collection, prior to getting out of bed.

(Best time to collect: 2:00 am- 4:00 am)

Special Instructions: Transport collection device, pinworm paddle.

Container: Collection kit available.

Applies to perianal material.

See test directory for test specific stability and transport

- **Sexually Transmitted Infections**

Refer to CDC guidelines.

<https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm>

- **Sputum**

### **Order: Respiratory Culture Lower (RESPL)**

Patient Prep: None

Special Instructions: None

Container: sterile, preservative free container.

Applies to: Sputum, tracheal aspirate, bronchial wash.

Acceptable for Neonates: Gastric aspirate.

### **Order: Acid Fast Bacillus (AFB) Culture and AFB Stain**

Special Instructions:

**Recommended collections of early morning urine or sputum on each of three consecutive days are optimum.**

Submit only one same site sample per a 24 hour period.

Container: sterile preservative free container

**Submit separate specimens when multiple test(s) are ordered.**

Place each specimen in an individually sealed bag.

See test directory for test specific stability and transport

- **Stool**

Patient Prep: None

Special Instructions: Submit one sample per day.

### **Order: Stool pathogen PCR Panel (STLPP)**

(Includes: Campylobacter, Salmonella, Shigella, Vibrio, Shiga toxin 1 & 2 (ecoli), Norovirus GI/GII, Rotavirus and Yersinia.



## Laboratory-General Specimen Collection and Handling Guidelines

Container: Random stool, transport 5 g stool in enteric transport media (Cary-Blair/Green cap) immediately after collection. Fill to the line on the container.

- **Order: Stool PCR (Follow-up)**  
for monitoring Salmonella and Shigella infections previously detected by PCR  
Container: Random stool, transport 5 g stool in a preservative free clean container.
- **Order: Vibro Culture (VIBC)** (If suspected, order separately)
- **Order: VRE Culture** (If suspected, order separately)  
Container: Random stool, transport 5 g stool in a enteric transport media. (Cary-Blair/Orange Cap) immediately after collection or in a clean container.

### Ova and Parasite

Special Instructions: Recommended collection: 3 separate stool specimens within a 10-day period (an individual order must be submitted for each specimen).

- **Order: Giardia and Cryptosporidium Antigen**  
Container: Preserve 5 g in Para Pak SAF transport media within one hour of collection is preferred
- **Order: Ova & Parasite Exam, Fecal (Immunocompromised or Travel History)**  
Do not order unless patient has defined risk factor and at least 3 days of persistent diarrhea. Do not order for patients who develop diarrhea during an inpatient stay. Indicate travel history, chronic diarrhea > 2 week or immunosuppression. Recommend collection of 3 separate stool specimens within a 10 day period.  
See test directory for test specific stability and transport

### Clostridium Difficile Toxin PCR (C. difficile Toxins B)

Patient Prep: Do not contaminate with urine or water. Do not submit or scrape from diaper.

Special Instructions:

**Sample must be a soft or a liquid stool sample. Test limited to one time in seven days.**

Container: Transfer 1 mL stool to a properly labeled, clean unpreserved container with the lid tightly secured.

- **Order: Clostridium difficile Toxin B Gene (tcdB) (CDTPC).**  
See test directory for test specific stability and transport

### Helicobacter pylori Antigen (Helicobacter Pylori, H. Pylori)

Patient Prep: To avoid false negative results, no antibiotics, proton pump inhibitors, or a bismuth preparation should be administered to patient for 14 days prior to collection.

Special Instructions: Transfer 5 g stool to an unpreserved stool transport vial.

Alternative test to the H. pylori urea breath test.

**Order: Helicobacter Pylori Ag (HPYAG)**

See test directory for test specific stability and transport

- **Throat or Pharynx**

Patient Prep: None

Special Instructions: None

Container: Copen eSwab

- **Order: Strep (GpA) Rapid** (Negative results reflex to PCR)  
See test directory for test specific stability and transport

- **Tuberculosis (TB)**

Respiratory specimen processed by NaOH NALC digestion decontamination procedure. Unprocessed specimen is preferred.

Patient Prep: Three sputum specimens should be collected at 8-24 hour intervals (24 hours when possible) and should include at least one first morning specimen.

## Laboratory-General Specimen Collection and Handling Guidelines

Special Instructions: None

Container: **Unprocessed** specimens: Transport 5-10 mL respiratory specimen in a sterile container. Label as unprocessed.

Container: **Processed** specimens: Transport 2-5 mL digested/decontaminated respiratory specimen in a sterile container. Identify method used for digestion and provide smear results.

- **Order: Acid-Fast Bacillus (AFB) Culture and AFB Stain**
  - **Order: Blood Culture, Acid-Fast Bacillus (AFB)**
  - **Order: Mycobacterium tuberculosis Amplified Direct Detection** (AFB by Amplified Detection)
  - **Order: Mycobacterium tuberculosis Amplified Detection, CSF (1 mL CSF to a sterile container)**
- See test directory for test specific stability and transport

### • **Urine**

Patient Prep: First morning specimen preferred. Instruct patient to perform a clean catch collection.

Special Instructions: Gram Stains are performed on bladder or sterile collections (i.e. straight cath, indwelling Cath, kidney.)

- **Order: Urine Culture**  
Container: Transfer urine to a sterile container or Gray top (boric acid) tube transport tube.
- **Order: Urinalysis, with Reflex to Culture**  
Container: Sample is collected in a cup, aliquot specimen into 2 tubes: One yellow top tube and one Gray top (boric acid) tube for the culture.
- **Order: Streptococcus pneumoniae Rapid Urine Ag** (*S. pneumoniae*)  
Container: 4 mL of random urine in a sterile, preservative free container.
- **Order: Legionella pneumophila Antigen, Urine**  
Container: 4 mL of random urine in a sterile, preservative free container.
- **Order: Culture, Acid Fast Bacillus (AFB) Urine (AFBUR)**  
Urine: Transfer at least 40 mL to a sterile container.  
(Min: 10 mL culture only. Min: 40 mL culture and stain)
- **Order: Chlamydia trachomatis and Neisseria gonorrhea (GCCHA)**
- **Order: Trichomonas, Amplified Detection (TRICA)**  
Container: Transfer swab urine to APTIMA Combo 2 Assay transport media.  
See test directory for test specific stability and transport

### • **Viral**

Patient Prep: None

Special Instructions: Generally, virus-specific testing (e.g., antigen detection or molecular) is recommended

**Collect: Respiratory secretions, aspirates, stool, CSF, urine in a sterile container.**

**Collect: Blood/Bone Marrow in green (heparin) tube. Do not refrigerate.**

**Collect: Swabs upper respiratory tract sources, rectal swabs, skin lesions in viral transport media.**

- **Order: Respiratory syncytial PCR (RSVPC), Influenza Virus A+B PCR (INFLP), Parainfluenza PCR (PARP1), Respiratory Virus Panel (TEM-PCR) (RVPVI).**
- **Order: Herpes Simplex Virus PCR (HSVSS)**
- **Order: Measles (Rubeola) Virus Culture**  
(Nasopharyngeal aspirate or washing, throat swab, conjunctival swab, lung tissue, CSF, or urine.)
- **Order: Mumps Virus Culture**  
(Collect during first 3 days of illness. If collecting urine, use first morning void.) (CSF (in meningitis), nasopharyngeal swab, parotid gland duct swab, saliva, throat swab, or urine.)  
Verify test specific collections  
See test directory for test specific stability and transport

## Laboratory-General Specimen Collection and Handling Guidelines

- **Order: Ureaplasma-Mycro Culture (CUUPL)**
- **Order: Ureaplasma-Mycoplasma by PCR (MISC/ARUP)**
  - Patient Prep: None
  - Source: Body fluid, CSF, respiratory, semen, cervical or urethral swab, tissue or urine
  - Place swab or 0.5 mL of fluid (Min: 0.3 mL). In *Mycoplasma/Ureaplasma* transport media (UTM)
  - Special Instructions: **For respiratory sources order Mycoplasma pneumoniae by PCR.**
  - Supplies: Viral transport Media available in the Laboratory
  - See test directory for test specific stability and transport

- **Wound**

- **Order: Miscellaneous Culture (MISCC)**
  - Patient Prep: None
  - Special Instructions: None
  - Aspirate fluid:** Transfer to a sterile, preservative free container
  - Purulent Material:** Small tissue segments can be put into the eSwab tube, discard the swab or submit in a sterile container.
  - Swab:** Copen eSwab
  - A Gram Stain is included on most specimen types, sterile sources, sputum, abscesses, and wounds. All cultures are screened for Anaerobes, cultures are performed routinely on appropriate specimen, e.g. abscess, body fluid, tissue/biopsy, bronchial brush, pelvic organisms. Gram Stain, organism identification and susceptibility testing are billed separately.
  - See test directory for test specific stability and transport

# Laboratory-General Specimen Collection and Handling Guidelines

## Cytology (Cytopathology)

Cytology diagnoses malignant, pre-malignant lesions and diseases on the microscopic level. One of the most common tests the lab processes and analyzes is the Pap smear. Cytology performs testing on specimens from virtually any body site including pulmonary and urinary specimens.

- Label all samples with the patient identification, date and site of sample. Use pencil to label slides because ink comes off in the stainer. Please do not place adhesive labels on the slides as they affect our ability to stain them properly with our automated stainer,
- Smears: if smears from more than one site are submitted, e.g. submandibular and popliteal lymph nodes, label each slide as to which site they represent. This is important! If the slides are not identified by site we will not be able to determine which site corresponds to which cytology.
- Fluids: For any fluid other than peripheral blood, indicate what fluid is in the tube, e.g. bile, peritoneal (PTF), etc.
- Submit all prepared slides.
- Submit as soon as possible to the laboratory. This is particularly important with fluids, in which changes occur in the sample with storage, such as phagocytosis of erythrocytes (within a few hours) and bacteria (within 30 min.). This complicates result interpretation, so freshly made smears should ideally be provided along with any fluid samples.
- Submit a completed requisition or electronic order along with all pertinent data (history, symptoms, lab data, prior biopsies, diagnosis, surgery and therapies.)
- All data MUST be included to allow appropriate sampling, processing and interpretation.
- When multiple test(s) are ordered on a **shared sample** (various lab sections - i.e. Microbiology, Cytology) the sequence of testing is vital.
- The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.
- To ensure all requests can be completed with the utmost validity, submit sample and test request(s) simultaneously to the laboratory.
- Submit separate specimens when multiple test(s) are ordered-**prepared slides cannot be a shared.** (i.e. microbiology, cytology)
- All specimens must be placed in a secondary, leak proof biohazard transport bag. Place requisition and documentation in the front pocket of the bag.
- In order to share a specimen with microbiology the sample must be collected in a sterile container.

## Cytology Sample/Source:

- **Aspiration, Fine Needle**

Applies to:

Needle aspiration, FNS, thin needle aspiration, fine needle biopsies.

- Collect aspirate cell samplings from any mass accessible by fine needle.
- Place a drop of aspirated specimen on each clear end of the frosted (1-2) slides.
- Spread a thin even sampling across each slide. **FIX IMMEDIATELY**
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder.
- Or immerse immediately in container with 95% 2-propanol alcohol.
- Give all pertinent information including site, size of mass and clinical impression on requisition.
- Stability (Collection to initiation of testing): Samples received unfixed: Unacceptable.
- Transport and Storage: Ambient (room temperature).

## Laboratory-General Specimen Collection and Handling Guidelines

### ○ Aspiration, Cyst Fluids

Applies to:

Cyst fluid, renal , ovarian , breast, brain, pancreatic, hydrocele fluid.

- Collect aspirated cell samplings of cysts and/or masses such as breast, neck , thyroid, etc.
- Submit in a properly labeled, leak proof specimen container.
- Stability (Collection to initiation of testing): Ambient: 24 hours; Refrigerated: 5 days; Frozen: Unacceptable
- Transport and Storage: Ambient (room temperature).

### ● Submission of slide specimen

Applies to:

Needle aspiration Cyst fluid, renal, ovarian, hydrocele fluid.  
breast, brain, pancreatic, hydrocele fluid, urine.

- Place a drop of aspirated specimen on each clear end of the frosted (4-6) slides.
- Spread a thin even sampling across each slide (same as peripheral blood smear preparation).
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder. Place slide holder in transport bag with completed requisition in the front pocket.
- DO NOT LET SPECIMEN AIR DRY.
- Or immediately immerse in 95% alcohol fixative.
- Indicate sample site and source on the specimen label.
- Stability (Collection to initiation of testing): Slides received unfixed: Unacceptable
- Transport and Storage: Ambient (room temperature).

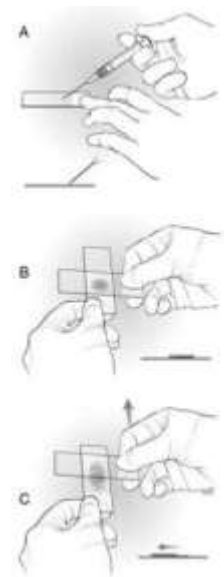
### ● Tips on making smears

For obtaining high quality smears from tissues or fluids we recommend the following:

- Use clean glass slides with frosted ends.
- Place the aspirate near the frosted end such that the majority of the material is in the middle of the slide.
- Make gentle squash smears.
- Avoid making “splat” smears spraying the sample on the slide without any kind of spreading). These are sub-optimal because they are thick and the cells do not spread well. The markedly hinders evaluation and interpretation.
- Excessive pressure during smear preparation causes rupturing of cells and yields non-diagnostic smears. This can be a common problem with lymph node aspirates, since some lymphocytes are quite fragile and rupture readily.
- This is very important because it optimizes cell spreading on the slide, allowing identification of individual cells and detection of small inclusions (e.g. bacteria) within the cells.
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder.

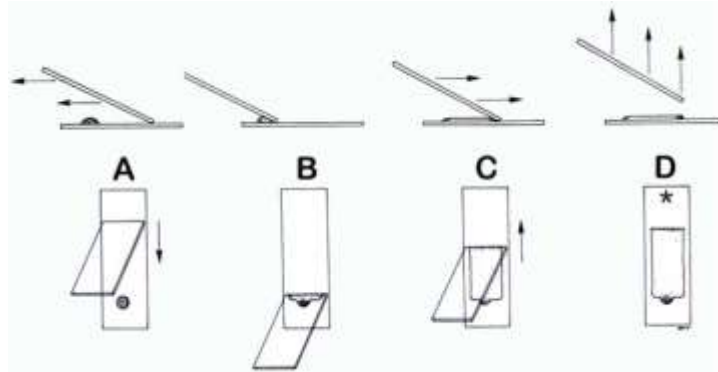
When using the “line” (preferred) or “wedge” or blood smear technique for urine or fluids. Line smear technique:

- Place a drop of fluid near the end of the slide and drag a spreader slide backward into the drop.
- The drop spreads along the junction of the two slides.
- Advance the spreader slide forward.
- When the spreader slide reaches no more the 2/3 the length of the slide, lift it directly upward.



## Laboratory-General Specimen Collection and Handling Guidelines

- This produces a line of concentrated cells at the end, instead of a feathered edge. Briefly lift up the non-frosted end of the slide (marked \*) to disperse the line towards the origin (this makes the line thinner and easier to examine).
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times. DO NOT LET SPECIMEN AIR DRY.
- After spray fixative is dry, place slides in slide holder.
- Or Submit in a properly labeled coplin jar or other suitable container (sterile or non-sterile) filled with 95% alcohol.



- **Body Cavity Fluids**

Applies to: thoracentesis, peritoneal, ascetic, paracentesis, pericardial, pericardiocentesis, synovial fluid.
--

- Collect fresh aspirated fluid volume 5-50 mL (Minimum volume 5 mL)
- Or in a Heparinized vacuum bottle. Submit entire specimen or 5 cc of body fluid
- Submit in a properly labeled, leak proof specimen container.
- In order to share a specimen with microbiology the sample must be collected in a sterile container.
- Indicate collection site and source on the specimen label.
- Include pertinent clinical information (i.e. previous carcinoma, special studies requested, drugs, radiation therapy or history of alcohol abuse) on the requisition
- Stability (Collection to initiation of testing): Ambient: 24 hours; Refrigerated: 5 days; Frozen: Unacceptable.
- Transport and Storage: Ambient (room temperature).

## Laboratory-General Specimen Collection and Handling Guidelines

- **Breast Nipple Secretions**

Applies to: Breast discharge, nipple secretions, breast secretions
---

- Sequentially number 2-4 glass slides and label each end appropriately.
- Soak nipple with warm saline, using cotton or gauze, for 10-15 minutes, then gently strip subareolar area and nipple with thumb and forefinger.
- Soak nipple with warm saline, using cotton or gauze, for 10-15 minutes, then gently strip subareolar area and nipple with thumb and forefinger.
- When secretion occurs, allow pea sized drop to accumulate on apex of nipple.
- Place slide number 1 upon nipple. Spread a thin even sampling across each slide quickly. FIX IMMEDIATELY with spray fixative..
- Spray holding pump nozzle 5-7 inches (13-18 cm) from the slides and pump spray 2-3 times.
- Make the 2-4 slides by repeating the smear and fixation technique. The latter smears usually contain more abnormal cells.
- If smears are prepared from both breasts, label each slide as left (L) or right (R).
- Allow spray fixative to dry, place in cardboard holder and place in transport bag with completed requisition in the front pocket.
- Or immediately immerse in 95% alcohol fixative.
- Specify nipple discharge; include pertinent clinical data, history of carcinoma, pertinent information on the requisition.
- Stability (Collection to initiation of testing): Fixed slides; Indefinitely
- Transport and Storage: Ambient (room temperature).

- **Brushing Specimens Cavity**

Applies to: bronchial brushings, esophageal, stomach (gastric) , bowel ,colonic, urinary tract.
---

- Using Teflon sheathed nylon brushes, push brush through proper instrumentation (scope), visualize the suspect lesion and brush the area.
- Brush is pulled back into sheath and both scope and brush or withdrawn.
- Collect any cell sampling obtained by means of brush from lesion of suspected area.
- Using the brush tip spread the material thinly and evenly across the clear end of the glass slide(s) and SPRAY FIX IMMEDIATELY.
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder. Place slide holder in transport bag with completed requisition in the front pocket.
- DO NOT LET SPECIMEN AIR DRY.
- Or Submit in a properly labeled coplin jar or other suitable container (sterile or non-sterile) filled with 95% alcohol
- Specify the site brushed and include any patient clinical data (i.e. diagnosis, history of carcinoma, special studies requested) on the requisition.
- Stability (Collection to initiation of testing):Sample:Ambient;6  
Months:Refrigerated;Unacceptable:Frozen;Unacceptable:Slides;Ambient; Indefinitely
- Transport and Storage: Ambient (room temperature).

## Laboratory-General Specimen Collection and Handling Guidelines

- **Cerebrospinal Fluid (CSF)**

Applies to: Cerebral Spinal Fluid, CSF
---

- Submit fresh CSF fluid, not less than 1-2 mL
- Collect cell samples from spinal cord in a leak proof container.
- Collection kit, tube number #4.
- No anticoagulant or fixative to be added.
- Include pertinent clinical data (i.e. diagnosis, history of carcinoma, special studies requested on requisition.).
- Stability (Collection to initiation of testing): Ambient; 24 hours: Refrigerated 5 days; Frozen 5 days
- Transport and Storage: Ambient (room temperature).

- **Ectocervix, Endocervical canal, Vaginal pool**

Applies to: Pap Smear, Conventional Pap Smear, Liquid Base
--

### Pap Smear, Conventional

Patient clinical history required, indicate routine screening or diagnostic (medically indicated).

- Submit a completed requisition or electronic order along with all pertinent data (history, symptoms,)
- Include pertinent clinical history (i.e. age, LMP, surgery, exogenous hormones, history of carcinoma, radiation chemotherapy or abnormal bleeding, previous abnormal (PAP).
- Patient prep: Abstain from douche and sexual intercourse 24 hours prior to collection. Patient should not be menstruating at the time of exam.
- Collect cell samplings from female reproductive organs (ectocervix, endocervical canal and vaginal pool.)
- Collect using cervical collection device (spatula or cervical broom) and speculum without lubricant.
- Endocervix: Endocervical brush or swab of endocervical canal, always remove any mucus plug before sampling.
- Endocervical brush-insert brush and rotate 360 degrees. Roll brush into slide and FIX IMMEDIATELY.
- Saline moistened cotton swab-rotate in the cervical os and ROLL onto labeled slide and fix immediately.
- DO NOT SMEAR OR SCRUB ONTO THE SLIDE.
- Ectocervical scrape-with spatula, scrape the entire ectocervix with emphasis on SQUAMO-COLUMNAR JUNCTION.
- Spread evenly on labeled slide and FIX IMMEDIATELY.
- Vaginal pool smear-obtain specimen by dipping the end of the spatula into the posterior fornix.
- Spread material evenly across the labeled slide and FIX IMMEDIATELY.
- Fixation-IMMEDIATELY SPRAY FIX the smears, by holding slides 5-7 inches (13-18 cm) from the pump nozzle and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder. Place slide holder in biohazard transport bag with completed requisition in the front pocket.

### Pap Smear, Liquid Base

- Cervical Sample
- Collect cell samplings from female reproductive organs (ectocervix, endocervical canal and vaginal pool.)
- Collect using cervical collection device (spatula or cervical broom) and speculum without lubricant.
- Insert Rovers Cervex Brush into endocervical canal. Apply gentle pressure until the bristles form against their cervix.
- Apply gentle pressure until the bristles form against the cervix. Maintaining gentle pressure, hold the stem between the thumb and forefinger.
- ROTATE BRUSH FIVE TIMES IN A CLOCKWISE DIRECTION.
- Placing your thumb against the back of the brush pad, simply disconnect the entire brush from the stem into the SurePath preservative vial.
- Submit cell samplings by breaking-off the tip of the collection device into a properly labeled collection vial.
- Place the cap on the vial and tighten.
- Collection kit-Liquid based Pap smear kit-surepath is available in the laboratory upon request.



## Laboratory-General Specimen Collection and Handling Guidelines

- Stability (Collection to initiation of testing): Ambient: 1 month; Refrigerated: 6 months; Frozen: Unacceptable
- Transport and Storage: Ambient (room temperature).

- **Sputum Specimens**

Applies to: sputum series, pulmonary, expectorated sputum, not saliva or nasal aspirates.
---

- Collect cell samplings from respiratory tract, not less than 3 mL (one teaspoon) of sample.
- Submit in a properly labeled, leak proof container.
- Patient Prep: Instruct patient to cough DEEPLY (from the diaphragm) upon awakening.
- Specimen: should be deep sputum. A series of 3 successive mornings is recommended.
- Indicate sample site and source on the specimen label.
- In order to share a specimen with microbiology the sample must be collected in a sterile container.
- The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.
- Stability (Collection to initiation of testing): Ambient; 24 hours; Refrigerated 5 days; Frozen Unacceptable
- Transport and Storage: Ambient (room temperature).

- **Urine Specimens**



Applies to: <b>FRESH</b> voided or catheterized urine only
---

- Specimen:
  - **FRESH** voided or catheterized urine only; first morning urine is discouraged because of degeneration. Volume: Not less than 25 mL.
  - Patient Prep: It is important to hydrate the patient with one glass of water every 15-20 minutes for 2 hours prior to collection.
  - Collect cell samplings from urinary tract (bladder, kidneys, etc.)
  - Include: pertinent clinical data (i.e. admitting diagnosis, history of carcinoma, radiation or chemotherapy, special studies requested such as CMV.
  - Submit in a properly labeled specimen container (sterile, non-sterile, preservative free).
  - In order to share a specimen with microbiology the sample must be collected in a sterile container
  - The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.
  - Indicate collection method: voided or catheterized.
  - Stability (Collection to initiation of testing): Ambient; 24 hours; Refrigerated 5 days; Frozen Unacceptable
  - Transport and Storage: Refrigerated
- To optimize results, also submit 2 or more smears of freshly collected urine.
  - These smears should be made from centrifuged urine (called sediment smears.)
  - Please do not use the entire sample (just centrifuge a portion of the sample).
  - Use the “line” (preferred) or wedge” or blood smear technique for making smears of the urine sediment. See section: Tips on making smears.
  - Indicate on the request form that smears have been submitted with the urine (to ensure we are aware of their presence and make sure that we examine them, which is done at no extra charge.

## Laboratory-General Specimen Collection and Handling Guidelines

- **Washing Specimens**

Applies to:

tracheal aspiration, bronchial lavage, pelvic washings,  
urinary tract washings, bronchial washings  
peritoneal lavage, peritoneal washings.

- Specimen will be obtained by physician. Collection is obtained using a balanced salt solution or normal saline.
- Collect cell samplings from tracheal aspiration, bronchial lavage, pelvic washings, urinary tract washings, bronchial washings, peritoneal lavage, and peritoneal washings.
- Submit in a properly labeled, leak proof specimen container.
- In order to share a specimen with microbiology the sample must be collected in a sterile container.
- Collect cell samplings from tracheal aspiration, bronchial lavage, pelvic washings, urinary tract washings, bronchial washings, peritoneal lavage, and peritoneal washings.
- Indicate sample site and source on the specimen label.
- Include pertinent clinical information (i.e. previous carcinoma, special studies) on the requisition.
- The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.
- Stability (Collection to initiation of testing): Ambient: 4 hours; Refrigerated: 24 hours; Frozen: Unacceptable.
- Transport and Storage: Ambient (room temperature).

### Histology (anatomic pathology)

Histology sample preparation prepares tissue specimens for sectioning, staining and diagnosis. The standard paraffin process (tissue processing) moves specimens through a series of steps so the soft tissue is supported in a medium that allows sectioning. The standard steps are: **Fixation** that preserves the tissue, **Processing** that dehydrates, clears and infiltrates the tissue with paraffin wax, **Embedding** that allows orientation of the specimen in a “clock” that can be sectioned and is easy to store and handle, and **Sectioning** using a microtome to produce very thin sections that are placed on a microscope slide ready for staining. Frozen sectioning is an alternative preparation technique that quickly freezes tissue to preserve it and provide sufficient hardness so it can be sectioned immediately using a cryostat. This technique is often used during surgery where the surgeon needs to locate a tumor margin to ensure it has all been removed.

- A completed requisition must accompany each specimen.
- Multiple specimens can be included on one requisition.
- Source of specimen should be listed on both the requisition and on the specimen container.
- All specimens must be placed in a secure, appropriately-sized, leak proof container
- The container (not the containers lid) must be labeled legibly with at least two patient identifiers.
- Place the requisition in the front pocket of the transport bag.
- If more than one specimen is submitted, each must be numbered and identified on the requisition form and container.
- When multiple test(s) are ordered on a shared sample (various lab sections - i.e. Microbiology, Cytology) the sequence of testing is vital.
- The sequence of testing for a shared sample: 1. Microbiology, 2. Histology, 3. Cytology
- All orders for culture(s) or **STAT** gram stain should be requested on a laboratory requisition and/or electronic order.
- All orders for cytology should be requested on a cytology requisition and/or electronic order.
- To ensure all requests can be completed with the utmost validity, submit sample and test request(s) simultaneously to the laboratory.
- Fixative: a solution used to stabilize cellular components in preparation for histological examination.

## Laboratory-General Specimen Collection and Handling Guidelines

Proper fixation is essential for histology, but it kills cells and acts in other ways that limits many research applications. 10 % neutral buffered formalin is the most common routine fixative.

**Sample handling precautions:** formal saline contains formaldehyde, which is both harmful and irritant and should be handled with care. Suitable protective clothing, eye protection and gloves should be worn when handling it or samples that have been in contact with it. It should only be used in well-ventilated areas. The vapor is harmful and should a large spillage (more than one litre) occur the areas should be cleared for advice and assistance. For smaller spillages formalin neutralizing granules are available from Histology. The spillage may also contain a biological hazard associated with the specimen. Never attempt to clean up a spillage without knowing the risks and the precautions to take. Fresh unfixed specimens that have spilled/leaked should be dealt with as if potentially hazardous and Histology should be called for advice.

### Sample/Source:

- **Routine Submission**

Applies to:

Any product of medical procedure

Excludes Fresh, frozen, genetic or placentas

- All specimens must be placed in a secure, appropriately-sized, leak proof container and covered with 10% buffered formalin or prefer. Any product of medical procedure. These can be soft tissues, bony tissue; fluids, foreign bodies, surgical appliances/hardware. The terms “sample”, “specimen”, and “tissue” are often used interchangeably.
- Placentas may be submitted fresh but must be refrigerated after hours.

- **Fresh Specimen**

Applies to: Listed below are considered fresh, and <b>should not have fixative:</b> Frozen Sections, Muscle Biopsies Renal Biopsies , Flow cytometry Specimens for genetics, Lymphoma work up, Breast, Placentas.
--

- Fresh: no fixative has been used.
- All fresh specimens must be transported to the laboratory **STAT**.
- All muscle biopsies, renal biopsies and specimens requiring special send-out protocol must be scheduled with the pathology department, and will not be scheduled on weekends or holidays.
- Stability (Collection to initiation of testing): Ambient; 1 hour: Refrigerated Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Surgical Specimen/  
and Microbiology test(s)**

Applies to: Tissue
-----------------------

- Specimen for culture(s) must not be placed in fixative.
- **Separate specimens for Histology, Cytology and Microbiology are preferred.**
- Tissue should be placed in a sterile container and moistened with sterile saline. It may be placed on a sterile Telfa Pad. Do not use gauze.
- All orders for culture(s) or **STAT** gram stain should be requested on a laboratory requisition and/or electronic order.
- **STAT** gram stains are requested as an additional (separate) order. A contact phone number should be indicated on the requisition or electronic order

## Laboratory-General Specimen Collection and Handling Guidelines

- When multiple test(s) are ordered on a shared sample (various lab sections - i.e. Microbiology, Cytology) the sequence of testing is vital.
- The sequence of testing for a shared sample; Microbiology, Histology, then Cytology.
- To ensure all requests can be completed with the utmost validity, submit sample and test request(s) simultaneously to the laboratory.
- Stability (Collection to initiation of testing): Ambient; 1 hour: Refrigerated Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Breast Tissue**

Applies to:  
Breast tissue, Mammprint, Breast Mass  
, Lumpectomy, Lymph nodes

- To diagnose and identify abnormalities in the specimens.

### **Sentinel Lymph Node Biopsy with Lumpectomy/Partial Mastectomy/Mastectomy:**

- All sentinel nodes go directly to histology for frozen section.
- Submit breast specimen to lab fresh without fixative.
- Document time of removal from patient on the "Time Removed/Time in Formalin" stickers in Surgery.
- Place stickers on both copies of requisition. Stickers are located by the dumbwaiter.
- Axillary Node Dissections: send specimen as directed by the physician. No need for special radioactive precautions.

### **Biopsy with Needle Localization:**

- Place the needle localization breast tissue in a Transpec container.
- Complete patient name label with the same information and attach to the base of the container.
- Send all patient's x-rays with specimen.
- Radiology will send specimen to histology.
- Write on requisition that specimen must go to radiology first and then to the Laboratory-Histology department.
- Call Radiology to inform them the specimen is coming.

### **Mammprint studies:**

- Call Radiology to inform them the specimen is coming.
- Special arrangements must be made in advance prior to collection.
- Contact Histology at 440-329-7528 (hours of operation 5:30 A.M. -5:00 P.M.) After hours contact the Laboratory Client Services at 440-329-7531.
- Testing referred to reference laboratory.
- Mammprint form: The ordering physician will complete the authorization/consent signed by the patient prior to surgery.
- Include pertinent data (history, clinical symptoms) needed to allow appropriate processing and interpretation.
- Submit a fresh sample (core biopsy) wrapped in sterile saline moistened non-adherent material.
- **DO NOT ADD FIXATIVE.**
- Mastectomies and larger breast mass specimens should be sent fresh and without fixative.
- Pathologist will determine the specific section size and amount to be submitted for mammprint studies.
- Place in an appropriate sized leak proof container. Secure lid on tightly.
- Transport in a red "STAT" biohazard bag with the completed requisition and any additional documentation in the front pocket.
- **Breast Mass:** Lumpectomy/Partial Mastectomy/Mastectomy, Breast Lymph Nodes, Breast Tissue, Reduction.
- **All** breast tissue shall be submitted fresh. Histology will add fixative.
- Document time of removal from patient on the "Time Removed/Time in Formalin". Place stickers on both copies of requisition.
- Place in an appropriate sized leak proof container. Secure lid on tightly.

## Laboratory-General Specimen Collection and Handling Guidelines

- Transport in a red "STAT" biohazard bag with the completed requisition and any additional documentation in the front pocket.
- Stability (Collection to initiation of testing): Ambient; 1 hour: Refrigerated Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Brushing Specimens**

Applies to:

**esophageal, stomach (gastric) ,small bowel ,colonic, urinary tract.**

- Using Teflon sheathed nylon brushes, push brush through proper instrumentation (scope), visualize the suspect lesion and brush the area.
- Brush is pulled back into sheath and both scope and brush or withdrawn.
- Collect any cell sampling obtained by means of brush from lesion of suspected area.
- Using the brush tip spread the material thinly and evenly across the clear end of the glass slide(s) and **SPRAY FIX IMMEDIATELY**.
- Spray fixative by holding the pump nozzle 5-7 inches (13-19 cm) from slide and spraying 2-3 times.
- After spray fixative is dry, place slides in slide holder. Place slide holder in transport bag with completed requisition in the front pocket.
- **DO NOT LET SPECIMEN AIR DRY.**
- Or Submit in a properly labeled coplin jar or other suitable container (sterile or non-sterile) filled with 95% alcohol.
- Specify the site brushed and include any patient clinical data (i.e. diagnosis, history of carcinoma, special studies requested) on the requisition.
- Submit a completed requisition or electronic order along with all pertinent data (history, symptoms,)
- All specimens must be placed in a secondary, leak proof biohazard transport bag. Place requisition and documentation in the front pocket of the bag.
- Submit separate specimens when multiple test(s) are ordered-**this specimen cannot be a shared.** (i.e. Microbiology, Cytology)
- Stability (Collection to initiation of testing): Sample: Ambient; 6 Months: Refrigerated; Unacceptable: Frozen; Unacceptable: Slides; Ambient; Indefinitely.
- Transport and Storage: Ambient (room temperature).

- **Bronchial Washing & Brushings**

Applies to:

tracheal aspiration, bronchial lavage, bronchial washings,

- Specimen will be obtained by physician. Collection is obtained using a balanced salt solution or normal saline.
- Collect cell samplings from tracheal aspiration, bronchial lavage, bronchial washings.
- **Separate specimens for histology, cytology, and microbiology are preferred**
- Submit in a properly labeled, leak proof specimen (sterile or non-sterile ) container.
- Indicate sample site and source on the specimen label and on the requisition
- Bronchial Brush Tip: cut from wire and place in specimen cup with **10% buffered neutral formalin** fixative.
- Bronchial Biospy: place specimen into specimen cup with **10% buffered neutral formalin** fixative.
- Bronchial Washing for **cell block** (any cell sampling obtained by means of bronchial lavage) requires **no fixative** and should be sent **immediately** to histology.
- All specimens must be placed in a secondary, leak proof biohazard transport bag. Place requisition and documentation in the front pocket of the bag.

## Laboratory-General Specimen Collection and Handling Guidelines

- Do **not** use the red "STAT" biohazard specimen bag for routine specimens
- Stability (Collection to initiation of testing): Ambient: 30 minutes; Refrigerated: Unacceptable; Frozen: Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Muscle Biopsy**

Applies to: bicep (upper arm muscle), deltoid (shoulder muscle), or quadriceps (thigh muscle).
---

- To assess the musculoskeletal system for abnormalities causes for muscle weakness or pain in order to determine the source of the disease process.
- Testing referred to reference laboratory.
- Special arrangements must be made in advance prior to collection.
- Contact the Histology department by calling 440-329-7528 (hours of operation 5:30 A.M. -5:00 P.M.)
- Provide the following: Patient's full legal name, Patient's date of birth, Ordering Physician, Location of sample collection, estimated time of arrival.
- Demographics and a completed requisition must accompany the specimen.
- Include pertinent data (history, clinical symptoms) necessary for diagnosis.
- Submit specimen fresh in a disposable muscle biopsy clamp, wrapped in sterile saline moistened non-adherent material. **DO NOT ADD FIXATIVE.**
- Place in an appropriate sized leak proof container. Secure lid on tightly
- Transport in a red "STAT" biohazard bag with the completed requisition and any additional documentation in the front pocket.
- Stability (Collection to initiation of testing): Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Renal Biopsy (Kidney)**

Applies to: Kidney (Electron Microscopy and Immunofluorescent studies)
---

- To diagnose a suspected problem, determine the severity or monitor treatment for kidney disease.
- The procedure is usually performed in the Radiology (CT) department.
- Testing referred to reference laboratory.
- Special arrangements must be made in advance prior to collection.
- Contact the Histology department by calling 440-329 7528 (hours of operation 5:30 A.M. -5:00 P.M.)
- Provide the following: Patient's full legal name, Patient's date of birth, Ordering Physician, Location of sample collection, estimated time of arrival.
- Demographics and a completed requisition must accompany the specimen.
- Include pertinent data (history, clinical symptoms) needed to allow appropriate processing and interpretation
- Specimen should be submitted fresh wrapped in a sterile saline moistened (damp) non-adherent material.  
**DO NOT ADD FIXATIVE**
- Two to three cores of fresh renal tissue in a properly labeled container
- Place in an appropriate sized leak proof container. Secure lid on tightly
- Transport in a red "STAT" biohazard bag with the completed requisition, demographics and history in the front pocket.
- Deliver specimen to the Central Processing area, STAT.
- Stability (Collection to initiation of testing): Ambient; 4 hours; Refrigerated Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

## Laboratory-General Specimen Collection and Handling Guidelines

- **Bone Marrow**

Applies to:  
Bone marrow aspirate, Bone biopsy,  
peripheral blood.

- Bone marrow examination is used to evaluate hematologic disorders.
- Bone marrow examination is used to evaluate hematologic disorders.
- Bone collection can be performed with or without laboratory assistance.
- The bone marrow evaluation usually consists of three parts: 1) peripheral blood counts and smear, 2) bone marrow aspirate, and 3) Bone marrow core biopsy.
- The bone marrow aspirate sample can be used for morphologic evaluation as well as for special stains, cultures, flow cytometry, cytogenetic studies and molecular analysis.
- **Peripheral Blood-A Lavender (EDTA)-** a concurrent CBC and differential should be performed with all bone marrow samples.
  - If patient has had a recent CBC and differential within one week of the bone marrow this result can be used.
- **Bone Marrow Aspirate-**Prepare to collect the bone marrow aspirate
  - The initial 1-2 mls of bone marrow should be aspirated QUICKLY into the syringe without anticoagulant.
  - The syringe is removed from the aspirate needle and approximately 6 slides should be made immediately.
  - Attach a heparinized syringe to the aspirate needle to aspirate 1-2 mLs of marrow for any Green (sodium/heparin) tubes needed. Invert tubes 5-10 times to mix.
- **Recommended specimens for transport:**
  - Aspirate smears: 6 slides
  - Molecular Cytogenic Testing (FISH) analysis: 2-3 mL of marrow in Green (sodium/heparin)
  - Flow cytometry (Leukemia/Lymphoma) : 1-2 ml of marrow in Green (sodium/heparin)
  - Cytogenics (Chromosome Analysis): 1-2 ml of marrow in Green (sodium/heparin).
  - Cultures: Submit bone marrow cultures the same as body fluid cultures.
- **Bone Marrow Biopsy-**An adequate bone marrow core biopsy should be 1-2 cm in length.
- If cultures are indicated, a fragment of the bone marrow core should be placed into a sterile container and moistened with 0.5 ml of sterile saline for transport.
- Bone Marrow biopsy and aspirate or clot should be directly placed in B plus fixative (Zinc Formalin). Note the time the fixation begins.
- Core biopsy and aspirate are processed for routine histological evaluation. Special histochemical and immunoperoxidase stains can be performed on the biopsy as appropriate.
- Reports will integrate previous laboratory information, clinical information, peripheral blood and bone marrow morphology and results of ancillary studies to provide a comprehensive assessment of the disease.
- Stability (Collection to initiation of testing): Ambient (room temperature; 4 hours: Refrigerated Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Cytogenics**

Applies to:  
Bone Marrow Aspirate, Peripheral blood,  
Products of Conception, Tissue samples  
Tissue samples, Tissue samples Fluid

- Aids in helping determine the specific type of cancer present, predict disease course, determine a course of treatment, enable physicians to monitor treatment effectiveness and look for residual disease post-treatment.(e.g., Chromosome analysis)
- **Recommended specimens for transport:**
  - **Bone Marrow Aspirate-** 1 mL heparinized bone marrow in a Green (sodium/Heparin tube).
  - **Whole Blood:** 5 mL Green (sodium/heparin tube)
  - **Products of Conception:** 2-4 mm of villi, placental tissue, umbilical tissue, fascia, or fetal organ tissue in transport media, Hanks solution or RPMI.



## Laboratory-General Specimen Collection and Handling Guidelines

- **Tissue samples:** (Skin biopsy, solid tumors, Lymph nodes): collect 2 mm tissue section place in transport media, Hanks solution or RPMI.
- **Amniotic Fluid:** 10-30 ml of amniotic fluid.
- Submit tissue for routine Pathology separately from tissue for Chromosome analysis (POC). Label accordingly.
- Submit tissue for routine Pathology separately from tissue for Chromosome analysis (POC). Label accordingly.
- Testing referred to reference laboratory.
- Stability (collection to initiation of testing): Ambient (room temperature): 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable
- Transport and storage: Refrigerated

- **Flow Cytometry**

Applies to: Bone Marrow Aspirate, Peripheral blood, Tissue samples
--

Aids in the evaluation of hematopoietic neoplasm's (e.g., leukemia, lymphoma). Also monitors response to therapy in patients with established diagnosis.

### Recommended specimens for transport:

- **Bone Marrow Aspirate:** 1 mL heparinized bone marrow in a Green (sodium/heparin)
- **Whole Blood:** 5 mL Green (sodium/heparin)
- **Fresh Tissue:** 100 mg fresh tissue suspended in tissue transport media (RPMI 1640)
- **Fresh Fluid:** 10-100 mL fresh fluid
- Testing referred to UH main campus.
- Stability (collection to initiation of testing): Ambient (room temperature): 24 hours; Refrigerated: 24 hours; Frozen: Unacceptable
- Transport and storage: Refrigerated
- Flow cytometry: Lymphoma protocol requested for lymph nodes will automatically include flow cytometry studies if warranted.

Applies to: Rapid microscopic analysis of a specimen (Cryosection).
--

- **Frozen Section**

The purpose of frozen sections is to provide a preliminary diagnosis while the patient is in surgery.

- Frozen: specimens that are or have been frozen for rapid microscopic exam during an intraoperative consultation. Frozen section slides are cut on a cryostat for rapid microscopic analysis. The remaining tissue is placed in fixative.
- If a tumor appears to have metastasized, a biopsy of the suspected metastasis is sent for frozen section to confirm its identity.
- If a tumor has been resected but it is unclear whether the surgical margin is free of tumor.
- In a sentinel node procedure, a sentinel node containing tumor tissue prompts a further lymph node dissection, while a benign node will avoid such a procedure.
- If surgery is explorative, rapid examination of a lesion might help identify the possible cause of a patient's symptoms.
- Special arrangements must be made in advance prior to collection.
- Contact the Histology department by calling 440-329 7528 (hours of operation 5:30 A.M. -5:00 P.M.)
- Provide the following: Patient's full legal name, Patient's date of birth, Ordering Physician, Location of sample collection, estimated time of arrival. Will a courier be needed for pick up and delivery?
- A completed requisition must accompany the specimen.
- Submit a fresh sample wrapped in sterile saline moistened non-adherent material.
- **DO NOT ADD FIXATIVE.**
- In house request: • Mark the requisition FROZEN: "yes" in the lower right hand of the form.



## Laboratory-General Specimen Collection and Handling Guidelines

- Complete a "Pathologist Consultation Report", and note on the form whether the patient is awake or asleep.
- If awake, include a phone number of the surgical suite where the pathologist can call the diagnosis.
- If asleep, the diagnosis can be communicated over the intercom.

Out Patient:

Applies to:

Intra-operative consultation, or consultation for gross examination only while the patient is still in surgery.

- Arrange for the courier pick up and deliver the specimen to the laboratory "STAT".
- Contact Histology prior to sending the specimen (440-329-7528).
- Place in an appropriate sized leak proof container. Secure lid on tightly.
- Transport in a red "STAT" biohazard bag with the completed requisition, consultation report and any additional documentation in the front pocket.
- Stability (Collection to initiation of testing): Ambient; 1/2 hour: Refrigerated: Unacceptable; Frozen Unacceptable.
- Transport and Storage: Ambient (room temperature).

- **Permanents**  
**Paraffin blocks**  
**Slides**

- Permanents: specimen that have been treated with fixative and processed to a paraffin matrix that permanently preserves them at ambient temperature.
- "Paraffin block" is an equivalent term.
- "Permanents", or paraffin blocks, are specimen for which a microscopic histological exam can be performed. The histology of permanents is superior to that of frozen.
- Transport and Storage: Ambient (room temperature).

- **Gross Only Examination**

- Gross only examination: a descriptive exam of the macroscopic features of the specimen that does not include a microscopic exam. Specimens for "gross only" are usually foreign bodies or otherwise not practical to be made into permanents.
- Teeth. Usually these will be for gross examination only, but adherent tissue any be submitted for microscopic examination at the attending physicians request.
- Transport and Storage: Ambient (room temperature).

## Laboratory-General Specimen Collection and Handling Guidelines

### Blood Bank (Immunohematology)

Blood Bank technologist demonstrates a proficiency and problem solving ability in such areas as: Testing for blood group antigens, compatibility and antibody identification. They also support physicians and nurses in blood transfusion therapy. The American Association of Blood Banks (AABB) establishes standards for blood banks and transfusion services therapies, which promote the safety and quality of blood products used in our hospitals and transfusion centers.

- Requisition must include:
- Patient's full legal name, Date of birth, Attending/Ordering physician, Date and time of collection, test(s) requested, Diagnosis (ICD-9).
- **Out-Patient and Downtime requisitions must also be signed by the individual who made the positive identification and collected the sample.**
- **Requisition must also include: When (date and approximate time) and where the transfusion will be performed, In-patient location (floor, room, bed) or Out-patient Infusion center.**
- Sample labeling: Because clerical errors in specimen collection can lead to fatal transfusion reactions each patient must have a positive identification.
- Verification of patient identification must be performed prior to collection.
- Sample must include: Patient's full legal name, Date of birth, Medical Record #, Date and time of collection, and collector's initials.
- Specimens must be labeled by the collector who confirmed the patient's identification or by a person who directly witnessed the collection and also confirmed the patient's identification.
- At the bedside, label the tube with the following information; Patient's full legal name or Trauma Name/Number, Medical Record number and date of birth.
- Specimens must be labeled immediately after collection in the presence of the patient.
- No patient identification on the specimen should be altered or removed.
- Sample Collection:
- All samples are collected in a 6 mL **Pink** (k2EDTA )\*Invert Tube 10 times after drawing. Specimen must be well mixed.
- Minimum requirements: Adults: 3 mL whole blood Pediatric: 2.0 mL whole blood, Cord Blood 0.5 mL
- Rejection of Specimens:
- **Specimens inadequately labeled will be discarded-No Exceptions.**
- Specimens without identification or incorrect identification.
- Specimens lacking the required two patient identifiers
- Specimens without initials of person collecting the sample
- Specimen is not of sufficient quantity
- When in doubt on the type and/or quantity of blood components necessary to treat a patient, telephone the blood bank department for consultation. Phone 440-329-7453

- **ABO Group & Rh Type**

Applies to:  
Blood type, Grouping and Rh blood, Type & Rh  
ABORH (Type) Screen, Group

- ABO Typing: A, B, AB, O
- Rh Typing: Rh positive/Rh negative
- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days;  
Frozen: Unacceptable
- Transport and Storage: Refrigerated

## Laboratory-General Specimen Collection and Handling Guidelines

- **Antibody Detection, RBC**

Applies to: Antibody Screen, Indirect Antiglobulin, Indirect Coombs, SCRN3
--

- Panel identification will be performed on all positive specimens.
- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days;  
Frozen: Unacceptable
- Transport and Storage: Refrigerated.

- **Antibody Titer**

Applies to: Titer
----------------------

- Antibody identification must be performed, at an additional charge, prior to performing this test.
- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days;  
Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **Direct Coombs  
(Anti-Human Globulin)**

Applies to: DAT, Direct Antiglobulin test Direct Antihuman Globulin test.
---

- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days;  
Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **Elution & Antibody  
Identification, RBC**

Applies to: Eluate ID, ELU
-------------------------------

- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days;  
Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **RhoGam**

Applies to: Rho Immune Globulin candidate, Hemolytic Disease of Newborn (HDN)
---

- The following criteria must be met to be a Rho Immune Globulin candidate.
- Mother must be Rho(D) negative .
- Mother must not be already sensitized to the Rh<sub>o</sub>(D) factor.
- Baby must be Rh<sub>o</sub>(D) or Weak D positive.
- Be sure patient meets criteria.
- Issue in LIS.

## Laboratory-General Specimen Collection and Handling Guidelines

- Complete Rh<sub>0</sub>(D) Immune Globulin Injection form.
- Place injection form, and syringe in plastic bag.
- Call location when Rho Immune Globulin is ready. Patient is waiting for injection
- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated 10 days; Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **RH Type Only**

Applies to: Rh (D) Typing, Rh Factor, Rh Type, Rh
--

- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated:10 days; Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **Type & Screen**

Applies to: ABO,Rh (D) Typing, Rh Factor, Rh Type, Rh, TS3, PAT3
---

- Panel Identification will be performed on all positive specimens at an additional charge.
- Stability (Collection to initiation of testing): Ambient (room temperature) 24 hours; Refrigerated: 10 days; Frozen: Unacceptable.
- Transport and Storage: Refrigerated.

- **Type and Crossmatch**

Applies to: Compatibility testing crossmatch ABO, Rh, Antibody Screen and Antibody ID.
--

- Includes: ABO and Rh type, Antibody screen
- Antibody Identification and Antiglobulin Crossmatch is performed on patients with a positive antibody screen or a history of previous red cell antibodies.
- Selected Antigen Testing of patient specimens may be required in patients with red cell antibodies.
- **Preparation for transfusion of blood.** This test is indicated when transfusion is likely within 24 hours; during surgical procedure; for pre-surgical patients, in house, and Outpatient Infusion.
- For platelets, fresh frozen plasma, and cryoprecipitate, there must be a blood type (ABO Rh) on current admission or two previous in history. This applies to all in- patients and Emergency room.
- For FFP (Fresh Frozen Plasma) patient must have two blood types (ABO Rh) on file before transfusion of ABO specific plasma can be administered. AB plasma will be issued in an emergency.
- Recurring outpatient series account (Infusion center) patients will not require recurring testing of blood type for platelets, fresh frozen plasma, and cryoprecipitate
- However, there must be two blood types on record. At least one of the typing must have been performed within the last year.
- **Storage:** Crossmatched blood will be held for a patient for 3 days. After that time it will be released without notification to the physician.
- It is the physician's responsibility to notify the blood bank if needed after this time. And a new type and screen will be required.
- Blood components that are crossmatched (i.e. whole blood, packed red blood cells and granulocytes require a current type and screen before these components can be released.)
- **Expiration:** Patient sample is used for crossmatch or antibody screen only if it is less than 3 days old.
- When it is known that the patient has not been recently transfused or pregnant, this can be extended to 14 days, for pre-surgical patients.

## Laboratory-General Specimen Collection and Handling Guidelines

- **Specimens:** Blood bank specimens are kept for a minimum of 7 days following any transfusion including Pre-Admission testing samples.
- A segment from each unit of red blood cells or whole blood transfusions will also be saved for a period of 7 days following a transfusion.
- Separation of the patient's plasma from the patient's cells should not be routine practice. The cells and plasma should be stored in the original collection tube.

- **Transfusion Products**

Applies to: Compatibility testing crossmatch
---

- **Fresh Frozen Plasma (Adult)**
  - Available at all EMH facilities, Elyria.
  - Compatibility testing is not necessary.
  - Two historical types are needed before type specific product can be released.
  - Order a second blood type group (VERAB)) if necessary\_will be ordered by the blood bank.
- **Platelets (Adult)**
  - Available at all EMH facilities Elyria.
  - Compatibility testing is not necessary.
  - Patient must have a record of ABORH on current admission or two previous admissions.
- **Cryoprecipitate (Adult)**
  - Available at all EMH facilities, Elyria.
  - Compatibility testing is not necessary.
  - Patient must have a record of ABORH on current admission or two previous admissions.
- **Red Blood Cells (Adult)**
  - Available at all EMH facilities, Elyria.
  - Compatibility testing is necessary,
  - If patient does not have a Group and Rh history in file a second Group(VERAB) will be required before crossmatch can be completed Exception: Emergency Issue (see below).

- **Transfusion reaction**

Applies to: Compatibility testing crossmatch
---

- Documentation and notification to Blood Bank are required for the following.
- Any suspected transfusion reaction: Fever, chills, hypertension, hypotension, apprehension, pain at site of infusion, tachycardia, nausea, vomiting , headache, backache, urticaria, rash, breathing difficulties, or a change in the color of the urine (i.d. red)
- Adverse outcome from transfusion: Heart failure, pulmonary edema, acquisition of blood borne disease from transfusion.

## Laboratory-General Specimen Collection and Handling Guidelines

- **Crossmatch**

Applies to: Crossmatch requests See also Pre-Admission testing, Type and Crossmatch
---

- Patient must have current type and screen order for this stay
- Type and Screen orders expire after three days unless a PAT (see pre admission section)
- Order product type (i.e. RC) and number of units required
- If patient does not have a Group and Rh history in file a second Group (GRP X2) will be required before crossmatch can be completed **Exception: Emergency Issue** (see below)

- **Delivery and transport**

- In-house request: Anyone who comes to pick up ordered blood products from blood bank must present with Blood product release order requisition form. See Transfusion product section.
- Only one product type can be issued at one time for a single patient. Multiple patient pickups are not allowed.
- Infusion Center: Routine ordered blood products, blood bank will arrange for delivery via EMH transportation

- **Returning Unused Blood**

- If blood is not transfused, unit must be returned to the blood bank within 30 minutes of the time that it was issued.
- Note: Blood must be stored in a Blood Bank monitored refrigerator with an alarm.
- Ward refrigerators are NOT suitable for blood storage.
- Units transported in blood bank coolers to Amherst and Infusion center or on dumb waiter will maintain temperature for 24 hours.
- 

- **Pre-Admission Testing**

Applies to: Pre-Admission Testing, See also Type and Crossmatch section.
--

- PAT specimens expire 3 days after date of surgery and may be collected up to two weeks prior to surgery date. As long as the patient has not been transfused or pregnant in the previous 3 months.

- **Emergency Issue of Blood Products**

- **Request for Emergency Issue of Blood Products:**
- EMH testing only
- Place order for type and screen in HIS.
- Order number of Red Blood Cells (RC) required.
- O Negative Red blood cells will be issued and AB plasma will be issued in an emergency
- Red blood cells' will be issued as uncrossmatched and will require signature of requesting physician.
- **Call Blood bank to alert staff of the need for Emergency issue.**
- **The signature of the ordering physician or designee is mandated by the FDA.**