Backus

The William W. Backus Hospital

Directory of Services

POWERED BY

Quest Diagnostics®

Nichols Institute

The CPT Codes provided in this document are based on AMA guidelines and are for informational purposes only.
CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payor being billed.

Contents

General Information

BILLING

CLIENT BILLING

An invoice is sent at the beginning of each month detailing the previous month's services, unless an alternate billing cycle has been agreed to for your account. The following information may be provided if submitted with the order:

- Patient Name
- Date of Service
- Accession Number
- Testing performed
- CPT codes
- Test Price
- Patient/Lab ID
- Referring Physician name/number

Payment is due upon receipt. Late payments may result in additional charges. Transfers/rebillings must be submitted within 45 days or the invoice will be considered correct and adjustments will appear on subsequent invoices. Requests received after 45 days may not be processed.

PATIENT BILLING

If requested, or as required by law, Backus Labs will bill patients directly within the United States and a Patient Fee Schedule will apply. These fees vary from those charged to physicians/clients. Panels and/or profiles that do not conform to specific CPT codes will be billed as the individual test components performed. The patient's full name and address must appear on the test request form.

We participate with a variety of traditional insurance plans and managed care organizations (HMOs and PPOs). Please contact our Client Services Department (860-823-6307) or see our website (http://www.backushospital.org/labs.html) for an up-to-date list of those plans. When a patient requests insurance billing from a participating plan, please provide the applicable diagnosis information from an International Classification of Diseases (ICD-9) code manual and request that we bill the insurance carrier. When appropriate, we will bill the patient upon receipt of a claim rejection. Insurance plans are billed at the same prices billed to patients.

THIRD PARTY AND CONTRACT BILLING

Third party carriers can be billed directly if complete information is provided on the test request form or order screen. Your patient will be billed for amounts not covered or paid by their insurance. Check the third party billing box on the test request form. You must provide: the patient's name, street address, city, state, zip code, area code/telephone number, date of birth, sex, referring physician name, UPIN, provider ID or NPI, ICD9 code by specificity, the responsible party's name and relationship to patient, ID or policy number and group number. Attach a copy of the patient's insurance card to the request. If the required information is not provided, the client may be billed for payment. For a listing of insurance carriers contracted by Backus Labs, please contact our Client Services Department (860-823-6307) or see our website (http://www.backushospital.org/labs.html).

MEDICARE AND MEDICAID

Direct billing to Medicare and various Medicaid programs is available. Check the appropriate billing box on the Medicare or Medicaid test request form or electronic order screen then provide the following: patient name, address, city, state, zip code, phone number, date of birth, sex, Medicare or Medicaid policy number, insurance card copy, ICD9 code by specificity, referring physician name and UPIN number for Medicare patients or referring physician Medicaid provider number for Medicaid patients. A physician signature is required in order to bill Medicaid.

MEDICARE

Under the Medicare statute, a laboratory must bill Medicare directly for clinical laboratory services. Physicians may not bill the Medicare program for laboratory tests they do not perform.

Clinical diagnostic laboratory tests are reimbursed on the basis of a fee schedule. The following procedures are exempted from fee schedule reimbursement:

- Clinical pathology consultations
- Blood bank services
- Blood smears with written interpretations
- Certain other cytopathology services
- Bone marrow smears and biopsies
- Surgical pathology services

Medicare reimburses for these procedures at 80% of the approved amount and requires that the patient be billed for the remaining 20% copayment and any applicable deductible amounts.

When ordering tests for patients under Medicare, physicians or authorized individuals should only order tests that are medically necessary for the diagnosis and treatment of a patient, rather than for screening purposes. The Office of the Inspector General takes the position that a physician who orders medically unnecessary testing may be subject to civil penalties.

General Information

The Centers for Medicare and Medicaid Services (CMS) has implemented uniform National Coverage and Administrative Policies for clinical laboratory services that ensure the medical necessity of certain services rendered to Medicare beneficiaries. In addition to the National Coverage Policies subject to National Coverage Determination (NCD), CMS allows Medicare Contractors to develop their own Local Coverage Determination policies (LCD). These LCDs vary among Medicare carrier jurisdictions. Many of the procedures subject to NCD or LCD are for clinical laboratory testing. These tests are often referred to as Limited Coverage Tests.

Medicare Contractors require medical necessity documentation in order to determine coverage for tests that are subject to NCD or LCD. A carrier will deny coverage for a limited coverage test when it is submitted without specific diagnosis information that supports the medical necessity for the testing. Documentation of medical necessity for laboratory tests is reported to the carrier with a code from the International Classification of Diseases (ICD-9). ICD-9 manuals are available from various publishers.

Whenever you order a test that is subject to NCD or LCD, an ICD-9 code is required on the test request form. The ICD-9 code should indicate the medical necessity that you believe is appropriate for the test. Please provide the ICD-9 code that most accurately describes the patient's condition. Do not choose a code merely to secure claim payment. ICD-9 codes must be provided in valid format, including 4th and 5th digit specificity when required. The ICD-9 code that you provide must appear in the patient's medical records in order to support the necessity of the testing in the event of a post-payment review.

ADVANCE BENEFICIARY NOTICE

In the event that a test is determined by Backus Labs to be medically unnecessary, the laboratory may only bill the patient if an Advance Beneficiary Notice (ABN) has been completed and signed by the patient before the time that the specimen is collected. Medicare's medical necessity requirements for coverage may not always be consistent with the reasons why you believe a test is appropriate for a patient. Nevertheless, when you have reason to believe that a test may be considered medically unnecessary by Medicare, the patient should be asked to sign a completed ABN. A new ABN must be completed and signed each time such conditions exist. An ABN signature may not be requested solely on the basis that a test being ordered is subject to NCD or LCD.

The ABN ensures that the patient understands that he/she will be responsible to pay for any services marked on the form that Medicare does not cover for one of the following reasons:

- The test is subject to NCD or LCD and the diagnosis for which the test is ordered is not considered to be indicative of medical necessity by Medicare.
- The test is ordered more frequently than Medicare considers medically necessary.
- The test is for research or investigational use only and is not approved by the Food and Drug Administration.

All of the information on the ABN must be completed. The test(s) that you believe will be considered medically unnecessary must be clearly marked. If you must write in a test name on the ABN, please write the test name as it appears on the test request form. Do not use synonyms or abbreviations.

Please be sure that the patient reads, understands, and signs the ABN prior to the specimen being collected. The form must be dated and the date should correspond to the date on which the specimen is collected. If the patient is unable to sign, the form should be marked with an "X" and the patient's guardian, guarantor, or other responsible party should sign the form.

ABN forms are available for those clients who order Medicare tests electronically. A bar code label for the accession related to the ABN should be placed in the upper right hand corner of the ABN. The completed ABNs should be placed in a separate envelope and sent directly to the billing department.

MEDICAID

As with Medicare, most Medicaid programs do not allow physicians to file claims for services they do not perform. If the patient is enrolled with an additional insurer, such as Medicare or a private carrier, Medicaid can only be billed after those parties have been billed. Please be sure to provide all necessary billing information on the request form, including the ordering physician's original signature and Medicaid provider identification number. In cases where the patient is enrolled in a Medicaid HMO program, please verify that we are a participating provider with that program before submitting specimens for testing.

Medicaid carriers require diagnosis information in order to process a claim. This information is reported to carriers with a code from the International Classification of Diseases (ICD-9). ICD-9 manuals are available from various publishers. Diagnosis information should be provided in ICD-9 format when Medicaid billing is requested.

CUSTOMER SERVICE

At Backus Labs, our commitment to customer service excellence is evident in our framework for success, which includes our mission, philosophy, management policies and procedures, and tools. Quality customer service is imperative in laboratory medicine. Managers from all disciplines meet daily to discuss issues that impact our clients. Issues are assigned to the responsible managers and prompt resolution is expected. The Client Services Department tracks resolution and monitors trends. Though there is nothing unique about the concept of holding a daily meeting attended by all management, what makes our Client Services Department so special is that improvements are made cooperatively and in real time. We are committed to applying these changes and reengineering the way we do business in response to our clients' needs.

QUALITY ASSURANCE

The Quality Assurance department actively monitors quality performance indicators for the entire process of laboratory services, from specimen submission to laboratory performance, reporting, and billing. Performance is measured through customer surveys, employee surveys, audits and

General Information

process measures. These indicators are used to identify quality improvement opportunities that are then implemented. All indicators and activities are closely monitored by the Management Team. Process improvement is driven using tools such as Six Sigma, FMEA, and Root Cause Analysis.

SUPPLIES

To order supplies and lab requisitions call our Client Services Department at 860-823-6307. Supplies include such items as blood collection tubes, urine tubes/collection containers, specimen bags, and specialized collection kits. Specimen collection/container information is detailed in the Alphabetical Test Listing section.

LAB REQUISTIONS

Lab requisitions can be ordered in one of two ways:

– By calling our Client Services Department (860-823-6307);
– By accessing our lab requisition website - https://elmpress.myprintdesk.com/login (client set up is required to utilize this feature - contact Client Services).

Customized lab requisitions can be created for individual physician offices. Requisitions can be customized to include frequently-ordered tests, and commonly-used diagnosis codes. Physician information, including physician names and addresses, can be customized also. For information on creating a customized requisition, contact our Client Services Department.

TESTING POLICIES

CANCELLATIONS

Tests may be cancelled without charge while specimens are in transit. For cancellation requests call our Client Services Department at 860-823-6307.

SPECIMEN RETENTION

After testing is completed, samples are retained for specific durations and then discarded. The retention times for all samples will vary and are based on such criteria as:

– state and federal regulations
– test manufacturer's recommendations
– deterioration of the analyte
– CAP requirements and NCCLS guidelines
– acute/convalescent testing requirements
– pending litigation

Please call Client Services for more details.

PHLEBOTOMY SERVICES- HOUSE CALLS

Our Laboratory's Phlebotomy Service Department provides house call phlebotomy services to patient that are home bound for medical reason and cannot leave their residence except for medical or religious reasons. To see if a patient qualifies please contact the laboratory's Client Services Department at (860) 823-6307.

NURSING HOME/ASSISTED LIVING SERVICES

Specimen collection services are provided to clients with a signed service agreement. Routine nursing home collections are available Monday – Friday beginning at 6:00am. Routine collections are not available after 11:00am on Monday – Friday. Routine services are not available on weekends and holidays. To schedule a routine collection please contact the laboratory's Client Services Department at (860) 823-6307.

For those facilities that have a priority service clause in their contract, priority service is available for laboratory tests which are marked with an asterisk (*) in the Laboratory Service Manual. A priority phlebotomy fee is added to ALL priority requests and this charge is billed directly to the facility requesting the services.

Specimens not requiring a technician for specimen collection (i.e. stools, urines, and cultures) are **not** considered a priority for pick up. Samples collected by nursing home personnel should be delivered to the William W. Backus Hospital if priority results are requested. A priority fee will not be charge for these specimens.

PHYSICIAN OFFICE COURIER

The laboratory provides physician office courier services at no charge. Courier visits are scheduled on a daily, weekly or on an as needed basis. We normally schedule one stop per day at the time requested by the physician. However, other options are available. The service includes the delivery of laboratory reports to the physician's office, pick up and delivery of patient samples to the laboratory, and the transport of mail between the hospital and the physician's office. To schedule a courier stop, please contact the laboratory's Client Services Department at (860) 823-6307.

Computer access to laboratory results and electronic transfer of lab reports is available to physician offices. To request a computer access or electronic reports contact the laboratory's Client Services Department at (860) 823-6307.

Specimen Collection

GENERAL GUIDELINES

Specimen requirements generally include the requested volume, storage temperature, and any special handling notes. The requested volume provides us with enough specimen to run at least two performances of the assay either singly or in duplicate. The minimum volume allows one single analysis including instrument dead volume. Storage temperature is either room temperature (15 -30˚C), refrigerated (2 to 10˚C) or frozen (-20˚C to -70˚C). If the temperature is not indicated, the sample may be stored and shipped at the temperature that is most convenient for you.

For panels or multiple assay requests, samples should be submitted with the physician's priority of determination on the Test Request Form. If the volume is not enough to run all the tests our Client Services department will contact the physician.

If repeat or confirmatory tests cannot be performed, the report will indicate that the specimen quantity submitted was "QNS" (Quantity Not Sufficient) for additional testing. When serum or plasma is submitted for analysis, it is good practice to collect a volume of blood that is 2 to 2.5 times the volume of serum or plasma needed for the test. When an inappropriate specimen or unclear test request has been submitted, you will receive notification with instructions for resolving the problem.

IT ALL BEGINS WITH YOU

Although the quality of laboratory test result is dependent on many variables, it all begins with you. Your care, skill, and knowledge when preparing the patient and specimen are essential to the provision of the highest quality standards for testing and services. The patient must be properly prepared so that the best possible specimen can be collected. Also, the specimen should be properly processed, packaged and transported to the laboratory in a timely manner and under environmental conditions that will not compromise the integrity of the specimen. After all of these activities take place, a quality analysis can be performed. The specimen collection and handling process can be completed by you and your staff, or by referring your patient to a Backus Labs Patient Service Center (see our website for locations (http://www.backushospital.org/labs.html). Please contact the laboratory with questions, prior to collecting the specimen.

HEALTH AND SAFETY PRECAUTIONS

Specimens must be handled in a safe manner and according to applicable legal requirements or guidance. Information on safe specimen handling may be obtained from the U.S. Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC). In handling human specimens, the goal is to protect health care workers, ancillary staff, as well as the general public from exposure to blood and to other potentially infectious body fluids. Besides following other specimen preparation procedures included in this directory, you should ensure that there is no leakage from or visible contamination outside the specimen container and that there are no needles or other sharps in the package that could cause injury or pathogenic exposure to anyone handling or opening the package and inner containers. We reserve the right to refuse to accept any transports that pose a safety hazard to employees.

PATIENT PREPARATION

Many tests require that the patient be prepared in a specific way to ensure useful results. The best analytical techniques provide results that are only as meaningful as the quality of the specimen that has been submitted for analysis. Our goal is to provide you with the most useful diagnostic information possible. If you have questions about patient preparation for any test, please consult the General Test Listing section in this directory or call Client Services for further assistance.

FASTING REQUIREMENTS

For the majority of tests performed on serum, plasma or whole blood, a fasting specimen is preferred. Non-fasting specimens often contain fat particles that can interfere with many analytical procedures.

PATIENT AGE

It is helpful to indicate patient age and date of birth so that appropriate reference ranges can be assigned for reporting purposes. On occasion, patient age will assist the technologists in choosing the appropriate initial sample dilution for the assay.

LABELING SPECIMENS

Each specimen submitted must be properly labeled. Be sure that the label is securely attached. Use a ballpoint pen. Do not use a felt tip pen. Each specimen must be labeled with the patient's name (written exactly as it appears on the test requisition), date of birth, and date of collection , and time of collection. The person collecting the specimen must also sign or initial each tube or container.. Place the label lengthwise on the tube. If you send a specimen in a transfer tube, also indicate specimen type on the label. When ordering tests in a series (e.g., growth hormone stimulation, glucose tolerance, multiple-site renin specimens):

1. Use one test requisition
2. Label each specimen with the patient's name, date of birth, date and time of collection, and site (if applicable)
3. Write the number of specimens on the test requisition
4. Send all specimens within a series together in one specimen bag.

Specimen Collection

PACKAGING SPECIMENS

1. Ensure that all specimen container caps and lids are properly tightened to prevent leakage.
2. Complete the "Patient Information" and "Insurance Information" sections on the test requisition. Enter the ICD9 diagnosis codes that match the patient's diagnoses to provide medical justification for the tests ordered. Complete the billing information.
3. Label the specimen as per the above requirements. Place the label on the container so that the label does not cover the handwritten patient name on the container.
4. Fold the top copy (original) of the test requisition in half width-wise (top to bottom) with the patient's name and bar code facing out. Retain the second copy for your files.
5. The specimen bag has two pouches. Place the specimens in the rear pouch and the test requisition in the front pouch.
6. FROZEN specimens must be placed in a separate specimen bag along with a separate test requisition. Frozen specimens cannot be split for multiple tests. If more than one test is ordered on a single frozen sample, we will call you to decide which test you want performed before testing can proceed.
7. Remove the protective strip and seal the specimen bag. This will protect the test requisition from leakage.
8. If the specimen has already been classified as an "infectious substance," inform Backus Labs services before or at time of courier pick-up so that proper transport arrangements can be made.

Any updates to these guidelines (or to the specimen transport supplies) will be communicated through your representative or courier.

PROPER SPECIMEN PACKING HELPS TO EXPEDITE YOUR ORDER.

STORING AND SECURITY OF SPECIMENS

Maintain specimens at room temperature or on cool packs, unless otherwise noted in the "Transport Temperature" section of the General Test Listing. Backus Labs will provide a "lock box" for specimens awaiting pick-up by a Backus Labs courier- however the client is responsible for the security of the specimens prior to pick-up by the Backus Labs courier.

NEEDLES, SHARPS OR MEDICAL WASTE

Do not send any needles or other breakable medical equipment. Sending medical waste as a diagnostic specimen violates the law and may create a health hazard. Properly discard used needles or other sharps prior to transport. For tests requiring the submission of syringes, the needle must be removed from the syringe and discarded and the syringe capped before sending to the laboratory.

TRANSPORTATION BAG

Specimen containers should be placed in a transportation bag with the proper specimen labeling and the paperwork in the side pocket. In all cases use of appropriate containers and packaging for specimens is important as leaking packages can pose a health hazard.

INFECTIOUS SUBSTANCES

Most specimens can be classified "diagnostic." However, specimens with a higher potential to transmit severe, disabling or fatal diseases must be declared and packaged as "infectious substances." To send an infectious substance check with the DOT, CDC or public health authorities to determine the Risk Group of the specimen and how the specimen should be packaged for transport.
For example a Risk Group 4 specimen will need to be packaged as a DOT or IATA infectious substance. In addition, some air carriers may not consider some specimens in other Risk Groups suitable for air transport.
Note: We will not be responsible for any liability attributable to the shipper's improper actions or failure to comply with any applicable legal requirements. We also reserve the right to refuse to accept any transports that do not meet legal requirements.

SUPPLIES

We provide certain supplies that are necessary to draw and send specimens for analysis by Backus Labs.

The type and quantity must correlate to the number of specimens submitted to Backus Labs. Therefore, only use our supplies to collect and send specimens to our lab. Our supplies should not be used to store or dispose of biological materials, sharp instruments, etc., or for any other use not connected with the collection of specimens for testing by Backus Labs.

Specimen Collection

SERUM, PLASMA OR WHOLE BLOOD COLLECTION

Draw approximately 2 1/2 times the requested volume of blood in the color-coded Vacutainer® tube indicated in the specimen requirements instructions. For serum - allow the blood to clot 30 minutes and separate by centrifugation. For plasma and whole blood - fill the Vacutainer completely to eliminate dilution from the anticoagulant or preservative and immediately invert the tube 5-10 times to mix the blood gently and thoroughly. Separate plasma by centrifugation. Transfer the serum, plasma or whole blood to a plastic transport tube. To prevent injury and exposure to infectious material, do not ship frozen serum, plasma, or whole blood in glass tubes or SST (glass or plastic).

The color-coded Vacutainer tubes on the inside cover are recommended unless otherwise indicated in the alphabetical test listing. Color-coded pediatric Vacutainer tubes are provided to facilitate special handling.

Most blood specimens can be obtained using routine phlebotomy techniques; however, there are some exceptions. The use of a tourniquet can cause stress and is not recommended in some cases. The patient's posture either sitting, standing or lying down, or the time of day relative to the patient's sleep cycle can be important factors in some tests and will be listed in the test instructions.

WHOLE BLOOD

Thoroughly mix the blood with the additives by gently inverting the tube 8 times (4 times for light blue-top, sodium citrate). Keep the blood at room temperature or on cool packs and do not freeze unless otherwise indicated in the specimen requirements. If cool packs are frozen, allow enough time to warm to refrigerator temperature; and to minimize hemolysis, don't put specimens in direct contact with cool packs.

PLASMA

Plasma contains fibrinogen and other clotting factors when separated from the red blood cells. Evacuated tubes contain anticoagulant and sometimes a preservative, and the additive in each tube is labeled and tube stoppers are color coded. Remember to write plasma on the plastic screw-cap vial for transport and the test requisition.

CENTRIFUGATION INSTRUCTIONS:

1. Draw 12 mL of whole blood for 5 mL plasma in appropriate collection tube.
2. Centrifuge for at least 15 minutes at 2200-2500 RPM.
3. Pipette into a clean plastic, screw-cap vial and attach the label. Do not transfer red cells to the vial. Screw cap firmly to prevent leakage.

SERUM

Please check individual specimen requirements for restrictions. When using a serum separator tube, follow these instructions:

1. Perform venipuncture as with any other blood collection device.
2. Invert the tube gently no more than 8 times. Further inversion may cause alterations in sample integrity.
3. Do not centrifuge immediately after drawing blood or remove the stopper at any time. Clot in an upright position for at least 30 minutes but not longer than 1 hour before centrifugation.
4. Centrifuge for at least 15 minutes at 2200-2500 RPM within one hour of collection.
5. Transfer to a plastic screw-cap vial. Serum should be clear and free from all red cells. (For therapeutic drug monitoring or toxicology analysis do not use serum separator tubes because the plastic serum separator material extracts lipophilic substances [most drugs], resulting in a false low drug concentration result. Use a plain red-top tube containing no anticoagulants or preservatives.)

ORDER OF DRAW

When collecting multiple specimens, the order in which tubes are drawn can affect some test results. Below is a listing of correct order of draw by the vacuum tube and syringe methods.

A. VACUUM TUBE DRAWS

1. Tubes for sterile specimens (blood cultures)
2. Tubes without additives (red top)
3. Coagulation/sodium citrate (light blue top)
4. Serum separator -SST (red/gray top)
5. Sodium heparin (dark green top)
6. EDTA (lavender/dark blue top)
7. Oxalate/fluoride (gray top)

B. SYRINGE DRAWS

1. Tubes for sterile specimens (blood cultures)
2. Coagulation/sodium citrate (light blue top)
3. EDTA (lavender/dark blue top)
4. Sodium heparin (dark green top)
5. Oxalate/fluoride (gray top)
6. Serum separator-SST (red/gray top)
7. Tubes without additives (red top)

Specimen Collection

Frozen Serum or Plasma Specimens

- Freeze the specimen as soon as it is separated and always freeze in plastic tubes unless instructed otherwise.
- Lay the tube at a 45° angle to avoid breakage caused by expansion during freezing. Do not freeze plastic Serum Separator Tubes. An exception is plasma submitted in a PPT tube; the plasma can be frozen and transported in the original PPT tube.
- Extreme cold may cause plastic labels to become brittle and detach from the tube. Use clear tape to secure label.
- If more than one test is requested on a frozen specimen, split the sample prior to freezing.
- Use a separate test requisition for frozen specimens and mark if it is serum or plasma.

If more than one test is ordered on a single frozen sample, we will call you to choose which test to perform prior to performing testing.

COMMON CAUSES OF UNACCEPTABLE SPECIMENS AND INACCURATE RESULTS

HEMOLYSIS

Hemolysis occurs when the membrane surrounding red blood cells is disrupted and hemoglobin and other intracellular components escape into the serum or plasma. Hemolyzed serum or plasma varies in color from faint pink to bright red, instead of the normal straw color. Grossly or moderately hemolyzed specimens may be rejected and even slight hemolysis may alter certain test results.

HYPERBILIRUBINEMIA

Icteric serum or plasma varies in color from dark to bright yellow, instead of the normal straw color. Icterus may affect certain determinations. Icteric specimens may be rejected.

TURBIDITY (LIPEMIA)

Turbid, cloudy or milky serum (lipemic) may be caused by fatty substances (lipids) in the blood. Bacterial contamination may also cause cloudy serum. Moderately or grossly lipemic specimens may alter certain test results. Food can produce transient lipemia, so we recommend fasting for 12-16 hours before collection.

STOOL COLLECTION

- Carefully read the specimen requirements.
- Collect timed specimens in a pre-weighed, well-sealed container (available from the laboratory).
- Determine the weight of the sample
- Mix contents of timed sample well to obtain a homogeneous mixture.
- Remove the required aliquot to a screw-cap plastic container and seal well.
- Record the total weight and collection time on the container and the test requisition. Do not send the entire collection unless specified.
- For instructions for stool cultures, refer to the Microbiology section in this directory.

URINE COLLECTION

RANDOM URINE

The composition of urine varies considerably during a 24-hour period. Most reference values are based on analysis of the first morning voided urine because it has a more uniform volume and concentration and a lower pH helps preserve the formed elements. To reduce contamination, the specimen should be a clean catch "mid-stream" sample.

Urine for *pregnancy testing* should be first morning void, or a random specimen with a specific gravity of at least 1.010. Note the time of collection of the specimen on the test requisition and on the label of the container.

Urinalysis specimens must be submitted in a yellow/red swirl-top preservative tube. If a frozen specimen is required, freeze the urine immediately after collection. Pack in dry ice for transport.

Urine for chemistry testing must be collected in a specimen container that does NOT contain any preservatives. Appropriate specimen containers to use include urine collection cups, plastic urinalysis tubes, or plain yellow top collection tubes.

24-HOUR URINE

Many urine chemistry tests require a 24-hour collection. If a preservative is required, use the preservative at the start of collection. When the 24-hour urine output is less than 1 liter, if boric acid is the preservative use 4 grams and if 6N HCl is specified use 10 mL. º,Caution the patient that the preservative may be toxic and not to spill or discard.

Important Note: For those analyses requiring the addition of 6N HCl, add the acid at the start of collection. Have the patient collect each voiding in a smaller container and carefully pour the urine into the 24-hour container to avoid any possible acid burns (make sure the patient understands the hazard presented by the acid preservative). Be sure to mix urine thoroughly before removing the aliquot.

Because proper collection and preservation of 24-hour urine specimens are essential for accurate test results, patients should be carefully instructed in the correct procedure.

COLLECTION INSTRUCTIONS:

1. Unless the physician indicates otherwise, instruct the patient to maintain the usual amount of liquid intake, but to avoid alcoholic beverages.
2. During the collection period, place the 24-hour urine container (with preservative if applicable) in a refrigerator or cool place to prevent growth of microorganisms and possible decomposition of urine constituents.

3. Have the patient empty his/her bladder in the morning into the toilet (not to be included in the 24-hour collection). Write the date and time of voiding on the container label.
4. Collect the next and future voids and add as soon as possible to the 24-hour container until the first void the next morning at the same time recorded on the previous day.
5. Mix the contents of the container gently but thoroughly. Examine to ensure that the contents appear homogeneous.
6. Measure and note the total volume of urine.
7. Transfer the required amount to the plastic screw-cap plastic containers.
8. Record the total 24-hour urine volume on the specimen container and on the Test Requisition.
9. If required, refrigerate the aliquot until it can be sent to the laboratory. For frozen specimens, freeze before packing in dry ice for transport. Ensure the lid is properly tightened to prevent leakage.

DRUG TESTING

Urine specimens for drug testing must be collected and sent with no preservative.

MICROBIOLOGY DEPARTMENT

860-889-8331, ext. 2384 or Client Services 860-823-6307

The Microbiology laboratory offers a broad range of services for the diagnosis of infectious diseases, including bacteriology, mycology, parasitology and serology.

Appropriate diagnostic techniques are applied for most routine specimen types. For example, if a brain abscess sample is received, Gram's stain, aerobic and anaerobic bacteriologic cultures are performed routinely. However, certain organisms require special procedures for collection or processing. Examples are: *Legionella, Bartonella, Brucella, Nocardia,* viruses and many molds. Therefore, please contact the laboratory if a specific pathogen is suspected.

The technologists in the laboratory are available to assist clinicians who wish to review slides or other results. In addition, the Medical Director is available to provide consultation concerning diagnostic or interpretive problems.

A. DIRECT DETECTION OF MICROORGANISMS

A number of pathogens can be detected directly by staining smears made from infected patient specimens.

Bacterial and fungal (yeast) pathogens are most commonly visualized by Gram's stain, which is routinely performed on sterile tissue and body fluid specimens, sputum and deep wound specimens. It may also be specifically ordered on other types of specimens.

Specimens for mycobacterial detection are stained using a direct method and positive results are phoned STAT to the requesting physician.

Wet mounts for fungi, cryptococcal antigen testing, *C. difficile* toxin testing, and stains for parasites are available as described in the alphabetical listing of tests. Molecular testing for the direct detection of *Chlamydia trachomatis* and *Neisseria gonorrhea* are also available.

B. BACTERIOLOGY

Significant aerobic isolates will be identified and tested for susceptibility to a variety of oral and parenteral antibiotics. The antibiotics tested and the method of susceptibility testing will depend on the species and the specimen type.

Specimens for anaerobic culture must be transport anaerobically. Specimens transported anaerobically are also acceptable for aerobic bacteria, fungi and mycobacteria, provided that sufficient material is submitted. Tissue and syringe aspirates are far superior to swabs for recovery of anaerobes, fungi and mycobacteria.

A full work-up of all organisms from a specimen in which more than two or three organisms are present is rarely clinically useful. When this "mixture" of microorganisms resembles the normal flora expected from that specimen type, they will be reported as such. If you have any questions about how the specimen should be worked up, contact the Microbiology supervisor.

C. MYCOBACTERIOLOGY

Direct smears for the detection of AFB are performed at Backus Labs. Cultures are referred to the Connecticut State Laboratory for isolation and susceptibility.

D. PARASITOLOGY

Stool parasites are detected by examination of concentrates and by stained smears of stool material.

E. SEROLOGY

Commonly ordered tests include Mononucleosis, Syphilis and Lyme Western Blots. Hepatitis markers, as well as HIV antibody testing is performed by the Chemistry Section.

MICROBIOLOGY SPECIMEN COLLECTION GUIDELINES

Proper specimen collection and transport is essential to obtain valid results. The WWBH lab maintains a supply of collection devices that, when used appropriately, helps maintain microorganism viability during transport. The laboratory supplies appropriate swabs, containers and special collection kits to be used for specimen collection. Most transport devices have expiration dates that must be observed for optimum performance.

All specimens must be labeled with patient's last and full name, date of birth or medical record number, source and date of collection. Transport all specimen containers in the appropriate biohazard container.

Specimen Collection

BLOOD SPECIMENS

BACTERIAL BLOOD CULTURE

If possible, blood cultures should be drawn before antimicrobials are started. If more than one blood culture set is ordered and the physician does not specify drawing times, draw the sets 10 to 15 minutes apart and / or draw from different sites.

BLOOD CULTURE COLLECTION

- Follow the procedure for venipuncture outline in the laboratory specimen collection manual.
- With an alcohol chloraprep sponge scrub the skin over the venipuncture site using a back and forth motion for at least 30 seconds.
- Allow it to dry for at least one minute. **Timing is critical!**
- If the site must be touched again after it has been prepared, the fingers must be similarly disinfected.
- Prepare the blood culture bottles by removing the flip-off cap, and swabbing the stopper with alcohol. Do **not** use iodine products! Inspect the bottles for cracks, contamination, excessive cloudiness, and bulging or indented stoppers. **Do not use if any defect is noted.** Be aware that Bactec bottle tops are **not** sterile.

The Bactec Plus Aerobic and Bactec lytic Anaerobic bottles should receive between 8 and 10 mls of blood, and Bactec Peds Plus should receive 1 to 3 mls, but not more than 5 mls. Inoculating blood culture vials with too much or too little blood may affect organism growth.

AFB / FUNGUS BLOOD CULTURE

Blood for AFB and fungus culture should be collected following above blood culture collection technique. Inoculate blood into MYCO/F blood culture vial. Transport blood culture vials at room temperature to the lab ASAP. Do not refrigerate the blood culture vials.

VIRAL BLOOD CULTURE

Blood for virus culture should be collected following above blood culture collection technique in a sodium heparinized (dark green top) or sodium citrated (light blue top) tube. Each tube draws 4.0 ml of blood and should be filled completely. Submit 8 ml (2 tubes) on adults and 4 ml (1 tube) on pediatric patients. Hold and transport at room temperature to the laboratory within 2 hrs of collection.

BLOOD FOR PARASITE EXAMINATION

Collect blood specimen for parasites in EDTA (lavender top) tubes. Detection of blood parasites may require multiple specimen collection. Contact the Microbiology laboratory with patient's symptoms and travel history to determine appropriate drawing times. Transport all tubes at room temperature within 1 hour of collection.

CSF AND OTHER BODY FLUIDS

BACTERIAL/AFB/FUNGUS CULTURES

CSF
Collect CSF specimens in sterile containers and transport to the lab immediately for processing.

ALL OTHER BODY FLUIDS
Place pleural fluid, peritoneal fluid, synovial and any other type of fluid in a sterile, leak proof container. Specimens can be held at room temperature, transport as soon as possible.

VIRAL CULTURE CSF
Collect and transport CSF and other body fluid for virus culture in a sterile, leak proof container. Specimens should be immediately transported to the laboratory on wet ice or stored in the refrigerator if transport is delayed.

EAR CULTURES

External otitis specimen is collected from the external ear canal after first removing any dry exudates and wax buildup. Use a small swab to collect the specimen. After collection insert the swab in a culturette holder and break the ampule to release the culture holding media. Otitis media specimens are collected by performing tympanocentesis. Transport aspirated material in a sterile tube at room temperature within two hrs of collection.

VIRAL CULTURE

Clean the lesion with sterile water (**DO NOT** use alcohol which may inactivate the virus), than aspirate the lesion or swab the fluid. Use special viral culturette or collection kit that contain proper viral transport medium. All specimens for virus cultures should be held at refrigerator temperature or on wet ice after collection and during transport. **DO NOT FREEZE.**

Specimen Collection

EYE CULTURES

BACTERIAL CULTURE
Acceptable specimen sources: conjunctiva, cornea, and eyelid margin, aqueous, vitreous. Specify "right" or "left" eye. Remove exudates before swabbing conjunctiva. Use a sterile swab or calcium alginate swab for specimen collection. After collection, insert the swab in a culturette holder and break the ampule to release the culture holding media. If specimen is collected using a calcium alginate swab, place in a sterile screw cap tube.

Transport specimen at room temperature within 6-8 hrs of collection.

AFB/FUNGUS CULTURE

A corneal scrapping is the preferred specimen and direct inoculation on appropriate media by the physician is preferred. If not possible collect the scrapping in a sterile container and transport at refrigerator temperature to the laboratory as soon as possible.

VIRAL CULTURE
Collect specimens from conjunctiva swabs as well as corneal scrapings from the culture. Place all specimens into viral transport media immediately after collection. Hold and transport specimens on wet ice.

CHLAMYDIA DETECTION
Corneal scrapping and/or conjunctiva specimens for chlamydia are collected with a sterile Dacron tipped swab with plastic or wire shaft swab and placed in a special transport medium. The collection kit is available from the Backus Labs.

STOOL CULTURES

BACTERIAL/AFB CULTURE

Collect stool specimens in a clean, dry container and submit to lab within 1 hr of collection at refrigerator temperature. Specimens contaminated with urine or tissue paper are not acceptable. Do not submit diapers. If a pediatric stool sample cannot be collected, collect a rectal swab.

Routinely the laboratory screens for *Salmonella, Shigella* and *Campylobacter*. If other enteric pathogens such as *Yersinia, Vibiro, E.coli* 0157H are of concern, make a notation on the requisition so appropriate media can be inoculated. On all bloody stool, *E.coli* 0157H is screened as per State of Connecticut requirements.

Note: Rectal swab for Neisseria gonorrhea *should be marked as such for special specimen processing.*

FECAL LEUKOCYTES

Place stool specimens in a clean, dry container and submit to lab within 1 hr of collection at refrigerator temperature. Specimens contaminated with urine or tissue paper are not acceptable. Do not submit diapers.

CLOSTRIDIUM DIFFICILE TOXIN A

Place freshly passed specimen in a clean, dry container. Transport at refrigerator temperature. If transport time is greater than 24 hrs, freeze at -20° C and transport frozen. Specimen submitted in fecal transport medium or contaminated with urine, tissue paper or barium is not acceptable.

VIRAL CULTURE

Most common viral agents are Rotavirus and/or Adenovirus.

Place freshly passed specimen in a clean, dry container. Transport at refrigerator temperature. If transport time is greater than 24 hrs, freeze at -20° C and transport frozen. Specimen submitted in fecal transport medium or contaminated with urine, tissue paper or barium is not acceptable.

Rectal swabs are not acceptable for any virus testing.

OVA, PARASITES AND GIARDIA, CRYPTOSPORIDIUM ANTIGEN

Place the specimens for ova and parasites (O&P) examination in proper transport vials (Unifix) as soon as possible. If transport vial is not available, submit the specimen within an hour after collection at refrigerated temperature. Specimens contaminated with urine, tissue paper or barium are not acceptable. Do not submit diapers. Collection kit containing an instruction sheet and transport is available from Backus Labs. These kits can be sent home with the patient for specimen collection.

It is recommended that three specimens be submitted. If the patient has diarrhea and is symptomatic, collect one specimen each of three consecutive days.

GENITAL TRACT

BACTERIAL AND FUNGAL CULTURES

CERVICAL SPECIMENS
Collect cervical specimens during pelvic examination using a non-lubricated speculum. Use a swab to remove cervical mucus, and then discard. Insert second swab into the cervical canal; rotate and move from side to side. Allow the swab to remain in place for 30 seconds before removing. Take care not to touch the vaginal wall when removing the swab. Return swabs to the plastic tube and crush the ampule. Hold and transport specimen at room temperature. **DO NOT REFRIGERATE.**

Specimen Collection

VAGINAL SPECIMENS
Submit vaginal or vaginal discharge specimens when organisms other than Neisseria gonorrhea and/or Chlamydia are suspected. Dip swabs into the discharge pooled in the posterior fornix of the vagina. After collection, return swabs to the plastic tube and crush the ampule. Hold and transport specimen at room temperature. **DO NOT REFRIGERATE.**

GENITAL BETA STREP SCREEN
Routine screening of Group B streptococcus is recommended during the first and last trimester of pregnancy. Obtain one or two swabs of the vaginal introits and anorectum. Return swabs to the plastic tube and crush the ampule. Hold and transport specimen at room temperature.

URETHRAL SPECIMENS
Culture of the urethra may be indicated in both male and females. Clean the urethral opening with sterile saline water. Insert a small wire shafted swab 2-5 cm into the urethra; rotate and allow it to remain in place for 30 seconds before removal. Place the swab in the transport tube (a standard culturette tube can be used after discarding the larger swab) and crush the ampule. Hold and transport specimen at room temperature. **DO NOT REFRIGERATE.**

CHLAMYDIA/GC BY DNA PROBE

Direct specimen testing for *Chlamydia* is done by nucleic acid amplification using DNA probe.

Neisseria gonorrhoeae is a very labile organism; direct specimen testing using nucleic acid detection may be preferable. A special collection kit is required for genital tract sampling for male and female and contains instructions for proper collection. Kits are available from WWBH lab. Take care not to spill the transport fluid that is in the vial. Screw the cap tightly; hold and transport specimen at room temperature.

CHLAMYDIA CULTURE

Culture for *Chlamydia* requires special transport media (M4 medium) available from WWBH lab. Hold and transport specimens at refrigerator temperature.

VIRAL CULTURE

CERVICAL SPECIMENS
Collect specimens of the cervix for virus culture as described for bacterial cultures. A "viral culturette" or the use of other viral transport media is required. Hold and transport specimens at refrigerator temperature. DO NOT FREEZE.

GENITAL LESIONS
Clean the lesion with sterile water (**DO NOT** use alcohol which may inactivate the virus), than aspirate the lesion or swab the fluid. Use special viral culturette or collection kit that contains proper viral transport medium. All specimens for virus cultures should be held at refrigerator temperature or on wet ice after collection and during transport. **DO NOT FREEZE.**

TRICHOMONAS DETECTION
Collect the vaginal discharge as described for bacterial culture. Place a swab specimen consisting of vaginal discharge in to 1 ml of sterile saline. Transport the specimen at room temperature as soon as possible.

RESPIRATORY TRACT SPECIMENS

SPUTUM, BRONCHIAL WASHING, TRACHEAL ASPIRATES

Sputum is collected early in the morning in a sterile container after the mouth is rinsed with water. Nebulized specimens using mucolytic agents are acceptable and must be labeled as such so that they are not be confused with saliva. Carefully instruct patient to "deep cough" a specimen in to a sterile container. Specimens are examined microscopically to determine the quality. If specimen found to be grossly contaminated with salvia, the specimen will NOT be cultured. Techniques such as broncoscopy for bronchial washing or transtracheal aspiration, etc., provide better clinical specimens since they are free of contaminants compared to sputum, which passes through the oral cavity. Hold and transport sputum specimens at refrigerated temperature.

Please note on the requisition if the specimen is submitted from a patient with cystic fibrosis.

It is recommended three early morning sputum specimens be used for AFB examination, one specimen each of three consecutive days.

THROAT CULTURE/BETA STREPTOCOCCUS SCREEN

Cultures of the throat are made by vigorously swabbing the posterior pharynx. Take care not to touch the tongue or cheeks.

NASOPHARYNX (NP) AND NOSE

Nasopharynx specimens are collected using a small wire-shafted swab. First, clean the excess mucus from the nares and insert the swab into the nose to the posterior nasopharynx. Rotate the swab gently; leave it in place for a few seconds before removing. Throat and NP specimens are not acceptable for AFB culture.

Staphylococcus screen for MRSA should be marked as such for special specimen processing.

If whooping cough or pertussis is suspected, collect the NP specimens using special specimen collection kit. These kits are available from the WWBH lab. This organism is very labile and requires prompt transport to WWBH lab at room temperature.

Specimen Collection

Specimens from throat and NP swabs for viral culture are placed in the viral culturette or other viral transport media. Collection kit containing the appropriate swabs, transport medium and instructions are available form WWBH lab.

RSV ANTIGEN

Preferred specimen for RSV antigen detection is a NP swab, NP washings or NP aspirate collected in a same manner described for bacterial culture.

NP swabs are place in 1 to 3 mL of saline immediately.

NP washing volume of 3-4 mL is required.

NP aspirate in 3 mL saline.

The saline for RSV is available from WWBH lab.

Specimen for RSV requires transporting on ice immediately after collection for processing.

This test is performed on STAT basis 24 hrs a day.

INFLUENZA (FLU) ANTIGEN

Preferred specimens for FLU antigen detection are nasal swabs, NP swabs, NP aspirate or washing, and throat swabs.

Collect the specimen described above for bacterial culture. Special collection swab and transport container is required for FLU antigen detection. These are available from Backus Labs. Transport the specimen at room temperature.

URINE

BACTERIAL/AFB/FUNGAL/VIRAL CULTURES

Patient education in collecting clean catch urine specimen is extremely important in obtaining quality specimen free of skin contamination. It is helpful to have instructions printed for patients to read and follow. Separate instructions for males and females are required.

Use sterile container for urine specimen collection.

Store and transport urine in collection container at refrigerator temperature for up to 24 hours. Collected urine can be transferred into a BD Vacutainer lyophilized urine tube. This is the preferred way to transport the urine specimen. Specimens in this tube type are good for 48 hours at room temperature for processing.

Urine contaminated with feces is not acceptable.

CATHETERIZED URINE SPECIMENS

Hold and transport catheterized urine in a same manner as described above for clean catch urine specimens. If urine is collected from Foley catheter, the catheter should first be disinfected above the connection to the drainage tubing. After disinfection, a needle and a syringe can be used to enter the catheter and aspirate urine. Take care not to expel urine back into the catheter. Urine from the Foley collection bag is NOT acceptable. Collected urine is transferred into the BD Vacutainer lyophilized urine tube. This is the preferred way to transport the urine specimen. Specimens in this tube type are good for 48 hours at room temperature for processing. Note “Foley cath” or “Straight cath” on the requisition.

SUPRAPUBIC AND CYSTOSCOPIC URINE SPECIMENS

Hold and transport cath urine in a same manner as described above for clean catch urine specimens.

If the urine is cystoscopic specimen, mark it clearly since it requires special processing procedure.

If Cytomgalovirus (CMV) is suspected urine specimen, contact microbiology department prior to submittal. It should be marked clearly for proper processing.

PARASITES EXAMINATION

First voided early morning urine specimen is required for parasite examination.

WOUNDS, TISSUES AND EXUDATES

Superficial Wounds, Lesions, Ulcers and Decubitis

BACTERIAL CULTURES

Cultures from these types of specimens are often difficult to interpret, as they are frequently colonized with contaminating skin and environmental flora. Biopsy or aspirates from the edge of the lesion are preferred and should be submitted when possible.

Clean the lesion with sterile saline, removing and dried exudative debris prior to culture. Swab the lesion vigorously; if draining, culture the newly expressed fluid.

Submit biopsies in sterile containers, moistening the specimen with a small amount of sterile non-bacterial static saline. Transport aspirates in sterile containers or tubes. Specimens collected in a syringe should be submitted after removing needle in a biohazard sharp container.

Transport all specimens either in sterile container or culturette swab at room temperature.

Specimen Collection

AFB AND FUNGAL CULTURES

AFB and fungal cultures cannot be performed adequately from specimens collected with a swab; instead, submit skin scrapping or biopsies. Skin scrappings can be collected in a sterile tube by using a sterile scalpel blade. Biopsies specimens are placed in sterile containers and moistened with a small amount of sterile water. Hold and transport at room temperature all biopsies or scrapings.

VIRAL CULTURES

Clean the lesion with sterile water (**DO NOT** use alcohol which may inactivate the virus), than aspirate the lesion or swab the fluid. Use special viral culturette or collection kit that contains proper viral transport medium. All specimens for virus cultures should be held at refrigerator temperature or on wet ice after collection and during transport. **DO NOT FREEZE.**

DEEP WOUNDS, TISSUES AND ABSCESSES

BACTERIAL CULTURES

Biopsies are preferred for deep wound specimens. Transport all specimens in a sterile container or culturette swab at room temperature.

When abscesses are drained, collect the material in a sterile container and submit to lab at room temperature as soon as possible, not exceeding 2 hrs after collection.

Anaerobic bacteria may be involved in these types of infections and appropriate transport must be used to ensure their viability. Anaerobic culturettes are available from WWBH lab and should be submitted in conjunction with a single aerobic culturette.

AFB AND FUNGAL CULTURES

Place tissues/biopsy in a sterile container and moisten with a small amount of sterile water. Swabs are not suitable for performing these types of cultures. Specimens can be held at room or refrigerated after collection and during transport.

VIRAL CULTURES

Tissue specimens are submitted in a sterile transport medium. Hold and transport all specimens at refrigerator temperature or on wet ice. **DO NOT FREEZE.**

Note: Keep tissue specimens separate form microbiological study. If cytological testing is required, place tissue specimens in a container with formalin.

ANATOMIC PATHOLOGY DEPARTMENT:

860-889-8331, ext. 2230 or Client Services 860-823-6307

Anatomic pathology services include surgical pathology (examination of biopsies and specimens removed at surgery, including frozen sections; cytopathology services (the examination of cells in fluids and aspiration); and autopsy pathology.

The services provided by the Cytopathology section included evaluation of Papanicolaou stained smears of body fluids, sputum, bronchial and gastrointestinal brushings or washings, urine and fine needle aspirations. Regular laboratory hours of operation are Monday-Friday, 7:00 a.m. – 4:30 p.m. Specimens received after 4:30 p.m. will be processed the following workday.

A pathologist is available to assist all needle biopsies and aspirations during regular laboratory hours but we request 24 hours notice, if possible. This service includes help with specimen collection, preparation of the slides, and *immediate interpretation* of the specimen wherever the specimen is obtained. It is also important to notify the laboratory, in advance, of any special requests.

Most biopsies may be submitted fixed in formalin but certain specimens should be submitted fresh or in a different fixative. Examples are: tissue requiring culture or immunologic examination, tissue in which crystal deposition is suspected, etc. If you have doubt about the way in which to submit a specimen, please call Client Services at 860-823-6307.

Surgical specimens may be delivered to the department's histology laboratory. The histology laboratory is responsible for fixation and embedding of tissue and for preparing and staining slides for review by pathologists. Specimens must be examined, sampled, fixed, dehydrated, cleared, embedded, sectioned, mounted and stained – a process which usually takes between 12-18 hours. Most slides are available for review the morning of the day after the specimen was submitted.

There is always a pathologist on-call for operating room consultations and frozen sections. Call the Backus Hospital Operator for the pathologist on call.

CYTOLOGY SPECIMEN COLLECTION GUIDELINES

FEMALE GENITAL TRACT

Choice of Specimen: An endocervical aspiration or brush and exocervical scraping should be done on all cases. Aspiration of the posterior vaginal fornix may be used but is not a substitute for cervical specimens. Endometrial aspirations are not advised for routine cytology. For lesions of the vagina or vulva it is desirable to obtain a scraping made directly from the lesion. The application of saline solution to a vulvar lesion prior to the scraping will improve the quality of the sample.

EQUIPMENT: Vaginal speculum; plastic cytobrush; ThinPrep (Cytyc Corp.) vial.

Specimen Collection

PROCEDURE FOR CERVICOVAGINAL CYTOLOGY: An endocervical brush is inserted into cervical canal and rolled once.

The brush tip is immediately placed in a ThinPrep (Cytyc Corp.) vial containg PreserveCyt solution. The vial is sealed with the screw cap and labeled with the patient's name, date of birth, and specimen source (cervical, cervicovaginal, vaginal, etc.)

Complete the cytology request form and include all appropriate clinical information to aid in the interpretation. **The source of the specimen must be listed.**

Douching should be omitted 24 hours before taking specimens and the specimen should be obtained by aspiration or brush before the pelvic examination is done.

Excessive use of lubricating jelly on the vaginal speculum will markedly interfere with cytologic examination. Therefore, moistening of the speculum with water before insertion will provide adequate lubrication for most instances.

SPUTUM

EQUIPMENT: Sterile Specimen cup

PROCEDURE:

1. Instruct patient to cough deeply. (oral contents are of no diagnostic value). Early morning cough specimen prior to breakfast usually produces the best specimen.
2. Deep cough specimen is expectorated directly into sterile specimen cup that is then labeled with the patient's name and date of birth.
3. Specimen must be sent to the Laboratory as soon as possible.

Note: Ideally, sputum specimens should be collected on 3 consecutive days. If the patient cannot cough deeply, an adequate specimen may be obtained by the use of an aerosol inhalation apparatus. Arrangements may be made through the Respiratory Therapy.

BRONCHIAL WASHINGS

Collected at the time of bronchoscopy as a saline wash.

If the sample is less than 20 mL, pour the entire sample into a vial of ThinPrep CytoLyt solution, recap, and invert 2 times and label the vial appropriately. Label with the patient's name, date of birth, and specimen source. Deliver the CytoLyt vial to the laboratory.

If the sample if more than 20mL, immediately deliver the laboratory in an appropriate container, with NO added fixative.

Cell blocks will be created from CytoLyt samples if there are clumps of cellular material in the container. The lab will do this automatically, so it is not necessary to send a separate sample.

BRONCHIAL BRUSHING (BRONCHIAL SMEARS)

During bronchoscopy and prior to the saline washing, a brushing is done and cell films are made. Using a rotating motion, the bronchial brush is drawn several times across a labeled slide with **patient's name written on frosted end of slide in lead pencil only.** The slide is immediately sprayed with cytology fixative.

Alternatively, the brush tip can be clipped off and placed in a vial of ThinPrep CytoLyt solution, recap, and invert 2 times and label the vial appropriately. Label with the patient's name, date of birth, and specimen source. Deliver the CytoLyt vial to the laboratory.

FINE NEEDLE ASPIRATION OF SUPERFICIAL AND DEEP LESIONS

(Performed in CT or Ultrasound Dept.)

1. Inform Laboratory and Pathologist when aspiration will be done and the pertinent clinical information.
2. Immediately after the aspiration is completed, the material should be expressed into a vial of ThinPrep CytoLyt solution. Rinse the syringe and needle with CytoLyt solution to insure complete recovery of material. Recap the vial and invert 2 times. Label with the patient's name, date of birth, and specimen source. Deliver the CytoLyt vial to the laboratory.

URINE

1. Collect specimen according to established procedure, minimum – 20-50 ml voided or catheterized urine.
2. Label with the patient's name, date of birth, and specimen source, i.e. "voided", "bladder", "catheterized", "right", or "left" ureteral, etc.
3. Specimen must be sent to Laboratory immediately or can be added to into a vial of ThinPrep CytoLyt solution.

PLEURAL, PERITONEAL AND PERICARDIAL EFFUSIONS

EQUIPMENT: Clean container (220 ml), Heparin and Special drainage bags.

PROCEDURE:

1. Fluid should be collected just prior to transport to Laboratory and placed in clean container or special drainage bags.
2. To prevent clotting, add 0.2 ml. Heparin solution and agitate fluid.
3. Label with the patient's name, date of birth, and specimen source.
4. Specimen must be sent to the Laboratory as soon as possible.

Specimen Collection

CEREBROSPINAL FLUID

Label with the patient's name, date of birth, and specimen source. The specimen is collected at time of spinal tap and sent immediately to the Laboratory.

BREAST SECRETION AND ASPIRATE

Small amounts of secretion are expressed from the nipple or cyst aspiration fluid is transferred into a vial of ThinPrep CytoLyt solution. Label with the patient's name, date of birth, and specimen source. Specimen should be sent to the Laboratory as soon as possible.

MISCELLANEOUS FLUIDS

Miscellaneous fluids (e.g. synovial fluids) should be collected in a red top tube or sterile container. Label with the patient's name, date of birth, and specimen source. sent **IMMEDIATELY** to the Laboratory for processing.

CRITICAL VALUES:

Backus Labs recognizes the following values to be potentially life-threatening if immediate action is not taken. Critical values will be reported to a physician, RN, or designated contact as soon as testing has been completed and the critical value confirmed.

HEMATOLOGY/COAGULATION	
ANALYTE	**CRITICAL VALUE**
WBC counts	<1,000 or >25,000 K/mm^3 in patients with no previous history.
Hemoglobin	< 7.0 or >18.0 g/dL in patients with no previous history.
Hemoglobin (Neonate <12 weeks)	<10.0 or > 20 gm/dL
Platelet Count	<50,000 or >600,000 K/mm^3 in patients with no previous history.
Abnormal Cells	New diagnosis of blasts or of leukemia on a differential smear of an undiagnosed patient.
	Malaria, *Babesia* or *Ehrlichia* parasites on smear
	Elevated WBC in CSF >10 lymphs, any neutrophils in a non-bloody tap.
Prothrombin Time - INR	>3.5
Partial Thromboplastin Time	>80 seconds
Fibrinogen	<175 or >700 mg/dL
FDP	> 5 ug/mL
D-Dimer	>500 ng/mL
Platelet Function	ADP greater than 300 seconds

CHEMISTRY	
ANALYTE	**CRITICAL VALUE**
Acetaminophen	≥ 64 µg/mL
Alcohol	≥ 300 mg/dL
Ammonia	≥ 100 µg/dL
Amylase	≥ 300 U/L
Bilirubin (Neonate)	≥ 15 mg/dL
Calcium	≤ 6.0 or ≥ 12.0 mg/dL
Calcium, Ionized	≤ 3.5 or ≥ 6.0 mg/dL
Carbamazepine (Tegretol)	≥ 15.0 µg/dL

Specimen Collection

CHEMISTRY – *continued*	
ANALYTE	**CRITICAL VALUE**
CO2	≤ 15 or ≥ 40 mmol/L
CK (Creat, Kinase)	≥ 500U/L
Creatinine	≥ 6.0 mg/dL
Digoxin	≥ 2.5 µg/mL
Dilantin	≥ 20.0 µg/mL
Gentamicin – Peak	≥ 10.1 µg/mL
Gentamicin – Trough	≥ 2.0 µg/mL
Glucose	≤ 50 or ≥ 500 mg/dL
Lactic Acid	≥ 2.2 mmol/L
Lipase	≥ 200 U/L
Lithium	≥ 2.0 mmol/L
Magnesium	≤ 1.3 or ≥ 2.8 mg/dL
Phenobarbital	≥ 50.0 µg/mL
Potassium	≤ 3.2 or ≥ 6.0 mmol/L
Sodium	≤ 125 or ≥ 155 mmol/L
Theophylline	≥ 20.0 µg/mL
Troponin I	≥ 0.10 ng/mL
Valproic Acid	≥ 125 µg/mL
Vancomycin – Peak	≥ 40.0 µg/mL
Vancomycin – Trough	≥ 20 µg/mL

MICROBIOLOGY	
ANALYTE	**CRITICAL VALUE**
AFB smears and cultures	Positive
Blood cultures	Positive
Body Fluid Gram stain	Positive
CSF Culture	Positive
CDIF Toxin Detection	Positive
RSV	Positive
Positive Blood Parasites	Positive