Specialized Laboratory Collections

Cytology Services

Cervical/Vaginal Cytology
We offer both the conventional Pap smear test and the SurePath® test. SurePath® is a liquid-based collection system that significantly reduces the number of unsatisfactory and limited results. Clinical studies have shown an increase in the detection of both low-grade squamous intraepithelial lesion (LGSIL) and high-grade intraepithelial lesions (HGSIL).

Reflex Testing
SurePath® with human papillomavirus (HPV) testing (if atypical squamous cells of undetermined significance [ASCUS]) will be performed if indicated on request form.

Resulting Testing
SurePath® and conventional Pap smears give results within 5 working days.

Cervix Specimens/Pap Smears
The primary purpose of obtaining a sample of cells from the cervix (Papanicolaou smear) is to detect cervical cancer, its precursors, and other abnormalities of the female reproductive tract.

It is important to obtain a smear that is not obscured by blood, mucus, or inflammatory exudates. Following correct positioning of the speculum in the vagina, if there is excess mucus or other discharge present it should be gently removed with ring forceps holding a folded gauze pad. Inflammatory exudate may be removed by placing a dry 2 x 2 in place of gauze over the cervix and peeling it away after it absorbs exudates, or by using a dry protoswab or scopette. The cervix should not be cleansed by washing with saline as it may result in a relatively acellular smear. Specimen should be obtained before applicate of acetic acid. Preferably, specimen should be collected for testing 2 weeks after first day of last menstrual period and definitely not during menstruation.

Specimen Collection
Label frosted end of glass slide(s) with patient's first and last name using a lead pencil before specimen collection. Do NOT use ink, tape, or paper labels on slide(s). Observe universal precautions for collection and handling of specimens. Visually inspect cervix for abnormalities. Identify transformation zone. Configuration of the active transformation zone is variable, depending on several factors such as vaginal pH, pregnancy, hormonal milieu, menopause, prior therapy, and individualized anatomy. The upper (endocervical) limit of the transformation zone is dynamic, defined by the leading edge of migrating squamo-columnar junction. In postmenopausal women, the squamo-columnar junction is often high in the endocervical canal and no longer visible.

The object is to quickly but evenly spread cellular material in a think layer on glass slide(s). Thin out large clumps of material as much as possible, while avoiding excessive manipulation, which can damage cells. To avoid development of air-drying artifact, transfer material from sampling instrument to slide(s) within a few seconds and fix immediately. Let slide(s) dry for several minutes, and then place slide(s) into a rectangular, plastic, slotted container supplied by the laboratory. Transport to the laboratory along with the completed Cytology Request Form. Please do not label the rectangular, plastic, slotted container.

An optimal cervical specimen includes sampling of squamous and columnar epithelium, encompassing in particular the transformation zone where the majority of cervical neoplasias arise. Specific sampling instrument(s) and sampling techniques used should be based on consideration of individual patient anatomy, particularly location and configuration of the transformation zone as determined by visual inspection.

If an elevated, ulcerated, necrotic, or exudate-covered lesion is observed, arrangements should be made for biopsy following cytology sampling.

SurePath® Pap Specimen Collection
Please contact the Pathology Department at 907-212-5028 for further instructions.

- *Endocervical Brush/Spatula Protocol*
  - —Obtain an adequate sampling from ectocervix using a plastic spatula. Wooden spatulas contaminate SurePath® solution with wood fibers and therefore should not be used.
  - —Rinse spatula into SurePath® solution vial by swirling spatula vigorously in vial 10 times. Discard spatula.
  - —Obtain an adequate sample from endocervix using an endocervical brush device. Insert brush into cervix until only bottom most fibers are exposed. Slowly rotate ¼ to ½ turn in 1 direction. **Do not over rotate**.

—Rinse brush in SurePath® solution by rotating device in solution 10 times while pushing against SurePath® vial wall. Swirl brush vigorously to further release material. Pop brush top off into vial.
—Record patient's first and last name on vial, and record patient information including collection date and clinical history on the Cytology Request Form.
—Place vial and request form in a specimen bag for transport to laboratory.

- *Broom-Like Device Protocol*
  —Obtain an adequate sampling from ectocervix using a broom-like device. Insert central bristles of broom into endocervical canal deep enough to allow shorter bristles to fully contact ectocervix. Push gently, and rotate broom 5 times in a clockwise direction.
  —Rinse broom into SurePath® solution vial by pushing broom into bottom of vial 10 times, forcing bristles apart. As a final step, swirl broom vigorously to further release material. Pop brush top off into vial.
  —Record patient's first and last name on vial, and record patient information including collection date and clinical history on the Cytology Request Form.
  —Place vial and request form in a specimen bag for transport to laboratory.
- *Other Specimens*
  —Urine: A minimum of 30 mL must be collected for cytological testing.
    - Collect a **clean-catch** urine specimen, preferably **second-morning** void.
    - Label collection container with patient's first and last name and unique patient identifier, such as medical record number or date of birth.
    - If there is a delay in transport to the laboratory, place specimen in appropriate fixative (ie, CytoLyt® provided by laboratory).
  —Body Cavity Fluid
    - Specimen should be collected through aseptic percutaneous aspiration. Immediately after collection, inject specimen into a transport container or cap the syringe after removing needle.
    - Label container with patient's first and last name and unique patient identifier, such as medical record number or date of birth.
  —Spinal Fluid: A minimum of 0.5 mL must be collected for cytological testing. To perform a lumbar puncture:
    - Clean puncture site with antiseptic solution and alcohol before needle insertion to prevent introduction of infection.
    - Insert a needle with a stylet attached at L3-L4, L4-L5, or L5-S1 interspace. When subarachnoid space is reached, remove stylet and spinal fluid will appear in needle hub.
    - Slowly drain spinal fluid into sterile, leakproof tube(s).
    - Label tube with number in order specimens were collected
    - Label tube(s) with patient's first and last name and unique patient identifier, such as medical record number or date of birth.
  —Bronchoscopy Specimen: Bronchial washings and bronchoalveoar lavage specimen should be obtained before brushing or biopsy specimen to avoid excess blood in recovered fluid.
    - Pass bronchoscope transnasally or transorally in nonintubated patients or via endotrachial tube in intibated patients.
    - Wedge tip of bronchoscope in a segmental (bronchial wash) or subsegmental (bronchoalveoar lavage) bronchus.
    - For bronchial washings and bronchoalveolar lavage, inject sterile, non-bacteriostatic 0.85% NaCl through a biopsy channel of bronchoscope.
    - Gently suction NaCl solution into a clean container. Keep aliquots from different sites separated, and label containers accordingly.
    - For bronchial brush specimens, insert a telescoping double catheter plugged with polyethylene glycol at distal end through biopsy channel of bronchoscope.

Microbiology Services

Microbiology Testing Availability
Specimen reception, inoculation, and Gram stain results are available 24 hours a day, 7 days a week. Culture interpretation is performed daily from 7 a.m. to 3:30 p.m. FA stains are available from 7 a.m. to 2 p.m. Some procedures are not performed daily, as indicated in the alphabetical test listing.

Specimen Identification and Documentation
All specimens must be legibly labeled with patient's name (first and last), a second identifier (date of birth, PHSA medical record number, or financial number), date and actual time of collection, and type of specimen. Without a legible request form and patient name clearly printed on specimen, we may not be able to perform tests requested.

All requesting documentation must include:

- Patient's first and last name and gender
- Unique patient identifier, such as date of birth, PHSA medical record number, or financial number
- Physician's name
- Source of specimen
- Date and time of specimen collection

Identification and Susceptibility Testing
Identification and susceptibility testing are only performed on potential pathogens. Usual flora or organisms commonly associated with contamination are not suitable for complete identification or susceptibilities. There are additional charges associated with identification or susceptibilities. These additional charges vary with the type of organism tested and the methodologies required for testing.

Reflex Testing
The Microbiology Department will perform reflex testing if 1 of the specified initial tests is ordered and if test results meet necessary criteria. Additional fees will be assessed for any reflex testing performed. Please refer to "Reflex Testing" in "General Information" for a complete list of initial and reflex tests.

Add-On Testing
All aerobic culture plates are retained in the Microbiology Department for 7 days after date of final report. If additional testing is required (such as special sensitivities or further identification), this can be performed at physician's request.

Specimen Acceptance
Expectorated sputum and wounds are screened for acceptability (absence of superficial contamination). Specimen containing excessive squamous epithelial cells may be rejected for culture or not worked up completely.

Specimen Transport and Storage
Specimen transport systems have been developed to a high level of sophistication, enabling many types of specimens to be stabilized for considerable periods of time without compromising recovery of organisms. This has made collection and transport convenient for off-site clients. Please remember that delays in transportation cause delays in test resulting, so although specimens may be stable for extended periods of time, rapid transport to the laboratory is still preferred for optimal patient care.

Inpatient Specimens
All inpatient specimens must be received by the laboratory within 1 to 2 hours of collection.

Outpatient Specimens
Outpatient specimens must be in appropriate transport media and must be received in the laboratory within 1 to 8 hours of collection. These specimens must be stored and transported according to specimen requirements in the alphabetical test listings. Unstabilized specimens that are not in transport media must be delivered within time frames specified for each test.

Rural Patient Specimens
Specimens from outside the Anchorage area that are packaged in appropriate transport media must be received by the laboratory within 24 to 72 hours of collection. These specimens must be stored and transported according to the guidelines in the specimen collection section. Unstabilized specimens must be transferred to suitable transport media.

Pathology and Cytology Services

Consultation Services
Members of the pathology group are available for consultation Monday through Friday, 7:30 a.m. to 5 p.m. by calling 907-212-5028. For questions that do not require a specific pathologist, ask for the clinical pathologist on call for the day. There is also a pathologist on call 24 hours a day, 7 days a week that can be reached at 907-212-5028.

Testing Availability
Outpatient pathology specimens are processed and interpreted Monday through Friday.

Request Forms
Pathology and cytology forms are provided for your convenience. Use of the forms will expedite the processing of specimens through our laboratory. Please note that an ICD-9 diagnosis code is required at submission. All cytology forms are

pre-printed with provider's name and address. Please call Customer Service at 907-212-3631 to reorder Cytology Request Forms.

Resulting Routine Testing
Routine testing received by 5 p.m. is resulted by 3 p.m. on the following business day. Complicated cases may take longer to review.

STAT Testing
The Pathology Department makes every attempt to result STAT testing requests by noon the following business day.

Cytology Testing
Non-gynecological specimen routine testing will be resulted by 5 p.m. on the next business day after specimen is received.

Specimen Identification and Documentation
All pathology specimens must be labeled with the following information:

- Patient's first and last name
- Unique patient identifier, such as medical record number or date of birth
- Physician's name
- Source of specimen
- Date and time of specimen collection

Specimen Collection
Instructions for specimen collection and preservation are listed in the alphabetical test listing in this manual.

Medicare
Medicare requires information if the specimen is a routine screen, a high-risk screen, or a diagnostic Pap smear. Please indicate correct Pap smear for your patient on the Pathology/ Cytology Request Form. Routine screening (v72.6 and v76.2 or v76.49 if patient does not have a uterus or cervix) is allowed once every 2 years. When material is obtained for Pap test screening more frequently than every 2 years, and the patient does not have a high risk for cervical cancer, the physician must obtain an Advanced Beneficiary Notice of Noncoverage (ABN) for the request. High-risk screening (v15.89 and v72.6) is allowed annually if needed. High-risk factors for cervical cancer include the following:

- Early onset of sexual activity (under age 16)
- Multiple sexual partners (5 or more in a lifetime)
- History of sexually transmitted diseases
- Less than 3 negative Pap smears within the previous 7 years

Diagnostic testing can be done whenever the physician believes tests are medically necessary and can support the test with appropriate documentation. ICD-9 codes that do not support medical necessity will require a signed ABN. Diagnostic Pap smears are for evaluation of patients with any of the following:

- Previous cancer of cervix, uterus, or vagina that has been or is presently being treated
- Previous abnormal Pap smear
- Symptoms of uterine or vaginal disease (eg, vaginitis, vaginal bleeding, etc.)

Specimen Collection
The method of specimen fixation for transport varies depending on size and type of specimen.

Clinical History
A complete clinical history is important for the accurate diagnosis of patient specimens and a submitting "diagnosis" is required. A history of malignancies, radiation or chemotherapy, current pregnancy, or an immunocompromised or HIV condition should all be included on the request form, if applicable. Hormone therapy history should be included with endometrial biopsies.

Small Specimens
Place small specimens, such as biopsies, in containers pre-filled with formalin.

Large Specimens
Large specimens originating outside of Providence Alaska Medical Center (PAMC), such as mastectomies and bowel resections, should be fixed in a volume of formalin that is at least 2 times the volume of specimen.

Specimens for Culture
The piece of tissue to be cultured should be placed in a culture tube. A Clinical Laboratory Request Form should be included with the specimen indicating type of culture desired.

- *Lymph Nodes*: Lymph nodes or other tissue submitted for possible lymphoma must be sent to the laboratory as a fresh tissue specimen. Please call 907-212-5028 and inform the pathologist on-call when these specimens are submitted.

- *Muscle Biopsies*: Specimens to be tested for myositis should be submitted in formalin. Specimens to be tested for dystrophy or uncommon muscle conditions must be submitted as fresh tissue to be immediately frozen. Please contact the pathologist on-call in advance by calling 907-212-5028 to prearrange the date and time to process fresh muscle biopsies.
- *Placentas*: In pregnancies with adverse outcomes where the fetus appears normal, the problem is usually identified in the placenta. In these cases, it is recommended that the placenta be submitted for a pathological examination.
- *Bone Marrow*: Submit bone marrow aspirate for cytogenetic or flow cytometry studies in a green-top (heparin) tube. Specimen should be brought directly to the Sendout Department in the PAMC Laboratory so that all necessary paperwork may be filled out, and aspirates may be forwarded as quickly as possible. Any additional aspirate can be sent in a lavender-top (EDTA) tube for buffy coat smears. Direct aspirate smears should be air dried and slides must be labeled with patient's first and last name. They should not be submitted in the same plastic bag as the formalin bottle that contains the biopsy and/or clot specimen. Formalin fumes will fix smears, making them uninterpretable.

  We recommend that all bone marrow specimens be accompanied by a peripheral blood smear and hemogram report unless a complete blood count (CBC) has been performed at PAMC Laboratory. Our staff does not perform the bone marrow biopsy procedure. Please consult a hematology oncologist for assistance.

Specimens Requiring Immediate Attention or Frozen Sections
Specimens should be sent unfixed in normal saline, and sterile if specimen will be cultured. Pathologists are immediately available Monday through Friday, 7:30 a.m. to 5 p.m. At other times, please contact the pathologist on-call by calling 907-212-5028.

Transfusion Services

The Blood Bank Department at PAMC Laboratory is accredited by the AABB and the College of American Pathologists (CAP). The Blood Bank provides a broad range of immunohematology testing and blood components for transfusion.

The laboratory's blood supplier is the Blood Bank of Alaska, Inc., a local, community-based blood center affiliated with America's Blood Centers (ABC). When complex antibody identification cannot be performed in-house, serological specimens are referred to the Red Cell Reference Laboratory at Puget Sound Blood Center in Seattle and other selected reference laboratories, as appropriate.

The Medical Director of the Blood Bank Department, a Board-certified pathologist in anatomic and clinical pathology, is available for consultation by calling 907-212-5805.

All blood donors are screened carefully. Allogeneic blood components are tested for viral markers for the viruses known to cause hepatitis b virus, hepatitis c virus, HIV, human t-cell lymphotropic virus, west nile virus, and syphilis where there is a risk of transfusion transmitted diseases. Physicians who suspect their patient has contracted an infectious disease from a blood component transfusion are strongly encouraged to notify the PAMC Laboratory Blood Bank medical director. The PAMC Laboratory Blood Bank, in cooperation with the blood supplier, will investigate each report.

Blood Bank Specimen Collection
The laboratory utilizes the yellow Typenex® Blood Recipient Verification System. All specimens collected from potential transfusion recipients must be labeled using the Typenex® bracelet band.

Typenex® Bracelet Band Procedure

- Label Typenex® bracelet band with the following information:
  - — Patient's last and first name
  - — Medical record number
    - If patient is in the emergency room, the financial number must also be written on the bracelet band
    - Facilities outside PAMC campus may, with prior approval, use the patient's Social Security number instead of the medical record number
  - — Date of specimen collection
  - — Initials of person drawing specimen
  - — Time of specimen collection is recommended, but not required
- Place band on patient's wrist, preferably the right wrist for patients having surgery.
- Tear off number strip portion after band is on wrist, peel

off plastic backing, and attach strip to specimen tube.
- Peel off yellow and white label with patient information from the band and place on specimen tube while still at patient's bedside.
- Routinely, specimen is valid for testing for 3 days. In some instances, particularly pre-operative situations, the specimen may be valid for testing for 7 days.

Blood Bank Procedures

The following is an overview of the most common pre-transfusion procedures available from the Blood Bank Department. Please refer to the individual test in the alphabetical test listing section for more information.

- *Extra Tube for Blood Bank (EBBT)*: Label specimen with Typenex® bracelet band. A properly labeled specimen will be processed and held for 3 days. Specimen may be converted to a type and screen or type and crossmatch during the 3-day hold by calling the Blood Bank. EBBT is recommended for patient's undergoing major surgical procedures with 5-10% chance of requiring transfusion.
- *Type and Screen*: Label specimen with Typenex® bracelet band. A properly labeled specimen will be processed and ABO, Rh, and antibody screen testing performed. Specimen may be converted to a type and crossmatch during the 3-day hold by calling the Blood Bank. Type and screen is recommended for patients undergoing major surgical procedures with 10-50% chance of requiring transfusion. On occasion, Blood Bank receives a request for "Type and Hold" orders. This test does not exist in our system and will be converted to a type and screen request.
- *Type and Crossmatch*: Label specimen with Typenex® bracelet band. The same testing as in a type and screen will be performed. In addition, a requested RBC products will be crossmatched and available to transfuse. Patients with a negative antibody screen will be crossmatched using the immediate spin technique. Type and crossmatch is recommended for patients undergoing major surgical procedures with >50% chance of requiring transfusion.
- *Additional Units*: Patient's specimen can be used for crossmatch for 3 days after collection. If additional units are needed during the period of time, these may be requested by calling the Blood Bank Department.
- *Emergency Release*: Clinical situations may occur in which the time required for crossmatch is too long for optimal care of the patient. In these situations, uncrossmatched blood may be requested for the initial transfusion. O-negative red cells will be issued as uncrossmatched. Type specific red cells will be issued after an ABO and Rh type has been performed on a properly Typenex®-labeled specimen. The physician requesting uncrossmatched blood will be required to sign a "Emergency Release for Blood Components" form after the crisis has passed.