

Cytology Specimens

Gynecological and Non-Gynecological

INTRODUCTION:

Cytopathology, or the study of cellular changes in disease(s) involves examining cells exfoliated into body fluids (e.g. pleural fluid, urine, sputum) or cells scraped from a surface (the cervix). Fine needle aspiration is another method of obtaining cellular material for examination. The specimens are submitted fresh, fixed in a cytology fixative, fixed by a spray fixative, or in the case of ThinPrep Pap specimens, rinsed in a cytology preservative.

REQUISITION:

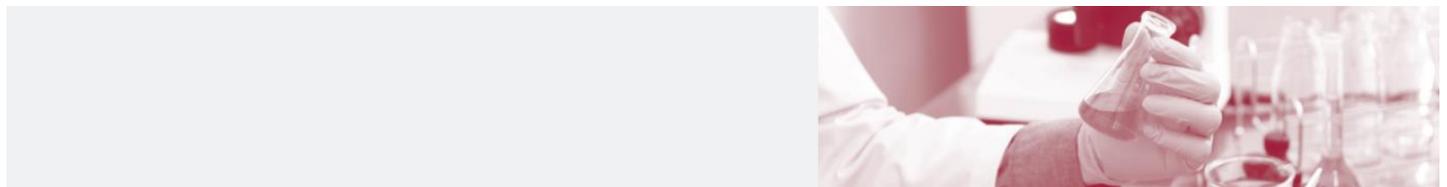
Each cytology specimen must be accompanied by a completed requisition. Follow guidelines for completing requisitions as listed in the general collection section. Additional information that may be applicable to the patient or specimen and should be included on the requisition include:

Non-gynecological specimens:

- Type of specimen submitted
- Prior cytology and/or biopsy correlation if applicable
- Previous history of carcinoma, radiation or drug therapy
- History forms for thyroid and breast FNAs are located on the back of the requisition form

Gynecological specimens:

- Type of specimen submitted
- Date of last menstrual period
- History of pregnancy or post-partum status
- Hormonal treatment
- Information regarding previous abnormal Pap diagnoses
- Previous cancer of the cervix, uterus, or vagina that has been or is being treated
- History of treatment: radiation, chemotherapy, biopsies, etc.
- Any clinical abnormalities or visual lesions



- Any significant complaint by the patient referring to the reproductive tract
- Early onset of sexual activity (under 16 years of age)
- Multiple sexual partners (5 or more in a lifetime)
- History of sexually transmitted disease
- Prenatal exposure to diethylstilbestrol (DES)
- Any signs or symptoms that might be in a physician's judgement reasonable to be related to a gynecologic disorder
- History of prior malignancy

FIXATION METHODS:

There are several options for fixation depending on the type and preparation of the specimen. Guidelines for fixation of specific specimen types are provided in the Collection Guideline sections of this manual.

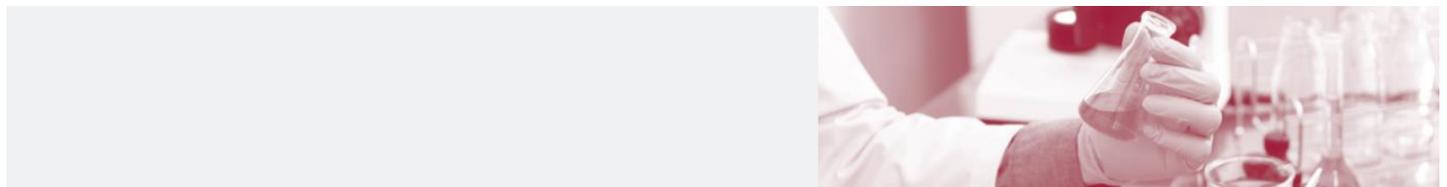
In general, smears may be air dried, fixed in 95% alcohol, or sprayed with a fixative. Slides sprayed with a fixative should be held 15 to 20 cm away from the spray bottle to avoid "blasting" of the cellular material. Slides should be allowed to dry 10 minutes before placing in holders for transportation to the laboratory. Slides preserved by immersion in 95% alcohol should be fixed for 20 to 30 minutes, then removed and allowed to air dry before placing in slide holders. If the smears are to be alcohol fixed it is extremely important to preserve them immediately. Air drying occurs within seconds after the specimen is collected and results in cellular degeneration, loss of nuclear detail, and possible bacterial overgrowth. Any of these changes affect interpretation.

Body fluid specimens such as pleural or peritoneal fluids that are not sent to the laboratory immediately should be placed in a container of CytoLyt solution along with 1cc of heparin per 100 mls of fluid to prevent clotting. Urine specimens for cytology should be fixed in CytoLyt solution.

Formalin is not a cytology fixative and must not be used to preserve specimens intended for cytological evaluation. Fluids for cytology received in formalin will be rejected.

Contact with formalin or formalin fumes results in alteration of cellular detail. Any type of smear and formalin-fixed biopsy specimens should not be submitted in the same biohazard bag.

For questions regarding special circumstances call Physicians Laboratory Client Services Department at: 1-605-322-7212 or 1-800-658-5474.



Surgical Pathology Specimens

INTRODUCTION:

Surgical tissue specimens are obtained for diagnostic evaluation of benign or malignant neoplasms and/or inflammatory or infectious diseases. The collection of tissue may be performed in a variety of ways including: surgery, biopsy forceps, and tru-cut needle biopsy. The tissue is placed in 10% formalin for routine testing. There are special tests that require fresh tissue, frozen tissue, or tissue submitted in another fixative. These requirements are listed in the collection procedure guidelines for surgical specimens section of this guide. Once collected the tissue is processed in a tissue processor and embedded in paraffin wax. A thin section is then cut, placed on a slide, stained and examined under a microscope by a pathologist.

REQUISITIONS:

Each surgical specimen must be accompanied by a completed requisition. It is especially important to note any previously known neoplasm or malignancy. If additional testing is requested please refer to the collection procedure guideline section or call Physicians Laboratory Client services Department at 1-605-322-7212 or 1-800-658-5474.

Specimen Submission Requirements

Prepared Slides must be labeled with the patient's full name whenever possible. Specimens that contain both air-dried and alcohol-fixed smears should have the slides labeled as such. If more than one site was sampled the source of the specimen must be noted on the slide, e.g. left, right, etc. If a code was used, such as slide #1 left breast aspirate 1 o'clock, slide #2 left breast aspirate 6 o'clock, then this code must be explained on the requisition.

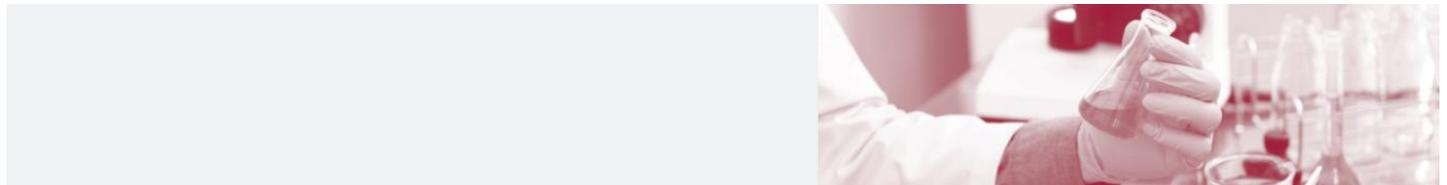
Send the slides in either a cardboard slide holder or plastic slide container to prevent them from breaking and then place in a biohazard bag.

Containers must be leak-proof, sturdy, and properly labeled with the patient's full name, date of birth, date of collection, source of specimen if it is a surgical or non-gynecological specimen, and the physician's name. Secure lids tightly and place in a biohazard bag for transport.

Do NOT place slides and any formalin containers in the same biohazard bags as the formalin fumes may render the slides unreadable. Place them in separate bags and staple the two bags together

Specimens that are too large for the pre-filled formalin containers may be placed in sealable plastic containers. Physicians Laboratory provides three different sizes of containers for this purpose. Large specimens must be double-bagged in orange biohazard containers.

All specimens must be placed in biohazard bags before transportation to the laboratory.



Requests for Supplies

Histology and cytology supplies may be obtained in the following ways:

- Order online at www.plpath.com. Choose the Online Store tab and follow the easy instructions for submitting your order.
- Fill out and submit a Physicians Laboratory Request for Supplies form
- Call Physicians Laboratory Client Services Department at 1-605-322-7212 or 1-800-584-7076. Our Iowa clients may call 1-800-584-7076.

To view available supplies, go to the Online Store at www.plpath.com.

Specimen Rejection Criteria

The following specimens are not accepted for processing at Physicians Laboratory:

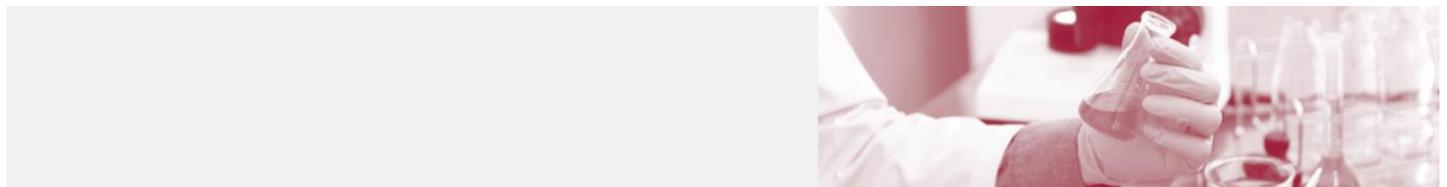
- A broken Pap smear slide where less than half of the slide remains in one piece
- The patient name is not on the slide, vial, or container
- The patient name on the requisition does not match the name on the slide, vial, or container
- The specimen source is not given or does not match
- The specimen is submitted with improper fixation or media

A Specimen Rejection form will be filled out on all improperly labeled specimens. This form will be returned to the submitting physician's office along with the specimen and requisition form. Physician's office personnel are required to return the signed rejection form when the specimen is re-submitted for evaluation. The signed rejection form is filled at Physicians Laboratory for documentation.

Specimen Transportation

Physicians Laboratory provides in-town courier service within the Sioux Falls city limits Monday through Friday during normal business hours, with the exception of major holidays. An established route is run Monday through Friday between 9AM and 5PM. Non-routine specimens may be picked up within this time period by calling Physicians Laboratory Client Services at 322-7212 or 1-800-658-5474.

Contracted courier services are provided to Physicians Laboratory out of town clients daily according to established routes.



Reporting Guidelines

HISTOLOGY

A pathology assistant, qualified histotechnologist, or pathologist examines all tissue specimens submitted to Physicians Laboratory. If no microscopic sections are submitted, only a gross description report is issued. A pathologist examines all gross only specimens before the report is signed out. If sections are submitted for microscopic examination, both a gross description and a microscopic description are reported.

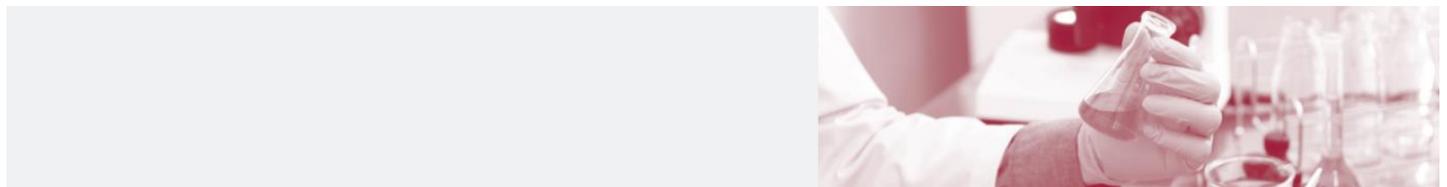
It is at the discretion of the pathologist whether a gross only or microscopic exam is performed. A list of specimens that are typically given a gross only exam is listed below along with specimens that do not need to be submitted to the laboratory. At any time a client can request that a gross or microscopic description be given.

PATHOLOGY SPECIMENS THAT MAY BE EXCLUDED FROM PATHOLOGY EXAMINATION

Physicians Laboratory does not require examination of the following specimens:

- a. Cataracts
- b. Burn eschar
- c. Normal Menisci
- d. Vein segments
- e. Teeth
- f. Blood clots
- g. Intact orthopedic hardware that is not fractured, infected or damaged
- h. Foreskins of patients <12 years old
- i. Foreign bodies such as marbles, pennies, or bullets, etc. (retained surgical items must be sent)
- j. Toenails
- k. Normal tissue removed for cosmetic purposes
- l. Calculi (if analysis not required)
- m. Bone fragments removed as part of corrective or reconstructive orthopedic procedures
- n. Medical Devices that have not contributed to patient illness, injury or death
- o. Normal appearing placentas from uncomplicated pregnancies
- p. Rib segments or other tissue removed to gain surgical access
- q. Therapeutic radioactive sources
- r. Research breast specimens identified through breast conferences for genetic or genomic investigation

Physicians Laboratory recommends that all other tissue and non-tissue surgical specimens be sent for examination.



GROSS ONLY SPECIMENS

The following specimens must be sent to pathology but will receive a Gross Exam only:

- a. Tissue expanders
- b. Nasal cartilage
- c. Damaged, infected or otherwise non-intact orthopedic hardware
- d. Retained surgical items
- e. Exostoses (e.g. bunions, bone spurs)
- f. Tonsils and adenoids of patients ≤ 16 years of age unless otherwise requested by the surgeon
- g. Prosthetic breast implants
- h. Prosthetic cardiac valves without attached tissue
- i. Torn meniscus
- j. Mummified accessory digits
- k. Traumatically amputated limbs

Non-Gynecologic Cytology (Fluids)

Reports are divided into four sections:

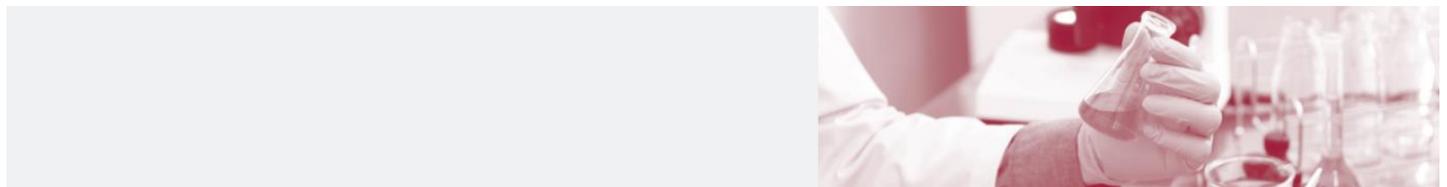
1. Diagnosis
2. Microscopic Description
3. Clinical History
4. Specimen type and gross description

All non-gynecological cytology cases are interpreted and electronically signed by a pathologist.

Gynecologic Cytology

Physicians Laboratory uses the Bethesda System for cervical/vaginal cytology reporting. Cytotechnologists report all Within Normal Limits specimens. All unsatisfactory, reactive/reparative, and atypical Pap smears are reviewed and electronically signed by a pathologist.

Reports are divided into five or six sections:



1. Specimen source and type (e.g. cervical, vaginal, Pap smear or ThinPrep)
2. Clinical information
3. Specimen Adequacy
4. General Categorization, which includes Negative, Negative with a Comment (usually indicates organisms such as Candida or Trichomonas infestations) or Epithelial Cell Abnormality.
5. Interpretation/Results (strictly negative Paps will not contain this section. This section will include the type of organism present or any other non-neoplastic finding, or the type of abnormality such as a Low Grade Intraepithelial Lesion.
6. Comments. This section may or may not be present and contains general recommendations

BETHESDA SYSTEM

Specimen Adequacy

- Satisfactory for evaluation
- Unsatisfactory for evaluation
- Specimen Rejected
- Specimen processed and examined, but unsatisfactory for evaluation of epithelial abnormality

General Categorization

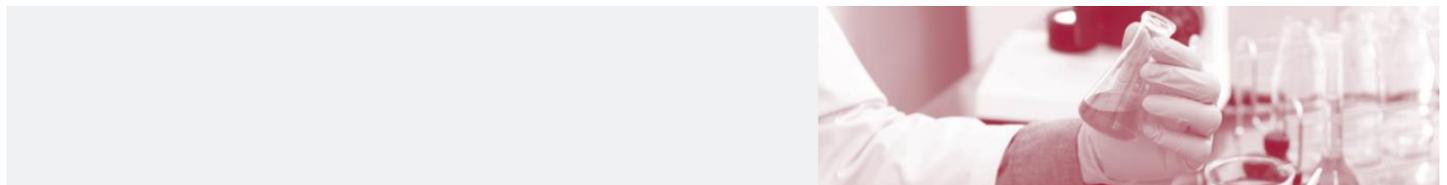
- Negative for Intraepithelial Lesion or Malignancy (NIL)
- Epithelial Cell Abnormality
- Other: See interpretation/diagnosis

Descriptive Interpretations/Diagnoses Non-Neoplastic

- Negative for Intraepithelial Lesion or Malignancy Organisms:
- Trichomonas vaginalis
- Fungal organisms morphologically consistent with Candida

Shift in vaginal flora suggestive of bacterial vaginosis

- Bacteria morphologically consistent with Actinomyces
- Cellular changes associated with Herpes simplex virus



Other Non-Neoplastic Findings (not inclusive)

- Reactive cellular changes
- Benign-appearing glandular cells status post hysterectomy
- Atrophy

Other

- Endometrial cells in a woman > 45 years of age

EPITHELIAL ABNORMALITIES

Squamous Cell

- Atypical Squamous Cells
 - Of Undetermined Significance (ASC-US)
 - Cannot exclude HSIL (ASC-H)
- Low Grade Squamous Intraepithelial Lesion (LSIL)
- High Grade Squamous Intraepithelial Lesion (HSIL)
- Squamous Cell Carcinoma

Glandular Cell

- Atypical
 - Endocervical cells (NOS or specify in comments)
 - Endometrial cells (NOS or specify in comments)
 - Glandular cells (NOS or specimen in comments)
- Atypical
 - Endocervical cells, favor neoplastic
 - Glandular cells, favor neoplastic
- Endocervical adenocarcinoma in situ
- Adenocarcinoma
 - Endocervical



- Endometrial
- Extrauterine
- Not otherwise specified (NOS)

Other Malignant Neoplasms: (specify)

Bone Marrow Specimen Requirements

SCHEDULING:

Physicians Laboratory accepts bone marrows collected by physicians from outlying clinics and hospitals. Physicians Laboratory of Northwest Iowa clients wishing to schedule in-office bone marrows may call 1-800-584-7076 or 1-712-262-3795.

The following items are required when submitting bone marrow specimens to Physicians Laboratory:

REQUISITIONS:

SPECIMEN REQUIREMENTS:

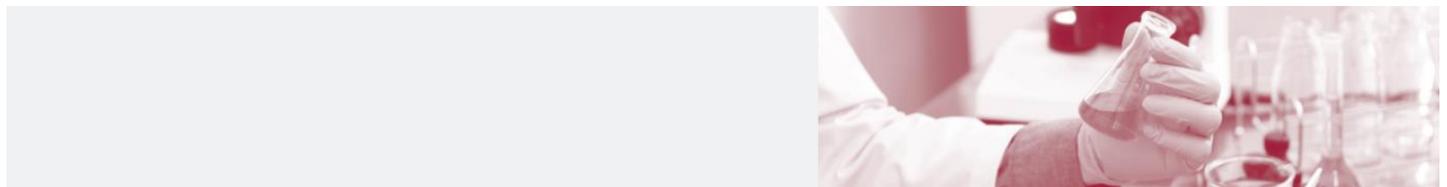
The bone marrow should generally consist of:

- Air-dried and unstained bone marrow aspirate smears and an air-dried peripheral blood smear
- Core biopsy and aspirate clot submitted in 10% buffered formalin
- A 2-5ml liquid marrow aspirate sample in sodium- heparin (dark green tube top) kept at room temperature
- **If the marrow is a dry tap**, perform gentle touch preps of a marrow core biopsy and submit an **additional** marrow core in RPMI solution.
- An accompanying CBC from within 24 hours of collection of the bone marrow and/or EDTA tube **is required**.

PACKAGING:

It is **vitaly important** to send the bone marrow aspirate smears in a separate bag from the formalin-fixed biopsy and clot specimens. Failure to do so can result in unreadable smears as the fumes can and do have an adverse effect on the cells.

Package the smears in the plastic slide containers and place in a biohazard bag and seal. Package the formalin jars containing the core and clot specimens and any tubes of blood into a **separate** biohazard bag. Paperwork/requisition may be placed in the outer pocket of either bag. Make sure all slides and containers are labeled with the patient's name. The two biohazard bags may be stapled together as long as they are separately sealed.



SPECIAL TESTS FOR BONE MARROWS – REQUIREMENTS

Flow cytometry, Chromosome Analysis, Molecular (FISH) Studies

Specimens collected for any of the above tests should be collected in a syringe containing 1cc of heparin per 5ccs of marrow to prevent clotting. At least 2-3 ccs of specimen should be collected and then transferred to a sodium heparin tube. PL personnel will split the specimen if more than one test is ordered. Clearly label the tube with the patient's name, DOB, and the desired test(s).

Autopsy

Physicians Laboratory of Sioux Falls

All autopsy scheduling requests may be called to Client Services at PL at 1-605-322-7212. After hours, before 10 pm, the messaging service will page the on-call pathologist. Between 10pm and 6am a message will be taken and the call will be returned the following business day.

Physicians Laboratory of Northwest Iowa

Autopsy scheduling requests during business hours (8-5) may be called to 712-262-3795. After hours leave a message and the call will be returned the next business day.

If the pathologist at PL of NWIA is out for an extended period the body will need to be transported to Avera McKennan Hospital. Notify security at Avera at 605-322-7490 and personnel will direct the driver where to go and escort them to the morgue. Also call PL Client Services at 605-322-7212 to notify the pathologist that a body will be coming for autopsy. If it is after hours Golden West will notify the pathologist on call.

REQUIREMENTS

The body must be accompanied by:

- ID wrist band or ID tag on the great toe or other written identification attached to the body (if the body is from a hospital)
- A signed Autopsy Consent Form if the autopsy is being requested by the family (a copy may be found in the documents section of the website under Forms in this Referral Guide)
- A signed Request for Autopsy Form if the autopsy is being requested by a physician (a copy may be found in the documents section of the website or under Forms in this Referral Guide)
- Original or copy of pertinent medical records and relevant history
- Request for special studies

A preliminary report will be given two working days. A final written report will follow.

