SURGICAL SPECIMENS

SPECIMEN LABELING

NOTE: All primary specimen containers MUST be labeled with 2 identifiers at the time of collection. Submitted slides may be labeled with a single identifier, but two identifiers are preferred. Examples of acceptable identifiers include but are not limited to: patient name, date of birth, hospital number, requisition number, accession number, or unique random number. A location (e.g. hospital room number) is NOT an acceptable identifier.

INTRODUCTION

Surgical pathology involves the study of tissues removed from the body surgically by knife, biopsy forceps, or tru-cut needle biopsy devices. Specimens are routinely fixed in l0% neutral buffered formalin, although some special studies require fresh tissue, frozen tissue, or tissue submitted in other fixatives. The tissue is processed by a tissue processor and is embedded in paraffin wax. A thin section of the paraffin block is then cut, placed on a slide, stained with dyes and examined under the microscope for diagnosis.

PROCEDURE FOR SUBMITTING TISSUE SPECIMENS

l. All tissue specimens submitted to the laboratory must be accompanied by a properly completed tissue specimen requisition. Please include:
   - Patient's first and last name
   - Patient's date of birth
   - Patient's medical record number
   - Specimen collection date
   - Ordering physician
   - Billing information
   - Time the specimen is removed from the body and time the specimen is placed in formalin

   Identification of the tissue specimen, procedure done to obtain the specimen, and clinical history should be placed in the appropriate spaces on the requisition.

2. The container should be (legibly) labeled with the patient's first and last name, medical record number, collection date and source of the specimen. Ink is preferred, but non-erasable pencil may be used as ink may run when wet. An Addressograph label would be the most preferred method. Adhesive tape may be used as an alternative. Unlabeled specimens are unacceptable. If the specimen is not already in formalin, please put l0% formalin on it. Prefilled formalin containers are supplied upon request. Specimens must be placed in formalin as soon as possible to avoid compromising histopathologic evaluation.

3. Place the specimen container in a biohazard plastic bag utilizing the separate pouch of the bag for the requisition.

Special Circumstances

l. Breast Biopsy - Place the entire specimen in formalin and submit as you would any other specimen. **Please indicate on the requisition whether the physician desires estrogen/progesterone receptor analysis and/or her2/neu analysis (these can be done on the formalin-fixed tissue).**

2. Lymph Nodes - If there is concern that the lesion may represent malignant lymphoma, it may be beneficial to contact a pathologist prior to biopsy (l-2 days) in case special processing (e.g. flow cytometry, gene rearrangement studies) is needed. If the node is greater than l cm in greatest dimension, please section the node into thin slices (roughly 3-4 mm in thickness). The specimen must be placed in fixative as soon as possible.

3. Muscle Biopsy - Call laboratory for specific instructions

4. Nerve Biopsy - Call laboratory for specific instructions

5. Renal Biopsy - Call laboratory for specific instructions

6. Skin Biopsy For Immunofluorescence – Please notify Histology at Sanford Medical Center (605-333-7106) at least 3 days prior to biopsy so that immunofluorescent transport media may be sent to your institution. The ideal submission would be one specimen sent in formalin for routine processing and one specimen sent in cutaneous direct immunofluorescent transport media.

   Please indicate on the front of the requisition if the specimen is to be sent for cutaneous direct immunofluorescence. **(PLEASE highlight this on the requisition).** Please DO NOT ADHERE A PATIENT LABEL to the cutaneous direct immunofluorescent transport media container.
   Please indicate on the requisition whether the specimen for cutaneous direct immunofluorescence is from:
   1. Sun-exposed or unexposed skin
   2. Peri-lesional involved or uninvolved skin

Cytology Specimens

Introduction

The acceptance of cytopathology as a current and valid discipline in medicine is largely due to the work of George N. Papanicolaou, MD. Papanicolaou began to publish material on the cytologic method and in 1928 suggested that this method was of value in the screening and diagnosis of cervical cancer. The use of cytology as a diagnostic tool may be applied to any organ or fluid from the body. The specimen may be exfoliated cells in a fluid such as urine, sputum, pleural, etc., or cells that have been more forcibly removed by a scraper, brush, or needle. These specimens would include both liquid based and conventional pap smears, specimens from endoscopic brushings, and fine needle aspirations. Sanford Health Pathology Clinic will only accept specimens from physicians or other persons authorized by law to submit specimens.

Specimen Labeling

NOTE: All primary specimen containers MUST be labeled with 2 identifiers at the time of collection. Submitted slides may be labeled with a single identifier, but 2 identifiers are preferred. Examples of acceptable identifiers include but are not limited to: patient name, date of birth, hospital number, requisition number, accession number, and unique random number. A location (e.g. hospital room number) is NOT an acceptable identifier.

Cytology supplies provided by SANFORD HEALTH PATHOLOGY CLINIC

-ThinPrep containers and collection devices
-Cytology requisitions
-Glass slides for conventional pap smears
-CytoLyt containers for non-gyn cytology specimens-including sputum
-Spray fixative
-Plastic/cardboard slide carriers
-Specimen transport bags

Requisition

Cytology specimens must be submitted with a properly filled-out cytology requisition in order to process the specimen. A separate cytology requisition should be submitted for each source/specimen site. If concurrent biopsy material is also submitted, it should be submitted with a corresponding histology requisition. The requisition contains an area for patient demographics (name, address, date of birth or age), social security number (optional), specimen collection date, submitting physician name, patient medical record or chart number, billing instructions and insurance information. The requisition also contains an area for the source and site of specimens as well as an area to request additional testing. Pertinent history and clinical information as it relates to the specimen should be provided using the following reference.

Gynecologic Specimens	Non-Gynecologic Specimens
Date of LMP Pregnant or Post-Partum History of IUD Abnormal bleeding Recent intrauterine instrumentation Radiation therapy Endometriosis Polyps Visible lesion(s) DES exposure in utero Recent colposcopy or biopsy (provide diagnosis) Herpes HPV (condyloma) Hormone therapy/ birth control pills Previous abnormal cytology cases should provide: Date of previous abnormal Treatment Normal subsequent cytology cases	Clinical diagnosis and history History of cancer – type and location TB, liver cirrhosis, congestive heart failure, etc. Radiologic findings to date, suspected lesion Any systemic disease Dyspnea Hemoptysis Radiation therapy (date, reason and location) Drug therapy or other medications Hormone therapy Exposure to carcinogens Tobacco use (specify) Recent viral infections Unexplained, continued weight loss Occupation (if relevant) Past abnormal cytology

Fixation Methods

Immediate fixation of cytology specimens is critical to the preservation of the cellular components. It is important that no air-drying occurs prior to fixation. If a smear is already air-dried it should NOT be put in alcohol fixative. Please note on the requisition if the slide(s) being submitted are fixed or air-dried. Formalin fixation is not appropriate for cytology specimens. Specimens should not be exposed to formalin or formalin fumes. This alters the cells and interferes with the staining reactions. There are several fixation techniques available, depending on the type and volume of the specimen. See specimen collection techniques and fixation procedures for specific details.

1. Spray Fixative – suitable for specimens that are submitted on a slide(s). This would include specimens such as pap smears, FNA specimens, and endoscopic brushing specimens.
2. 95% alcohol (usually used within a Coplin jar) - suitable for specimens that are submitted on a slide(s). This would include specimens such as pap smears, FNA specimens, and endoscopic brushing specimens. The slides should be immersed in the alcohol for a minimum of 15 minutes. Alternatively, the fixative may be pipetted onto a slide until the smear is totally saturated and then allowed to dry.
3. CytoLyt Solution- a clear fixative for the collection of fluid specimens or fine needle aspiration (rinse). A 50/50 ratio of specimen to fixative is appropriate.

Quick Reference Guide to Fixation Techniques

Specimen Type	Recommended Fixation Technique	Comments
Large Volume Specimens: Abdominal and Pelvic washings Body Cavity Fluids (pleural, peritoneal) Urine Gastric/Esophageal washings	Mix with equal amounts of: CytoLyt Solution Fix and submit no more than 50 ml of specimen	
Small Volume Specimens: FNA (fluid – not slides) Breast fluid CSF Cyst fluid Synovial fluid Bronchial washing	Mix with equal amounts of: CytoLyt Solution Use 10 ml of fixative if specimen volume is under 10 ml.	With very small amounts of fluid it may be easier to transfer the fixative into the collection device (syringe, suction collection tubes) first. Then into a suitable container to submit the specimen.
Direct Smears: Pap Smears FNA specimens Brushings Nipple Secretions	95% alcohol: The slides should be immersed in the alcohol for a minimum of 15 minutes. Alternatively, the fixative may be pipetted onto a slide until the smear is totally saturated and then allowed to dry. or Spray fix: Hold the bottle of spray fix 3-4 inches from the slide and disperse an even layer of fixative over the slide. Preferred method for Paps.	Pap smears should be completely dry before placing them into cardboard containers. The endoscopic brush may be submitted in CytoLyt after the slides have been prepared.

Specimen Collection Techniques and Fixation Procedures

Conventional Gynecological Sources – Vaginal, Cervical, Endocervical Smears

For optimal gynecologic cytology, it is recommended that the cellular samples be obtained from the ectocervix and the endocervix for each case and spread on one slide. For atrophic women it is recommended that the spatula be moistened prior to taking the smear. If a specimen is submitted for hormone effect analysis (maturation index), the specimen should be taken from the upper vaginal wall, and placed on a **separate** slide. If an endometrial abnormality is suspected, a vaginal pool specimen may be submitted. The use of the endocervical brush (in non-pregnant patients) in addition to the spatula is highly recommended. Optimally, the patient should abstain from intercourse, douching, or the use vaginal contraceptives during the 24 hours prior to collection. Pap smear collection should be avoided during the menstrual phase. The following procedure should be used to help ensure an acceptable specimen:

1. Label frosted end of slide or VCE slide with the patient's name and DOB. The name should be legibly printed using a pencil or indelible ink. Do not use a grease pencil or ball point pen. If submitting a two part specimen (R + L cervix, maturation index, etc.) make sure each slide is labeled with the appropriate site information. *Note: If using unfrosted slides use a diamond point pen.*

2. Ectocervical/Endocervical Specimen

   A. Cervical Scraper Method: Insert the elongated tip of the scraper into the external os and gently rotate completely around using the tip as a pivot point. The cellular material obtained by this method will usually contain cells from the squamo-columnar junction. If this method does not prove satisfactory, we recommend the use of the cytobrush to obtain the endocervical specimen.

   B. Cytobrush Method: After sampling the ectocervix with a spatula, gently insert the cytobrush into the endocervical canal until only the bristles closest to the handle are exposed. Slowly rotate one-half to one full turn. Remove pulling straight out.

3. Material obtained should be evenly and thinly spread on the section of the slide farthest from the frosted end. When using the cytobrush the cells should be 'unrolled or untwisted' onto the slide, not painted on which can cause air-drying and distortion of the cells.

4. **Immediately** fix the specimen. This is accomplished by holding the bottle of spray fix 3-4 inches from the slide and dispersing an even layer of fixative over the slide. Alcohol fixation may be substituted for the spray fix. Place the slide in a Coplin jar with 95% ethyl or reagent alcohol, the slide can be removed after 15 minutes.

5. Allow the specimen to dry completely and place in cardboard or plastic slide holders.

6. Submit to Sanford Health Pathology Clinic in a plastic transport bag with the requisition.

Liquid Based Gynecological Sources

Sanford Health Pathology Clinic uses Hologic (ThinPrep) collection vials. Specimens may be collected with
the brush/spatula combination or the broom method. **Immediate** dispersal of the specimen into the fixative is imperative with either collection method. Vial holders (eggs) are available upon request.

Endocervical Brush/Spatula Procedure

1. Obtain an adequate sampling from the ectocervix using a plastic spatula.

2. Rinse the spatula as quickly as possible in the PreservCyt Solution vial by swirling the spatula vigorously in the vial 10 times. Discard the spatula.

3. Obtain an adequate sampling from the endocervix using an endocervical brush device.
   Insert the brush into the cervix until only the bottom-most fibers are exposed. Slowly rotate 1/4 or 1/2 turn in one direction. DO NOT OVER-ROTATE.

4. Rinse the brush as quickly as possible in the PreservCyt Solution by rotating the device in the solution 10 times while pushing against the vial wall. Swirl the brush vigorously to further release material. Discard the brush.

5. Tighten the cap so that the torque line on the cap passes the torque line on the vial.

6. Record the patient's name and ID number on the vial. Record the patient information and medical history on the cytology requisition form.

7. Place the vial and requisition in a specimen bag form transport to the laboratory.

Broom Like Device Procedure

1. Obtain an adequate sampling from the cervix using a broom-like device. Insert the central bristles of the broom into the endocervical canal deep enough to allow the shorter bristles to fully contact the ectocervix. Push gently, and rotate the broom in a clockwise direction five times.

2. Rinse the broom as quickly as possible into the PreservCyt Solution vial by pushing the broom into the bottom of the vial 10 times, forcing the bristles apart. As a final step, swirl the broom vigorously to further release material. Discard the collection device.

3. Tighten the cap so the torque line on the cap passes the torque line on the vial.

4. Record the patient's name and ID number on the vial. Record the patient information and medical history on the cytology requisition form.

5. Place the vial and requisition in the specimen bag for transport to the laboratory.

Non Gyn Cytology Specimens

Note: Please use CytoLyt Solution for fixation of all non-Gyn specimens. Sanford Health Pathology Clinic provides specimen containers with fixative upon request.

Sputum Cytology

1. Have patient brush teeth and rinse mouth with water.
2. Cough vigorously to bring up material from deep in the lungs. **DO NOT JUST CLEAR THE THROAT OR SPIT SALIVA, A DEEP COUGH SPECIMEN PRODUCING MATERIAL FROM THE LUNGS IS REQUIRED.**
3. Expectorate (spit) the material into a container of CytoLyt solution.
4. A teaspoon of material per day is adequate
5. Repeat this procedure for 3 consecutive days (same bottle of fixative may be used).
6. Label specimen bottle with patient's name, physician, and specimen type and submit with a completed requisition.

Breast Cyst and Nipple Secretion Cytology (for solid masses of the breast see FNA of Solid Masses)

Breast kits are available to facilitate the collection of nipple secretion. The kit consists of
-two glass slides
-cytology spray fixative
-cardboard slide mailer

Breast cyst fluid obtained by needle aspiration should by transferred directly into CytoLyt fixative.

1. Breast Cyst Fluid
   Cyst fluid (more than 0.5 ml) can be expelled directly into a labeled bottle of CytoLyt Solution without making any smeared slide preparations. Alternatively, slides can be prepared
   as follows: Label two slides with the patient's name, second identifier and source of specimen. The material is transferred to one slide and smeared by placing the second labeled slide on top and pulling the two slides apart, as in a blood smear preparation. Immediately after preparation (1-3 seconds), spray the slides with spray fixative to prevent the cells from undergoing drying or degenerative changes. If spray fixative is NOT available, simply let the slides dry and note on the requisition that the slides are "AIR DRIED". Place the slides into the cardboard or plastic slide mailer.

2. Nipple Secretions
   A labeled slide can be touched directly to the drop of secretion on the nipple and then immediately spray fixed. If the secretion is abundant or thick, smear the specimen by placing another labeled slide on top and pulling the two smears apart, or smearing as in a blood smear preparation. The slides should be spray fixed immediately (within 1-3 seconds). If this cannot be achieved allow the slides to air dry (noting on the requisition that the slides are "AIR DRIED"). Place slide(s) into the plastic or cardboard mailer, allow the spray fixative to dry thoroughly before closing the mailer.

Submit the specimen in a transport bag with a properly filled out cytology requisition. In addition to the required information on the requisition, it should also include: if the mass is cystic or solid, whether the specimen is an aspirate or secretion, any pertinent history, radiologic findings, and whether the mass appears clinically suspicious for malignancy.

Fine Needle Aspiration of Solid Masses (recommended technique)

The FNA utilizes the cutting action of the needle tip to obtain material, so be vigorous not timid, in aspirating solid masses. In addition to the required information on the requisition, it should also include: if the mass is cystic or solid, any pertinent history, radiologic findings, and whether the mass appears clinically suspicious for malignancy.

Material Needed

1. 22-25 gauge needles
2. 5, 10, or 20 cc syringes
3. Alcohol or Betadine swaps
4. Sterile gloves
5. Glass microscope slides
6. Spray fixative or Coplin jar filled with 95% alcohol
7. Specimen container with CytoLyt Solution.
8. Syringe holder (gun) – optional
9. Anesthesia – optional
10. Assistant

Procedure

1. Explain the procedure to the patient and get consent form signed.
2. Set up materials
   A. Place needle on the syringe (and in the gun, if used).
   B. Label multiple slides with patient's first and last name and second patient identifier (ex: medical record number, date of birth).
   C. On a nearby flat surface arrange the slides to facilitate smearing and fixing.
   D. Spray fixative or open Coplin jar of 95% alcohol in close proximity to the slides.
   E. Have a specimen container of CytoLyt Solution ready if needed to rinse the needle. If the container is used apply pre-printed patient label to the container or label the container with patients name and second patient identifier.
   F. Assistant ready to help by smearing and/or fixing slides.
3. Put on gloves.
4. Sterilize skin over area to be punctured using alcohol or Betadine swaps.
5. Inject local anesthesia (into skin only) if desired.
6. Fix lesion between fingers.
7. Insert needle into lesion.
8. Apply full vacuum to the needle by pulling back on the plunger.
9. Immediately make 5-10 quick, 2-5 mm in and out excursions into the lesion (do not allow the needle to exit the skin). Aspirate the lesion for 5 – 10 seconds, if however, blood gets to the needle hub it is time to stop and prepare the smears before the specimen clots in the needle.
10. **RELEASE THE VACUUM** by letting the plunger return to its equilibrium point.
11. Remove the needle from the lesion and the patient.
12. Quickly and carefully remove the needle, aspirate 5-10 cc of air into the syringe reaffix the needle.
13. Expel semi-liquid aspirate onto slide (one small drop per slide).
14. The assistant should <u>immediately</u> smear material on the slide by placing another labeled slide onto the first slide and pulling the slides apart. To minimize crushing of the specimen, allow only capillary action to hold the slides together while pulling them apart.

15. Fix immediately (1-2 seconds) by spraying or dropping into the Coplin jar of 95% alcohol.
16. It is often helpful to have some air-dried smears as well. If adequate fixed material is obtained, 2 or 3 air-dried smears should be prepared and labeled as such.
17. Rinse any remaining material from the needle and syringe in CytoLyt Solution and submit along with the slides.
18. Repeat the entire process, performing 2-5 separate passes per lesion (depending on site and material obtained) for a total of 6-10 smears. Separate needles and syringes should be used.
19. Obtain hemostasis and bandage patient.
20. Submit the specimen in a transport bag with a properly filled out cytology requisition.

Body Fluids – Large volume (Pleural, Peritoneal)

1. Submit only fixed portions of large volume specimens. The specimen should be fixed in CytoLyt solution. Use equal amounts of fixative and specimen to obtain proper fixation. For volumes over 100 ml submit only 50 ml in fixative. A cell block is routinely attempted on all body fluids but does not always survive processing. Label specimen containers with patient's name, specimen type and second identifier. Submit with a properly filled out cytology requisition.

Body Fluids – Small volume (Breast, CSF, Synovial, etc.)

Fix the specimen in CytoLyt solution. Use equal amounts of fixative and specimen to obtain proper fixation. Excess fixative is acceptable for very small specimen amounts. Use 10 ml of fixative if specimen volume is under 10 ml. Label specimen containers with patient's name, specimen type and second identifier. Submit with a properly filled out cytology requisition.

Body Fluids - Urine

Agitate specimen to mix contents and fix specimen in CytoLyt solution . Use equal amounts of fixative and specimen to obtain proper fixation. Label specimen with patient's name, specimen type and second identifier. Submit with a properly filled out cytology requisition. Indicate if the specimen is voided or obtained by instrumentation.

Washings (Bronchial, Bladder, Gastric, Pelvic, Esophageal, etc.)

Fix the specimen in CytoLyt solution. Use equal amounts of fixative and specimen to obtain proper fixation. Excess fixative is acceptable for very small specimen amounts. Use 10 ml of fixative if specimen volume is under 10 ml. Label specimen containers with patient's name, specimen type, and second identifier. Submit with a properly filled out cytology requisition.

Brushings (Bronchial, Gastric, Esophageal, etc.)

Label slides with patient name and site of area brushed. Smear specimen from the brush onto the slide. Fix slides immediately in a Coplin jar filled with 95% alcohol for 15 minutes or if this is unavailable spray with cytology fixative. Submit the brush by placing into CytoLyt Solution or 95% alcohol. Label specimen containers with patient's name, specimen type and second identifier. Submit with a properly filled out cytology requisition.

Direct Smears of the Skin (Tzanck-Herpes)

Label slides with patient's name and lesion site. If the lesion is extremely dry, soak under a moist towel for 10 minutes. The sample may be obtained by using a scraper (tongue depressor) or by scraping or pressing the slide across/on the lesion. If a scraper is used, transfer the material to a slide. Fix the slides immediately in 95% alcohol or using spray fixative. Air dried smears are also acceptable (please note AIR DRIED on slides and requisition). Submit the specimen in a transport bag with a properly filled out cytology requisition.

Anal-rectal sample

An anal rectal sample can be collected with the patient in either the lateral recumbent or dorsal lithotomy position. If the patient is already having a gynecologic exam, lithotomy is often more convenient. The specimen can be collected before or after the gynecologic exam. For male patients, lateral recumbency is more commonly used with the patient lying on his side with knees drawn up toward his chest. A tap water moistened Dacron swab or cytobrush is used (cytobrush may be more uncomfortable for the patient). The swab or brush is inserted about 5-6 cm into the anal canal past the anal verge, into the rectal vault. Firm lateral pressure is applied to the swab/brush handle as it is rotated and slowly withdrawn from the anal canal, inscribing a cone-shaped arc. Care should be taken to ensure that the transition zone is sampled. A swab or smear of the peri-anal skin is an unsatisfactory sample. The swab or brush is then placed in the preservative vial and agitated vigorously several times to release the cellular material. Discard the collection device. If liquid based cytology fixative is not available, the swab can be smeared onto a glass slide and immediately fixed. Liquid fixative is preferred. HPV testing cannot be performed on a glass slide sample. Label the vial or smear with the patients name and second identifier. Submit the specimen in a transport bag with a properly filled out cytology requisition.

The 2001 Bethesda Reporting System

Gynecologic Cytopathology Reports

The 2001 Bethesda System is used for reporting results of gynecological specimens. The primary interpretation is shown between asterisks on the final report and has three general categories:

1. Unsatisfactory for Evaluation: The smear does not yield diagnostic information. Additional statement(s) will state the reason that the specimen is unsatisfactory

2. Negative for Intraepithelial Lesion or Malignancy: This indicates that the findings are normal.

3. Epithelial Cell Abnormality: This category is used to indicate there are abnormal cells present. Additional statements in the body of the text will describe the severity and type of abnormality and may include a recommendation for further action.

Additional statements that may appear in the body of the report include: presence of organisms, presence or absence of endocervical cells (non-hysterectomy patients), obscuring elements, hormone pattern if applicable and location of testing (if tested at a different laboratory than where the specimen was submitted). A statement of adequacy should conclude the body of the report. The area below the body of the report should contain the patient clinical information that was provided on the requisition.

Non-Gynecologic Cytopathology Reports

The primary interpretations used for reporting are:

1. Unsatisfactory Specimen for Evaluation
2. Non-Diagnostic
3. Negative for Malignancy
4. Suspicious for Malignancy
5. Highly Suspicious for Malignancy
6. Positive for Malignancy
7. Diagnosis
8. No Category – for cases that require an explanatory text, similar to a histology report.

Additional statements about the specimen contents, cellular abnormalities, or other findings will follow the primary diagnosis when applicable. An adequacy statement will follow the additional comments. The bottom portion of the report contains patient clinical information submitted on the requisition and the gross description of the specimen.

Quality Assurance

Pap smear screening is performed by Cytotechnologists (registered or registry eligible by the American Society of Clinical Pathologists). Pathologists (physicians who are certified by the American Board Pathology) perform interpretation of reactive and reparative changes and all cellular abnormalities on pap smears and all interpretations on Non-Gynecological cytology.

Supervisory eligible personnel rescreen approximately 10% of all negative cases to confirm the original diagnosis and to reduce the percentage of false negative findings. Quality assurance monitors evaluate on an on- going basis the performance of all testing personnel as well as the performance of the overall laboratory. Continuing education and quality assurance conferences are held regularly between pathologists and cytotechnologists to discuss educational, difficult, interesting or unusual cases.

Specimen Transport of Cytology Specimens

For **all** specimens submitted on glass slides the patient's name should be legibly printed (pencil or indelible ink) on the frosted end of **each** glass slide. For non-gynecologic specimens, **each** specimen container must be labeled with the patient's name and the specimen type/site and second identifier. Pap smears should be placed into plastic or cardboard slide containers and then into the plastic biohazard transport bag (1 specimen/bag). Non-gynecologic specimens that are submitted as fluids should be transported in a sealable container, and placed in a plastic transport bag whenever possible. For all specimens the transport bag should be securely zipped shut and the requisition placed into the pocket on the outside of the bag.

Specimen Rejection of Cytology Specimens

Cytology specimens submitted without a patient name on the specimen will be returned to the client for patient identification. We are required to verify patient identification for all specimens submitted. Specimens which cannot be processed or tested due to inadequate fixation, leaking specimen containers, slides received shattered beyond repair etc. will not be processed. A report indicating the reason for specimen rejection will be issued to the client and no charges will be made for those specimens. Every attempt will be made to prevent delay in testing or compromised results for the safety of you and your patient.

Cytology Test Listing

Test Code	Test	Specimen Requirements
104 or 1104	**Pap Smear**	A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for conventional pap smears for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details.
108 or 1108 107 or 1107	**ThinPrep Pap Smear Imaged and Non Imaged**	A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for thin layer pap smears for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details.
137	**Sputum**	A properly collected, fixed and labeled specimen. - See Specimen Collection Techniques for sputum for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details
172	**Bronchial Washings**	A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for washings for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details
175	**Bronchial Brushing**	A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for brushing specimens for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details
290	**Fine Needle Aspirations**	A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for FNA (solid and cystic) specimens for details. A cytology requisition that is completely and properly filled out, **indicate exact specimen site. Example: FNA of thyroid not FNA of neck**. See Cytology Requisition for details. Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details
110 **115**	**Body Fluids** **Body Fluid in PreservCyt**	Includes large/small volume fluids, non-bronchial brushings/washings, urines, herpes smears. A properly collected, fixed and labeled specimen - See Specimen Collection Techniques for body fluids for details. A cytology requisition that is completely and properly filled out – See Cytology Requisition for details Place specimen and requisition in transport bag and place in area designated for courier pickup. – See Specimen Transport of Cytology Specimens for details
125	**HPV Typing**	Additional test that may be ordered **with** the ThinPrep pap smear. Indicate in the available area on the requisition.
127	**Chlamydia**	Additional test that may be ordered **with** the ThinPrep pap smear. Indicate in the available area of the requisition.
129	**Neisseria Gonorrehoae**	Additional test that may be ordered **with** the ThinPrep pap smear. Indicate in the available area of the requisition.

PERIPHERAL SMEAR/BONE MARROW EVALUATION

SPECIMEN LABELING

NOTE: All primary specimen containers MUST be labeled with 2 identifiers at the time of collection. Submitted slides may be labeled with a single identifier, but two identifiers are preferred. Examples of acceptable identifiers include but are not limited to: patient name, date of birth, hospital number, requisition number, accession number, unique random number. A location (e.g. hospital room number) is NOT an acceptable identifier.

PERIPHERAL SMEAR EVALUATION BY PATHOLOGIST

Submit two unstained and unfixed, properly made peripheral smears from a finger stick or from a freshly drawn EDTA tube. Please send the EDTA tube of blood, when available, and submit the most current hematology results.

Clinical History. Peripheral smears should be obtained before therapy has begun, if possible. Please include past treatment (recent transfusions, Iron, Bl2, or Folate therapy, etc.), current drugs, and family history of hematologic disease. Include a brief summary of the patient's physical findings, e.g. fever, sore throat, with specific notation as to whether palpable lymph nodes and/or splenic or hepatic enlargement is present. Include specific questions which the attending physician needs addressed, e.g. anemia of unknown etiology, ruling out leukemia or metastatic disease, pancytopenia, etc.

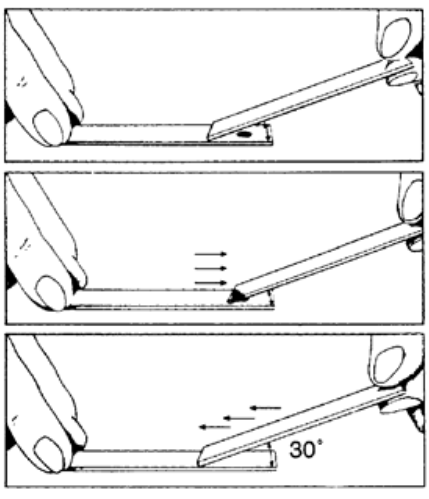
Blood Smear Preparation. It is essential that properly prepared smears be submitted to accurately assess the patient's status. Blood smears can be made from the blood remaining in the needle by pushing a small drop of blood onto the slide with the last evacuated tube. Alternatively, EDTA anticoagulated blood may be used if the smear is made within l hour of collection.

1. Put a small drop of blood on one end of slide.

2. Draw spreader slide toward drop at a 30 degree angle until it touches the drop of blood. The blood will spread behind the spreader slide by capillary action and should be allowed to spread the full width of the spreader slide.

3. Push the spreader slide smoothly and quickly down the slide producing a feathered edge. If no feathered edge is present, repeat with a smaller drop of blood.

4. Allow the smear to air dry. With a lead pencil, label the slides with patient's full name.



BONE MARROW PROTOCOL

l. Submit two unstained and unfixed properly made peripheral smears from a finger stick or from a freshly drawn EDTA tube. Please send the EDTA tube when available, and submit the most current hematology results.

2. Indicate how many bone marrow samples were submitted on the patient (and whether bilateral or not).

3. Submit 8-l0 smears made from the bone marrow particles. Some smears made from crushing the particles in the middle of the slide may be submitted. It is sometimes helpful to rinse the aspiration syringe with EDTA or heparin (before obtaining aspirate). This may prevent the aspirate from clotting before smears are made. Touch preparations should be prepared by repeatedly touching the biopsy specimen to glass slides and exerting a gentle downward pressure. A rotary or smearing motion should be avoided since rupture and destruction of cells will result. Additional bone marrow aspirate specimens may be collected in heparin and/or EDTA depending on what additional special studies may be required. See below:

HEPARIN	Flow cytometry, cytogenics, FISH
EDTA	Molecular tests (PCR based)

4. Submit the bone biopsy and the marrow clot in separate bags containing Formalin.

5. Submit all the samples and the requisition in one box, but **protect the blood samples and the slides from the formalin specimens by packaging them separately within the box. If the smears are exposed to formalin vapors, they will be essentially unreadable.**

6. **Clinical history is extremely important** and can influence interpretation. Please include history and indication for marrow examination. (See section on clinical history under “Peripheral Smear Evaluation By Pathologist”)

7. **If a “dry tap” is obtained** (no aspirate or no marrow particles in aspirate) a needle biopsy (with touch preparations) is necessary for adequate marrow evaluation.

AUTOPSY
Sioux Falls, SD

INTRODUCTION

An autopsy is a pathologic examination of a portion or the entirety of a deceased individual's body. Autopsies are a valuable means of determining cause of death plus determining whether other significant, possibly clinically unsuspected, diseases exist. An autopsy does not prevent viewing of the body in an open casket ceremony and can be limited to any degree requested by the family, even to the point of needle biopsy only.

AUTOPSY ORDERING GUIDELINES

We offer a full range of autopsy services. The autopsies performed are generally divided into two main categories - autopsies done for hospital deaths and autopsies done for forensic or medicolegal reasons. Hospital autopsies are usually ordered by a decedent's family while forensic autopsies are usually ordered by county medical examiners or coroners.

To obtain either a hospital or a forensic autopsy we suggest that our clients initially contact one of the pathology assistants (PA's), pathology resident or the PA on call if it is after hours. The PA or pathology resident will make the necessary arrangements and schedule the autopsy. The PA or pathology resident will contact the forensic pathologist (Dr. Snell) for more complicated forensic cases, or the client may choose to contact the forensic pathologist directly.

After consultation with the pathologist, PA or pathology resident, all autopsies will be performed by a pathologist at the Sanford Hospital morgue in Sioux Falls

Although we suggest complete autopsies, we are happy to perform partial autopsies, including brain retrievals for dementia studies. Complete autopsies are always recommended for all forensic autopsies. Partial autopsies of forensic cases of definite criminal or legal concern will not be done.

Autopsy reports will be given only to the parties authorizing and/or paying for an autopsy. We require a release from those individuals prior to disseminating autopsy results to other individuals or agencies.

We welcome death scene investigation and other forensic consultation requests. These consultation requests should be made directly to the forensic pathologist or the resident on call.