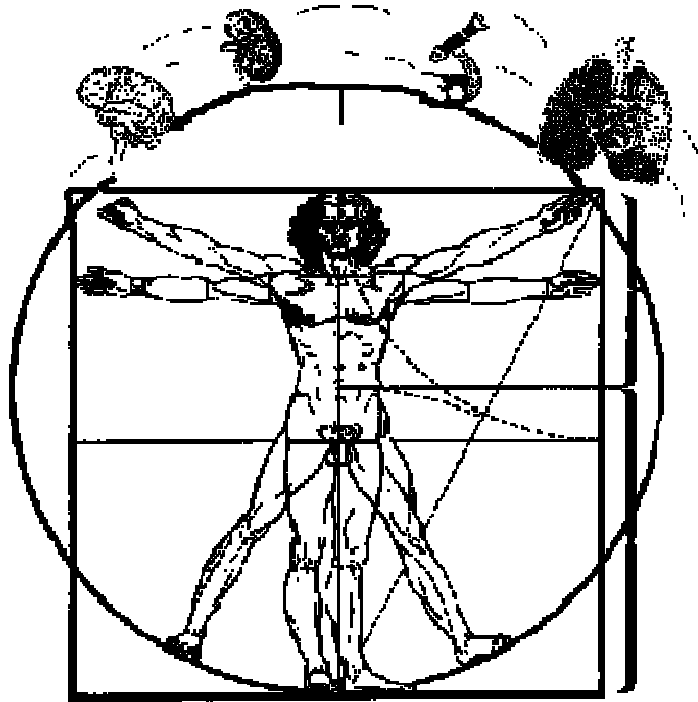


SECTION II:

[Introduction](#)
[Frozen Section Duties](#)
[On Call Duties](#)
[Grossing Duties](#)
[Slide Review Duties](#)
[Sign Out Duties](#)
[Consult Services](#)
[Duties](#)
[Case Turn-Around](#)
[Times](#)
[Case Cutoffs](#)
[Signing Off Service](#)
[Weekend On-Call](#)
[Autopsy Service](#)
[Responsibilities](#)
[Breast Service](#)
[Responsibilities](#)
[Renal Biopsy Rotation](#)
[Chief Resident](#)
[Responsibilities](#)
[Gross Room](#)
[Supervisor](#)
[Attending-Housestaff](#)
[Interactions](#)
[Housestaff Hours of](#)
[Duty](#)
[Teaching Conferences](#)
[Clerkship 680](#)
[Dictation Instructions](#)
[Fixatives and Special](#)
[Stains](#)
[Safety Procedures](#)

GO TO
[SECTION I](#)
[INTRAWEB](#)

Anatomic Pathology Clinical Procedures



Introduction

This section of the *Surgical Pathology Guidelines* covers the clinical responsibilities of residents, fellows and medical students, which is in addition to the actual procedures for processing specimens. Additional policies and procedures that are administrative in nature can be found on the Residents' IWeb under Policies and Procedures, including the Administrative Guidelines, Computer Procedures, various hospital guidelines, UW GME requirements, and state and federal requirements.

Section II Index

❖ Frozen Section Duties	275
❖ On Call Duties	279
❖ Grossing Duties	280
❖ Slide Review Duties	285
❖ Sign Out Duties	286
❖ Consult Services Duties	289
❖ Case Turn-Around Times	291
❖ Case Cutoffs	292
❖ Signing Off Service	293
❖ Weekend On-Call.....	295
❖ Autopsy Service Responsibilities	296
❖ Breast Service Responsibilities.....	297
❖ Renal Biopsy Rotation.....	298
❖ Chief/Senior Resident Responsibilities	299
❖ Gross Room Supervisor.....	303
❖ Attending-Housestaff Interactions	305
❖ Housestaff Hours of Duty	308
❖ Teaching Conferences	310
❖ Clerkship 680	311
❖ Dictation Instructions	314
❖ Fixatives and Special Stains	331
❖ Safety Procedures.....	334

Frozen Section Duties

OR SCHEDULE

Check the OR schedule on Mindscape, check previous pathology and review glass slides of pertinent prior pathology for each patient.

OR-AP COMMUNICATIONS

All communications between the OR and our department are made by calling the front desk in Anatomic Pathology (8-0330, protected for OR calls only). When the front office attendant is notified by the OR, he/she will page the on-call resident with the OR number and the surgeon's name. If the case is a neuropathology case, the neuropathologist will be paged with a 30-minute warning. Once the specimens are procured for frozen sections or gross OR consultation, the pathology resident and the neuropathologist will be paged again. After 5:00 PM, the OR calls the paging operator to page the resident on frozen section calls (Mondays-Thursdays) or the resident on weekend call (Friday after 5:00 PM-Monday 8:00 AM).

When called to the OR, respond promptly.

AMBULATORY SURGICAL PAVILION CASES

Pathology residents and attendings do not go to the operating rooms in the Pavilion. The surgeons send the specimens to the Frozen Section room. The transporting personnel are NOT to leave a specimen unattended in the FS room, but they must pass the specimen directly to the pathologist. If the specimen is to be opened and returned to the OR for inspection, the transporting person must either wait while the specimen is opened and examined, or the pathologist will call the OR to ask for someone to return to the FS room to retrieve the specimen. The surgeon must orient the specimens from the Pavilion by use of colored ink or by sutures. The on-call pathologist must confirm these details by telephone in instances where orientation is necessary. The FS or intraoperative gross diagnosis is reported by telephone to the Pavilion OR, and the diagnosis is documented in writing on the specimen patient consultation record (PCR).

MAIN OPERATING ROOMS IN THE HOSPITAL: INTERACTION WITH SURGEON

When you get called to the OR, do not expect the surgeon to give all the information you need. Some are better than others in giving adequate information. The following is the minimum needed information:

- What is the purpose of the call?
- What is the clinical presentation?
- What is the surgery plan?
- Any prior operations, XRT/chemo?
- Any history of prior or current tumors?
- What is the information you need right now to proceed with the surgery?

Use your clinical judgment to decide what additional information is needed in a particular setting. Often the purpose of the call is to orient the specimen for you. If you have any questions about orientation or other aspects of the specimen, make sure you ask the surgeon all the questions you want to ask before you leave the room. **Do not leave the OR without the pathology consultation record (PCR) with the patient and specimen information on it. Call the attending pathologist if there are any questions.**

FROZEN SECTION ROOM

Now the specimen is in the frozen section room. The following steps are routinely followed regardless of the nature of the specimen:

- The support staff person will accession the specimen and generate an **accession number** (SU number). If the support staff member is not present, page one at 541-5173. If the support staff are unable to assist you during the frozen section, use the patient's medical record number on the frozen section slides. You will need the number for two purposes: (1) to label the frozen section slides and (2) to make the specimen label when taking photographs (if needed).
- Now you are ready to **take photographs**, if needed. Here is a simple algorithm: Tiny specimens and lymph nodes are not photographed. Large GYN specimens are **always** photographed. Large non-GYN specimens are usually photographed unless there is a reason not to do so. Refer to the photography section for technical details.
- Now you are ready to do the **frozen section**. The following points are emphasized:
 - o Technically, freezing artifacts are more prominent with "slow freezing". In other words, the faster the specimen is frozen, the less artifact.
 - o When freezing tiny specimens, freeze the chuck, then take the block outside the cryostat and place the specimen on it quickly and add some more OCT, then return to the heat extractor. **Do not** attempt to place small pieces of tissue on the freezing chuck while inside the cryostat. If you accidentally drop the specimen in the cryostat, you'll lose it.
 - o Always compare the size of the section to the size of the chuck. the ideal section/chuck ratio is 1:2. "Fat-free", thin, and small sections freeze faster than fat-rich, thick, and large sections.
 - o Make sure **before** you start cutting the tissue that all screws are adequately tight and the disposable blade is new. New blades make a great difference in the quality of your sections. Make sure the blade is in place.
 - o Make sure glass slides are pre-labeled before you do the sectioning.
 - o If there are a number of frozen sections simultaneously in progress, support staff are available to do the stains for you. If not available, you should be able to do the stains simply by following the written procedure at the H&E staining station.
 - o After looking at the slides and making the appropriate interpretation with the attending, you should write your notes on the patient's chart. If you are involved in multiple specimens, you can save yourself time by reporting the results by phone. Afterward, you **must** go to the OR to write your notes.
 - o You will sometimes be called to give a "gross impression". After conferring with the Attending, report this to the surgeon. All "gross impressions" must be charted, dictated and included in the final report. Make make sure we bill for a gross OR consult.
 - o When thawing the block, if you have a tiny specimen, it should be wrapped in tissue paper before placing it in a cassette.
 - o Handling multiple sections at one time: **Don't be shy to ask for help**. Remember: the longer the FS turnaround time, the higher the chance to get called by the OR for results, and more importantly, the longer the anesthesia time. The most important thing is to stay organized, and AVOID SPECIMEN OR LABELING MIX-UPS, particularly when someone else is helping. Otherwise, you should ask the chief resident or the **attending** of the day for assistance.

- **Touch imprints/smears** are very helpful not only in showing the cytologic features of the lesions, but also in helping to make a diagnosis (some centers make intraoperative cytology interpretations in as many as 95% of the cases). Please follow the following steps:
 - o Label slides.
 - o With a 4x4 piece of gauze, gently dry out the surface to be touched.
 - o Very gently, touch the area of interest by a glass slide and IMMEDIATELY fix in alcohol.
 - o Stain as with H&E.
 - o Report the Intraoperative Cytology diagnosis separately if it is different or it adds information not available in the FS slides, so that it can be billed.
- A rule of thumb when **reporting results** to surgeons: Make it clear and brief. The results should be directed to answer the question. Additional information need not be given unless specifically requested by the surgeon. The more information you give, the more likely you will create confusion by the "extra" information you are providing. Remember, when you don't know the answer to their question, your appropriate answer should be, "I don't know, let me check with the attending".
- After reporting the results, use your judgment in handling the **remainder of specimen**. If additional studies are needed, place fresh tissue in appropriate media (hematopathology studies - hematopathology flow medium, cytogenetic studies-cytogenetic cell culture medium, EM-0.3% glutaraldehyde)
- Consider grossing in the specimen, or the frozen section part, in the frozen section room. It is an efficient and effective way of keeping things moving and will cut down on grossing in time the next day.
- Potentially infectious specimens should be frozen in the cryostat that is closer to the multiheaded microscope. Make sure you wear protective mask and eyewear. We do not freeze suspected TB cases. If the FS slide reveals necrotizing granulomas, inform Dan Luff or Patti Erickson so that the cryostat can be decontaminated.
- Lymphoid tissue for **lymphoma work-up**: In all cases, it is most important to process the tissue as soon as you receive it. Any delay in processing causes delay in reporting the studies. Use the following guidelines:
 - o Serially "breadloaf" the specimen along the SHORT AXIS into several thin slices.
 - o Make at least four touch preparations (2 H&E stained and 2 air-dried given to the hematopathology lab).
 - o Usually frozen section is not requested on the tissue. If one is, after performing the section, place a fresh tissue sample in RPMI (you can find it in the fridge in the FS room), and take it with the touch preps to the hematopathology lab so that it can be submitted for flow cytometry analysis.
 - o Place the remainder of the slices in regular cassettes for routine paraffin embedding and place one slice in a green cassette to ensure rapid turnaround for HP as the flow cytometry will be done on the day received and their final diagnosis depends on the frozen section interpretation.
- Fresh tissue for **research studies**: the various research teams that are involved in studies process certain specimens. You may be called to the OR to pick up such specimens. If there is a

non-research-related question by the clinicians, act accordingly. Otherwise, all you need to do is to call the research team's pathology attending involved in the study and they will take the sections for you. Please call Dr. Swanson for all colon and small bowel specimens, and Dr. True for prostates. All you need to do is to dictate the gross accordingly. You will get the glass slides and you will sign out the case in the usual fashion. Currently, the OR calls you to pick up the GI and sarcoma cases. Prostatectomy specimens are picked up and processed by the designated research tech and Dr. True, who will perform the gross dictation for you; you will still get the glass slides and will be expected to dictate the final diagnosis.

For all research that does not involve a specific pathologist who takes the tissue, be certain the researchers have an approved IRB protocol. If they do not, have them contact Dr. Swanson, Erica Mustonen or Dan Luff for approval.

- The neuropathologists do the frozen section interpretation on any case operated on by the neurosurgeons or ophthalmologists. You need to ask the front office personnel to notify the neuropathologist as soon as you find out about a potential frozen section on a neuropathology case.
- **Muscle and nerve biopsies** go directly to **neuropathology**. You will be called to pick up such specimens. Place them in the gross room refrigerator immediately, slightly moistened by saline on a piece of gauze. Inform the gross room staff that there is a muscle or nerve biopsy that needs to be sent immediately to Neuropathology. They will prepare the specimen on wet ice and arrange for transportation to Harborview. **NOTE:** You may be called requesting frozen sections on a muscle rather than for pickup. This is usually an error and the OR is actually requesting to get the tissue frozen for special histochemical studies. Confirm the situation before making any frozen section on muscle biopsy.

On Call Duties

SCHEDULE

You are to cover frozen sections every third day. In addition, you will be on call on an average of one to two weekends a month.

WEEKDAY CALLS

You are on call from 8 AM to 8 AM the following morning. (On June 30 of each year the weekday call ends at 7:30 AM in accordance with a directive from the Housestaff Office.) Before you go home in the evening, check with the OR personnel (ext. 84270) about cases that may have potential frozen sections on them. Also, check OR refrigerator prior to leaving to deal with any specimens requiring overnight fixation. Usually the attending-on-call will contact you before they leave to check about the OR status. Some of them would prefer to be called at their home phone instead of being paged. Be sure to check with the attending-on-call about his/her preference.

WEEKEND CALL

You cover the service from 5 PM Friday to 8 AM Monday. Carry with you the resident's cellular phone and pager number of the attending on call. If you fail to do so, you can always call the paging operator (598-6190) and ask them to page the attending-on-call.

You are expected to check refrigerator on Saturday afternoon to place any specimens requiring fixation in formalin so that they can be grossed on Monday.

TYPE OF CALLS

Over 90% of the calls are frozen section type of requests. At times, you may get paged inappropriately. Refer these calls to the appropriate people.

CELLULAR PHONE

When outside the hospital, you can carry a cellular phone designated for the on-call resident. Its use is limited to answering hospital calls only. It is located in the front office and returned to front desk personnel daily for battery charging.

AFTER HOURS

For a frozen section, get as much history as possible and determine when the specimen will be available for pathology. Some surgeons call far in advance; be sure to pin them down as to the timing of the case. Call the attending-on-call at this time so he/she can arrange to meet you at the hospital.

Grossing Duties

HANDLE EVERY SPECIMEN AS A POTENTIALLY INFECTIOUS SPECIMEN

GROSS SPECIMEN HANDLING

Upon receiving a specimen:

- Confirm that data on the "Pathology Request Form" and specimen data (patient name, MR#, accession number, part number, type of specimen, etc.) match.
- Examine the specimen and consider whether samples for special studies, i.e. IHC, cell marker studies, cytogenetics, DNA flow cytometry, EM, research, need to be collected before fixing the specimen in formaldehyde.
- Consider photographing the gross specimen prior to fixation.
- Fix in formaldehyde (for large specimens, at least one dimension should be no greater than 1.5 cm and formalin must have access to all surfaces.) This may require sectioning the specimen and placing paper or cloth towels between sectioned blocks of tissue to "wick" fixative in to all surfaces of the specimen. Ideally, the ratio of formalin solution to tissue is 10:1.
- Discontinue use of the blue sponges for holding specimens in the cassettes during processing. Small specimens should be wrapped in lens paper, which should be folded in such a way that one corner is left overlapping to permit ease of unwrapping by the embedding histotechnologist after the specimen has gone through the paraffin embedding. If there are any questions on how to use lens paper to keep small specimens safe from loss during processing, please ask the gross room supervisor, certified PA or attending for instructions. If the specimen to be submitted is white or pale in color and does not require ink for orientation, consider the use of ink or methiolate to mark it for easy recognition against the white paper, clarifying in the dictation whether or not ink is used for margins. Sponges undergo heat artifact, distortion and shrinkage during routine processing, and they cannot be used in the rapid processor. Only wrap the thawed frozen sections after it has been removed from any residual OCT; the OCT tends to tenaciously stick to the lens paper.
- All big cases must be discussed with the Gross Room chief resident or faculty member until resident has received "Gross Room Privileges."
- When passing on specimens for someone else to gross in, provide orientation and measurements prior to fixation. It is ideal to jot down the measurements on the requisition sheet for the next resident to use while grossing in. If you have dictated a portion of the case, but will end up passing the case on to somebody else to finish the gross, make sure you mark down on the requisition which parts you have already dictated.

LATE PICK UP

The FS resident should check the OR refrigerator at 5:30-6:00pm to ensure that no late specimens requiring overnight fixation have arrived. This is especially important on Friday night to avoid specimens sitting unfixed for several days. If you remove specimens from the OR refrigerator, check them out of the specimen notebook generated by surgery. Note the number of specimens and record your initials.

PAGER

You are to carry your pager from 8 AM to 5 PM. You are the back up of frozen sections (rare) and are also responsible for non-OR calls.

RUSH BIOPSIES

"RUSH" biopsies arrive occasionally and need to be grossed in as soon as possible. Most of the times, the biopsy is a post-transplant liver biopsy for rejection evaluation. On the PCR, it is specified if the rush is for a "same day diagnosis" or "next day diagnosis". The tissue processor has a short cycle program such that we are able to process specimens the same day they are received. As soon as the slides are available, you should sign out the case with the attending of the day.

PACE YOURSELF

Start early, as the transcriptionists end their day at 4pm. Depending on the number of specimens, you may want to gross in before noon, or do it in batches. Triage your specimens. Fix the fresh ones that take a longer time to fix, so hopefully by the end of the day, you may be able to submit sections in cassettes. Delay in grossing in slows down transcription workflow. You should begin as early as possible and finish as early as possible. Try to dictate your cases in the correct order, example: a, b, c, etc.

PREVIOUS DAY

If you have a lot of specimens from the previous day that need to be cut in, try to cut them in early, prior to receiving the current specimens (i.e., before the 8 AM conference, if necessary.)

SARCOMAS

All cases with no prior work-up should get ancillary studies, if possible. The biopsy should be divided into portions for H&E, cytogenetics, and EM. H&E is by far the most important and should be given the highest priority. If you want to order cytogenetic analysis of a specimen, then the request must be sent the same day that the specimen was received (or early the next day if cytogenetics is closed). If you aren't sure if something should be submitted, first check in Mindscape whether cytogenetics has been performed. If it has, then you must call cytogenetics for the result and see if the previous specimen was adequate. Then contact the gross room supervisor or Dr. Rubin for assistance.

NON-NEOPLASTIC LUNG SPECIMENS

Some of the times you will need to freeze a portion of tissue. The gross room tech will help. Any additional unanswered questions can be directed to Dr. Schmidt or to the chief residents. For more details, refer to the [pulmonary section](#) in the Guidelines.

SENTINEL NODE SPECIMENS

When frozen sections are requested, half of the node is frozen and evaluated microscopically. If the FS is negative for malignancy, the report to the surgeon should be qualified by the comment that, "FS is performed on a representative half of the node. The diagnosis is..." Sentinel nodes are no longer automatically cut or stained. At the time of histologic submission, the entire node should be submitted for histologic evaluation, with the request for three H&E levels. All sentinel lymph node immunostain requests are now generated on a case-by-case basis. If a sentinel node for melanoma is negative by routine H&E, the stains (S100/ Melan-A) must be ordered by the resident or attending; the resident should order the stains on their preview day so that they will be ready during the sign-out day (if you are unsure, then try to show the lymph node to the attending on your preview day). In breast carcinoma, the stain (AE1/AE3) is determined on a case-by-case basis at breast pathology sign-out.

PLACENTAL AND CARDIOVASCULAR SURGICAL PATHOLOGY

Placental and cardiovascular pathology is coordinated via the autopsy service; please refer to the autopsy service for the most recent protocol. Contact Janet Miller, Jessica Norborg or Dr. Corinne Fligner for

placental pathology, and Janet Miller, Jessica Norborg, Dr. Michael Laflamme, or Dr. Dennis Reichenbach for cardiovascular pathology.

GROSS-ONLY SPECIMENS

When you get specimens for gross examination only, in order to make the sign out process much faster, you can dictate the diagnosis at the same time you are doing the gross dictation (since the diagnosis is simply: Specimen designated _____. Gross diagnosis only.) Give the name of the attending on frozen sections on the day the specimen is received. The FS attending for that day must also examine the specimen grossly and must be notified of the case.

If a specimen or a part of a specimen is designated by the surgeon as “for disposal only”, then grossly exam the specimen, but do not dictate the exam. Instead, dictate “received unfixed designated ‘_____’ was stated by surgeon as for disposal only”. If your gross exam of the disposal only specimen is grossly disparate from the requisition (e.g. req states that the part is adipose tissue and what you see are chunks of liver), then try to call the surgeon to double check if they intended the part to be disposal-only.

PHOTOGRAPHY

There are three gross digital photo set-ups in the Anatomic Pathology section - autopsy room, grossing room, and frozen section room. Here are some general guidelines for gross photos:

- Before placing the specimen on the table, make sure it is clean and remove all excess blood and other fluids, so that the specimen sits on a dry glass plate. Remember, presentation is everything.
- Label a scale card with the Surgical Pathology accession number, or the hospital number of the patient and place label below the specimen (do not use the patient's name on the label, except after hours when the specimen has not been given a number).
- Position the camera so that the specimen almost fills the field that is to be photographed.
- Photo the cut section, after making the cut along the longest axis of the specimen (taking care to first place ink on the line of the cut if that region of the surgical margin needs to be histologically evaluated and choosing the cut so that it does not impair your ability to get histologic information from the specimen).
- Turn off the overhead room lights to avoid glare.

DESIGNATED ON-CALL ROOM

One of the call rooms in the medical school building (B-628) is now available for the residents on call in Anatomic Pathology. The room is located in the call room area in the B-wing in the medical school. The code for the main door is B-E-D (233). The key to the room is kept with one of the chief residents. You can take it whenever you need it. The top priority to use the room is for the pathology resident on call for frozen sections. However, if any resident decides (after a long day) to stay in-house, he/she has to check with the resident on call for frozen sections before he/she can use it.

SPECIAL PROCEDURES

Solutions mentioned below are kept in both frozen section room and cutting room.

A variety of special tissue fixation and handling procedures are used to characterize disease. The particular fixatives and procedures used vary with the disease process. Below are the logistics for different special procedures.

- **Cardiac Biopsy - Heart**

The cardiac biopsies are handled separately from the routine Surg Path specimens (by Drs. Murry, Reichenbach, and Laflamme). Hearts (from transplant patients) are handled for research studies - contact Dr Murry.

- **Cytogenetics**

Put fresh sample of tissue in "culture medium". The gross room technician will notify Cytogenetics. On weekdays or evenings, take over to central processing. (Cytogenetics: Room NW-125; phone 598-4488)

- **Electron Microscopy**

Place in EM fixative (usually half-strength Karnovsky's fixative) immediately; never freeze, put in water or saline, or let dry. Dice into tiny pieces with blades; ideal size is no larger than 2 mm. Refrigerated Karnovsky's fixative is useful for about 4 weeks; discard if there is a precipitate. Vials are kept in the Gross Room and are prepared by the EM Lab. Minimum fixation time is 3-4 hours; tissue can be fixed for several weeks; vials of older tissue are periodically collected and stored in Records Storage - this is off campus. (EM lab: room BB-240; phone 598-6411)

Processing takes approx. three days: Process and embed (day 1), one-micron thick sections made early the second day with ultrathin sectioning and 'scoping late in the day (day 2), prints ready (day 3).

- **Flow Cytometry (for DNA content of tumor cells)**

Request: In general, the results from fresh samples are preferred. Paraffin-embedded samples can be used as well. In some situations, i.e. the tumor cannot be grossly identified (for example, biopsies, prostate cancer), fixed, paraffin-embedded samples must be used. Fresh samples should be kept moist (tissue culture medium), refrigerated and sampled as soon as possible. In selecting the sample, remove areas of grossly nonviable tumor, non-malignant tissue, and fat; this minimizes the amount of normal tissue, debris and nonviable tissue, which may obscure detection of subpopulations of tumor cells. Place sample in MEM (Minimum Essential Medium containing DMSO) provided by Flow Cytometry Lab (Flow lab: room NW-110; phone 598-6415) and stored in refrigerators in both Frozen Section and Gross Rooms. The sample may then be frozen in the -70°C freezer (in room BB246).

Paraffin block: When requesting flow cytometry from a paraffin block sample, submit the H&E slide with the request. Circle, on the slide, the area to be analyzed. Select an area, or areas, most representative of the tumor and with the highest ratio of tumor cells to normal cells. Exclude blood, necrotic tissue, and inflammation.

Report: The flow cytometry DNA content and cell cycle analysis results are reported separately as an addendum to the surgical pathology report. The report will indicate the specific paraffin block used when a fresh sample is not used, or when a paraffin block is referred to confirm the results of the fresh sample. The report will also indicate if the sample has been enriched to tumor cells. The "results" portion of the report consists of:

- o a statement about DNA ploidy and the S-phase fraction
- o the numerical values associated with ploidy and the S-phase fraction
- o the histogram of the reported values.

The "interpretation" portion of the report consists of a correlation of the results with the histologic diagnosis, a statement as to the prognostic significance of the stated results, and relevant literature citations that support the "interpretation."

For flow cytometry of cell surface markers, see Hematopathology section below.

- **Hematopathology**

(Also refer to [Hematopathology](#) in Section I.) Put fresh sample in RPMI (Hematology: Rm NW 225, phone 598-6231; beeper 994-8663). Check with H.P. If transport will be delayed for <24 hrs., put the container with RPMI on wet ice. If >24 hrs., freeze in OCT at -70°C.

- **Immunohistochemistry**

Place samples in formaldehyde. (IHC lab: room NW-211; phone 598-4202)

- **Kidney Biopsies**

You will probably never be directly involved in handling these specimens. They go directly to the "Renal Biopsy Histotech" (beeper) in 3 to 4 media: Formaldehyde, Transport medium (for IF), Karnovsky's fixative (for EM), and (optionally) methacarn.

- **Skin/Mucosa Biopsies for Immunofluorescence Studies**

During the day, give fresh tissue to IHC lab to be immediately frozen. At night, put specimen in "Transport Medium for Immunofluorescence"; this is kept in a cupboard in both the gross room and the frozen section room.

Slide Review Duties

INTRODUCTION

The way the surgical pathology rotation is structured allows you to have a full day to review the slides from cases that you grossed in the day before. It is called the "slide review day". You should review and dictate these cases early in the day. Discuss any possible re-cuts, IHC, special stains, or additional sections that need to be submitted with the attending who will sign out the case. Although the amount of physical work during the slide review day is minimal compared to the frozen section and grossing days, it is by far the longest day on service. Depending on the number of histotechs, you usually get all the slides by 2 PM.

PROOFREADING AND PULLING OLD CASES

You must carefully proofread and correct the clinical and gross sections of your dictation. You must also preview the patient's previous diagnoses and pull any slides that might be important to the current sign out and have them for the attending, especially for transplant cases.

As you go through your cases, you may find that additional sections may need to be put through or may come across issues that require special stains/IHC/further work-up. Run these things by the attending with whom you will be signing out to see if they agree. Ordering them while on review instead of waiting for sign out saves a day in turn around time.

BIOPSY RESIDENT

Breast/Biopsy Week: You will be responsible for all breast specimens during this week including core biopsies, lumpectomies, mastectomies, and consults. These are to be signed out with either Drs. Lawton or Garcia. Please talk to the attending early in the day about sign out time. Biopsy slides will be received in the morning to be signed out the same day with the attending of the day.

GI biopsy slides will be received on "gross" day to sign out on slide review day.

SUBMITTING REQUESTS FOR IMMUNOHISTOCHEMISTRY (IHC)

Remember the following when submitting materials (blocks, tissues) for immunohistochemistry:

- **Get attending approval first.** Check with the attending responsible for the case prior to ordering and look at slides with attending prior to sign out.
- All requests placed in the IHC "in" box before 4:30 p.m. will be run the following day (providing, of course, that blocks are available in the department).
- After 4:30, and until the last person goes home (varying times depending on workload, and scheduling), in order to **ensure** that your case is run the following day, directly contact a member of the IHC staff (*verbally, via phone (84202), or via pager (583-1030)*), and they will be happy to make sure that your case is run. If you don't make contact, you are not **guaranteed** that anyone will be around to handle your request.
- If you are unable to reach a member of the IHC staff after 4:30, and you still **need** to have your case run the next day, you will need to personally make arrangements with the Histology evening person, **AND** tape a yellow IHC request form to the IHC computer monitor. Or leave a message at 84202 with explicit instructions.

We want to make all efforts to accommodate your requests, and we hope that these guidelines will make it easier for you to know what to expect. If you have any comments or questions, please contact any member of the IHC staff, or Dr. Swanson. Thanks!

Sign Out Duties

REPORTS

Sign out starts around 9:00-9:30 AM, or by arrangement with the attending pathologist. Most of the time it takes place at the five-headed microscope in the frozen section room or in the office of the attending pathologist. Remind the attending if there is a medical student rotating on Surgical Pathology so that the sign-out can take place at a multi-headed microscope to include the student. Printed copies of the transcribed report are not provided automatically to the resident, as they are available online. If a printed copy is desired, the resident must print a copy of the preliminary report.

TRIAGE OF CASES FOR SIGN OUT

All cases, other than breast, will be signed out directly by those separate services.

Biopsies: Biopsies go to the Biopsy Resident. All small diagnostic biopsies and small resections (that do not require fixation) and some small non-diagnostic specimens (e.g. veins, cataracts).	
Appendix	Lymph nodes (but not lymph node dissections)
Bladder biopsies	Meniscus
Bone tumor biopsies (including reamings from pathologic fractures)	
Breast excisional biopsies < 2cm in greatest dimension (but not excisions after core needle biopsy or FNA)	Nerves (traumatic neuromas, peripheral nerve sheath tumors, vagal nerves, but not those taken for diagnosis by Neuropathology)
Breast duct dissections	Pancreas biopsies
Breast needle core biopsies	Parathyroid glands (w/o thyroid)
Calculi	Pericardial biopsy
Cardiac specimens (including hearts)	Pleural biopsies
Disc	Prostate needle core biopsies
Foreign bodies and orthopedic hardware (except bullets handled by Frozen Section Resident)	Sarcoma biopsies
Foreskin	Skin (biopsies and small ellipses go to derm resident)
Gallbladder	Skin - small ellipses of primary lesions (melanoma re-excisions go to Bigs resident)
GI biopsies including polyps	Stapes
Gross only specimens	Synovial biopsies and synovium
Gyn biopsies (endometrium, vulva, vagina and cervix)	Fallopian tubes for birth control
Hematoma	Teeth
Hemorrhoids	Temporal artery biopsies
Hernia sacs	Testicular biopsies
Kidney wedge resections	Tonsils
Laryngeal biopsies	Vasectomy specimens

Lipomas (2 cm in greatest dimension)	Vein
Liver needle core biopsies	Lung, endobronchial or transbronchial
Bigs: All large specimens (except for those handled by specialty services) and some small non-diagnostic specimens. Before 12:00PM: Big specimens that have not had a frozen should go to the gross resident for the day to be fixed until the afternoon and cut in the same day. After 12:00PM: All big specimens go to the frozen resident for the day unless they do not require any extra fixation. If there are questions about specimen distribution, ask the Chief Resident, attending of the day or other available attending.	
Adrenal gland	Melanoma re-excisions
Amputation	Nasal Polyps and sinus contents
Bladder, partial or total cystectomies	Orchiectomies
Bone and joints (except diagnostic bone biopsies, incidental ribs taken with a small diagnostic specimen, pathologic fracture reamings, bone marrow biopsies and routine bone specimens processed by a PA.)	Parangangliomas
Breast (except excisional biopsies < 2 cm in greatest dimension, needle biopsies, duct dissections)	Pancreatectomies
GI tract resections	Prostatectomy
GYN resections (ovary, tube, hysterectomy, fibroids)	Salivary glands
Kidneys (except needle and wedge biopsies)	Sarcoma resections
Laryngectomies	Skin from reconstructive procedures
Lipomas > 2 cm in greatest dimension	Spleen (if not hematopathology)
Liver resections	Thyroid
Lung (all except small biopsies and small wedge resections)	Transurethral resection of prostate specimens
Lymph node dissections	

NOTES TO ATTENDINGS AND RESIDENTS

The following individual subspecialty staff makes specific requests concerning their particular diagnostic areas:

- Liver and Pancreas/Duodenum Transplant Cases:** Refer to detailed guidelines (above) on this subject for grading criteria. Drs. Upton, Yeh and Swanson are in a rotation as consultants and will be happy to sign out primarily or consult/countersign this material during the regular working day (best accomplished at the daily GI sign out at 1:30 PM), **as desired by the assigned daily attending.**
- General GI and Liver Cases:** Drs. Upton, Yeh and Swanson are in a rotation as consultants and will be happy to sign out primarily or consult/countersign this material during the regular working day (best accomplished at the daily GI sign out at 1:30 PM), **as desired by the assigned daily attending.**
- GYN Cases:** Dr. Garcia will be happy to sign out primarily or consult/countersign this material, **as desired by the assigned attending of the day.**

- **Bone/Soft Tissue Sarcomas:** Drs. Rubin and Schmidt will be happy to sign out primarily or consult/countersign this material, as desired by the assigned attending of the day. When a case is to be scheduled for Sarcoma Conference, it is okay to postpone verification until after the conference if clinical and radiographic information is needed for interpretation. Drs. Rubin and Schmidt will be apprised of such cases by the clinicians and can act as the primary or consultant attending **as desired by the sign out attending of the day.**
- **Pulmonary Cases:** Dr. Schmidt would like to cosign the lung transplant biopsy and idiopathic pulmonary fibrosis biopsies, and would be happy to consult on or sign out any other lung biopsy or resection material.
- **GU Cases:** Dr. True will be happy to sign out primarily or consult/countersign this material, **as desired by the assigned attending of the day.**
- **IHC Cases:** There will be no change in the current sign out system. Slides and/or results are returned to the resident the day they are run for incorporation into the surgical pathology report, or for inclusion in an addendum report. If included with the original report, these are signed out by the Attending of the day; if as an addendum, either by Dr. Swanson or the Attending.
- **Cardiovascular Cases:** Drs. Murry and Reichenbach will be happy to sign out primarily or consult/countersign this material for diagnosis or resident teaching, as desired by the assigned daily Attending. Endomyocardial biopsies and atherectomy specimens (about 900/year) are signed out with Dr. Murry or Dr. Reichenbach on Monday at a CV sign out session (see revised Surgical Pathology schedule).
- **Placenta Cases:** Only certain staff will sign out placentas (Drs. Fligner, Garcia, and Upton). Placentas are divided between autopsy and surgical residents, and Dr. Fligner will establish a weekly sign out schedule for the staff members, corresponding to weeks they are on service for Surgical Pathology. Dr. Fligner will notify residents of the sign out staff schedule.
- **Genetic Termination of Pregnancy (by D&C) Cases:** Dr. Fligner would like to examine the gross with the resident, and will sign out these cases.
- **Autopsy Cases:** Dr. Fligner will establish a check-off form for use by the autopsy Attending assigned to each case and any consultant Attendings that are requested to review the case by the sign out team. This form will ensure that consultant staff was shown the material and have reviewed pertinent aspects of the final microscopic description, FAD and CPC portions of the autopsy report, if the consultant staff is to be named in the report.

Consult Services Duties

OUTSIDE MATERIALS

All outside material, except breast, will be given to the IHC consult senior- level resident. On the request sheet, check the appointment date (if there is any). Sometimes the appointment date is the same day you are looking at the slides. This means there is a high chance the consulting clinician will be calling you to get results on that case. Therefore, try to sign out the case(s) ASAP. Sometimes the day you get the slides is the same day the patient is operated on. For the same reason, try to sign out that case ASAP, particularly when there is major discrepancy with the outside report that may change the surgery planning.

If additional materials are required, the resident must fill out the pink ADDITIONAL MATERIAL form and submit it to the consultation case accessioners. The resident must indicate the "studies to be performed", so that the accessioners can provide a reason to the outside pathology department for the request. If the resident or fellow has made the telephone request for the material, he or she must direct the delivery of the outside material to the Pathology Department for accessioning, and the form must still be submitted to the accessioners, so that the additional material \ will be logged in under the same accession number when it arrives. If additional slides are requested, they will be delivered to the requesting resident. If outside blocks are requested, they will be logged in, labeled and delivered to the laboratory area, and it is the responsibility of the accessioning staff to notify the resident/fellow of their arrival into the lab. The immunohistochemistry laboratory technologists will enter computer orders for immunostains or FISH from the pink form, if the stains have been indicated. If recuts, H&E or traditional histologic special stains are needed, it is the responsibility of the resident or fellow to order these stains or recuts at the time the block(s) arrive by placing orders in the computer using the PowerPath ordering system.

NON-OR CALLS- GROSS ROOM RESIDENT

- Residents are no longer primarily responsible to manage FNA specimens, but they may be called on to back up the support staff or review the slides. Usually, the Radiology Department or the Endoscopy Suite calls the front desk personnel (86400) who, in turn, informs the Gross Room staff about a pending procedure in the Radiology Department. They will find out if FNA or FS is needed.
 - o If FNA, smears are fixed in 95% alcohol and stained in the FS room. The FS resident may be asked to interpret adequacy/findings with attending-on-call, to document results, to report back to clinicians and give results.
 - o If a frozen section is needed (very rarely), then the support staff person will pick up specimen and give to frozen section resident. Document all findings and interpretation. Call clinicians with results. The FS resident may ask the support staff person to help out if it is a busy FS day.
- If the procedure is FNA, the resident's role (with the help of the attending of the day), is to tell them whether the specimen is adequate or not. No rapid interpretation diagnosis should be given without an attending's approval. All results must be documented.
- If the procedure is a true-cut needle biopsy, usually you are called just to make sure that the specimen is placed in the proper transport medium (flow, etc.), and obviously this type of call does not require a histotech to stain any material for the resident to evaluate. However, they may request a frozen section on the specimen to evaluate adequacy or for other reasons. Then you can ask the resident on frozens to do the frozen and treat the case like any other frozen section.
- In case you do not know what to do, please do not ask the front office people to tell you what you need to do. Get help from a senior resident or one of the chief residents.

INSIDE GI CASES

Go ahead and pre-dictate these cases according to our In-house GI template. After sign out, Dr.Cy Rubin prefers that you edit these cases then print and deliver them to his office to be edited. He will go ahead and finalize the report and get back to you if there are any major changes in your microscopic, final diagnosis or comment.

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Case Turn-Around Times

Anatomic Pathology has set criteria for turn around times. These are "working days" and exclude weekends and holidays.

SURGICALS	AUTOPSIES
Biopsy specimens: Expected - 2 days	Preliminary: Expected - 3 days Allowed - 5 days
Routine specimens: Expected - 4 days	Final: Expected - 30 days Allowed - 60 days
Note: cases requiring decalcification, special studies (histochemistry, IHC, FISH, cytogenetics), recuts, additional blocks or consultation may be delayed, but routine specimen turn-around times should not be exceeded unnecessarily. If such delays are expected, then consider calling the clinician with a preliminary assessment and explain what is being done with the case.	Neuropathology: Expected - 30 days Allowed - 60 days
Neuropathology: Surgicals Expected - 5 days Nerve & Muscle Expected - 12 days	

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Case Cutoffs

- I. Gross specimen case “cutoffs” (subject to change based on daily case load, etc. Always discuss cases with gross room supervisor.):
 - a. Liver explants – first two cases to grossing resident, additional cases discuss with gross room supervisor who may assign cases to Dan Luff.
 - b. Prostates (cases that were not consented for the research protocol) – first prostate to grossing resident, additional cases discuss with gross room supervisor who may assign cases to Dan Luff (or Devon).
 - c. Sarcomas – one complex case to grossing resident (biopsies and small cases can all be grossed by resident), second complex case to Dan Luff (who will sign out the case with Dr Rubin), any additional cases to bone/soft tissue fellow (discuss which cases with Dr. Rubin).
 - d. Breast cases – first four mastectomies/large lumpectomies to resident on breast/biopsy, additional cases to Kim Allison (or gross room supervisor).
 - e. Senior residents may hand off a few complex cases and non-complex cases to Dan at their discretion if discussed with him first thing in the morning.
 - f. Junior residents should only hand off additional cases if case load is too high to finish by 5 pm cutoff (gross room supervisor should be involved in making this decision).
 - g. Complex GI cases (Whipple resections) – residents should be responsible for case but can involve GI fellow on a consultation basis (senior resident cases can be grossed by Dan Luff after discussion about dissection).
 - h. Cases should be kept together if they are given to Dan (if you give him a prostate, he should also get the lymph nodes if they are part of the same case). Cases grossed by Dan Luff should be looked at by the resident such that they are familiar enough with the case to answer questions at sign-out.
- II. GI biopsy “cutoffs” – the first 40 blocks go to the gross room resident, additional blocks/cases can be given to the GI fellow.
- III. Liver biopsy “cutoffs” - four livers (mixed transplant and non-transplant if possible) go to resident on biopsies/breast, additional livers may be given to GI fellow.

Signing Off Service

The paramount priority of the UWMC Department of Pathology is to provide quality patient care. The components of quality patient care include—but are not limited to—accurate diagnostic services, prompt turn-around-time (TAT), and courteous and clear communication with the caring clinicians. To assure that these standards are met, there must be a protocol to help guide a seamless transfer of responsibilities when one resident leaves the service and another one takes his/her place. At the end of the resident's surgical pathology rotation (or when he/she leaves for vacation), the resident is primarily responsible for pending cases to the incoming resident.

Signing-Off

1. Print your PowerPath case queue before you proceed (press “print screen”, then paste on word doc). For each case, jot down who you intend to forward the case to and a brief description of the case and why it is not yet signed-out.
2. Photocopy your list and give a copy to the gross room supervisor.
3. Keep a copy of the list for your records, because once you forward the cases, you will have difficulty back-tracking which cases you forwarded; it is inevitable that people will ask you if you know anything about such and such a case, after you leave.
4. Review your gross description and make any necessary edits. Make sure the cassette index description is included. For complicated cases, consider drawing a diagram of the specimen and the manner in which you grossed it (especially recommended if you are leaving for vacation).
5. Forward residual cases (progress the cases via PowerPath) to either the incoming resident or the attending. If the case is essentially finished, but is pending an addendum, it is probably safer to just forward to the attending.
6. If you are not sure who to forward the case to, discuss this with the gross room supervisor.
7. Place the case slides in the incoming resident's mailbox (or attendings' mailbox).
8. Touch base with the histology and Immunohistochemistry labs and let them know that you are going off service and tell them the name(s) of the resident/attending who will resume your case(s).
9. Communicate with the incoming resident; let him/her know that you have forwarded your cases to him/her (email works fine).
10. If you are going on vacation, tape a note in front of your mailbox stating your period of absence and instructions to place any incoming slides with the gross room supervisor's mailbox instead (indicate on your note who the gross room supervisor is).
11. Remember, even though you are signing-off on a case, you are still an integral participant of the case and still expected to be responsible for the case.

Signing-On

1. Obtain a photocopy of the case list from the gross room supervisor.
2. Cross-reference your powerpath queue to the hard-copy list, if there are any cases on the list that you should have received but is not in your computer list, then let the gross room supervisor know.
3. Touch base with the histology and Immunohistochemistry labs and identify yourself as the person taking over the said cases.
4. Read the gross descriptions, if anything does not make sense, obtain clarification from the resident who forwarded the case. If that resident is on vacation, pull the gross specimen to better visualize the dictation.
5. When checking your mailbox for slides, also double check the mailbox of the resident who forwarded you the cases.

The above is the *minimum* standard for which you shall comply, anything less is unacceptable and irresponsible. Remember, your patients are not pallets of slides, they are people anxiously awaiting your diagnosis.

In the case of unexpected leave (i.e., sickness), the chief residents should handle all inquiries about pending case(s). Should they have urgent questions, they should be able to reach the ill resident at his/her residence. For this reason, when residents get sick, they should communicate information about unfinished cases to their chief residents. On the other hand, when the attending pathologist is aware of the case, it is always appreciated if he/she communicates the information on pending cases to the chief residents.

If an unfinished case will be presented at tumor board, it is desirable that the resident is informed that his/her pending case will be presented so they can make extra effort to finish it, also keeping in mind that the purpose of having a tumor board conference is mainly to make treatment decisions (pending case = pending treatment). For this reason, once the attending gets the tumor board list, she/he will inform the resident about the case (either directly or by means of the "blue sheet" from the front office), so this will give the resident enough time to work up the case (IHC, extra sections). From the resident's end of the story, he/she should have a common sense about prioritizing cases for work up. For instance, all GYN cases should definitely be grossed in by Wednesday (since GYN tumor board is on Friday), and Non GYN and soft tissue tumors should be definitely grossed in by Thursday (since surgery tumor board is on Tuesday and sarcoma conference is on Monday). The residents should prioritize their handling of the cases **ONLY** when they are overwhelmed with specimens and some specimens have to wait to be processed and **ONLY after discussing with the Gross Room Chief and/or faculty**. Otherwise, all specimens should be processed on or before grossing day (except cases that are received late in the grossing day).

Weekend On-Call Responsibilities

The resident on weekend call will cover the service from 5:00 PM Friday to 8:00 AM Monday. The majority of the calls will be for frozen sections. If a frozen section is requested, then get as much information as possible, including brief patient history, reason for frozen, and time of frozen section. Let the person requesting the frozen section know that the attending is arriving from off-site and may take one-half hour to arrive. Once the frozen section is performed, clarify with the pathology attending, surgeon, or the patient's team whether or not the case is a RUSH case. This means that the results will be available on Monday. If the specimen is a RUSH case, then contact the histology technician on call to accession the case and load the processor. In addition, clarify whether or not portions of the specimen should be sent for culture or flow cytometry. The resident can ask the pathology attending on call or call the patient's team. If yes, then submit portions to the appropriate areas (microbiology for culture and hemepath for flow cytometry). The resident on-call should also check the OR refrigerator on Sunday evening for large specimens that require overnight fixation. If they do require overnight fixation, then quickly weigh and measure specimen and place in formalin for the resident grossing in on Monday.

Histology technician on call pager: 663-8098

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Autopsy Service Responsibilities

Corinne Fligner, MD

Procedures for Autopsy Service are currently being revised. Please contact Dr. Fligner or the online *Surgical Pathology Guidelines* for the most current information.

Guidelines for Breast Pathology Service

Thomas Lawton, MD

As part of the Breast Pathology Service, ALL breast material will be signed out by the resident rotating on the Breast/Biopsy rotation. Sign out will occur daily with the attending on Breast for that day (Drs. Lawton, Garcia or Jordan)—please see schedule posted in residents' room) usually between 9:30 and 10:00 AM. Sign-out can occur in the faculty member's office or at the multi-headed scope in the library depending on how many people wish to attend sign out.

The daily sign-out responsibilities of the resident on this service will include all core biopsies (usually out of histology by 8:00-8:30 AM), excisional biopsies/mastectomies, outside directed and non-directed breast consults, and BCSC cases (Tuesdays and Fridays). Core biopsies should get priority and are signed out the morning you receive the slides (24 hour turnaround time). All other specimens are treated as surgicals and are signed out two days after cutting the specimen in (e.g. gross on Monday, review on Tuesday, sign out on Wednesday). In terms of prioritizing, if you are overwhelmed with material, the non-directed consults and the BCSC cases (these will be noted on the front requisition sheet) can be put to the end of the pile or given directly to the attending. Please concentrate your time on the core biopsies and the inside material you have grossed in. Mondays and Tuesdays are the busiest sign out days, so please pay attention to prioritizing on these days in particular.

In addition to morning sign out, the resident will be responsible for the grossing in of that day's larger breast specimens. This resident will have the assistance of the attending rotating on the service as well as Lindi Farrell (the breast tumor bank technician). The clinical history and any imaging findings on each patient will be accessible at the time of gross exam to better facilitate accurate pathologic examination of the specimens.

Regarding the weekly rotation and the passing off of cases, it would be best to pass all material on to the next resident rotating on the service such that no cases will fall through the cracks. This means if you grossed something in on Thursday, it may be best to have the next week's resident review that on Friday or over the weekend since he/she will be signing it out on Monday. If you have a particular interest in a case you grossed in, and you have the time during the following week, you can obviously follow the case through and join us at sign out, but for book-keeping purposes, transferring all cases to the next resident seems the best possible solution.

I hope this will be an educational service for the residents that will also enhance the service we provide to clinicians in breast health care and the patients they serve.

Guide to Renal Biopsy Rotation/Elective

Charles Alpers, MD

- I. **Objectives** – To be able to interpret the renal biopsy.
 - A. To be able to evaluate light microscopy, immunofluorescence microscopy, electron microscopy, and immunocytochemistry as needed, using conventional techniques.
 - B. To be able to identify and diagnose common manifestations of common renal diseases.
 - C. To obtain exposure to “hands-on” electron microscopy.
 - D. To be able to present a case to the renal pathology faculty and to colleagues in the Anatomic Pathology Division.
- II. **Requirements**
 - A. Daily signout with attendings and fellows.
 - B. Attendance at conferences:
 - 1. Transplant Pathology conference, every Thursday afternoon
 - 2. Case Review conference (twice weekly – currently proposed for Tuesdays at Noon and Fridays at 11:00 am)
 - 3. Periodic Wednesday morning Renal Teaching conference to residents
 - 4. Nephrology Division conferences at the Northwest Kidney Center, Friday mornings, as appropriate
 - C. Attendance at Health Sciences conferences presented by other medical specialties focused broadly either on clinical or pathophysiologic issues will be strongly encouraged (e.g., Department of Immunology seminars on Mondays at 3:30pm; the Cardiovascular Breakfast Club on Tuesday mornings at 8:30am; and Rheumatology Grand Rounds on Tuesday mornings at 9:00am).
- III. **References:** A folder containing key references in renal pathology, which will also be located on the Pathology server as a folder containing PDF files, is currently being developed for reference during this rotation.
 - A. Suggested text:
 - 1. An Atlas of Renal Pathology by Fogo and Kashgarian (copy in the Resident library).
 - 2. Silva FG, et al: Renal Biopsy Interpretation, also available in the Resident library.
 - 3. More detailed reference texts, such as Heptinstall's Pathology of the Kidney, will be made available to rotating residents from the personal libraries of the attending faculty.
- IV. **Study Sets:** The attending faculty have begun assembling teaching sets of classic findings and/or diagnoses that will be assessable both as histologic slides and as ancillary materials (e.g., immunofluorescence and electron microscopic studies) that will be available on the Web through the Pathology server. These are currently being constructed, and will be developed continuously during the pathology rotations. It is the hope that the rotating residents and fellow will also contribute significantly to the development of this teaching archive.
- V. **Encouragement of Scholarly Activity:** We will make every effort possible to identify appropriate cases and assist residents/fellows in writing up case reports for publication and embarking on appropriate clinical studies that can be published and/or presented at national meetings such as the USCAP, which may extend beyond the rotation.

We want this rotation to be stimulating and engaging. We will adapt the teaching in this rotation to suit the needs of the rotating residents to whatever capacity we are capable.

Chief/Senior Resident Responsibilities

The goals are to:

- Provide in depth experience in diagnostic anatomic pathology so that the trainee is well trained to practice general surgical pathology.
- Develop a subspecialty area of interest and expertise.
- Gain administrative experience in working with faculty, staff, junior residents and students in helping to manage an academic diagnostic anatomic pathology service.

The areas of responsibilities will include:

1. **Surg Path Coverage (6 months):** shared responsibility that the residents' component of the anatomic pathology section provides courteous, timely, professional and accurate service. The duties below (other than general surg path) should be divided as equally as possible among the senior level residents (surg path, consult and gross). An attitude of responsibility towards quality patient care and team work is expected.

While this seems to be a broad statement, it includes (but is not necessarily limited to) the following duties:

- o Covering general surg path frozen sections call, gross room and sign outs.
- o Providing backup coverage and/or arranging coverage when the service is at less than a full complement of residents.
- o Answering questions from clinicians that less senior residents are unable to handle, or referring clinicians to an appropriate attending or consultant.
- o Reviewing slides with less senior residents prior to signout when requested.
- o Answering questions from the technical and clerical staff (front desk, transcription, histology, etc.) regarding policies and procedures that impact the service.
- o Providing backup for frozen sections and FNAs and help when junior residents need help in the Frozen Section Room.

2. **Gross Room Resident - (3 months):**

- o Reviewing PCRs for all large gross specimens with junior residents. For all specimens that the Chief Resident examines with the junior residents, the chief should assume co-responsibility for these specimens, including shared responsibility for well prosected specimens and for errors.
- o Coordinating daily Gross Room work with the certified PA and determining which cases s/he will take for gross dictation and submission, and which cases s/he will supervise. Dan and the Gross Room resident can both take a major role in assisting/supervising and instructing approaches to gross examination with the junior residents.
- o Organizing gross conference for Bluebox every third week.
- o Organizing unknown slide cases for Bluebox.

- o Picking subspecialty area to focus on and be involved in any conferences/tumor boards in this area. Do consults for that area and either (or both) do a research project or look at available teaching sets in that area.
 - o Being on call to assist junior residents with frozen sections, photography, or any inquiries regarding specimen management.
3. **Consult Resident - (3 months):** Do IHC and general surg path consults. At resident's discretion, one month may be spent in cytogenetics.
 4. **Prepare Rotation Schedule for the Academic Year:** The designated chief needs to prepare the annual rotation schedule prior to May 15. This includes contacting incoming and returning residents about vacation needs for the year. (See [Leave](#) on the Residents' IWeb for a detailed description of leave policies and procedures.) [AP Scheduling Guidelines](#) have been written to assist the chief resident in setting up the rotation schedule.
 5. **Compose the Surgical Pathology and Autopsy Schedules Each Month:** This is tedious, but necessary. Requests for leave and scheduling preferences should be solicited and submitted at least 6 weeks prior to composing the schedule. The schedules can be typed easily in a Word document that the Faculty Secretary provides at the beginning of the previous month and e-mailed to her before the last week of the month.
 6. **Autopsy Coverage:**
 - o Encourage attendance at the clinical-autopsy conferences (monthly Autopsy-Medicine conference, monthly Fetal-Perinatal Pathology conference (first Friday, 11:00-12:00, RR202 or as scheduled), and bimonthly Cardiology Pathology conference (Friday, 7:30 AM). Announcement of these conferences is made via email approximately one week prior to the conference and schedules are distributed. A comprehensive schedule of the autopsy-related conferences is posted in the Autopsy room, Dr. Fligner's office, provided to all medical students, and posted on the [Residents' IWeb](#). Encouragement is always most successful when it includes attendance by the Chief Residents as an example.
 - o Attendance at the weekly Gross Organ Review conference is required of first and second year residents on the autopsy service and is strongly encouraged for the senior resident in the back up position. This allows for multi-level involvement by the residents, which enhances the educational experience for junior and senior residents.
 - o Senior residents (including CP residents on AP elective for up to half of their assigned rotation) provide coverage on the Autopsy Service in a defined fashion, as well as for vacations taken by first and second year residents. This coverage time should be for all AP senior residents, amortized based upon amount of coverage for CP elective residents. Each week autopsies are assigned based on this rotation: 1, 1, 2, 1, 2, 1 S, 1 (1=first year, 2=second year, S=senior). Approximately half of the HSCT cases will be performed by residents and these cases will be assigned to second year residents or late rotation first year residents, at the discretion of the Autopsy Service Director. When first or second year residents take vacation, everyone "moves up" to cover the cases (i.e., for first year vacation, second year covers first year and senior resident covers second year). If a senior resident cannot cover his/her assigned time, he/she must trade coverage. There must always be a senior resident assigned to the service. Every attempt is made to give first and second year residents leaving the service three days of "no autopsy" protected time; when both leave at the same time, the senior resident may provide some coverage for their protected time. In general, senior residents do not have "no autopsy"

protected time. Senior residents are expected to complete their autopsies in a timely fashion per Anatomic Pathology Division guidelines.

7. **Schedule Wednesday AM Conference:** This has typically been a mixture of Great Case Conference run by the residents, pediatric pathology run by the resident at Children's, renal path with Dr. Alpers, dermpath with Dr. Schneidman from Eastside Pathology Group, and cardiovascular path with Dr. Laflamme. The scheduling of all of these conferences is somewhat irregular, and it is typical to revert to the resident Great Case Conference when someone else is not presenting. It is important that the slides are reviewed prior to renal and cardiovascular conferences and that attendance is high at conferences presented by outside pathologists.

8. **Run the Unknown "Bluebox" Conference:** Repeated encouragement and writing down interesting case numbers and reminding attendings to save good cases are recommended to maximize the quality of this conference. A mixture of hard cases, good examples of easy cases, and important points of gross pathology are recommended every **three** weeks.

A strategy to incorporate a range of cases is to assemble a list of both common and uncommon lesions for each subspecialty area at the beginning of the academic year in consultation with the relevant subspecialty attending. This list would be maintained throughout the academic year and checked off as cases are presented. Multiple examples of given lesions might be included.

9. **Encourage Attendance at Required Conferences:** These include Monday morning cytology, Monday afternoon sarcoma, Friday morning Gyn-Onc conferences, and the monthly Autopsy-Medicine conference. There is an attendance sign-in sheet for the Tuesday/Thursday Didactic Conferences that the Chief needs to circulate and then send to the Residency Manager. Documentation of attendance is required by the ACGME. Ask for attending input if there are chronic offenders who skip conferences.
10. **Be the Primary Liaison for Medical Students on Elective in Pathology:** The job is to make the student have a productive and meaningful rotation. For students planning a career in pathology, this includes encouraging them to consider doing pathology residency at UW. Traditionally, those interested in going into pathology are the primary concern and tend to receive the most attention. Keep the student busy with daily signout, going over gross specimens, and autopsy participation. Assign a small number of simple cases to the student and work with him/her in grossing and diagnosing these cases.
11. **Faculty Meeting Every Monday at 10:30 am:** This is an important forum to bring up issues related to residency training, histopath concerns, and front office issues. Only chief residents are invited to participate in this meeting.
12. **Residency Management Committee Quarterly Meetings:** One of the co-chief residents sits on this committee to provide input on program management and development issues.
13. **Be Primary Liaison Between Residents and Faculty/Staff:** Let faculty know when problems or complaints are cropping up between residents, residents and faculty, and residents and staff in a professional manner and with good judgement.
14. **Organize the Annual Review of the Program with All Residents:** In May initiate a forum for all residents to provide an overall evaluation of the training program. This can be as easy as sending an email message soliciting comments on the general areas of the program and then collating

them into a memo to the Residency Director. The comments are to be anonymous. This annual evaluation is required by the ACGME for accreditation.

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Gross Room Supervisor Responsibilities

Rochelle L. Garcia, MD

The intent of this document is to add structure to the supervisory and administrative responsibilities of this position.

SUPERVISION

- The gross room supervisor will evaluate all large gross specimens with junior residents and assume co-responsibility for these specimens. During the first 6 months of the year it is expected that the surgical fellow will work very closely supervising first year residents. The chief residents should plan on spending the full day in the gross room and frozen room with first year residents during the first month of service.
- The gross room supervisor will not only supervise but also assist the first year resident with grossing-in specimens when necessary. The surgical fellow will have the authority to distribute workload between junior residents, themselves, and the P.A. The emphasis for first year residents should be on learning and developing gross dissection skills and overtime improve their ability to handle increase specimen volumes. The role of the gross room supervisor is to ensure that the first year resident completes the work, not merely that the work is completed. This is not a time limited activity and first year residents should plan on grossing up to the 5 pm cut off time. The first year resident may need help with G.I. biopsies from the surgical fellow on heavy gross days. The hours of 5-8pm are intended for G.I biopsy review on busy gross days.
- The gross room supervisor will team with the P.A. to ensure that all specimens are grossed in by 5pm. Also, the gross room supervisor will team with the P.A to ensure that one-on-one assistance is available to the first year residents.
- The gross room supervisor should attempt to have the attending pathologists review all the large complex cases before gross dissection. The attending pathologists who will be signing out the case should be called in the morning around 9:30 am and specimens should be organized for quick review. If the pathologist who is signing out the case is not available the subspecialty director or attending on frozen section should be asked.
- The gross room supervisor will be responsible for keeping the faculty informed on how first year residents are progressing. An informal assessment tool may be needed to standardize when a first year is ready to work on a more independent basis.

ADMINISTRATIVE

- The gross room supervisor will learn how to partner with management and the P.A to coordinate and improve laboratory performance and quality. More specifically:
 1. Triage smaller specimens to be signed out the day after it is grossed, thus reducing the overall turnaround time of these specimens.
 2. Attend and participate in faculty meeting that impact the gross room and frozen room.
 3. Encourage junior residents to participate in survey measures.
 4. Coordinates gross room assistance with specialty services like Breast, Sarcoma, Derm service.
 5. Monitor that specimens are fixed over the weekend and long holidays.
 6. Helps prioritize and mange rush cases.
 7. Helps oversee and instruct the certified P.A. in specimen grossing .

8. Properly manages ancillary lab forms (Cytogenetics, Hemepath, etc.)
 9. Is able to team with P.A. to navigate and troubleshoot processes in the gross room and frozen room.
 10. Actively communicates lab errors to residents and participates in improving lab quality.
 11. Will contribute to the performance evaluation of support staff.
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Attending-Housestaff Interactions

Guidelines for Attending-Housestaff Interactions Department of Pathology University of Washington Medical Center

This document provides guidelines concerning authority, responsibility, and coordination of efforts between housestaff and attendings in the Department of Pathology at UWMC on the different clinical anatomic-pathology services:

- Autopsy Pathology
- Cardiovascular
- Cytogenetics
- Dermatopathology
- Flow Cytometry
- GI (Including Liver and Pancreas Transplant) Pathology
- Hematopathology
- Immunohistochemistry
- Renal Pathology
- Surgical Pathology/Cytology (inclusive of Pulmonary, Male GU, Breast, Female Genital, Bone/Soft Tissue)

Below are the general guidelines for attending-housestaff coordination and authority:

CHAIN OF COMMAND

The chain of command is "hierarchical" in that, for all situations where a question arises, the more junior resident consults the more senior resident or the attending (at their discretion). First year residents are required to discuss **all** large specimens with a senior resident. If the more senior resident is not available, or for situations where the senior resident has a question, the attending-on-call is contacted. This sequence is followed for situations where an irreversible decision is being made, i.e., in grossing in a specimen, and deciding whether to preserve portions in specific fixatives, in selecting areas for frozen sections, in selecting areas for cell culture for cytogenetic analysis or cell surface markers by flow cytometry, etc. In general, if the resident is clear in his/her mind as how to manage the particular specimen in the particular clinical situation, the action can be undertaken. However, where there is uncertainty, the question should be addressed to a more senior resident and/or to the attending-on-call for the day.

With respect to reporting diagnoses to the clinician, the final diagnosis is always made by an attending who is on the medical staff at UWMC. However, the resident who is responsible for a case can provide preliminary diagnoses only after discussing with staff. The diagnosis should be provided with the caveat that "the case has not been finalized, or verified, by the Attending".

Remember that the attending has responsibility for the final diagnosis in each case. Therefore, the attending should be informed about the undertaking of significant actions and the reporting of provisional diagnoses. It is important that the housestaff develop a sense of both responsibility for the appropriate and efficient management of cases, and for developing judgment when actions and communications are

provided. Frequent communication with more senior residents and attendings is encouraged in any situation where a resident is uncertain.

The resident is the physician primarily responsible for cases. Therefore, when the resident will be unavailable for a day or longer (sick leave, vacation, meeting, etc.) or when the resident rotates off service, he/she should assign unfinished cases to other residents, chief resident(s) or attending(s), as appropriate for each case. Assignment is done by re-assigning a case to the recipient's (resident or attending) queue, using the Tamtron computer system. You **must inform** the physician who is receiving these cases.

AVAILABILITY OF ATTENDING

There is always an attending on call by pager for both the autopsy and surgical pathology services at UWMC. Attendings are responsible for 24 hour periods of time; the hospital operator has the pager numbers and telephone numbers (both work and home) of the autopsy and surgical pathology attendings. Scheduling is on a monthly basis.

NOTIFICATION OF ATTENDINGS

In general, an attending should be notified whenever a clinician requests a diagnosis on which a clinical action is going to be based. A final diagnosis should not be provided without at least providing the Attending the opportunity to review and discuss the case with the resident housestaff. The Attending should also be notified whenever a significant action is initiated on the case, i.e., when an autopsy is scheduled to begin, or when a frozen section is received and prepared.

CONSULTS

Diagnoses for consults are based upon the same guidelines that are provided above, namely, a diagnosis is characterized as only provisional until the attending has had an opportunity to review and discuss the case. The same situation pertains to after hours consults. The most frequent after-hours consults are frozen sections and rush biopsies. In these situations, the attending should be notified of the request for a rush case or frozen section as soon the resident is notified. The resident housestaff should then discuss the handling of the case with the attending.

HANDLING OF FAMILY CONCERNS OR COMPLAINTS

The resident should contact an Attending when there is a complaint about a particular case. The Attending who is most directly involved with the case should first be contacted. In lieu of the availability of that Attending, the Attending on-call of the day, for either autopsy or surgical pathology service, as appropriate, is to be contacted in surgical pathology. On the autopsy service, contact either the Autopsy Supervisor (Janet Miller) or Autopsy Director (Dr. Corinne Fligner).

UNAVAILABILITY OF ATTENDING

If the Attending is unavailable, the resident should then contact another attending who is most immediately available. If it is during work hours, the resident should seek out another attending in the Anatomic Pathology section. If the need occurs outside of routine working hours, the resident should page the other attending on-call. Another option, particularly if the other attending is unavailable, is to contact any other attending in the Anatomic Pathology section, either at work or at home, using the phone numbers listed on the call schedule; for autopsy problems, contact either the Autopsy Supervisor (Janet Miller) or Autopsy Director (Dr. Corinne Fligner).

CHARTING RESPONSIBILITIES

For situations in which a frozen section or FNA diagnosis is provided and a clinical action is to be undertaken before a formal surgical pathology report is issued, the resident should note in the patient's chart the diagnosis arrived at by the resident and attending (with the presumption that the chart is available).

DELEGATION OF PROGRESSIVE RESPONSIBILITY

An important principle of the residency program is that residents are assigned graded responsibility during their training. Following a discussion and decision by the attending faculty, a resident in his/her second year of AP training may be given "independent sign out responsibility". What this means is that the resident does not need to review every case with the attending, but can provide diagnoses and leave cases for the attending to review at her/his discretion. Typically the assignment of "independent sign out responsibility" occurs in the middle of the second year of AP training.

SUBSPECIALTY ATTENDINGS-HOUSESTAFF INTERACTIONS

On the subspecialty services, which are:

- Cytogenetics (Drs. Tom Norwood, Karen Swisshelm, George Martin, & Christine Disteche)
- Flow Cytometry (Dr. Peter Rabinovitch)
- GI, including Liver/Pancreas, Transplant Pathology (Drs. Paul Swanson, Melissa Upton, Matthew Yeh)
- Hematopathology (Drs. Sindhu Cherian, Jonathan Fromm, Harvey Greisman, Dan Sabbath, Brent Wood)
- Immunohistochemistry (Dr. Paul Swanson)
- Neuropathology (Drs. Tom Montine, Don Born, Robert Hevner, Randy Woltjer, Jing Zhang)
- Renal Pathology (Drs. Charles Alpers, Jolanta Kowalewska, Roberto Nicosia, Kelly Smith)
- Dermatopathology (Dr. Zsolt Argenyi)

Either the attending-on-call, or the director of the service should be contacted whenever a clinically significant decision is to be made or a clinically significant diagnosis is requested. The director of the subspecialty service may specifically delegate his/her responsibility to another attending, and/or to a fellow or a senior resident. Other subspecialty areas of Anatomic Pathology: Cytology (Drs. Garcia and Upton), Cardiovascular (Drs. Reichenbach and Murry), Pulmonary (Dr. Schmidt), Male GU (Dr. True), Breast (Drs. Lawton and Garcia), Female Genital (Dr. Garcia), and, Bone/Soft Tissue Pathology (Dr. Rubin) are handled, in principle, in a similar manner.

2005-2006 Guidelines Departments of Pathology and Laboratory Medicine

The "Hours of Duty" for which housestaff have service responsibilities vary with the service. The guidelines given below are the maximum with respect to time commitments.

Residents and fellows are *not* required to sleep in the hospital when they are on call. Many calls can be managed by telephone consultation. The relatively infrequent calls that require a resident to go to the hospital virtually never require the resident to be in the hospital to provide overnight.

In Anatomic Pathology, residents are on call no more frequently than every third night. On the busiest rotation on Anatomic Pathology, which is Surgical Pathology at UWMC, no more than an average of 25 hours per month is spent by any one resident in the hospital responding to on-call duties after hours (approximately between 6:00 pm and 8:00 am). Resident on-call responsibility during Laboratory Medicine rotations will be for three to seven day periods. Residents assigned to Laboratory Medicine will be on call one night in four averaged over any four week period.

Fellows in Surgical Pathology at UWMC are in the call rotation with residents for two months of the year. At UWMC, fellows in GI & Hepatic Pathology, Bone & Soft Tissue Pathology, Dermatopathology, and Renal Pathology, do not usually rotate in the call schedule. They may be asked to step in during unusual circumstances such as many concurrent illnesses necessitating unexpected absences and staff shortage among the UWMC residents assigned to surgical pathology or during meetings.

Each resident and fellow will have at least two periods of 60 consecutive hours off duty each four weeks. Residents and fellows are not assigned for duty to exceed 80 hours per week. If circumstances of unusually heavy call responsibilities require a resident to be on duty for a length of time that approaches 80 hours in a week, the chief resident(s) and Director of Service will make arrangements to reassign work to permit relief and time off duty.

On-call duties during periods of resident shortages caused by illnesses or leave will be handled by each individual hospital. In general, other residents on that rotation will cover these periods of time. In the event of illnesses or absences of the fellows, the consultation cases typically handled by the fellows will be assigned to the senior Surgical Pathology Fellow on consults, or they will be distributed by the Chief Resident to other surgical pathology residents, with the assistance and consultation with the attending pathologist assigned for the specialty coverage. The attending pathologist on service will make arrangements to cover any conferences that are normally the responsibility of the fellows. The resident, chief resident, service chief and/or program director must approve any plan that is outside the established duty guidelines.

During a change of call rotation, night call will be assigned to a resident who was not on call the previous night.

At the change of shift, as one resident's assigned hours end and another resident assumes duty, the residents are expected to communicate with each other verbally, so that any pending patient care issues may be transferred to the care of the on call resident. It is the responsibility of the residents to insure that the call transfer also affords seamless transition of care and clear communication to protect patients.

The Housestaff Hours of Duty Guidelines were reviewed and approved by the chief residents as representatives for residents and fellows in Anatomic and Clinical Pathology (Drs. Andrew Hoofnagle, Kim Jewell, Chalengpoj Sthapanachai, Don Tran); the Service Chiefs (or designated representative) at Childrens' Hospital and Regional Medical Center (Dr. Joe Rutledge), VA Puget Sound Health Care System (Dr. David Thorning), Harborview Medical Center (Dr. Nancy Kiviat), UWMC Anatomic Pathology

(Dr. Paul E. Swanson) and UWMC Autopsy Service (Dr. Corinne Fligner); Clinical Fellowship Directors for Bone and Soft Tissue Pathology (Dr. Brian Rubin), Dermatopathology (Dr. Zsolt Argenyi), Neuropathology (Dr. Thomas J. Montine), Cytopathology (Dr. Nancy Kiviat), GI & Hepatic Pathology (Dr. Melissa Upton), Pediatric Pathology (Dr. Laura Finn), Renal Pathology (Dr. Charles Alpers), Surgical Pathology (Dr. Rochelle Garcia), and Hematopathology (Dr. Dan Sabath); and Department of Pathology Chairman (Dr. Nelson Fausto) and Department of Laboratory Medicine Chairman (Dr. James Fine).



Rochelle L. Garcia, MD
Director, Residency Program



Petrie M. Rainey, MD PhD
Director, Clinical Pathology Residency Program

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Teaching Conferences

[Click Here for Current Schedule](#)

To maximize your learning experience from the Blue Box Conference, the following points are emphasized:

1. Look at the slides yourself first. This way a more senior (or any other) resident does not bias your microscopic impression. This helps you build up your own strategic approach to glass slides.
2. Do not look at the history on the sheet. Even though this sounds crazy, it is a standard practice a lot of people follow. If you know the history (age, sex, and location), it will automatically eliminate options one of which may be the correct diagnosis. The other reason is often times the history you are getting is incorrect (not in blue box conference but in general) so you are already biased with inaccurate information. After you make up your mind about the case, then look up the history because it is essential most of the time.
3. Low power, low power, low power. This point can not be emphasized enough. Most of the diagnostic information is obtained by scanning the slide at the lowest magnification possible. After you exhaust the low mag. then go to intermediate and high power.
4. Try to place the lesion into a general category. This will make it easier for you to look it up in books and try to match the wallpaper.
5. Always remember, it is not critical to arrive at the right diagnosis. The description and differential diagnosis is far more important than giving the right diagnosis.
6. Do not look up the diagnosis in the computer. We usually try to avoid the "bread and butter" lesions because you will be seeing more of those during your surgical pathology training. A good "blue box candidate" is a common case with unusual presentation or conversely, an uncommon case with a classic presentation. We try not to include the worst category, which is the uncommon case with unusual presentation

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Clerkship 680

SURGICAL PATHOLOGY ACTIVITIES AND RESPONSIBILITIES OF RESIDENTS AND STUDENTS

While on the clerkship, the student or visiting resident will rotate through the three-day surgical pathology sequence, described below, **under the supervision of a surgical pathology fellow or the most senior resident on service**. The clerk will be introduced to the senior resident on service during the orientation session on the first day of their rotation. The initial two series of the three-day rotation will be strictly observational, and the clerk will not have direct responsibility for specimen processing and sign out. The clerk will become familiar with the duties and responsibilities entailed in surgical pathology during this observational rotation. During the following one or possibly two surgical pathology 3-day rotations (as autopsy and other clerkship requirements permit), the student will be assigned their own specimens and will be responsible, under complete resident and assigned faculty supervision, for the gross description and processing, case sign out with the attending, and dictation/reporting of their cases (detailed below). **These cases will be assigned to the clerk by the senior resident also rotating through the surgical pathology sequence in parallel with the clerk. Students should inform Chief Residents of this on their grossing day.**

DESCRIPTION OF SURGICAL PATHOLOGY SEQUENCE AND DAILY DUTIES

Frozen Section Day

On the first day of the rotation, the student will be observing frozen section cases with the senior resident. The student should prepare for potential frozen section cases by reviewing the OR schedule and retrieving available glass slides, for review, of cases that are thought likely to involve a frozen section. Duties will include going to the operating room with the resident to obtain specimens and information from the operating team, as notified by the resident's surgical pathology pager. The specimens are then examined grossly and appropriate samples are selected for frozen section analysis. Frozen sections will be cut and stained by the frozen section resident and support staff, and then reviewed microscopically with the attending to arrive at a diagnosis. The diagnosis will then be given to the operating team and recorded in the patient's chart. Otherwise, during time when the resident is not performing actual frozen sections analysis, the student will observe the senior resident processing gross specimens for fixation and gross description, continue at the day's sign out section or will attend the required conferences of the day as frozen section duties permit.

Gross Processing Day

The next day in the rotation will consist of handling the specimens received fresh for frozen section or routine processing or frozen sections during the previous day's operating schedule. Following overnight fixation, the clerk will observe the resident describing the gross features of the specimens, paying careful attention to the clinical information on the pathology accession sheet, along with specimen identification and matching the name plate on the specimen to the name plate on the requisition form. **This ID step is critical!** The clerk will learn how to operate the dictation apparatus in the gross room, along with all of the general operations involved in gross dissection. Finally, the clerk will gain an appreciation and initial understanding of basic gross description, including description of size, color, texture, and specific features relevant to individual specimens. The clerk, as instructed during their initial orientation will review detailed information in the surgical pathology manual. The clerk will be familiar with the surgical pathology manual given to them at the orientation session, prior to approaching any individual resident or faculty member with specific questions on assigned specimens.

Slide Review Day

The following morning, the student will have a chance to review the microscopic slides prepared by the histology lab after their gross processing the previous day. Depending on the schedule of the resident, the clerk may have time to review the slides with the resident prior to taking the cases to the Attending for formal sign out. If the resident is too busy, the student should try to review the cases on his or her own. **At the bare minimum, the microscopic slides should be organized with the paperwork, the previous diagnoses reviewed, critical prior slides retrieved from the UW slide archive, and the pathology report, including the clinical data and gross description should be proofread and corrected for typographical and spelling errors and content.** Initially, the students should at least try to be familiar with the normal organ histology and basic pathologic processes such as tumor, inflammation, etc. Later in the rotation, they will hopefully become more familiar with pathologic processes and possibly even diagnoses, first observing then dictating final diagnoses themselves. Initially, to facilitate sign out, slide organization and familiarity with how the slides correlate with the gross processing is of utmost importance.

Sign Out Day

Following the previous day's session of proofreading and organization, and hopefully slide review with or without a resident, the resident and student will sign out the material they cut in, at a multi-headed microscope in the Frozen Section room with the Attending, who will provide instruction regarding the gross processing, and microscopic features of the case, and will ultimately finalize the microscopic diagnosis with the resident and student. As the resident will be on call for frozen sections during sign out, the student may stay at sign out or follow the resident as case follow up and time allows.

Additional Duties, Performed Any Day

This is "clean up" work, in which the resident will finalize any cases that needed special stains or additional sections from the previous gross/sign out session. They will also show cases to other Attendings, as requested by the sign out Attending to obtain additional consultative expertise on various issues pertinent to individual cases. Other "clean up" activities will include obtaining additional clinical information from the submitting clinicians, as required for final sign out.

Following the initial observational two rotations through frozen section, gross dissection, review, and frozen section/sign out days, the student will then rotate through an additional one or two cycles (as permitted by their autopsy and other clerkship responsibilities). In a graduated responsibility, during additional rotations through the cycle, the student may become directly responsible for their own cases assigned by the resident, although the resident will go over in detail the planned grossing procedure for each specimen assigned. It is imperative that the student is absolutely certain about and familiar with all steps in the process before proceeding on their own, particularly concerning the intricacies of each individual specimen they are assigned to handle. **Any and all questions must be answered to the satisfaction of the rotating clerk by the assigned faculty and/or resident prior to proceeding. The welfare of the patients depends on the student's appropriate handling of specimens. There is no such thing as a stupid question!**

During these rotations through the surgical pathology schedule, the resident and student must remain flexible if the clerk's assigned autopsy becomes available. Hopefully, this will not be too much of a problem, however the student will need to be present for the entire autopsy gross pro-section. Optimally, this will best fit in during a frozen section day, a review day, or during the afternoon of the sign out day.

Clerks are required to attend all weekly and monthly autopsy conferences. On the surgical side, they are required to go to daily 8:00 am didactic conferences and weekly sarcoma, gyn/onc, and "Blue Box" unknown conferences, and the every other weekly GI conjoint conference. As on any given day, there are several different specialty sign outs occurring, as time and interest dictates, the student will attend

one or more of the following sign outs: in-house GI, consult GI, immunohistochemistry, bone/soft tissue, inside breast/breast consult, dermatopathology, renal, inside biopsy and outside surgical path consults.

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UWMC/HMC Dictation Instructions

Paula Reeve, AP Office Manager

EVERYTHING MUST BE DICTATED. All transcriptionists are telecommuters who work from home and they don't have access to any paperwork.

Transcription services are available from 5:00 AM to 6:00 PM, Monday-Friday.

TELEPHONE DICTATION INSTRUCTIONS

- Dial ext. 4716 in-house or (206) 598-4716 outside on any touch tone telephone
- Key in Physician ID number and the # key; system will request a worktype

Worktypes:

- 74 – surgical diagnoses
- 72 – autopsy PAD, Neuropathology reports (brain only)
- 73 – autopsy FAD, clinical summary, gross/micro, CPC, references

- Key in appropriate worktype, then press the # key
- Press 2 to record, 2 to pause (beeping tone), and 2 to resume recording
- Press 5 to disconnect OR
Press 8# to dictate another report, then press 2 to record

Edit Dictation

- Press 3 to reverse (several times), or press 7 then 3 to review
- At the last correct word, press 2 to stop playback (beeping tone)
- Press 2 to record over the unwanted dictation
- After pressing 2 for pause, a beeping tone will be heard – this is to let the dictator know he/she is on “pause,” press 2 to resume dictation

Keypad Functions

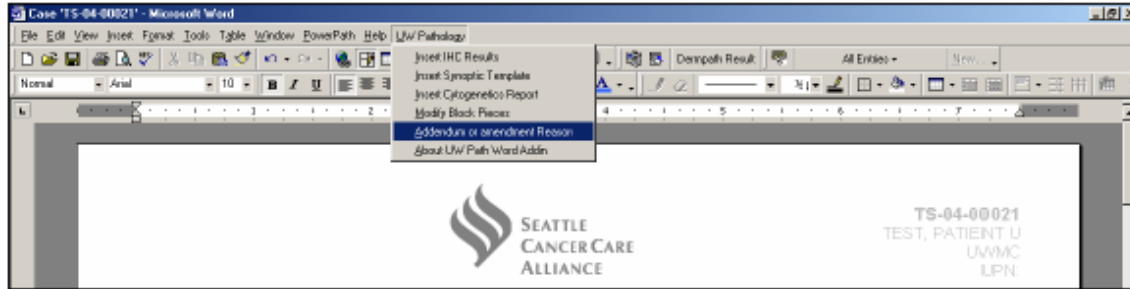
- 2 Stop record – standby tone appears
- Start record – after stopping, touch 2 to dictate
- 3 Incremental reverse – you may press several times
- 4 Continuous advance
- 44 Advance to end of current dictation
- 5 Disconnect then hang up
- 7 Continuous reverse – each beep represents several seconds. Touch 3 to playback
- 77 Reverse to and begin playback from beginning
- 8 Sends work and allows to switch to a different worktype
- 8# Sends work and automatically enters same worktype (after each report has been dictated, press 8# and resume dictating)

If you have questions, please call 598-7706 (Transcription)

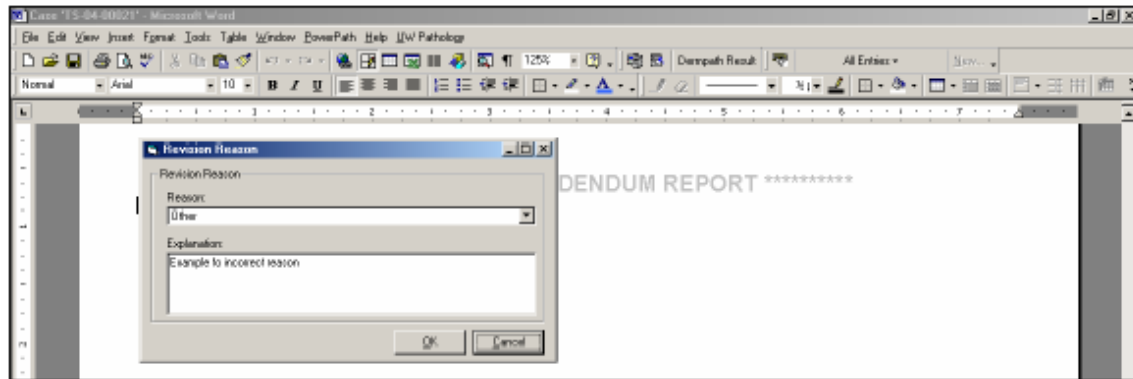
ADDENDUM OR AMENDMENT REASONS

We're implementing new functionality to permit Transcriptionists or other users to change the Reason why the most current addendum or amendment is being prepared.

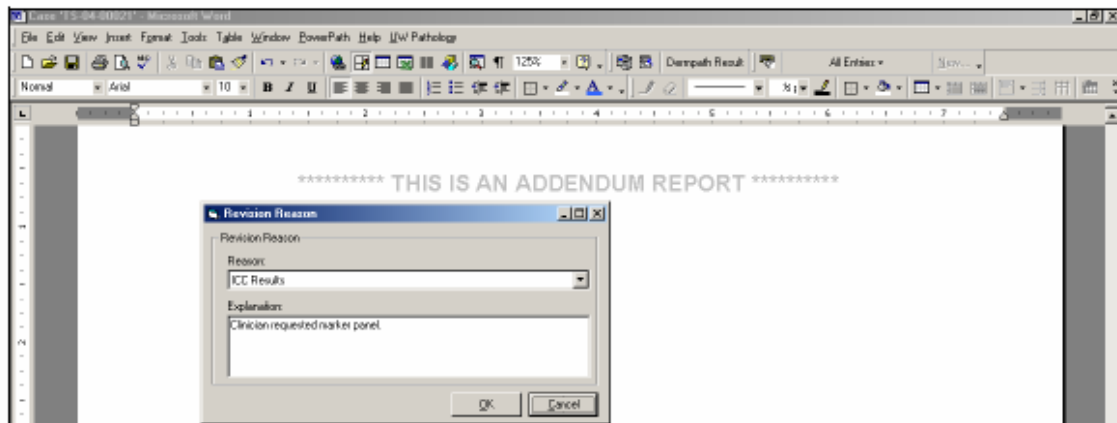
When you have a report open in Word, the UW Pathology menu choice now has a new option: Amendment or Addendum Reason.



Selecting this brings up a dialog box that permits you to change the reason for the current Amendment or Addendum:



To change the reason, just pick a new Reason from the drop-down pick list and enter an optional Explanation.

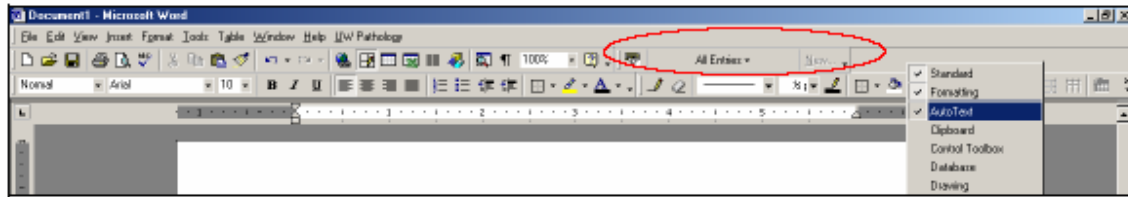


Click OK to save changes.

CREATE A KEYBOARD SHORTCUT FOR AN ADDENDUM REASON HEADING

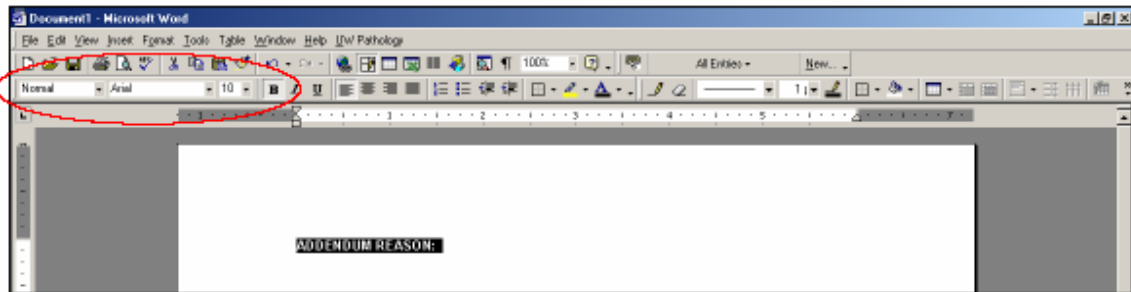
1) Add the Autotext toolbar to your instance of Word.

Put your mouse cursor over any blank region of the toolbar area (the rows of icons near the top of the Word screens). Click the right mouse button. Move the mouse over the AutoText entry in the popup menu and left-click to add the Autotext toolbar. (The Autotext toolbar is circled in red in the screenshot below).

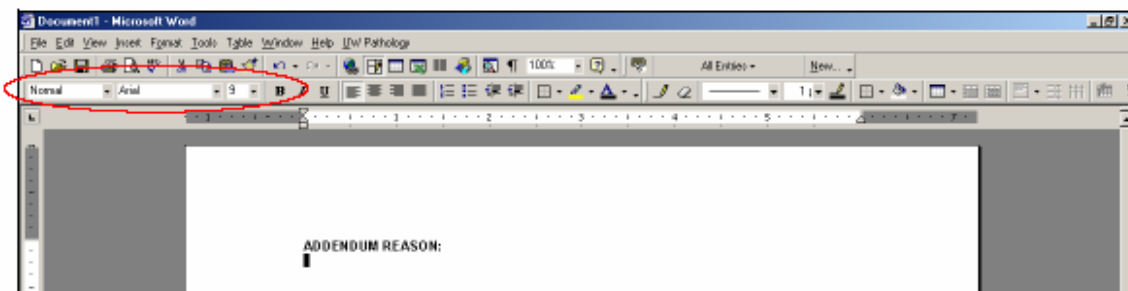


2) Type in the Addendum Reason heading.

Type ADDENDUM REASON in all caps, followed by a colon, and a carriage return. Highlight just the top line and make sure you're using Normal style, Arial font, and 10 point font size, and enable Bold (see red circled region below).

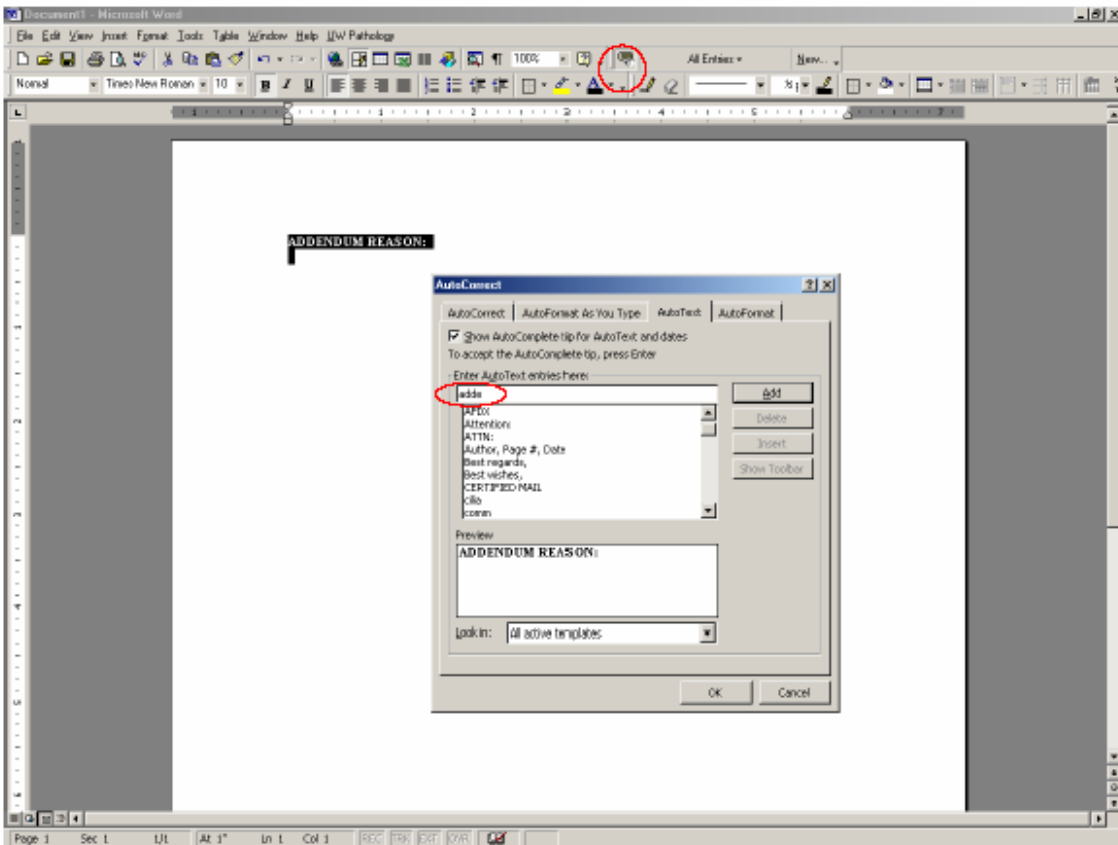


The highlight the second (blank) line and set the properties to Normal style, Arial font, 9 point font size and no Bold (see example below).



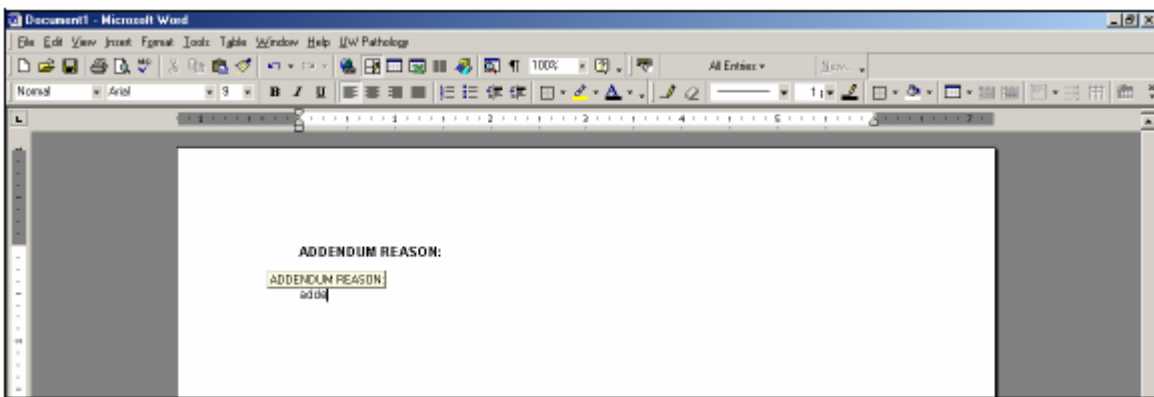
3) Create the Autotext entry.

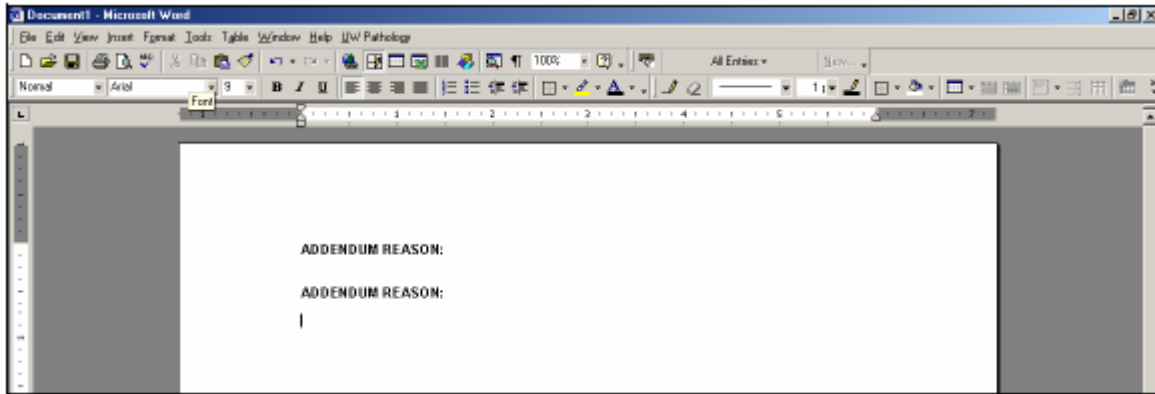
Highlight both lines of the Addendum Reason heading, then left-click the keyboard icon on the Autotext toolbar (circled in red). The AutoCorrect dialog box shown below will open with the AutoText tab active. Type a short series of letters in the "Enter AutoText entries here" line ("adde" in the example below). Left-click the Add button.



4) Test the Addendum Reason shortcut.

In a Word document, type “adde” (or the string of characters you defined for the autotext entry). A little yellow box should appear as shown below. Press Enter. The full heading should appear.





You should now be able to use this shortcut in any Word document or PowerPath report (other than GYN cytology reports).

HAND-HELD UNITS FOR DICTATION

USING HAND-HELD UNITS

- Pick up handset
- Press **Access System** button – voice prompt will ask for “ID number”
- On the keypad, enter your **User ID number followed by the # key**; this allows access to the system; voice prompt will ask for “Worktype”
- Press the **Worktype** button associated with the type of work you are dictating

RECORD DICTATION

Once the voice prompt says “Ready to dictate,” push in either **BUTTON** (there are two) on the top of the handset bar and hold down while dictating.

REWIND

Push UP the bar at the top of the handset to rewind. You will hear beeping tones; each beep represents approximately 3 seconds of rewind.

EDIT

Rewind (by pushing the handset bar up) and then STOP by pressing DOWN once on the handset bar. Push in **BUTTON** to dictate over unwanted dictation.

SENDING REPORTS TO BE TRANSCRIBED

Please **SEND** after each report in order to expedite turnaround time

- Press the key labeled **Send/Same** when next dictation is the same worktype, then press down on foot pedal to record

OR

- Press the key labeled **Send/Change** when next dictation is a different worktype; voice prompt will request worktype, press **Worktype** button and begin dictating

WHEN FINISHED

- When finished dictating and wish to hang up, press **Send/Same** or **Send/Change**, then either **Stop** or **Disconnect**. This will send your last dictation to the system and disconnect you from the dictation system

If you have questions, please call 598-7706 (Transcription)

DANGEROUS ABBREVIATIONS

The use of abbreviations when writing orders and making entries into the medical record of your patients can lead to misinterpretation and confusion between caregivers – ineffective communication can lead to medical errors.

The following unacceptable abbreviations or expressions must not be used when making entries into the medical record.

UNACCEPTABLE	ACCEPTABLE
U or u (mistaken for 0, or c.c.)	Always spell out “units”
IU (mistaken for IV or 10)	Write “units”
Q.D. or Q.O.D. (may be misread as QID)	Write “daily” and “every other day”
Trailing zero (X.0 mg) or Lack of leading zero (.X mg)	Never write a zero after a decimal point (X mg), always use a zero before a decimal point (0.X mg)
MS, MSO4, MgSO4	Write “morphine sulfate” or “magnesium sulfate”
MTX(for Methotrexate) may be confused for Mitoxantrone	Always spell out drug names
Epi (for Epidural or Epinephrine)	Always spell out drug names
µg (for micrograms)	Write “mcg”

UWMC Safe Medication Practices Committee

January 2004

POWERPATH CODES FOR SPECIAL STAINS

Bacteria/Microorganisms:

- **AFB** – demonstrates Acid Fast Bacilli (Tuberculosis, *Mycobacterium*)
 - o Power Path procedure code: **AFB**
- **B&B** (Brown & Brenn) – demonstrates gram-negative and gram-positive bacteria.
 - o Power Path procedure code: **BB**
- **Fite’s AFB** – demonstrates lepra bacilli, although other acid-fast bacilli such as *Nocardia* are demonstrated. (Leprosy, or Hansen disease)
 - o Power Path procedure code: **Fite Hansen** for *lepra bacilli*
 - o Power Path procedure code: **Fite Nocardia** for *Nocardia*
- **Giemsa** – (May-Grünwald Giemsa Stain) demonstrates *H. pylori*, Rickettsias and other bacteria. (Can also be used to demonstrate differentiation of cells present in hematopoietic tissue.)
 - o Power Path procedure code: **Giemsa bact**
- **GMS** (Grocott’s Methenamine Silver) – demonstrates fungi and PCP
 - o Power Path procedure code: **GMS fungi** for fungus

- o Power Path procedure code: **GMS pneumo** for PCP
- **Microsporidium** – demonstrates microsporidia: *Encephalocytozoon hellum*, *E. cuniculi*, *Enterocytozoon*. (Associated with severe infections in AIDS patients.) Modified trichrome stain.
 - o Power Path procedure code: **Microsporidium**
- **PAS** (Periodic Acid-Schiff's) – demonstrates fungi.
 - o Power Path procedure code: **PAS/LG** fungus
- **Steiner & Steiner** – demonstrates spirochetes, *Helicobacter pylori*, or other causative organisms of legionellosis. Also stains Donovan bodies and fungi.
 - o Power Path procedure code: **Steiner legion** for *legionella*
 - o Power Path procedure code: **Steiner spiro** for spirochetes
- **Warthin-Starry** – demonstrates spirochetes and other bacteria. Also stains Melanin, nuclei and some pigments.
 - o Power Path procedure code: **W-S melanin** for melanin
 - o Power Path procedure code: **W-S spirochete** for spirochetes

Carbohydrates and Amyloid:

- **Alcian Blue 1.0 pH** – demonstrates sulfated mucosubstances.
 - o Power Path procedure code: **Alcian bl 1.0**
- **Alcian Blue 2.5 pH** – demonstrates acid mucopolysaccharides.
 - o Power Path procedure code: **Alcian bl 2.5**
- **Alcian Blue with Hyaluronidase** – to differentiate epithelial and connective tissue mucins.
 - o Power Path procedure code: **Alcian bl hyal**
- **Alcian Blue – PAS Hematoxylin** – to differentiate between neutral and acidic mucosubstances.
 - o Power Path procedure code: **Alcian bl/PAS**
- **Colloidal Iron** – demonstrates carboxylated and sulfated mucopolysaccharides and glycoproteins.
 - o Power Path procedure code: **Coll iron**
- **Colloidal Iron with Hyaluronidase** – Using hyaluronidase digestion, staining attributable to hyaluronic acid, chondroitin-4-sulfate or chondroitin-6-sulfate is eliminated.
 - o Power Path procedure code: **Coll iron hyal**
- **Mucicarmine** – demonstrates mucin derived from epithelial cells
 - o Power Path procedure code: **Mucin**
- **Periodic Acid Schiff (PAS)** – demonstrates polysaccharides, neutral mucosubstances and basement membranes.
 - o Power Path procedure code: **PAS**
- **Periodic Acid Schiff with digestion (PAS-D)** – demonstrates glycogen in tissue sections.
 - o Power Path procedure code: **PAS D**
- **Congo Red** – demonstrates amyloid in tissue sections.
 - o Power Path procedure code: **CR**

Pigment, Minerals and Lipids:

- **Bile** – demonstrates the presence of bilirubin in tissue sections
 - o Power Path procedure code: **Bile**
- **Calcium** – demonstrates the presence of calcium in tissue sections
 - o Power Path procedure code: **Von Kossa**
- **Copper** – detects the presence of copper in tissue sections, especially in liver in Wilson's disease.
 - o Power Path procedure code: **Cu**
- **Fontana-Masson argentaffin / melanin** – demonstrates argentaffin substances, such as melanin, argentaffin granules of carcinoid tumors and some neurosecretory granules.
 - o Power Path procedure code: **Fontana argent** for argentaffin
 - o Power Path procedure code: **Fontana melanin** for melanin
- **Iron** – demonstrates ferric iron in tissue sections.
 - o Power Path procedure code: **Fe**
- **Urate crystals** - demonstrates urates in tissue sections.
 - o Power Path procedure code: **Urate**
- **Oil Red O** – demonstrates neutral lipids in tissue sections
 - o Power Path procedure code: **Oil red O**

- **Sudan Black B** – demonstrates neutral lipids in tissue sections. It is also used in hematopathology.
o Power Path procedure code: **Sudan black B**

Connective Tissue:

- **Masson's Trichrome** - differentiate between collagen and smooth muscle in tumors. Also used to identify increases in collagenous tissue in diseases such as cirrhosis of the liver.
o Power Path procedure code: **MT**
- **Gomori's One-step Trichrome** – differentiate between collagen and smooth muscle in tumors. Also used to identify increases in collagenous tissue in diseases such as cirrhosis of the liver.
o Power Path procedure code: **GT Green, for cardiac cases.**
- **Reticulum fibers** – demonstrates reticular fibers in tissue sections.
o Power Path procedure code: **Retic**
- **Verhoeff-Van Gieson** – demonstrates pathologic changes in elastic fibers.
o Power Path procedure code: **VVG**
- **Movat stain** – demonstrates collagen, reticular fibers, elastic fibers, ground substances and mucin in connective tissue.
o Power Path procedure code: **Movat**
- **PTAH** – demonstrates muscle cross-striations and fibrin. Cross-striations are a diagnostic feature of rhabdomyosarcomas or tumors arising from striated muscle.
o Power Path procedure code: **PTAH**
- **Toluidine Blue** – demonstrates mast cells.
o Power Path procedure code: **Toluidine blue**

HOW TO ORDER ADDITIONAL LEVELS, RECUTS & REPROCESSED BLOCKS IN POWER PATH

- Enter the case number in Power Path
- Depress “control” button + the letter O. This will take you to the “order screen”
- Type in “**recu**” for recuts and levels OR “**repro**” for reprocessed blocks, in the code window. **This step is essential. It will put the order on the correct work list (Histology Specials, Recut, ICC Work list)****
- A selection list will appear.
- Choose the appropriate order, i.e. “Recut on paraffin block, 2 levels with H&E”

**** If you select “levels”, this will only show up on the Histology Slides work list. That puts your slides into limbo, delaying your case.**

You can double check, which work list the order went to by clicking on the “Specimens” tab. Then scroll over to the right of the page and look under “Lab Dept Work list”

****All requests for specials must be received by 10:00 am for same day turn out.**

****All requests for levels, recuts or reprocessed blocks must be received by 12:30 pm for same day turn out.**

INSIDE CASES:

(Dictation is completed in two dictation sessions.)

Gross:

1. Dictate your name so the transcriptionist knows who is dictating.
2. If you are dictating for someone else, that information must be dictated at the beginning of each case. This is for tracking purposes.
3. Dictate SU/SH gross descriptions on line marked gross and send after each case.

4. Dictate accession number and patient name for all gross descriptions. Dictation cannot be transcribed without this information.
5. Dictate clinical data, pre/post-op diagnosis and gross description for each case.
6. Dictate the appropriate letter designation for each part of the case. It helps the flow of transcription to dictate multiple-part specimens in letter order.
7. Dictate all frozen sections separately from gross description and indicate faculty assisting.

Diagnoses:

1. Dictate diagnoses on the line marked "diagnosis/misc" and send after each case.
2. Dictate accession number, patient name, letter designation, specimen designation and diagnosis for each case. Dictation cannot be transcribed without patient name and accession number.

GI CASES (INSIDE CLINICAL ONLY)

THE FOLLOWING IS THE GENERAL FORMAT FOR DICTATION; UTILIZING THE USUAL DICTATION SYSTEM, CODE 74# (USUAL MICROSCOPIC/FINAL DIAGNOSIS CODE).

1. SURGICAL PATHOLOGY ACCESSION NUMBER AND PATIENT NAME

2. CLINICAL HISTORY

The clinical history should be dictated in paragraph form i.e.,

“The patient is a 67 year old man with a history of weight loss, nausea, vomiting and anorexia. Endoscopy showed a small nodule in the greater curvature of the body of the stomach.”

If there is anything illegible on the form, it is advisable to look the patient up in MINDscape and read the procedure report from the clinician.

3. GROSS DESCRIPTION

The measurements and number of pieces received are listed on the Surgical Pathology requisition. Utilize the canned phrase below.

“Received in Hollande’s fixative designated “___” are ___# tissue fragments, ___ to ___ cm in greatest dimension.”

4. MICROSCOPIC DESCRIPTION

Provide a microscopic description which supports the final diagnosis.

Include a sentence which documents the stains that were performed in the case. Utilize the canned phrase below:

H&E, Genta and HEABS stains were performed to help evaluate the histologic features. All controls were appropriately positive.”

5. FINAL DIAGNOSIS

Organ, location, type of procedure: Diagnosis

6. COMMENT (if any)

Include a comment to discuss the histologic differential diagnosis, document verbal notification of results to the clinician or review of the case by another pathologist:

"The clinician is given verbal notification of these findings at 1700, 5/28/02."

"Dr. Melissa Upton has reviewed this case and agrees with the above findings."

EXCEPTIONS:

FOR BE RESEARCH – NO GROSS OR MICROSCOPIC DESCRIPTION IS REQUIRED – ONLY FINAL DIAGNOSIS

IHC RESULT REPORTING USING THE UW PATHOLOGY IHC RESULTING WORD ADD-IN WITH THE POPULATIONS FUNCTIONALITY

This set of instructions is in three sections:

- I. Dictate antibody results
- II. Enter new antibody results yourself
- III. Edit results after they've been writing to a Word report

The design goal of the Word add-in is to store the results of each antibody as discrete elements in the database so that one can do retrospective searches by antibody result. We also want to keep partial antibody results from one data entry session to the next. Finally, we want to have antibody results reported in a relatively standard way so that the retrospective searches can be meaningful.

The solution is to use a data entry dialog box to collect and edit antibody results. When desired, the user then clicks a button and all the results are transferred to the PowerPath report (Word document). The important thing to remember is that results in the database can only be modified using the dialog box. THIS MEANS THAT WE SHOULD ALWAYS USE THE DIALOG BOX TO ENTER AND EDIT RESULTS, AND NOT MODIFY THE RESULTS IN THE WORD DOCUMENT. See below for ways to modify the report if the antibody results need to be edited after they've been written to the report.

Dictating antibody results

You need to know how the Word Add-in works even if you're only dictating results so that you can dictate in a style that makes sense to the transcriptionist as he or she uses the Add-in. When the transcriptionist runs the Word Add-In, it brings up the result entry dialog box that looks like the following:

Result Entry Form

Care # T 5-03-00003 acc_id: 1059595

Block	Label	Description	Result	Comment/Special Note	Report?
5	A1	CK7	Cytokeratin 7 [OV-TL 12/30]		☒
6	A1	35BH11	Cytokeratin, LMW [35BH11]		☒
7	A1	AER	Estrogen Receptor [1D5]		☒
8	A1	MELAN A	MelanA [A103]		☒
9	A1	MLH1	MLH1 [G168-728]		☒
10	A1	MSH2	MSH2 [FE11]		☒
11	A1	PR88	Progesterone Receptor [PR88]		☒
12	A1	S100	S-100 [polyclonal]		☒
13	A2	EBV PROBE	EBV PROBE IN-SITU HYBRIDIZATION		☒

Population Name: Optional values - Enter if certain: Add a new population

Primary Tumor Site: Remove this population

Histologic Type:

Doctor 1: Save Updates/Changes and Write to Report

Doctor 2: Don't Report, but Save Changes

Identify yourself and anyone else who is interpreting the results with you. This information will be entered in Doctor1 and Doctor2 and will be copied automatically to the pathology report.

Dictate the Population Name. Population name is required. One can add a second population (see below) but it is best to define one population and dictate all antibody results for it before adding/naming the next population and dictating the results for the additional population.

Dictate the antibody, then a Result from the drop-down list, then any Comments/Special Notes, and indicate if the result should not be reported (billable results will be reported unless you explicitly flag them not to be reported; non-billable results are not reported by default).

The list of Result choices is listed below. We can add additional choices as necessary.

(a single space to allow a previously entered result to be removed)

(no result)

(See comment)

Rare positive cells

Positive, 1+ (5 - 24% of cells)

Positive, 2+ (25 - 75% of cells)

Positive, 3+ (> 75% of cells)

Proportion of cells positive: (to use for things like Ki-67)

Positive, uniformly

Positive, variably

Positive, focally

Negative

Absent around tumor nests

High over-expression

Intermediate over-expression

No over-expression

No loss of expression

Loss of expression

Non-specific deposition only

1+

2+

3+

4+

Technically unsatisfactory study

If you know for certain the primary site and type of neoplasm, you may optionally dictate/enter this information. Doing so makes it easier to do future research on patterns of immunoreactivity of different tumor types. This information does not appear on the pathology report.

After the Transcriptionist enters Results he/she clicks the "Save Update/Changes and Write to Report" button. This causes a table like the following to appear in the report:

IMMUNOHISTOCHEMISTRY REPORT:

(Interpreted by: Rodney A Schmidt MD, PhD)

Formalin-fixed, deparaffinized sections are incubated with the following panel of monoclonal and/or polyclonal antibodies. Localization is via an avidin biotin or streptavidin biotin immunoperoxidase method, with or without the use of heat induced epitope retrieval techniques. Results on the population(s) of interest are as indicated in the table(s) below.

Block (Original Label): A1

Population: Neoplastic cells

Label	Marker For	Results	Special Pattern or Comments
CK20	Cytokeratin 20 [Ks20.8]	Negative	
CK7	Cytokeratin 7 [OV-TL 12/30]	Positive, uniformly	
35BH11	Cytokeratin, LMW [35BH11]	Positive, uniformly	
AER	Estrogen Receptor [1D5]	Negative	
MELAN A	Melan-A [A103]	Negative	
MLH1	MLH1 [G168-728]	No loss of expression	
MSH2	MSH2 [FE11]	No loss of expression	
PR88	Progesterone Receptor [PR88]	Negative	
S100	S-100 [polyclonal]	Positive, variably	

Note: The performance characteristics of all immunohistochemical stains cited in this report were determined by the Immunohistochemistry Laboratory at the University of Washington Medical Center, Department of Pathology, as part of an ongoing quality assurance program and in compliance with federally mandated regulations drawn from the Clinical Laboratory Improvement Amendments of 1988 (CLIA '88). Some of these tests rely on the use of "analyte specific reagents" and are subject to specific labeling requirements by the US Food and Drug Administration. Such diagnostic tests may only be performed in a facility that is certified by the Centers for Medicare and Medicaid Services (formerly HCFA) as a high complexity laboratory under CLIA '88. These tests need not be cleared or approved by the FDA prior to their use. Nevertheless, federal rules concerning the medical use of analyte specific reagents require that the following disclaimer be attached to this report.

This test was developed and its performance characteristics determined by the Immunohistochemistry Laboratory of the University of Washington Medical Center, Department of Pathology. It has not been cleared or approved by the U. S. Food and Drug Administration.

IHC INTERPRETATION:

At this point, you may dictate any special IHC Interpretation, Final Diagnosis, etc.

Enter new antibody results yourself.

1. Bring up a case in PowerPath and open the report in Word as you usually do.
2. Place the cursor at the point where you want the antibody results inserted (e.g., right in front of the F in FINAL DIAGNOSIS:).
3. Click 'UW Pathology' in the Word menu bar; click Insert IHC Results in the drop-down menu (the result entry dialog box will open up if any antibodies have been ordered).
4. When you first open the Data Entry Form (using the drop-down menu under UW Pathology), you will see one tab with one set of antibody results.

Result Entry Form

IP: A - Large cells | IP: A - Small cells

☒ Report this group?

Block A

	Label	Description	Numerical Result	Result	Controls/Comment/Note	Report?
1	SMHC	Smooth Muscle Myosin Heavy Chain [S		Positive, 2+ (25 - 75% of		☐
2	ER	Estrogen Receptor [1D5]		Positive, variably		☒
3	PR88	Progesterone Receptor [PR88]		Positive, 1+ (5 - 24% of c		☐
4	C-erbB-2 m	C-erbB-2, microwaved [polyclonal]		Positive, 3+ (> 75% of c		☒
5	C-erbB-2	C-erbB-2 non-micro [polyclonal]		2+		☐
6	P53/D07	p53 [D0-7]		Positive, 3+ (> 75% of c		☐
7	Ki-67	Ki-67 [MIB-1]		Intermediate over-expre		☒
						☐
						☐

Population Name: Optional values - Enter if certain:

Methodology: IP Primary Tumor Site: Add a new population

Histologic Type: Remove this population

Doctor 1: Save Updates/Changes and Write to Report

Doctor 2: Don't Report, but Save Changes

- The first thing to do is name the population using the Population Name drop-down list toward the bottom left of the form. You may either select one of the choices in the drop-down list or type a free-text name. In this example, the population name of "Large cells" was selected. A POPULATION NAME IS REQUIRED. We can add common names to the choices list – just send in a tech request with your favorite.
- Your name should default in as Doctor1 if you are a Pathologist or Resident/Fellow. Be sure there's at least a Doctor1 named. Optionally, you may choose another person from the Doctor2 list who is interpreting the results with you. These names will be copied over o the Pathology report.
- If you know for certain the primary site and type of neoplasm, you may optionally enter this information. Doing so makes it easier to do future research on patterns of immunoreactivity of different tumor types. This information does not appear on the pathology report.
- For each antibody, click the down arrow in the Results column and select one of the choices from the list. Note, you can also type the first letter of the desired result to more quickly navigate tot he desired choice. Type in the Comments field if desired. If you do not wish to publish an antibody result in the PowerPath report, clear the check box in the 'Report?' column.

If you want to enter results for two different populations, click the "Add a new population" button toward the lower right of the form. This adds a new population tab with a blank name as shown below.

Result Entry Form

Case # TS-03-00003 doc_id: 1059585

Neoplastic cells

Block	Label	Description	Result	Comment/Special Note	Report?
1	A1	FISH Her2Neu	Her2Neu BY FISH		☒
2	A1	CD30	CD30/Ki-1 (Ber-H2)		☒
3	A1	CD45	CD45 [2B11 + PD7/26/16]		☒
4	A1	CK20	Cytokeratin 20 [Ks20.8]		☒
5	A1	CK7	Cytokeratin 7 [OV-TL 12/30]		☒
6	A1	35BH11	Cytokeratin, LMW [35BH11]		☒
7	A1	AER	Estrogen Receptor [1D5]		☒
8	A1	MELAN A	Melan-A [A103]		☒
9	A1	MLH1	MLH1 [G168-729]		☒

Population Name: Optional values - Enter if certain:

Primary Tumor Site:

Histologic Type:

Doctor 1:

Doctor 2:

Name the population using the Population Name drop-down list as you did for the first population. In the example below, the population was named "Stromal cells".

Fill out the Primary Tumor Site and Histologic Type fields if you're certain of the origin of the tumor.

Result Entry Form

Case # TS-03-00003 doc_id: 1059585

Neoplastic cells **Stromal cells**

Block	Label	Description	Result	Comment/Special Note	Report?
1	A1	FISH Her2Neu	Her2Neu BY FISH		☒
2	A1	CD30	CD30/Ki-1 (Ber-H2)		☒
3	A1	CD45	CD45 [2B11 + PD7/26/16]		☒
4	A1	CK20	Cytokeratin 20 [Ks20.8]		☒
5	A1	CK7	Cytokeratin 7 [OV-TL 12/30]		☒
6	A1	35BH11	Cytokeratin, LMW [35BH11]		☒
7	A1	AER	Estrogen Receptor [1D5]		☒
8	A1	MELAN A	Melan-A [A103]		☒
9	A1	MLH1	MLH1 [G168-729]		☒

Population Name: Optional values - Enter if certain:

Primary Tumor Site:

Histologic Type:

Doctor 1:

Doctor 2:

- After results are entered, click either the “Save Updates...” or “Don’t Report...” buttons. If you click “Save Updates...” the results will be written to the Word report with a separate table for each population:

THIS IS AN ADDENDUM REPORT

IMMUNOHISTOCHEMISTRY REPORT:
 Interpreted by: Rodney A. Schmidt MD, PhD
 Formalin-fixed, deparaffinized sections are incubated with the following panel of monoclonal and/or polyclonal antibodies. Localization is via an avidin biotin or streptavidin biotin immunoperoxidase method, with or without the use of heat induced epitope retrieval techniques. Results on the population(s) of interest are as indicated in the table(s) below.

Block (Original Label): A1
Population: Neoplastic cells

Label	Marker For	Results	Special Pattern or Comments
CK20	Cytokeratin 20 [Ks20.8]	Negative	
CK7	Cytokeratin 7 [OV-TL 12/30]	Positive, uniformly	
35BH11	Cytokeratin, LMMV [35BH11]	Positive, uniformly	
AER	Estrogen Receptor [1D5]	Negative	
MELAN A	Melan-A [A102]	Negative	
MLH1	MLH1 [316S-728]	No loss of expression	
MSH2	MSH2 [FE11]	No loss of expression	
PR88	Progesterone Receptor [PR88]	Negative	
S100	S-100 [polyclonal]	Positive, variably	

Population: Stromal cells

Label	Marker For	Results	Special Pattern or Comments
CK20	Cytokeratin 20 [Ks20.8]	Negative	
CK7	Cytokeratin 7 [OV-TL 12/30]	Negative	
35BH11	Cytokeratin, LMMV [35BH11]	Negative	
AER	Estrogen Receptor [1D5]	Negative	
MELAN A	Melan-A [A102]	Negative	
MLH1	MLH1 [316S-728]	Negative	
MSH2	MSH2 [FE11]	Negative	
PR88	Progesterone Receptor [PR88]	Negative	
S100	S-100 [polyclonal]	Negative	

Note: The performance characteristics of all immunohistochemical stains cited in this report were determined by the Immunohistochemistry Laboratory at the University of Washington Medical Center, Department of Pathology, as part of an ongoing quality assurance program and in compliance with federally mandated regulations issued from the Clinical Laboratory Improvement Amendments of 1988 (CLIA'88). Some of these tests rely on the use of "analogue specific reagents" and are subject to specific labeling requirements by the US Food and Drug Administration. Such diagnostic tests may only be performed in a facility that is certified by the Centers for Medicine and Medical Services (formerly HCFAC) as a high complexity laboratory under CLIA'88. These tests need not be cleared or approved by the FDA prior to their use. Nevertheless, federal rules concerning the medical use of analogue specific reagents require that the following disclaimer be attached to this report.

NOTE: Immunohistochemistry results performance characteristics determined by the central laboratory at the University of Washington Medical Center, Department of Pathology. These test results are not intended to be used for diagnosis or treatment decisions. They are for informational purposes only. Please consult your physician for a complete interpretation of these results.

IHC INTERPRETATION:

- Press F10 when you're ready to save the report and leave Word.

Edit antibody results yourself after they've been transferred to Word.

- Open the report in Word as usual.
- Select all the table(s) of antibody result(s). DELETE THE OLD TABLE(S) OF RESULT(S).
- Open the result entry dialog box as above ("Insert IHC Results" from the UW Pathology menu). The dialog box will open with all of the old results already entered.
- Edit results as desired.
- When finished editing, click either the "Save Updates/Changes and Write to Report" or "Don't Report, but Save Changes" buttons.
- Press F10 when you're ready to save the report and leave Word.

CONSULTATION/OUTSIDE CASES

Diagnoses:

- Dictate your name so the transcriptionist knows who is dictating.
- Dictate diagnoses on line marked "diagnosis/misc" and send after each case.

3. Dictate accession number and patient name. Dictation cannot be transcribed without this information.
4. Under the heading "final diagnosis", dictate referring institution, city, state, outside institution's accession number, date of surgery, and your diagnosis.

Dictate diagnoses as soon as possible as transcription turnaround is based on a first in, first out basis. Dictation received after 3:00 PM may not be transcribed until the next morning, depending on the volume received.

DICTATION ETIQUETTE

The transcriptionists transcribe for approximately 50 residents and faculty at UWMC and HMC. The following will help expedite turnaround time.

1. Speak clearly, loudly and slowly. This will lead to fewer blanks in the report that only have to be filled in by YOU later which wastes your time and likely the transcriptionists because they had to keep backing up to try to figure out what you said.
2. Dictate all punctuation--pauses in speech imply such things, but this isn't always obvious to the transcriptionist.
3. Back the tape up instead of saying 'can you just go back and change....' and 'oh sorry, I meant to say.....' Think about what you will say before you say it so you won't make errors in the first place. If you make an error and wish to rephrase it, back the tape up and change it so what the transcriptionist hears is one fluid sentence in a continuous fluid paragraph. This is FAR easier for them to type; they don't have to back up the tape or try to find certain words and rearrange or delete and correct text. The more you practice, the better you will become at saying it right the first time without backing up. If you get to the end of a dictation and realize you forgot a sentence at the very beginning--wait until just before your cassette summary then ask them to insert the sentence at the beginning (or wherever you want it).
4. Dictate each section in order, if possible. If you are grossing something on your frozen day and don't yet have all the parts but want to get a jump on it, please make it clear to the transcriptionist that you are dictating "parts c and d, the remainder of the case will be dictated later" then be sure to make that clear later when resuming "this is a continuation of the dictation on SU-03-55555, parts c and d already dictated".
5. Do not eat or chew gum while dictating, it is just plain rude.
6. Use as few parenthesis and symbols as possible outside of the main letter keys, these are harder to type and slow them down.
7. Spell out any strange or unusual words--most transcriptionists are pretty good with medical terms, but some words are difficult (saves you from fixing it later!).
8. Enunciate words that sound alike, such as "inter-" and "intra-", "macro-" and "micro-", "hyper-" and "hypo-" --the best way is to say it like this "hypercellular, that's h-y-p-e-r-cellular" this leads to fewer errors in final reports as you may not notice it even when you proofread.
9. Cut down on repetitive terms such as "the specimen", "measuring" and circuitous descriptions. Phrases such as "roughly up to", "approximately", "up to" can largely be omitted. One report I read said, "...measuring roughly up to 10 cm." Measurements can be used as adjectives, for example, "a 5 cm greatest dimension nodule." If using this approach, do not measure 3 dimensions. Do not say this "6 x 5 x 3 cm in greatest dimension." It is also redundant to say, "Measuring up to 10.6 cm in greatest dimension." Either leave off the first 3 words or the last 3 but don't use both! Good examples: "Received in formalin designated "left mid lower back" is an unoriented 2.1 x 1.3 x 0.5 cm skin ellipse with a 0.4 x 0.4 cm irregularly shaped, darkly and

irregularly pigmented macule that comes to within 0.2 cm of the resection margin. The margins are inked blue, it is serially sectioned and submitted entirely as follows, A1 tips, A2-A4 body." Another: "Received fresh is a 6.5 x 3.0 x 2.0 cm green gallbladder with a shiny serosal surface and a single cystic duct lymph node. It is opened to reveal smooth brown mucosa, numerous multi-faceted yellow gallstones and a wall thickness of 0.6 cm. Cassette summary: A1-- representative sections." No one cares if its is greenish- brownish tan and everyone knows that there is a roughened area where it was detached from the liver."

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Fixatives and Special Stains

FIXATIVES

Formaldehyde

A monoaldehyde that is the most commonly used fixative. There is some confusion over nomenclature. Commercial "formalin" is prepared by bubbling formaldehyde gas through water until saturation, which occurs at 37% (weight:weight) to 40% (weight:volume) concentration. For use, this is diluted with phosphate buffer to an approximate final concentration of 4% at pH 7.0. Since formaldehyde undergoes spontaneous condensation reactions, which are inhibited with alcohol, commercial preparations contain about 10% methanol. A side effect of methanol is impairment of ultrastructural preservation.

- **Side reactions** Formaldehyde spontaneously oxidizes, producing formic acid, which can precipitate in the tissue as hematin derivatives forming small "needles" of black-brown pigment. Atmospheric oxygen and pH > 6.0 accelerate this reaction.
- **Other formaldehyde solutions:**
 - o Bouin's: Solution of formaldehyde, picric acid and acetic acid.
 - o [Zamboni's](#): Aqueous solution of 4% formaldehyde and saturate picric acid, pH 7.5. This is a good fixative for immunoEM.
 - o [PLP](#): Solution of formaldehyde, sodium periodate, and lysine, prepared immediately before use. Mechanism thought to be binding of glycosyl groups. This is another good fixative for immunoEM.
 - o Karnovsky's: Mixture of glutaraldehyde and formaldehyde; for EM.

Glutaraldehyde

A dialdehyde that is a component of various formulations for ultrastructural preservation. Due to the extensive cross-linking of proteins, antigenicity is typically abolished. Since it spontaneously polymerizes, solutions are kept refrigerated in the dark. Karnovsky's is a mixture of glutaraldehyde and formaldehyde.

Desiccants

Methanol and Ethanol, as alcohols, aggregate or precipitate proteins by altering their tertiary structure. A 70% solution is an effective "fixative". Alcohols are a constituent of a number of fixatives, including Carnoy's (a 6:3:1 mixture of ethanol, chloroform, and glacial acetic acid) and methacarn, where methanol is substituted for ethanol.

Mercuric Fixatives

- **B5**: Solution of mercuric chloride and sodium acetate, to which formaldehyde is added just before use. Used in some labs for hematolymphoid processes.
- **Zenker's**: Solution of mercuric chloride and potassium dichromate, to which acetic acid is added just before use.
- **Side Effects**: Black precipitates form without thorough washing of the tissue before processing. The residual fixative, which contains mercuric salts, must be disposed of in proper containers.

Other Reagents

- **"Flow Medium":** which is kept refrigerated, consists of MEM (minimal essential medium) with Hepes buffer, 10% fetal calf serum, and 10% DMSO (dimethylsulfoxide) as a cryoprotectant.
- **Osmium tetroxide:** a tetrapolar compound that cross-links lipids and proteins by chelation at multiple sites. Due to the extensive cross-linkage, antigenicity is considerably altered, although it can be recovered through de-osmication through treatment with metaperiodate.
- **Picric acid:** (2,4,6-trinitrophenol) is a protein precipitant that may also weakly covalently bond proteins via amino side chains. Picric acid is a constituent of a number of preparations, including Bouin's, Hollande's, and Zamboni's.

Conditions of Fixation

Proper fixation is the key to excellent histologic sections. The primary purpose of fixation is to stabilize tissue proteins, which must be rendered insoluble for satisfactory fixation. At least 15-20 volumes of fixative should be used for every volume of tissue. Fixatives penetrate and fix at rates that vary with both the fixative and the tissue. Tissue should be cut 1.5 mm to 2.5 mm in thickness to insure excellent fixation. Glutaraldehyde penetrates slowly but fixes rapidly. Formaldehyde penetrates most rapidly but fixes slowly (as it is in equilibrium with methylene glycol.) Alcohols penetrate most rapidly.

Duration of Fixation

Fixation should be of adequate time (15-30 minutes for tiny biopsies/needle core biopsies and up to several hours for or overnight for specimens which require more prolonged fixation, i.e. fatty specimens, such as soft tissue, breast, pelvic nodes.) Excessively long fixation can be deleterious to antigenicity. For example, intermediate filament proteins lose immunoreactivity. For example, fixation in B5 for longer than 3-4 hours produces an excessively hard tissue that may fracture when sectioned.

SPECIAL STAINS

- **Acid-fast stain:** Detects micro-organisms with relatively thick complex lipid coats, including mycobacteria, leprosy (Fite stain), and Actinomyces/Nocardia species.
- **Alcian blue:** Detects acidic mucoproteins (i.e. terminal acidie groups - sulfonyl and carboxyl), which are abundant in the extracellular matrix, and in some glandular epithelial cells.
- **Congo red:** Detects beta-pleated sheet protein, which is especially abundant in amyloid proteins. Congo red stains orange-pink in transmission incandescent light, and exhibits birefringence (yellow to green, when rotated 90°) in polarized light.
- **Elastin (van Giesen) stain:** Stains elastin black. Used in assessing vessels and the pleura for staging lung cancer.
- **Giemsa:** A metachromatic stain, generally used to detect different WBC's as in bone marrow (stains some chemicals a different color, i.e. mast cell granules).
- **Grocott's Methenamine Silver (GMS) stain:** Detects fungi; black stain (with green counterstain).
- **Iron (Prussian blue, AKA Perls):** Stains stored iron blue.
- **Jones' silver stain:** Detects basement membranes; used in kidney biopsy examinations.
- **Movat stain:** An elastin stain, which differentially stains elastin, collagen, and cell cytoplasm.

- **PAS:** Detects sugar groups, by formation of a Schiff base from alcohol groups. The stain is pink. The most abundant sugar groups are those in glycogen (these can be removed by digestion of the tissue section with diastase prior to the PAS reaction; diastase forms small sugars, i.e. glucose & maltose, from glycogen, but not from glycosylated proteins, including mucins) and those conjugated to complex mucoproteins that are secreted by some glandular epithelial cells (these are mucins). Basement membranes and vessel walls also stain with PAS (used routinely in kidney biopsy work-ups).
- **Toluidine blue:** A metachromatic stain, most commonly used to stain thick sections of epoxy-embedded tissue for EM.
- **Trichrome:** Polychromatic stain that differentially stains collagens, cytoplasmic filaments, and other extracellular materials; routinely used in kidney and liver biopsies.

[Power Path Codes for Special Stains](#)

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- [Puchtler H, et al:](#) Mentacarn (methanol-Carnoy> fixation. Practical and theoretical considerations. *Histochemie* 1970; 21:97-116.
- [Battifora H:](#) The influence of protease digestion and duration of fixation on the immunostaining of keratins. A comparison of formalin and ethanol fixation. *J Histochem Cytochem* 1986; 34:1095-1100.
- Sheehan D, Hrapchak B. *Theory and Practice of Histotechnology, 2nd ed.* pp. 40-41. xxx: Batelle Press, 1987.

Safety Procedures

Residents and fellows are required to complete "Infection Control and Bloodborne Pathogen" and "Safety Fair" training modules annually. A record of their compliance with these two UWMC-required modules is maintained in the training file. A summary of safety procedures (for bomb threat, fire, chemical spill, etc.) is in the yellow-jacketed "Emergency Manual". A copy is on the wall in several rooms including BB220H (the 2-headed, microscope sign-out room), the Grossing Room NW211A, and in the Histology Lab. Each laboratory section has an Administrative Procedure Manual, Laboratory Manuals for procedures performed in that lab, and Material Safety Data Sheets (MSDS's) for all chemicals handled in that lab. A Reference Station for all hospital procedures, administrative, safety materials, etc. is located on the file cabinets in the main corridor of the office complex BB210.

LABORATORY-SPECIFIC SAFETY ISSUES

Infection Control and Bloodborne Pathogens

All employees at UWMC are required to attend one hour of infection control training each year. For residents and fellows this is scheduled during the transition between academic years in June and July. The general policy of UWMC is that all human materials are to be treated as if they are contaminated and all proper safety equipment should be used in handling specimens including (but not limited to) gloves, clothing and goggles. Residents and fellows should discuss the availability of protective gear with the lab supervisors and wear them at all times. Anatomic Pathology requires **gloves never be worn outside the area in which you put them on**. If you need specific accommodations to protect yourself (e.g. non-latex gloves), contact the lab supervisor.

Using Sharps Safely

- Remove suture needles before tying.
- Do not pass sharps hand to hand.
- Keep work field limited to one pair of hands and one sharp.
- Dispose of all sharps in an approved container **immediately** after use. **Never place a used sharp in the sink**. Do not recap needles.
- Both chain mail and Kevlar gloves are available for use with sharps. It is recommended that a sharp-resistant glove be worn on the non-dominant hand, the most likely to be cut.
- When placing or removing a sharp make sure that the sharp is pointing safely away from you.

Radiation Safety Issues

Dr. Michael Graham of Nuclear Medicine outlined the procedures used in locating "sentinel" lymph nodes. A radioisotope (Technetium 99) is used, as well as a dye to find the "sentinel" node. Briefly, the dye/isotope is injected into the tumor; the dye migrates to the lymphatic system and into lymph nodes. The first node receiving dye is deemed to be the sentinel node. The sentinel node and tumor are then both excised and sent to Pathology.

Dr. Graham stated that the usual amount of isotope used is 1.0 millicurie of Technetium 99. The Technetium has a radioactive half-life of 6 hours and is a gamma radiation emitter. He feels that the radiation exposure danger presented by the specimens is negligible and that the exposure rates within the first six hours are in the range of 0.5 to 1.0 milirad/hr. Normal background radiation exposure is 300 milirad/year. Distance and time affect all exposure.

Dr. Graham agreed that it is unacceptable for radioactive specimens to be sent for pathology unmarked as such. He will provide marking stickers for the containers. Additionally, Radiation Safety will meter some specimens for us to determine what exposure we are getting from the tissue.

Formaldehyde Exposure

Formaldehyde is a common chemical used throughout campus as a fixative or sterilant. Acute exposure to low levels of formaldehyde can produce health effects such as watery eyes; burning sensations in the eyes, nose and throat; nausea; coughing; chest tightness; wheezing; and skin rashes. In addition, formaldehyde can be a sensitizer. Chronic effects of formaldehyde exposure include potential for cancers of the lung, nasopharynx, oropharynx and nasal passages. Formaldehyde has been shown to be genotoxic in some animal studies. Some persons have developed asthma or bronchitis following exposure to formaldehyde, most often as a result of accidental spill involving a single exposure to a high concentration of formaldehyde.

What Labs Need to Know

- *Minimize formaldehyde exposure.* Make sure no employees are exposed to airborne concentrations equal to or above 0.5 parts per million (ppm) formaldehyde. Contact Environmental Health and Safety if there is any question on the exposure level for any employee. While the maximum allowable limit for formaldehyde exposure is 0.75 ppm, Washington State has established 0.5 ppm as the action level. Once the action level is exceeded, periodic monitoring and medical surveillance are required.
- *Provide and document hazard communications and safety training for all employees working with formaldehyde.* The training should include: proper safety protocols (which include labeling containers), proper personal protective equipment, health and physical hazards, location of material safety data sheets. Training records can be kept in the personnel file or in a department training file.
- *Provide appropriate personal protective equipment.* Make sure there is adequate hand and face protection. Choose gloves that are chemically resistant such as nitrile or neoprene. If liquids are to be transferred, a face shield or safety glasses would be appropriate. Respirators should only be worn by trained personnel and used only if administrative or engineering controls are not feasible. Contact Environmental Health and Safety at 543-7388 for more information on respiratory protection.

Information Links

[OSU EHS Formaldehyde Safety](#)

[Department of Labor Occupational Exposure to Formaldehyde](#)

[Chemical, Toxicity, Safety and Environmental Analysis Information for Formaldehyde](#)

ANATOMIC PATHOLOGY LAB SAFETY ISSUES

- **Autopsy**
 - o Formalin exposure: protective clothing is available for use along with formalin neutralizing specimen pads. See chemical safety guidelines in the chemical safety manual located in autopsy office.
 - o Biohazards: universal precautions always in use when working with fresh tissue. Personal respirators are available. See precautions section in the Autopsy policies and procedures manual.

- **EM Lab**
 - o Karnovsky's fixative: wear gloves and work in the fume hood.
- **Flow Cytometry**
 - o UV protective glasses must be worn when analyzer is opened for repair.
- **Gross Room**
 - o The big band saw is to only be used by Tom Small, Dan Luff or Dr. Brian Rubin because of insurance issues.
 - o Any formalin spills of any significance need be to reported to the Gross Room Supervisor immediately.
 - o Always take off your scapel blade from the handle when you leave your station for any amount of time.
 - o

GENERAL SAFETY ISSUES

Fire (Phone 222)

Rescue anyone in immediate danger - Close the door

Alarm - pull nearest fire alarm pull box (Wall of BB corridor, east of NW211A) and call 222 to give fire location

Contain the fire, using nearby fire extinguisher (on the wall of the east-west corridor of BB)

Evacuate (2 routes: south into RR wing and down the stairs, or north into NW wing and up stairs). It is a finable offense to remain in the building during an alarm.

Hazardous or Life Threatening Condition

Phone 9-911 for assault, robbery, or other security emergency.

Phone 222 to report smoke, bomb threat, etc to UW Communications and specify the event.

For security concerns, also contact Barbara Rhyter at 598-4912 (E-mail: brhyter@u.washington.edu)

Earthquake

Drop under a table/desk

Cover your head with your arms

Hold on as furniture moves

Earthquake clean-up materials are located in the slide archive room.