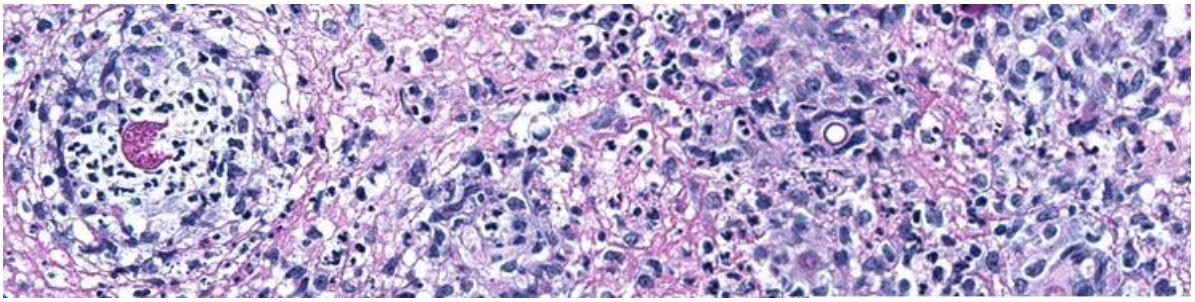
STANFORD
SCHOOL OF MEDICINE

Stanford University Medical Center

DEPARTMENT OF PATHOLOGY

2017 – 2018 HOUSESTAFF HANDBOOK



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Training in Pathology at Stanford

Overview

The Department of Pathology at Stanford University Medical Center seeks to train outstanding candidates for academic, private practice and other leadership positions in pathology.

We offer residency training in Anatomic Pathology (AP), Clinical Pathology (CP), and combined AP and CP (AP/CP). The overall goal of our program is to provide in-depth, flexible training, in all aspects of pathology, leading to board certification in AP, CP or AP/CP.

We also offer accredited clinical fellowships in Blood Banking/Transfusion Medicine, Breast Pathology, Cytopathology, Dermatopathology, Gastrointestinal Pathology, Gynecologic Pathology, Hematopathology, Neuropathology, Microbiology, Molecular Genetic Pathology, and Surgical Pathology. Combined AP/Neuropathology is also offered, but must be discussed with the Program Directors and appropriate Fellowship Directors prior to pursuing these training avenues.

Trainee Selection

All eligible applicants will be considered for training in the Pathology Department at Stanford. Applicants must have one of the following qualifications to be eligible for consideration:

- Graduates of medical schools in the United States and Canada accredited by the Liaison Committee on Medical Education (LCME)
- Graduates of colleges of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA)
- Graduates of medical schools outside the United States and Canada who have received a currently valid certificate from the Educational Commission for Foreign Medical Graduates or have a full and unrestricted license to practice medicine in a U.S. licensing jurisdiction.
- Graduates of medical schools outside the United States who have completed a Fifth Pathway program provided by an LCME-accredited medical school.

The Pathology Department selects trainees on the basis of their preparedness, ability, aptitude, academic credentials, communication and interpersonal skills.

All trainee applications are reviewed by the Selection Subcommittee of the Residency & Fellowship Committee (RFC), which selects those applicants to invite for interviews. Faculty, clinician educators and current residents and fellows interview selected candidates. All teaching faculty and trainees prepare written evaluations of each applicant they meet with.

Anatomic Pathology (AP) Training

Residents complete 24 months of structured training followed by 12 months of flexible training. The details of the current program of rotations are given below.

Structured Training in Anatomic Pathology (24 months)

The two years of AP training will be structured into 26 blocks of 4 weeks each.

- 12 blocks of **surgical pathology/cytology** experience and 2 blocks of **Autopsy** experience at Stanford Hospital

- 5 blocks of combined **surgical pathology** and **autopsy** experience at the Veterans Affairs Palo Alto Health Care System (VAPAHCS)

- 7 blocks of **anatomic pathology specialty** training at Stanford Hospital to be distributed as follows: dermatopathology, forensic pathology, ancillary diagnostics, bone marrow hematopathology, tissue hematopathology, neuropathology (1 block each), one additional block of an "elective" rotation .

Flexible Training in Anatomic Pathology (12 months)

The third year of required training may be customized by the resident to meet her/his individual needs. Residents may apply for our Surgical Pathology or other subspecialty (Breast/ Gyn/ GI) Fellowship or do an alternative year of AP training designed in conjunction with the faculty in accord with the trainee's career plans. A wide variety of research opportunities also exists.

Clinical Pathology (CP) Training

Residents complete 26 4 - week blocks of structured training followed by 12 months of flexible training. The details of the current program of rotations are given below.

Structured Training in Clinical Pathology (26 4 - week blocks)

- 13 4 - week blocks of training in the four major established areas of laboratory medicine: **chemistry/immunology**, **hematology (including one month in coagulation/red blood cell special studies)**, **microbiology/virology**, and **transfusion medicine**. These are divided into introductory rotations of two blocks, followed by one-block return visits after all of the areas have been experienced, allowing the resident to integrate experience gained in various sections and function with a graduated level of responsibility. Residents completing CP training who have not previously completed AP training are encouraged to attend AP hematopathology didactic sessions, including lectures and round the scope conferences, and may wish to complete an elective tissue hematopathology rotation.

- 2 4-week blocks of training in laboratory **genetics** (biochemical genetics, molecular genetics, and cytogenetics)

- 2 weeks of training in **finance**
- 2 weeks of training in **histocompatibility**
- 2 4 - week blocks of training in **general laboratory medicine** at the Veterans Affairs Palo Alto Health Care System (VAPAHCS)
- 8 4 - week blocks of structured training in **pathology** and **laboratory medicine** or research

to be determined by the resident, in consultation with Clinical Pathology faculty

Flexible Training in Clinical Pathology (12 months)

The third year of required training may be customized by the resident to meet his/her individual needs. A wide variety of patient care projects and/or research opportunities (clinical, translational and basic) exist.

Combined AP/CP Training

The combined program consists of 24 months of structured training in AP and 18 months of structured training in CP. This is followed by 6 months of flexible training which should be used to integrate aspects of AP and CP.

Structured Training in Anatomic Pathology (24 months)

Note: This is identical to the 24 structured months for AP only residents.

Structured Training in Clinical Pathology (18 months)

Note: This is identical to the 18 assigned structured months for CP only residents.

Flexible (Integrated) Training in Pathology (6 months)

The remainder of the fourth and final year of required training may be customized by the resident to meet her/his individual needs but she/he will be encouraged to synthesize and integrate ALL areas of diagnostic pathology during this period.

Combined AP/CP training at Stanford may be summarized as:

- Years 1 & 2: a solid grounding in *Anatomic Pathology*
- Year 3: a solid grounding in the core areas of *Clinical Pathology*
- Year 4: two periods of *integration*
- Integration of Clinical Pathology

The laboratory medicine rotations that complete the residents' 18 months of structured CP training are designed to allow the resident to see familiar diagnostic and management

problems in different ways. These include genetic and molecular approaches (during the two-month rotation in genetics), histocompatibility, the perspective of a community hospital (during the two-month rotation at the Veterans Affairs Palo Alto Health Care System) and the special viewpoint of the pediatric patient (during the rotation in pediatric laboratory medicine).

- Integration of all of Pathology

The final six months of the four years of combined AP/CP training should be customized by residents to allow them to connect all areas of Pathology into one integrated knowledge base. We strongly recommend that this is solidified by doing an additional year of anatomic pathology (either a subspecialty fellowship or the Surgical Pathology fellowship).

Combined Anatomic Pathology & Neuropathology Training

The program guarantees a position in the neuropathology fellowship program at the time they enter the residency program (assuming the trainee is in good standing). The combined AP/NP training consists of 24 months of AP (similar to the AP only program) and 24 months of neuropathology. The current composition of the 48 months of required combined AP/NP training is as follows:

- Twenty-four months of AP similarly scheduled as the AP only training.

- The first 12 months of NP training concentrates on general diagnostic surgical and autopsy neuropathology. The second 12 months offers the opportunity for the trainee to develop a research project and/or develop additional expertise in diagnostic NP, depending upon the ultimate career objectives of the trainee.
- Candidates who wish to be certified in NP must first become certified in AP which will require 2 years training for residents who ultimately seek certification in AP and NP. Time-wise this means that becoming certified in AP and NP will require 4 years - 2 years for AP and 2 years for NP.

General Information

Stanford pathology residents and fellows play a central role in the Department's goal to provide quality service to patients. Clinical duties vary depending on the service being covered. In general pathology trainees take on graduated responsibility, functioning as liaisons between the clinical teams and the pathology laboratory. For a detailed description of resident and fellow duties on each of the services, refer to the appropriate section in this handbook.

Regular Work Hours & Availability

In general the work week is Monday through Friday and the day begins with a teaching conference at 8:00 AM and the day ends at around 6:00 PM. The days and times vary with the service but the total time commitment (including on-call coverage) should not be more than 80 hours per week, averaged over a four-week period. Trainees must have at least one full 24 hour period free of patient care responsibilities each seven days (averaged over four weeks) and must have a minimum rest period of 10 hours between duty periods.

If the trainee knows that he/she will be late or is ill and must stay home, he/she should notify the attending on service directly as soon as possible. If that person cannot be reached, the trainee should inform the attending through one of the chief residents or through one of the senior residents or fellows on their service. If covering frozen sections, it is also important to contact the administrative staff to let them know you are unavailable for frozen section coverage, e.g. receptionists in surgical pathology, secretary in neuropathology.

Trainees are expected to be available by page (**Spok Mobile** application installed on your cell phone during orientation) during regular work hours. If you are using a pager issued by GME, you can get replacement batteries from Pager Administration (basement Room HC009, accessed by escalator next to the Gift Shop) or from Security after hours (basement, approximately below the ATMs near the Emergency Room).

According to Pager Administration, the range of standard house staff pagers is 50 miles in ideal conditions. In practice, you may find that the range is closer to 15-20 miles. If you are unsure of pager coverage, call 650-723-8222 and page yourself from your location. If you do not receive the page, call Hospital Paging at 650-723-6661 and leave a telephone number where you can be reached. If you cannot be reached by paging or by phone, you must arrange coverage with another resident who can be reached, and notify the service involved of the change.

Individual Patient Hand-off

The policies and procedures for individual patient hand-off vary by service. Please check with your service director for patient hand-off procedures.

Transition of care when fatigued: The residents should make the chief resident/s aware of such a situation so that a resident or faculty member can be identified to transition

care. The transition of care should be documented (e.g., In PowerPath for Surgical Pathology, Hematopathology; Transfusion Medicine and PAVAHCS have separate Transition of Care logs).

Night and/or Weekend On-Call Duty

On-call duty time must be counted toward the weekly duty hour limit.

Anatomic Pathology

First- and second-year AP residents on autopsy and neuropathology will share after hours and weekend call with other residents or fellows on those services.

Two AP residents on Stanford surgical pathology will share weekend call on a rotational basis. Call commences at around 8:00 AM on Saturday and continues until the cases are grossed- in, no later than 6:00 PM Sunday.

Surgical pathology, GI, Gyn, Breast and cytology fellows take evening and weekend frozen-section call. Call commences at 6:00 PM on Monday and continues until 7:30 AM the following Monday.

Clinical Pathology

CP residents take evening and weekend call for all areas of the clinical laboratory (not surgical pathology). *Call commences at 5:00 PM and continues through 8:00 AM the following day.*

Cytopathology Fellows

Fellows share frozen section call on a weekly basis with surgical pathology fellows.

Dermatopathology Fellows

There is no call duty.

Gyn/GI/Breast Fellows

Fellows share frozen section call on a weekly basis with surgical pathology fellows.

Hematopathology Fellows

Fellows rotating in Hematology cover this service during regular work hours as well as during evening and weekend periods (using their own beeper) while they are on the rotation. Faculty or CP residents will cover one weekend day each week to afford the fellow a 24-hour period free of clinical responsibilities.

Molecular Pathology Fellows

There is no call duty.

Neuropathology Fellows

There is night and weekend on-call duty.

Transfusion Medicine/BB Fellows

There is night and weekend on-call duty

Mentorship

Trainees may find many different mentors useful in their careers. As a formal mentorship system, all residents and fellows are assigned a faculty member to be their mentor upon starting. Trainees may change mentors at any time during the training period and this opportunity will be formally addressed at the end of each year. The mentor should be used as a resource for problems and questions about the training program, advice about career plans, decisions about resident projects and the use of unassigned time, and other matters. The mentor is also the primary person with whom the trainee's progress through the training program is followed.

All residents & fellows are required to meet with their mentor *at least* biannually (December and June). These meetings will be documented in the trainee's file and are a requirement.

Individual Evaluations by Faculty

Stanford Pathology residents and clinical fellows rotate through a variety of different experiences during both Anatomic and Clinical Pathology training. To ensure progress in the acquisition of the core competencies required to become a pathologist, the faculty evaluates trainees throughout their program.

Each faculty member who interacts with a trainee is required to submit a formal evaluation in MedHub. These evaluations cover the following **Core Competencies** identified by the Accreditation Council for Graduate Medical Education (ACGME). Evaluations are conducted using the ACGME **New Accreditation System** and **Milestones**.

Patient Care

Residents must assume responsibility for providing appropriate and effective care to the patients served by our department's clinical areas. They must develop and demonstrate the ability to gather essential and accurate information about patients, make informed recommendations regarding differential diagnosis, and ensure that

examination of specimens, resolution of problems and the reporting of results occur in a timely manner.

New trainees will need to document that they are able to retrieve relevant patient care information from the medical center's Hospital Information System (HIS) by the end of their first rotation.

Practice-Based Improvement

Trainees must develop an analytical approach to problem-solving. They must demonstrate that they can apply information learned from previous cases to new ones. They must regularly attend and contribute to departmental conferences. They should be open to constructive criticism and be able to identify areas of diagnostic Pathology and/or laboratory medicine in which they need to improve.

Communication

Trainees must describe pathologic findings accurately, clearly and concisely. They must ensure that critical results are communicated promptly and acted on appropriately. They must provide effective and helpful consultation to other physicians and healthcare professionals and maintain good relationships with their colleagues, faculty and other members of the department.

Professionalism

Trainees must demonstrate behavior that reflects a commitment to integrity and ethical practice. They must be available during assigned coverage and punctual for appointments. They must demonstrate respect and sensitivity to diversity in patients and professional colleagues and cooperate with technical and administrative staff. They must adhere to principles of patient confidentiality and scientific integrity. Professionalism also includes adherence to deadlines for licensing and other requirements. They must regularly attend and contribute to department conferences.

Medical Knowledge

Trainees must establish a command of the basic and clinical science that underlies diagnostic pathology and/or laboratory medicine. They must demonstrate the ability to access and critically evaluate current medical knowledge and/or scientific evidence relevant to their practice. They must also read scientific literature pertinent to assigned cases and use this information to enhance their ability to make a diagnosis or solve a problem.

Healthcare Delivery

Trainees must appreciate their role in the overall care of patients. They must demonstrate an understanding of the medical center's administrative organization and be facile in the use of its information systems. They must participate in interdisciplinary conferences and appreciate the role of diagnostic pathology and/or laboratory medicine in the prevention, diagnosis and management of specific diseases. Trainees must also participate significantly in the department's quality assurance program.

Each month, the trainee should receive feedback from one of the faculty with whom she or he has worked. This individual should show the trainee any evaluations filled out by other faculty on service that month. If this does not happen or if the trainee has any concerns about the feedback received, alert one of the Associate Program Directors (either Dr. Ohgami for AP or Dr. Banaei for CP) ASAP.

360 Evaluations

The residents receive 360^{o} evaluations from ancillary staff in various services the residents rotate through.

Semi-Annual Evaluation by Mentor

Every six months, the trainee should meet with her/his mentor. During this meeting, any issues raised should be addressed. The mentor should record details and/or conclusions of this discussion in the trainee's Progress File, which both the mentor and trainee must sign, documenting that the evaluation and counseling session was held. The specific form is available from the residency coordinator. If the trainee indicates any disagreement, he or she may write a rebuttal, which will become part of the trainee's permanent Progress File.

Annual Meeting

Annual Meeting with the Residency Program Director, the Residency Associate Program Director:

In the first three months of the program, each trainee will meet with the Program Director. The residents will also meet with their respective Associate Program Directors (AP or CP) in January /Feb each year. These meetings will assist in reviewing the resident's progress, discussing academic issues and plans, reviewing the resident's performance and deciding on activities and goals for the coming year.

Promotion and Dismissal

All residents and, if appropriate to the training program, clinical fellows will be offered reappointment to succeeding levels in their selected track, subject to continuing satisfactory performance and conduct.

In the unusual event that an unsatisfactory evaluation might result in a decision adversely affecting the trainee (such as probation or termination), the case will be discussed by the Associate Program Directors and Clinical Competency Committee and a recommendation made to the Program Director and the Chair. The Program Director will notify the trainee in writing of her/his decision at least six months in advance before the next re-appointment period. In all such cases, the trainee has the right to meet with the Program Director and the Associate Program Director(s) and/or the Resident/Fellow Committee.

Evaluation of Training Program & Faculty

All trainees are requested to evaluate rotations that they have had during the past six months as well as the performance of individual faculty members that they have worked with. These evaluations are anonymous and are done in MedHub. Scores from all of the individual

evaluations will be averaged and any specific comments made will be transcribed to a summary sheet.

Faculty Evaluations by Residents: The faculty evaluations by residents are anonymous and confidential as the release of evaluations is batched every six months. The Program Director/s (PD) or the coordinator have no mechanism for figuring out which resident has completed a particular evaluation.

Peer-Peer Evaluations: The residents will evaluate the fellows they interact with and the fellows also evaluate the residents they worked with. Some examples of fellow rotations such evaluations may be requested include junior attending, frozen section rotation, Hot seat etc. These peer-peer evaluations are anonymous and confidential as the release of evaluations is batched every six months. The Program Director/s (PD) or the coordinator have no mechanism for figuring out which resident/fellow has completed a particular evaluation.

California Medical Licensure

All Stanford residents and fellows MUST obtain a California medical license. You must have **one year** of ACGME-approved postgraduate training before you are eligible for licensure and you must receive your license by the **beginning of your third year of training**. If you do not have your California medical license by the beginning of your third year, you will have to refrain from all medical duties (and the hospital will not pay you).

NOTE: Timelines in this section are for Pathology residents who have just graduated from a U.S. (or Canadian) medical school and are in their first-year of training at Stanford. If you have previous ACGME-approved training (or are a graduate of a foreign medical school), please consult the Program Coordinator.

1. Register participation in our residency program

This is accomplished by submitting *Form L3 - Postgraduate Training Registration Form* to the Medical Board of California. The hospital's GME office includes this as part of your orientation.

2. Begin work on your application

The application form consists of four parts:

- *Form L1A-D (Application for Physician's and Surgeon's License*
- *Form L2 (Certificate of Medical Education)*
- *Form L3A (Certificate of Completion of ACGME/RCPSC Postgraduate Training)*
- *Form L4 (Eligibility for Reduced Initial License Fee)*

You should download copies of Form L1A-D and Form L2 from the Medical Board of California website (http://www.medbd.ca.gov) and complete them. If you need assistance, consult the Program Coordinator. Forms L3A and L4 will be prepared by the hospital's GME office when you have completed Forms L1A-D and L2. Make sure these forms are up to date.

3. Begin to assemble the required documentation

You will need to send original transcripts from both undergraduate and medical school; a copy of your medical school diploma which has been "certified" by the school (do not plan to send your original); and fingerprints.

4. Plan to complete Step 3 of the U.S. Medical Licensing Exam

You should plan to take this exam as soon as possible. For more information, visit the USMLE website (http://www.usmle.org/default.asp). We recommend that you schedule the exam no later than March of your first year and that you choose a month in which your Pathology rotation affords you more flexibility. Do not cram for the exam. If you wish to take a review course, we recommend the Kaplan course (www.kaplanmedical.com). Notify the Program Coordinator when you will be taking the exam (and what the results are as soon you receive them). You do not need your USMLE scores to *apply* for a California medical license (but you will need them for the license to be issued).

5. Satisfy the General Medicine Training requirement

Pathology residents must have four months (512 hours) of training that involves direct patient care. At Stanford, several rotations offer opportunities to participate in direct patient care (and meet these requirements). But, it is your responsibility to periodically consult with one of the program directors to insure that you are meeting this requirement.

6. Submit your application to the GME office

As soon as your application is complete (whether you have taken USMLE Step 3 or not), send it to the GME office with a check (payable to Medical Board of California) to cover the application fee. If you do this, the GME office automatically prepares Forms L3A and L4 and mails your application to Sacramento via Federal Express (to arrive on July 1). *If you get it to the GME office before March 1, they will reimburse the application fee to you.*

7. Send the licensing fee to the Medical Board of California

As a trainee, you are eligible for a reduced initial licensing fee. You need to send this check directly to the Medical Board. *Note: If you receive your license before September 1, the GME office will reimburse this licensing fee to you.*

8. Follow-up with the GME office and Board to ensure items are not missing or forms out of date. THIS IS THE TRAINEE's RESPONSIBILTY NOT THE GME OFFICE.

9. Notify the Program Coordinator.

When you have received your license, make a photocopy and send it to the Program Coordinator.

RISE Examination

Each year in March/April, the Pathology Resident In-Service Examination (RISE) takes place in order to help the residents, their mentors, and the program directors assess resident progress in the training program. The exam is mandatory and the scores will be made available to the program directors and possibly the residents' mentors; they will not be released to the chair of the department. The ACGME requires objective assessments of resident progress during training; for this reason, the individual scores of the In-Service Examination are utilized to evaluate resident competency along with other methods of evaluation. All residents are released from their clinical responsibilities during the examination.

How to convey suggestions and concerns about the residency program

Our department continuously strives to find ways to improve our program (following the principle: "All human activities can be improved."). To do that best, we wish to hear suggestions from as many people as possible. If at any time, you have concerns or suggestions, there are multiple ways in which to bring them up:

1. Talk to your chief residents! They are **YOUR** representatives. Use them as the first step for voicing your opinions, ideas or concerns about the program. Anything you discuss with them can be brought up **ANONYMOUSLY**; either at the Residency and Fellowship Committee (RFC) or at the annual Residents' Retreat (see **2** & **3**, below). The residents can use the suggestion box (AP in Surgical pathology, CP at Hillview), contact the PDs, approach the GME or the office of the Ombudsperson (650-723-3682). They can also anonymously send an e-mail to the GME office (the internet link is in MedHub is: http://gme.stanford.edu/anon_report.html)

2. Residency and Fellowship Committee (RFC). A meeting of the RFC is held approximately once a month. The goal of the RFC is to monitor, assess and attempt to improve our residency and clinical fellowship programs. As an important part of that process, the RFC can consider, and decide to take action regarding, **ANY** issues/topics that have been raised for discussion. The Program Director/Department Chair, Associate Directors of AP and CP, and chief residents, as well as elected representatives of the residents and certain members of the faculty, are regular members of the RFC. Other faculty/residents can be invited to attend as appropriate for the topics being discussed. Any resident or faculty member of the RFC can place a topic on the agenda for discussion.

3. Resident Retreat. An annual one day retreat where all aspects of the residency program can be discussed by the residents (no attendings or fellows attend these retreats, unless they are invited by the residents to be present for certain parts of the discussion) is held. The residents then write a report of these deliberations, which is formally presented by

the chief residents at a meeting (or meetings) of the RFC. Many of the suggestions derived from these retreats have been implemented by the program, in the originally suggested or modified form, after discussion at the RFC and, in some cases, at faculty meetings.

4. Faculty Mentors. You are assigned a faculty mentor when you start the residency training and will meet with him or her at least twice a year. Please note that residents can change mentors at any time for any reason (e.g., a change in your long term career interests). Please contact the faculty who you are interested in establishing a mentorship.

5. Associate Program Directors of AP or CP. You will formally meet with one of them once a year, depending on whether you are doing AP or CP during that year.

6. Program Director. You will meet with him/her once a year, and, during that meeting, he/she will ask for your thoughts about the program, including opportunities for improving it.

7. Resident Buddy. You are assigned to another resident when you start the residency and will meet with him/her at least once at the beginning of the year and as many times as you wish thereafter. If you wish, you can bring up topics with her/him before discussing them with the chief residents.

8. Medhub Evaluations. Each month, you will be completing evaluations on your rotation for that month, as well as on the attendings you worked with during that period.

9. Program Evaluation. Before the Resident Retreat, you will have the opportunity to evaluate all rotations (AP or CP) **ANONYMOUSLY**. The evaluations will be used to decide upon topics for discussion at the Resident Retreat.

Protocol for Residency Schedule Changes

Chief Residents are responsible for managing the rotation and call schedules under the direction of the Residency Associate Program Directors, taking into account the needs of each service area. All schedule changes will be handled in the following manner to ensure the needs of each service area and to ensure that the program requirements are met. The following "**Schedule Change – Routing Slip**" will be used to guarantee that all affected parties receive timely notification and the Master Rotation Schedule maintained in MedHub can be revised as appropriate.

1. Residents will contact the Chief Residents to request a modification in the Master (MedHub) Schedule. Chief Residents generate the **Routing Slip** for approvals.

2. First-level approval of the request will be made by the appropriate Associate Program Director (Dr. Robert Ohgami for Anatomic Pathology rotations and Dr. Niaz Banaei for Clinical Pathology rotations).

3. Second-level approval of the request will be made by the appropriate rotation Service Director(s).

4. Upon receipt of both first and second level approvals, the Chief Residents adjust vacation and call schedules; verifying coverage arrangements when required. Chief Residents will forward approved Routing Slips to the Program Coordinator.

5. Upon receipt of approved Routing Slips, the Program Coordinator will modify the Master (MedHub) Schedule and place a copy of the Routing Slip in the resident's file.

Residency Schedule Change – Routing Slip

Resident Name:	Date(s):	Service Area(s):
Chief Resident(s) Name:	Schedule type: **Rotation** **Vacation/Absence**	Coverage Arrangement(s):

FIRST-LEVEL APPROVAL

Kim Allison (AP) Niaz Banaei (CP)	Signature & Date reviewed:	Approved Denied

SECOND-LEVEL APPROVAL

Service Director(s):	Signature & Date reviewed:	☐ Approved ☐ Denied

Distribution by Residency Coordinator

MedHub schedule revised:		☐ Copy: Resident File

Unassigned Rotations

Unassigned time should be used thoughtfully to enhance the curriculum, explore areas of particular interest in greater depth, or allow the resident to bring a research project to completion. These rotations must be planned in advance and a brief description of the activity submitted to the Chief Resident and Program Coordinator at the beginning of the academic year. Unfortunately, as of 2004-2005, it is not possible to spend any of this time outside of Stanford. (SHC will not support your salary during such time away and there is no departmental funding available for these purposes.)

Moonlighting

All pathology residents and clinical fellows engaged in moonlighting must be licensed for unsupervised medical practice in the State of California or the state where the moonlighting occurs. It is the responsibility of the institution hiring the resident to moonlight to determine whether such licensure is in place, adequate liability coverage is provided, and whether the resident has the appropriate training and skills to carry out assigned duties. In addition, the Program Directors must acknowledge in writing that he is aware that the resident is moonlighting, and this information should be part of the resident's folder.

Time spent moonlighting must be counted toward the weekly duty hour limit.

Medical Student Teaching

All trainees, residents and clinical fellows, will be asked to teach in the second-year medical student Human Health and Disease course. You will be asked in July to express your preferences for participation in individual labs on the annual Lab bid.

No sub-specialty expertise is required to prepare for these two-hour medical student laboratories. You may wish to bid for laboratories in a topic with which you are not already familiar. You may wish to bid for laboratories that are scheduled in or shortly after less intensive rotations.

You will be assigned as a laboratory "facilitator" for three to five laboratories. We ask that you bid for block of sequential laboratories so that you become familiar with the students in your assigned room.

Preparation for these laboratories is an excellent exercise for any trainee. You may review sections of Robbins or the course syllabus online. Glass slides and other course materials are available from the course coordinator in R354.

You will be invited to a facilitator's luncheon before each block of labs, held in the Bing dining room. There you will be trained as a small-group facilitator and be oriented to the assigned laboratory cases. Novice instructors will be paired in each small-group with an attending who will be able to answer any questions that you can't, so relax and have fun.

South Bay Pathology Society

The Bay Area hosts several high quality post-graduate pathology courses that residents and fellows are strongly encouraged to attend. The South Bay Pathology Society hosts an annual meeting in the middle of May on a Saturday in Monterey. Registration fees are paid by the Department of Pathology for residents and fellows, provided they register in advance with the Program Coordinator. The California Society of Pathologists hosts a course in December that usually takes place in San Francisco. Attendance is free for trainees. Finally, the South Bay Pathology Society hosts a monthly meeting on the evening of the first Monday of each month and residents may attend this meeting on a rotational basis. Sign up is limited and posted at the Hot Seat station in Surgical Pathology. Residents are urged to take advantage of these educational opportunities.

Anatomic Pathology Call Guidelines

Frozen Section/ Ultra Processing On-call Procedure

The designated on-call surgical pathology fellow is responsible for initial intake of all after hour requests for frozen section or ultra processing of specimens for surgical pathology. Responsibility for initial intake of all neuropathology frozen section calls resides with the designated on-call neuropathology fellow and/or neuropathology resident (unless there is no AP resident on rotation in neuropathology, in which case the responsibility is shared by the neuropathology fellow and/or the surgical pathology fellow on-call). **All requests for frozen section or ultra processing** are relayed to the respective on-call faculty for surgical pathology or neuropathology, immediately after the call is received by the resident or fellow. The relative indications, contraindications, appropriate course of action, and time- line, if a frozen section or ultra is to be performed are discussed with the faculty on-call.

STAT GMS On-Call Procedure

The designated on-call surgical pathology fellow is responsible for initial intake of all after hour requests for STAT GMS stains. The fellow is responsible for contacting the appropriate technician and screening the specimen once it has been processed. **All positive STAT GMS** stains are to be called to the designated faculty on-call prior to reporting the positive result to the requesting clinician. **All negative STAT GMS stains** are to be formally re-screened by the cytotechnologist(s) on the following work day. In the event that an initially negative STAT GMS is flagged as a possible positive on re-screen, the on-call fellow and the cytopathologist on service are immediately contacted to re- evaluate the specimen. If the GMS is considered to be positive on re-evaluation by the cytopathologist and fellow on-call, the requesting physician is notified.

*The on-call schedule is made up on a monthly basis and is available through the hospital operator and posted in the Laboratory of Surgical Pathology. All housestaff and faculty on-call are to be contacted by personal pager and/or personal cell phone. In the event that the on-call faculty cannot be reached by pager or cell phone, the director of surgical pathology on-call is to be contacted, except for neuropathology cases, in which case the director of neuropathology is to be contacted (or his designee, when he is not available).

Clinical Pathology Call Guidelines

Chemistry

Analyte out of range

A. Critical Value (see panic/critical value list)

1. Value should be confirmed and the value called to the ordering physician by the technologist per the new critical value (CV) policy.

2. If the on-call resident is called about a very unusual case and the clinician cannot be contacted, the resident should investigate the problem and discuss the case with the medical director on call.

   a. Customer service (650-723-6111) may have additional contact information for physicians.

   b. The technologists are asked to call the resident/medical director with any issue they are uncomfortable with so please consider call questions carefully before dismissing a CV call; however,…

   c. The technologist calling the resident should be expected to discuss all difficult cases with the supervisor or lead on their shift and contact customer service and the pre-analytical staff for help when necessary before contacting the resident.

B. Absurd Value (patient would likely not be alive if the value were true)

1. Result should be verified

2. Review patient's history and other labs

   Specimen processing and instrumentation should be reviewed for possible sources of artifact.

   a. Sample questions to consider:

      i. Does it look like an instrument/reagent problem? (is there a trend in abnormal results over the last shift, is there more than one patient with this problem, how do the controls look, is it the same analyte)

ii. Is it a patient problem? (patient with similar problem in past, other labs show abnormal findings)

b. Common analytes with problems

i. Elevated K+ in hemolyzed samples

ii. Very low glucose levels old specimens in mint top tube

iii. Call medical director to review cases as necessary, when in doubt call- it is expected.

Hematology

1. Critical values where clinician cannot be reached-- follow description given for chem above

2. Peripheral blood smear review

a. Presence of intracellular organisms (ICO)

i. Check to see if there is a concurrent micro specimen for Gram stain and culture

ii. Look into the processing of the specimen, to assess possibility of contamination- e.g. what other specimens are being stained on the stainer? Is this the only patient with ICO?

iii. Gram staining and other stains can be initiated, in discussion with the medical director on call and the clinical team.

b. Blasts

i. Confirm morphology and percent, obtain help from the current heme resident/fellow if available (they may know the case) and a senior technologist

ii. New patient? If patient is not in CC or misys search Powerpath (name search) they may be an outside consult case with a known diagnosis by flow in PP who is being sent to Stanford for treatment so they may not be in CC or misys yet.

iii. Relapse? When was the last PB with blasts reviewed? Is the patient on chemo, thought to be in remission? Could it be G-CSF effect (look up patient's history)

iv. Discuss cases with on call medical director and clinical team.

c. MAP changes

i. Confirm finding and quantitation (e.g. 2+, 3+)

ii. Look at other labs, (e.g. platelet count; D-dimers; other coagulation labs including fibrinogen level; and blood culture or gram stain)

iii. Look up patient's history and discuss case with MD on call and team

Body Fluids

1. Presence of intracellular organisms
   a. Check to see if there is a concurrent micro specimen

   b. Confirm finding

   c. Other stains (Gram stain, etc.) can be initiated, in discussion with medical director and clinical team

2. Blasts in CSF
   a. It is best to confirm morphology of cells with medical director unless case is very straight forward (e.g. history of blasts in CSF)

   b. Consider peripheral blood contamination of CSF specimen in patient with blasts in the PB smear.

3. Tumor cells (other than blasts) in all body fluids
   a. Rarely a medical emergency. Use your clinical judgment, look up history.

   b. If you do not come in to confirm morphology ask the technologist to type in "atypical pending."

Microbiology & Virology

1. Gram stains

   Get expert help before reporting a gram stain result on your own, call the medical director- you don't want the clinical team to base treatment on only your morphologic evaluation

2. Stat HIV tests: only the medical director can interpret stat HIV test results, so call the medical director (Dr. Ben Pinsky).

MedHub Residency Management System

MedHub is a web-based system designed to track and document a variety of critical program and resident activities relating to institutional reimbursement, performance evaluation, procedures tracking, and program accreditation. Individual user names and passwords are sent via email to all House Staff from MedHub Support. Questions or problems with MedHub should be directed to the Program Coordinator.

An app version of MedHub is also available for some functions such as duty hour reporting and evaluations.

All House Staff are required to log onto MedHub to:

- document duty hours and procedures
- complete faculty and rotation evaluations
- view the Master Rotation Schedule
- view Program Conferences
- address alerts in a timely manner
- request vacations and a leave of absence

Duty Hours Reporting

ALL house staff (residents and clinical fellows) are expected to document their duty hours in MedHub weekly; access is provided on a two-week rolling basis after which lockout occurs. As noted in the **GME House Staff Policies and Procedures** "***All residents and fellows must accurately report their work hours on a weekly basis using the MedHub system. Failure to do so may result in disciplinary action, including termination from the residency program.***" Access to incomplete duty hours of previous (locked-out) pay periods can be requested from the Program Coordinator.

Procedures Tracking

House Staff are expected to document applicable required procedures (i.e. autopsies, bone marrow specimens, fine needle aspirates, etc.) in the ACGME Resident Case Log System https://www.acgme.org/residentdatacollection/. House Staff can also access the Case Log System via MedHub by clicking on the Procedures tab. Individual user names and passwords for the Case Log System are sent via email by the Program Coordinator. Accurate data of procedures performed during training is required by the American Board of Pathology, therefore, everyone is highly encouraged to enter them in the system.

Conferences

Lectures and conferences are designed to enhance training by providing exposure to the topics necessary for trainee's professional development, some of which the trainee may not be otherwise exposed to in their clinical work. Attendance is considered to be an essential part of a trainee's professional development. Residents are **required to attend a minimum of 70%** of the **Anatomic Pathology Didactic Series** when on AP as well as a minimum of **70%** of the **Laboratory Medicine Lecture Series** and **Clinical Pathology Case Presentations** when on CP. The departmental support for annual meeting expenses for residents (eg. for travel, accommodation and registration fees) is contingent upon meeting this threshold of 70% attendance. Attendance beyond 70% is strongly encouraged.

Anatomic Pathology

- **Anatomic Pathology Didactic Series** – this series covers the AP lecture based curriculum. It is given three times per week (see MedHub for schedule) by AP faculty; attendance is required for AP residents and expected of Surgical Pathology, GI, GYN and Breast Pathology fellows. Some topics are covered over other year. Lectures are recorded and archives in a shared Stanford Box account so they can be reviewed after in person attendance.

- **Anatomic Pathology Scope Sessions/Workshops** – this slide/case-based series is offered to supplement exposure to the various AP subspecialties. Each subspecialty has one session per month, which is run by subspecialty fellows or faculty. There are typically 3 of these sessions/week.

Clinical Pathology

- **Blood Bank/Transfusion Medicine/Coagulation Conference** – problem case review presented by residents for discussion with faculty; meets weekly (Monday, 1:00-2:00 PM); attendance is expected for CP residents rotating at Stanford.

- **Clinical Pathology Call Conference and Case Presentations** – Review of calls over the past week and case discussion with faculty; meets weekly (Friday, 12-1 PM); attendance is required for CP residents.

- **Laboratory Medicine Lecture Series** – various topics presented by faculty; meets weekly (Thursday, 12-1 PM); attendance required for CP residents.

- **Clinical** Pathology Journal Club – journal club targeted to review key development in CP literature in a journal club discussion formal with faculty; meets monthly (Wed 12-1pm); attendance required for CP residents.

AP and CP Relevant Conferences:

- Current Concepts: All trainees are required to do a Current Concepts presentation. This is an in-depth assessment of a major topic in pathology; meets weekly (Monday,

12PM). The talk should be literature based and provide deep insight into a focused area. This will often, though not necessarily, center on the molecular/pathologic basis of disease. Trainees will be contacted by the resident coordinator regarding the scheduling of these presentations. Residents and fellows should reach out at least 3 months prior to their talk to Dr. Ohgami who will assist in pairing residents with a faculty mentor who can help guide their talk. Ideally the presentation consists of a brief introduction, then presents the key findings of the topic/area of work, critically discussing data followed by a discussion assessing the implications of findings and potential directions of future work. The talk should be approximately 40-45 minutes to allow time for questions and discussion.

Three examples of talks are:

1) "Histone Modifications in Cancer Pathogenesis and Diagnosis" Greg Charville, MD, PhD, given Tuesday, March 28, 2017

2) *"The Changing Landscapes of Pathology Residency" Hubert Lau, MD,* given Tuesday, October 25, 2016

3) *"Classifying The Unclassified: Unclassified Renal Cell Carcinoma, Updates From the 2016 WHO, and The Diagnostic Challenges of Hereditary Leiomyomatosis Renal Cell Carcinoma"* David Levy, MD, given Tuesday, November 22, 2016

Drs. Axelrod, Boyd and Ohgami are co-directors of this course. 70% attendance of these talks is mandatory.

- **Genomic Medicine**- -- a series of 10 lectures that comprise a core genomics curriculum for all AP and CP residents and Molecular Genetic Pathology fellows; 70% attendance mandatory. An advanced genomic medicine elective of 6 sessions is also offered each year.

- **Laboratory Management Conference** – review of administrative problems and issues related to informatics; meets monthly (Wednesday, 12-1 PM); 70% attendance mandatory.

- **Pathology Grand Rounds** –invited faculty members from outside Stanford giving guest lectures on major topics of interest to pathology ; meets monthly (one Tuesday, 12-1 PM/month); 70% attendance mandatory.

- **Hematopathology lectures** – AP residents are expected to attend these. These lectures, however, are also highly beneficial for CP only residents as part of their CP Hematopathology learning. These lectures are combined into the AP Didactic series lectures times. See MedHub conference calendar for dates.

Other Conferences

In addition to these conferences, residents & fellows on specific rotations may need to participate in other departmental and interdepartmental conferences. All residents are invited to attend (and encouraged) any and all of these as interest and time permits. These

include (but are not limited to):

- **Anatomic Pathology Quality Assurance** – administrative review of department's performance; meets monthly (one Tuesday, 12-1 PM/month); attendance expected for all residents rotating at Stanford.

- **Autopsy Conference** – current cases presented by the residents to the autopsy faculty; on the weekday after the case has been performed; meets daily (Monday - Friday, 9:30-10:00 AM); attendance expected for residents on Autopsy rotation.

- **AP Fellow Interesting Cases Conference –** Surgical pathology and surg-path subspeciality fellows share their interesting cases in an informal setting. Residents can attend if time permits. Meets weekly (Fridays 12-1pm)

- **Consult Cases in Surgical Pathology** –
Review of fellow-level consult-type cases by subspecialty faculty, usually topic-based. Residents can attend if time permits. Meets weekly (Thursdays, 12-1 PM).

- **Genetics Conferences** - Pediatric Genetics Grand Rounds; meets weekly (Friday, 9:00-10:30 AM), Genetics Journal Club; meets weekly (Wednesday, 4:00-4:30 PM) - attendance expected for residents on Genetics rotation.

- **Gross Conference –** AP residents on surgical pathology at Stanford will be required to attend these sessions in the gross room for review of grossing techniques. Dr Brock Martin is the Director of this series.

- **Adult Hematology/Hematopathology Conference** – review of interesting cases presented jointly by Hematology and Hematopathology fellows on a monthly basis; meets first Wednesday of the month (12:00 – 1:00pm) in Cancer Center, second floor conference room.

- **Hematopathology Case Conference:** informal review of week's problem hematopathology cases; meets every Thursday, 1:00- 2:00pm; attendance expected for AP and CP residents on Bone marrow, tissue heme, or flow cytometry rotation & Hematopathology fellows.

- **Hematopathology Educational Conference**: meets every Tuesday, 1:00-2:00pm

  1. First Tuesday of block: Fellow conference -- attendance expected for Hematopathology fellows and any other fellows rotating on the hematopathology consult service.

  2. Second Tuesday of block: Resident conference -- attendance expected for AP and CP residents

  3. Third Tuesday of block: Laboratory hematology conference -- attendence expected for Hematopathology fellows and for AP and CP residents rotating on the bone marrow/flow cytometry service

  4. Fourth Tuesday of block: Hematopathology journal club --attendence expected for Hematopathology fellows, other fellows rotating on the hematopathology consult service, and for AP and CP residents on Bone marrow, tissue heme, or flow cytometry rotation & Hematopathology fellows

- **Infectious Disease Grand Rounds** - presentation of recent ID clinical cases and discussion; meets weekly (Thursday, 4:30-5:30 PM); attendance expected for residents on Microbiology/Virology rotation.

- **Infectious Disease Plate Rounds** - CP residents present and discuss recent Microbiology/Virology cases with ID clinicians; meets weekly (Thursday, 10:30-11:30 AM); attendance required for residents on Microbiology/Virology rotation.

- **Neuropathology Journal Club** - recent papers of relevance presented briefly and informally by faculty, residents & fellows; meets weekly. Contact Hannes Vogel for information.

- **Pediatric Conferences** - Pediatric Tumor Board – Tuesday 8am, weekly

Neonatology Conference – Friday 12noon, weekly

Pediatric Surgery/Radiology/Pathology – 3rd Wednesday 7:30am, monthly

Pediatric Genomics Tumor Board – 4th Monday 1:30pm, monthly

Pediatric Stem Cell Transplant – Tuesday 4pm, weekly

Pediatric Liver Tumor Board – 3rd Wednesday 5pm, monthly

Pediatric Gastroenterology – Last Friday 12noon, monthly

Pediatric Vascular Anomalies – 1st and 3rd Wed of the month 2-5pm

- **Southbay Pathology Slide Conference –** review and discussion of cases to be presented at the monthly Southbay Pathology Society; meets monthly (Monday, 8-9 AM); attendance expected for AP residents rotating at Stanford.

- **Surgical Pathology Journal Club:** journal club targeted to review key developments in the Surgical Pathology literature in a journal club discussion format with faculty; meets monthly (see MedHub for schedule)

- **Transfusion Medicine/Coagulation Conference** – review of transfusion medicine policies and unusual transfusion medicine and coagulation cases; meets weekly; attendance expected for all CP residents.

- **Veterans Administration Palo Alto Health Care System Anatomic Pathology Conferences** - review of recent surgical pathology cases weekly (Wed 1-2pm) and weekly autopsy case review (when case on Thursdays 2-3pm); attendance expected for residents rotating at VAPAHCS.

- **Veterans Administration Palo Alto Health Care System Anatomic Pathology Conference** - review of recent literature in surgical pathology; meets occasional Fridays noon-1pm; attendance expected for residents rotating at VAPAHCS.

Some notes about conference presentations Audiovisual

Support

Room L201, where most presentations occur, is equipped with an overhead LCD projector with computer access (including internet access) for computer-based (PowerPoint) presentations, and a light microscope with connections to the overhead LCD projector for slide conferences. There is a department-owned PC laptop computer attached to the presentation podium. The conferences are webcast to VA hospital and to Hillview conference rooms

The Department of Pathology supports a Photo Laboratory (Room L206) for audiovisual needs of the department. Digital and conventional microscopes are enabled for photography. Digital files can be processed for presentations. In order to access the Photo Lab after hours, your bar-coded ID badge needs to be approved for access (see Karen Kunkel in the main pathology office).

CP Case Presentations

All residents on CP rotations are expected to present on a rotating basis a brief (15-minute) description of an issue, finding or problem encountered during the week at the regular Friday lunchtime conference. This should not be a definitive review of the subject; rather, the problem or issue should be briefly presented and, after discussion, the resolution or diagnosis provided.

The most current information may be viewed (and the monthly schedule printed) from the Conferences tab in MedHub:

It is the responsibility of the trainee to sign-in when attending a lecture/conference. Note that an attendance rate of 70% of the "required conferences" must be met by each trainee, to meet accreditation standards.

Administrative Policies and Procedures

Vacation

Residents and fellows have three weeks of vacation per year. In addition, there is one week leave allowed for academic pursuits such as attending meetings, presenting at a conference, etc.

Vacation or leave plans for residents must be requested as promptly as possible and submitted to the chief resident. Fellow vacation leaves must be approved by the corresponding fellowship director and the dates relayed to the chief resident.

Note: *all absences must also be requested through Medhub and approved through the Medhub system by the Program Coordinator.*

No more than two consecutive vacation weeks should be taken. It is recommended that vacation weeks be spread among the rotations as much as possible (e.g., if two consecutive weeks are taken, select the last week of one rotation and the first week of the next rotation if at all possible).

What do I need to do before going on vacation?

Step 1: Identify services affected by your absence

Step 2: Check with other residents and faculty assigned to those services

Step 3: Try to arrange coverage

Hint: Ask for coverage; don't tell someone to cover (an attitude of entitlement does not inspire others to help you out).

Step 4: NOTIFY THE CHIEF RESIDENT AND THE PROGRAM COORDINATOR

AP Chief Resident – Description of Duties

The AP chief resident is the main liaison between faculty and residents and is, as such, in a leadership role to optimize service work, facilitate program improvements where necessary, help ensure the residents' education, well-being and professional development, represent our residents within the department and in other areas of the hospital. The chief resident works closely with the Pathology program director, with the associate program director for AP, with the residency coordinator, and with faculty, fellows and residents. The AP chief resident coordinates with the CP chief resident as appropriate.

<u>AP chief duties include, but are not limited to, the following examples:</u>

- Transition with out-going chief residents. This transition should include attendance at RFC meetings prior to the full assumption of chief resident duties at the next academic year, and identification of all on-going "action items" in AP discussed in the

resident retreat and/or RFC.

- Send welcome email to incoming residents. This email should provide information for orientation, resident "buddy" (selected by the AP chief resident(s), and, for CP only residents, the CP chief resident), and solicit requests for preferences for vacation time.

- Work with the residency coordinator to ensure a smooth transition at the beginning of the year, so that AP residents have badges, computer access, name plates for desks when in H2110, parking, etc.

- Work with the CP chief resident and with the residency coordinator to organize departmental orientation for new residents/fellows, including scheduling key contributors (residency coordinator, residency co-directors, lab safety, etc). Ensure all incoming residents/fellows are notified. Attend welcome dinner for incoming residents/fellows.

- Create the academic rotation schedule

  - Distribute residents fairly and evenly
  - Keep in mind the number of fellows (including post-sophomore fellows) on a service and fellow vacations

  - Ensure coverage for services that require it

- Work with the AP program director to finalize the schedule. Schedule must also be approved by all AP service chiefs (Dr. Long, Dr. Kim, Dr. Kong, , Dr. Natkunam, Dr. O'Hara, Dr. Regula, Dr. Jensen, Dr. Vogel)

- Coordinate this schedule with the AP/CP4 resident requests for AP rotations

- Avoid scheduling more than one person/month for forensics

- Try to avoid scheduling off-site rotations (VA, forensics) after Stanford autopsy

- Schedule monthly autopsy and neuropathology on-call coverage

- Create the monthly surgical pathology rotation schedule for the residents/post-sophomore fellows, keeping in mind the distribution of golden and gross weekends. Identify case cap for each visiting medical student/resident/post- sophomore fellow directly on the rotation schedule. See resident handbook or AP program director for case cap levels

- Send schedule to Dr.Long, no later than by the 15th of the month (6/15 for July schedule)

- Work with PAs to organize a frozen section room orientation for the first year residents during their first month on the surgical pathology rotation

- Check FISHBOWL prior to onset of new academic year and monthly thereafter to stay abreast of rotating medical students. Orient all new visiting medical students on AP service. Ensure they have ID badge, PowerPath access, all required access codes, safety training, etc. Coordinate with residency coordinator farewell lunch for exiting medical students with other residents on service

- Create the vacation schedules so as not to impair service coverage

- Be aware of national conferences (USCAP, CAP, etc)

- Ensure that residents know where to have their "base" and to assign lockers at Stanford. Collect locker keys from AP residents leaving the AP program and re- distribute to incoming AP residents.

- Regularly check in with the AP residents (especially first years) to check how things are going in the various rotations and address any issues that arise.

- Assign desks for residents in H2110 when on rotations that require their presence.

- Monitor surgical pathology rotations and send feedback to AP program director when problems arise. Remind resident to go to noon microscope

conferences (as well as other required conferences). Provide feedback to AP program director if residents are being kept in sign-out past noon (and thus cannot attend the conference) or past 1:00 PM (and thus cannot complete their reports to meet turn-around-time)

- Work with the resident coordinator to put journal club and resident lectures on the monthly conference schedule.

- Meet with the AP program director monthly (at a minimum) or as often as needed to communicate issues and facilitate prompt resolution

- Lead the quarterly "Jeopardy" AP conferences

  - Ensure that residents sign in

- Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/and administrative assistants)

  - Start and end the meeting on time

- Coordinate the monthly SP Journal club

  - Make a schedule that includes all residents and fellows evenly

  - Send out an announcement to residents and AP faculty with location, time, speakers, topics and attached papers no later than the Friday before the journal club.

  - Work with resident coordinator to set up lunches

  - Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/Galen Crivello and administrative assistants)

  - Start and end the meeting on time

- Attend the monthly RFC meeting

  - The Chief is expected to attend each of these meetings. Should the Chief be away, then a substitute resident should attend and the AP program director needs to be informed beforehand.

  - Communicate with residents regarding RFC topics before and after the meeting

  - Help set the RFC agenda

  - Communicate with the AP program director regarding issues and potential solutions before each RFC meeting

- Work with the residency coordinator or Grand Rounds faculty to coordinate the AP 12:30 pm slide sessions for Grand Rounds lecturers and other guest lecturers

o Ensure the slides are out by the Hot Seat for review prior to conference

o Ensure residents are aware that there are slides at the Hot Seat for review prior to conference

o Ensure the audiovisual is set up in the plasma room prior to conference

o Greet the guest speaker and introduce her/him to the residents, if this has not already been done by a member of the faculty

o Ensure the guest lecturer feels welcome (cup of water if needed, etc)

o Ensure all slides are gathered and returned to the guest lecturer

- Work with the residency coordinator to organize the resident retreat

o Set the retreat agenda

o Distribute and summarize rotation evaluations for retreat discussion

o Report the retreat conclusions to the AP program director, RFC, and residents

o Report plan to address issues identified in the resident retreat to the residents following the RFC meeting

- Schedule periodic informal/social meetings and more formal resident forums (one in September and one in May following the retreat) with residents to maintain morale, encourage team effort, etc.

- Work with the residency coordinator and AP program director to disseminate information to residents regarding the training program. Update AP rotation descriptions on Stanford Pathology webpage and Wiki

- Work with the residency coordinator during interview season

o Ensure that the AP program is well presented to our interviewees (Hillview tours, making yourself available for more interviews, lunches, etc.)

- Attend all chief resident meetings held by GME Office

- Help plan first year awards for the end of year dinner with the AP program director

- Be involved in the Department of Pathology research retreat and encourage and coordinate resident participation

- Opportunity to work with faculty on teaching assignments

CP Chief Resident – Description of Duties

The CP chief resident is the main liaison between faculty and residents and is, as such, in a leadership role to optimize service work, facilitate program improvements where necessary, help ensure the residents' education, well being and professional development, and represent our residents within the department and in other areas of the hospital. The chief resident works closely with the Pathology program director, with the associate program director for CP, with the residency coordinator, and with faculty, fellows and residents. The CP chief resident coordinates with the AP chief residents as appropriate.

CP chief duties include, but are not limited to, the following examples:

- Transition with out-going chief residents. This transition should include attendance at RFC meetings prior to the full assumption of chief resident duties at the next academic year, and identification of all on-going "action items" in CP discussed in the resident retreat and/or RFC.

- Work with AP chief residents to send welcome email to incoming CP-only residents. This email should provide information for orientation, resident "buddy" (selected by the CP chief resident, and solicit requests for preferences for vacation time.

- Work with the residency coordinator to ensure a smooth transition at the beginning of the year, so that CP residents have badges, computer access, parking, etc.

- Work with the AP chief residents and with the residency coordinator to organize departmental orientation for new residents/fellows, including scheduling key contributors (residency coordinator, residency co-directors, lab safety, etc). Ensure all incoming residents/fellows are notified. Attend welcome dinner for incoming residents/fellows.

- Schedule and lead CP orientation for new residents

- Create the academic rotation schedule

  - Distribute residents fairly and evenly without fixed pairing
  - Keep in mind the number of fellows on a service and fellow vacations
  - Ensure coverage for services that require it
  - Work with the CP program director to finalize the schedule

- Create and maintain the vacation schedules for CP residents in conjunction with the residency coordinator. **Be aware of national conferences (USCAP, CAP, etc).**

- Ensure that residents know where to have their “base” and to assign lockers at Hillview. Collect locker keys from CP residents leaving the CP program and re- distribute to incoming CP residents.

- Create and maintain the CP call schedules

  - Schedule and lead the introductory “boot camp” orientation to CP call

  - Create the monthly Hemepath coverage schedule in conjunction with the residency coordinator

- Regularly check in with the CP residents (especially first years) to check how things are going in the various rotations and address any issues that come up by discussing them with the associate program director for CP

- Meet with the CP program director monthly or as often as needed to communicate issues and facilitate prompt resolution

- Lead the weekly CP call conference on Fridays

  - Schedule CP call conference talks such that all residents are included (evenly) and fellows are also included

  - Ensure that residents sign in

  - Work with resident coordinator to set up lunches and reserve rooms

  - Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/Galen Crivello and administrative assistants)

  - Start and end the meeting on time

  - Introduce speakers and topics and actively lead discussions

- Lead the monthly CP Journal club

  - Make a schedule that includes all residents (evenly) and fellows

  - Send out an announcement to residents and CP faculty with location, time, speakers, topics and attached papers no later than the Friday before the journal club.

  - Ensure that residents sign in

  - Work with resident coordinator to set up lunches and reserve rooms

  - Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/Galen Crivello and administrative assistants)

- Start and end the meeting on time
- Introduce speakers and topics and actively lead discussions

- Attend the monthly RFC meeting
  - The Chief is expected to attend each of these meetings. Should the Chief be away, then a substitute resident should attend and the CP program director needs to be informed beforehand.
  - Communicate with residents regarding RFC topics before and after the meeting
  - Help set the RFC agenda
  - Communicate with the CP program director regarding issues and potential solutions before each RFC meeting

- Work with the Transfusion Service faculty to help organize the Transfusion Service conference on Mondays
  - Make the annual schedule
  - Reserve rooms at both Hillview and hospital for the year
  - Ensure residents sign in
  - Work with faculty to have teaching sessions scheduled for the year
  - Work with admin to send faculty speakers reminders one week in advance
  - Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/Galen Crivello and administrative assistants)
  - Start and end the meeting on time

- Make the annual schedule for the CP lecture series by faculty on Thursdays
  - Make the annual schedule together with Dr. Faix
  - Ensure that residents sign in
  - Work with resident coordinator to set up lunches
  - Work with admin to have flyers posted
  - Work with admin to send faculty speakers reminders one week in advance

- Make sure that the audiovisual is set up on both sides well in advance (schedule a fellow resident on the other side each time and work with Ray Yeen/Galen Crivello and administrative assistants)

- Start and end the meeting on time

- Introduce speakers and topics and actively lead discussions

- Work with the AP chief residents and with the residency coordinator to organize the resident retreat

- Set the retreat agenda for CP

- Distribute and summarize rotation evaluations for retreat discussion

- Report the retreat conclusions to the CP program director, RFC, and residents

- Work with the residency coordinator during interview season

- Ensure that the CP program is well presented to our interviewees (Hillview tours, making yourself available for more interviews, lunches, etc.)

- Schedule periodic informal/social meetings and more formal resident forums (one in September and one in May following the retreat) with residents to maintain morale, encourage team effort, etc.

- Work with the residency coordinator and CP program director to disseminate information to residents regarding the training program. Update CP rotation descriptions on Stanford Pathology webpage and Wiki

- Attend all chief resident meetings held by GME Office

- Help plan first year awards for the end of year dinner

- Be involved in the Department of Pathology research retreat and encourage and coordinate resident participation

- Opportunity to work with faculty on teaching assignments

Informatics Chief Resident – Description of Duties

The goal of the informatics chief resident is to increase clinical productivity and efficiency within the department, primarily by developing computer-based tools for trainees and residents and analyzing data and workflow. In thinking algorithmically about how residents access, store, and process information, the informatics chief resident identifies problems and proposes solutions within information structures and interfaces. The informatics chief resident works closely with the Medical Director of Clinical Informatics in deciding whether to pursue candidate projects and in the prioritization of ongoing projects, as well as with the AP and CP chief residents, and with other faculty, fellows and residents.

Scope and Time Commitment

The informatics chief resident mainly uses *available* tools and techniques to solve problems in residents' day-to-day operations. Changes in the Information Technology department or the structure of the electronic medical record are beyond the scope of his/her duties. Specifically, the informatics chief resident is not required to devote more than 4-6 hours a week to the duties of this position, and it is recommended that he/she not spend more than 10% of their overall working hours on the responsibilities of this position.

Prerequisites

- Good standing within the department of pathology, including dedication to service work and a strong sense of duty, responsibility, teamwork, meticulousness, and organization.
- Approval from the faculty and the AP and CP chief residents, including the current informatics chief resident, as the position requires close coordination with them.
- The following are recommended technical prerequisites, and a candidate's proficiency/willingness to learn these skills are subject to approval by the Medical Director of Clinical Informatics:

  A moderate working knowledge of eXtensible HyperText Markup Language version 1 (XHTML 1), Cascading Style Sheets level 3 (CSS 3), JavaScript (ECMA-262), and the Document Object Model (DOM), including form handling, strings, and multidimensional arrays. Minimal knowledge of PHP 5 and regular expressions is also required but can be learned.
  - These can be demonstrated using an existing web site which utilizes both client-side and server-side scripting, and successfully passes the W3C validator (http://validator.w3.org) for XHTML 1 strict and the W3C validator (http://jigsaw.w3.org/css-validator) for CSS level 3.
  - The web site does not currently use Ajax / XMLHttpRequests, Google Application Programming Interface (API), or Structured Query Language (SQL) but such experience would be useful.

Duties:

- Transitioning with the out-going informatics chief resident. This transition should include orientation to the current resources and how they are coded.

- Maintaining the current materials, which include:
    - The online phone, pager, rotation schedules and e-mail directory
        - Note that uploading the content will most likely be performed by the residency coordinator or other appropriate administrative staff. It is the informatics chief resident's responsibility to ensure proper functionality of the website or tool that houses this information.
    - Detailed online rotation manuals:
        - Cytology
        - Dermatopathology
        - Forensics
        - Hematopathology
        - Neuropathology
        - Core chemistry
        - Hillview chemistry
        - Microbiology
        - Transfusion
        - Note that the content of the materials above must be approved by the appropriate service director(s).
    - Computer-aided report generation tools:
        - Hematopathology body fluid tool
        - Hematopathology bone marrow tool
        - Hematopathology cytogenetics tool
        - Neuropathology muscle-nerve tool
        - Surgical pathology placenta tool
    - Computer-aided decision-making tools
        - Chemistry osmolal gap tool

- Organizing resources in a logical manner and removing redundant information.

- Developing new materials as time permits. Examples may include:
    - Transition to a more permanent web space
    - Copyrighting / patenting of eligible materials
    - Designing and modifying forms and report templates
    - Detailed online manuals
        - Introduction to Misys
        - Surgical pathology
        - Palo Alto Veteran's Administration, anatomic pathology
        - Palo Alto Veteran's Administration, clinical pathology
        - Stanford autopsy
        - Hematopathology consults
        - Tissue hematopathology
        - Ancillary studies
        - Inside/outside cases
        - Coagulation
        - Biochemical genetics
        - Cytogenetics
        - HLA laboratory
        - Molecular pathology
        - Clinical genomics
        - Pediatric clinical pathology

        - Stat courier protocol
        - Stat flow cytometry protocol
    - Computer-aided scheduling tools
        - Surgical pathology
        - Hematopathology
        - Palo Alto Veteran's Administration, anatomic pathology
        - Tissue bank after-hours
        - Direct paging tool
        - Deadline alerts tool
    - Computer-aided report generation tools
        - Transfusion reaction report tool
    - Computer-aided decision-making tools
        - Microbiology malaria tool
    - Computer-based teaching tools and other teaching materials
        - Incoming residents and fellows orientation
        - Question bank
        - Hematopathology leukemia atlas
        - Introduction to Epic
        - Introduction to LINKS
        - Introduction to PowerPath
        - Introduction to Misys
        - Introduction to SafeTrace
        - Introduction to the WHO Classification Tumours of Haematopoietic and Lymphoid Tissues
        - Introduction to flow cytometry
        - Introduction to transfusion

Department of Pathology (SHC & VAPAHCS) Safety Policies and Procedures

Introduction and General Information

As a pathologist-in-training, you need and are required to practice routine safety measuresin order to protect yourself from sharp injuries and infectious processes, as well as toxic chemicals. Below you will find a brief summary of exposure hazards and the steps necessary in protecting yourself and others. Remember, safety begins and ends with you.

General Phone Numbers

1.) Employee Health (located on the basement floor at the central escalators): 723-5922 Hours: Monday through Friday: 7:30 AM – 3:00 PM

2.) Fire-Police-Medical emergency, including Hazardous Materials incident: 211 (dial directly from any hospital phone)

3.) Needlestick and Exposure Hotline: 8-4000

4.) Environmental Health and Safety Department 3-8143

5.) http://somsafety.stanford.edu

Personal Protective Equipment

Your main health hazard as a pathologist is exposure to infectious materials.

Along with good sharps practice, you must wear protective barrier equipment (PPE) appropriate to the physical hazard in each training location. Appropriate barrier protection works against all infectious agents and also against accidental chemical exposure (eg-formalin splash).

You should always **WEAR** eyewear and double-gloves when dealing with any tissue, fixed or unfixed. A mask must be worn whenever there is a risk of splashing blood or bodily fluids in the face or when tissue particles might be aerosolized (e.g. with a bone saw).

Scrubs, cloth gown, apron, bonnet and shoe covers should be added when there is a risk of splashing blood or body fluids.

Appropriate PPE is provided at each training site, but you are personally responsible for gowning correctly. Both latex and nitrile gloves are available. There is absolutely NO EXCUSE for not wearing eye protection; if the glasses provided to you are uncomfortable,we will be happy to order you a different pair at no charge. If you don't see the PPE you need, ASK for it!

Sharps

Scalpel blades and needles are the main sources of incised and puncture wounds in pathology, almost always on the hands. Minimize your use of scalpel blades and needles; use scissors or a larger knife whenever possible. Learn how to safely install and remove the blade from a scalpel; a special blade-removal device is safest. Use only one blade at atime and immediately dispose of that blade in the sharps disposal box; loose blades are adanger to you and your colleagues.

Universal Precautions

Treat ALL unfixed tissue as highly infectious (see below for additional precautions for prions). You can never be sure if the patient might be infected with hepatitis-C, HIV or another deadly pathogen. Prepare for and perform each dissection, as if the tissue was HIV+; never let your guard down. Although the staff take great lengths to ensure that the working environment is clean; you should assume that all instruments and surfaces are contaminated.

Immunizations

You must be immunized against several diseases, including hepatitis B and several childhood diseases, before beginning work at Stanford Hospital. Antibody titers against these diseases will be drawn by Employee Health at the time of employment and periodically thereafter (TB titers are drawn annually).

Needle Stick or Other Exposure

Immediately notify a senior resident and/or attending and wash the area thoroughly. During work hours, proceed directly to employee health (basement floor, at bottom of central escalators). After hours, you can be seen in the ER. Alert someone in the ER that you are a Stanford Hospital employee and you have a sharp injury or blood/body fluid exposure. You should get rapid attention. If you have a deep wound, which may require stitches, go directly to the Emergency room. Your safety is first and foremost. You will need to fill out an employee injury report form (04-30A) (forms are available in surgical pathology on tall cabinet across from the receptionists.

Special Precautions

Surgical Pathology Gross Room

Eyewear and gloves are required at all times. A mask is required whenever there is a splash or aerosol hazard. Hold tissue with an instrument, rather than your fingers, when taking sections. Practice safe sharps practices.

Frozen Sections

Performing and interpreting frozen sections is an important part of your training in Surgical Pathology. The frozen-section technician will show you how to safely operate the cryostat. Assume any tissue within and any surface of the cryostat is contaminated. Seek advice before cutting any potentially infectious tissue (such as from a patient suspected of TB or from a patient with rapid-onset dementia [potentially CJD])

Bone Saw

Stanford has a single tissue band saw located in the cold room next to the Autopsy Room (L202). Rare specimens require cutting bone or frozen soft tissues. You must complete training and a certification examination before you operate this potentially dangerous equipment.

Autopsy Room

Complete gowning is required for the prosector and anyone else participating in the dissection of viscera.

Creutzfeldt-Jacob disease:

Suspect CJD in any middle-aged or older patient with rapid-onset dementia and rapid clinical course; myoclonus is not required.

Discuss any potential CJD case with an attending neuropathologist.

Special dissection and disinfection procedures are detailed in the Autopsy Manual.

Please see Appendix for further safety information.

First Year AP Resident Mentorship Rotation

The purpose of this rotation is for more advanced trainees (4th year AP/CP residents or 3rd year AP residents) to serve as a day-to-day point-person for first year AP residents during their initial surgical pathology months by providing guidance as outlined below. Please note that there are no direct grossing, preview, or sign-out responsibilities; residents who elect this rotation will help first years acquire the skills necessary to efficiently and appropriately complete these tasks. This elective is offered in one month blocks during July-December (coverage especially important July-September) but it can be divided into 2 week intervals if there is sufficient interest. This rotation is typically combined with research.

Expected daily work hours: 8am – 5pm, Monday-Friday

Goals and Objectives

1) Teachfirst year AP residents how to navigate the following:

- Gross Room

Work closely with the Ms. Amy Woods, the Gross room supervisor, in coordinating efforts. Orient new residents to grossing issues including, but not restricted to, the following:

- Safety gear (glasses, gloves, etc.)
- Voicebrook/PowerPath/PowerPath AMP
- Grossing templates
- Gross photos
- Grossing techniques and approach

- Preview & Sign-out Preparation

Introduce new residents to preview techniques that balance educational objectives with the pursuit of an efficient sign-out experience through ***their*** mastery of the following:

- Composing reports
- Retrieving and correlating frozens and touch preparations
- Retrieving priors, special stains, IPOX
- Checking gross descriptions
- Use of PowerPath macros
- Use of standardized diagnostic lines and microscopic descriptions when applicable
- Checking for pending blocks, slides, and ancillary tests (flow cytometry, cytogenetics, etc.)

- Stat GI and liver biopsy write ups/workflow/callbacks
- Cyto morning preview: FNA & paps/fluids (enter diagnosis in notes)

2) Provide regular (at least weekly) face-to-face feedback to residents regarding their progress.

Additional Information

The senior resident will have:

- No frozen section teaching duties

- Duties for frozen section teaching fall to the surgical pathology, GI, or breast/gyn fellow assigned to frozen sections for the month. However, the resident in mentorship elective will remind first years to complete the frozen section transition of care documentation.

- No direct grossing or signing-out responsibilities

- The senior resident role is restricted to that of mentor for the first year AP resident.

- Residents who elect this rotation have already completed the required two years of AP training, and teaching a first year will help solidify their experience, without being inundated by daily tasks of grossing and sign-outs

Supervision

The resident will report directly to the AP Chief Residents, AP Program Directors (Drs. Neeraja Kambham and Kimberly Allison) and Director of Surgical Pathology (Dr. Steven Long) weekly (or as needed) with a focus on current impediments (and potential solutions) to training of first year AP residents.

AP Quality Assurance

What is Quality Management?

A. **Quality Management** is the summation of the QC/QA/QI and includes preventative and corrective actions. The laboratory quality utilizes the PDCA model (Plan Do Check Act).

a. **Quality Control** is defined as the verifications and documentation that the quality control limits and thresholds are being met, including corrective actions.

b. **Quality Assurance** is defined as the measurement within thresholds, control limits, and specifications over time.

c. **Quality Improvement** is defined as the effective change to quality specifications.

B. What are Hospital and Laboratory Regulations, including Licenses?

a. **The Joint Commission:** SHC-Stanford Hospitals and Clinics and LPCH- Lucille Packard Children's Hospital are certified by the Joint Commission. Patient Safety Goals are published each year. For a listing of current patient safety goals, visit the Joint Commission website.

b. **College of American Pathologist (CAP):** Stanford Hospitals and Clinics Anatomic Pathology and Clinical Laboratories is certified by CAP. Every (2) years CAP inspects the laboratory following a list of Checklist guidelines. Additionally, annual mock inspections are conducted. For a full list of the guidelines, see Anatomic Pathology Quality Coordinator.

c. Congress passed the **Clinical Laboratory Improvement Amendments (CLIA)** in 1988 establishing quality standards for all laboratories' testing to ensure the accuracy, reliability and timeliness of patient test results regardless of where the test was performed.

d. **California Department of Public Health**: Primarily provides a license upon fee submission as long as the laboratory is in good standing with CLIA and FDA. They focus on insurance fraud, HIPAA, etc.

e. **FDA**: Food and Drug administration primarily focuses on Good Laboratory Practices guidelines. For Anatomic Pathology, this may pertain to using non-expired reagent lots, and validated testing procedures, like ER/PR and Her2. The FDA regulates sections of the laboratory more stringently depending on the service provided, i.e. transfusion is regulated more closely than other areas in the clinical laboratory.

Hospital Patient Safety

Anyone who witnesses a patient safety event can report it anonymously and confidentially through either Hospital portal resource websites:

a. S.A.F.E.: SHC Stanford Alerts for Events

i. All visitors and employees may access a tutorial for how to use SAFE on the SHC Portal: http://portal.stanfordmed.org/Pages/Default.aspx

b. Quantros: LPCH Patient safety alert database

i. https://qxpert.quantros.com/orm/jsp/LPCHLogin.jsp

Monthly Quality Meeting

QA Statistics measured in Anatomic Pathology

a. The surgical pathology faculty hosts the monthly QA/QI meetings for Anatomic Pathology. The Quality Coordinator facilitates the meeting by collaborating quality metrics for review, communicating timelines and resources for the meeting, and documenting minutes and follow up actions determined at the meeting. The meeting schedule is monthly at 1 hour duration, and all residents, fellows, faculty, operational staff, and qualified guests are required to attend the meeting regularly. Notification of the meeting schedule is distributed on the "Pathology Conference Schedule". All metrics included in the meeting can also be referenced in Admin-025 and Cyto-031, Quality Plans.

b. Turn-Around-Times are measured in various sections of the Anatomic Pathology laboratory. The following are monitored and reviewed routinely for performance. Many of these are required as compliance to the CAP guidelines; in this document, the guideline references are in brackets. Metric thresholds for performance have been established and are referenced in Admin-025 and Cyto-031, Quality plans for Anatomic Pathology and Cytology, respectively. For more information, reference the Policies and Procedure section of this handbook for how to retrieve a copy of policies and procedures used in the Anatomic Pathology and Clinical laboratories.

i. Intra-Operative Frozen Turn-Around-Time (TAT) is documented on an approved worksheet. Each pathologist, fellow, or resident executing the patient intra-operative frozen service is responsible for documenting the TAT time for (2) time metrics on the worksheet. The first metric is the Response time, which is the pathologist arrival time to the frozen room minus the paged request time[1]. The second metric [ANP.11820] is the communication of DX to the surgeon time minus the specimen processing start time. For more detailed definitions of the required documentation, refer to policy Frozen Section-009.

ii. Sign-out of DX TAT is documented in PowerPath, the approved reporting database for AP.

1. Autopsy reporting- there are (2) TAT metrics measured and reviewed:

a. CAP [ANP.33100] 2 - day preliminary report b. CAP [ANP.33150] 60 - day final report

2. Cytology (FNA, non-Gynecology, Gynecology) TAT is documented in PowerPath.

a. FNA (fine needle aspirates) are reported as a 2-day [ANP .12500]

b. Non-Gynecological specimens are reported as 2-day [CYT.07690]

c. Gynecological specimens are reported as 5-day TAT metric

3. Surgical TAT (Dermatology, Breast, GI, etc.) [ANP .12500] is documented in PowerPath.

c. Pre-analytic errors consist of errors that occur prior to specimen analytical testing. These may include but are not limited to fixation (AKA Reprocessing), specimen-labeling errors (two (2) patient identifiers must be present on all specimens). When these errors are identified, they should be manually logged on Form-002, Quality Control and Incident form. All corrective actions should be timely pursued with the assistance of Section directors and/or AP Operations staff. The documented errors are tallied by the Quality Coordinator and presented for review of process improvements, patient care quality issues, and/or staff training.

d. Workload Volumes are tracked, and they are a valuable indicator of workload fluctuations. Workload volumes can be predictors of error %, valued process workflow improvements, and provide situational context to the other Quality indicators. [ANP.21350]

e. Urgent Diagnoses [ANP .41330] are unexpected diagnostic findings and should be reported timely to all necessary patient care providers. Communications between patient care providers should be in the form of a “read back” method [GEN .40935]. See your section director for mentorship and reference Admin-001.

f. Major diagnostic discrepancies in specimen correlations are reviewed for a variety of specimen types. Correlations are documented in PowerPath case reports.

i. Frozen specimen Diagnosis (DX) [ANP.10100] to the permanent specimen DX is correlated for every applicable case. Any correlation that is not agreed upon between patient care providers is reviewed at the QA/QI meetings.

ii. Preliminary Hot Seat DX is correlated to the resident's DX as routine sign-out occurs. If a Major discrepancy is noted by the Hot Seat, he/she will present their findings at the QA/QI review. This provides an invaluable learning tool and feedback to all pathologists involved. Hot seat records are retained for Quality review, should one be warranted as part of Patient Safety compliance.

iii. Cytology Correlations are QA reviewed routinely by Cytotechnologists and Section directors. If sampling or interpretation errors are found, the results are reviewed and compiled in the QA review. See Cyto-031 for details on the Cytology Quality Plan.

g. Tissue Committee Cases (TC3a, TC3b, TC3c) are flagged for (3) levels of discrepancies in patient care information. This metric is additionally reported to SHC Care Improvement Committee (CIC) and LPCH Tissue Committee. The definitions of the discrepancies are as follows:

i. TC3a: Surgery performed here with no pathology confirmation of prior malignancy

ii. TC3b: Major discrepancy pre-/post-op

iii. TC3c: Major change in diagnosis I/O cases (Stanford diagnosis versus Outside diagnosis)

h. Report Revisions occur in (3) ways: corrections (faculty only), addenda, or amendments. Changes in Diagnosis [Gen .20316] are considered for review by CAP. For further details on report revisions, refer to Admin-063 and [GEN.41308 .41312 .41310].

i. Compliance with synoptic reporting and cancer protocols [ANP.12385] is managed in variety of forums. Daily patient case reporting follows a synoptic format when applicable to DX, and continuous trending and training to industry standards is pursued as QI projects. The assignment of QI projects is coordinated by the residency coordinator. For more details on requirements, reference Admin-061 procedure.

Daily Quality Control in Anatomic Pathology Laboratory

a. Form-002 Quality Control and Incident form is located on AP teamsite policies and procedures. Print copies of the form are stocked at various locations of the laboratory.

b. Specimen, Block and Slide Patient identifiers (JC patient safety goal) are critical to quality patient care. There must be (2) patient identifiers on all specimens, including containers, blocks, and slides. Communications surrounding patient care requires "read back" of (2) patient identifiers; use this practice consistently in written and verbal formats. [ANP.21050, 21100, 21150] and [GEN.40491, .40490]

c. Specimen Adequacy forms (Form-003) are utilized when notable pre- analytic patient information is missing, erroneous, or conflicts with laboratory service requests. The form is available on AP teamsite Policy and Procedures, and is stocked in the Accessioning lab section area.

d. If a specimen is non-traceable, the AP Missing Specimen form (Form-001) is used to document the event. In instances where a specimen is not traceable, alert immediate attention to the AP Operations Manager and/or Section director for a timely investigation. The Quality coordinator may also be notified in instances where Patient Safety compliance is jeopardized.

Policies and Procedures

a. To access Hospital policies and procedures visit the SHC portal and LPCH intranet websites. To access Laboratory Administrative (LADM) policies for the Anatomic Pathology and Clinical Laboratories, visit the Lab Home Site from the SHC Portal. Anatomic Pathology department specific procedures are accessed from the Anatomic Pathology teamsite (SharePoint). For SID access to the AP teamsite, privileges will need to be established from the AP System administrator. Contact the AP Lab Manager to find out more.

i. "Access denied" dialogue screens may be a result of the SID not configured to the AP teamsite or Lab Home Site.

ii. The SID hospital network log in allows for the easiest access to the SHC portal teamsites. You may use a University computer as long as the Hospital network log in access is utilized.

b. Training Competency must be established before any patient testing can commence by that individual [GEN.55500]. See your section director or lab section supervisor for details about competency standards.

Communication in the laboratory is critical to the success of quality patient care.

a. The AP laboratory has (3) documented communication pathways:

i. Monthly QA/QI Meeting provides feedback on performance metrics and an open forum for discussion patient care improvement solutions.

ii. Section meetings are led by each laboratory section supervisor and are intended to keep staff current with daily laboratory operations. Reference Admin-028 for details.

iii. Between shift logs are retained in each laboratory section to document patient care critical events to the next shift personnel. Reference Admin-028 for details.

b. Organizational charts for School of Medicine staff and SHC Hospital and Clinics staff are available on the Anatomic Pathology teamsite. Additionally, for easy identification of staff and residents, photos are available upon request from the Anatomic Pathology Manager.

c. The Quality Coordinator facilitates a routine Quality section meeting for quality leaders that includes AP section directors, AP operations managers and supervisors, and adjacent Quality administrators. If you should have any questions or suggested improvements for the Quality Plan or executed program, you may direct your comments to:

i. Anonymous to the "suggestion box" located in H2110A

ii. Pathology Department Professional Practice Evaluation Committee Chair, Teri Longacre, MD

iii. Anatomic Pathology Quality Coordinator

iv. Anatomic Pathology Operations Manager

v. Anatomic Pathology and Clinical Laboratories Medical Director and Director of Quality Management, Dan Arber, MD

vi. Anatomic Pathology and Clinical Laboratories Quality Manager, David Myrick

*Note: paged request time is documented by SP front desk staff.

Clinical Pathology Quality Assurance/Quality Improvement

Niaz Banaei, MD

QI/QA project

As required by ACGME, all CP trainees (residents and fellows) must participate in a Quality Improvement/Assurance, risk management, compliance project during each year of their training. Trainees are encouraged to team up in teams that consist of residents and fellows (eg., CP1+CP2+fellow) but can also do a project on their own. All projects must have a faculty mentor that serve to select and guide projects. Let section directors know if you are having trouble and they will help you find a project. The deadline to submit project, teams and presentation month (all projects will be presented at Friday case conference from Feb to June) will be August 31st. Please submit this information to Francis De Leon (FDeLeon@stanfordhealthcare.org) as soon as possible (presentation dates are first come first serve).

A Quality Improvement project is an intervention that improves health care delivery. It can be a pre-analytical, analytical, or post-analytical intervention that that streamlines clinical processes, improves diagnostic accuracy, improves patient safety, or otherwise improves health care delivery. A guideline is attached for more information. This is a great learning opportunity and teaches trainees key skills they will eventually apply in practice on how to improve the quality of health care delivery.

There is also an annual Stanford Quality Improvement/Patient Safety Symposium (see http://med.stanford.edu/gme/current_residents/QIS2015.html) where QI/QA projects can be submitted. Some projects end up being submitted to various academic meetings as abstracts/posters and also as full manuscripts to peer-reviewed journals for publication.

Role of Francis:

Provide support in organizing this for the CP side. Most of the work is sending out email reminders to the trainees regarding deadlines and making sure they a project and have signed up for a date to present it. Once all the details are arranged, meeting date/time/location to present the project, I'll be able to organize it

AP Ancillary Studies Rotation

James Zehnder MD (molecular sub-component) Tena Cherry, PhD

(cytogenetics subcomponent)

Neeraja Kambham, MD (renal pathology sub-component)

The AP ancillary studies rotation is divided into two sub-components. Typically, the first two weeks will be spent at Hillview in the Molecular Pathology and Cytogenetics laboratories. The second two weeks will be spent at Stanford, with the first part of the day (until approximately 3 pm) assigned to Renal Pathology and the second part of the day assigned to Immunohistochemistry, with emphasis on prognostic and predictive markers in Breast, Gastrointestinal and Gynecologic Pathology. If the resident is interested, he/she can incorporate heart and medical lung pathology review during the Renal Pathology/IHC component of the rotation.

Molecular Pathology and Cytogenetics sub-component

In this sub-component of the rotation, the resident is expected to gain knowledge in the areas of fluorescence in situ hybridization (FISH), cytogenetics and molecular diagnosis relevant to Anatomic Pathology training. During this time, the resident will be physically based at the Hillview site.

First day of rotation in Molecular Pathology/Cytogenetics:

1) Schedule a general, workflow, and laboratory orientation on the first day of the rotation with the molecular attending on service and/or the molecular fellows. ***At this time, the presence in the Molecular Pathology laboratory will be finalized for the month. Any changes must be communicated with the attending faculty in the Molecular Pathology laboratory.***

2) Familiarize yourself with the platforms and general techniques used in the laboratories

3) Explore the individual rotation goals with the fellows and/or attending on service

4) Schedule a general, workflow, and laboratory orientation on the first day of the orientation with cytogenetics supervisor Dana Bangs or the cytogenetics attending.

5) Contact Richard Geissler in the Electron Microscopy Laboratory (X5-5196) to schedule a brief introduction to technical components of the Electron Microscopy and Immunofluorescence Laboratories (in preparation for renal sub-component).

Daily (in Molecular Pathology):

1) Residents will participate in daily case signout, which is held at a time usually specified by the attending on service that week. Each day, the rotating resident should review some cases/assays for sign-out that day. The resident will collect histories, read to understand the clinical significance of the test as well as the method, evaluate quality control results, verify patient results, and provide interpretation as necessary. The resident should be prepared to provide a brief description of the method. Residents should sign the run sheets for their assays, and results should also be signed by one of the MGP fellows.

2) For the STAMP cases signed out during the resident's time on service, the resident will enter addendums with the results into the corresponding PowerPath cases. Instructions will be provided on a separate document for more details.

3) Read and self-educate regarding molecular techniques and principles with the fellows and attending faculty as a resource for questions.

4) Residents on the Ancillary Studies rotation should refer to the Molecular Genetic Pathology section for Residents, in the handbook, for a more detailed outline of responsibilities and expectations.

5) The resident is expected to check with Dana Bangs in Cytogenetics on a daily basis to accommodate any needed slide review.

Major Texts and Learning Resources (Molecular Pathology)

1) molpath.stanford.edu

2) Assay binders located in molecular diagnosis laboratory

3) Schrijver (Editor): Diagnostic Molecular Pathology in Practice

4) Leonard (Editor): Molecular Pathology in Clinical Practice

5) Books from the Molecular Laboratory library

6) Atlas of Genetics and Cytogenetics in Oncology and Haematology: http://AtlasGeneticsOncology.org

7) Cancer Cytogenetics, third edition, Heim, S. and Mitelman, F. (2009), Wiley-Liss, New York.

8) WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues (2008), editors, Swerdlow et al., IARC, Lyon, France.

9) HER2: Wolff et al. (2007), American Society of Clinical Oncology/College of American Pathologists guideline recommendations for human epidermal growth factor receptor 2 testing in breast cancer, Arch. Pathol. Lab. Med. 131:18-43.

10) ALK and lung cancer: Camidge et al. (2010), Optimizing the detection of lung cancer patients harboring anaplastic lymphoma kinase (ALK) gene rearrangements potentially suitable for ALK inhibitor treatment, Clin. Cancer Res. 16:5581-5590.

Supervision and Evaluation (Molecular Pathology)

The Resident's work will be supervised by attending faculty who are on service in the Molecular Pathology and the molecular fellows, with whom they will work closely in case preparation and interpretation. The Resident will be evaluated on his/her daily work as assessed by each attending in person and in MedHub, according to the ACGME New Accreditation System and Milestones.

Daily (in Cytogenetics):

1) The resident should check in daily (Monday through Friday) with Dana Bangs and/or Ilana Galperin, to determine if there are any FISH cases which need to be reviewed (x5- 7476 or x5-6396).

2) Touch base with Dana Bangs regarding the FISH workload and schedule for the day.

3) The educational component of FISH testing is facilitated by the Cytogenetics Laboratory supervisor (Dana Bangs, X5-7476) and by Cytogenetics attendings.

Major Texts and Learning Resources (Cytogenetics)

1) Atlas of Genetics and Cytogenetics in Oncology and Haematology: http://AtlasGeneticsOncology.org

2) Cancer Cytogenetics, third edition, Heim, S. and Mitelman, F. (2009), Wiley-Liss, New York.

3) WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues (2008), editors, Swerdlow et al., IARC, Lyon, France.

4) HER2: Wolff et al. (2013), American Society of Clinical Oncology/College of American Pathologists Clinical Practice Guideline Update, recommendations for human epidermal growth factor receptor 2 testing in breast cancer, Arch. Pathol. Lab. Med. Doi:10.5858/arpa.2013-0953-SA.

5) ALK and lung cancer: Camidge et al. (2010), Optimizing the detection of lung cancer patients harboring anaplastic lymphoma kinase (ALK) gene rearrangements potentially suitable for ALK inhibitor treatment, Clin. Cancer Res. 16:5581-5590.

Supervision and Evaluation (Cytogenetics)

The Resident's work will be supervised by Dana Bangs. The Resident will be evaluated on his/her work as assessed by Dana with the input of laboratory staff. Results will be reviewed formally with the resident.

Renal Pathology sub-component

In this sub-component of the rotation, the resident is expected to gain exposure and knowledge of medical kidney disease and the various laboratory studies of kidney biopsies. During this sub-component of the rotation, the resident will be physically based at Stanford.

First day of rotation in Renal Pathology

1) Schedule 30 minutes on the first day of the rotation with the renal pathology attending to review the daily workflow and resident responsibilities for medical kidney signout

2) Review laboratory procedures and automated staining platforms as described in Chapter 1 of the Dabbs Immunohistochemistry book, to achieve a basic understanding of principles of immunohistochemistry; see Recommended Reading below

Daily:

1) Attend daily renal signout with renal pathology attending (arrange schedule with attending)

2) Preview all cases if possible

3) Write up 1 or 2 medical kidney reports/signout

4) Review teaching sets and arrange a time with faculty member on service to review study cases as needed

Major Texts and Learning Resources

1) Silva's Diagnostic Renal Pathology, 2009

6) Diagnostic Pathology: Kidney Diseases. Amirsys, 2015

Supervision and Evaluation

The Resident's work will be supervised by the renal pathology attending's signing out during the rotation. The Resident will be evaluated on his/her daily work as assessed by the faculty with the input of ancillary staff. Results will be reviewed formally

Stanford Autopsy Pathology Learning Objectives

Overview

Residents on autopsy pathology are expected to master the following broad areas to the level expected of a new practitioner.

Goals and Objectives

Patient care

- To develop proficiency in all aspects of prosection and autopsy techniques, including standard dissection and removal of organs, including brain and spinal cord.
- To develop proficiency in selection and performance of routine and special (e.g., viral or fungal) cultures in the autopsy setting.
- To develop proficiency in procurement and preservation of body fluids (e.g., blood, vitreous fluid, bile, urine, spinal fluid) and tissues for potential special studies.
- To learn appropriate collection techniques for electron microscopy and molecular biologic studies.
- To learn appropriate collection techniques for samples for chromosomal analysis
- To develop proficiency in use of the radiographs in appropriate cases
- To understand approaches for performance of postmortem examinations on patients known to have viral hepatitis, HIV, or Creutzfelt-Jacob disease.

Medical knowledge

- To understand basic concepts of disease and correlation with morphology.
- To develop expertise in correlation of autopsy findings with clinic al course.
- To demonstrate an investigatory and analytic thinking approach to autopsy pathology.

Practice-based learning

- To use case-based learning as a tool for additional insight into disease pathogenesis.

- To locate, appraise, and assimilate pertinent evidence from scientific studies.

- To demonstrate effective problem solving skills, using a wide variety of information resources.

Interpersonal and communication skills

- To develop proficiency in presentation of autopsy findings to pathologists, medical students, and clinicians, at gross conference and standard clinical conferences at which autopsy cases are presented.

- To use effective writing skills to generate the autopsy report.

- To teach medical students who are assigned autopsy cases. In this role, the resident will develop the ability to explain what is being done during the dissection, clarify clinicopathologic issues, and direct students to other resources including appropriate faculty with specific expertise.

- To review pertinent gross findings in person with the relevant medical personnel involved in the patient care.

Professionalism

- To demonstrate respect, compassion, and integrity in the performance of the autopsy

- To understand that the autopsy report may be read by a wide variety of medical and non-medical readers, and write the report in a manner sensitive to needs of family members

- To complete written reports in a timely fashion

- To work effectively as a team with autopsy staff, and treat technical and administrative staff with respect

Systems-based practice

- To understand the role of autopsy in quality assurance of medical care

- To understand the role of the autopsy in determination of cause of death, and its impact upon epidemiologic studies using death certificate data

- To be able to establish a chain of custody for potential forensic cases

Autopsy at Stanford University Medical Center

Director: Don Regula, M.D.

Introduction to the Stanford Autopsy Service

1. Your work area (L-236 and L-202)
2. Hours of operation and paging
3. Supervision
4. Health and Safety
5. The Autopsy Room
6. The reporting process
7. Conferences
8. Other educational opportunities
9. Hospital death procedures

Your Work Area

Your primary workstation is in the Autopsy Residents' Room (Lane L-236) in the corner to the left and deep in the room. You may be sharing this room with another autopsy resident, a post-sophomore fellow, a medical student rotating through the Stanford Autopsy service, or a trainee pursuing a pathology research project.

All AP-1 and AP-2 residents are assigned a locked cabinet in L-236 for their belongings. Please see the residency coordinator, Rachael Buenafe-Jacinto, for a key.

There are several Windows PC-type computers in the Autopsy Residents' Room. Two workstations near the windows are “university-asset” computers running Sunquest “PowerPath” and are the primary sites for working on autopsy reports. The “hospital-asset” computer closest to the door runs the hospital EPIC application and a version of Sunquest "PowerPath" application to access Surgical Pathology reports. School of Medicine IRT team supports the university computers, while Ron Macasaet RMacasaet@stanfordhealthcare.org supports the one hospital computer.

There should be two complete, red-plastic, 3-ring bound copies of the Autopsy Service Manual in L-236. (See Dr. Regula if either is missing.) The Autopsy Manual is detailed and explicit and includes numerous standard and unusual procedures, along with “standard” tables of normal organ weights.

The Stanford Autopsy service maintains a modest library of reference books in the Autopsy Residents' Room. Please return these books promptly. (Specific book suggestions are always welcome, see Dr. Regula.)

You will be reviewing several different chart formats in the Autopsy Residents' Room, including paper charts enclosed in the classic manila folders, printouts from computerized records, and fax transmissions, often from outside hospitals. The paper charts are the property of the hospital and may be reclaimed, usually for coding, at any time. Please keep your charts clearly visible on a desktop in the Autopsy Residents' Room. (Charts should be reviewed within 24hrs of receipt and then placed in the wooden box next to the door along with the original signed version of the autopsy consent form.) Do not take any of the confidential protected health information out of the medical center. When disposing of papers with protected information please use the box designated for shredding, in the corridor outside L-236.

The multi-headed microscope in the Autopsy Residents' Room is primarily for your use. At least one other single-headed microscope will also be available. Various other groups may wish to use the multi-headed scope: this is your room and you may politely ask any group to return at a time more convenient to you (please use your best judgment when dealing with our colleagues from other departments!)

A 100x oil objective and microscope oil are available in the top drawer closest to the multi-headed microscope. Always remove the objective and clean the microscope after the use of oil. (Never mention the existence of the 100x objective to any outside personnel: there is no faster way to gum-up our scope, than to let clinicians pour oil on it!)

Various telephone lists and other notices may be posted in the Autopsy Residents' Room for your use. The attending and resident rotation schedules are taped to the pillar directly facing the door.

A large key ring, containing keys for L-202, other commonly used rooms, and the glass slide archive (in the hallway between Edwards and Lane buildings), is kept in an upper corner cupboard. Please return it to the cupboard immediately after use.

Discussions of autopsy cases should not occur in the hallway and should be restricted to appropriate rooms such as L236, L202, and autopsy attending offices. There are many non-medical personnel around the autopsy areas in the Lane building.

Hours of Operation and Paging

The Autopsy Room, L-202, is staffed by an Autopsy Room Attendant (ARA) or a Pathology Assistant (PA) between 8am and 5pm, Monday through Friday, and may be reached at extension 723-7675.

Our staff and most of the faculty carry alphanumeric-enabled pagers, which you may contact at: http://smartpage.stanford.edu It is much easier to send a specific message, than to wait for a call-back (e.g. "Please bring up the body of Mr. Smith")

The Autopsy Service office (723-6265 / 723-6041) is staffed between 8am and 4pm M-F (with breaks covered by the receptionist in H-2110.)

The Autopsy/Neuropathology Service assistant can help you with many time-intensive activities, such as placing calls to outside clinicians or getting medical records from outside hospitals. Feel free to ask for assistance.

You are expected to attend 8am conferences in L-201 and encouraged to attend other educational activities as your duties permit. You may be paged at any time during the above service hours and must be able to answer your page within 5 minutes and be prepared to return to L-236 within twenty minutes. You are not required to stay in L-202 or L-236!

Our regular organ recital begins at 9:30am, each weekday following a case. Please be prepared to present a five-minute clinical summary and to show the pertinent findings on your case. You are expected to thoroughly examine all tissues before conference. Most first-year residents require the entire 30 minutes after morning conference in L-201 to prepare for organ recital.

Given the ACGME restrictions on at-home call for PGY1 residents, it has been decided that there will be no overnight or weekend call for any of the residents while on the Stanford Autopsy Service. Please have your pager functioning for calls you will receive during working hours of 8am to 6pm. The page operator will route calls directly to your pager based on a monthly standing order, and you will not need to transfer pager coverage yourself.

Questions from clinical teams about death procedures are common (see Hospital death procedures) and can usually be dispensed with a quick factual answer or a referral to a more knowledgeable physician (usually the attending autopsy pathologist or the Autopsy Service director.) Never answer a question if you are not sure. Do not delay calling your supervisor in such cases (e.g. problems obtaining a valid permit are easily solved within an hour of death, but become progressively difficult after the next-of-kin leave the hospital!)

Occasionally you may receive a call regarding an expedited autopsy to obtain tissue for the diagnosis of a suspected inborn error of metabolism. Important enzymes are degraded rapidly and in such cases, tissues must be removed within two hours of death (ideally in under one hour.) Please notify your autopsy attending as soon as you become aware of such a case; you will need to stay close-by the hospital until the infant expires. There is a detailed "inborn-error" protocol in the red Autopsy Manual and the autopsy attending will assist you throughout such a case.

Supervision

Your direct supervisor is the autopsy attending on-call (pager #13216.) If that attending is unavailable, please contact the Autopsy Service director (pager #13451.)

Your supervisor carries the legal responsibility for all activities in the Autopsy Room and for all autopsy reports. Feel free to ask any question or ask about any unfamiliar procedure.

You will be given graduated responsibilities based on the demonstration of your ability. We do not expect any new resident to have technical knowledge of the skills for post- mortem prosection. The novice prosector will require additional time for dissection and to gain command of individual case details. The following are the guidelines for limiting the new case rate for novice prosectors:

a) if never performed an autopsy: one new case every other day
b) if requires assistance to complete prosection: one new case every day
c) if proficient: three new cases in any two day interval

The faculty attending on the Stanford Autopsy Service is the sole judge of when an individual trainee is proficient at prosection.

You may expect to be directly supervised by an attending (or Autopsy fellow):

a) during your first three autopsy prosections
b) whenever you ask for assistance
c) until you are competent in Universal Precautions' gowning and sharps procedures
d) during any unfamiliar dissection (the entire dissection, if you have no autopsy experience!)
e) during complex cases which require an experienced dissector or active tissue collection (e.g. inborn error of metabolism.)

You should always contact a member of the clinical team before discussing the case with your attending (the name listed on side-B of the Consent for Autopsy is best.) Be sure to invite the clinical team to the regularly scheduled 10:00am Organ Recital in L-202, which occurs the next business day after each prosection

You or any of the Autopsy Service staff may convey any signed autopsy report to an interested clinician who has taken part in the care of the patient. Please be circumspect when reporting oral preliminary results

Discussions with family members of deceased patients can be quite tricky and this is usually handled by the autopsy attending, but the resident/trainee will be kept informed of the conversations. These usually are either about administrative details before the case starts or autopsy results after the autopsy report is finalized. Family members may request autopsy reports from the Medical Records department and do not get reports directly from members of the autopsy team.

Health and Safety

You are primarily responsible for your own safety! Your attention to proper barrier protection and sharps procedures are your prime defense against infection.

The Stanford Autopsy Service practices true Universal Precautions: All unfixed tissues are regarded as highly infectious. There are no extraordinary procedures for known cases of blood-borne organisms such as HCV (see the special procedures for CJD in the Autopsy Manual and understand why such procedures violate UP.)

We hold to the basic principle of Universal Precautions: if you would handle a suspected case of Herpes type-43 by a special method, then you should consider that method for All cases!

You should be vaccinated against the hepatitis-B virus. Vaccination is provided at no cost through hospital employee-health program. You will be asked to undergo annual skin testing for tuberculosis (the Stanford practice of formalin-perfusion of both lungs greatly reduces the risk of infection with TB.)

The Autopsy Service will provide you with any glove, tool, goggle, or other barrier protection for which you can make a reasonable argument. (Ask the ARAs, if they do not have the device here, we will attempt to get it.) We encourage you to try different types of eye protection, etc., so that you will discover the most comfortable barrier protection for you.

You will be expected to strictly follow the gowning/glove/eye/mask protection rules (in the Autopsy Manual and posted in L-202.) You will be specifically evaluated on these procedures.

Good sharps practice is learned. We will teach you how to use sharp scissors and a large blade for virtually the entire prosection. Only one blade at a time at either table! (Let the Autopsy Room attendants handle the rectangular-based table; they will leave you to dissect the bloc on the round-based table.) Avoid the use of scalpel blades, use only One scalpel blade at a time, never leave a scalpel blade on the table- discard them immediately in the plastic used-sharps containers (the ARA can teach you how to safely remove a scalpel blade while fully gloved.)

Only professional staff associated with a specific case may enter L-202 at any time. Please refer all other requests for observation to Dr. Regula. You are expected to remind all visitors to L-202 of the appropriate gowning/mask procedures.

If you suspect a blood/fluid/unfixed tissue exposure, immediately stop prosection. Remove your gown and wash the suspected site. Tell someone of the staff or faculty of your injury and immediately go to hospital employee health (H-1250, first floor near escalators).

Tell the desk clerk that you have had a possible blood-borne pathogen exposure; they know what to do next.

Use common sense in L-202; surfaces are often wet and slippery.

The Gross photography stand in the Autopsy Room uses a touchscreen digital camera system. Please have the ARAs demonstrate its features on the first day. When properly labeled, photographs will upload into the respective autopsy report in PowerPath. Please take the time to take gross photographs of the important or unusual pathology in your case; it will be used during organ recital, clinical conferences, and during sign-out of the case. Photos at the autopsy table are taken with a handheld digital camera and uploaded to your autopsy report when replaced in its cradle.

The Autopsy Room

The Autopsy Room door is locked requiring your magnetic card key. Please give Dr. Regula the entire number on the back of your card key, so he can request access for you. The Autopsy Room is designed for safe prosection and demonstration of unfixed tissues. Loud music and shouting are inappropriate. Practice decorum in the Autopsy Room; a post-mortem examination should be as professional and private as a pelvic examination.

The Autopsy Room Attendants are knowledgeable and easy to work with. Please remember to communicate your plans to the ARA, especially when you wish to start the prosection and if your prosection must be interrupted (e.g. to present at M&M). You will be present for the entire prosection. Right before the first incision; take a moment for a "time out" in which you state the patient's name, date of birth, medical record number, autopsy restrictions, and special aspects of the case, such as whether you will need the special setup for sterile lung cultures.

Our Autopsy Room is kept spotless and the floors are disinfected nightly. Your assistance is greatly appreciated. Be judicious with the use of water and be careful as you move the organs about (particularly with the weighing scale.) Please use a towel to prevent drips on the floor when you move organs from the table to the photography stand.

The vertical whiteboard, attached to the round-based table, is for your use during the prosection. You may write on that board while wearing dirty gloves, and then transcribe the weights to a clean sheet after the prosection. If you only have one case that day, leave the weights on the board- it provides an easy way for the attending and clinicians to read the weights during the organ recital.

A copy machine is available by the window to make clean copies of dirty documents. Do not bring contaminated sheets out of the Autopsy Room. You are encouraged to leave your dirty worksheet on the adjacent counter and to bring a clean copy to L-236 for your report.

The morning organ recital is an important teaching opportunity and you should be thoroughly prepared before 9:30am. Learn to cut the decalcified epicardial coronary arteries at 3mm intervals (cutting on a cloth towel on a tray is efficient.) The Autopsy Room Attendant will cut the formalin-inflated lungs into 1cm thick parasagittal slices and place them to rinse on one of the tables. The fixed bowel from your case will also be placed on the table under running water. Try to keep the room neat and clean for organ recital.

The Autopsy Room Attendant will have printed labels on a few cassettes for your tissue sections. You may request additional cassettes as needed. Be sure to prefix all additional cassettes with the letter "A" such as "A34652-P". Cassette “-BB” is used for a bone marrow squeeze from rib, acquired by the ARAs. The pituitary will be placed in a labelled cassette, then into the brain fixation bucket.

The Autopsy Room is the office for our Autopsy Room Attendants; please treat it as you would your own workplace! Do not enter or touch their desk area while wearing gloves, aprons or gowns.

The reporting process

Your Autopsy / Neuropathology report is the major channel of communication with interested clinicians and the family. It should be accurate, clear, succinct, but complete, and prompt. (The Stanford reporting procedures differ slightly from other hospitals; we will explain where and why these differences occur.)

We want you to strive for "ownership" of each of your cases and to gain the familiarity and expertise necessary to be an outstanding consultant to your clinical colleagues. Stanford does not permit "doubling-up" on a single case nor do we pass incomplete cases to other residents. The complete autopsy is not just a "large surgical specimen". A complete autopsy entails the examination of the entire cadaver with a special attention for missed diagnoses (found in up to 20% of all cases!) You will be expected to identify the morphologic criteria for specific anatomical diagnoses, but also to reconsider and extend the clinicopathologic correlative skills you developed with Pathophysiology in medical school.
A good autopsy pathologist can engage the clinician in a knowledgeable discussion of Why and How the autopsy findings explain the course of disease and death.

You are expected to participate in all relevant steps of the autopsy. The American Board of Pathology is very clear about the criteria for counting an autopsy towards the fifty required for primary certification in Anatomic Pathology:

“In order to report an autopsy to the ABP, the applicant must actively participate in the following (as appropriate to the case):

1) review of history and circumstances of death
2) external examination of the body
3) gross dissection
4) review of microscopic and laboratory findings
5) preparation of written description of gross/microscopic findings
6) development of opinion on cause of death
7) review of autopsy report with teaching staff.”

You must consult with the attending pathologist before the post-mortem begins. You must contact the attending clinician or the delegate designated on the Autopsy Permit, before you present the case to your supervisor. Joint Commission requires your initials on the back of the Autopsy Permit testifying to this conversation. You may take this opportunity to remind the clinician that there is a standard Organ recital in L-202, each business day at 9:30am following the prosection (often the entire team will arrive.)

The "general" (below-the-neck) autopsy and the examination of the brain share the same autopsy number and report. The Power Path system lists “general” autopsies with a "SHA-" prefix and the report of neuropathologic findings with an “SHN” prefix. Our report shortens the number to "A" followed by the last five digits (your tissue cassettes are prefixed with "A" and these five digits.)

The “general” autopsy reports have three consecutive separately signed parts:

a) the Provisional Anatomical Diagnosis (PAD) is comprised of a list of preliminary diagnoses, based on gross examination only. State law requires the PAD to be in the chart within 48hrs of autopsy. We expect you to submit a draft PAD to your attending by noon of the day of the organ recital. The brief clinical synopsis should be typed immediately before or after the prosection (it may not be transcribed by the time the PAD is devised.) We suggest that you type the PAD as one-line diagnoses; this assures brevity and clarity. We strongly encourage you to complete the gross description of findings as soon as possible after your prosection. While not required for the initial PAD, your recording of the gross findings at this time minimizes the risk of omitting important diagnostic information. We provide detailed templates for the description of adult and neonatal cases. Open your report in PowerPath-linked Word, click on "Worksheets" button to record your Clinical History and detailed description. The first time you open a report in Word, you must choose the appropriate worksheet by clicking on "add Worksheet". You should select the worksheet that most closely matches your patient and the restrictions on the case. Please review every line in the template; your case findings may not correspond to the "default" template entry (e.g. - the appendix may not be present!). You will find that recording information immediately after it is gathered is the most time-efficient approach to managing your workload. This is especially important when the workload is heavy. Periodically click "Save" on the worksheet so you do not lose any work.

b) the Final Diagnostic Outline (FDO) is comprised of a list of final diagnoses, based on all relevant gross, microscopic, microbiological and special examinations. Stanford and Packard hospitals expect 95% of all FDO reports to be in the chart in two weeks (this includes all transit time!) We expect you to submit a draft FDO to your attending within one week from the day of prosection. Our Service averages a seven-day turn-around for this report, which is widely distributed among interested clinicians. Many clinical services at Stanford expect and rely upon this rapid turn- around. As with the description of gross findings, you are encouraged to complete the microscopic description of findings as soon as you have reviewed the slides with the faculty-attending pathologist.

c)

d) the Final Anatomical Diagnosis, Narrative builds on the framework of the FDO to include a complete morphologic description of the pertinent findings (both gross and microscopic), along with your discussion of the correlation of the clinical questions and the anatomic findings (the epicrisis.) The FDN is required by CAP regulations to be in the chart within 30 days, and by the state, within 60 days. We expect you to submit a draft Narrative to your attending within one month from the day of prosection.

e) the Neuropathologic report is added to the FDN and follows the report deadlines assigned by the Neuropathology Service. (The NP report may be prepared by a different resident than the prosector.)

f) The autopsy reports are released as: 1) scanned documents that appear in the electronic medical records in the Media tab of the EPIC systems for LPCH and SHC patients. Please note that each phase of the report is permanent and is not replaced by subsequent phases of the report. 2) transmissions of the reports are sent to clinicians listed in the General tab of the PowerPath, entered during accessioning of the case, using the preferred method specified by the clinician (fax or hardcopy) 3) reports can be mailed or faxed to additional clinicians through the Autopsy administrative assistant, Dory Palacio. For this is best to instruct clinicians to contact Dory directly at 650 723-6041.

You are expected to meet the following deadlines:

a) draft PAD to attending by noon the next working day after the prosection,
b) draft FDO to attending within one week of prosection, and
c) draft FDN to attending within one month of prosection.

You will be notified of late cases by your attending and by e-mail at the end of your rotation. You are strongly encouraged to:
a) complete the description of gross findings immediately after the morning organ recital,
b) complete the description of microscopic findings immediately after reviewing the case with your attending.

Failure to keep up with your work will require you to review the case multiple times!

The Stanford Autopsy/NP report is typed into the "Power Path" system. The computer screens and procedures are nearly identical to those in Stanford Surgical Pathology. Your login and password should be the same as with Surg Path. There are some slight differences from Surg Path in updating your report status. Click on the … button by the status (or press Control-S) when your draft is ready to send to your attending. Choose the “Progress” check-box from the lower panel and select the “Faculty Review” option.

The PAD and FDO reports are a single page and do NOT include the data you have entered into the worksheet. The worksheet is "Released" when the FDN is signed. If reports are “stuck” and do not save or progress, please let Ron Macaset or Dr. Regula know.

You may enter the narrative portions of the Autopsy/NP report at any workstation installed with PowerPath.

Conferences

Intra- and inter-departmental conferences are essential to learning new facts and for improving your skill as a consultant. A good autopsy pathologist is constantly reviewing not only the morphologic diagnoses, but also their pathophysiologic correlates. We do not expect any new resident to be able to construct and give a cogent interdepartmental presentation of autopsy findings and correlates. We will teach you how to begin and how to improve this skill throughout the rotation.

You are expected to attend and participate in the usual 8am intradepartmental conferences. The organ recital is scheduled for 9:30am to give you an opportunity to review the viscera, examine the cut sections of the fixed lungs, and to hone your presentation. You must attend the weekly brain-cutting conference, except when you are actually prosecting a case.

Occasional cases are requested for presentation at an inter-disciplinary conference. You are expected to prepare, review with an attending, and present the morphologic findings and pathophysiologic correlates of your case. In the event that you are unable to attend a requested session you may, with the approval of the attending autopsy pathologist, prepare the requested case and equip the autopsy resident on-service for its presentation.

Most clinicians relate easily to demonstrative gross photographs. We will teach you the various methods to best demonstrate a finding by photography. Some clinicians, particularly in the medical specialties, are reassured by the presentation of representative photomicrographs. We provide a complete, fully staffed photo laboratory in L-206 and the Photo lab staff or your autopsy faculty would be happy to explain the equipment and procedures. We are also happy to demonstrate how to attach an image in a secure; email to a clinician.

Most clinical conferences provide an LCD projector for your presentation, but please check whether you need to bring your own computer. Arrive early at conference to make sure the video projection is working properly. You do not want to waste the time of busy colleagues.

Other Educational Opportunities

The Stanford Autopsy service has a varied caseload. Some days may be quite busy, while there may be periods of days without a case. Your caseload will not exceed the rate permitted by your level of training in autopsy (e.g. - your autopsy competence) during this rotation. You are expected to advance your own education during the lull between cases. The following rules should guide your study in such times.

The resident assigned to the Stanford Autopsy rotation must be available to review, discuss, perform, report, and present autopsy cases at all times. This is your first and prime responsibility on this rotation. You must be available by radio-pager during the service hours of operation and when you are on-call. You must be able to return to the hospital within twenty minutes of a page (this is the interval necessary for optimal preservation of tissues for enzyme analysis.)

Your first task is to complete unfinished autopsy reports. Please ask your attending about any aspect of your report. Devising the preliminary and final diagnostic outlines is the most important way to learn how to express your anatomical diagnoses in a succinct and pathophysiologically plausible fashion.

At those times after you have completed your autopsy reports, you are expected to pursue the following educational opportunities:

1. Unless you are actually involved in a prosection, you are required to attend our weekly, Tuesday afternoon Brain Cutting session in L-202. Gross neuropathology can only be learned by the examination of autopsy brains and this session is an efficient educational exercise.

2. First year residents who have not finished the USMLE should study general medicine. Study materials are available from the chief resident.

3. Residents who have passed USMLE should consider developing or working on a research project. Such projects range from assembling a case report of one of your cases to becoming involved with a larger clinical or basic research project.

4. All residents must teach in the second-year medical student Human Health and Disease course. Many residents schedule their laboratories during or shortly after their Autopsy rotation. This allows you to choose laboratory topics with which you are not already familiar. Use your time to prepare for your medical student laboratories. (Glass slides and other course materials are available from the course coordinator in L-226.)

5. More advanced residents who have decided to pursue a primary career in surgical pathology or clinical pathology may to attend any open sign-out in H-2110 or the Clinical Laboratories, including morning “plate rounds” in Microbiology.

Hospital Death Procedure

The average clinician experiences one in-hospital patient death annually. Although clinicians at Stanford are required by the medical staff bylaws to request an autopsy on every death, only about 25% actually obtain a valid permission for autopsy. Most clinicians have no idea who to call about any aspect of death procedures and may call you with a question about nursing or mortuary procedures. Be supportive and Page your attending

Stanford Hospital has a decedent affairs coordinator, Susan Scott, available during regular working hours. She is available at extension 736-1040 in the chaplains’ office and carries pager #15683. She coordinates discussions with physicians about the death certificate and discusses aspects of autopsy and disposition of remains with families. Autopsy permission is obtained by a physician involved with the case, but Susan Scott acts as a valuable coordinator. Decedent affairs are handled at LPCH through the Nursing Supervisor, who can be reached at 7-8430.

The Stanford and Packard hospital "Administrative Guide" contains a detailed death protocol with explicit instructions for all parties. These pages are included in the back of the red Autopsy Manual. (Most are common sense; you are <u>not</u> expected to memorize the details!)

The typical "Authorization for Autopsy" is granted through a written permit (Stanford 15- 49A), which is available in bulk on every clinical floor. This permit is valid when the original or a fax copy is signed by the cognizant next-of-kin. Less frequently, a permit may be tape-recorded, either with the equipment in R-241 or by the hospital transport dispatcher. In either case, the clinician need only remember a single telephone number "3- POST" (732-7678) and will be connected to an available clerk.

A "witnessed", but un-recorded permission is <u>not</u> valid; contact your attending.

At Stanford, the standard-of-practice is to have the attending clinician devise and sign the Death Certificate. In most private practices, the autopsy pathologist will complete the DC. You may wish to scan the spiral-bound manila booklet titled "the Medical Cause of Death Manual", available in the L-236 library.

The body of the deceased is generally enshrouded on their hospital bed and transported to the central Cold Room on the SHS loading dock in the basement. Removable valuables are placed in the hospital safe. (Be sure to note any jewelry, which remains on the body.) Security services controls access to this room (3-7222.) The ARA will bring the body from the Cold Room to the Autopsy Room and return it after the prosection.

On rare occasion, you may be paged to give permission to accept a body from a patient who has died outside the confines of the hospital. Please page your attending if this delivery is unexpected.

There is No Charge for an autopsy for any patient seen at Stanford at any time (if the patient has a medical record number; that is good enough.) Please refer questions about other expenses, such as transportation or funeral expenses to the Service director.
Any case without a Stanford medical record number must be explicitly cleared by the Service director (our criterion is that such rare cases must be of "extraordinary teaching value".) We actively encourage clinicians to seek permission for autopsy for any Stanford patient who dies at home or in a hospice. We maintain a small fund to recover the additional transportation costs and hence, there are no additional costs to the family. Refer questions to your attending or the Service director.

AP – Bone Marrow Hematopathology

Rotation Director: Susan Atwater, MD

This one-month AP rotation is part of the integrated "wet hematology" training program, in which the AP resident and CP residents/fellows gain proficiency in signing out bone marrow, peripheral blood and body fluid cases at the main hospital, and flow cytometry cases at the Hillview lab. Each trainee spends one week at Hillview on the Flow service, and the remainder of the time at the hospital. This document describes the bone marrow service component of the rotation.

Goals and Objectives

Bone Marrow Rotation (BM/PB/BF/FLOW) Patient

care

- Be familiar with a wide variety of adult and pediatric hematologic disorders
- Develop competency in peripheral blood smear, body fluid and bone marrow interpretation, including correlating morphology with ancillary tests used for diagnosis, such as special stains, flow cytometry, and tissue immunodiagnosis
- Gain skill in the technical and interpretive aspects of hematologic flow cytometry
- Correlate clinical findings with morphology of clinical hematology samples
- Learn appropriate selection of diagnostic tests in hematology
- Develop basic expertise in medical microscopy of body fluids
- Correlate findings in fluid samples with those in the cytopathology laboratory
- Learn the technique of performing bone marrow aspirates and biopsies
- Recognize the importance and time-sensitive nature of certain hematologic diagnoses

Medical knowledge

- Develop basic knowledge of the clinical, pathogenetic, morphologic, immunophenotypic and genetic features of the more common diseases of the hematopoietic system
- Understand the significance of various hematologic diagnoses in determining treatment plans
- Become familiar with outcomes and prognoses of common hematologic diseases

Interpersonal and communication skills

- Communicate clearly with clinical colleagues to obtain clinical information in case evaluation
- Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports
- Work closely with laboratory staff in coordinating timely specimen processing

Professionalism

- Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case
- Work effectively and efficiently with support and administrative staff in the hematology/flow cytometry lab to maximize productivity and maintain the quality of the work environment
- Complete written reports in a timely fashion

Systems-based practice

- Learn the process of case evaluation and work flow in hematopathology, from accessioning and processing of specimens to sign-out and delivery of patient reports
- Use awareness of laboratory work flow to optimize efficiency and turn-around-time through working with laboratory, administrative and clerical staff

- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care
- Begin to develop awareness of issues in coding and billing

Practice-based learning

- Use case-based learning as a tool for additional insight into the basis of disease
- Locate, appraise and assimilate pertinent data from scientific studies
- Demonstrate effective problem solving skills in diagnostic hematopathology using a wide variety of information resources, including laboratory and hospital information systems

Detailed Responsibilities

1. DIVISION OF WORKLOAD: The work load will be divided between CP and AP Residents and Hematopathology Fellows with typically 3 trainees handling bone marrows, peripheral blood smears and body fluids (BM/PB/BF) at Stanford, and the 4th trainee handling flow cytometry (FLOW) specimens at Hillview.

2. BM/PB/BF SERVICE: The trainees at Stanford on the BM/PB/BF service will review cases with their Attending, and as necessary, call physicians with results or to request further clinical information. Cases will be split amongst the trainees at Stanford on the BM/PB/BF service. The trainee is expected to look up pertinent clinical history for all cases and to preview peripheral blood and body cases as well as to preview, and perform 200-cell differential counts on at least 2 bone marrow cases per day. Cases will be reviewed each morning beginning around 9:30 AM in the bone marrow reading room with the Attending, beginning with bone marrow cases and any clinically urgent cases. Associated flow cytometry studies will be reviewed and incorporated into the report. If peripheral blood and/or body fluid cases are not available for review before morning signout then a separate early afternoon signout may be scheduled at the discretion of the Attending. Fellows and residents will also be responsible for integrating cytogenetic results weekly to create amendment reports. The trainee is expected to communicate clearly with the clinical team regarding all clinical questions on the morphologic evaluation of aspirates and peripheral blood smears, body fluids, and flow cytometry specimens submitted with in-house marrows, after consultation with the hematology specialist, fellow or attending pathologist as needed.

3. FLOW SERVICE: The trainee at Hillview covering the FLOW service will preview all flow cytometry cases not associated with a Stanford bone marrow case and will sign-out with the FLOW Attending at beginning around 9:30am at the multiheaded scope at Hillview. The Hillview trainee is also responsible for picking the appropriate flow

cytometry panel for all cases after reviewing pertinent history and slides. Panel picking should be performed with help from the attending pathologist until such a time as the trainee has been determined to be sufficiently experienced to pick panels independently. The trainee is expected to communicate with the clinical team for all clinical questions regarding flow immunophenotyping results on cases not assigned or not yet available to the BM/PB/BF service, after consultation with the fellow or attending pathologist as needed.

4. COMMUNICATION WITH THE CLINICAL TEAM: Trainees on both services will contact clinicians for additional clinical history or to communicate urgent diagnoses as necessary. The name of the clinician, the trainee, the time of the communication and the content of the communication should be recorded.

5. CP RESIDENT Bench Training by Clinical Laboratory Scientists: This should be arranged with the supervisors (Mercy Dones, and Veronica Wei). The CP Resident rotates through a different section of Hematology for detailed instruction by a reference technician. The Residents are excused for their clinical work during this time. The Resident should touch base with the Rotation Director immediately if any issues arise in scheduling the bench training sessions.

   Stanford Hospital: (coordinator: Mercy Dones, hematology supervisor)

   a. Hematology specimen processing, automated hematology & QA
   b. Body fluids
   c. Urinalysis
   d. Special hematology

   Hillview:

   a. Flow cytometry (2 sessions coordinated by Veronica Wei, flow supervisor)
   b. RBC special studies laboratory (coordinated by Carolyn Wong, lead technologist in RBC SSL)

Attendance Requirements

1. Attend sign-out sessions on all workdays and carry out all clinical duties within duty-hour limits.

2. Attend applicable department conferences for levels of training; for example, AP morning teaching conferences in Surgical Pathology Topics, current concepts, round the scope conferences run by faculty or fellows, 12:30 conferences in CP topics, CP journal club.

3. Attend the monthly surgical pathology QA/QC meeting.

4. Attend/participate in bi-weekly hematopathology consensus conference (Wed and Fri at 1:30 PM).

5. On FLOW service, participate in panel picking until 10pm Monday through Friday, coming in to review slides if indicated.

6. For CP residents, participate in call responsibilities as outlined below.

General CP Call Responsibilities

A hematopathology fellow is scheduled to be on call for all hematopathology cases after hours and on weekends/holidays. The CP resident on call (#12005) handles all calls after normal working hours and the HP fellow will function as the initial back-up to the CP resident on all days except Sundays. The bone marrow service attending pathologist for any given week is the person responsible for all call cases and for supervision of the fellow. Monthly call schedules that designate the fellow and attending pathologists on call are posted on the first day of each month throughout the clinical laboratory. Fellows are not on call on Sunday.

During normal working hours, the resident or fellow on a given part of the CP hematology service takes the initial calls for that service with fellow and attending back-up. For example, if the CP resident is handling flow cytometry specimens in a given week, all requests related to flow cytometry will be initially directed to that resident, with the designated service attending available to assist the resident.

For evenings and weekends, "first-call" involving picking flow panels and morphologic evaluation of specimens submitted for flow cytometry evaluation should be taken by the CP resident/hemepath fellow covering the flow cytometry service. All other hematopathology-related "first-call" (e.g., peripheral smears and body fluids) involving "critical" issues should be taken by the on-call CP resident (#12005 pager). Routine examination of peripheral blood smears and body fluids, however, will be performed by the CP resident/hemepath fellow covering the Peripheral Smears/Body Fluids service.

CP Weekend Call: Peripheral Blood/body Fluid Responsibilities

DEFINITION OF TASK: Review of peripheral blood and body fluids takes place once each on Saturday and Sunday. Specifically, it is important to briefly review all the cases to identify any clinically actionable findings. Clinically actionable findings are communicated to the hematopathology fellow/attending on call and the clinical care team, as indicated.

GOALS: The goal of the review is twofold: patient care and resident experience. Clinically actionable items are brought to the attention of the clinical care team as needed. The

resident also gains experience in independently reviewing patient materials, with support from the hematopathology fellow or attending available at all times as needed.

EXAMPLES: Examples of clinically actionable items that may be identified by residents include blasts in the cerebrospinal fluid of a child with acute lymphoblastic leukemia, circulating monocytoid blasts sufficient for a diagnosis of AML, recognition of acute promyelocytic leukemia (standard and hypogranular) and accompanying DIC, intracellular bacterial or fungal organisms in a variety of body fluids, a variety of organisms in the peripheral blood, and more.

WHAT TO DO: Most residents perform this task in the morning, allowing for easier follow-up on any patient care issues that may arise. On a routine day without significant abnormal findings an experienced resident can often finish in an hour or less. There is no requirement to look up clinical history on every case. If the paperwork in combination with review of the slide raise concern for a clinically actionable finding, the clinical history should be ascertained prior to contacting the hematopathology fellow/attending. As the hematopathology fellow is protected from call on Sundays, the attending should be contacted directly those days. Any communication with the clinical care team should be documented including name, time, and what was communicated.

Study sets

As it is not possible to see the large breadth of hematology during a rotation, glass slide sets are available for review of abnormalities on peripheral smear, bone marrow and body fluids. A list of correct diagnoses is provided. A pre-test of 6 peripheral blood smears and body fluids is available, as is a post-test of 6 peripheral blood smears and body fluids. Independent study is strongly recommended to supplement the Hematology sign-out. Although it is best to cover themes when problems and issues in those areas arise, here is an approximate guide for gaining experience in the following important topics during the rotations in Hematology.

THEMES		TOPICS
THE CBC	1	THE CBC
	2	Peripheral smear: RBC morphology
	3	Peripheral smear: WBC morphology
	4	Reticulocyte counts
	5	CBC analyzers
	6	WBC differentials
Anemias	18	Marrow failure
	19	Acquired Hemolysis
	20	Abnormal membranes
	21	Hemoglobinopathies
	22	Abnormal Enzymes/Polycythemia
Special Hematology	23	HPLC/Hemoglobin electrophoresis/sickling tests
	24	Serum viscosity, urine hemosiderin, Heinz bodies
	25	Monospot, malaria smear, ESR, fecal blood
	26	G6PD, osmotic fragility
Pediatric Hematology	27	Neonatal hematology
	28	KB stain
Body Fluids	29	Body fluid morphology
	30	Urinalysis
Flow Cytometry	31	Leukemias
	32	Lymphomas
	33	PNH
	34	MDS
	35	Lymphocyte subsets
Hematopathology	36	Lymphoproliferative disorders
	37	Reactive disorders
	38	Myelodysplastic syndrome
	39	Myeloproliferative neoplasms
Miscellaneous	40	CAP standards, QI/QC

Summary of Weekly CP Laboratory Rotations

WEEKS	TOPIC	DESCRIPTION
1	Specimen processing, slide preparation, malaria slide preparation and identification, manual counts, WSR.	Observe tests and become familiar with appropriate use and interpretation. Review malaria study sets with Hematology Specialist Technologist.
2	Flow cytometry	Observe tests and become familiar with appropriate use and interpretation of flow panels and gating strategies . Analyze ungated archival cases stored in computer.
1	Automated hematology, Quality control.	Observe tests and become familiar with appropriate use and interpretation. Learn about interpretation of instrument scatterplots. Become familiar with factors that can cause spurious instrument results. Review laboratory algorithms for quality control. Review monthly QC data with Clinical Pathologist.
1	Body fluid cell count and morphology.	Observe tests and become familiar with appropriate use and interpretation. Review abnormal body fluid slide sets with technologist. Optionally review previous year's files of malignant fluid slides.
1	Special stains, bone marrow slide preparation, Ficoll density gradient cell isolation, cryoglobulins, serum viscosity, G-6-PD screen.	Observe tests and become familiar with appropriate use and interpretation. Note that selected readings in bone marrow morphology interpretation are assigned in the syllabus for this week.

Major Texts and Learning Resources:

- Bain B. Blood Cells. A Practical Guide, 4th Edition (2006)
- Foucar K, K Reichard, D Czuchlewski. Bone Marrow Pathology, 3rd Edition (2010)
- Galagan KA, Blomberg D, Cornbleet PJ, Glassy EF. Color Atlas of Body Fluids (2006).
- George TI. Laboratory Hematology, UpToDate (online)
- Glassy EF. CAP Color Atlas of Hematology (2005).

- Haber M, Blomberg D, Galagan K, Glassy EF, Ward P. CAP Color Atlas of the Urinary Sediment (2011).
- Hoyer JD and Kroft SH. Color Atlas of Hemoglobin Disorders (2003)
- Jaffe ES, Harris NL, Vardiman JW, Campo E, Arber DA, eds. Hematopathology. Philadelphia: Elsevier, 2011.
- Keren DF et al. Flow Cytometry in Clinical Diagnosis, 3rd Edition (2001)
- Kjeldsberg C. Practical Diagnosis of Hematologic Disorders, 5th Edition (2010)
- Kjeldsberg C & Knight J. Body Fluids, 3rd Edition (1993)
- Knowles D. Neoplastic Hematopathology, 2nd Edition (2001)
- McPherson RA, Pincus MR.. Henry's Clinical Diagnosis and Management by Laboratory Methods. 21st Ed. (2006)
- Nguyen D et al. Flow Cytometry in Hematopathology, 2nd Edition (2007)
- Pereira I, George TI, Arber DA. Atlas of Peripheral Blood: The primary diagnostic tool. Lippincott Williams & Wilkins, Philadelphia, 2012.
- Swerdlow SH et al. WHO Classification of Tumours, Pathology & Genetics, Tumours of Haematopoietic and Lymphoid Tissues (2008)

Cytopathology

Director: Christina Kong, M.D.

Residents will complete a total of six 1-week rotations in cytopathology during their first and second years of AP training. In addition, interested residents and fellows may choose to participate in a 4-week elective or 1- to 2-week selective in cytopathology. The specific expectations for the required and elective/selective rotations are provided below.

Resident duties and responsibilities for required (1-week) Cytopathology rotations:

**The included targets and case caps are provided as recommended guidelines for minimum resident progression over two years of AP training and may be modified to accommodate specific resident interests or abilities, as coordinated with the cytology faculty and fellow on service. Residents are encouraged to request additional cases as their skill level progresses.*

Preview and write-up FNA cases:

- "Inside" FNA cases (SHF-XX-XX) are a shared responsibility between the cytology resident and an advanced level trainee (usually a cytopathology fellow, but occasionally another fellow or senior resident).
- The cytology resident should check-in with the cytopathology fellow/advanced trainee on service at 9 am each day for case distribution. Ideally, the resident will receive all assigned cases by 10 am.
- FNA cases are divided equally until the cytology resident has reached his/her required case cap (below), with the advanced level trainee taking responsibility for the remainder of the daily FNA cases.

Week 1—Two cases/day	Week 4—Four cases/day
Week 2—Two cases/day	Week 5—Five cases/day
Week 3—Three cases/day	Week 6—Six cases/day

- Preparation for sign-out includes previewing slides, reviewing the medical record, and drafting a preliminary interpretation and report in PowerPath.
- Given the nature of small cytology specimens, consultation with the cytopathology faculty/fellow is required prior to initiation of any ancillary studies (e.g. immunohistochemistry, special stains).
- The cytology resident is responsible for follow up of ancillary studies and preparation of a final report. Appropriate hand off is required for any pending cases at the end of the 1-week rotation.

Preview nongynecologic and gynecologic exfoliative cytology cases:

- "Inside" fluids and pap tests (SHC-XX-XX) are available for review late morning through early afternoon, after they are screened by cytotechnologists.
- The cytology resident is expected to preview at least 5 non-Gyn cases and at least 5 abnormal (prescreened) Gyn cases, looking up patient histories as necessary and formulating diagnostic impressions prior to sign-out.

- There is no required reporting in PowerPath; the resident documents his/her impression in the Notes tab in PowerPath or on the paper requisition form.
- During the second year of AP training (i.e. rotation weeks 4-6), the cytology resident should ask the cytotechnologists for 2 additional unscreened Gyn cases per day. The resident will perform primary screening and return the slides with his/her impressions to the cytotechnologists for re-screening and feedback.

Participate in cytology sign-out with attending:

- The schedule for cytology sign-out is variable and requires close coordination with the cytopathology fellow/advanced trainee and cytopathology faculty on service.
- Typically but not always, there are two sign-outs per day—a morning sign out for FNAs beginning by 11 am or earlier, and an afternoon sign out for fluids and follow-up.

Perform adequacy assessment for image-guided FNAs:

- Coordinating with cytotechnologists, the cytology resident is expected to participate in a minimum of two image-guided adequacy assessments per week.
- After participating in at least 10 cytotechnologist-assisted adequacy assessments, the cytology fellow will independently perform an assessment under cytology faculty supervision for direct observation and feedback.
- The cytology resident is strongly encouraged to continue participating in cytotechnologist-assisted adequacy assessments, even after completing the minimum number.

Learn how to perform FNA biopsies:

- Usually, coverage of the FNA clinic service is the primary responsibility of the cytopathology fellow or advanced level trainee on service. In rare instances, the cytology resident may be asked to be the primary assistant for the cytology faculty on the FNA service when the fellow/advanced trainee is unavailable.
- Performance of FNA biopsies is not required for completion of AP training.
- For interested residents or those considering specializing in cytopathology, performing at least one FNA per week under faculty supervision is recommended.

Complete additional gynecologic proficiency requirements:

- Gynecologic cytology teaching sessions by cytotechnologists – Depending on cytotechnologists' availability, the cytology resident will arrange with the cytotechnologists to provide introductory teaching of gynecologic cytology, preferably within the first 1-week rotation.
- Gynecologic cytology mock proficiency tests – Two sets of mock proficiency tests are available for completion. The first set (PT I, 3 boxes) should be completed by rotation week 2 (first year) and the second set (PT III, 3 boxes) should be completed by rotation week 4.
- ThinPrep Certification Exam – The cytology resident is expected to become certified in the evaluation of ThinPrep slides for gynecologic cytology. The exam should be taken during rotation week 5 or 6. Often multiple attempts are required to pass, and the resident should plan accordingly.

Preview and write-up outside cases:

- In general, "outside" consult or I/O cases (SHS-XX-XX) are the responsibility of the cytopathology fellow and/or advanced trainee on an elective rotation.
- The cytology resident is encouraged to take responsibility for previewing and writing up I/O cases as their ability progresses, particularly if the volume of inside FNA cases is low.

Resident/Fellow duties and responsibilities for elective/selective Cytopathology rotations:

First/second year residents:

- In general, the expectations for the elective/selective rotation are similar to those for the required 1-week rotations (as above), with case volume adjusted for the individual's interests and ability.
- Choosing an elective/selective in cytopathology usually implies interest in the field. As such, residents on elective/selective are expected to show more active participation in the FNA service and to take responsibility for some of the outside cases (I/Os).
- Residents are also encouraged to review the many available cytology study sets to supplement their foundation.

Third/fourth year residents or fellows:

- Senior residents and fellows who have completed their required cytopathology training are expected to function at an advanced level, similar to a beginning cytology fellow.
- Along with the cytopathology fellow on service, the advanced-level trainee will alternate coverage of the sign-out service (previewing and writing up reports) and the FNA clinic service (performing FNA biopsies and answering the FNA phone).

FNA Service Information

- When answering pages/calls for FNAs, please obtain patient name, location, referring clinician, FNA site, and relevant history.
- The FNA service is available by phone (650-739-6692) Monday through Friday, 9AM to 5PM and can perform same day biopsies for patients who are already on campus.
- Clinicians may also refer their patients to schedule an FNA biopsy at the Head & Neck Clinic on the third floor of 900 Blake Wilbur Drive. (Check with the cytology fellow on-service for specific appointment times.)
- Additional information for patients can be found at the FNA clinic website: http://cytopathology.stanford.edu/fine_needle_aspiration.html

Supervision and Evaluation

- Daily supervision by on-service cytology attending and cytology fellow
- Written evaluation by faculty for each 1- to 4-week rotation
- Monthly 360^{o} evaluation by cytology supervisor
- Mock proficiency tests, ThinPrep certification exam, and direct evaluation of competency in performing immediate adequacy assessments of image-guided FNA

Cytopathology Goals and Objectives

Patient Care

- To develop proficiency…
    - In obtaining relevant clinical information for each case
    - In evaluating a patient for fine needle aspiration (FNA) biopsy
    - In obtaining an informed consent for FNA biopsy
- To learn appropriate…
    - Manner of communication with clinicians regarding results
    - Manner of interacting with patients and their families

Medical Knowledge

- To understand …
    - The Bethesda System 2001 terminology and how to apply it to cervical cytology diagnosis and patient management
    - The Bethesda System terminology for thyroid FNA and how to apply it to thyroid FNA diagnosis and patient management
    - The Paris System for Reporting Urinary Cytology and how to apply it to urine cytology specimens and patient management.
    - The current management recommendations for patients with cervical dysplasia
    - The proper use of ancillary studies such as HPV testing, GC/Chlamydia testing, flow cytometry, etc. in cytology samples
    - The criteria for adequacy in gynecologic, non-gynecologic and FNA cases
- To develop expertise …
    - In the interpretation of pap tests utilizing three different preparation methods (ThinPrep, Surepath, conventional)
    - In the interpretation of non-gynecologic and FNA specimens
    - In performing immediate assessment for adequacy in FNA biopsies

Practice-Based Learning and Improvement

- To locate, appraise and assimilate …
    - Relevant clinical information, radiology results, microbiology/lab results from the hospital computer system
    - Relevant information regarding prior pathology results from the lab data system
    - Journal articles pertinent to a specific topic by performing computer-based literature searches (i.e. PubMed) and be able to critically review the literature
- To use case-based learning …
    - By reviewing cytology study set cases
    - By attending the monthly Cytology Unknown conference
    - By taking the gynecologic cytology proficiency tests

Interpersonal and Communication Skills

- To communicate…
    - Results accurately and in a timely fashion to clinicians
    - Effectively with patients and their families and be able to establish rapport and sense of trust when performing FNA biopsies

- To prepare concise, complete written reports on FNA biopsies

Professionalism

- To demonstrate integrity, honesty and respect …
    - When seeing patients for FNA biopsies
    - When working with the support staff (e.g. cytotechnologists, cytology prep techs, administrative assistants, clinic nurses, etc)
    - By understanding and following the principles of patient confidentiality and HIPAA requirements
- To work effectively as a team with …
    - The cytology staff (i.e. cytotechnologists, cytology prep techs, cytology fellow, cytology attending)
    - The clinicians and clinic staff when communicating results and when performing FNA biopsies
    - The radiology staff when assessing adequacy for image-guided FNA biopsies

Systems-based practice

- To understand how to evaluate cytology cases in a cost-effective manner
- To become familiar …
    - With the QA/QC regulations that apply to gynecologic, non-gynecologic and FNA cytology
    - With general performance improvement concepts pertinent to pathology by attending the annual departmental QA lecture

Dermatopathology

Director: Jinah Kim, M.D., PhD

Goals and Objectives

Trainees are expected to acquire the following core competencies:

Patient Care

Dermatopathology is a subspecialty of both pathology and dermatology in which adequate clinical information is essential to a valid tissue diagnosis. Communication with the submitting clinician is a critical part of a dermatopathology service, and improves patient care overall. The trainee will learn how to:

- Integrate diagnostic information to develop an appropriate differential diagnosis including patient chart review, imaging studies, previous biopsies, and immunofluorescence studies.
- Develop patient management recommendations including appropriate therapy or consultation with other subspecialists (e.g. re-excision of dysplastic nevi or standard margins required in melanomas)
- Convey consultation results and recommendations for patient management to providers as appropriate including re-biopsy or re-excision.
- Maintain a log of challenging diagnostic cases and provider encounters to review for content and management.
- 5 Demonstrate by prompt action the understanding of timely service delivery and indications for rush service.

Medical Knowledge

The trainee will learn how to develop acumen with biopsy diagnosis and surgical staging each of the common types of skin lesions, including infections and inflammatory, and neoplastic conditions of the skin.

- Access current dermatopathology literature via web-based tools, texts, journals, and other sources.
- Identify the most likely diagnosis among potential differential diagnosis during daily sign-out, written examination, and unknown slide conference.
- Identify common diagnostic challenges and pitfalls in dermatopathology, which prompt consultation with aspecialist.

- Demonstrate the ability to distinguish when routine histology should be complemented by immunofluorescence, immunohistochemistry, or other tissue evaluation.
- Describe clinical correlates of histopathology as taught during didactics.
- Maintain a log of interesting/ challenging cases for teaching and presenting.

First and second year residents will perform all of the above plus:

- Describe microscopic evaluation of biopsies using appropriate histologic terms.
- Recognize the common cutaneous inflammatory patterns.
- Recognize the histology of common skin neoplasms seen in routine sign-out.
- Generate a differential diagnosis of most cases.
- Identify uses of special stains and immunohistochemical techniques.
- Describe grossing and slide-processing procedures.
- Discuss the dermatopathologic characteristics of most skin diseases at a textbook level.

Third and fourth year residents will perform all of the above plus:

- Diagnose most cases and discuss their differential diagnoses.
- Discuss diagnoses incorporating information from current medical literature.
- Apply dermatopathology learning during teaching of medical students and residents.
- Incorporate dermatopathology into case reports and review of cases.

Dermatopathology Fellows will perform all of the above plus:

Use case logs as a record review with fellowship director to provide evidence of the fellow's approach and knowledge relative to other trainees.

Practice-Based Learning and Improvement

The trainee will learn how to:

- Locate, appraise and assimilate evidence from scientific studies related to skin disease.
- To assess dermatologic databases on line for clinical information about the clinical and pathologic aspects of skin disease.
- To teach basic histology of the skin to students and other health care personnel
- Access online dermatology, pathology, and dermatopathology resources for clinical and histologic aspects of skin disease.

- Critically appraise medical literature applying principles of research design and statistics.
- Apply scientific evidence to augment patient care.
- Access, navigate, and edit the institution's patient-specific pathology database.
- Teach basic histopathology to students and other health care personnel/ colleagues.

Dermatopathology fellows will perform all of the above plus:

- Prepare a case or manuscript for meeting or journal submission.
- Teach dermatopathology to residents and students using a variety of sources.
- Present at grand rounds or case conferences.
- ***Identify a specific area for quality improvement in their own dermatopathology experience, then devise and implement a quality improvement plan and present to the dermatopathology team.***

Interpersonal and Communication Skills

The trainee will learn how:

- To maintain an ethically sound relationship with submitting clinicians, realizing that information must always pass from dermatopathologists to patient through the clinician.
- To develop dictation and report generating skill.
- Communicate results to submitting clinicians, thereby demonstrating an understanding that it is the clinician who conveys reports to the patient.
- Use feedback provided by others to improve skills or behavior.
- Dictate, review, and edit reports.
- Resolve diagnostic disagreement through verbal and written communication.
- Evaluate and be evaluated by their peers on the dermatopathology service with a 360° evaluation.

Professionalism

The trainee will learn how:

- To maintain ethical principles with respect to patient confidentiality and informed consent.
- To understand age, gender, and ethnic differences in the manifestation of skin disease.

- Arrive on time, prepared to work, and stay to the completion of the work day.

- Willingly perform the work of obtaining and reading slides, as well as generating reports.
- Accept responsibility and accountability to patients, providers, and the profession with an appropriate attitude.
- Demonstrate positive opinion for referring colleagues, patients, and staff.
- Verbally describe HIPAA policies, how they protect patient confidentiality and how they pertain to the dermatopathologist.
- Complete reports/ records punctually.
- Dress professionally.
- Serve on and provide service to the dermatopathology fellowship selection committee as required.

Systems-Based Practice

The trainee will learn how:

- To function in different types of medical practice and delivery systems that differ from each other (i.e. hospital versus private practice).
- To practice cost effectiveness that does not compromise length of stay.
- A biweekly lecture series presented by dermatopathologists in the Department of Dermatology throughout the entire academic year is offered for reinforcement of didactic material (3.5 hours weekly). This includes digital images, slide sets. Board-style final examination are provided annually.

Duties and Responsibilities of Residents by Year

First year of AP training

In the first year of AP training, the Resident is expected to attend regularly the didactic lectures in dermatopathology presented by faculty and encouraged to attend the weekly didactic lectures and unknown sessions provided by the Dermatopathology faculty within the Department of Dermatology.

While on rotation, the residents will be assigned cases and expected to review and write up the reports with appropriate diagnosis or differential diagnosis.

Attend and participate in the monthly Dermpath unknown sessions in the plasma room.

Second and Third Years of AP training and Surgical Pathology Fellows

Residents supplement practical education in dermatopathology obtained at signout with independent readings, and review of digital copies of the lectures assigned by the

dermatopathologists. These resources are located on Medhub and are taped in the Department of Pathology.

Residents are encouraged to take advantage of teaching glass slide collections that illustrate a broad spectrum of neoplastic and inflammatory diseases. This library contains numerous common and unusual examples of skin pathology. They are constantly updated and increased by the Dermatopathology faculty, who provide teaching slides regularly for the collection.

The Pathology Resident on dermatopathology rotation is encouraged to attend the weekly Dermatology Grand Rounds in which live patients are examined, their pathology reviewed and management discussed in a conference that follows the viewing. These are usually patients with difficult diagnosis or treatment issues. The Dermatology Resident and Pathology Resident on the dermatopathology elective will each present the histopathology of the cases.

Residents and fellows are strongly encouraged to spend at least one afternoon in the dermatopathology laboratory, learning the special techniques used for grossing, orientation and processing of small skin biopsies.

As available, Residents are encouraged to attend one of the dermatology clinics in order to see first hand the gross pathology of skin lesions as well as to become familiar with methods used for biopsies and excisions of skin lesions.

Introduction

At any given time the Dermatopathology service will have several trainees simultaneously rotating. Dermatopathology fellow(s) will be on service throughout the entire academic year. Dermatology residents will attend Dermatopathology (DP) sign-out during their second and third year of training for monthly rotations.

Daily sign-out will begin at 9:00 AM, except for Thursdays when sign-out begins immediately following Dermatology Grand Rounds at about 9:45 AM and for Tuesdays when the start of sign-out will be coordinated with the Dermatology lecture series in which pathology trained Dermatopathology fellows participate. While on the DP rotation, each person is expected to attend sign-out daily. Dermatology Grand Rounds are mandatory for DP Fellow(s) and Dermatology Residents and recommended for Pathology Fellows and Residents on rotation.

Educational Goals

The dermatopathology rotation for SP residents is intended to extend knowledge in dermatopathology through examination, clinical correlation, and interpretation of dermatopathologic biopsies. At the conclusion of the rotation, the SP resident is expected to recognize the major patterns of inflammatory and neoplastic skin disease, construct a list of differential diagnostic possibilities, and achieve the final diagnosis.

General

All trainees are expected to preview the day's slides and read about the respective disease entities.

For Pathology Residents and Fellows and Dermatology Residents, vacations should not exceed one week while on DP. Please inform the attending on service and your fellow residents of planned vacations. It is your responsibility that your area of the service is covered during your absence.

Rotating Surgical Pathology (SP) Residents and Fellows should also read the "in-depth responsibilities for surgical pathology residents and fellows" that follows this information.

Expectations

For SP Residents and SP Fellows:

- Pathology residents and fellows are responsible for the organization of "in house" cases (i.e. cases that come from Stanford Dermatology Clinics). This role includes organizing levels, IPOX material, prior pertinent biopsy slides or reports etc., in preparation for sign-out.
- Are expected to preview their cases prior to sign-out, read on the respective disease entities and pull relevant prior material (e.g. melanomas, lymphomas, and unusual inflammatory conditions).
- Following sign-out, SP residents and fellows are responsible for dictating the final report for in-house cases or submit for transcription. (See also responsibility hints)
- In the afternoon, the SP resident is encouraged to work on research projects and read dermatopathology-related texts.
- SP trainees should understand ancillary diagnostic techniques, as they pertain to dermatopathology (including immunofluorescence, electron microscopy, immunophenotyping, and molecular diagnostics).
- SP Residents should attend the weekly Surgical Pathology teaching conferences held Tuesday through Friday mornings in L201. Residents are encouraged to attend Thursday morning Dermatology Grand Rounds. SP residents interested in dermatopathology should attend Tuesday AM teaching sessions at RWC, while on rotation.
- There is no overnight or weekend "call" duty.
- SP Residents should complete assigned tasks in a timely manner.

Stanford Dermatopathology Service

Hints for Dermatopathology Fellow(s), Surgical Pathology Fellows and Residents

Welcome to Dermatopathology. The following serves to provide basic hints to assist in responsibilities of surgical pathology residents and fellows who rotate on Dermatopathology.

Sign-out begins at 9 a.m. (except on Thursday, when it starts at approximately 9:45 a.m. due to Derm Grand rounds) and is usually complete by 12:00 noon.

Residents are expected to preview the slides independently in the morning of sign-out. In house cases will be signed out the same day they arrive from histology.

Hints:

- **Maintain organized paperwork and slides Obtain**
- **pertinent prior biopsy reports and slides**
-
- **Organize, review, and interpret all slides and levels**

Organize, review, and interpret all IPOX and special stains

Things to do prior to sign- out:

1. Check the computer for prior biopsies on the patient and pull relevant historical slides (e.g. dysplastic nevi and melanoma excisions or lymphomas). In general, you do not need to pull prior BCCs, SCCs, AKs, etc., but if the case is complicated or unusual, then you may wish to obtain these slides (e.g. in cases with discrepancy in diagnosis between the initial biopsy and the subsequent excision.)

2. Proof the draft copy of the report: Is the clinical information accurate? (i.e. compare the transcribed information on the draft copy to the handwritten information on the original requisition) Is the gross description correct?

At the time of sign- out:

1. Pencil in the diagnosis (with comment, if necessary) on the white draft copy of the final report.

2. If the case is held for special studies (i.e. levels, stains, IPOX), pencil in this information on the draft copy. This measure promotes efficiency and assists the continuity of patient care.

After sign- out:

1. If a case is pending levels/special stains, keep the slides and paperwork together in an organized fashion.

2. For simple diagnoses, Administrative associates may assist in transcription services. For more complex diagnoses or comments, please dictate the final diagnosis (via Voicebrook), or type it yourself via Power Path (Macro modules are available on the derm computers). Dictate corrections to the clinical and gross sections (or correct them yourself, via Power Path).

3. Points to remember in your dictations:

   Inside cases do not require margination, unless otherwise stated.

   In the line diagnosis, use "BIOPSY" for biopsies, and "EXCISION" for true excisions.

   Do not differentiate between shave and punch biopsies, just designate them as "biopsy" on the bottom line.

   If levels were performed please mention that in the "microscopic" or "comment" as "multiple leveled sections were examined" (VL macro)

   If the outside slide consults required additional levels performed at Stanford, please use the 88323 comment.

   If special stains/IPOX stains were performed and used in the final interpretation, we must mention them in the "microscopic" or "comment" sections of the report.

   When using the "macros" microscopic descriptions, modify them as necessary to fit the case, eg, if your case of lichen planus fails to show a "dense lichenoid infiltrate," then strike that from the description.

4. After dictating (or typing) the case, place the *final paperwork* on the file box for the appropriate attending. The *final paperwork* should include the white draft copy with your scribbled diagnoses, the original requisition, as well as the IPOX interpretation forms.

5. Other information:

   The dermpath phone ("hotline") number is 498-7396. To access voice mail type 3-1111 and then the password "DERMPA" (337672).

6. Blocks:

   Administrative associates may assist in obtaining outside blocks.

Forensic Pathology

Director: Joseph O'Hara, MD

The forensics rotation is a required one-month rotation. Residents complete the forensics requirement at the Santa Clara County Medical Examiner-Coroner's Office. All residents are encouraged to take full advantage of the opportunities provided by this rotation. This includes going to scenes and attending court. Previous residents have found this experience extraordinarily informative and valuable. If you have planned a vacation during this rotation, one week is allowed; the Stanford Program Coordinator as well as the relevant Coroner's office should be notified well before the commencement of the rotation. For the most part, residents are excused from intradepartmental conferences during the forensic rotation.

Contact Information

Joseph O'Hara, MD
Assistant Medical Examiner-Forensic Pathologist
Email: joseph.o'hara@mec.sccgov.org
Telephone: 408-793-1900

Santa Clara County Medical Examiner-Coroner Office 850
Thornton Way

San Jose, CA 95128

http://www.sccvote.org/portal/site/coroner/

There is a parking lot in front of the building. The Coroner's Office will provide VMC scrubs when you arrive at the facility.

On your first day of the rotation, please report to the Santa Clara County Medical Examiner Office at 8:00am and report directly to Dr. O'Hara.

Goals and Objectives

Patient care

- To acquire the ability to properly complete the "cause of death" and "manner of death" sections of the death certificate and understand the difference between "cause", "mechanism", and "manner of death".

- To understand the difference between and the reason for medicolegal autopsies and hospital autopsies.

- To attempt to complete a minimum of 10 autopsies during the rotation.

- To develop proficiency in all aspects of prosecution and autopsy techniques, including standard dissection and removal of organs, including brain and spinal cord.

- To develop proficiency in selection and performance of routine and special (e.g., viral or fungal) cultures in the autopsy setting.

- To develop proficiency in procurement and preservation of special body fluids (vitreous fluid, bile, urine) for potential toxicology studies.

- To develop proficiency in removal of spinal fluid from adults and infants.

- To learn appropriate collection techniques for molecular biologic studies.

- To learn appropriate collection techniques for trace evidence.

Medical Knowledge

- To become familiar with means of identification of unknown victims.

- To become familiar with factors used to help establish time of death, including livor mortis, rigor mortis, algor mortis, insect activity, chemical tests, decomposition and the limitations of these factors.

- To recognize postmortem artifacts such as insect bites, animal destruction, pressure artifacts, postmortem injury, Tardieu spots, Tache noire and decomposition.

- To be aware of the cardiovascular, respiratory and central nervous system diseases, which most commonly result in sudden death.

- To be able to identify the characteristics and identifying criteria of the following types of gunshot wounds: entrance and exit gunshot wounds, contract wounds, near or distant range wounds.

- To be able to discuss the significance of examination of the clothing in forensic cases.

- To become familiar with suicidal deaths, the most common means, reasons and findings at the scene and at autopsy.

- To understand basic concepts of disease and correlation with morphology.

- To develop expertise in correlation of autopsy findings with clinical course.

- To demonstrate an investigatory and analytic thinking approach to autopsy pathology.

Practice-based learning

- To use case-based learning as a tool for additional insight into disease pathogenesis.
- To locate, appraise, and assimilate pertinent evidence from scientific studies.
- To demonstrate effective problem solving skills, using a wide variety of information resources.

Interpersonal and communication skills

- To develop proficiency in presentation of autopsy findings to pathologists, law enforcement, and clinicians, at conferences at which autopsy cases are presented.
- Attempt to dictate all performed autopsies from the provided resident dictation template.
- To use effective writing skills to generate the autopsy report.
- To teach interns who are participating in autopsy rotations. In this role, the resident will develop the ability to explain what is being done during the dissection, clarify clinicopathologic issues, and direct interns to other resources including appropriate faculty with specific expertise.
- To review pertinent gross findings in person with the relevant medical personnel involved in the patient care.

Professionalism

- To demonstrate respect, compassion, and integrity in the performance of the autopsy.
- To understand that the autopsy report may be read by a wide variety of medical and non-medical readers, and write the report in a manner sensitive to needs of family members.
- To complete written reports in a timely fashion.
- To work effectively as a team with autopsy staff, and treat technical and administrative staff with respect.

Systems-based practice

- To become familiar with the working relationships between the medical examiner and legal authorities, media representatives and governmental agencies.

- To understand the role of autopsy in quality assurance of medical care.

- To understand the role of the autopsy in determination of cause of death, and its impact upon epidemiologic studies using death certificate data.

- To be able to establish a chain of custody for potential forensic cases.

- To become familiar with OSHA requirements and assure that these requirements are met during the performance of the autopsy.

- To understand the risks of formalin and other commonly used solutions and how to minimize exposure.

- To become familiar with state and local laws governing reporting of communicable diseases.

- To understand and practice the concept of "universal precautions."

- To understand the rationale and necessity for hepatitis B vaccination and annual tuberculosis testing.

AP – Tissue Hematopathology

Rotation Director: Brent Tan, MD, PhD

Goals and Objectives

Patient care

Be familiar with a wide variety of adult and pediatric hematologic disorders

Develop competency in reactive and neoplastic lymphadenopathies, including correlating morphology with ancillary tests used for diagnosis, such as special stains, tissue immunohistochemistry, flow cytometry, FISH, cytogenetics and molecular diagnosis

Correlate clinical findings with morphology and ancillary studies

Learn appropriate selection of ancillary diagnostic tests

Become familiar with diagnoses that need to be reported urgently (critical values/urgent diagnoses)

Medical knowledge

Develop basic knowledge of the clinical, pathogenetic, morphologic, immunophenotypic and genetic features of the more common diseases of the hematopoietic system

Understand the significance of various hematologic diagnoses in determining treatment plans

Become familiar with outcomes and prognoses of common hematologic diseases

Interpersonal and communication skills

Communicate clearly with clinical colleagues to obtain clinical information in case evaluation

Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports

Work closely with fellows and staff in ancillary testing laboratories and outside hospitals to coordinate and communicate issues related to diagnostic cases for timely and appropriate handling of slides, blocks, reports etc.

Promptly communicate urgent diagnoses to relevant parties and document these communications in writing.

Professionalism

Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case

Work effectively and efficiently with support and administrative staff at Stanford and at outside hospitals from where cases are sent to maximize productivity and maintain the quality of the work environment

Complete written reports in a timely fashion

Systems-based practice

Learn the process of case evaluation and work-up of lymph node cases

Optimize efficiency and turn-around-time through working with laboratory, administrative and clerical staff to obtain all necessary information related to the patient's diagnosis and ancillary testing results from outside hospitals or clinical colleagues that will be needed to sign-out cases

Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care

Begin to develop awareness of issues in coding and billing

Practice-based learning

Use case-based learning as a tool for additional insight into the basis of disease

Locate, appraise and assimilate pertinent data from scientific studies

Demonstrate effective problem solving skills in diagnostic hematopathology using a wide variety of information resources, including laboratory and hospital information systems

Relevant ACGME Core competencies

Our expectation is that first year trainees aim to satisfy level 2 or make progress in satisfying level 2 of the core competencies during the rotation. Relevant excerpts from level 2 are provided below along with comments in italics:

Understands rationale for the critical value list; knows the critical value list and participates in the critical value call-back of results

> *Trainees will communicate urgent diagnoses and appropriately document these communications in the written report. In the context of this rotation, urgent diagnoses include but are not limited to changes in diagnosis of an outside case, which must be reported to both the clinical team at Stanford and to the referring institution; and new/unexpected diagnoses that require urgent action, such as acute leukemia, infection, hemophagocytic lymphohistiocytosis, etc.*

Prepares a draft consultative report (verbal or written)

Trainees will prepare a draft report based on their preview of the clinical history and slides.

The draft report will become more comprehensive as the rotation progresses.

It is expected that trainees take notes during signout such that the draft report reflects the diagnostic points reviewed during signout.

Begins to make connections between clinical differential diagnosis, gross, and microscopic pathologic findings.

Trainees will develop a differential diagnosis that includes reactive and neoplastic conditions.

Generates a list of next steps (ancillary testing; has awareness of options available) needed to refine differential in the clinical context

Trainees will gain familiarity with the more commonly used immunostains and cytogenetic/FISH studies.

Trainees will understand the utility of PCR-based clonality testing.

Distinguishes normal from abnormal histology and recognizes confounding factors

Attends and contributes to gross and microscopic conferences

Brings clinical/ancillary information to sign-out (e.g., radiology, prior cases, reading about case)

Trainees are expected to obtain the relevant clinical history of a case from EPIC prior to signout.

If necessary, trainees will communicate with the clinical team to obtain relevant information not available in EPIC.

Is aware of accepted standards for turn-around time

Reports are expected to be completed promptly following signout and no later than 24 hours after the complete signout of the case.

Becomes familiar with synoptic reporting

Trainees are expected to enter synoptic tables for cases with applicable synoptic worksheets in PowerPath, including new diagnoses of AML and DLBCL.

Demonstrates textbook-level diagnostic knowledge for pathology

Trainees will demonstrate a basic familiarity with the common entities in the recommended readings.

Length of Rotation: 4 weeks

The Resident's Day

1) Two types of cases will be signed out on this service and include heme I/O cases and inside surgical cases with a hematologic diagnosis. The latter will be seen by the Hotseat and then given to the resident for sign-out with the Tissue heme attending.

2) Each day, the resident should preview all cases accessioned to the service for sign- out the following day, or for urgent cases, the same day.

3) During preview of heme I/O cases, the resident should pay particular attention to whether all relevant material/information necessary to sign-out the case (slides, reports, immunostains, reports of ancillary studies such as flow cytometry or cytogenetics) is available.

4) If information is missing, contact the outside hospital pathology department to request necessary information/reports/immunostains/blocks. When in doubt, consult the Tissue heme attending or hematopathology fellows.

5) The resident will be responsible for all clinical questions addressed to the service regarding heme cases (with the exception of bone marrows), including ancillary IPOX, flow and molecular studies that may be pending.

6) At 9:30-10:00 AM each day, the resident will collect the accessioned cases for the day and sign-out with the Tissue heme attending at an agreed upon time, typically after 10 am.

7) The resident will contact clinicians for additional clinical history or call outside laboratories for blocks or additional information as necessary.

8) Following sign-out with the Tissue heme attending, the resident will write the reports. Cases must be written and forwarded to the attending for sign-out in a timely manner. The heme I/O slides and paperwork must be available to the attending for re-review (place in attending mailbox).

9) The resident will promptly communicate urgent diagnoses to the relevant parties and will document these communications in the report including date, time, what was communicated, and to whom.

10) For inside surgicals, the resident will check the cases with Hotseat within a reasonable amount of time before or following forwarding the report to the heme attending.

11) If ancillary studies, including immunohistochemistry, are needed, the resident will order the appropriate studies immediately after sign-out.

12) The afternoons will be spent on the heme IPOX sign-out with the heme fellows and heme consult attending. The resident is responsible for previewing IPOX stains on their own cases. The heme IPOX sign-out will begin around 3:30 pm each day.

13) The resident should touch base with the Tissue heme attending periodically regarding pending cases, and must bring the cases to their attention and re-review if the pending case volume exceeds 10 cases.

14) A pre- and post-test of 7 digital slides will be administered during the first and last weeks of the rotation and reviewed with the attending on-service for those weeks. These slides are stored on the aperio.stanfordmed.org website, and are labeled under

the data group “Heme teaching cases”.

Conferences

Surgical Pathology morning and noon conferences
Monday: 12:00 noon Current Concepts seminar series
Wednesday: 12 noon Hematology medicine conference
Tuesdays 1:00 -2:00pm Hematopathology educational conference
1st Tuesday of block – fellow conference (residents not required to attend)
2nd Tuesday of block – resident conference (residents required to attend)
3rd Tuesday of block – lab heme conference (residents required to attend)
4th Tuesday of block – fellow-run journal club (residents required to attend)
Thursdays 1:00-2:00pm Hematopathology consensus conference (residents required to attend)

Study Sets

Professor Ronald F. Dorfman has dedicated his lifetime collection of hematopathology cases to the Department of Pathology. This phenomenal study collection, spanning all aspects of lymph node pathology, is housed in room H1401-H. Residents are highly encouraged to avail themselves of this study collection as it is not possible to see a wide breadth of cases during a one-month rotation. Independent study is strongly recommended to supplement sign-out sessions.

Major Texts and Learning Resources

Swerdlow et al. *WHO Classification of Tumours of Hematopoietic and Lymphoid Tissues*, WHO Press (2008). Chapter 10: Mature B-cell neoplasms, Chapter 12: Hodgkin lymphoma, and Chapter 13: Immunodeficiency-associated lymphoproliferative disorders are recommended readings for the rotation.

Arber DA, Orazi A, Hasserjian R, Thiele J, Borowitz MJ, Le Beau MM, et al. The 2016 revision to the World Health Organization classification of myeloid neoplasms and acute leukemia. Blood [Internet]. 2016 May 19 [cited 2016 Jul 14];127(20):2391–405. Available from: http://www.bloodjournal.org/cgi/doi/10.1182/blood-2016-03-643544

Swerdlow SH, Campo E, Pileri SA, Harris NL, Stein H, Siebert R, et al. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. Blood [Internet]. 2016 May 19;127(20):2375–90. Available from: http://www.bloodjournal.org/content/127/20/2375.long

DP O’Malley, TI George, A Orazi, SL Abbondanzo. Atlas of Nontumor Pathology, First Series, Fascicle 7: Benign and Reactive Conditions of Lymph Node and Spleen. American Registry of Pathology & Armed Forces Institute of Pathology, Washington DC (2009).

Weiss, LM. Lymph Nodes, Cambridge University Press (2008).
Jaffe ES, Harris NL, Vardiman JW, Campo E, Arber DA, eds.Hematopathology. Philadelphia: Elsevier, 2011

Supervision and Evaluation

The hematopathology fellow will triage the I/O cases that will be signed out by the Tissue heme resident. Generally, the fellow will focus the I/O cases on basic lymph node and/or bone marrow cases (particularly staging marrows for lymphoma) while the fellow will retain more complex I/O cases. However, the I/O workload and fellow coverage for the consult service can vary, and at times, the Tissue heme resident may be assigned more complex cases, including bone marrows. The Tissue heme attending is responsible for providing feedback to the fellow regarding the appropriateness of cases. Excess cases will be taken by the tissue heme attending directly in order of least educational value.

The Resident's work will be supervised by an attending hematopathologist at all times.

The Resident will be evaluated on his/her overall performance through the MedHub system in addition to in person feedback by attendings during the course of the rotation.

Workflow for Inside Lymph Node Cases

SURGICAL PATHOLOGY RESIDENT/PA: ACCESSIONING/GROSS ROOM (DAY 0)

Accession

Follow lymph node protocol for freezing, flow etc

HOTSEAT FELLOW REVIEW (DAY 1)

Review slides

Check flow before initiating IPOX, if appropriate (consult heme fellow or attending if necessary)

Give slides to assigned Hemepath Resident

TISSE HEME RESIDENT REVIEW (DAY 1)

Preview slides

Check flow status, IPOX status; Check clinical history in EPIC and history in PowerPath; pull priors as necessary

TISSUE HEME RESIDENT (DAYS 2+)

Sign out with Tissue heme attending

Follow up on any ancillary study orders etc noted during signout

Write up report and forward to Tissue heme attending

Convey diagnosis to Hot Seat Fellow

Neuropathology

Director: Hannes Vogel, MD Don
Born MD PhD, Ed Plowey, MD PhD

Read this first

1. All cases for frozen section and/or signout require background checks for prior pathology, history and radiological findings. Bring prior pathology slides to the frozen section and to signout.

2. Dory Palacio, NP office assistant, is available to pull archival slides from both NP and Surgpath. Do not waste your time pulling slides.

3. Preview the OR cases at SHC, and LPCH for potential frozen sections the evening before and recheck in the morning and afternoon for add-ons or cancellations.

4. 25924 is the pager to be used while on the NP rotation. Please do not forward this number to your personal pager.

5. Do not assume responsibility for a NP frozen section without the attending neuropathologist and/or NP fellow present for supervision.

6. Epilepsy specimens are fixed whole in formalin and treated like autopsy brain specimens after dissection with the attending neuropathologist.

7. You are immune from frozen sections or any other service matters while you are at morning conferences between 8 and 9 AM.

8. You should not be asked to carry out patient-related tasks by staff, including office assistants or histotechnologists. Please decline these requests and pass them along to the director or attending on service.

9. If a neurosurgeon does not have tissue ready upon entering the OR, please politely request that they call when it is ready and leave the room. I (HV) will take full responsibility for this.

10. Note: Any NS frozen section request occurring between 6pm and 8am or on the weekends, requires at least 2 hours advance notice, or we cannot guarantee availability in less than 60 minutes. The neurosurgeons have been reminded of this repeatedly. We do not ask them if they will need a frozen section after hours. That is their responsibility.

11. Feel free to listen to music etc. at your workstation with headphones, and food at some time other than signout.

Introduction

On the neuropathology rotation, you see mostly brain, spine, muscle, and nerve biopsies, occasionally with metastases from other locations. You typically preview and show your cases to the attending neuropathologist the same day the slides come out.

Weekly Activities

Monday	7:30 AM	pediatric tumor board (1st floor LPCH, Parker conference room 1644)
	5:00 PM	interesting case conference (1st and 3rd Monday of the month)
Tuesday	1:30 PM	brain cutting (morgue)
	5:00 PM	muscle / nerve conference (3rd Tuesday of the month)
Friday	11:30 AM	Neuropathology Journal Club. Each participant presents a paper informally (free lunch)
Friday	1-2 PM	adult tumor board (Stanford Cancer Center)

Daily Schedule

8:00 AM - 9:00 AM	morning conference
9:00 AM - 11:00 AM	check greaseboards, ask Dory to pull all prior pathology in cases for frozen section, preview
11:00 AM - 12:00 PM	sign-out
12:00 PM - 4:00 PM	get neuropathology immunohistochemistry, preview
4:00 PM - 5:00 PM	sign-out
5:00 PM - 6:00 PM	Check for next day adult and pediatric frozen section cases and email summary to the attending neuropathologist (HV, DB, EP).

Call and Frozen Sections

1. Call

A. You are on call for frozen sections Monday to Friday, 9:00 AM to 8:00 PM, so wear scrubs daily.

B. During off hours, the surgical pathology or neuropathology fellow is on call, and should arrange that with them.

C. The attending neuropathologist is on call continuously, but off hours must be notified by the neurosurgeon 2 hours ahead of time.

2. Frozen section handling

A. The paperwork is the same asfor general surgical pathology frozen sections.

B. The attending neuropathologist will evaluate the specimen first and instruct you on how and when to do a touch prep, squash prep, or frozen section. Do not freeze or squash tissue prior to reviewing with the attending neuropathologist.

C. Frozen section guidelines

1) **ONLY use a -22 C microtome.** For the first frozen section of the day, be sure to put in a fresh blade. Put in a small round chuck and allow the OCT to freeze until the top is slightly damp. This way, the specimen sticks to the chuck better and is less likely to chunk out. Do **NOT** use the new chuck system. Changing the blade after a case is not necessary.

2) For small biopsy specimens, **ONLY** use sterile blades to manipulate the specimen. Do **NOT** use forceps or the cotton end of an ink applicator. If you need to ink a small biopsy specimen, **ONLY** use the wooden end of the applicator.

Stanford Main Operating Room (MOR) and Ambulatory Surgery Center (ASC) schedules

1) For the next day's schedule, log into Epic, from the top menu click "Reports", click "OR Reports," and select "Surgical Cases". A new dialog box should appear.
A) Click on the folder labeled with your name and ID number.
1] In the "Criteria" tab:
a) Under "Status", click on the "!" box, click the magnifying glass, select "Scheduled", and click "Accept".
b) Under "Search Options", click "+ Location"; under "Location", click the empty box, click the magnifying glass, select "Stanford Hospital Main OR", and click "Accept". Click the next empty box below, click the magnifying glass, select "Stanford Hospital ASC", and "Accept".
c) Under "Search Options", click "+ Services"; under "Services", click on the empty box, click on the magnifying glass, select "Neurosurgery", and click "Accept".
d) Under "Search Options", click "+ Surgery Date"; under "Surgery Date", next to "Start date:" click the empty box and type T+1. Next to "End date:" click the empty box and type T+1.
2] Click the "Display" tab. Under "Column Name" select "Priority" and click "Remove <". Under "Available Columns" select "Case Time" and click "Add >". Similarly, add the "Case End Time" and "Case Room" columns. You can rearrange the order using the up and down arrow boxes at the upper right of the dialog box.
3] At the bottom of the dialog box, click "Save". Next to "Name:", click the box with the "!" and type "neurosurgery tomorrow". At the bottom of the dialog box, click "Save". This saved search should now be available whenever and wherever you log in.
(at a later time open this search and change the dates to T for today and save that search

as “neurosurgery today” so that you can recheck the schedule every morning for changes) (also suggest saving another set of searches similar to about except designate the service as “otolaryngology head and neck surgery” since occasionally those cases that include CPA tumors such as meningiomas and schwannomas are run by both neurosurgery and ENT but the cases only come up in searches that specify the otolaryngology service, save these searches as “otolaryngology today” and “otolaryngology tomorrow”, you only need to list the case if you identify an associated neurosurgeon on the case)
4] At the bottom of the dialog box, click “Run”. A new tab should appear in Epic labeled “Reports”, listing the neurosurgical reports for the next day.
B) The next time you want to perform the search, from the top menu click “Reports,” click “OR Reports,” and select “Surgical Cases”. From the new dialog box, just select your “neurosurgery” search and at the bottom of the dialog box click “Run”.
C) To get basic info on the procedure, pre-op diagnosis, and longer list of surgeons, right click on the case to open the menu and then left click on “expand”.
D) To open the chart, right click on the case and left click the “Open chart” button. A new tab should open. Click on “Chart Review” to the menu bar at the far left. The use clinic notes, letters, and radiology to get history, radiographic features and pre-op differential diagnosis.

2) To check the progress of today’s cases, use the greaseboard. Log into Epic, from the top menu click “Reports”, click “OR Reports,” and select “Status Board”. A new dialog box should appear.
A) Click on the folder labeled with your name and ID number.
1] In the “Criteria” tab, next to “Date:” click the empty box and type T. Under “Available Settings on the left” in the “public” folder click on “ASC Control Desk Grease Board”.
2] At the bottom of the dialog box, click “Save”. Next to “Name:”, click the box with the “!” and type “ASC Status Board”. At the bottom of the dialog box, click “Save”. This saved search should now be available whenever and wherever you log in.
(follow above #s 1 and 2 but select the public folder “MOR Status Board” and save that as well).
3] At the bottom of the dialog box, click “Run”. A new tab should appear in Epic labeled “Reports”, listing the neurosurgical reports for the day.
B) The next time you want to perform the search, from the top menu click “Reports”, click “OR Reports,” select the appropriate status boards and click run to see the status of ongoing cases.
C) To open a chart, simply select the case and click the “Hospital Chart” button.

Lucille Packard Children’s Hospital (LPCH) schedules

1) For the next day’s schedule, log into Epic, from the top menu click “Peri-op tools”, click “OR Reports,” and select “Surgical Cases by service”. A new dialog box should appear.
A) Click on the folder labeled with your name and ID number.
1] In the “Criteria” tab:
a) Under “Status”, click on the “!” box, click the magnifying glass, select “Scheduled”, and click “Accept”.
b) Under “Search Options”, click “+ Location”; under “Location”, click on the empty box, click on the magnifying glass, select “MOR”, and click “Accept”.
c) Under “Search Options”, click “+ Services”; under “Services”, click on the empty box, click on the magnifying glass, select “Neurosurgery”, and click “Accept”.
d) Under “Search Options”, click “+ Surgery Date”; under “Surgery Date”, next to “Start date:” click the empty box and type T+1. Next to “End date:” click the empty box and type T+1.

2] Click on the "Display" tab. Under "Column Name" select "Priority" and click "Remove <". Under "Available Columns" select "Case Time" and click "Add >". Similarly, add the "Case End Time" and "Case Room" columns. You can rearrange the order using the up and down arrow boxes at the upper right of the dialog box.
3] At the bottom of the dialog box, click "Save". Next to "Name:", click the box with the "!" and type "Peds neurosurgery tomorrow". At the bottom of the dialog box, click "Save". This saved search should now be available whenever and wherever you log in. (at a later time open this search and change the dates to T for today and save that search as "Peds neurosurgery today" so that you can recheck the schedule every morning to make sure the schedule has not changed)
4] At the bottom of the dialog box, click "Run". A new tab should appear in Epic labeled "Reports", listing the neurosurgical reports for the next day.
B) The next time you want to perform the search, from the top menu click "Reports," click "OR Reports," and select "Surgical Cases". From the new dialog box, just select your search and at the bottom of the dialog box click "Run".
C) To get basic info on the procedure and pre-op diagnosis, right click on the case to open the menu and then left click the "Open chart" button. A new tab should open. Click on "Chart Review" to the menu bar at the far left. The use clinic notes, letters, and radiology to get history, radiographic features and pre-op differential diagnosis.

** The main adult neurosurgery surgeons are Drs. Chang, Dodd, Harsh, Li, Shuer, Steinberg, Jackson, Mindea, Park, Ratliff, Waters, and Hayden.
** Dr. Ryu and Dr. Jackson are from PAMF and the history +/- radiology can be hard to obtain and/or only available at the last minute)
** The main LPCH neurosurgeons are Drs. Edwards, Grant, and Cheshier.
You should generally list cases that are for possible tumors, infections (lower probability of frozen call) and possible inflammatory disorders. Frozens sections are usually not called for during muscle/nerve biopsies for non-tumor disease, non-tumor spinal surgeries, and vascular malformations.
E. If cases require outside history, blocks, or slides, ask Dory Palacio to obtain these.

3. Brain cutting

A. Write any gross findings and the list of sections taken (including laterality, i.e. left or right) on the block summary page.

C. Using the templates, write up the gross description and send the case to the attending neuropathologist's box in PowerPath.

D. The following week, the attending neuropathologist will give you the slides to preview in the morning, and sign out the case with you after brain cutting. Write up the case, and send it to the attending neuropathologist in PowerPath for final sign-out.

E. You can count these cases as autopsies for ACGME at https://www.acgme.org/residentdatacollection

4. Special stains and tests

A. To order regular stains on paraffin blocks, use PowerPath as usual.

B. To order neuropathology-s pecific stains, e.g. Bielschowsky or LFB, use either the order form or the stains list to the left of Marty's computer. It was relatively rare so I usually just

asked Marty directly how to order many of these.

C. MGMT testing on glioblastomas and gliosarcomas

1) Write the request on the stains list to the left of Marty's computer.

2) He will cut scrolls and place them into a test tube labeled with an accessioning sticker.

3) Fill out the molecular pathology order form on the shelf above your desk, next to a stack of small orange envelopes, including the patient's name, sex, date of birth, and medical record number.

4) Label a small orange envelope with the accession number, block number, and "MGMT". Put the tube in, staple it to the form, and give it to Accessioning to send to Hillview and track in MYSIS/Sunquest.

Tumor Boards

1. The day before each tumor board, Dory will print a list of cases and put the slides and reports into flats. On Thursdays and Fridays, at the end of the afternoon sign-out, review the cases with the attending neuropathologist.

2. Adult neurology tumor board

A. Preselect single or a few illustrative slides at Friday morning signout for presentation with the projection microscope in the Cancer Center conference room , 2nd floor.

3. Pediatric neurology tumor board

A. The attending neuropathologist will assist in taking pictures for you to put into PowerPoint. Prepare one or two PowerPoint slides per case.

B. Arrive at the 1st floor LPCH, Parker conference room 1644 at 7:25 AM to copy the file to the computer. The radiologist typically sets up the projector.

Journal Club

1. Before Friday, prepare a journal article at least loosely related to neuropathology to verbally present. Do not make copies of the article.

2. The department will pay for lunch at the sandwich / burrito place.

Required reading

Manual of Basic Neuropathology. Escourolle & Poirier. At least Chapter 1. On the desktop of the resident's workstation computer with dicom sign in.

Other recommended texts:

1) Ellison and Love Neuropathology Atlas

2) WHO 2007 Classification of CNS Tumours

3) AFIP Fascicle: Tumors of the Central Nervous System, by Burger and Scheithauer

4) Greenfield's Neuropathology, 8th Edition.

5) Fuller and Goodman: Manual of Basic Neuropathology

6) Vogel. Nervous System.

Goals and Objectives in Core Competencies

Patient Care

- To develop proficiency in diagnosing common neoplastic, degenerative, reactive, and metabolic conditions involving the brain and spinal cord, their coverings, and skeletal muscle and peripheral nerve by examining frozen and permanent sections of lesions of the nervous system.

- To learn appropriate methods of intraoperative diagnosis, grossing techniques, special stains and immunohistochemistry, and electron microscopy that are applicable to neuropathology.

- To learn to correlate clinical, radiological, laboratory and electrodiagnostic features important to the accurate diagnosis of neuropathological conditions with neuropathological findings.

Medical Knowledge

- To be familiar with the pathogenesis and typical morphology of diseases of the central nervous system, muscle and peripheral nerve.

- To understand the natural history, effects of treatment, and prognosis of common neurological diseases.

- To understand the role of the nerve and muscle biopsy in the evaluation of neuromuscular disease.

- To develop expertise in developing a differential diagnosis based upon clinical and laboratory information along with the gross and microscopic findings in each case.

Practice-Based Learning and Improvement

- To use case-based learning as a tool for additional insight into the basis of disease.

- To locate, appraise, and assimilate pertinent evidence from scientific studies

- To demonstrate effective problem solving skills in diagnostic neuropathology, using a wide variety of sources of information.

Interpersonal and Communication Skills

- To present surgical and autopsy neuropathology case findings effectively.

- To prepare concise, complete written neuropathology reports in surgical and autopsy neuropathology.

- To use effective verbal communication in the frozen section diagnosis setting.

- To participate in regularly scheduled neuropathology conferences (see below).

Professionalism

- To complete written reports and dictations in a timely fashion.

- To work effectively and with proper respect as a team with technical and administrative staff.

- To interact in a professional, helpful manner with clinicians in the performance of frozen sections and intraoperative consultations.

Systems-based practice

- To understand the role of quality assurance in diagnostic neuropathology by attending the group discussion of difficult cases twice a month.

- To practice cost-effective medicine in the selection of special studies as applied to neuropathology cases.

Pediatric and Developmental Pathology Service, Surgical Pathology

Overview

As defined by the Accreditation Council for Graduate Medical Education (ACGME), "Pediatric Pathology is the practice of pathology concerned with the study and diagnosis of human disease manifested in the embryo, fetus, infant, child and adolescent." With the creation of the Adolescent and Young Adult (AYA) Program at Stanford, it is also expected that the Pediatric and Developmental Pathology Service will be increasingly involved with the evaluation of pediatric and developmental disorders from patients spanning beyond adolescence. This document describes the goals, objectives and responsibilities of those participating on the Pediatric and Developmental Pathology Service in Surgical Pathology.

Goals and Objectives

The goal of the Pediatric Pathology fellow will be to gain competency, proficiency and diagnostic excellence in the practice of Pediatric Pathology. At the conclusion of their experience, the successful trainee will demonstrate competence commensurate with their level of training according to the following ACGME competencies:

Patient Care and Procedural Skills

- Provide compassionate patient-centered care
- Obtain a satisfactory level of diagnostic competence and procedural skill by working-up common and unusual pediatric, perinatal and developmental cases and autopsies using basic grossing and histopathologic techniques (i.e. histochemistry, immunohistochemistry, electron microscopy, etc.)
- Process suspected solid tumor tissue specimens according to the Pediatric Solid Tumor Protocol (available in writing upon request) to ensure allocation of fresh tumor samples for ancillary and genomic testing
- Be generally familiar with the pathology recommendations/requirements set forth by the Children's Oncology Group and other prominent pediatric clinical trial organizations
- Interpreting the results of laboratory assays used in pediatric pathology, to include immunopathologic and histochemical assays and molecular techniques, including diagnostic assays for metabolic diseases

Medical knowledge

- Gain an understanding of many common pediatric, developmental and perinatal medical disorders, malformations, sequences and syndromes (e.g. Hirschsprung disease, inflammatory bowel disease, cystic lung lesions, cystic fibrosis, placental pathology, etc.)

- Integrate cytogenetics and molecular diagnostics in the evaluation of pediatric and developmental disorders by becoming familiar with their most common chromosomal and molecular abnormalities

- Gain an understanding of ultrastructural techniques such as electron microscopy to evaluate possible diseases such as primary ciliary dyskinesia and possibly medical/metabolic liver and kidney disease

Practice-based Learning and Improvement

- Utilize the medical literature to learn about new diagnostic techniques and pathologic indicators of prognosis and targeted therapies that form the basis of Precision Health

- Participate in Quality Assurance/Quality Improvement projects and initiatives that will promote diagnostic uniformity and consistency among Pediatric Pathology faculty and ensure that our diagnostic procedures and techniques meet or exceed the national standard. The fellow will be required to work on at least 1 project (with a resident) and present the findings at the monthly departmental QA/QI conference

- The fellow will participate in the monthly journal club. At least one journal club per year will be dedicated to a pediatric/perinatal topic. The fellow will work in conjunction with one or more residents to review approximately 1-3 newly published scientific papers governing a single topic. The papers will be presented to the other residents and clinical fellows at the monthly journal club meeting

Interpersonal and Communication Skills

- Demonstrate effective communication with our clinical colleagues who engage in direct patient care by reviewing slides with them and conveying information by telephone or other modes of communication

- Communicate speedy intraoperative frozen section diagnoses and intraoperative consultations to our Surgery and Interventional Radiology colleagues

- Present cases of interest at pediatric inter and intra-departmental conferences and tumor boards

Professionalism

- Demonstrate honesty, integrity and ethical behavior at all times

- Set an example of professionalism for our clinical colleagues, rotating medical students, and other visitors by taking full responsibility for cases and following through on tasks

- Seek and accept constructive feedback

- Maintain patient confidentiality by safeguarding patient information and communicating the minimum required information when discussing in-house clinical cases and consultations outside of the Department of Pathology

Systems-Based Practice

- Demonstrate an awareness of and responsiveness to the system of health care by being mindful of cost-effect measures to limit the allocation of resources (not ordering unnecessary immunohistochemical stains and ancillary tests) while optimizing the quality of the pathologic evaluation

- Identify tissue samples that require rapid processing and facilitate their rapid evaluation, communicate effectively with the treating clinicians and generate a timely report

- Be proficient in using hospital and laboratory information systems and review the scientific literature to ensure we maintain appropriate clinicopathologic correlations and the most up to date scientific information and references

Pediatric Pathology Faculty:

- Florette K. Gray Hazard, MD Assistant Professor of Pathology and Pediatrics Director of Pediatric Surgical Pathology
- Eduardo Zambrano, MD MS Professor of Pathology and Pediatrics Chief of Pathology, Lucile Packard Children's Hospital

Rotating on the Pediatric Pathology Service:

- Stanford Anatomic Pathology Residents

- Stanford Pathology Fellow(s)

- Pediatric Pathology Fellow(s)

- Visiting Residents/Fellows/Medical Students/Faculty

Responsibilities

Classification of Pediatric Surgical Pathology Cases:

- Pediatric cases are classified as In House, Inside/Outside (I/O) and Consults.

- These cases are defined as:

    - Patients age 0-18 years
    - Cases originating from LPCH Stanford Hospital
    - Cases originating from LPCH Stanford Hospital physicians

- Cases will be finalized by a Pediatric Pathologist or other faculty designee, at the

discretion of the Pediatric Pathologist. See the table below for a description of trainee responsibilities.

- In House Cases – Will be worked up (gross, micro) and signed out by Resident(s) and Fellow(s).

- I/O cases – Will be worked up and signed out by Resident(s) and Fellow(s). If the workload is excessive, these cases may be signed out by the faculty alone. These are cases from patients that received their biopsy/resection at an outside institution and will be receiving future care at LPCH Stanford or Stanford Hospital and Clinics.

- Consult cases – Will be worked up and signed out by Fellow(s) in conjunction with the Pediatric Pathologist on service. These are cases sent from other institutions for our diagnostic opinion. If a case is addressed to a specific faculty member, that person will be informed of the case and will have the option to: (1) sign the case out, (2) provide their diagnostic opinion and request the Pediatric Pathologist on service sign the case out or (3) defer the case entirely to the Pediatric Pathologist on service.

Pediatric Interdisciplinary Tumor Boards/Conferences:

Surgical Pathology Residents are encouraged to attend all Tumor Boards/Conferences when they are rotating on Surgical Pathology; their attendance is not required. Their attendance will be required when they are rotating on the Pediatric and Developmental Pathology Service as an elective/selective. The Surgical Pathology Fellow is required to present at the weekly Pediatric Tumor Board, monthly Pediatric Surgery/Radiology/Pathology Conference, and at other conferences, when applicable as determined by the Pediatric Pathology faculty. Once a Pediatric Pathology Fellowship Program is launched, the Pediatric Pathology Fellow(s) will be encouraged to attend all conferences and is required to present the relevant pathology, as determined by the Pediatric Pathology Fellowship Director.

*Pediatric Tumor Boards/Conferences include:

Pediatric Tumor Board – Tuesday 8am, weekly
Neonatology Conference – Friday 12noon, weekly
Pediatric Surgery/Radiology/Pathology – 3rd Wednesday 7:30am, monthly
Pediatric Genomics Tumor Board – 4th Monday 1:30pm, monthly
Pediatric Stem Cell Transplant – Tuesday 4pm, weekly
Pediatric Liver Tumor Board – 3rd Wednesday 5pm, monthly
Pediatric Gastroenterology – Last Friday 12noon, monthly
LPCH Vascular Anomalies Clinic – 1st and 3rd Wednesday, 2pm

*This list is subject to change

Evaluation:

Trainees will be evaluated, based on the aforementioned competencies, using the MedHub electronic system maintained by the Department of Pathology. This system is based on the American Board of Pathology (ABP) Milestones. Visiting medical students, residents and fellows may be evaluated using other written or electronic systems (i.e. evaluation forms sent by home institutions).

Summary of ABP Milestones:

Level 1: The resident is a graduating medical student/experiencing the first day of residency.

Level 2: The resident is advancing and demonstrating additional milestones.

Level 3: The resident continues to advance and demonstrate additional milestones; the resident consistently demonstrates the majority of milestones targeted for residency.

Level 4: The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency.

Level 5: The resident has advanced beyond performance targets set for residency and is demonstrating “aspirational” goals, which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

Trainee Responsibilities Summarized

	Stanford AP Resident	Stanford Pathology Fellow	Visiting Resident/Fellow
In House cases	Work up cases and sign out with Peds Path Attending	Not applicable	Work up cases and sign out with Peds Path Attending
Inside/Outside cases	Selective or Elective	Selective or Elective	• Visiting Fellows only • Visiting Fellows only Visiting Residents – depends on interest/work load
Consult cases	Selective or Elective	Preview all cases and sign out with Peds Path Attending	• Visiting Fellows only • Visiting Residents – depends on interest/work load
Tumor Board/Conferences	Selective or Elective	Present cases	Attendance encouraged
Junior Attending	Not applicable	Not applicable	Not applicable

PEDIATRIC SOLID TUMOR PROTOCOL

1. Coding: ST7 – Soft tissue tumor, Biopsy
1 cassette:
1 H&E
1 IPOX H&E and 10 unstained slides (held in IPOX lab for 1 week)

ST8 – Soft tissue tumor, Resection
10 cassettes:
A1 with DO NOT CUT tag (for COG submission) *(pilot section of tumor)*
A2 – 1 H&E, 1 IPOX H&E and 10 unstained slides (held in IPOX lab for 1 week) *(pilot section of tumor)*
A3-A10 1 H&E

KID10 – Pediatric Kidney, Nephrectomy
21 cassettes:
A1 with DO NOT CUT tag (for COG submission) *(pilot section of tumor)*
A2 – 1 H&E, 1 IPOX H&E and 10 unstained slides (held in IPOX lab for 1 week) *(pilot section of tumor)*
A3 – A21 2 H&Es
Second set of H&Es are for COG submission (slides placed in "Pediatric box" at Hot Seat)
Kidney

2. Tissue should be submitted in a GOLD cassette either the same day or the following morning following fixation if received late in the evening. For large specimens, put through TWO pilot sections (cassettes A1 and A2 as described above in coding section) and submit additional sections the following day. **ALL SECTIONS FROM EACH SPECIMEN SHOULD BE SUBMITTED IN GOLD CASSETTES.**

3. If after hours, place patient last name and date of birth (2 unique patient identifiers) on cassette in lieu of accession number. On the side of the cassette (A1 for biopsy, A2 for resection) write: VL + 10 ust (this will generate 1 IPOX H&E and 10 unstained slides automatically).
4. If needed, Hot Seat fellow will order a panel of immunohistochemical stains when slides are reviewed. (However, if small round blue cell tumor & you know it needs immunostains: order SRBCT panel (whole or in part) on the day of specimen receipt.
Power Path IPOX code: IP SRBCT

<u>FROZEN SECTION ROOM/GROSS ROOM</u>

1. **Submit tissue for Cytogenetic analysis:**
   A. Save 3-4 cubes measuring 0.1 x 0.1 cm in RPMI

   B. Complete the Cytogenetics requisition form located in the gross room

   C. Give tissue sample and Cytogenetics requisition form to Accessioner to send to Hillview for analysis. *(DO NOT hold tissue, send promptly. Cytogenetic analysis order can be cancelled following initial microscopic evaluation, if warranted.)*

2. **Portions of fresh tumor should be frozen** (and/or keep the frozen section sample frozen):

A. Freeze fresh tissue sample(s) in plastic clear containers located in frozen section room and gross room. Using a *blue disk*, containers should be labeled with the patient's name, medical record number, date of birth, specimen type (tumor vs. normal) and date of procedure (see example posted in Gross Room). All supplies can be found in the gross room.

B. Record specimen in Gross Room log book

C. Place tissue sample(s) in -80C Pediatric freezer (Gross Room):

Box# 1: "COG" (1 sample only)

Box# 2: Blue plastic "Peds" box (organized by year and month) (1 or more samples) *Fresh frozen tissue placed in the blue plastic "Peds" box is for future possible clinical studies or, if no clinical needs arise, IRB-approved research.

Things to think about...

3. Should the tumor be sent for <u>flow cytometry</u>? If the tumor may be hematolymphoid:

A. Save 3-4 cubes measuring 0.1 x 0.1 cm in RPMI and HOLD in refrigerator

B. Send tissue for flow cytometry after initial microscopic evaluation

4. Should the tumor be saved for <u>electron microscopy</u>?

A. Save 3-4 cubes measuring 0.1 x 0.1 cm in glutaraldehyde and HOLD in refrigerator

B. Activate electron microscopy by contacting EM lab (650-725-5196) after initial microscopic evaluation

<u>Special Consideration</u>

On occasion, patients are enrolled on special study protocols prior to resection of their tumor. In this situation, the Pediatric Pathologist(s), Surgical Pathology Director and Gross Room PA(s) will be contact by a CRA from LPCH (typically via email or pager) prior to the surgery. The CRA will provide special instructions for processing the fresh tissue to ensure the patient can be enrolled on the study. Although these instructions often mirror those of the Pediatric Solid Tumor Protocol (see above), additional requirements may exist.

Please touch base with the Pediatric Pathologist on service or a Gross Room PA if you retrieve the specimen and must divide the tissue to fulfill the study protocol requirements. On the day of the surgery you may be paged when the specimen is ready to either be picked up from the LPCH OR by you or be delivered via courier to the SHC Frozen Section Room. Once the specimen has been received, please call the LPCH OR to confirm you have the specimen. Then divide the fresh tissue as required by the study protocol and Pediatric Solid Tumor Protocol. Keep in mind: the first priority is allotting an appropriate amount of tissue for diagnostic purposes. Place the tissue designated for study protocols and the Pediatric Solid Tumor Protocol in the -80C Pediatric freezer in the Gross Room, as per instructions.

The remaining tissue can be grossed in as per our usual procedures. Finally, the Gross Room PA will contact the CRA in charge of the case to let him/her know the tissue is ready to be retrieved.

If you experience any difficulty or have questions at any point, please contact the Pediatric Pathologist on service, the Director of Pediatric Surgical Pathology or the Gross Room PA Supervisor.

Surgical Pathology Learning Objectives

Goals and Objectives

Overview

Residents on surgical pathology are expected to master the following broad areas to the level expected of a new practitioner. While it is recognized that it is not entirely practical or necessarily desirable to delineate levels of competency that are specific for year of training, the following are offered as rough guidelines. It is expected that the resident will develop the knowledge base, tools, skills, and demeanor that will foster life-long learning in her/his professional career.

Basic Principles

Year 1: Resident demonstrates knowledge about tissue fixation (including commonly used special fixatives), tissue processing, embedding, orientation of specimens, section preparation, levels, use of special stains, immunohistology, electron microscopy (EM) and cytogenetics.

Year 1: Resident demonstrates basic computer skills in anatomic pathology.

Year 2: Resident is able to order and interpret immunohistochemical panels with minimal supervision.

Year 2: Resident is proficient in the preparation and presentation of PowerPoint presentation and is capable of independent case presentation.

Year 2: Resident is proficient at seeking interdepartmental consultation and is able to resolve diagnostic disagreement.

Gross Examination

Year 1: Resident develops proficiency in specimen identification, performs anatomically correct dissection, dictates accurate descriptions, and takes appropriate sections for microscopic examination, including appropriate sections for examination of margins (where appropriate).

Year 1: Resident is knowledgeable about and able to perform specimen photography when appropriate.

Year 1: Resident is proficient in the handling of common specimens (e.g. culture, EM, cytogenetics, bone marrows)

Year 2: Resident develops the ability to gross in complicated specimens (e.g., Whipple's, pelvic exenterations, radical neck dissections) with minimal supervision. Must be able to recognize when to seek additional assistance from colleagues or surgeon.

Microscopic Examinations

Year 1: Resident is able to generate an accurate morphologic description, with a reasonable diagnosis/differential diagnosis. Resident is able to provide basic elements of information in all reports, prepare report, correlate findings with frozen section findings, and have report prepared for sign-out with faculty.

Year 2: Resident is able to formulate an accurate diagnosis or recognize need for consultation, select special stains/ipox (where appropriate), interpret immunostains (and associated artifacts).

Year 2: Resident demonstrates adequate knowledge/use of grading systems, use of synoptic reports (as appropriate), indications for amended/addendum reports, and proper handling of consultation cases.

Year 2: Resident is proficient at photomicroscopy.

Intraoperative Frozen Sections/smears

Year 1: Resident understands role of intraoperative diagnosis; appropriate indications; tissue sampling for intraoperative diagnosis, can cut/stain frozen section (within 10 minutes), and is knowledgeable about precautions for handling fresh tissue or other specimens for intraoperative diagnosis.

Year 2: Resident is proficient at the preparation/staining of smears, interpretation of frozen sections/smears with minimal supervision, understand limitations of intraoperative diagnosis, and able to communicate effectively and engage in dialogue with treating surgeon and/or clinician.

Systems-based Practice (Lab Management)

Year 1: Resident demonstrates knowledge of JCAHO/CAP standards/requirements for specimen submission and occupational hazards/infection control, particularly with respect to storage/disposal of specimens and hazardous chemicals.

Year 2: Resident is competent in billing/coding procedures and the cost effective practice of pathology and medicine.

Year 2: Resident demonstrates knowledge of quality assurance and improvement and basic risk management issues.

Professionalism

Year 1: Resident develops expertise in use of appropriate phraseology in reports, demonstrates effective skills in communication to physicians and patients, when appropriate, and understands importance of timeliness, turnaround and rush cases.

Year 2: Resident assumes responsibility for informal and formal junior resident teaching conferences and actively and effectively participates in all pathology teaching conferences

Year 1&2: Resident communicates with support staff, administrative staff, technical staff, and supervising faculty in a respectful and efficient manner.

Medical Knowledge

Year 1: Resident develops basic understanding of disease with correlation to morphology. The resident develops a managerial classification that includes concepts of benign, borderline (low malignant potential), uncertain malignant potential, and malignant.

Year 1: Resident develops understanding of the role of intraoperative frozen section/touch preparations in clinical decision making.

Year 2: Resident is proficient with the correlation of cytogenetic and molecular abnormalities with morphologic findings.

Year 2: Resident is proficient at analysis and investigation of unusual or difficult cases and can workup cases with minimal supervision.

Practice-based Learning

Year 1: Resident develops case-based learning as a tool for disease pathogenesis via end- of-month resident conferences, daily gross conferences and interesting case conferences.

Year 2: Resident is able to use wide variety of information sources and is able to use effective problem solving skills in surgical pathology. Proficiency in literature searches and assimilation of scientific and clinical-pathologic information to apply to specific problems in surgical pathology is required.

Interpersonal and Communication Skills

Year 1: Residents learn to prepare accurate, concise, complete and cogent written surgical pathology reports that incorporate all relevant findings (e.g., clinical, radiologic, serologic, cytogenetic, immunohistochemical, etc.)

Year 1: Residents learn to communicate effectively with surgeons and other clinicians during intraoperative consultation and at case sign-out, when appropriate.

Year 1&2: Residents teach medical students in the medical school pathology labs in an effective and clear manner: i.e., correlation of gross and microscopic findings with clinical findings.

Year 2: Residents actively participate in teaching medical students and post-sophomore fellows on surgical pathology rotation.

Surgical Pathology at Stanford University Medical Center

Steve Long, MD, Director of Surgical Pathology

Stanford Surgical Pathology Rotations

Residents on Surgical Pathology will rotate through different surgical pathology specialties in one week blocks to allow for in-depth training in each area. Residents will work closely with the subspecialty faculty and have responsibility for their assigned cases but will also work as a team with PAs and fellows on each service. Every week-long service will have dedicated case preview time for the resident to preview their cases and prepare reports (with the exception of the Frozens rotation)Signouts will also occur daily (the timing of which will be specific to each rotation) withsubspecialty faculty on service. There will also be daily grossing responsibilities for residents on all weeks except Cytology, Frozens, and GI Biopsies. Grossing responsibilities will be clarified daily with the faculty and PA on service such that the resident knows the cases they are responsible for (generally limited to 2-3 hours of grossing/day).

Residents on surgical pathology are also expected to gross some Saturdays a mix of case-types to increase grossing experience and independence at this essential skill. Saturday gross service days will be scheduled and fairly distributed by the AP Chiefs. Residents should meet with the PAs on the Saturdays they are assigned to review plans for case distribution. Residents are encouraged to ask PAs questions about Saturday gross cases and sometimes cases will need to be deferred to Monday when a case with questions/issues can be reviewed with faculty.

The surgical pathology subspecialty weeks the resident will rotate through include the following:

GI Biopsies: Responsibility for preview and signout preparation of GI biopsies. No grossing responsibilities. Service director: Dr Longacre. See GI Service Description for additional details.

GI Bigs: Responsibility for grossing a component of GI surgical cases (1-2 cases/day), preview and signout preparation of GI surgicals per training year cap. Service director: Dr Longacre. See GI Service Description for additional details.

Breast: Responsibility for grossing a component of Breast surgical cases (1-2 cases/day), preview and signout preparation of Breast biopsies and surgicals per training year cap. Service director: Dr Allison. See Breast Service Description for additional details.

Genitourinary: Responsibility for grossing a component of GU surgical cases (1-2 cases/day), preview and signout preparation of GU biopsies and surgicals per training year cap. Service director: Dr Kao. See GU Service Description for additional details.

ENT/Cardiothoracic: Responsibility for grossing a component of ENT/CT surgical cases (1-2 cases/day), preview and signout preparation of ENT/CT biopsies and surgicals per training year cap. Service director: Drs Holmes and Berry. See Service Description for additional details.

Pediatrics/Soft tissue: Responsibility for grossing a component of Pediatric/Soft tissue surgical cases (1-2 cases/day), preview and signout preparation of biopsies and surgicals per training year cap. Service director: Dr Zambrano. See Service Descriptions for additional details.

Cytology: Responsibility for cytology cases as designated by service. Service Director: Christina Kong. See Cytopathology Service Description

Frozen Sections: Responsible for review of OR schedules, intra-operative consultations between 9am-6pm and generation of clinical summary of breast cases for breast service. A fellow will be available part of the year to help train and run the frozen service. Service Director: Dr Long. See Frozen Section service description for details.

Case handoffs:
Because of the week long blocks it is essential for transitions of care for trainees to meet with the faculty member on service with them at the end of their week together to go over the list of cases that still have items pending. This meeting should be documented with a transition of care worksheet and it should be clear who will be following up on each case. Some cases may be handed off to faculty or on-coming trainee and some may be followed by the trainee. These decisions will be made at this end of the week meeting and clearly documented.

Expectations:

Except for the first month of Surg Path in the first year, residents are expected to come to sign-out prepared with relevant clinical information on their cases and their reports written up and proof-read. This preparation before signout is believed to be an essential part of preparing trainees for practice and for faculty to be able to assess knowledge gaps for personalized teaching at signout.

Things to do on Each Case

- Proofread your (and those of the PAs) gross dictations.
- Check patient history in Power Path ("History" tab has a blue square on it when the patient has prior pathology) and look up relevant clinical history in EPIC when appropriate. For breast surgical cases, know the imaging findings (especially the size and number of lesions expected). For cancer cases know if the patient has been pretreated with chemotherapy or other therapies.
- If cervical/endocervical specimen has a concurrent Pap smear, ask the Cytology

Supervisor to pull the case for screening on your *preview day* so that it can be seen by the Cytopathology faculty for sign-out on the following day.

- Pull relevant prior cases (slides) from slide room. Check them out with the accession number, your name, the date, and your pager number (this takes a few extra minutes of your time, but is helpful when someone is looking for a case!).
- Preview cases and correlate the histology with the gross and clinical findings. Come up with a diagnosis or differential diagnosis. Consider additional studies that may be necessary (hot seat may have ordered some already) and when possible consult with faculty prior to signout about if they should be ordered.

- Prepare your reports the night before sign-out. Use appropriate summary templates for cancer cases. If you don't know the diagnosis, at a minimum have your differential ready and make notes such that faculty can know what you were thinking about the case.
- Once a case is reviewed with the faculty, it must be checked off with the Hot Seat. THIS INCLUDES ALL CASES REVIEWED BY THE FACULTY, INCLUDING CASES PENDING ADDITIONAL STUDIES. IT IS THE RESPONSIBILITY OF THE RESIDENTS TO KEEP HOT SEAT INFORMED OF THE STATUS OF ALL OF THEIR CASES.
- For cases not handed off to faculty at signout, edit them and forward them to the faculty member's queue in a timely fashion so the faculty can sign them out (when no additional studies are pending). It can be useful to highlight areas in the report that you might still be questioning so the faculty member is alert to potential additional changes that may need to be made. Make sure all cases are in the appropriate faculty member's queue. It can be useful to keep a list of your cases and what stage they are in the process (if they are signed off with hotseat, what is pending, if in the faculty's queue).
- The trainee is responsible for preview and write-up for all additional IPOX studies ordered on a case, including routine breast prognostic panels. Routine breast prognostic panels (ER, PR, HER2, Ki67) can be signed out as addendums with the breast pathology attending on service.
- The trainee assigned to a case is responsible for timely transitions of care on all of their cases (follow-up on additional studies, consultations, hand off to faculty, etc). This is especially critical when rotating off service. Do not delay patient care! Effective communication is a key part of the trainee's job.

When to Pull Cytology Priors

General Rule: ***If surgical and cytology specimens from the same site do not share the same diagnosis, the prior cytology must be reviewed.***

Why do we do this?

- Ensure that a surgical biopsy or excision has not missed a neoplastic lesion that was

identified cytologically

- Educational - refine our histologic and cytologic criteria (i.e. what led to an overcall or undercall on one of the cases?)

How do we do this?

- Check "History" tab in PowerPath for prior cytology cases
- Pull cytology slides:
  - o Absolutely required if there is a discordance
  - o For educational benefit, especially if signing out with a cytopathologist

What to do with discrepant cases?

- Have the prior cytology reviewed by a Cytopathology attending
- **Obtain level sections** on the surgical or submit more material
- Comment on discrepancy in surgical report

Cervical Cytology

Critical Correlations:

- Cytology is suspicious or positive for a high grade lesion (ASC-H, HGSIL, SCC, AGUS favor neoplastic, AIS, and adenocarcinoma) and the surgical is negative. In these situations, imagine the clinical quandary caused by the discordance.

ASC-US or LSIL Cytology:

- Not unusual to have negative cervical biopsy in these cases
- Still helpful to confirm cytologic diagnosis of LSIL and **obtain levels** on surgical
- Also helpful to make sure the surgical findings explain the ASC-US cytology

Concurrent Cases:

- On your preview day, ask the cytology supervisor to pull the pap smear for immediate screening to ensure the case is signed-out in time for correlating. Do not mention Cytologic Diagnosis in surgical report unless the

cytology is final.

Fine Needle Aspiration (FNA) Cytology

Critical Correlations:

- FNA is suspicious or malignant and the surgical specimen is negative, e.g. thyroid FNA suspicious or malignant and the thyroidectomy is benign.

Special Information

Ordering specials	Special stains and VLs (vladd) and IPOX are all ordered in Power Path under the "Specimens" tab. See Power Path manual for detailed instructions. Specials and VLs have to be ordered by noon to come out the same afternoon. IPOX orders have to be in by 6:00PM and will be done the following day (you'll get results the following evening). Don't forget to save (F10 button) the case after you input the ordering info.
Correlating frozens	Frozen sections need to be mentioned in the comment ("Permanent sections confirm the frozen section diagnosis of …" or "The original frozen section slides were reviewed and all frozen section diagnoses confirmed" – the second phrase for cases where tissue is exhausted at the time of frozen section) and also need to be correlated in Power Path. To do this, go to the Results tab in Power Path and click on the Correlate button. Highlight the specimen you wish to correlate, then click on the QA Results button. Click on Macros, then Agree (unless you disagree), then click on the Pathologist and scroll down to insert the name of the pathologist (attending) who did the frozen section (it will be in the frozen section diagnosis box at the bottom of the requisition). Click OK after all that. I don't think you have to save after doing this, but it might not be such a bad idea to just hit F10 to be safe.
Reviewed priors	If you review the priors on a case, you can insert a line into the comment section to the effect of "We have reviewed the patient's prior pathology (SHS-XX-XXX) and agree with the diagnosis of …".

Gross Room Expectations

ALL RESIDENTS ASSIGNED TO THE GROSS ROOM MUST PREVIEW ALL OF THEIR CASES WITH A PA (OR AN ATTENDING) PRIOR TO GROSSING THEM IN. **The PAs are there to instruct you in methods of prosection and will be evaluating your gross dictations in order to assist you in proper prosection techniques and in the preparation of a clear, concise,**

and complete gross report. Please refer to the Gross Room Manual at each grossing station for more detailed descriptions of complicated specimens and instructions on labeling cassettes.

ALWAYS ask questions about things you are unsure about. Once you have been instructed about how to gross a case you have not handled before or that is particularly complex, get in the habit of repeating back to your instructor what you understand about how to handle to specimen. Mistakes made in the gross room often cannot be reversed! The faculty and your patients are depending on you to get this right. ASK QUESTIONS!

There are many gross voicebrook templates available. Please consult with the PAs, senior residents and faculty about which to use for a particular specimen.

You may find it more efficient and safer to take the time to jot down relevant measurements and maybe even cassette numbers with a description of their contents on the requisition sheet as you gross specimens (pink area at the top that says “for pathology use only”). Then you can dictate the gross description of the case in a more continuous and flowing manner and, if the dictation gets lost, you still have all your relevant measurements!! DO NOT GET INTO THE PRACTICE OF DELAYING YOUR GROSS DICTATION – DO IT AT THE TIME THE CASE IS ACTUALLY BEING GROSSED!

Frozen Section Training for 1st/2nd Year Housestaff

A. GENERAL CONCEPTS:

1. Ranchod M. Intraoperative Consultation: Introduction & General Principles. In Ranchod M Intraoperative Consultations in Surgical Pathology. Philadelphia. Hanley & Belfus, Inc, 1996. pp.259-271.
2. "To exhaust or not" (see frozen section room paper)

B. TECHNICAL COMPONENTS OF FROZEN SECTION PREPARATION AND STAINING:

1. TISSUE PREPARATION
2. PREPARATION OF TISSUE BLOCK
3. TISSUE PLACEMENT & FREEZING
4. TRIMMING OF THE BLOCK
5. FACING THE BLOCK
6. SLIDE LABELLING/PREPARATION
7. STAINING SEQUENCE (Timing is everything!)
8. COVERSLIPPING

C. TROUBLE-SHOOTING IN THE FROZEN SECTION ROOM

1. THE DIFFICULT SPECIMEN (FATTY, STAPLED, ETC)
2. STAINING ARTIFACTS & PROBLEMS
3. CRYOSTAT SETTINGS
4. INFECTIOUS CASES

D. SAFETY ISSUES IN THE FROZEN SECTION ROOM

1. HANDLING KNIVES AND SCAPEL BLADES
2. EXPOSURE TO POTENTIAL INFECTIOUS/TOXIC MATERIALS

Non-Heme Inside/Outside case (I/O) rotation

General Information

Length of the rotation: At least one elective month is recommended

Eligibility: AP second year residents (AP only, AP/CP), third year AP only residents and 4th year AP/CP residents are eligible to do the surgical pathology I/O rotation.

Resident responsibilities

1. The residents are expected to select two of four subspecialty oriented categories of I/O cases for the first 2 weeks of their rotation and are subsequently responsible for other two categories of I/O cases in the second half of the month. The case categories include:

    a. GI/Liver

    b. Genitourinary

    c. Breast

    d. Lung/Thoracic/ENT

2. The resident will be responsible for presenting at two weekly tumor boards/interdepartmental conferences during the month. In other words, the resident will be responsible for a total of 8 tumor boards/interdepartmental conferences during the month unless he/she is on vacation during that month. The various tumor boards/interdepartmental conferences the resident can choose from are:

    Urology tumor board (Tue 7 am)

    Liver tumor board (Tue 10:30 am)

    Thoracic tumor board (Tue 2pm)

    Pediatric tumor board (Tue 5 pm)

    GI tumor board (Wed 3:30 pm)

    Digestive disease conference (Wed 5:30 pm)

    Liver Transplant conf (Thu 12:30 pm)

    Gyn Tumor board (Friday 7:30 am)

    Sarcoma tumor board (Fri 7:30 am)

    Breast tumor board (Fri 9:30 am)

Workflow during the I/O rotation

1. On the first day of service, the resident will discuss with the Surgical Pathology "point person" on service (refer to monthly Surgical Pathology sign-out schedule for the faculty member identified as "point person") if they would prefer to help triage the cases regularly for review by specific attending.

2. Each day, the resident must preview non-heme I/O cases accessioned to the service for sign-out the following day. The Gyn and soft tissue tumor cases should be handed over to Surgical Pathology fellow on Kempson consult service.

3. During preview, the resident should pay particular attention to whether all material/information necessary to sign-out the case (slides, reports, immunostains, reports of ancillary studies such as FISH) is available.

4. If information is missing, resident should contact the outside hospital pathology department to request necessary information/reports/immunostains/blocks.

5. The Surgical Pathology schedule and Tumor board schedule will help identify the faculty member responsible for signing out I/O cases that belong to a specific subspecialty. Please take input from Surgical Pathology Director/"point person" if the I/O sign-out faculty schedule is unclear.

6. The sign-out time is variable as Surgical pathology resident sign-out takes precedence over the I/O case sign-out.

7. The resident will contact clinicians for additional clinical history or call outside laboratory for blocks or additional information as necessary.

8. If ancillary studies, including immunohistochemistry, are needed, the resident will order the appropriate studies immediately after sign-out and retrieve the stains for review with the attending as soon as they are available.

9. Residents should pre-dictate cases prior to sign-out and after sign-out, any cases not handed off to the attending should be edited and forwarded to the faculty queue. The resident will be responsible for all clinical questions addressed to the service, including ancillary studies that may be pending.

10. In the absence of an AP resident on I/O service in any given month, the cases will be the responsibility of surgical pathology fellows or the subspecialty faculty member for the month.

11. Resident involvement in tumor boards/interdepartmental conferences:

    a. The resident will contact the faculty member responsible for specific tumor boards at least 24 hours prior to the tumor board (please check the monthly tumor board schedule above).

b. The list of cases to be presented at the tumor board can be obtained from Letty or a designated person in the slide room. The resident will review all the slides corresponding to the cases and anticipate relevant questions from the surgeons/clinicians.

c. The resident will participate/pres ent cases in the tumor board along with the faculty member responsible for the tumor board/interdepartm ental conference.

Supervision & Evaluation

The Surgical Pathology Director and faculty members working directly with the resident will be responsible for supervision. Based on the input from the faculty members and direct supervision, the resident will be evaluated by the Surgical Pathology Director or Point Person through the MedHub system.

ENT Service Guidelines

Residents:

- Previewing:
    - Correlation of the pathology findings with the clinical impression is important to accurately staging head & neck tumors. For cancer resection specimens, review the surgeon's operative report and bring a copy with you to sign-out, focusing on the first few paragraphs stating the surgeon's findings. If the surgeon clinically staged the tumor as T4 but the slides only document stage T2, the discrepancy needs to be explained and/or additional sections need to be submitted to document invasion of adjacent structures.
- Grossing:
    - Head & neck specimens are often complex, unique, and three-dimensional. Please ask the PAs for assistance in approaching specimens, and don't hesitate to contact the faculty member on-service to discuss a case before dissecting it.
    - Gross photographs are very helpful and may be critical to identifying the location of margins or other anatomic structures of interest to the surgeon. For all composite oral cavity resections and any other complex specimen, please take a gross photograph of the intact specimen and be sure to save it in the PowerPath case. Additional photographs of the bread-loafed or dissected specimen are highly encouraged. For complex specimens, print the photo, draw on the photo where each section is taken, and re-photograph the marked-up copy so that this information can be saved in PowerPath in addition to your verbal gross description.
    - For modified radical lymph node dissections, a minimum of 18 lymph nodes is expected by the surgeons for patients who have not undergone prior chemotherapy or radiation. This is based on data suggesting that patients with ≥18 nodes in a neck dissection have lower rates of loco-regional recurrence. Therefore, you should grossly dissect out all identifiable lymph nodes and submit them. If there are less than 18 total, then submit additional fat to look for microscopic nodes. If there are less than 18 nodes at the time of slide review, the pathologist may ask you to submit the remainder of the fat in entirety. Since most cases have ≥18 grossly identifiable nodes, only a minority of cases should require additional cassettes of fat.
- Tumor boards: You are encouraged to attend the Head & Neck Multidisciplinary Conference and Thyroid Multidisciplinary Conference if the workload and educational lectures can accommodate. Cases are presented by a faculty member, and the on-service surgical pathology fellow will also attend.
    - Head & Neck Multidisciplinary Conference: 7 a.m. every Monday (except hospital holidays), 900 Blake Wilbur Drive, 1st floor conference room
    - Thyroid Multidisciplinary Conference: 12p.m. on the second and fourth Fridays of the month, 900 Blake Wilbur Drive, 1st floor conference room
- Hand-offs: On Friday, the resident leaving the service should discuss pending cases with the faculty member. Generally, diagnostic work-ups on unfinished cases should be continued as much as possible by the resident who began the case.

Example of a typical resident day on the head & neck service:

8-9 a.m. – Attend morning lecture or scope session

9-11 a.m. – Sign out cases with faculty

11 a.m. – 12 p.m. – Check out with hot seat and forward reports to faculty

12-1 p.m. – Attend noon lecture/lunch

1 p.m. – Check in with gross room staff and begin grossing

Rest of day:

- 2-3 hours of grossing
- Finish editing reports and send to faculty; follow-up levels and stains
- Preview cases for the following day

By 5 p.m., check in with the attending regarding sign-out time for the following day.

Surgical pathology fellows:

- Consultation cases referred to the Stanford Pathology Consult Service ("consults") are the main educational priority. Coordinate a time with the head & neck pathologist on-service to review and sign-out these cases, either at the same time as resident sign-out or separately.
    - Most consult cases will be shown to a second head & neck pathologist for broader input and expertise. Following initial review of the case with the on-service pathologist, coordinate by e-mail or phone with other consultants who will participate in reviewing the case.
- If the consult case volume is manageable, you should also sign-out the I/Os with the on-service faculty member (secondary review of outside pathology material for patients scheduled for treatment at Stanford, a.k.a. "inside/outside cases"). Prioritize these cases based on "stat" vs. "routine" status (listed on the requisition) as well as the scheduled date of the patient's appointment with a Stanford clinician. Lower-priority cases can be held for the next day's sign-out after discussion with the on-service faculty member.
- During your week on the ENT service, you are expected to attend but not present at the Head and Neck Multidisciplinary Conference, which is at 7a.m. every Monday morning (except hospital holidays), located in the conference room on the first floor of the outpatient building at 900 Blake Wilbur Drive.
- You should also plan to attend the Thyroid Multidisciplinary Conference, which is at 12pm on the second and fourth Fridays of the month, located in the conference room on the first floor of the outpatient building at 900 Blake Wilbur Drive. Discuss with the attending on service whether you will present the cases for this conference; the slides are usually available for review late Thursday afternoon or early Friday morning.
- During weeks when there is no surgical pathology fellow assigned to the head/neck service, consult cases will be handled by a fellow who is covering another subspecialty to preserve the educational value. Contact the head & neck faculty member on-service to coordinate a mutually agreeable time to sign-out the consult cases that does not conflict with the fellow's primary subspecialty assignment. I/Os will be handled directly by the faculty member without fellow involvement.
- During weeks when there is a surgical pathology fellow but no resident assigned to the head/neck service, discuss the allocation of cases with the faculty member on-service. Depending on the consult case volume, it may be preferable for the fellow to sign-out consults and a subset of the internal Stanford cases, leaving the I/Os for independent faculty review.

Medical Liver & Transplant Liver/Small Bowel Pathology

This service includes native (medical) and transplant liver biopsies, small bowel transplant biopsies and GI biopsies from BMT/stem cell transplant patients. Resections involving non-neoplastic liver will be reviewed with trainees as needed or at the request of GI pathology or other faculty. All these biopsies are considered "**stat**" and need to be reviewed ASAP, preliminary diagnosis conveyed to the clinical teams and if possible, signed out the same day or the next day based on complexity of cases and requirement of additional studies.

Current faculty with specialty expertise in Medical/Transplant Liver & SI Pathology:

John Higgins, Neeraja Kambham, Brock Martin, Jeanne Shen, Richard Sibley

Trainees involved in the medical liver pathology service

AP1 & AP2 Residents: The resident on GI/Liver Resections (GI Bigs) is responsible for reviewing the medical liver/transplant biopsies in the AM each day. The hot seat fellow reviews these biopsies in the AM and starts giving them to the resident around 9:15 AM. Based on the number of biopsies to be reviewed, the resident starts sign out with the Medical Liver faculty on service between 9:30-10:00 AM. The afternoon sign out for follow-ups and review of special stains and immunohistochemical stains is generally around 3 or 4 PM.

The resident is expected to coordinate with hot seat fellow (&, if applicable, the GI/other AP subspecialty fellow on GI service or Liver fellow) to ensure timely review of biopsies and also convey stat diagnoses to the clinical teams. The time frames provided are guidelines and vary based on number cases for review and the acuity of the individual cases as well as if a stat diagnosis was already rendered by the faculty the previous night (or weekend for Monday's cases).

Fellow on GI Service: If there are two fellows assigned to the GI service, one fellow (likely a GI fellow, but can be coordinated based on interest level of non-GI fellow) is responsible for participation and work up of medical/transplant liver biopsies. The hot seat reviews these biopsies in the AM and starts giving them to the designated fellow around 9:15 AM. Based on the number of biopsies to be reviewed, the resident starts sign out with the Medical Liver faculty on service between 9:30-10:00 AM. The afternoon sign out for follows ups and review of special stains and immunohistochemical stains is generally in the late afternoon , typically around 3 or 4 PM.

The fellow on GI service will also be responsible for signing out the medical/transplant liver consults with Medical Liver faculty on service.

GI Fellows on Liver "block": If there is a fellow on "Liver" block, all cases (in-house & consults) will be routed through the "liver" fellow rather than fellow on GI Service. The sign out times and expectations will be the same.

Distribution of in-house cases if both **resident and fellow** (GI service or Liver Service fellow) are assigned to medical/transplant liver &SI.

Monday & Tuesday: The GI Service/Liver fellow takes the lead on reviewing the biopsies and writing up of cases. If the total number of cases is greater than 4, the overflow cases will be given to the resident (taking into account the year of training AP1 vs AP2).

Wednesday-Friday: The resident on GI bigs takes the lead on reviewing the biopsies and writing up of cases. If the total number of cases is greater than 4, the overflow cases will be given to the fellow. However, if the resident is on her/his first week of GI bigs, they are responsible for 2 cases/day only. The cases will be triaged by the fellow in order to make sure that the complexity of cases is appropriate for the resident level of training.

Prior to Sign out:

The resident/fellow should prepare for the sign out by reviewing the EPIC notes, laboratory studies, prior biopsy results, date of transplant etc. The EPIC notes and labs can be pasted on to the case report (and highlighted). This text can be edited/deleted at the discretion of the faculty member when the case is finalized. Additional (and more specific) information relevant to the morphological pattern observed can be obtained after the sign out.

Training Goals:

Residents: recognize and provide differential diagnosis for characteristic patterns of liver injury such as acute hepatitis, chronic hepatitis, steatosis/steatohepatitis, cholestasis, etc. Understand the value of the clinical and laboratory data in relation to the morphological pattern seen.

Fellows: Be able to provide differential diagnosis for non-specific and mild morphologic changes based on biopsy findings together with clinical and laboratory evaluation.

Suggested Reading materials:

1. Sternberg Chapter 36 in the current 6th edition.
2. Liver Biopsy Interpretation by Jay Lefkowitch, 9th edition
3. Practical Hepatic Pathology by Saxena. Second edition

Anatomic Pathology at the VA Palo Alto Health Care System

Director: Kristin C. Jensen, M.D.

Residents in the Anatomic Pathology (AP) or combined (AP/CP) program rotate through the VA Anatomic Pathology Service for 4.5-5 months during their first and/or second years. The Anatomic Pathology Service at VA Palo Alto Health Care System is a rotating service consisting of 2-4 residents (depending on vacation schedules and other leave time). The three day rotation is as follows:

First day

All grossing * (see top of next page)
Cover frozen sections
Finish up cases from previous sign-outs

Second day

Preview surgical (including dermatopathology) pathology cases (slides usually available around noon)
Finish up cases from previous sign-outs
Autopsy (if available for dissection by 10 am, or as negotiated with other residents)

Third day

Signout surgical pathology (including dermatopathology) cases, generate reports, and show cases to other attendings as needed
Attend cytology signout in the afternoon (optional)
Finish up cases from previous sign-outs

The four-day rotation shifts frozen section coverage from the first day to the fourth day.

The two-day rotation is as follows:

First day

All grossing * (see top of next page)
Autopsy (if available for dissection by 10 am)
Finish up cases from previous sign-outs

Second day

Preview surgical (including dermatopathology) pathology cases
Signout surgical pathology (including dermatopathology) cases, generate reports, and show cases to other attendings as needed
Cover frozen sections
Finish up cases from previous sign-outs

* Unfixed large specimens requiring overnight fixation may occasionally arrive in the late afternoon and be postponed until the following day; this will be monitored by the Surgical Pathology Attending.

A sample two-week schedule for residents A, B, and C will look like this:

WEEK 1

	Monday	Tuesday	Wednesday	Thursday	Friday
Resident A	G/FS	A/P	S/O	G/FS	A/P
Resident B	A/P	S/O	G/FS	A/P	S/O
Resident C	S/O	G/FS	A/P	S/O	G/FS

WEEK 2

	Monday	Tuesday	Wednesday	Thursday	Friday
Resident A	S/O	G/FS	A/P	S/O	G/FS
Resident B	G/FS	A/P	S/O	G/FS	A/P
Resident C	A/P	S/O	G/FS	A/P	S/O

G/FS=Gross/frozen sections (first day duties as above)
A/P=Autopsy/preview (second day duties as above)
S/O=Signout (third day duties as above)

The decision as to day and time to perform an autopsy will be made by the morgue attendant/consultant, with input as needed from the Autopsy Attending. In many cases, in the interest of workload considerations, autopsies can be postponed by one-two days if needed.

While the rotation system is designed to parallel common practice in community pathology groups as well as provide well-defined duties and responsibilities for residents, the overall VA Anatomic Pathology rotation is intended to be an integrative and collaborative service maintained by three-four (or two, on rare occasions) residents with cross-resident coverage and/or assistance provided for frozen sections, autopsies, or during busy times on the service.

Goals and Objectives

Overview

During each week of the rotation, residents will see on the order of 150 specimens obtained in the operating rooms, various clinics or from referring institutions. Residents will be responsible for whatever material they gross each day, including dermatopathologic and neuropathologic specimens. Residents are responsible for the gross description, sectioning and placement of the fixed specimens in the automatic processor (or outside laboratory collection canisters). When the stained sections are delivered by the histology laboratory (usually around noon the following day), the resident will examine them and obtain the appropriate ancillary information needed in some instances (e.g.,

clinical history, prior biopsies for comparison, etc.). On signout days, every attempt will be made to complete the surgical pathology and initial dermatopathology signout by noon (both done by the attending on surgical pathology); in a two-person rotation, the signout will be in the afternoon of the second day (the same day the slides are received). Dermatology holds open microscope sessions to review their cases on Mondays and Fridays at 11 am; this includes rotating dermatology residents.

During signout, the attending and the resident will agree upon a diagnosis and will decide whether or not a microscopic description is necessary. Following this signout session, the resident will dictate or enter into the surgical pathology database the diagnosis and description. The diagnosis of routine cases may be dictated or entered by the attending, especially in the first month of the first year of training. Following signout, the resident should order any special stains or immunohistochemical stains needed for their cases, and seek consultative opinions from other attendings on difficult or malignant cases as required. The resident will verify and document all cancer diagnoses with a second attending and, where appropriate, CAP protocols will be followed and TNM staging will be performed. Subsequently, the attending will review the entire report (gross and microscopic descriptions, diagnosis, etc.) and release the diagnosis for the clinical staff. The residents, in conjunction with the given attendings, are responsible for presenting interesting and/or challenging surgical (including dermatopathologic and neuropathologic) pathology cases at the weekly microscopic conference (Wednesdays at 1 pm). When necessary, the resident will communicate with clinicians regarding critical values and/or when there may be a delay in a given case. All new diagnoses of cancer will be universally communicated verbally to a member of the treating team and documented in the report.

During the first day of the rotation scheme, the resident will be responsible for operating room consultations from 8 am until 6 pm. A pager carried by the resident announces the request from the operating room or a clinic. Approximately 15 to 20 operating room consultations occur per month, with 30 to 50 individual specimens cut as frozen sections. The resident should obtain all the necessary information to process further the specimens used for operating room consultations. When a request is received, the resident will inform the surgical pathology faculty attending of the request; then, will proceed to pick up the specimen (and the important clinical information that comes with it) in the operating room, noting the time of the pickup. Once the specimen is obtained, the resident and attending will decide if and where to sample the tissue. If needed, a frozen section (FS) will be cut by the resident under faculty supervision. The result will be communicated to the surgeon by the resident, after verification of patient identification, and the diagnosis will be written verbatim for the report, noting the time of the communication and obtaining the signature of the attending. The resident must maintain specimen orientation and information regarding specimen sampling for further processing. The resident is expected to perform simple cleaning and cryostat preparation at the beginning and end of each frozen section duty day.

The number of autopsies during each rotation at the VA will be variable; residents might expect to perform anywhere from 0 to10 autopsies in a given month. The resident will be instructed and assisted in the external examinations of the body and in the dissection by experienced morgue attendant(s) and/or the autopsy attending. The resident is strongly encouraged to learn and participate in the evisceration process.

For each case the resident will:

- Examine and validate the autopsy permit and identify the body.
- Read the clinical history, consult with clinicians, and discuss the case with the attending.
- Determine if there is a significant possibility of an infectious process with a high risk of aerosol transmission, and note it on the permit copy in the morgue.
- Obtain the names of at least four clinicians (for VA cases) involved in the care of the patient from the review of clinical history, and enter these names in the appropriate field in the autopsy report.
- When appropriate, contact the coroner.
- Do an external examination and dissection of organs.
- Obtain and fix samples of all appropriate tissues.
- Discuss the organ findings with the attending.
- Formulate, with the attending, a Provisional Anatomic Diagnosis (PAD).
- Enter (or dictate) a gross description of all organs.
- Trim for histology, and submit the samples when fixation is completed.
- Present a brief clinical history as well as the organ findings at the weekly organ recital for all staff (including radiology staff and interested clinicians).
- Examine the histologic sections independently and then with the attending.
- Discuss the case with the attending and formulate a Final Anatomic Diagnosis (FAD).
- Participate in brain removal.
- Take pictures of gross findings, if applicable.

Residents are strongly encouraged to participate in Thursday afternoon family conferences for families whose loved ones were autopsied 2-3 months prior during the first rotation and to conduct the conferences after obtaining appropriate training and experience.

Residents are also encouraged to participate in brain cutting (performed many Friday mornings; please contact Dr. Sobel).

All residents are encouraged to attend several interdepartmental conferences routinely involving pathology (Tumor Boards, weekly Medicine Multidisciplinary conferences, GI, Urology, etc.). The entire pathology staff (faculty and residents and students and visitors) is encouraged to attend the weekly autopsy organ presentation (Thursday at 2 pm in the morgue). Journal clubs are held at noon on most Fridays, providing an opportunity to critically review current literature. Interesting cases are presented at the

weekly pathology microscopic conference at 1 pm on Wednesdays. Stanford conferences (8 am daily and occasional others) are available via teleconference and/or an internet connection. Attendance at the 8 am daily lecture series is required and is documented using the Time Station application on the mini iPad.

Since medical students and volunteers/visitors often spend clerkship rotations in the VA pathology service, it is expected that the residents provide to them some guidance and teaching within their frame of expertise and availability. In turn, students are expected to assist the residents as appropriate for their level of training.

Residents on anatomic pathology at the VA are expected to master the following broad areas to the level expected of a new practitioner. While it is recognized that it is not entirely practical or necessarily desirable to delineate levels of competency that are specific for year of training, the following are offered as rough guidelines. It is expected that the resident will develop the knowledge base, tools, skills, and demeanor that will foster life-long learning in her/his professional career.

The anatomic pathology rotation at the VA requires considerable dedication and efficient organization. Residents should be prepared to spend time in the preparation and study of cases. In the second and subsequent months, the technical and logistical experience gained during the first month should make work easier and more efficient.

Patient Care

BASIC PRINCIPLES

Year 1: Resident demonstrates knowledge about tissue fixation (including commonly used special fixatives), tissue processing, embedding, orientation of specimens, margin assessment, section preparation, levels, use of special stains, immunohistology, electron microscopy (EM), and cytogenetics.

Year 1: Resident demonstrates basic computer skills in anatomic pathology.

Year 1: Resident is able to present pathology findings at intradepartmental conference.

Year 2: Resident is able to order special stains and levels independently when previewing.

Year 2: Resident is proficient in the preparation and delivery of PowerPoint presentations and is capable of independent case presentation.

Year 2: Resident is proficient at seeking intradepartmental consultation and clinical correlations and is able to resolve diagnostic disagreement.

Year 2: Resident is able to present pathologic findings at weekly interdepartmental conferences.

GROSS EXAMINATION

Year 1: Resident develops proficiency in specimen identification, performs anatomically correct dissection, dictates accurate descriptions, and takes appropriate sections for microscopic examination, including appropriate sections for examination of margins (where appropriate).

Year 1: Resident is knowledgeable about and able to perform specimen photography when appropriate.

Year 1: Resident is proficient in the handling of common specimens requiring special processing (e.g., microbiologic cultures, electron microscopy, cytogenetics, bone marrows, direct immunofluorescence).

Year 1: Resident is proficient in the handling of neuropathologic specimens (including brain removal at the time of autopsy).

Year 1: Resident is proficient at recognizing the need for special studies or dissections (e.g., microbiologic cultures, bone lesions, peripheral vascular lesions).

Year 2: Ability to gross in complicated specimens (e.g., Whipple resection, cystoprostatectomy, radical neck dissections) and dissect complicated autopsy cases (e.g., post-surgical, ampullary/bile duct lesions) with minimal supervision. Must be able to recognize when to seek additional assistance from colleagues or surgeon.

MICROSCOPIC EXAMINATION

Year 1: Resident is able to generate an accurate morphologic description, with a reasonable diagnosis/differential diagnosis. Resident is able to provide basic elements of information in all reports, prepare report, correlate findings with any frozen section findings, and present report to faculty at sign-out.

Year 2: Resident is able to formulate an accurate diagnosis or recognize need for consultation, select special stains/IPOX (where appropriate), and interpret special stains (and associated artifacts).

Year 2: Resident demonstrates adequate knowledge/use of grading systems, use of synoptic reports (as appropriate), indications for supplementary reports, and proper handling of consultation cases.

INTRAOPERATIVE FROZEN SECTIONS/SMEARS

Year 1: Resident understands role of intraoperative diagnosis; appropriate indications for frozen sections; tissue sampling for intraoperative diagnosis, can cut/stain frozen section (within 15 minutes), and is knowledgeable about precautions for handling fresh tissue or other specimens for intraoperative diagnosis.

Year 2: Resident is proficient at the preparation/staining of smears, interpretation of frozen sections/smears with minimal supervision, understands limitations of

intraoperative diagnosis, and is able to communicate effectively and engage in dialogue with treating surgeon and/or clinician.

Systems-based Practice (Lab Management)

Year 1: Resident demonstrates knowledge of JCAHO/CAP standards/requirements for specimen submission and occupational hazards/infection control, particularly with respect to personal protective equipment, storage/disposal of specimens and hazardous chemicals.

Year 2: Resident is competent in the cost-effective practice of pathology and medicine.

Year 1&2: Resident demonstrates knowledge of quality assurance and improvement and basic risk management issues.

Year 1&2: Resident recognizes which autopsy cases require consultation with the coroner.

Professionalism

Year 1: Resident develops expertise in use of appropriate phraseology in reports, demonstrates effective skills in communication to physicians and patients, when appropriate, and understands importance of timeliness, turnaround and rush cases.

Year 2: Resident assumes responsibility for presentation of pathology at interdepartmental conferences.

Year 1&2: Resident communicates with support staff, administrative staff, technical staff, housestaff colleagues, and supervising faculty in a respectful and efficient manner. Residents receive 360 degree evaluations on every rotation.

Year 1&2: Resident functions as a member of an integrated anatomic pathology team, helping colleagues as appropriate, to provide accurate, efficient, high quality patient care.

Medical Knowledge

Year 1: Resident develops basic understanding of disease with correlation to morphology. The resident develops a managerial classification that includes concepts of benign, borderline (low malignant potential), uncertain malignant potential, and malignant.

Year 1: Resident develops understanding of the role of intraoperative frozen section/touch preparations in clinical decision making.

Year 2: Resident is proficient at dissection, analysis and investigation of unusual or difficult cases and can workup cases with minimal supervision.

Year 1&2: Resident participates in journal club.

Practice-based Learning

Year 1: Resident develops case-based learning as a tool for disease pathogenesis via weekly autopsy conferences.

Year 2: Resident is able to use wide variety of information sources and is able to use effective problem solving skills in pathology. Proficiency in literature searches and assimilation of scientific and clinico-pathologic information to apply to specific problems in pathology is required.

Year 1&2: Resident reviews chart and/or prior anatomic pathology specimens, contacts relevant clinicians and summarizes clinical findings and correlates them with the gross and microscopic findings.

Interpersonal and Communication Skills

Year 1: Resident learns to prepare accurate, concise, complete and cogent written surgical pathology and autopsy pathology reports that incorporate all relevant findings (e.g., clinical, radiologic, serologic, cytogenetic, immunohistochemical, etc.).

Year 1: Resident learns to communicate effectively with surgeons and other clinicians during intraoperative consultation and at case sign-out, when appropriate.

Year 1: Resident participates in post-mortem conferences with family members of the deceased.

Year 2: Resident actively participates in teaching medical students and first year residents on the anatomic pathology rotation.

Year 2: Resident conducts post-mortem conferences with family members of the deceased.

Year 1&2: Resident teaches medical students in the medical school pathology labs in an effective and clear manner, (i.e., correlation of gross and microscopic findings with clinical findings).

Transfusion Medicine Fellowship Program

Program Director: Lawrence Tim Goodnough, MD

Goals

This one year fellowship is intended to provide trainees with additional subspecialty competence in the practice of Blood Banking and Transfusion Medicine. At the end of the year trainees are expected to have acquired the foundation and expertise for an academic career in Transfusion Medicine, and to independently run a Transfusion Medicine Service and/or a Blood Center in an academic medical center. This expertise includes such domains as Patient Blood Management, immunohematology, blood collection and processing, stem cell collection and cellular therapies, consultative transfusion medicine, therapeutic apheresis, supervision and training of laboratory personnel, laboratory management, and quality assurance.

Objectives

The Transfusion Medicine Fellow will be an integral part of the Transfusion Service/Blood Center operations. He /she will have substantial responsibilities for patient care, and usually serve as the primary link between the clinical services and the Blood center/Transfusion Service. The following objectives and core competencies for the rotation are listed as follows:

Patient care

- To develop a thorough knowledge of blood collection, preparation, storage, and shipment
- To understand indications for transfusion and develop proficiency in selection of appropriate blood products for transfusion
- To understand pre-transfusion testing
- To attain proficiency in managing transfusion-related complications

Medical knowledge

- To understand the immunologic and genetic principles that underlie transfusion medicine
- To understand the role of transfusion medicine and cellular therapy in managing specific acute and chronic diseases
- To understand complications of blood transfusion, including infections and iron overload and other non-infectious side effects

Interpersonal and Communications Skills

- To teach medical technology staff thorough presentation of continuing education lectures
- To develop effective writing skills by writing a brief case report of an unusual case appearing during the rotation
- To serve as a liaison between blood bank staff and clinicians
- To communicate effectively in the role of first call consultant to clinicians with questions or problems
- To serve as a helpful resource for technologists and clinicians regarding blood banking/transfusion medicine issues
- To assist in teaching Core Lab rotation residents principles and practices of the Transfusion Service

Professionalism

- To complete interpretive reports in an accurate and timely fashion
- To interact in a professional, helpful and respectful manner with clinicians, other house staff, and technical and administrative staff
- To display sensitivity to ethical, cultural, and religious issues relating to blood transfusion

Systems-based Practice

- To develop an understanding of quality assurance in blood banking, transfusion medicine, and cellular therapy.
- To understand the role of the Stanford University Medical Blood Center in relationship to the Stanford Medical Center transfusion service
- To understand CAP and AABB accreditation requirements
- To provide consultation in cost-effective medical practice regarding indications for transfusion and selection of appropriate products
- To become familiar with the regulatory agencies and rules governing collection, processing and distribution of blood products
- To be aware of emerging pathogens and their potential impact on national blood supply

- To understand inventory management of blood products, at the local and national level

Practice-based Learning

- To use case-based learning as a tool for additional insight into the basis of disease
- To locate and assimilate pertinent evidence from scientific studies
- To demonstrate effective problem solving skills in transfusion medicine, using a wide variety of information resources

During the first six-months (three months each on TS and on SBC), the fellow will learn the basic immunologic and genetic principles of transfusion medicine, and will have hands-on experience with the bench work. The fellow will become familiar with blood donor questionnaire donor deferral, blood collection, preparation, storage, and shipment. The fellow will become familiar with typical consultative questions from clinical staff, including special needs, non-standard protocols, massive transfusion guidelines, ECMO protocols, etc. He/She will take first day calls and night and weekend calls in rotation with residents during the first two months and thereafter will take second calls, with coverage by the attending as third call.

During the seventh and eighth month, the fellow will have required rotations. Therapeutic Apheresis Unit, the HLA laboratory, the coagulation laboratory and the Stem Cell Processing Laboratory.

During months nine through twelve, the fellow will function with increasing independence in the evaluation of transfusion reactions and in consultative responsibilities with clinical staff, as deemed appropriate by the service director. During these last four months, the fellow(s) will also be expected to lead rounds daily (Monday – Thursday) at the SHC Transfusion Service and take second call during daytime and evening hours. Each fellow will similarly take call 2 weekends per month (second call), including Friday.

The Transfusion Medicine Fellow will be expected to attend all Clinical Pathology conferences related to Transfusion Medicine by the Transfusion Medicine / Blood Center Medical Directors and Staff. He/she will be expected to teach the residents and technical staff and will also be expected to actively participate in the Transfusion Medicine and Blood Center Management and quality meetings and to contribute substantially to a scholarly project which results in publication.

Additional Responsibilities

1) The fellow will lead the weekly conference (Mondays at 1 PM) during which weekly on-call transfusion /blood center issues will be presented.

2) The fellow will supervise residents and students on rounds and during calls (taking second call with the supervision of an attending as third call) as soon as the second or third quarter of the fellowship.

3) The fellow will participate in house staff training of clinical services in transfusion medicine. This will consist in a one hour lecture to residents and fellows in surgery, medicine, pediatrics, and anesthesia.

4) The fellow will develop at least one project to work on during his/her elective time for a potential presentation at a national meeting and/or a publication.

Evaluation

Monthly evaluations are generated through Medhub that includes all of the core competencies. The completed evaluation is electronically forwarded to the Trainee for review. All potentially negative evaluations must be discussed with the Trainee by the middle of the month, to allow the Trainee to improve before the formal evaluation is completed. All negative final evaluations must be discussed directly with the Trainee and a plan for improvement addressed. Additionally, the Trainee will complete quizzes throughout the year. These quizzes should serve as an assessment tool of the objectives to be met. A list of objectives will be handed out at the beginning of each rotation in the Transfusion Service, Blood center, HLA laboratory, Apheresis and stem cell lab, and coagulation lab. The Trainee will meet quarterly with the Director of the Program, review the list of objectives that have been completed, and discuss their progress in the program.

CORE CLINICAL CHEMISTRY AT HOSPITAL

Rotation Director: Raffick Bowen, PhD, MHA, MLT (CSMLS), DCLCHEM, FCACB, DABCC, FACB

Goals and Objectives

Patient Care

Learn to interpret results for a variety of Clinical Chemistry tests including markers of myocardial damage and cardiovascular risk; tests important in management of critical illness common markers of renal and liver function therapeutic drug monitoring and toxicology.

Medical Knowledge

Become familiar with the wide variety of analytical principles used in Clinical Chemistry including spectrophotometry, electrochemistry, chromatography and immunoassay.

Understand how laboratory tests used in the diagnosis and treatment of a variety of diseases reflect the underlying pathophysiology.

Practice-Based Learning and Improvement

For all important Clinical Chemistry analytes, become familiar with: pre-analytic influences on test results and common uses of test results in diagnosis and/or monitoring of clinical disease.

Interpersonal and Communication Skills

Be able to interact effectively with clinical physicians regarding the interpretation of laboratory results and selection of appropriate tests.

Professionalism

Be able to interact effectively with clinical laboratory scientists regarding laboratory technical problems and understand different approaches to resolving human resource issues.

Healthcare Delivery

Recognize important aspects of the administration of a clinical laboratory and be capable of implementing a method, as indicated by understanding how to do a formal method evaluation, write a procedure, establish quality control policies, evaluate quality control performance, and evaluate proficiency testing results.

Requirements of the rotation

The Clinical Chemistry section in the Core Laboratory rotation is a one-month rotation.

1) The resident will meet with Dr. Bowen in his office (H1401J) every Tuesdays and Thursdays for 3 hours (1:30 pm – 4:30 pm) to review major clinical issues and discuss any didactic questions. The resident should be prepared to review **two didactic topics** for every session. The didactic meeting days may change depending on circumstances at that time. The resident can also meet with the supervisor and reference technologists to review any major technical problems.

2) The resident will attend the following meetings:

    - Morning shift Chemistry Core Lab Operations Meeting (Wednesday, 7:00-7:30 AM in H1551- Left, - **biweekly**)

    - Clinical Chemistry Quality (MOD SQUAD) and Operation's Meeting (**first Thursday of each month**, 9:00-10:00 AM in H1401D or Dr. Bowen's office)

3) The resident will take "first call" (in place of the director) for all clinical addressed to the laboratory during each weekday.

4) The resident will also assume primary responsibility for:

    - Review all toxicology analyses, with appropriate follow-up (e.g., evaluate discrepancies)

    - Review results of all requests for intra-operative PTH

    - Review any problematic testing results and determine the appropriate interpretation

5) The resident should cover all of the major topics of Clinical Chemistry in the Core Laboratory. To assist the resident, each of these has a specific "didactic" exercise (see table). Dr. Bowen will give you the didactic materials on your first day of the rotation in his office at 10 AM in his office.

6) The resident is required to give a 15-20 minutes presentation to the staff at the Wednesday AM shift meeting on a clinical topic. The presentation by the resident will occur on the last Wednesday of the month.

Didactic Table

THEME	TOPICS

Specimen Collection, Chemistry Methods & Instruments	• Specimen Processing & Instrumentation • Photometry • Electrochemistry
Critical Care Chemistry	• Osmolality & Electrolytes • Blood Gas & Acid/Base • Glucose & Ketones
Growth & Development	• Pregnancy & Perinatal Testing • Proteins & Enzymes • Gastrointestinal Disorders
Organ Injury & Dysfunction	• Liver Disease • Renal Disease • Cardiovascular Disease
Toxicology & TDM	• Pharmacokinetics • Therapeutic Drug Monitoring • Immunosuppressive Drugs • Toxic Syndromes

Supervision and Evaluation

During the rotation, the resident will meet daily with the medical director to discuss problems encountered during the day, on-going issues or any of the topics outlined in the schedule noted above. He or she should reserve some time for these review sessions.

The resident will be evaluated, not only based on his/her daily work as assessed by the director and supervisors but also by written, closed-book examination, administered at the end of each month of the rotation (3-4 hours). The examination will be designed to highlight areas of importance and to assess whether the resident needs additional help in gaining competence in

any specific areas. Results will be reviewed with the resident. The resident should achieve ≥75% on the exam to pass the rotation. Residents with a score lower than 75% may be given additional questions/case studies to work on until the section director deems that the resident has successfully passed the chemistry rotation.

Major textbook and learning resources

Our primary textbook is the Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics (**7th Edition, 2015**; Editors: Carl A. Burtis, Ph.D. and David E. Burns, MD) from which reading assignments for each didactic session will be given. However, it should be noted that this text will frequently be supplemented with more current journal articles; these supplemental references will be included, along with the textbook reading assignments, in the didactic session handout.

Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics (7th Edition, 2015; Editors Carl A. Burtis and David E. Burns):

Chapter 6: Specimen, Collection, Processing and Preanalytical Variables

Chapters 7 and 9: Spectrophotometry/Quality Control

Chapters: 10 and 15: Electrochemistry/Immunoassay

Chapters 2, 3 and 24: Osmometry/Method Validation

Chapters 24 and 36: Electrolytes, Blood Gases, Water, and Acid- Base Metabolism

Chapters 22 and 33: Carbohydrates/Diabetes

Chapter 44: Pregnancy and Prenatal Testing

Chapters 14 and 19: Enzymes and Rate Analyses

Chapter 38: Gastrointestinal and Pancreatic Function and Diseases

Chapters 23 and 34: Lipids, Lipoproteins, Apolipoproteins and Cardiovascular Disease

Chapters 21 and 35: Kidney Function Tests and Diseases

Chapter 46: Pharmacogenetics and Pharmacokinetics – My notes and handbooks

Chapter 30: Therapeutic Drug Monitoring

Chapter 31: Clinical Toxicology

Chapter 28 and 37: Liver Diseases

Chapter 30: Immunosuppressive Drugs

CLINICAL CHEMISTRY & IMMUNOLOGY (HV)

Director, Run Zhang, MD, PhD

Goals and Objectives

Patient Care

Learn to interpret results of Clinical Chemistry & Immunology (HV) tests including:

- ones used to diagnose common and uncommon endocrine disorders
- serum, urine and CSF protein electrophoresis for the diagnosis and follow up of multiple myeloma, lymphoma, multiple sclerosis, and others
- serologic markers of autoimmune & allergic disorders
- serology of infectious diseases
- trace & toxic metals
- tumor markers
- serologic markers of celiac disease

Medical Knowledge

Be familiar with many analytical principles in the section including:

- spectrophotometry, chromatography, and mass spectrometry
- method for trace & toxic metals
- immunoassays (iPTH and TSH being prime examples)
- how diagnostic laboratory tests reflect the underlying pathophysiology

Practice-Based Learning and Improvement

For all important Clinical Chemistry & Immunology (HV) analytes, become familiar with

- common pre-analytic influences on test results
- common uses in diagnosis and/or monitoring of clinical disease
- evidence-based medicine in support of test selection and interpretation

Interpersonal and Communication Skills

Be able to interact effectively with physicians, residents and fellows regarding interpretation of laboratory results and selection of appropriate tests.

Professionalism

- be able to interact effectively with lab supervisor and clinical laboratory scientists regarding laboratory technical problems
- understand different approaches to resolving human resource issues

Healthcare Delivery

- recognize important aspects of the administration of a clinical laboratory
- be capable of implementing a method, as indicated by understanding how to:
  - do a formal method evaluation
  - write a procedure
  - establish quality control policies and evaluate QC performance
  - evaluate proficiency testing results

Requirements of the rotation

The Clinical Chemistry & Immunology (HV) rotation is divided into two parts: Month One and Month Three

Requirements during Month One:

1) The resident meets with attending faculty regularly to review any major clinical issues, and with a supervisor as needed to review any major technical problems.

2) The resident attends the following meetings:

- Clinical chemistry operations meeting (as determined and announced by secretary via email)

- Chemistry quality (MOD squad) meeting (as determined and announced by secretary via email)

- Clinical chemistry journal review as part of Path Review process (as determined and announced by the director)

3) The resident takes "first call" (in place of a director) for all clinical questions addressed to laboratory during each weekday.

4) The resident assumes primary responsibility for:

- review any problematic testing results (so called Path Review) and determine the need of action and/or appropriate interpretation

- review and provide interpretation of protein electrophoresis results after a period of orientation and under the guidance of a director.

5) During the introductory Month One rotation, the resident covers all of the major topics of Clinical Chemistry and Immunology (HV), as outlined in the Didactic Table.

Didactic Table

THEME	TOPICS
Chemistry Methods & Instruments	16. Chromatography & Electrophoresis 17. ICP/Mass Spectrometry 18. LC/Tandem Mass Spectrometry 19. Immunochemistry & Immunoassay
Endocrine Disorders	20. Diabetes Mellitus 21. Thyroid Disorders 22. Adrenal Disorders 23. Reproductive Disorders 24. Unusual Endocrine Disorders
Growth & Development	25. Mineral & Bone 26. Vitamins 27. Trace Elements
Organ Injury & Dysfunction	28. Gastrointestinal Disorders 29. Tumor Markers
Toxicology & TDM	30. Environmental Toxins
Immunologic Disorders	31. Innate Immunity & Cytokines 32. Serologic Diagnosis of Infectious Disease 33. Allergic Disorders 34. Autoimmune Disorders 35. Chemistry of Myeloma & Lymphoma 36. Immunodeficiency Disorders

Requirements during Month Three:

The resident functions as the overall medical director for both Clinical Chemistry (SHC) as well as Clinical Chemistry & Immunology (HV) (handles all medical and administrative issues, reviews quality control and proficiency test results). In addition, miscellaneous special topics in Clinical Chemistry & Immunology (such as point-of-care testing, body fluid analysis, etc.) may be covered. The resident needs to divide her/his time between both campuses during this month.

Supervision and Evaluation

During the rotation, the resident meets regularly with attending faculty to discuss problems encountered during the weekday, on-going issues and/or any of the topics outlined in the schedule noted above. He or she reserves some time for these review sessions.

The resident is evaluated not only based on his/her daily work as assessed by the director and supervisor(s) but also by his/her work on specific projects assigned by the director during
the time. Examples of projects include new test validation and evaluation, test procedure improvement based on patient data analysis, improved test result interpretation based on emerging clinical evidence and discovery.

Major text and learning resources

“Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics, 7e (2014) and “ Protein Electrophoresis in Clinical Diagnosis” by David Karen (ASCP Press 2012) are the main designated textbooks, from which reading assignments for each didactic session may be given. However, it should be noted that this text will frequently be supplemented with more current journal articles as an integral part of learning and literature review

Coagulation / RBC Special Studies

Director, Coagulation: James Zehnder, MD

Directors, RBC Special Studies: Bertil Glader, MD

Goals and Objectives

Patient care

- Be familiar with a wide variety of adult and pediatric coagulation and red blood cell disorders
- Develop competency in interpretation of coagulation and special red cell disorder testing
- Gain skill in the technical and interpretative aspects of these special tests
- Correlate clinical findings laboratory results in samples submitted for coagulation and special red blood cell testing
- **Understand the limitation of each test.** Learn appropriate selection of diagnostic tests in these areas.

Medical knowledge

- Develop basic knowledge of the clinical, pathogenetic, and laboratory features of the more common coagulation and red cell disorders
- Understand the significance of the various diagnoses in determining treatment plans
- Become familiar with outcomes and prognoses of common coagulation and red cell diseases

Interpersonal and communication skills

- Communicate clearly with clinical colleagues to obtain clinical information in case evaluation
- Communicate diagnoses and describe the results and testing that support those

diagnoses effectively, both verbally and in written reports

- Work closely with laboratory staff in coordinating specimen timely processing

Professionalism

- Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case

- Work effectively and efficiently with support and administrative staff in the lab to maximize productivity and maintain the quality of the work environment

- Complete written reports in a timely fashion

Systems-based practice

- Learn the process of case evaluation and work flow in the laboratory, from accessioning and processing of specimens to sign-out and delivery of patient reports

- Use awareness of laboratory work flow to optimize efficiency and turn-around-tim e through working with laboratory, administrative and clerical staff

- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care

- Begin to develop awareness of issues in coding and billing

Practice-based learning

- Use case-based learning as a tool for additional insight into the basis of disease

- Locate, appraise and assimilate pertinent data from scientific studies

- Demonstrate effective problem solving skills in diagnosing coagulopathies and red cell disorders using a wide variety of information resources, including laboratory and hospital information systems

Length of Rotation: One month

- 2-3 weeks spent in coagulation and

- 1-2 weeks in the red blood cell laboratory

Requirements of the rotation/ Resident duties and responsibilities

Week 1: Coagulation

***Monday*:**

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Processing, Basic Principles of Hemostasis Review and Traditional and new anticoagulants monitoring

Meet with Dr. Zehnder: Introduction to Coag, Inhibitor Screens

PM:

1pm Transfusion Call Conference

***Tuesday*: AM:**

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Congenital and Acquired thrombotic factors-- literature review

Noon: Hematology Journal Club (2nd floor of Cancer Center, Room 2103)

PM:

Sign-out Inhibitor Screens

Work on cases: 1-10

***Wednesday*:**

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Bleeding Disorders (Factors and VWD) -- literature review

Noon: Hematology New Patient Conference (Cancer Center, Room 2101 or 2012

PM:

Sign-out Inhibitor Screens

Work on cases 11-20

Thursday:

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Platelet Function (TEG, PLTMAP, Multiplate, Platelet Aggregation and RIPA) --

literature review

Noon: CP Lecture series Hillview Purple Room

PM:

Sign-out Inhibitor Screens, PLTMAP, PLTAGG and Multiplate

Work on cases 21-30

Friday:

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Heparin Induced Platelet Aggregation, Heparin Induced Platelet Antibodies

Meet with Dr. Zehnder: Case Discussion

Noon: CP Call Conference

PM:

Sign-out Inhibitor Screens, PLTMAP, Multiplate, RIPA, PLTAGG and HIT Function test

Week 2: Coag/Red Cell Special Studies

Monday:

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Thrombotic and Bleeding Disorder related tests

Meet with Dr. Zehnder: Case Discussion

PM:

1pm Transfusion Call Conference

Tuesday:

AM:

Meet with Technologists in the Special Coagulation laboratory (9:30AM):

Review: Wrap-up: case studies in routine and special coagulation lab

Noon: Hematology Journal Club (Cancer Center, Room #?)

PM:

Sign-out Inhibitor Screens, PLTMAP, Multiplate, RIPA, PLTAGG and HIT Function tests

Work on cases: 31-40

Wednesday:

AM:

Meet with Technologists in the Red Cell Special Studies Laboratory:

Noon: Hematology Conference (Cancer Center, Room #?) PM:

Sign-out Inhibitor Screens, PLTMAP, Multiplate, RIPA, PLTAGG and HIT Function tests

Work on cases 41-50

Thursday:

AM:

Meet with Technologists in the Red Cell Special Studies Laboratory:

Noon: CP Lecture series Hillview Purple Room

PM:

Sign-out Inhibitor Screens, PLTMAP, Multiplate, RIPA, PLTAGG and HIT Function tests Work on cases 51-60

Friday:

AM:

Meet with Technologists in the Red Cell Special Studies Laboratory: Meet with Dr. Zehnder: Case Discussion

Noon: CP Call Conference

PM: Sign-out Inhibitor Screens, PLTMAP, Multiplate, RIPA, PLTAGG and HIT Function tests

Coagulation reference materials

1) Clinical Use of Coagulation Tests: Zehnder JL, UpToDate (available on line):

2) Disorders of Hemostasis and Thrombosis: Goodnight SH, Hathaway WE, McGraw Hill (available at medical bookstore, residents' library)

3) A syllabus of laboratory tests and case studies for review and discussion is available located at: **S:\Private\Coag\Special Coagulation HV\Training**

Supervision and Evaluation

The resident's work will be supervised by an attending hematopathologist in all areas. The resident will be evaluated on his/her daily work as assessed by each director. Results will be reviewed formally with the resident.

CP Hematology

Rotation Director: Robert Ohgami, MD, PhD

Introduction

On the Bone Marrow/Peripheral Blood/Body Fluid (BM/PB/BF) service and the Flow Cytometry (FLOW) service (also known as "Wet Heme"), you will have the opportunity to review and report on body fluid cytospin slides, peripheral blood smear, and bone marrow aspirates and core biopsies. You will also learn to pick panels and analyze results of flow immunophenotyping of bone marrow, peripheral blood, body fluid and lymph node or soft tissue specimens. You will integrate cytogenetic findings into finalized cases by writing amendment reports.

During the BM/PB/BF weeks, your desk and official rotation manual is in room H1557 (Stanford CP Residents' Room). During your weeks on the Flow Cytometry Service you will be at Hillview (3375 Hillview Avenue, Palo Alto, CA 94304.)

Before Starting

Before starting this rotation, contact Dr. Ohgami (rohgami@stanford.edu) and Janet Junio (jjunio@stanfordmed.org) to let them know you are coming on service. You will also need to schedule the CLS Bench Sessions (see below) by emailing the contacts at both Stanford & Hillview**:**

STANFORD CONTACT Mercy

Dones & Janet Junio

Mercy - mdones@stanfordmed.org

HILLVIEW CONTACT Veronica Wei & Janet Junio

Veronica – swei@stanfordmed.org

Goals and Objectives

Patient Care

Be familiar with a wide variety of adult and pediatric hematologic disorders, neoplastic and benign.

- Develop competency in the following:
  - Peripheral blood smear, body fluid and bone marrow interpretation.
  - Correlating morphology with ancillary tests used for diagnosis, such as special stains (i.e. cytochemistry, iron, etc…), HPLC/ hemoglobin electrophoresis, NBT test, Kleihauer Betke test, flow cytometry, and tissue immunohistochemistry.
- Gain skill in the technical and interpretative aspects of flow cytometry.
- Correlate clinical findings with morphology of clinical hematology samples.
- Learn appropriate selection of diagnostic tests in hematology.
- Develop basic expertise in medical microscopy of body fluids and urinalysis.
- Correlate findings in fluid samples with those in the cytopathology laboratory.

Medical Knowledge

- Develop basic knowledge of the clinical, pathogenetic, morphologic, immunopheno-
- typic and genetic features of the more common diseases of the hematopoietic system.
- Understand the significance of various hematologic diagnoses in determining treatment plans.
- Become familiar with outcomes and prognoses of common hematologic diseases.
- Interpersonal and communication skills.
- Communicate clearly with clinical colleagues to obtain clinical information incase evaluation.
- Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports.
- Work closely with laboratory staff in coordinating specimen timely processing.
- Optimize interpersonal and communication skills.

System-based Practice

- Learn the process of case evaluation and work flow in hematopathology, from accessioning and processing of specimens to sign-out and delivery of patient reports.
- Use awareness of laboratory work flow to optimize efficiency and turn-around-tim e through working with laboratory, administrative and clerical staff.
- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care.
- Begin to develop awareness of issues in coding and billing.

Practice-based Learning

- Use case-based learning as a tool for additional insight into the basis ofdisease.
- Locate, appraise and assimilate pertinent data from scientific studies.
- Demonstrate effective problem solving skills in diagnostic hematopathology using a wide variety of information resources, including laboratory and hospital information systems.

Milestone Reporting

As a part of ACGME and ABP Milestone Reporting in Pathology, residents may be evaluated periodically, to determine what level of performance they have achieved and demonstrated during and/or over the course of the rotation. Below is a short general summary of these levels of performance, which are extrapolated and determined from the above Goals and Objectives.

Level 1: The resident is a graduating medical student/experiencing first day of residency.

Level 2: The resident is advancing and demonstrating additional milestones.

Level 3: The resident continues to advance and demonstrate additional milestones; the resident consistently demonstrates the majority of milestones targeted for residency.

Level 4: The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency.

Level 5: The resident has advanced beyond performance targets set for residency and is demonstrating “aspirational” goals, which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

Duties and Responsibilities

The work load will be divided between CP and AP Residents and Hematopathology Fellows with typically 3 trainees handling bone marrows, peripheral blood smears and body fluids **(BM/PB/BF)** at Stanford, and the 4th trainee handling **flow cytometry (FLOW)** specimens at Hillview.

The trainees at Stanford on the **BM/PB/BF service** will review cases with their Attending, and as necessary, call physicians with results or to request further clinical information. Cases will be split amongst the trainees at Stanford on the BM/PB/BF service. Residents on their first week are limited to 5 bone marrow cases with no limit on peripheral blood or body fluid cases. The trainee is expected to look up pertinent clinical history for all cases and to preview peripheral blood and body cases as well as to preview, and perform 200-cell differential counts on at least 2 bone marrow cases per day. Cases will be reviewed each morning beginning around 9:30 AM in the bone marrow reading room with the Attending, beginning with bone marrow cases and any clinically urgent cases. Associated flow cytometry studies will be reviewed and incorporated into the report. If peripheral blood and/or body fluid cases are not available for review before morning signout then a separate early afternoon signout may be scheduled at the discretion of the Attending. Both fellows and residents on BM/PB/BF rotation weeks are responsible for integrating weekly cytogenetic results into cases to create amendment reports; these cases are typically not cases that the trainee has previously signed out. The trainee is expected to communicate clearly with the clinical team regarding all clinical questions on the morphologic evaluation of aspirates and peripheral blood smears, body fluids, and flow cytometry specimens submitted with in-house marrows, after consultation with the hematology specialist, fellow or attending pathologist as needed.

The trainee at Hillview covering the **FLOW service** will preview all flow cytometry cases not associated with a Stanford bone marrow case and will sign-out with the FLOW attending at beginning around 9:30am at the multiheaded scope at Hillview. The Hillview trainee is also responsible for picking the appropriate flow cytometry panel for all cases after reviewing pertinent history and slides. Panel picking should be performed with help from the attending pathologist until such a time as the trainee has been determined to be sufficiently experienced to pick panels independently. The trainee is expected to communicate with the clinical team for all clinical questions regarding flow immunophenotyping results on cases not assigned or not yet available to the BM/PB/BF service, after consultation with the fellow or attending pathologist as needed.

At Hillview, the trainee will interpret flow cytometry results with the fellow or attending:

- Check the entered flow cytometry data for accuracy in Power Path, and incorporate an interpretation in the report.
- Text comments for negative flow cytometry reports are available in Power Path.
- Cases will be dictated as soon as possible.
- After correcting the dictation, forward the cases to the Attending for sign-out on the same day.
- The slides and paperwork must be available to the Attending for re-review.

Trainees on both services will contact clinicians for additional clinical history or for urgent diagnoses as necessary. The name of the clinician, the trainee, the time of the communication and the content of the communication should be recorded.

Bench Training with Clinical Laboratory Scientists

This should be arranged with the supervisors (Mercy Dones, and Veronica Wei). The Resident rotates through a different section of Hematology for detailed instruction by a reference technician. The Residents are excused for their clinical work during this time. The Resident should touch base with the Rotation Director immediately if any issues arise in scheduling the bench training sessions.

STANFORD Hematology (coordinated by Mercy Dones)

- Hematology specimen processing, automated Hematology & QA
- Body fluids
- Urinalysis
- Special Hematology

Contact: Mercy - mdones@stanfordmed.org

HILLVIEW (coordinated by Veronica Wei & Janet Junio)

- Flow Cytom
- etry (2 sessions)
- RBC Special Studies Laboratory Contact:

  Veronica - swei@stanfordmed.org

Teaching

- The Resident is to give at least 1 in-service to the Hematology Techs at the Hematology section meetings
- The Resident is to give at least 1 in-service to the Flow Cytometry techs

Conferences (Subject to change)

Conference	Day & Time	Comments
Heme consensus conference (weekly)	Tu & Th 1:30 pm	Challenging and/or interesting cases will be presented. Fellows will select specific topics related to cases for journal club presentations
Resident scope conference (monthly)	M 12:30 pm	Attendance highly encouraged
Fellow scope conference (monthly)	Tu 12:30 pm	Attendance required
Current Concepts (weekly)	Tu 8 am	Fellows will present at least once per year (journal club format)
CP Conference (weekly)	F 12:30 pm	Fellows will select at least one case for presentation when scheduled
Lab Medicine (weekly)	Th 12:30 pm	Attendance required
QA/QI meeting (monthly)	Tu 12:30 (3rd Tu of month)	Attendance required
Surgical Pathology	W, Th, F 8 am	Optional
Hodgkin Conference (weekly)	M 8 am	Fellows on the Consult service will present when scheduled
Hematology conference (monthly)	W 12 noon	Fellows will present cases as scheduled
Pediatric tumor board (weekly)	Tu 5 pm	As scheduled when pediatric heme cases are discussed

CP Heme Call Responsibilities

Monthly Call Schedules

Monthly call schedules that designate the fellow and attending pathologists on call are posted on the first day of each month throughout the clinical laboratory and emailed to all.

Normal Working Hours

During normal working hours, the resident or fellow on a given part of the CP Hematology service takes the initial calls for that service with Fellow and Attending back-up.

For example, if the CP resident is handling flow cytometry specimens in a given week, all requests related to flow cytometry will be initially directed to that resident, with the designated service attending available to assist the resident.

After Normal Working Hours

The CP resident on call (#12005) handles all calls after normal working hours. A hematopathology fellow is also on call (except Sunday) as an initial back-up to the resident,

but the Bone Marrow service Attending pathologist for any given week is the ultimate back-up person for both the resident and fellow.

Evening and Weekends

Flow cytometry:

For evenings and weekends, "first-call" involving picking flow cytometry panels and morphologic evaluation of specimens submitted for flow cytometry evaluation as well as all other hematopathology-related "first-call" (e.g., peripheral smears and body fluids) involving "critical" issues are typically taken by the On-Call CP Resident (#12005 pager). Clinically actionable findings are communicated to the hematopathology fellow/attending on call and the clinical care team, as indicated. Any communication with the clinical care team should be documented including name, time, and what was communicated.

PB/BF (Peripheral blood, Body Fluids):

Routine examination of peripheral blood smears and body fluids, however, will be performed by one of the CP Resident/hemepath fellows covering the BM/PB/BF service. Review of PB/BF should be performed once on both Saturday and Sunday. Specifically, it is important to briefly review all the cases to identify any clinically actionable findings. There is no requirement to look up clinical history on every case. Clinically actionable findings are communicated to the hematopathology fellow/attending on call and the clinical care team, as indicated. Any communication with the clinical care team should be documented including name, time, and what was communicated.

The Daily Schedule on ON BM/PB/BF at Stanford

8:00 AM - 9:00 AM Conference (L201, Hillview main conference room)

9:00 AM -9:30 AM Prepare rest of case histories (collect majority of case histories the night before). Pick up biopsy slides from room H2110. Go to "Special Heme" in CP lab to pick up the aspirates. Check everything against your list of expected cases and specimens.

9:30 AM -12:00 PM Sign-out (Bone Marrow Sign-out Room, Clinical lab).

12:00 PM - 4:30 PM Work on cases, preview aspirates, pick up special stains (ordered before noon), and immunohistochemistry from the previous weekday.

1:30 pm – 2:30pm A separate early afternoon body fluid/peripheral blood signout may be scheduled at the discretion of the attending to allow time to preview body fluids and peripheral bloods.

4:30 PM - 5:00 PM Review stains with Attending.

5:00 PM - 6:00 PM	Work on cases, prepare casehistories, and preview.

The Daily Schedule on Flow Cytometry at Hillview

8:00 AM - 9:00 AM	Morning conference (L201, Hillview main conference room)
9:00 AM -9:30 AM	Prepare case histories (collect majority of case histories the night before).
9:30 AM - 12:00 PM	Pick up flow cytometry reports upstairs

Sign-out and pick flow cytometrypanels.

12:00 PM - 6:00 PM	Work on cases and pick flow cytometrypanels.
6:00PM-10:00PM	Go home, pick flow cytometry panels from home; go in and look at slides if necessary.

Studying

Study Sets

As it is not possible to see the large breadth of Hematology during a rotation, glass slide

sets are available for review of abnormalities on Peripheral Smear, Bone Marrow and Body Fluids. Email Janet Junio @ JJunio@stanfordmed.org to check out/borrow study set slides and questions/histories pertaining to the study sets and slides.

Pre-test & Post-test

A pre-test of Peripheral Blood smears and Body Fluids should be taken during the first week of service.

A post-test of Peripheral Blood smears and body fluids should be taken during the last week of service.

Email your completed tests to Janet Marie Junio JJunio@stanfordmed.org.

Major Texts and Learning Resources

1. Swerdlow SH et al. WHO Classification of Tumours, Pathology & Genetics, Tumours of Haematopoietic and Lymphoid Tissues (2008)
2. Bain B. Blood Cells. A Practical Guide, 4th Edition (2006)

3. Jaffe ES, Harris NL, Vardiman JW, Campo E, Arber DA, eds. Hematopathology (2011) Philadelphia: Elsevier

4. Knowles D. Neoplastic Hematopathology, 2nd Edition (2001)

5. Kjeldsberg C. Practical Diagnosis of Hematologic Disorders, 5th Edition (2010)

6. Glassy EF. CAP Color Atlas of Hematology (2005)

7. Hoyer JD, Kroft SH. Color Atlas of Hemoglobin Disorders (2003)

8. Foucar K, K Reichard, D Czuchlewski. Bone Marrow Pathology, 3rd Edition (2010)

9. Pereira I. et al., Atlas of Peripheral Blood: The primary diagnostic tool. (2012)

10. Keren DF et al. FLOW Cytometry in Clinical Diagnosis, 3rd Edition (2001)

11. Shapiro HF. Practical FLOW Cytometry, 4th Edition (2003)

12. Nguyen D et al. FLOW Cytometry in Hematopathology, 2nd Edition (2007)

13. Kjeldsberg C, Knight J. Body Fluids, 3rd Edition (1993)

14. Galagan KA, Blomberg D, Cornbleet PJ, Glassy EF. Color Atlas of Body Fluids (2006)

15. Haber M, Blomberg D, Galagan K, Glassy EF, Ward P. CAP Color Atlas of the Urinary Sediment (2011)

16. McPherson RA, Pincus MR. Henryâ€™s Clinical Diagnosis and Management by Laboratory Methods, 21st Edition (2006)

Preparing for Sign-out and Completing/Writing Cases

How to Search for Case Histories

Searching PowerPath and Epic for patient case histories

PowerPath History Searching

Open each case and go to the "History" tab. Take notes of

1. Patient age and sex
2. Relevant prior diagnoses: lymphoma/leukemia, MDS, etc.
3. Most recent pathology case diagnosis
4. Note immunophenotypic findings if relevant

An example of a very simple, solid history

The patient is a 63 year old male with a history of AML, his prior Bone Marrow biopsy showed recurrent disease, 25% blasts, these blasts aberrantly expressed CD79a.

EPIC and Links History Searching (if necessary)

Use the MRN or patient name and birthday to search for the patient in EPIC. As before take notes of patient history, past diseases, treatment etc.

Sign-out and Reports

BM/PB/BF Service or Flow Cytometry Service

There is a printed template page you can use to circle the relevant values as the Attending looks at the slides (see later forms).

Approach to Sign-out (BM/PB/BF)

- Read your clinical history to the Attending. Example: 64 year old man with a history
- of CLL, treated with Rituximab. This marrow is submitted as a staging marrow.
- Your Attending will look at the peripheral blood. Take notes as they tell you about the blood.
- Your Attending will look at the aspirate smear, and biopsy. Take notes as they tell you about these slides.
- Your Attending will look at the flow cytometry scatter plots. Take notes as they dictate important findings.
- Residents new to the service are capped at five bone marrow cases per day for the first week. There is no cap on the peripheral blood or body fluid cases.

Approach to Sign-out (Flow Cytometry)

- Read your clinical history to the Attending. Example: 78 year old man with a history of CLL per the paperwork, we have no prior studies on file.
- Your Attending will look at the cytospin slide and/or smears. Take notes as they talk about the morphology
- Your Attending will look at the flow scatter plots. Take notes as they dictate important findings
- A detailed approach to picking panels by Dr. Susan Atwater can be found in the section "

Flow Cytometry Plots and Add-ons

The flow cytometry plots are stored in PowerPath as PDF files, but are also on the N:\ drive. The path is as follows: N:\Clinlab\Private\Lanier Scans\FLOW Cytometry\2013 If you do not have access to the N:\ drive, you can call the Help Desk at **(650)-723-3333.**

If Flow Cytometry has already been done and you want additional plots, fill out an add-on form N:\Clinlab\Private\Lanier scans\Flow Cytometry\0 ADDON REQUEST and save to the same folder as the patient's existing plots; then call Flow Cytometry at (650)724-2250 to let them know about the add-on order.

NOTE: On certain cases, Flow Cytometry is on a "hold" order. If you want to perform flow cytometry, page/call the treating clinical **ATTENDING** and get his/her consent. Be sure to note this consent in the PowerPath report. To speak to the Clinical Lab Techs at Flow Cytometry, call **(650)724-2250.**

Selecting Panels for Flow Cytometry Studies

DIRECTOR OF FLOW CYTOMETRY AND CLINICAL HEMATOLOGY Susan K.

Atwater, M.D.

Stanford's way of optimizing flow cytometric immunophenotyping studies for leukemia/lymphoma diagnosis is to review morphologic and clinical data, then select the panel that's most appropriate. Residents and hematopathology fellows select panels in consultation with the attending on service.

It's best if panels are selected by the resident who will sign-out the flow case, as you'll learn how well your choices worked out. If this is not how you and other residents want to divide up the work, please discuss with each other how the panel choices worked out.

You should do the following before selecting a panel:

- Review the morphology
- Read the clinical history
- Check lab data
- Check for prior pathology reports or concurrent cases

Reviewing morphology first will let you generate a differential diagnosis without being biased by whatever the clinician is thinking of. Residents and fellows are expected to use their clinical judgment in applying these recommendations. When in doubt, check with the attending or hematopathology fellow. Panel selection involves picking a main panel, deciding if additional markers should be run up front, and deciding whether a limited study would be more appropriate

Panel comparison:

Reagent Antibody Cocktails | **Flow Panels**

#	FITC	PE	PerCP-Cy5.5	APC	Lymphoma A	Lymphoma B	Lymphoma C	Leukemia	- Custom -	T-ALL	- -	B-ALL	-	MDS	Panel extensions (can be added upfront or later as indicated)
01	CD16	CD13	CD45	CD56											
02	CD5	CD38	CD45	CD19											
03	Lmono	Kmono	CD45	CD19											
04	FMC7	CD23	CD45	CD22											
05	CD20	CD10	CD45	CD19											
06	CD8	CD3	CD45	CD4											
07	CD16	CD3	CD45	CD56											

Page 6-9 Diagnostic utility for each 4-color cocktail

08	CD57	CD8	CD45	CD3	
09	CD7	CD3	CD45	CD2	
10	CD38	CD56	CD45	CD34	
11	CD7	CD13	CD45	CD33	
12	CD61	CD64	CD45	CD14	
13	CD2	CD10	CD45	CD11c	
14	CD5	CD3	CD45	CD34	
15	CD15	CD117	CD45	DR	
	CD22	CD34	CD45		
16	MPO	cCD79a	CD45		
17	cCD3	TdT	CD45		
18	Kpoly	Lpoly	CD45	CD19	Polyclonal K/L
19	cytoL	cytoK	CD45	CD38	Plasma cell
20	CD103	CD25	CD45	CD19	Hairy cell
21	CD103	CD11c	CD45	CD19	“
22	CD103	CD123	CD45	CD19	“
23	CD7	CD25	CD45	CD4	T
24	tcr	tcr	CD45	CD3	TCR
2	CD5	CD3	CD45	CD56	T

25							
26	CD41a	glycoph	CD45	CD38			Eryth/Mega
27	CD5	CD1a	CD45	CD34	**		Thymic
28	CD25	CD117	CD45				Mast cell
	CD2	CD117	CD45			“	
	CD30	CD117	CD45			“	
29	CD4	CD123	CD45	CD56			Blastic pDC
30	CD19	CD123	CD45	CD34			B-ALL vs HG

** highly recommended for T-ALL if not previously run

This add-on form shows the 7-8 color antibody cocktails in addition to the 4-color cocktails. The electronic version is available on the private S drive under LANIER SCANS / FLOW CYTOMETRY / 0 ADDON REQUEST You can fill out a copy, save with the patient's initials and case# to the same folder, then call the flow lab to let them know the add-on request is there.

Flow C ytometry

COmmunication Form

lmono kmono CD45

case#:

Patient:

CD20

CDS

016

DS7

C07

03S

C07

CD61 4

C0 2

CDS

CD22

C015

Cytoplasmi c 1

Cytoplasmic 2

Poly clona l K/l

Plasmacell{3- andcolc:w)

Hairycell 1

H;ajry cell 2

Hairy cell *3* (custom)

Tcell mise

T cR

Tcel mise

Etyth/Mega

Thym k

Man-(CD25,C02,C030)

blasticpOC{=m)

Ml *vs* hematogon e(custom}

C016	CD13	CD45	CD56
CDS	CD38	CD45	CD19
			CD19
FMC7	CD23		
	CO O	CD45	CD19
	CD3	CD45	CD4
	CD3	CD45	CD56
	CDS	CD45	CD3
	CD3	CD45	C02
	CD56	CD45	CD34
	CD13	CD45	CD33
	CD64	CD45	CD1
	CO O	CD45	COle
	CD3	CD45	CD34
	CD34	CD45	
	CD117	CD45	DR
MPO	cCD79a	CD45	
c C03		CD45	
	dT	CD19	
cytol	cytoK	CD45	CD38
CD103	CD25	CD45	CD19
C03	C0lle	CD45	CD19
C0103	C0123	CD45	CD19
C07	CD25	CD45	CD4
a/bta	gf d ttr	CD45	CD3
CDS	CD3	CD45	CD56
CD41a	gly co	CD45	CD38
CDS	COla	CD45	CD34
(varies)	CD117	CD45	
O4	CD123	CD45	CD56
C019	CD123	CD45	CD34

Gate On:

monos dim CD45 CD45 neg

Describe yow cus<om equests bent:

(bad;pti nrg . custom....tysi s.. iron stain.. etc)

FITC PE Pe<CP PE-Cy 7 APC Al'C-H7 V450 V500

S1 codcta

TCell lmmuno Tx{S ezary 2} Tcd 3 (custom)

Sez Myl

	tappa	**lambda**	CD19	*CDS*	COlO	CD20	CD45	
	C026	CD30	CD4	CD25	CD52	CD3	CD7	CD45
	CDS	•	CD4	CDS	C02	CD3	CD7	CD45
	C013+14	CD26	CD4	CDS	CD19	CD3	CD7	CD45

" possiblePE choices: (CD123, COla, CD30 CO O, CD56)

B. Choosing the Primary Flow Panel (a guideline to help picking panels)

1. Is there a prior or concurrent diagnosis of acute leukemia or non-Hodgkin lymphoma on record in the Stanford Pathology database?

IF YES, use this table:

PRIOR STANFORD DIAGNOSIS:	FLOW PANEL
AML or B-lymphoblastic leukemia/lymphoma	MDS panel (full or custom)*
B-lymphoblastic leukemia/lymphoma	B-ALL panel (full or custom)*
T-lymphoblastic leukemia/lymphoma	T-ALL panel (full or custom)*
undiff. or mixed phenotype acute leukemia	Leukemia panel +blastic pDC add-on
B cell lymphoma	Lymphoma B**
T cell lymphoma	Lymphoma C

*For acute leukemia follow-up studies, the initial blast immunophenotype should be reviewed to ensure that all markers which were useful at diagnosis are evaluated in the current panel. For example, if a B -LL was positive for CD2, the CD2/10/45/11c tube should be included. If few cells are available or a limited study is requested, noncontributory marker combinations may be omitted.

**the Lymphoma B panel does not meet Bethesda 2006 guidelines for initial flow cytometric screening for suspected lymphoma. No matter how much it looks like B cell lymphoma, if there is no Powerpath diagnosis of B cell lymphoma, the lymphoma A panel should be run.

IF NO, go to #2.

2. Are many blasts (~20% or more) present on your morphologic review of the specimen? Were many blasts reported in a concurrent CBC/diff? Or is there a chart note/verbal report that acute leukemia was just diagnosed at an outside hospital?

if YES to any: Leukemia panel

if NO to all, go to #3

3. Are blasts or blast equivalents clearly increased?

if YES: MDS panel

if NO or unsure: follow recommendations below.

Specimen type:	Panel
Bone marrow	Cytopenia
Mediastinal mass	Lymphoma A with CD5/CD1a/CD45/CD34
blood, other tissue, FNA, fluid:	Lymphoma A

C. Common Flow Panel Modifications

Finding	Modification
r/o myeloma/MGUS	Add plasma cell extension
r/o hairy cell leukemia	Add hairy cell extension (including CD123)
Monocytosis (>= 1.0 K/uL for adults)	Add myeloid markers to base panel: CD7/CD13/CD45/CD33 CD61/CD64/CD45/CD14 CD2/CD10/CD45/CD11c CD15/CD117/CD45/HLA-DR
PB with 1-5% blasts, dysplastic grans or request to r/o MDS	run cytopenia panel. (MDS panel okay if blasts are clearly >5%)
Bone marrow, "r/o CLL / B-NHL", no prior dx	Lymphoma A panel (has 22/23/FMC7)
Concern for mastocytosis	add mast cell extension
Acute leukemia, diagnostic study done here; now r/o residual/recurrent disease	***If many blasts:*** Full or tailored MDS panel are both okay. ***If blasts not clearly increased,*** Full MDS panel is preferred (helps detect small abnormal blast pops)

Finding	Modification
Scant specimens depends on ddx: consider B1 panel of above for mediastinal masses	Ask flow lab staff how many tubes they can set up. Panel for B-NHL; CD3/CD4/CD8 and CD5/CD1a/CD34 for T-LL; all
Scant specimen, anything else	Depends on clinical ddx. B1 panel for B-NHL, limited MDS panel for myeloblast enumeration, +/- others if possible.
Acute leukemia, lineage unclear	Add blastic pDC panel, Eryth/Mega panel,

D. Special Circumstances

1. CML, no increase in blasts: Run limited panel as follows: CD34/CD38/CD56 to enumerate CD34+ blasts, and CD19/CD10/CD20. Request backgating on the CD19+ population to rule out a CD45-negative B-lymphoblast population.

2. Marrow staging for classical Hodgkin lymphoma: Flow cytometry is not recommended as it is not sensitive in detecting disease even in the presence of marrow involvement (suboptimal BMA sampling of marrow lymphomas in general; fibrotic lesions; fragile neoplastic cells). It's best to contact the MD to recommend cancelling the study ("We don't want to waste your patient's money"). If no luck, hold specimen for another attempt to contact the MD the next morning.

3. Very scant FNA's or tissue biopsies: If no prior history, select the B1 panel (CD19, CD20, CD5, CD10, CD45 and light chains). If concern for T cell lymphoma, select the

T cell 3 panel (CD2, 3, 4, 5, 7, 8 and 45).

4. Mediastinal masses: Many of these present with SVC syndrome, which can be so severe that the patient can't be sedated for biopsy, so you may get a very scant FNA specimen and pressure for a STAT result. Ideally, rule out T-lymphoblastic leukemia/lymphoma and primary mediastinal large B cell lymphoma, and distinguish benign thymocytes from T-lymphoblasts. If plenty of cells, run the Lymphoma A panel, thymic extension and CD3/CD5/CD45/CD34. Cytoplasmic staining for cCD3/TdT may be a useful add-on, but is often unsatisfactory in specimens with low cell counts.

E. Antibody Cocktail Usedin Leukemia/Lymphoma Immunophenotyping

– Diagnostic Utility of Each Cocktail

#	FITC	PE	PerCP	APC	notes
01	CD16	CD13	CD45	CD56	◨ aid in identifying large mononuclear cells (monos vs lymph) ◨ aid in evaluating monocytes (should be CD13+ and CD56neg, with absent to variable dim CD16) ◨ aid in evaluating neutrophils (mature neuts should show bright coexpression of CD13/CD16; maturing precursors should show expected 'Nike swoosh' pattern) ◨ identify probable NK cells (most are CD16+/CD56dim, +/- a small minority of CD16neg/CD56bright cells) ◨ for definitive identification of NK cells, absence of CD3 must be demonstrated ◨ identify possible T cells with NK antigen expression (CD16neg/CD56dim). ◨ If probable CD56+ T cells appear increased, should confirm with cocktail containing CD3
02	CD5	CD38	CD45	CD19	◨ aid in enumerating T and B cells ◨ assess CD5 expression on B cells ◨ assess CD38 on CD19+ cells to distinguish between activated mature B cells, hematogones and plasma cells ◨ assess CD38 expression on CLL ◨ variable B cell aggregation may sporadically occur in cocktails containing CD19-APC. Look for distinct aggregation patterns on CD45/SSC plots in these tubes when compared to others.

#	FITC	PE	PerCP	APC	notes
03	Lmono	Kmono	CD45	CD19	◨ assess light chain reactivity on B cells (monotypic, polytypic surface Ig negative, or some combination of these) ◨ aid in enumerating B cells ◨ standard template shows light chain results within a FSC/SSC or CD45/SSC gate, including non-B cells and limiting utility of dual-color kappa/lambda plot. ◨ a CD19 gate (usually included in data packet) aids in characterizing light chain pattern, ruling out small abnormal populations, and evaluating for surface Ig negative B cells ◨ surface Ig-negative, mature-appearing B cell populations should have further light chain evaluation as follows: request surface light chain staining with the polyclonal reagents, and ask that this original antibody cocktail be repeated at the same time. (some initial surface Ig-negative results appear to be false-negatives that resolve after storage in holding medium) ◨ Cytoplasmic light chain expression may also be evaluated if suspicion for a neoplasm is high. ◨ variable B cell aggregation may sporadically occur in cocktails containing CD19-APC. Look for distinct aggregation patterns on CD45/SSC plots in these tubes when compared to others.

#	FITC	PE	PerCP	APC	notes
04	FMC7	CD23	CD45	CD22	◨ aid in characterizing mature CD5+ small B cell neoplasms ◨ typical CLL: CD23+FMC7neg ◨ typical MCL: CD23negFMC7+ • assess for lymph node pattern: bimodal CD23/FMC7 pattern with GC B's showing brighter FMC7 and mantle zone B's with brighter CD23 ◨ aid in enumerating B cells ◨ (infrequent) confirm CD22 expression in candidates for experimental anti-CD22 MAb therapy
05	CD20	CD10	CD45	CD19	◨ Evaluate CD10 expression on B cells ◨ aid in enumerating B cells ◨ Confirm normal circulating B cell phenotype (CD19+CD20+CD10neg) ◨ confirm hematogones (CD19+CD20varCD10+) ◨ assess CD19 expression on B cells (aberrant dim expression is common in FL, may be seen in other B-NHL) ◨ assess for germinal center pattern (minority of GC B cells with dim CD10 and slightly brighter CD20) ◨ CD19+/CD10+/CD20neg -- ddx of hematogones with Rituxan effect vs residual lymphoma post-Rituxan ◨ variable B cell aggregation may sporadically occur in cocktails containing CD19-APC. Look for distinct aggregation patterns on CD45/SSC plots in these tubes when compared to others.

#	FITC	PE	PerCP	APC	notes
06	CD8	CD3	CD45	CD4	Aid in enumerating T cells Assess CD4 and CD8 expression on T cells Evaluate for abnormal CD4/CD8 coexpression patterns enumerate CD4neg/CD8neg T cells (should be under 5%; if increased, add TcR tube to r/o increased T cells) NOTE: CD4/CD8 imbalances are NOT indicative of clonality. Marked imbalances usually warrant further investigation.
•					infrequently, the monocyte gate may contain a few events consistent with CD8+ T cells adherent to monocytes. This artifact appears more common when CD8+ T cells are increased, and only involves this antibody cocktail (look for different CD45/SSC pattern in this tube compared with others in the panel)
07	CD16	CD3	CD45	CD56	evaluate CD56 expression on CD3+ T cells
•					evaluate CD16 expression on CD3+ T cells
•					aid in excluding LGL leukemia
•					enumerate NK cells (a more specific result than obtained with the CD13/CD16/CD56 cocktail)
08	CD57	CD8	CD45	CD3	evaluate CD57 expression on CD3+ T cells
					aid in excluding LGL leukemia

#	FITC	PE	PerCP	APC	notes
09	CD7	CD3	CD45	CD2	◨ powerful cocktail for detecting T cell antigen loss ◨ evaluate CD7 expression pattern on T cells (usually <15-20% CD7-negative T cells with smooth tail) ◨ enumerate CD5 loss on T cells (should be tiny number and smaller than the number of probable gamma/delta T cells -- add TcR evaluation if these are increased) ◨ aid in enumerating NK cells (CD2+ CD3neg CD7+)
10	CD38	CD56	CD45	CD34	◨ identify and enumerate CD34+ progenitors ◨ evaluate CD38 intensity on CD34+ progenitors ◨ evaluate CD56 expression on CD34+ leukemic blasts or CD45-negative abnormal populations (e.g. plasma cells, nonhematolymphoid tumors)
11	CD7	CD13	CD45	CD33	◨ look for aberrant CD7 coexpression on AML blasts (or maturing granulocytes/monocytes) ◨ evaluate CD13/CD33 relative staining intensity and heterogeneity
12	CD61	CD64	CD45	CD14	◨ evaluate CD61 reactivity on blasts (may be due either to true expression or adherence of platelets) ◨ identify and enumerate monocytes ◨ evaluate monocytes for CD14 loss ◨ evaluate CD64 intensity on myeloid cells ◨ CD45dim populations with megakaryocytic antigen expression and dim CD34 may represent platelets rather than blasts (look for characteristic CD34/SSC and FSC/SSC patterns)

#	FITC	PE	PerCP	APC	notes
13	CD2	CD10	CD45	CD11c	◨ aid in characterizing leukemic blasts ◨ aid in identifying NK cells and monocytes evaluate ◨ CD11c expression and intensity on abnormal B cells ◨ evaluate CD10 expression on abnormal T cells (e.g. AITL)
14	CD5	CD3	CD45	CD34	◨ aid in identifying T cells and evaluating them for antigen loss ◨ characterize leukemic blasts
15	CD15	CD117	CD45	DR	◨ Evaluate patterns of antigen expression on blasts and maturing myeloid elements ◨ normal blasts: HLA-DR+, CD117+, CD15 negative ◨ promyelocytes: HLA-DR negative, CD117 +/-, CD15+ ◨ mature neuts: HLA-DR neg, CD117 neg, CD15 bright ◨ identify mast cells (CD117 bright, variable SSC) ◨ CD15/CD117 coexpression useful in AML evaluation
16	MPO	cCD79a	CD45		◨ MPO is highly specific for myeloid lineage ◨ if MPO+ cells in blast gate, r/o gate contamination by maturing myeloid cells • cCD79a is present on nearly all precursor-B ALL, about one-third of precursor-T ALL, and a minority of AML, particularly t(8;21) cases.

#	FITC	PE	PerCP	APC	notes
17	cCD3	TdT	CD45		◨ cytoplasmic CD3 is a sensitive marker for precursor-T ALL and is highly lineage specific. ◨ Some surface CD3-negative mature T cell neoplasms express cytoplasmic CD3. ◨ (IPOX CD3 will react with both surface and cytoplasmic CD3) ◨ TdT is a specific marker for immaturity, but is not lineage-specific. ◨ TdT is present in the majority of ALL (B or T) and a minority of AML (and when present is often dim or partial).
18	cytoL	cytoK	CD45	CD38	◨ used in plasma cell identification (very bright CD38 expression and moderate variable side scatter) ◨ detects cytoplasmic light chain expression in plasma cells ◨ cytoplasmic light chain analysis with CD19 instead of CD38 can be requested, to evaluate surface Ig-negative mature B cell proliferations.
19	CD103	CD25	CD45	CD11c	◨ used to confirm a diagnosis of hairy cell leukemia ◨ typical HCL: all three positive on the same cells (see dual-color plots), and CD11c should be bright. ◨ None of the three markers is entirely specific for HCL by itself.

#	FITC	PE	PerCP	APC	notes
20	CD7	CD25	CD45	CD4	◨ useful in analysis of T-helper cells and CD4+ T cell proliferations, or if anti-CD25 therapy is being considered ◨ Useful in ddx of adult T cell leukemia/lymphoma (CD25 positive) vs. MF/SS (usually CD25 negative or dim) ◨ Normal CD4/CD25 pattern shows subset of events with dim CD25 (no 'valley' between dim and negative events). CD25+CD4+ T cells consist of T-regulatory T cells and/or activated T cells.
21	tcr	tcr	CD45	CD3	◨ distinguish alpha/beta from gamma/delta T cells ◨ normal or reactive gamma/delta T cells: o usually <5% of lymphs (PB, BM) o show slightly brighter CD3 expression than T cells o most are CD4/CD8 double-negative o some show dim CD8 expression. o may show partial CD5 loss ◨ useful in evaluating CD3+ abnormal/atypical T cell processes.
22	CD5	CD3	CD45	CD56	◨ useful in detecting abnormal T cell phenotypes
23	CD41a	glyco-phorin	CD45	CD38	◨ evaluate erythroid and megakaryocytic differentiation on leukemic blasts ◨ CD41a reactivity may either be true expression on blasts, or platelets sticking to blasts ◨ CD45dim populations with megakaryocytic antigen expression and dim CD34 may represent platelets rather than blasts (look for characteristic CD34/SSC and FSC/SSC patterns)

#	FITC	PE	PerCP	APC	notes
24	CD5	CD1a	CD45	CD4	◨ aids in evaluating thymocytes and in the DDx of normal/reactive thymocytes from T-lymphoblastic lymphoma ◨ helpful in mediastinal mass evaluation

https://pathologists.stanford.edu/cp/hematopathology/ for sample forms and other resources

Clinical Pathology at VA Palo Alto Healthcare System

Director: Dean Fong, DO

Goals and Objectives

The primary goal of this rotation is to offer residents an experience of practicing clinical pathology in a setting in which organization and management are more similar to those in community hospitals than those in Stanford Medical Center. The resident will play the role of a "laboratory director," taking service calls from the Chemistry, Hematology, Microbiology, Blood Transfusion, Serology and Molecular Diagnostics sections and helping clinicians appropriately utilize specialized tests and interpret test results.

Patient Care

To develop proficiency in the interpretation of commonly ordered laboratory tests, such as electrolytes, enzymes, hormones, tumor markers, blood gases, blood cell counts and serum antibody titers.

To learn microscopic examinations of body fluids, peripheral blood smears, and bone marrow specimens.

Opportunities to perform bone marrow biopsies under supervision by hematology hematology provider (attending, fellow, etc.) are available for the residents. Bone marrow biopsy are sometimes performed by pathologists in the community practice setting.

Medical Knowledge

To understand the biochemical basis of metabolic diseases and the pathogenesis of coagulation disorders.

To become familiar with the role of Microbiology laboratory in the diagnosis and management of infectious diseases.

Practice-Based Learning and Improvement

To use case-based learning (test results and clinical findings) as a tool for insight into the basis of the disease.

To improve problem solving skills in clinical pathology by using a wide variety of informational resources.

To stay informed of the current clinically relevant literature through journal club.

Interpersonal and Communication Skills

To present cases at clinical conferences in support of patient care and medical education of staff, residents and faculty.

To write concise and clear interpretative reports when indicated.

To communicate effectively with clinical colleagues in case evaluation and with laboratory staff in technical and management issues.

Professionalism

To recognize and be sensitive to the needs of patients and clinicians in making timely diagnoses in a cost effective manner.

To work effectively as a team with other staff in the lab to maximize productivity and maintain an excellent quality of work environment.

Systems-based practice

To understand principles of QC and QA, and to resolve problems when they occur.

To become familiar with the missions of VA, and management issues within Veterans Affairs Medical Centers.

To understand federal regulatory issues governing the clinical pathology laboratory.

Requirements of the rotation: Two months.

Resident duties and responsibilities

The VA rotation is offered to the residents in the second year of their clinical pathology training. The emphasis is to train residents how to function as a “director of clinical laboratories” in a community hospital environment. Thus, residents will take service calls from all six sections of the lab on every working day. The following are examples of their activities:

Chemistry

Residents evaluate requests for sending samples to reference laboratories. They discuss with clinicians justifications for sending tests out.

Residents review interesting cases, and correlate test results with clinical findings.

Residents answer inquiries from clinical staff regarding test significance and possible interferences.

Hematology

Do microscopic examinations of body fluid cytology.

Review and interpret abnormal CBC and peripheral blood smear findings. Determine whether special studies requested by clinicians (flow cytometry, cytogenetics, molecular studies) are indicated.

Preview bone marrow aspirates (wet read) and determine whether special studies requested by clinicians (flow cytometry, cytogenetics, molecular studies) are indicated.

Read bone marrow aspirates with accompanying peripheral blood smears and core biopsies, and formulate diagnostic reports. Incorporate results of special studies.

Opportunity to learn and improve bone marrow biopsy skills under hematology attending supervision.

Review hemoglobin electrophoresis.

Microbiology

Opportunity to rotate and participate in the laboratory bench-side evaluation of microbiology specimens, with clinical correlation.

Review and approve requests for performing send out microbiology test as required.

Blood Transfusion Service

Perform review of blood product utilization.

Review and investigate blood transfusion reactions.

Attend quarterly Blood transfusion Committee meetings.

Serology

Recommend to clinical staff the selection of appropriate laboratory tests for autoimmune disorders and neuro-syphilis.

Review and approve requests for send out genetics and molecular tests.

Review serum and urine protein electrophoresis, and cryoglobulins as indicated.

Molecular Diagnostics

Our laboratory performs nucleic acid testing of HIV and HCV for all VA patients in Northern California. Residents provide consultative services to clients.

Laboratory management

Residents attend Supervisors‘ meetings and QA meetings.

Residents participate in CAP inspection tours, and perform as inspectors for laboratory accreditation.

Review results of CAP proficiency testing and Q-Probes.

Residents have access to hospital-wide, computerized information system, e-mail and internet.

Supervision and Evaluation

The teaching staff for supervision are the attending clinical pathologists and hematopathologists at the VA. Staff pathologists discuss with residents all consultative reports.

The primary evaluation tool is the form, RESIDENT ROTATION EVALUATION, completed in Medhub by staff pathologists.

The organization and services of VA Clinical Laboratories closely resemble those in community hospitals. The VA rotation offers residents an experience of practicing clinical pathology in a setting different from that of Stanford Medical Center.

Service Responsibilities

Clinical laboratories are divided into six sections: Chemistry, Hematology, Blood transfusion, Serology, Microbiology and Molecular diagnostics. However, CP residents in the VA rotation play the role of “laboratory director,” being responsible for taking service calls from all six sections every working day via a dedicated pager. Specifically, the majority of the residents’ work will consist of the following:

Duty hours are from 9:00AM to 5:00PM. Residents are excused for Stanford MANDATORY conference and/or meetings. All other absences will require preapproval from the attending on service. Residents are expected to be available when they are not at the VA. If extended absence is required, please contact the attending on service and the Chief Resident for further guidance.

Morning rounds. Every Monday, Wednesday and Friday morning, the residents are expected to meet with the supervisor or designee of the following departments: Chemistry, Hematology,

Microbiology, Blood Bank, Serology, and Molecular (early afternoons, 1:00pm for molecular laboratory only).

Participation in QC and QA programs and all clinical laboratory meetings. These include but are not limited to:

Lab QC and supervisor meetings

Monthly Anticoagulation Oversight Team (AOT) committee meeting (if interested).

Quarterly Transfusion Committee meeting

Consultative activities: Under guidance of VA attending faculty, residents review and approve requests for sending tests out to reference laboratories. They interact with clinicians to discuss findings and reasons for the request.

Review of abnormal test results and interesting cases for clinical-laboratory correlations.

Reading and interpretation of peripheral blood smears, bone marrow specimens and body fluids, with formulation of reports for bone marrows.

Every morning, the resident is expected to review the peripheral blood smears flagged by Hematology.

Once a week, the resident is expected to review the body fluids.

Review of blood product utilization, and investigation of transfusion reactions.

Protein electrophoresis:

Protein electrophoresis is performed on Mondays in Serology. The results will be given to the resident on Tuesday afternoons. The residents will review and interpret the results. The interpretations are DUE back to serology on Wednesdays at 2:00PM.

Teaching Activities

Residents need to attend teaching activities arranged by pathologists and medical technologists.

Attend required Stanford clinical pathology residency lectures.

End of the month Blood Bank Journal Club.

(Optional) Noon journal club meetings involving the whole VA pathology department (AP and CP faculty, residents and fellows).

(Optional) Wednesday Departmental Microscopic Conference involving the whole VA pathology department (AP and CP faculty, residents and fellows).

(Optional) Wednesday noon Multidisciplinary Conference involving Medicine Department and
others, depending on the case presented.

Cytogenetics

Director: Tena Cherry, PhD

Assistant Director: Melanie Manning, MD

Goals and Objectives

Patient Care

- To develop proficiency in the basic interpretation of cytogenetics laboratory results and their clinical significance.
- To learn appropriate skills to search reference materials and databases to arrive at a correct interpretation of results and concise, helpful communication of these results to the treating clinician.
- Learn about the considerations involved in appropriate test selection and development.

Medical Knowledge

- To understand genetic principles and cytogenetic and molecular cytogenetic testing techniques.
- To develop expertise in the test selection and results interpretation of inherited and acquired chromosomal disorders.

Practice-Based Learning and Improvement

- To locate, appraise and assimilate clinical and laboratory information, as well as information from scientific studies.
- Become proficient in correlating these results with morphology, flow cytometry, molecular, and other laboratory results.

Interpersonal and Communication Skills

- To present in-service talks to the staff, and case presentations to fellow residents.
- To prepare concise, complete written reports on complex clinical cases, newly developed assays, and for publications (as appropriate).
- Communicate laboratory results and interpretation effectively to laboratory and clinical colleagues.

Professionalism

- To demonstrate integrity, honesty and respect in personal interactions as well as in patient care, through careful interpretation of results reports, attention to quality assurance and completion of the daily tasks in a timely fashion.
- To work effectively and as a team with the medical directors, laboratory staff, and administrative staff, as well as with consulting physicians and patients.

Systems-based practice

- To understand the interplay between laboratory and clinical results from various clinical disciplines and their impact on patient care.
- To become familiar with the interdisciplinary nature of genetic disease testing and the continuous evolution in technology as well as knowledge about the human genome and proteome.
- Develop awareness and skills related to cost-effective diagnostic testing, laboratory work-flow, and turn-around time

Requirements of the rotation

The two month Genetics rotation in the Stanford Pathology Department is interdisciplinary and includes participation of faculty in the Departments of Pathology, Medicine, Pediatrics (Division of Medical Genetics) and Department of Genetics.

Laboratory rotations include formal training in Molecular Pathology, Cytogenetics, and Biochemical Genetics and residents spend approximately three weeks in each area. Residents are strongly encouraged to attend sign-out sessions in all three areas during the two month rotation. Residents will be involved in assay development, quality assurance and results interpretation in all three laboratories.

Residents are expected to initiate a project during their two-month rotation. This project can be performed in any of the three laboratories, and may involve research, quality assurance, or test development.

Resident duties and responsibilities for each level of training

The genetics rotation for pathology residents is always scheduled in the second year of pathology residency training. Individual objectives for each of the three laboratory rotations are:

3 weeks	3 weeks	3 weeks
Molecular Pathology rotation—CP aspects. *Objectives:* Become proficient in a wide range of molecular diagnostic methods and interpretation, learn about the development of new assays, perform case interpretations, have interaction with physicians from other disciplines, and have teaching Sessions with attending directors, give case presentations. Emphasis on DNA diagnostic tests and the forefront of diagnostic developments.	Cytogenetics rotation. *Objectives:* Become familiar with cytogenetic methods and interpretation, be able to make correlations with molecular genetic results, and to explore diagnostic advantages and disadvantages of cytogenetic and molecular pathology techniques for individual genetic diseases. Be able to recognize the significance of abnormal cytogenetic results, both acquired and constitutional. Learn ISCN nomenclature.	Biochemical Genetics rotation. *Objectives:* Become familiar with biochemical screening and diagnostic methods, interpretation of results and their clinical correlation, confirmation by molecular methods, development of new assays, interaction with physicians from other disciplines, attend clinics and consults for biochemical genetic disorders.

These objectives are adjusted for elective rotations of both AP and CP residents on an individual basis and discussed at the beginning of the elective.

Daily schedule

Regular working hours are approximately 8:00 AM to 6:00 PM, Monday-Friday.

Responsibilities

Sign-out cases with attending directors in each of the three genetics laboratories. During the remainder of the day, CP residents are expected to be present in the laboratory where they currently rotate and discuss their activities with the attending director. They are expected to carefully prepare and preview cases for sign-out, be available for consultation and laboratory issues, observe, perform, study and help develop laboratory assays, and work on their project.

Table of the typical meeting schedule

Meeting/Lecture	Day	Time	Location

Attend the weekly laboratory meetings (italic):	

Meeting/Lecture	Day	Time	Location
Molecular Pathology lab meeting	Mondays	9 AM	HV sign-out room
Metabolic Conference	Mondays	1:00 PM	Pediatric Library
Hemepath clinpath correlation conference	Mondays	2:30	Heme signout
Teaching session mol genetics	Mondays	4.30	HV sign-out room
Current Concepts lecture series	Tuesdays	8:00 AM	L201
Hematology Journal club	Tuesdays	noon	2nd fl., Cancer center
Human Genetics Journal Club	Tuesdays	4:30 PM	L201/Hillview Purple Room
Cytogenetics lab meeting	Every other Wednesday	1:30 PM	Cytogenetics Lab
Hematology conference	Wednesdays	noon	2nd fl., Cancer center
Hematology new patient conference	Wednesdays	4.30 PM	2nd fl., Cancer center
Biochemical Genetics lab meeting	Thursdays	10:00 AM	HV sign-out room
Clinical Pathology lecture series. This series includes a block of genetics lectures, which address critical aspects of genetic diagnostic testing in molecular, biochemical and cytogenetics.	Thursdays	noon	H1551L
OB/Genetics Prenatal Clinical Conference	Thursdays	12:30 PM	OB Library, 3rd floor
Medical Genetics Grand Rounds. Inter-disciplinary meeting with lecture and case presentations. General discussion of genetic concepts.	Fridays	9:00 AM	M112

Present interesting cases at the Friday Clinical Pathology residents conference and discuss involvement in phone calls received from physicians regarding interpretation of genetic tests.	Fridays	noon	H1551L

Meeting/Lecture	Day	Time	Location
Self study and conducting a project			
Pediatric Tumor Board conference	Tuesdays	5:00 PM	LPCH Board Room
Integrated genetics laboratories meeting (lecture, with technologists)	TBA	TBA	TBA
Elective: Attending genetics clinics			

Supervision and Evaluation

Residents are evaluated monthly by the attending directors (using the pathology department evaluation form) and by the staff (using the pathology department 360-degree evaluation form).

Cytogenetics test list

1. Chromosomal Analysis of:

a. Amniotic fluid for prenatal diagnosis

b. Chorionic villi sampling (CVS) for prenatal diagnosis

c. Peripheral blood (stimulated - routine) for constitutional anomalies

d. Peripheral blood (high resolution)

e. Bone marrow for acquired anomalies

f. Peripheral blood (unstimulated – leukemic) for acquired anomalies

g. Products of conception

h. Skin fibroblasts

i. Solid tumors

j. Peripheral blood for breakage studies (Fanconi)

2. Fluorescence In Situ Hybridization (FISH):

a. Microdeletion syndromes:

(1.) DiGeorge/Veloc ardiofacial syndrome: 22q11.2 (2.)

Distal 22q13 deletion

(3.) Prader-Willi syndrome: 15q11.2 (4.)

Angelman syndrome: 15q11.2 (5.) Williams

syndrome: 7q11.23

(6.) Miller-Dieker syndrome: 17p13.3 (7.)

Smith-Magenis syndrome: 17p11.2

(8.) STS deletion (X-linked ichthyiosis): Xp22.3 b.

Prenatal panel: X, Y, 13, 18 and 21

c. X/Y

d. Cancer-related:

(1.) BCR/ABL1 for t(9;22) (2.)

PML/RARA for t(15;17)

(3.) CBFB for inv(16), t(16;16), del(16) (4.)

ETV6/RUNX1 for t(12;21)

(5.) RUNX1T1/RUNX1 for t(8;21) (6.)

IGH/BCL2 for t(14;18)

(7.) +4, +10 and +17 in ALL

(8.) MYC separation for t(8;14), t(2;8) and t(8;22) (9.)

KMT2A (MLL) separation for 11q23

(10.) EWSR1 separation for t(11;22)

(11.) CLL panel for 11q-, +12, 13q- and 17

(12.) Myeloma panel: t(11;14), 13q- and 17p-, reflex to t(4;14) and t(14;16)
(13.) CCND1/IGH for t(11;14) (14.) -

5/5q-

(15.) -7/7q- (16.) +8

(17.) ALK separation for t(2;5) for lung cancer and lymphoma (18.)

SYT separation for t(X;18) [synovial sarcoma] (19.) MALT1

separation in t(11;18)

(20.) HER2/neu amplification (breast cancer) (21.)

UroVysion (+3, +7, +17, 9p-)

3. Array comparative genomic hybridization (array CGH)

Cytogenetics Checklist

1. Culture initiation and/or culturing, harvesting, slidemaking, G-banding, analysis, interpretation and report, for all tissue/test types, including:

- ❑ Amniotic fluid
- ❑ Chorionic villus sampling
- ❑ Bone marrow/leukemic blood
- ❑ Peripheral blood/high resolution
- ❑ Breakage studies (Fanconi anemia)
- ❑ Products of conception
- ❑ Skin biopsies
- ❑ Solid tumors

2. Interphase and metaphase fluorescence in situ hybridization (FISH), slidemaking, analysis, interpretation and report including:

- ❑ Enumeration probes
- ❑ Unique sequence probes for microdeletion syndromes
- ❑ Fusion and break-apart probes for cancer rearrangements
- ❑ HER2/neu amplification in breast cancer

3. Array CGH, set up, hybridization, scanning, analysis and interpretation.

4. Other banding techniques (as performed).

HISTOCOMPATABILITY

Course director: Dolly Tyan, PhD

Background

The Stanford Histocompatibility, Immunogenetics, and Disease Profiling Laboratory (HIDPL) provides diagnostic testing services for the solid-organ and bone marrow transplant programs at Stanford Hospital and Clinics and Lucille Packard Children's Hospital. The HIDPL performs greater than 47,000 tests per year and employs a staff of approximately 50 full-time employees. The HIDPL offers a wide selection of testing services to include molecular HLA genotyping, HLA antibody detection, engraftment monitoring, and immune function assays. The HIDPL also has an active research and development program focused on designing and validating novel diagnostic assays to determine pre-transplant compatibility and monitor for antibody-mediated rejection. Finally, the HIDPL houses and curates a bio-repository of patient specimens, which serves as an invaluable resource for investigators throughout the Stanford research community.

Overview

The ten-day training program in histocompatibility for residents and fellows is designed to provide students with a broad exposure to the theory and practice of histocompatibility testing. The rotation begins with an introduction to the laboratory and discussion of selected patient cases, each related to a different category of testing that the laboratory performs (crossmatch, typing, *etc.*). Students then rotate through the various testing areas of the laboratory, and learn the techniques from licensed technologists at the bench. Throughout their experience in the HIDPL, students will meet with directors and other senior staff to engage in case-based discussions relevant to the testing they observe. Students will also be given direct "hands-on" instruction on how to perform and analyze selected tests on their own sample. Pathology residents and fellows will also attend meetings with the transplant services to learn about the clinical impact of histocompatibility testing.

Expectations

Participants are expected to be present for all scheduled meetings with Directors and technical staff. Rotating clinical pathology residents are to be excused from other clinical duties (call conferences, *etc.*) if those obligations conflict with scheduled laboratory training.

Course objectives

At the end of the rotation, students will have learned:

Specimen processing:

1. How to prepare serum, cells, and DNA from patient specimens
2. Methods to isolate and store lymphocytes from whole blood
3. DNA extraction and quantification by manual and automated approaches

Molecular HLA typing:

1. Understand the genetic structure and function of the MHC and HLA genes, including haplotypes, genetic linkage, and recombination
2. Definition of HLA antigens vs. alleles
3. Difference between low vs. high resolution genotyping
4. Use of online bioinformatics resources for HLA
5. Appreciate the extreme polymorphism of HLA genes and the concept of genotype ambiguity
6. Methods for low resolution HLA genotyping (SSP and SOP)
7. Methods for high resolution HLA genotyping (sequencing)

HLA and bone marrow transplantation:

1. HLA matching for related and unrelated bone marrow donors
2. Pedigree analysis and haplotype assignment
3. Haplotype frequencies and unrelated donor searches using online bioinformatics resources
4. Permissible vs. non-permissible mismatches and the risk of graft vs. host disease

Engraftment monitoring for bone marrow transplantation:

1. Single tandem nucleotide repeat sequences and use in monitoring for donor cell engraftment/chimerism
2. Methods of lymphocyte subset isolation
3. Understand how to estimate donor cell percentages using STR analysis, and how the data reflects successful engraftment vs. graft failure

HLA antibodies:

1. Understand the concepts of serologic detection of HLA antibodies: antigens, splits, CREGs
2. Mechanisms of sensitization to HLA
3. Current methods to detect HLA antibodies: IgG and C1q assays
4. The complement cascade and antibody-mediated rejection
5. Cellular methods to detect HLA antibody (Flow and CDC crossmatch)
6. Strategies for desensitization and the use of IVIG

HLA and solid-organ transplantation:

1. Recognize common diseases that lead to solid-organ transplantation
2. Understand rules for organ sharing and cadaveric donor utilization
3. The use of panel-reactive antibody (cPRA) and "avoids" for organ allocation
4. Interpretation of donor and recipient compatibility (flow and CDC crossmatch)
5. Monitoring of donor specific antibody post-transplant

HLA and disease association:

1. Recognize the common HLA disease associations (diabetes, ankylosing spondylitis, etc.)
2. Know potential mechanisms which may underlie the influence of HLA on the development of autoimmune disease

MICROBIOLOGY/VIROLOGY

Directors: Niaz Banaei, MD and Benjamin Pinsky, MD, PhD

Goals and Objectives

Patient Care

- To develop proficiency in helping physicians interpret microbiology/virology test results

- To learn appropriate tests to order based on clinical criteria as described by the patient's physician

- To determine which results are critical and learn to convey those results to the appropriate caregivers.

Medical Knowledge

- To understand the microbiology/virology of infectious diseases based on organ system, history, and epidemiology

- To develop expertise in interpreting the clinical implications of lab results, suggesting antibiotics to test, and determining the medical necessity of unusual test requests.

Practice-Based Learning and Improvement

- To locate, appraise and assimilate microbiology/virology laboratory test results, particularly microscopic images and nucleic acid testing.

- To use case-based learning to correctly interpret microbiology/virology laboratory test results.

Interpersonal and Communication Skills

- To present learning modules to Infectious Disease fellows and attendings, and to present case results at Infectious Disease rounds

- To prepare concise, complete written reports on test evaluation, interesting cases, inspections, and other lab-based activities.

Professionalism

- To demonstrate integrity, honesty and respect.

- To work effectively as a team with the physicians caring for the patients, the laboratory scientists and assistants, the infection control practitioners, and the director.

Systems-based practice

- To understand basic identification and susceptibility testing of bacteria and yeast, basic detection and identification methods for fungal and parasitic agents of infectious disease, and the basic identification of viral pathogens using traditional culture and immunofluorescent microscopy techniques.

- To be able to interpret nucleic acid amplification tests for pathogen identification and quantitation.

- To understand sequencing analysis for pathogen identification, genotyping and drug resistance testing.

- To be able to differentiate commensal flora from pathogens.

- To approve requests, choose and interpret results of sendout tests.

- To become familiar with the administrative and logistical areas of a microbiology/virology laboratory, including specimen collection, transport, front end processing, results delivery, QC and QA, and financial considerations.

Requirements of the rotation

See attached guidelines.

Resident duties and responsibilities for each level of training

See attached guidelines.

Supervision and Evaluation

The directors will oversee training and receive feedback from CLSs. Meetings to go over rotation questions will be the best basis for evaluating the level of progress. An evaluation will be given after each month of rotation based on:

1. Level of participation in daily rounds

2. Meeting the learning objectives

3. Completion of weekly unknown cases

4. Participation in ID plate rounds and ID grand rounds

The resident will be evaluated not only based on his/her daily work as assessed by each director but also by a written, open-book, unknown cases, administered weekly during the rotation. The unknown cases will be designed to highlight areas of importance and to assess whether the resident needs additional help in gaining competence in any specific areas. Results will be reviewed formally with the resident.

Microbiology & Virology Expectations

A. Virology Rounds daily (except Thursdays) from 10:00am – 11:00am.

B. Microbiology Plate rounds daily (except Thursdays) from 11:00am -12:00am.

C. Present interesting cases at the weekly plate rounds with peds and adult ID teams on Thurs at 10:30 am at Stanford Hospital.

D. Weekly I.D. Conference, Thursdays 4:00pm – 5:00pm

	MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**
8:00		ID Fellows Lecture			
10:00	VIRO ROUNDS	VIRO ROUNDS	VIRO ROUNDS	ID PLATE ROUNDS 10:30	VIRO ROUNDS
11:00	MICRO ROUNDS	MICRO ROUNDS	MICRO ROUNDS		MICRO ROUNDS
12:00			Micro & Immuno Research Conf.	*CP Lecture	*Call conference
4:00				ID conference	

** lunch served*

E. Residents will take first call for microbiology problems that arise during the day shift and for all clinician consults or questions. Please review calls with the Lab Director as appropriate.

F. Assume primary responsibility for:

- Contacting physicians to discuss cases and determine additional workup for complex microbiological culture results

- Approve bacterial and fungal identification by sequencing requests

- Approve unusual Microbiology and Virology lab send-out test and discuss with director

G. Workup unknown cases during the first month. See handouts.

H. Assay validation and development appropriate for the level of training

Objectives and Responsibilities

A. Discuss with lab director about budget and cost containment

B. Attend laboratory meetings

C. Follow up on problems and questions related to laboratory and patient care

1. Work with laboratory staff and clinicians

2. Checking on pathology reports, review charts, etc. (will add value to the concurrent microbiology on patient samples).

D. Prepare short tutorials (up to 25 min depending on the number of trainee on rotaiton) for I.D. Fellows – once per week. Pick a topic relevant to current cases.

Topics to choose from Microbiology:

- Enteric *gram-negative rods.*
- Streptococci.
- Non-fermenting and fastidious gram-negative rods.
- Aerobic gram-positive rods.
- Explain media used for microbe isolation.
- Gram stain appearance.
- MALDI-TOF MS.
- Nucleic acid tests.
- Antibiotic susceptibility testing and resistance mechanisms.
- Other useful special identification methodologies.

Topics to choose from Virology cover the following:

Topics to choose from Virology cover the following:

Topics to choose from Virology cover the following:

- Transport media
- Cell lines for viral culture
  Direct Viral Exam

- Viral Serology
- Nucleic acid testing

E. Training time is broken down in the following manner:

1. Eight weeks in Microbiology:

a. Will involve review of microbes from the following types of specimens:

i. CSF

ii. Respiratory

iii. Blood iv. Stool v.

Urine

vi. Wound

vii. Genital

viii. Body Fluids

b. Training on Molecular, Susceptibility Testing and Anaerobes c.

Training in Parasitology and Mycology

2. Six weeks training time in Virology, broken down in the following manner:

a. Time will be spent discussing methods and virus families

b. Training will be technique oriented and will cover the following:

i. Culture

ii. Serology

iii. Molecular

3. Complete assigned Unknown Cases.

F. Review the training objectives recommended in rotation binder.

1. These objectives are attached as "Additional Core Knowledge".

2. They provide an excellent summary of the topics with which you should become familiar. It is your responsibility to identify topics that have not been covered and plan to discuss them with directors in advance of completing your rotation.

At the end of the two month training, the resident should:

A. Be familiar with a wide variety of microorganisms and viruses causing clinical disease.

B. Know these essential concepts:

1. Organisms that commonly occur as normal flora at a given site

2. Microbes and viruses commonly associated with infection at a given site.

3. Factors associated with susceptibility to infection at this site.

4. Optimum specimen required for documentation of infection at a given site.

5. Work-up and interpretation of "mixed cultures" at a given site

C. Learn to identify common agents of infectious diseases by morphology and key test results and understand the theory and basis of the tests used.

D. Review common antibiotics and antivirals by class, mechanisms of action and resistance and spectrum of activity and be familiar with the uses, limitations and techniques of anti-microbial and anti-viral susceptibility testing.

1. Microbiology:

i. Knowing the process of certain staining techniques.

ii. Be an expert at direct gram stains for all important clinical specimen types

iii. Understand antibiograms

2. Virology:

I. Learn the strategies used for viral classification.

II. Understand the basics of a viral replication cycle.

III. Learn the major virus families and the viruses that cause human disease.

IV. Learn the clinical manifestations of common viral infections.

V. Understand the identification viral pathogens using traditional culture and immunofluorescent microscopy techniques.

VI. Understand the methodology and utility of shell vial cultures for the identification of viral pathogens.

VII. Understand the methodology and utility of direct fluorescent antibody testing for the identification of viral pathogens.

VIII. Be able to interpret viral serologic markers.

IX. Be able to interpret nucleic acid amplification tests for viral identification and quantitation.

X. Understand sequencing analysis for viral genotyping and antiviral resistance testing.

Schedule the following activities for the 3rd month rotation:

A. One-day visit to a public health laboratory. You will visit and interview the lab director about the degree of support which a public health laboratory can provide to a hospital laboratory and what the public health laboratory needs from a hospital lab.

Choose from the following options:

Alameda County Lab, 499 5th St., Rm. 403, Oakland,

- Contact Jim Carlson (Director) at (510) 268-2705

Santa Clara County Lab

- Pat Dadone (Supervisor) at (408) 885-4272

San Francisco Dept. Health Lab, 101 Grove St., Rm. 419, San Francisco

- Contact TBD, (Director) at 415-554-2800

B. One-day visit to PAMF's Toxoplasmosis laboratory at the Palo Alto Medical Foundation (plan for a Thursday):

Contact Cindy Press (Lab supervisor) at (650) 614-3215.

Note:

- Women must sign a form stating that they are not pregnant or planning to get pregnant within the next 6 months.
- Everyone needs baseline Toxo IgG (performed in our lab).

C. Infectious Disease (ID) Clinical Rounds:

1. Attend afternoon rounds with ID Team. Make arrangements with Fellow.

2. Collect available microbiology, virology, and histopathology lab data on the patients they are following prior to attending rounds.

D. Schedule two afternoons to observe E1 and ICU satellite pharmacies:

1. Discuss antibiotic utilization efforts and how the Microbiology Laboratory can support these or other pharmacy efforts.

2. Contact Larry Witt (admin assistant 5-5802) or Deepak Sisodiya (3-5272 option 5) to schedule.

At the end of the 3rd month rotation, the resident should:

A. Be able to interact effectively with clinical physicians regarding interpretation of laboratory results and selection of appropriate tests

B. Be capable of implementing a method, as indicated by understanding how to:

1. Do a formal method evaluation

2. Write a procedure

3. Establish quality control policies and evaluate QC performance

4. Evaluate proficiency testing data.

5. Conduct a Quality Improvement/ Quality Assurance project.

Although it is best to cover themes when problems and issues in those areas arise, here is an approximate guide for gaining experience in the following important topics during the introductory (two-month) rotation in Microbiology/Virology:

WEEK	THEMES	TOPICS
1	**Blood Cultures**	a. Major Clinical syndromes b. Specimen collection, transport processing c. Laboratory methodology d. Epidemiology & Infection control e. Bacteria to focus on: - Enterobacteriaceae* - Nonfermentative gram-negative bacilli*
1	**Respiratory Cultures**	
2	**CSF Cultures**	
2	**Genitourinary Cultures**	

WEEK	THEMES	TOPICS
2	**Gastrointestinal Cultures**	- Miscellaneous/fastidious gram-negative bacilli - Gram-negative cooci - Gram-positive bacilli/aerobic actinomycetales - Mycobacteria* - Gram-positive cocci* - Spirochetes - Mycoplasma - Anaerobic bacteria
3	**Wound and Tissue Cultures**	
3	**Special Studies**	a. Pharmacokinetics and pharmacodynamics b. Susceptibility testing methods c. Empiric therapy
4	**PCR & Sequencing**	a. Specimen Processing b. Contamination prevention c. Other molecular detection technologies
4&5	**Serology**	a. Hepatitis B b. EBV c. Toxoplasmosis

WEEK	THEMES	TOPICS
5	**Serology/manage ment**	a. Prepare a cost analysis of one conventional and one molecular test. b. Identify a new or revised protocol that must be created and write it. Talk to all relevant parties to incorporate all necessary factors.
6	**Management**	
6	**Strain typing**	a. Epidemiology b. Nosocomial Infections
6	**Parasitology**	a. Specimen collection b. Protozoa c. Helminths d. Arthropods
7	**Mycology/AFB**	a. Specimen Collection b. Stain methodologies c. Clinically relevant Fungus & Mold d. Stat AFB e. DNA testing for select Mycobacterium species f. Cutaneous mycoses g. Subcutaneous mycoses h. Systemic mycoses i. Opportunistic mycoses
8	**Viral Culture/DFA**	a. Specimen Collection b. Culture workup c. CMV, Herpes, Respiratory Viruses
8	**Viral Nucleic Acid Testing**	a. HIV, HCV, HBV Viral Load Testing b. CMV, EBV, BK Viral Load Testing c. Respiratory Viruses d. Sequencing

Journals

1. *Antimicrobial Agents and Chemotherapy*

2. *Clinical Infectious Diseases*

3. *Clinical Microbiology Reviews*

4. *Diagnostic Microbiology and Infectious Diseases*

5. *European Journal of Clinical Microbiology and Infectious Diseases*

6. *Journal of Clinical Microbiology*

7. *Journal of Clinical Virology*

8. *Emerging Infectious Diseases*

Many articles of importance to clinical microbiology appear in general medical journals, such as *JAMA, The New England Journal of Medicine* and *Annals of Internal Medicine*. It is presumed that residents are already familiar with these periodicals.

See selected articles on important microbiology topics in S:\TRAINING (Residents)\ClinPath Residents and ID Fellows\Objectives\30 topics at rounds.

See selected articles on important virology topics on the Stanford Pathology Google docs site in the Virology Rotation folder:

Email: stanfordpathology

Password: hillview

Books

1. Baron EJ, Peterson LR, Finegold SM, ed. *Bailey and Scott's Diagnostic Microbiology*, 9th edition. Mosby; St Louis. 1994

2. De la Maza L, Pezzlo M, Baron EJ. *Color Atlas of Diagnostic Microbiology*. Mosby; St Louis., 1997.

3. Forbes B, Sahm D, and Weissfeld A. *Bailey and Scott's Diagnostic Microbiology*, 10th edition. Mosby; St Louis. 1998.

4. Hodinka RL, Young SA, Wiedbrauk DL ed. *Clinical Virology Manual*, 4th Edition,

5. Knipe DM, Hawley PM ed. *Fields Virology*, 5th Edition.

6. Koneman EW, Allen SD, Janda WM, Schreckenberger PC, Winn WC. *Color Atlas and Textbook of Diagnostic Microbiology*, 5th edition. J.B. Lippincott; Philadelphia. 1998.

7. Mandel GL, Douglas RG, Bennett JE ed. *Principles and Practice of Infectious Diseases*, 4th edition. Churchill Livingstone; New York. 1998.

8. Miller JM. *A Guide to Specimen Management in Clinical Microbiology*, 2nd ed. American Society for Microbiology: Washington, D.C. 1999.

9. *Manual of Clinical Microbiology*, 10h edition. American Society for Microbiology: Washington, D.C. 2011.

10. Murray P. *Pocket Guide to Clinical Microbiology*, 2nd ed. American Society for Microbiology: Washington, D.C. 1999.

11. Richman DD, Whitley RJ, Hayden FG ed. *Clinical Virology*, 3rd Edition.

12. Woods G. *Diagnostic Pathology of Infectious Diseases*. Lee and Febinger; Philadelphia. 1993.

Slide Teaching Collections

Teaching set for bacteria and parasites. Ask educational coordinator Manju Mudambi.

Handbooks and Miscellaneous Materials

1. CD-ROMs- Case studies in medical microbiology; Gram stain Tutor; Mycology Tutor; Parasitology Tutor (if available)

2. Microbiology CheckSamples. American Society of Clinical Pathologists.

3. National Committee for Clinical Laboratory Standards. Methods of Dilution Antimicrobial Susceptibility Tests for Bacteria that Grow Aerobically - Third Edition; Approved Standard. NCCLS Document M7-A3. NCCLS, Villanova, Pennsylvania 19085

4. National Committee for Clinical Laboratory Standards. Performance Standards for Antimicrobial Susceptibility Tests for Aerobic Bacteria- Approved Standard. NCCLS Document M2-A7. NCCLS, Wayne, PA.

Molecular Genetic Pathology

Director: James Zehnder, MD

Goals and Objectives

Patient Care

- To develop proficiency in the basic interpretation of molecular diagnostic laboratory results and their clinical significance.

- To learn appropriate skills to search reference materials and databases to arrive at a correct interpretation of results and concise, helpful communication of these results to the treating clinician.

- Learn about the considerations involved in appropriate test selection and development.

Medical Knowledge

- To understand genetic principles and molecular testing techniques.

- To develop expertise in the test selection and results interpretation of inherited and acquired genetic disorders.

Practice-Based Learning and Improvement

- To locate, appraise and assimilate clinical and laboratory information, as well as information from scientific studies.

- Become proficient in correlating these results with morphology, flow cytometry, cytogenetic, and other laboratory results.

- To use case-based learning during daily sign-out sessions with the directors and staff, through review of previous patient and results records, through the interactive molecular pathology website (http://www.molpath.stanford.edu), and through case- based learning from books in the molecular pathology library, such as: Schrijver (Editor), Diagnostic Molecular Pathology in Practice

Interpersonal and Communication Skills

- To present in-service talks to the staff, and case presentations to fellow residents.

- To prepare concise, complete written reports on complex clinical cases, newly developed assays, and for publications (as appropriate).

- Communicate laboratory results and interpretation effectively to laboratory and clinical colleagues.

Professionalism

- To demonstrate integrity, honesty and respect in personal interactions as well as in patient care, through careful interpretation of results reports, attention to quality assurance and completion of the daily tasks in a timely fashion.

- To work effectively and as a team with the medical directors, laboratory staff, and administrative staff, as well as with consulting physicians and patients.

Systems-based practice

- To understand the interplay between laboratory and clinical results from various clinical disciplines and their impact on patient care.

- To become familiar with the interdisciplinary nature of genetic disease testing and the continuous evolution in technology as well as knowledge about the human genome and proteome.

- Develop awareness and skills related to cost-effective diagnostic testing, laboratory work-flow, and turn-around time.

Requirements of the rotation

The two month Genetics rotation in the Stanford Pathology Department is interdisciplinary and includes participation of faculty in the Departments of Pathology, Medicine, Pediatrics (Division of Medical Genetics) and Department of Genetics. Laboratory rotations include formal training in Molecular Pathology, Cytogenetics, and the elective of Biochemical Genetics. Residents spend approximately three weeks in each area if the elective is chosen and one month in Molecular Pathology and Cytogenetics each if it is not chosen. Residents will be involved in assay development, quality assurance and results interpretation in all three laboratories.

Resident duties and responsibilities for each level of training

The genetics rotation for pathology residents is always scheduled in the second year of pathology residency training. Individual objectives for each of the three laboratory rotations are:

3 weeks	3 weeks	3 weeks
Molecular Pathology rotation—CP aspects. *Objectives:* Become proficient in a wide range of molecular diagnostic methods and interpretation, learn about the development of new assays, perform case interpretations, have interaction with physicians from other disciplines, and have teaching Sessions with attending directors, give case presentations. Emphasis on DNA diagnostic tests and the forefront of diagnostic developments.	Cytogenetics rotation. *Objectives:* Become familiar with cytogenetic methods and interpretation, be able to make correlations with molecular genetic results, and to explore diagnostic advantages and disadvantages of cytogenetic and molecular pathology techniques for individual genetic diseases. Be able to recognize the significance of abnormal cytogenetic results, both acquired and constitutional. Learn ISCN nomenclature.	Biochemical Genetics rotation. *Objectives:* Become familiar with biochemical screening and diagnostic methods, interpretation of results and their clinical correlation, confirmation by molecular methods, development of new assays, interaction with physicians from other disciplines, attend clinics and consults for biochemical genetic disorders.

These objectives are adjusted for elective rotations of both AP and CP residents on an individual basis and can be discussed at the beginning of the elective.

Daily schedule

Regular working hours are approximately 8:00AM to 6:00PM, Monday-Friday.

Responsibilities:

Schedule a general, workflow, and laboratory orientation on the first day of the rotation with the molecular attending on service and the molecular fellows. Explore potential projects and individual rotation goals with the attending on service.

- Perform a pre- and post-test for MGP.
- Familiarize yourself with the platforms and general techniques used in the laboratory.
- Be present in the laboratory and carefully prepare and preview cases for sign-out.
- Take the lead in presenting a subset of the cases at sign-out

Prepare cases by reviewing the assay procedure, looking up patient history, and interpreting the data. Discuss test results with an MGP fellow, before sign-out.

- Sign-out cases with the attending director.

Be available for consultation and laboratory issues, observe, perform, study and help develop laboratory assays, and work on their project.

Review new assay development and validation with the molecular fellows/attending.

- At the end of the rotation, give a presentation to the laboratory about a molecular topic.

Consider initiating a project during the two-month rotation. This project can be performed in any of the clinical genetics laboratories, and may involve research, quality assurance, or test and procedure development. Residents are expected to discuss this with the attending faculty at the beginning of their rotation.

- Attend all conferences that are attended by the MGP fellows, including:

1. Monday 9AM MGP operational laboratory meeting
2. Tuesday 8AM Current Concepts
3. Wednesday 4PM Human Genetics journal club
4. Thursday 12.00PM Clinical Pathology Didactics
5. Friday 12.00PM CP conference
6. Genomic Medicine lecture series
7. Additional genetic topics lectures as scheduled

Supervision and Evaluation

The Resident's work will be supervised by attending faculty who are on service in the Molecular Pathology laboratory and by the molecular fellows, with whom they will work closely in case preparation and interpretation. The Resident will be evaluated on his/her daily work as assessed by each attending in person during the rotation, and in MedHub according to the ACGME New Accreditation System and Milestones.

residents conference and discuss involvement in phone calls received from physicians regarding interpretation of genetic tests.	Fridays	12.00 PM	L201/HV
Pediatric Tumor Board conference	Tuesdays	5:00 PM	LPCH Board Room

Bold = mandatory core curriculum while on rotation

Italics = for other genetics rotations

	Day	Time	Location
Molecular Pathology lab meeting	Mondays	9:00 AM	HV sign-out room
Metabolic Conference (Biocheminal Genetics)	Mondays	1:00 PM	A051
Current Concepts lecture series	Tuesdays	8:00 AM	L201/HV
Genomic Medicine course	Tuesdays subset of Current Concepts lectures	8:00 AM/TBD	L201/HV
Advanced Genomic Medicine course	TBD	TBD	TBD
Biochemical Genetics lab meeting	Tuesdays	10:00 AM	HV sign-out room
Hematology journal club	Tuesdays	noon	2nd fl., Cancer center
Human Genetics Journal Club	Wednesdays	4:00 PM	LKS/TBD
Cytogenetics lab meeting	Every other Wednesday	10:15 AM	Cytogenetics Lab
Hematology conference	Wednesdays	noon	2nd fl., Cancer center
Clinical Pathology lecture series. This series includes a **MGP-related topics**, which address critical aspects of genetic diagnostic testing in molecular, biochemical and cytogenetics.	Thursdays	noon	L201/HV
OB/Genetics Prenatal Clinical Conference	Thursdays	12:30 PM	OB Library, 3rd floor
Medical Genetics Grand Rounds Inter-disciplinary meeting with lecture and case presentations. General discussion of genetic concepts.	Fridays	9 AM	LKS/HV

Fellow personal time off guidelines

Many fellows will be interviewing for jobs during their fellowship and may be moving or under pressure to start a new position immediately following the end of the fellowship year, making June a difficult time of year for programs that rely on fellows for pager coverage and service work. To minimize the disruption of service, we ask that you adhere to the following guidelines for personal time off during your fellowship year:

- Please review the House Staff Policy Handbook at the GME website (http://gme.stanford.edu/). A section on personal time-off is available under "Other benefits."

- Three weeks personal time off is provided to fellows. Separate educational leave for presenting at national conferences is allowed. Time-off for job interviews should be arranged with the fellowship director (or proxy) in conjunction with the attending on- service. Total allowable time off is limited to four weeks.

- No more than one week of personal time off should be taken on any given rotation (in a given month), unless approved by the fellowship director (or proxy) and the faculty on-service.

- No more than one week of personal time off can be granted during the month of June (please plan your start dates accordingly).

- Please contact your fellowship director (or proxy) for approval of your proposed personal time off no later than two months prior to proposed dates.

- DO NOT make irreversible plans prior to fellowship director (or proxy) approval.

- Please provide the fellowship director (or proxy) with a proposed coverage schedule during your absence

- Every effort will be made to respond to personal time off requests in one week or less

Methods of assessment/evaluation

All clinical fellows are assessed by the relevant faculty during each given rotation, using the Stanford Pathology Department's evaluation tool located at the MedHub website.

Policies and procedures

Stanford Hospital and Clinics House Staff Policies and Procedures govern the policies and procedures for the Stanford Hospital and Clinics residents during this rotation.

Cytopathology

Director: Christina Kong, M.D.

Residents will complete a total of six 1-week rotations in cytopathology during their first and second years of AP training. In addition, interested residents and fellows may choose to participate in a 4-week elective or 1- to 2-week selective in cytopathology. The specific expectations for the required and elective/selective rotations are provided below.

Resident duties and responsibilities for required (1-week) Cytopathology rotations:

**The included targets and case caps are provided as recommended guidelines for minimum resident progression over two years of AP training and may be modified to accommodate specific resident interests or abilities, as coordinated with the cytology faculty and fellow on service. Residents are encouraged to request additional cases as their skill level progresses.*

Preview and write-up FNA cases:

- "Inside" FNA cases (SHF-XX-XX) are a shared responsibility between the cytology resident and an advanced level trainee (usually a cytopathology fellow, but occasionally another fellow or senior resident).
- The cytology resident should check-in with the cytopathology fellow/advanced trainee on service at 9 am each day for case distribution. Ideally, the resident will receive all assigned cases by 10 am.
- FNA cases are divided equally until the cytology resident has reached his/her required case cap (below), with the advanced level trainee taking responsibility for the remainder of the daily FNA cases.

Week 1—Two cases/day	Week 4—Four cases/day
Week 2—Two cases/day	Week 5—Five cases/day
Week 3—Three cases/day	Week 6—Six cases/day

- Preparation for sign-out includes previewing slides, reviewing the medical record, and drafting a preliminary interpretation and report in PowerPath.
- Given the nature of small cytology specimens, consultation with the cytopathology faculty/fellow is required prior to initiation of any ancillary studies (e.g. immunohistochemistry, special stains).
- The cytology resident is responsible for follow up of ancillary studies and preparation of a final report. Appropriate hand off is required for any pending cases at the end of the 1-week rotation.

Preview nongynecologic and gynecologic exfoliative cytology cases:

- "Inside" fluids and pap tests (SHC-XX-XX) are available for review late morning through early afternoon, after they are screened by cytotechnologists.
- The cytology resident is expected to preview at least 5 non-Gyn cases and at least 5 abnormal (prescreened) Gyn cases, looking up patient histories as necessary and formulating diagnostic impressions prior to sign-out.

- There is no required reporting in PowerPath; the resident documents his/her impression in the Notes tab in PowerPath or on the paper requisition form.
- During the second year of AP training (i.e. rotation weeks 4-6), the cytology resident should ask the cytotechnologists for 2 additional unscreened Gyn cases per day. The resident will perform primary screening and return the slides with his/her impressions to the cytotechnologists for re-screening and feedback.

Participate in cytology sign-out with attending:

- The schedule for cytology sign-out is variable and requires close coordination with the cytopathology fellow/advanced trainee and cytopathology faculty on service.
- Typically but not always, there are two sign-outs per day—a morning sign out for FNAs beginning by 11 am or earlier, and an afternoon sign out for fluids and follow-up.

Perform adequacy assessment for image-guided FNAs:

- Coordinating with cytotechnologists, the cytology resident is expected to participate in a minimum of two image-guided adequacy assessments per week.
- After participating in at least 10 cytotechnologist-assisted adequacy assessments, the cytology fellow will independently perform an assessment under cytology faculty supervision for direct observation and feedback.
- The cytology resident is strongly encouraged to continue participating in cytotechnologist-assisted adequacy assessments, even after completing the minimum number.

Learn how to perform FNA biopsies:

- Usually, coverage of the FNA clinic service is the primary responsibility of the cytopathology fellow or advanced level trainee on service. In rare instances, the cytology resident may be asked to be the primary assistant for the cytology faculty on the FNA service when the fellow/advanced trainee is unavailable.
- Performance of FNA biopsies is not required for completion of AP training.
- For interested residents or those considering specializing in cytopathology, performing at least one FNA per week under faculty supervision is recommended.

Complete additional gynecologic proficiency requirements:

- Gynecologic cytology teaching sessions by cytotechnologists – Depending on cytotechnologists' availability, the cytology resident will arrange with the cytotechnologists to provide introductory teaching of gynecologic cytology, preferably within the first 1-week rotation.
- Gynecologic cytology mock proficiency tests – Two sets of mock proficiency tests are available for completion. The first set (PT I, 3 boxes) should be completed by rotation week 2 (first year) and the second set (PT III, 3 boxes) should be completed by rotation week 4.
- ThinPrep Certification Exam – The cytology resident is expected to become certified in the evaluation of ThinPrep slides for gynecologic cytology. The exam should be taken during rotation week 5 or 6. Often multiple attempts are required to pass, and the resident should plan accordingly.

Preview and write-up outside cases:

- In general, "outside" consult or I/O cases (SHS-XX-XX) are the responsibility of the cytopathology fellow and/or advanced trainee on an elective rotation.
- The cytology resident is encouraged to take responsibility for previewing and writing up I/O cases as their ability progresses, particularly if the volume of inside FNA cases is low.

Resident/Fellow duties and responsibilities for elective/selective Cytopathology rotations:

First/second year residents:

- In general, the expectations for the elective/selective rotation are similar to those for the required 1-week rotations (as above), with case volume adjusted for the individual's interests and ability.
- Choosing an elective/selective in cytopathology usually implies interest in the field. As such, residents on elective/selective are expected to show more active participation in the FNA service and to take responsibility for some of the outside cases (I/Os).
- Residents are also encouraged to review the many available cytology study sets to supplement their foundation.

Third/fourth year residents or fellows:

- Senior residents and fellows who have completed their required cytopathology training are expected to function at an advanced level, similar to a beginning cytology fellow.
- Along with the cytopathology fellow on service, the advanced-level trainee will alternate coverage of the sign-out service (previewing and writing up reports) and the FNA clinic service (performing FNA biopsies and answering the FNA phone).

FNA Service Information

- When answering pages/calls for FNAs, please obtain patient name, location, referring clinician, FNA site, and relevant history.
- The FNA service is available by phone (650-739-6692) Monday through Friday, 9AM to 5PM and can perform same day biopsies for patients who are already on campus.
- Clinicians may also refer their patients to schedule an FNA biopsy at the Head & Neck Clinic on the third floor of 900 Blake Wilbur Drive. (Check with the cytology fellow on-service for specific appointment times.)
- Additional information for patients can be found at the FNA clinic website: http://cytopathology.stanford.edu/fine_needle_aspiration.html

Supervision and Evaluation

- Daily supervision by on-service cytology attending and cytology fellow
- Written evaluation by faculty for each 1- to 4-week rotation
- Monthly 360^{o} evaluation by cytology supervisor
- Mock proficiency tests, ThinPrep certification exam, and direct evaluation of competency in performing immediate adequacy assessments of image-guided FNA

Cytopathology Goals and Objectives

Patient Care

- To develop proficiency…
    - In obtaining relevant clinical information for each case
    - In evaluating a patient for fine needle aspiration (FNA) biopsy
    - In obtaining an informed consent for FNA biopsy
- To learn appropriate…
    - Manner of communication with clinicians regarding results
    - Manner of interacting with patients and their families

Medical Knowledge

- To understand …
    - The Bethesda System 2001 terminology and how to apply it to cervical cytology diagnosis and patient management
    - The Bethesda System terminology for thyroid FNA and how to apply it to thyroid FNA diagnosis and patient management
    - The Paris System for Reporting Urinary Cytology and how to apply it to urine cytology specimens and patient management.
    - The current management recommendations for patients with cervical dysplasia
    - The proper use of ancillary studies such as HPV testing, GC/Chlamydia testing, flow cytometry, etc. in cytology samples
    - The criteria for adequacy in gynecologic, non-gynecologic and FNA cases
- To develop expertise …
    - In the interpretation of pap tests utilizing three different preparation methods (ThinPrep, Surepath, conventional)
    - In the interpretation of non-gynecologic and FNA specimens
    - In performing immediate assessment for adequacy in FNA biopsies

Practice-Based Learning and Improvement

- To locate, appraise and assimilate …
    - Relevant clinical information, radiology results, microbiology/lab results from the hospital computer system
    - Relevant information regarding prior pathology results from the lab data system
    - Journal articles pertinent to a specific topic by performing computer-based literature searches (i.e. PubMed) and be able to critically review the literature
- To use case-based learning …
    - By reviewing cytology study set cases
    - By attending the monthly Cytology Unknown conference
    - By taking the gynecologic cytology proficiency tests

Interpersonal and Communication Skills

- To communicate…
    - Results accurately and in a timely fashion to clinicians
    - Effectively with patients and their families and be able to establish rapport and sense of trust when performing FNA biopsies

- To prepare concise, complete written reports on FNA biopsies

Professionalism

- To demonstrate integrity, honesty and respect …
    - When seeing patients for FNA biopsies
    - When working with the support staff (e.g. cytotechnologists, cytology prep techs, administrative assistants, clinic nurses, etc)
    - By understanding and following the principles of patient confidentiality and HIPAA requirements
- To work effectively as a team with …
    - The cytology staff (i.e. cytotechnologists, cytology prep techs, cytology fellow, cytology attending)
    - The clinicians and clinic staff when communicating results and when performing FNA biopsies
    - The radiology staff when assessing adequacy for image-guided FNA biopsies

Systems-based practice

- To understand how to evaluate cytology cases in a cost-effective manner
- To become familiar …
    - With the QA/QC regulations that apply to gynecologic, non-gynecologic and FNA cytology
    - With general performance improvement concepts pertinent to pathology by attending the annual departmental QA lecture

Dermatopathology

Director: Jinah Kim, MD, PhD

Educational Goals

This one year fellowship is intended to provide pathologists or dermatologists with subspecialty competence in dermatopathology. At the end of the year trainees are expected to have acquired the expertise to practice dermatopathology. This expertise includes diagnostic abilities, competence in ancillary techniques (immunofluorescence, immunophenotyping, molecular diagnostics, electron microscopy) supervision and training of laboratory personnel, laboratory management, quality assurance, and a fundamental understanding of basic science. The Dermatopathology Fellow(s) will be involved in the DP service throughout the entire year and will attend morning sign-out every day.

Expectations

- Fellows are expected to preview each case (in house and consult) prior to sign-out, read up on the respective diagnoses and retrieve relevant prior material for all consult cases.

- Following sign-out DP Fellows are responsible for dictating the final report for consult (outside) cases. (Also see "in-depth responsibilities for surgical pathology residents and fellows")

- DP fellows are required to attend the weekly Dermatology Grand Rounds held on Thursday morning from 7:30 to 9 AM at Redwood City/ Santa Clara Valley Medical Center (first Thursday of every month).

DP Fellows mandatory conferences

1. Thursday morning dermatology grand rounds (SMOC)

2. Dermatology resident teaching conferences (SMOC) held Tuesday AM (for pathology-trained fellows)

3. Surgical pathology teaching conferences held Wednesday and Friday AM in L-201 (dermatology-trained fellows) and also available on Blue Jeans

4. "Chapters Weedon conference" Tuesday 7:30 AM

5. Pathology resident Unknown conference (Plasma room) Friday 8AM monthly

6. Fellow lecture series (TBA)

- DP Fellows should evaluate and interpret immunofluorescence, molecular diagnostic, microbiologic, and electron microscopic material.

- DP Fellows should participate in laboratory management, including QA, laboratory procedures, and personnel management. One QA project is required and will be presented at the monthly departmental QA meeting.

- DP Fellows should review, as time permits, the extensive teaching slide collection.

- Each DP fellows should examine at least 5000 dermatopathology specimens.

- DP Fellows who are **pathologists** must participate in the examination of at least 1000 dermatology patients during the one-year fellowship.

  - This is met by attending the dermatology clinics 2-3 times per week in the afternoon at Stanford Medicine Outpatient Center (Redwood City, CA).

  - You will be responsible for keeping a HIPAA compliant log of all patients seen, which would include date of clinic, diagnosis, and any procedures (e.g. biopsies) performed. This serves as a record of your clinical activities for Board Certification.

- DP fellows who are **dermatologists** must examine at least 1000 surgical pathology specimens and 200 cytopathology specimens and are responsible for keeping a HIPAA compliant log of your surgical pathology/ cytology cases.

- The activities of the surgical pathology service may include a four-month rotation on surgical pathology, Hematopathology service, the Kempson consult service, Molecular pathology, and the Immunopathology service.

  - These rotations occur in the afternoon, following dermatopathology sign-out.

  - DP Fellows who are dermatologists should attend the 8:00 a.m. Anatomic Surgical pathology teaching conferences held Wednesday and Friday in L201 (Thursday mornings are reserved for Dermatology Grand Rounds).

- DP Fellows lead the “Chapters of Weedon” review conference for the dermatology residents. This is a teaching conference for first year dermatology residents held on a weekly basis.

  - The DP Fellow should read the assigned chapter of Weedon’s Skin Pathology, and pull relevant slides from the teaching archive. These slides are reviewed with the dermatology residents on Tuesday morning at 7:30 at SMOC.

- DP Fellows guide the unknown conference for the senior dermatology residents. This conference is also on Tuesday morning at 7:30.

- DP fellows guide microscope sessions for the pathology residents, which are held one Wednesday a month at noon. The fellow should choose the topic for the session and may show recent interesting cases or cover a topic in dermatopathology.

During the course of the fellowship, DP Fellows are expected to participate in at least one research project that results in presentation with the intention of publication. The research project can be clinical, pathologic or basic science-related (in consultation with Dermatopathology faculty)

DP Fellows are encouraged to attend the annual meeting of the American Society of Dermatopathology, and funds are available to pay for this trip. (Fellows may utilize up to 5 work days to attend academic conferences during the academic year)

DP Fellows are expected to give two didactic lectures per year in the Department of Pathology.

The DP fellows are expected to cover emergent call on weekends (home call). This entails serving as a consultant for the surgical pathology fellow on call or hotseat fellow on “GOLD/STAT” DP cases that come in over the weekend.

DP fellows will be evaluated monthly by faculty and semiannually meetings with the Program Director will occur.

During the Annual Program Review, toward the end of the academic year the Program Assessment will include:

a. Resident Performance

Faculty Development

c. Graduate Performance

d. Program Quality

GI & HEPATOBILIARY PATHOLOGY FELLOWSHIP

Director: Teri A Longacre, MD

Goals and Objectives:

Goal: To gain expertise in gastrointestinal and hepatobiliary pathology with the goal of becoming a specialist in the field.

Objectives:

1. Development of diagnostic skills in gastrointestinal and hepatobiliary pathology such that the fellow can recognize both the basic diagnoses and higher level, complex or uncommon diagnoses.
2. Develop and expand on ability to correlate clinical findings, radiologic imaging, gross and histologic findings.
3. Achieve a higher-level understanding of ancillary studies used in gastrointestinal and hepatobiliary cancer and be able to interpret, report and troubleshoot basic and challenging cases according to current guidelines.
4. Serve as a mentor/consultant to junior residents and clinical colleagues in gastrointestinal and hepatobiliary grossing, histology and diagnostic reporting.
5. Craft well-written gastrointestinal and hepatobiliary pathology reports according to institutional standards with well-considered, concise additional comments and references when necessary.
6. Be able to effectively communicate as a consultant with clinicians and referring pathologists.
7. Effectively present pathology findings in gastrointestinal and hepatobiliary tumor boards and participate in tumor board discussions.
8. Have knowledge of the clinical guidelines that relate to gastrointestinal and hepatobiliary pathology (CAP/ASCO guidelines, NCCN guidelines).
9. Be familiar with current literature in gastrointestinal and hepatobiliary pathology.
10. Be able to utilize and critically evaluate research approaches that contribute to evidence-based medicine practices in gastrointestinal and hepatobiliary pathology.

Responsibilities: The specific responsibilities of the gastrointestinal and hepatobiliary pathology fellow will vary depending on the specific rotation. However, throughout the year they will have the following general responsibilities:

- Consultation: The gastrointestinal and hepatobiliary pathology fellow will serve as a consultant on gastrointestinal and hepatobiliary pathology issues to clinicians and other pathologists.
- Mentorship: The gastrointestinal and hepatobiliary pathology fellow will serve as an additional resource for teaching in gastrointestinal and hepatobiliary pathology.
- Teaching sessions: The fellow will be responsible for at least one gastrointestinal and hepatobiliary pathology fellow-run scope session for trainees.
- Conferences: Attendance at AP related conferences/scope sessions and didactics is required. The fellow will present at gastrointestinal and hepatobiliary pathology tumor board throughout the year.
- QA/QI project: The fellow will work with a resident and a gastrointestinal and hepatobiliary pathology faculty member on a project that will examine quality assurance data in order to provide quality improvement suggestions to the surgical pathology service.
- Research: Develop an academic project or teaching materials in gastrointestinal and hepatobiliary pathology.
- Ancillary studies: The fellow will be responsible for work-up of mismatch repair protein (MMR) studies, HER2 immunohistochemistry and FISH cases.

- Evening/weekend call: Evening and weekend call will be similar to other Surgical Pathology Fellows with coverage from 6:00PM to 7:30AM on weekdays and all day on Saturdays, Sundays and holidays. See on call schedule for details.

Supervision:

- All gastrointestinal and hepatobiliary pathology fellows have attending back-up at all times, for all frozen section procedures, tumor board presentations and case sign-out. As fellows increase their diagnostic skills, they assume increased responsibility for independently performing intraoperative consultations as well as increased responsibility in supervising residents during intraoperative consultations and case sign-out, providing preliminary results and presenting pathology findings at multi-disciplinary conferences. The majority of gastrointestinal and hepatobiliary pathology fellows are PGY5 or beyond. There is no difference in level of supervision or responsibilities between fellows of different PGY levels.

Rotations:

- Gastrointestinal and Hepatobiliary Pathology Service Fellowship Rotation: This rotation will include the following responsibilities:
  - Gastrointestinal and hepatobiliary pathology consults & outside reviews (Inside-Outside cases or I/Os). I/Os are defined as gastrointestinal and hepatobiliary pathology-related slides submitted by Stanford and Stanford-affiliated clinicians for patients coming to Stanford for second opinion, follow-up or treatment of their gastrointestinal and hepatobiliary -related diagnoses.
  - The fellow will work-up all gastrointestinal and hepatobiliary pathology consults & I/Os for signout with the faculty the following day.
  - Intermediary for gastrointestinal and hepatobiliary pathology consults – The fellow will be available to assist/guide in the work-up of gastrointestinal and hepatobiliary pathology consults that are being worked up by the surgical pathology fellow on the gastrointestinal and hepatobiliary pathology service.
  - Gastrointestinal and hepatobiliary pathology tumor boards. Tumor board is an excellent place to learn how our diagnoses make a clinical difference as well as the latest in gastrointestinal and hepatobiliary cancer treatment. The fellow will present the pathology of all cases requested for a pathology review. The fellow and faculty both attend the tumor board but the fellow is responsible for presenting the cases.
  - Ancillary studies/HER2 FISH cases – The gastrointestinal and hepatobiliary pathology fellow will be responsible for all ancillary studies including mismatch repair protein (MMR) status and HER2 immunohistochemistry including HER2 FISH. Additional testing requests by the clinical team will also be worked up by the gastrointestinal and hepatobiliary pathology fellow.
  - "Point person" for gastrointestinal and hepatobiliary clinical team – The gastrointestinal and hepatobiliary pathology fellow will help respond to clinical queries on cases, selection of blocks for ancillary study send-out requests, etc.
  - Gross room consultations for junior residents – Early in the year the fellow will come with the faculty on service when there are gastrointestinal and hepatobiliary pathology gross specimens to review with the on service resident or PA. With graduated responsibility, the fellow may serve as the primary consultant on the gross review and sectioning, with the attending available as backup.
  - Assist in overflow GI biopsies
- Gastrointestinal and Hepatobiliary Service Junior Attending: During this rotation, the fellow is responsible for resident sign-out of GI specimens. This will include ordering of additional stains, determination of cases to be shown to additional faculty, instruction provided to the resident concerning the gross, microscopic, and relevant diagnostic and differential diagnostic issues, as well as preparation of the final report integrating all the findings. Once the final report is completed and corrected by the fellow, the case is to be forwarded to the

assigned faculty within the prescribed turn-around-time and formally signed out by that faculty member.

- Hot Seat: The fellow will issue preliminary diagnoses and triage inside cases for ancillary testing, interface with the submitting clinicians when indicated, and confirm the preliminary diagnoses with the resident following faculty sign out. Any discrepancies are to be discussed with the resident and faculty prior to sign out.
- Research/Elective: The fellow may select any rotation in anatomic or clinical pathology as a selective rotation, assuming space availability and approval by the relevant service chief. Research months are supervised by the fellowship director or the research mentor following approval by the fellowship director.
- Frozens: The fellow is responsible for 1 continuous month frozen section coverage from 7:30AM to 5:00PM Monday through Friday (first year resident) or from 7:30AM to 2:00PM (second year resident) during the frozen section rotation. It is expected that the fellow, in conjunction with the assigned resident in surgical pathology and the frozen section technician, prepare and interpret all frozen sections and touch preparations following discussion(s) with the submitting surgeon. This may include preparation of tissue for special studies. The assigned faculty is available for assistance and is expected to review all frozen sections and their diagnoses following the fellow's preliminary diagnoses. The assigned faculty will take over frozen section coverage from the fellow for the 5:00PM to 6:00PM period. In addition, the gastrointestinal and hepatobiliary pathology provides assistance in all gastrointestinal and hepatobiliary pathology frozen sections throughout the year.
- Medical Liver: The fellow is responsible for assisting in the work-up of all medical liver biopsies throughout the year (both in house, I/O, and consult). The degree of involvement will vary depending upon whether or not there is a resident on the service and the level of experience of the resident.

Additional requirements:

- GI and Hepatobiliary Multi-Disciplinary Conferences
- DDC Wednesday Journal Club and Case Conference
- AP Journal Club (required)
- Monthly gastrointestinal and hepatobiliary pathology scope sessions/workshops:
    - Fellows give to residents and other fellows 2x year
    - Faculty give to fellows (residents also invited) 4-6x year
    - Faculty give to residents (fellows also invited) 4-6x year

Stanford Gastrointestinal (& Hepatobiliary) Pathology Service:

Description: The Stanford GI Pathology Service provides specialized diagnostic services for all GI biopsies and surgeries taking place at Stanford Hospital (internal cases), GI pathology second reviews for patients to be treated at Stanford who have outside pathology material ("Inside/Outside cases" or I/Os) and GI pathology consultation cases referred from outside of Stanford Medicine to the Department of Pathology Consult Service ("consults"). The service also includes testing and interpretation of GI cancer ancillary studies (mismatch repair protein by IHC, HER2 testing by both IHC and FISH and Ki67 studies on neuroendocrine tumors). GI tumor boards are covered by the GI pathology faculty member on service.

Current faculty with specialty expertise in adult GI & hepatobiliary pathology:

- Teri A. Longacre, MD; Director of Stanford Breast Pathology Service
- Gerald Berry, MD
- David Bingham, MD
- John Higgins, MD
- Brock Martin, MD
- Jeanne Shen, MD
- Christine Louie, MD (VA Medical Center)

Current faculty with specialty expertise in pediatric GI & hepatobiliary pathology

- Kim Hazard, MD
- Teri A. Longacre, MD
- Brock Martin, MD
- Eduardo Zambrano, MD

Current faculty with specialty expertise in medical liver pathology:

- John Higgins, MD
- Brock Martin, MD
- Neeraja Kambham, MD
- Christine Louie, MD (VA Medical Center)
- Jeanne Shen, MD
- Richard Sibley, MD

Trainees involved in the GI pathology service:

- The Stanford Pathology AP Trainee assigned to internal GI resection pathology cases ("bigs") will gross, preview/write-up and sign-out resection cases ("bigs") with the GI service faculty member assigned to internal GI service resection cases ("bigs").
- The Stanford Pathology AP Trainee assigned to internal GI pathology biopsy cases will preview/write-up and sign-out biopsy cases with the GI service faculty member assigned to internal GI biopsy service cases.
- Fellows on the I/O service or GI pathology elective will have the opportunity to write up GI pathology I/Os and sign them out with the GI pathology faculty member on service. Tumor board attendance when on a GI pathology elective is encouraged for non-GI fellows.
- GI Pathology Fellow: GI pathology fellows will rotate through the GI pathology fellow service with responsibility for GI consults; GI I/Os; in house overflow cases; MMR IHC, HER2 IHC, & HER2 FISH ancillary studies; medical liver; and tumor boards (see below* for details). On this service they will triage this service load with any other fellow (such as surgical pathology fellows) also assigned to the GI fellow service. They will also assist in prioritization and triage of in house overflow cases and coordinate the case distribution with the faculty on the GI service. On their Junior Attending rotation, they will review the internal GI cases assigned to the resident on service and prepare for sign-off of reports with the faculty member on the internal GI pathology service. Throughout the year, the GI fellow will serve as a consultant on GI pathology to the clinical team and to junior trainees and physician assistants in the gross room. <u>See the GI (& Hepatobiliary) Pathology Fellowship Guidelines for additional information.</u>
- Other Pathology Fellows (rotating surgical pathology/subspecialty fellows): Other fellows may rotate onto the GI pathology fellow service, do an elective in GI pathology or rotate as a junior attending on the GI service (as space allows). See GI Pathology Fellowship document for details of these rotations. On the GI pathology fellow service, the fellows will be responsible for a portion of the GI pathology fellow service (see below*). If the fellow is covering the GI service for a portion of their Junior Attending rotation, they will review the internal GI cases assigned to the resident on service and prepare for sign-off of reports with the faculty member on the internal GI pathology service.

- Hot Seat fellow on GI bench: The fellow on Hot Seat will be responsible for initial preview, additional test ordering and triage of GI in-house biopsies and resection cases. Case distribution to the resident on the GI service should follow the rules of the trainee case caps and service distributions and be coordinated with the GI fellow and faculty on service. Preliminary diagnosis will be recorded by the fellow and may be communicated to requesting clinicians; all such communications should be documented. For any new diagnosis of invasive GI cancer MMR will be ordered by the fellow. The fellow will also order HER2 IHC for all new diagnoses of invasive gastric or esophageal adenocarcinoma and for all first occurences of recurrent or metastatic colorectal adenocarcinoma. Other ancillary diagnostic studies can be ordered for diagnostic purposes as needed. The resident, fellow or faculty on the GI service will communicate their diagnoses or additional work-up of all cases with the Hot Seat Fellow before signing out the case. Any discrepancies in diagnosis will be discussed and handled as appropriate.

***GI Service Fellowship Rotation**: This rotation will include the following responsibilities:

- GI consults – The GI fellow on this service is responsible for preview and work-up of all GI consult cases. This includes showing individual cases to the relevant faculty, preparing a consult report with relevant references and conveying these interpretations to the consulting physicians. In almost all cases, the fellow will be required to telephone consulting physicians with preliminary diagnoses and requests for more clinical or pathologic data, additional slides/blocks and/or additional reports, if required. The ability to discuss difficult cases with colleagues who may on occasion have differing opinions and develop a cogent report that addresses these differences is an important aspect of the fellow's training experience. Once the report is completed and corrected by the fellow, the case is forwarded to the assigned faculty and formally signed out by that faculty member. All consult cases must have an initial review with faculty within 24 hours of receipt by the fellow.
- GI pathology outside reviews (Inside-Outside cases or I/Os) - are defined as review of GI pathology-related slides for Stanford and Stanford-affiliated clinicians on patients coming to Stanford for second opinions, follow-up or treatment of their GI-related diagnoses. I/O case assignments will be triaged by the fellows on the GI pathology service (primarily the GI pathology fellow but also any rotating surgical pathology/subspecialty fellow). Fellows assigned to GI I/Os will preview and write them up within 24 hours of receipt and notify faculty they have I/O cases for them in a timely manner. Cases will be reviewed with the faculty member assigned to the GI service at a scheduled time. Some cases may not be double scoped with a fellow when they are comfortable acting as a "junior attending" on the cases and have no additional questions on straightforward cases. However, the faculty will be responsible for final sign-out of all cases and will provide verbal or written feedback on all cases to the fellow. In general, it is best when cases are reviewed in person.
- GI tumor boards - Tumor board is an excellent place to learn how our diagnoses make a clinical difference as well as the latest in GI cancer treatment. The fellow will present the pathology of all cases requested for a pathology review. The fellow and faculty both attend the tumor board but the fellow is responsible for presenting the cases.
- Ancillary studies – The GI fellow will be responsible for all ancillary studies that are not the responsibility of the resident on the service. The bulk of these include MMR and HER2 IHC cases. Additional testing requests by the clinical team will also be worked up by the fellow. Addendums will be issued by the fellow for these additional tests when results are back.
- Gross room consultations for junior residents and PAs – Early in the year the fellow will come with the faculty on service when there are GI gross specimens to review with the on service resident or PA. With graduated responsibility, the fellow serves as

the primary consultant on the gross review and sectioning, with the attending available as backup.

- In the event that a non-GI pathology fellow is on this service as well, the GI fellow is responsible for triaging consult, I/O, overflow, MMR and HER2 IHC, and tumor board responsibilities with the second fellow on the service (with coordination/input of the faculty on service).

Additional Guidelines for handling of different GI pathology case types:

1. **Internal Stanford GI Pathology Cases:**
    a. Definition: GI biopsies or surgical specimens from Stanford-affiliated (including South Bay cases) procedures AND standard GI cancer prognostic/predictive markers performed on GI cancers in primary or metastatic sites (IHC for MMR and HER2, Ki67 for neuroendocrine tumors).
    b. GI tissue cases that are sampled which reveal other malignancies (other than GI tumors) or non-neoplastic disorders, such as hematologic neoplasms or non-neoplastic hematologic disorders, will be referred for review to the appropriate pathology service which handles such malignancies or non-neoplastic disorders.
    c. GI cytology samples will be signed out by the cytology service. If the sample contains invasive GI cancer and it is from a distant metastatic site or is a new primary diagnosis, the GI MMR and HER2 IHC will be ordered by the cytology team and handed off to the GI faculty member on service for sign-out as an addendum.
    d. Metastatic GI cancer sites are frequently sampled for the purposes of MMR and/or HER2 IHC as well as for diagnostic purposes. These metastatic sites (such as neuro, derm, GI, GYN, bone) will be reviewed by the service they were originally assigned to, with consultation by the GI service on the diagnosis if the diagnosis of GI cancer is being considered. The originating service will typically finalize the primary diagnosis but in some cases it may be appropriate for the GI service to do so (to be discussed on a case-by-case basis). However, the MMR and/or HER2 IHC (or Ki67 in neuroendocrine tumors) must be ordered in a timely manner by the originating service (unless other arrangements have been made for the GI service to order them) and handed off to the GI faculty member on service for sign-out.
    e. If ancillary genetic or molecular studies not routinely performed or interpreted by the GI pathology service are requested by the treating clinician, the GI pathology service will assist in selection of the most appropriate tissue sample/block and help determine if sufficient tissue is present to send for testing. Consultation on appropriate ancillary testing can be given by the GI Pathology Service, the Clinical Genetic Test Consultation Service, the Cytogenetics Laboratory, or the Molecular Genetic Pathology Laboratory or other Service as appropriate and relevant to the specific case. Direct patient requests for non-routine ancillary testing need to be approved and requested by the treating clinician and tissue will only be released for such studies if the GI pathologist determines that there is sufficient residual tissue to not interfere with routine studies required for treatment decisions.
    f. Internal cases are assigned to the resident/trainee on the GI clinical service. Trainees are responsible for review of the clinical record/imaging, gross evaluation, slide preview/case write-up and attending sign-out. Trainees are also responsible for the immunohistochemical studies performed in a diagnostic work-up performed per standard practice on newly diagnosed or newly metastatic GI cancers. Trainees will only receive GI cases within their current “cap” level (see Hot Seat for most recent case caps). Additional cases will go directly to the GI fellow or faculty as “overflow cases”.

g. Faculty assigned to the GI pathology internal cases will review and report trainee-associated cases as well as overflow cases.

2. **Inside/Outside (I/O) Second Reviews of GI Pathology:**
    a. Definition: Review of GI pathology-related slides for Stanford and Stanford-affiliated clinicians on patients coming to Stanford for second opinions, follow-up or treatment of their GI-related diagnoses.
    b. I/O case assignments will be triaged by the fellows on the GI pathology service (primarily the GI pathology fellow but also any rotating surgical pathology/subspecialty fellow). Fellows assigned to I/Os will preview and write them up within 24 hours of receipt and notify faculty they have I/O cases for them in a timely manner. Cases will be reviewed with the faculty member assigned to the GI service at a scheduled time. Some cases may not be double scoped with a fellow when they are comfortable acting as a "junior attending" on the cases and have no additional questions on straightforward cases. However, the faculty will be responsible for final sign-out of all cases and will provide verbal or written feedback on all cases to the fellow. In general, it is best when cases are reviewed in person. If there is a disagreement between the initial diagnosis of the I/O case and the Stanford diagnosis, the fellow will contact the referring pathologist as well as the Stanford physician who requested the I/O review to notify them of the discrepancy or change in diagnosis. This is to be fully documented in the body of the pathology report using Urgent Diagnosis protocol.
3. **GI Pathology Consults:**
    a. Definition: An outside GI pathology case referred to Stanford for a consultative opinion.
    b. GI pathology consults will be on the GI pathology fellow service and handled by the GI pathology fellow (or a rotating non-GI fellow).
    c. Efforts will be made to show all GI consults to all of the GI fellows.
    d. Faculty on the GI service will finalize all GI pathology consults after review with the assigned fellow. All other faculty and trainees who reviewed the case will be listed as well (in the part of the report where this is listed in our standard reports). In addition, in the comment of the report, it should specifically state which faculty reviewed <u>what portions of the case</u> and if they agreed with the final diagnosis of portions reviewed (this should also be true for any I/O or internal cases that are reviewed by multiple faculty members).
    e. **Directed Consults/Semi-Directed GI Pathology Consults:**
        i. Definition: An outside GI pathology case referred to Stanford for a consultative opinion and addressed to a specific faculty member.
        ii. The fellow on the consult service assigned to the case will make the faculty member the client requested aware of the case. This faculty member will have the option to be assigned the case or, if he or she is out of town or off service/not available, to designate the on-service consult faculty to sign-out the consult case. The client requesting the directed or semi-directed consult must be kept informed of the availability of their requested consultant and who will be reviewing the case. The fellow will work the case up for sign-out with the faculty member the case will be signed out with.

Director: Teri A. Longacre, MD

General Philosophy

The fellowship in gynecologic pathology is designed to offer advanced, focused and intensive diagnostic training in gynecologic pathology. Specific responsiblities include: sign-out of consultation material (including immunohistochemistry and other special diagnostic techniques), supervision of resident during sign-out of gynecologic frozen sections, supervision of resident during sign-out of gynecologic surgicals, and participation in weekly gynecologic oncologytumor boards and non-oncologic gynecologic pathology case reivews. Additional time is designed to pursue additional subspecialty training in immunohistochemistry and FISH (as it relates to gynecologic pathology), placental pathology, and research.

Specific Responsibilities

Fellows participate in departmental and interdepartmental conferences such as the Gynecologic Oncology Tumor Board and General Gynecologic Pathology Case Reivew, as well as medical student and resident teaching. The fellow is also responsible for review of gynecologic cases sent from outside hospitals.

During the course of the year-long fellowship, the fellow is expected to participate in at least one academic project that results in presentation and publication. The academic project can be clinical, pathological or basic science-related. Contribution to book chapters and review articles is strongly encouraged.

The fellow is also responsible for participating in at least 1 QA/QI project relating to gynecologic pathology. This project may be designed by the fellowship director. or by the fellow with assistance from the fellowship director and quality improvement staff.

On-Call

Refer to the on-call schedule for specific coverage dates. When on-call, fellow coverage is from 6:00PM to 7:30AM on weekdays and all day on Saturdays, Sundays and holidays. Responsibilities include preparation, interpretation and reporting of GMS specimens, preparation of FNA samples from radiology for immediate evaluation, and intraoperative and frozen section coverage. The on-call fellow is required to contact the on-call faculty member by pager or home number for frozen sections or if reporting a positive finding on GMS.

Frozen Section Rotation (1 month)

The fellow is responsible for frozen section coverage from 7:30AM to 5:00PM Monday through Friday during the frozen section rotation when first year AP resident is on rotation.. It is expected that the fellow, in conjunction with the assigned resident in surgical pathology and the frozen section technician, prepare and interpret all frozen sections and touch preparations following discussion(s) with the submitting surgeon. This may include preparation of tissue for special studies. The assigned faculty is available for assistance and is expected to preview all frozen sections and their diagnoses following the fellow's preliminary diagnoses. The assigned faculty will take over frozen section coverage from the fellow for the 5:00PM to 6:00PM period.

In addition to the formal frozen section rotation, the fellow is expected to be available for GYN frozen sections and/or intraoperative consultations when scheduled. All problematic cases should also be reviewed in conjunction with the GYN pathology attending on service.

Surgical Pathology Sign-Out Rotation (1 month)

During this rotation, the fellow is responsible for resident sign-out. The fellow will be responsible for sign-out of gynecologic specimens. This will include ordering of additional stains, determination of cases to be shown to additional faculty, instruction provided to the resident concerning the gross, microscopic, and relevant diagnostic and differential diagnostic issues, as well as preparation of the final report integrating all the findings. Once the final report is completed and corrected by the fellow, the case is to be forwarded to the assigned faculty within the prescribed turn-around-time and formally signed out by that faculty member.

Consult Rotation (6 months)

The fellow is responsible for preview and work-up of gynecologic consult cases, but may take on additional cases as desired. On this service, this includes showing individual cases to the relevant faculty, preparing a consult report with relevant references and conveying these interpretations to the consulting physicians. In almost all cases, the fellow will be required to telephone consulting physicians with preliminary diagnoses and requests for more clinical or pathologic data, additional slides/blocks and/or additional reports, if required. At times, this may appear somewhat daunting, but the ability to discuss difficult cases with colleagues who may on occasion have differing opinions and develop a cogent report that addresses these differences is an important aspect of the fellow's training experience. Once the report is completed and corrected by the fellow, the case is forwarded to the assigned faculty and formally signed out by that faculty member.

The fellow is also responsible for review and reporting of cases submitted from outside hospitals for review (I/O cases). These cases are to be signed out in conjunction with the GYN faculty on service.

The fellow is also responsible for preparation and delivery of at least 2 hour-long formal slide tutorial session for other fellows and residents on surgical pathology.

Hot Seat Rotation (1 month)

The fellow is responsible for issuing preliminary diagnoses on all gynecologic and general surgical pathology specimens.

Placenta Rotation (1/2 month)

The fellow is responsible for gross and sign-out of abnormal placentas during this rotation. At the end of the rotation, the fellow will be able to list the indications for placental exam, be able to recognize and diagnose common conditions that impact fetal welfare as well as maternal welfare (including future pregnancies), and recognize and diagnose gestational trophoblastic diseases. The latter will be accomplished by didactic lectures, review of study sets and sign-out of consultation material.

MMR/MSI Rotation (1/2 month)

The fellow is also responsible for interpretation and sign-out of mismatch repair proteins in gynecologic cancer specimens. A minimum of 20 cases must be performed by the fellow under faculty supervision, including stable and unstable cases. At the end of the rotation, the fellow must demonstrate a thorough understanding of test algorithms for gynecologic cancer and how they differ from colorectal cancer.

Selective/Research (2 months)

The fellow may select any rotation in anatomic or clinical pathology as a selective rotation, provided space availability and approval by the relevant service chief. Research months are supervised by the fellowship director or the research mentor following approval by the fellowship director.

Fellow Conferences

The fellow is required to attend the gynecologic fellow noon slide tutorial sessions in addition to all anatomic pathology resident/fellow teaching conferences.

Specific Educational Goals and Objectives:

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
Patient care	1) Participate insign-out of gynecologic specimens received in the laboratory 2) Understand and observe privacy policies, and participate in all appropriate training 3) Understand the controversies & implications of the diagnosis of atypical hyperplasia of the endometrium 4) Understand the role of the pathologist in the evaluation of patients with possible hereditary gynecologic cancer 5) Understand the role of the pathologist n the evaluation of possible gestational trophoblastic disease 6) Read relevant literature on the management of patients with cervical abnormalities, including indications for HPV testing and different methods available for HPV detection	1) Independently interpret and classify gynecologic specimens, entering a first draft report for attending review at the time of sign-out 2) Know and be able to identify reactive conditions seen in gyn pathology 3) Know and be able to identify (and resolve) common problematic differential diagnoses in gyn pathology 4) Participate in gyn tumor boards 5) Independently perform & interpret frozen sections of gyn pathology specimens 6) Understand when to collect material for ancillary studies 7) Understand and explain current consensus guidelines for management of patients with cervical cytologic/biopsy abnormalities	1) Consensus Guidelines: www.asccp.org 2) Consensus Guidelines: ADASP

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
		8) Provide appropriate role modeling and perform supervisory responsibilities commensurate with ability and qualifications 9) Interpret laboratory data and other studies required for the practice of gyn pathology	
Medical knowledge	1) Learn and apply criteria for adequate, sub-optimal and unsatisfactory samples, specific to gyn diagnosis & immunodiagnosis 2) Learn diagnostic criteria of malignancy, specific to gyn site 3) Learn grading & staging of gyn malignancies 4) Attend the surgical pathology didactic conferences & noon conferences 5) Understand preparatory and processing steps for all gyn cytology specimens 6) Learn The Bethesda System for Reporting Cervical Cytology, including criteria for unsatisfactory Pap smears and quality indicators according to Bethesda 2001 7) Learn prosection &	1) Attend the surgical pathology didactic conferences 2) Organize and present an hour-long gyn slide seminar at morning conference 3) Attend monthly QA/QI meeting 4) Participate in medical student teaching in the gyn blocks 5) Understand and apply appropriate use of special stains and/or studies to facilitate diagnosis 6) Become familiar with outcome and prognosis of common gyn malignancies 7) Attend and present at monthly journal club 8) Demonstrate an investigatory and analytic approach to diagnosis of pathology specimens	1) Longacre, Kempson, Atkins & Hendrickson *The Uterine Corpus* In Sternberg's Pathology (6th edition) 2) Folkins A & Roberts D, *The Placenta* In Sternberg's Pathology (6th edition) 3) Longacre TA & Mills SE *The Vulva* In Sternberg's Pathology (6th edition) 4) Kong CS & McCluggage G. *The Cervix* In Sternberg's Pathology (6th edition) 5) World Health Organization (WHO) Classification of Tumours of Female Reproductive Organs (4th edition) 6) Rabban JT & Longacre TA. *Immunohistology of the Female Genital Tract*. In Diagnostic Immunohistochemistry: Theranostic and Genomic Applications, (4th edition) 7) Young & Clement

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
	microscopic exam techniques for placentas. Learn major differential diagnoses in gestational & placental pathology 8) Attend and present at monthly journal club	9) Apply established and emerging principles of clinical science, epidemiology, and social-behavioral sciences to diagnostic decision-making 10) Demonstrate ability to critically analyze literature and formulate investigative questions 11) Demonstrate ability to clearly and accurately communicate new knowledge obtained from scientific inquiry	Atlas of Gyn Pathology, (2nd edition) 8) Longacre & Hendrickson, Frozen Section in Gynecologic Pathology, 1996 9) Longacre TA & Soslow RA. The Uterine Corpus and Cervix, 2012 10) The Bethesda System for Cytology (2nd edition)
Practice-based learning and improvement	1) Attend monthly Stanford QA/QI conference (3rd Tuesday of each month) 2) Become proficient at various Stanford information systems (e.g., PowerPath, EPIC) 3) Comply with all safety regulations 4) Become familiar with and adhere to patient safety goals as they apply to gyn specimens (use of two patient identifiers)	1) Participate in the cyto-histo correlation conference for Pap smears 2) Perform literature searches on cases when indicated 3) Identify strengths, deficiencies and limits in one's knowledge and expertise and set learning and improvement goals 4) Identify and perform learning activities that address knowledge, skills, and/or attitude gaps 5) Incorporate feedback into daily practice	1) *American Journal of Surgical Pathology* 2) *Modern Pathology* 3) *International Journal of Gynecological Pathology* (other journals available online through Lane Library at Stanford) 4) Tumor Board discussions 5) Grand Rounds 6) California Society of Pathologists annual meeting in San Francisco 7) Southbay monthly conference

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
Interpersonal and communication skills	1) Effectively communicate with all others within and outside the laboratory 2) Compose clear and concise pathology reports, with explanatory comments as needed 3) Be able to present and explain gyn pathologic findings to other health care professionals in the tumor board setting	1) In the last quarter of the year, act as a "junior attending", signing out gyn cases with residents 3) Instruct anatomic pathology residents on gyn pathology 4) Discuss preliminary and final gyn pathology results with clinicians and patients (as applicable) 5) Prepare timely, accurate, and comprehensible reports 6) Act in a consultative role to other health professionals 7) Work effectively with others as a member or leader of a health care team (may be a QI project) 8) Be able to disclose and discuss errors with colleagues	1) Monthlylab management meetings (Tuesday, Noon-1:00 PM)
Professionalism	1) Participate in all Stanford HIPAA training prior to obtaining computer password and access 2) Demonstrate ethical behavior pertaining to confidentiality, informed consent, research, and business practices 3) Demonstrate the ability to work with other health care professionals to establish & maintain	1) Insure continuity of care by informing the gyn faculty of any pending cases prior to a scheduled absence 2) Insure continuity of care in the intraoperative setting (formal sign off) 3) Demonstrate accountability to patients, colleagues, and society at large 4) Demonstrate	1) Monthly lab management meetings

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
	climate of trust, mutual respect, dignity, diversity, and ethical integrity 4) Demonstrate the ability to accept ambiguity as an inherent aspect of clinical health care and utilize appropriate resources in dealing withuncertainty 5) Demonstrate self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors	sensitivity to diverse patient population, including but not limited to race, gender, age, culture, religion, disabilities, socioeconomic status, and sexual orientation 5) Manage conflict between personal and professional responsibilities 6) Practice flexibility and maturity to adapt to changes 7) Demonstrate healthy coping mechanisms to respond to stress	
Systems-based practice	1) Attend department-wide annual quality assurance meeting 2) Attend anatomic pathology monthly QA/QI meeting 2) Become familiar with the College of American Pathologists' (CAP) guidelines for reporting MMR	1) If timing permits (inspections occur approximately once every two years), participate in the immunodiagnosis portion of a CAP inspection, esp as it pertains to gyn pathology 2) Participate in the annual QA/QI review of synoptic reporting n gyn cancers 3) Participate in proficiency testing for gynecologic cytology (Pap smear) 4) Serve as a consultant for ordering immunodiagnostic and other ancillary studies in problematic gyn/ cases 5) Participate in	1) www.cap.org 2) Monthly lab management meetings

ACGME competency	Program Goals and Objectives: First Month*	Program Goals and Objectives: Subsequent Months*	Resources
		resolving system errors 6) Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population based diagnostic modalities 7) Perform administrative and practice management responsibilities commensurate with ability and qualifications 8) Work effectively in various health care delivery systems relevant to the practice of gyn pathology 9) Advocate for quality diagnostic and theragnostic practices	

Hematopathology (HP) fellowship expectations 2017-18

Fellow expectations are constructed to meet ACGME Milestones. Rotation-specific resources including the fellowship manual and expectations as well as the faculty and resident schedule are available on the pathologists.stanford.edu website.

Duty hours: The Stanford residency program including the hematopathology fellowship all GME policies including ACGME duty hour guidelines. You are required to track duty hours in MedHub.

Tracking accomplishments and procedures: MedHub is a central repository for your fellowship duties and accomplishments: MedHub. It is a fellowship requirement to also track your presentations, procedures (bone marrow biopsies), and trainings/mock inspections in your MedHub portfolio. Bone marrow biopsy procedures also need to be logged in the case log system on the ACGME website.

Presentations (please log in MedHub):

- *Case-based Heme presentation*, 1 hour/one per year
- *Heme didactic for CP residents,* 30 minutes/one per year
- *Journal club*: third Tuesday of each block; 15 minutes or less per fellow, informal discussion with no slides. Each fellow should address test utilization during one journal club
- *Medical student hematology lab sessions*, fellows are expected to participate in at least 4 of 8 medical student hematology sessions which are co-led by hematopathology and hematology faculty and trainees

CAP inspection (please log in MedHub):
- Please first take CAP's *LAP team member training*.
- Jason Kurzer is a point of contact for CAP self/mock inspections

Lab management and test utilization courses (please log in MedHub):

1. **CAP:***Test Utilization for Residents*
2. ***ASCP LMU*** (department subscribes)
   - The Laboratory Medical Director: Roles, Responsibilities and Expectations
   - Appraising Employee Performance
   - Budget Analysis and Financial Performance

OR

CAP: *LMD: Leading the Laboratory*

CP bench rotations (please log in MedHub):
if you have done these previously, please note this in MedHub
- 2 sessions Hillview flow service – see Veronika Wei (flow supervisor) to arrange
- 1 session RBC special studies – see Carolyn Wong (supervisor)
- 4 sessions at Stanford hematology (optional, for fellows who have not previously had this exposure) – see Mercy Dones (hematology supervisor) to arrange

Tumor board coverage: Calendar available on pathologists.stanford.edu.
- *Hodgkin conference* M 8 am – covered by fellows on consult service
- *Pediatric tumor board* (currently Tu 8am, a separate heme onc pediatric TB is in the planning stages) – covered by fellows on bone marrow/flow cytometry service
- *Hematology conference* monthly W 12 noon – scheduled in coordination with hematology/oncology program director
- *Pediatric stem cell transplant* Tu 4pm (occasional request for path input) – covered by fellows on bone marrow/flow cytometry service

QI Project:
- Each fellow must complete a QI project to be presented at a Pathology Department QA/QI meeting

Small group educational sessions: Plasma room at Stanford, fishbowl at Hillview
- Hematopathology Consensus conference: each Thursday 1-2pm
- Hematopathology Educational conference: each Tuesday 1-2pm, each block:
  1st Tuesday, fellow conference
  2nd Tuesday, resident conference
  3rd Tuesday, CP heme conference
  4th Tuesday, fellow journal club

Didactic lectures: Hematopathology and related specialty (molecular pathology, lab management) lectures are scheduled within both the AP and the CP lecture series. Lecture schedules are available on the pathologists.stanford.edu website and in the conference tab on MedHub.

Procedures: Bone marrow biopsy and aspirate:
Per ACGME guidelines, fellows are expected to attain independence in the following competencies: *Obtains informed consent; Performs bone marrow aspirate and biopsy; Ascertains adequacy; Prepares/stains slides; Triages for ancillary studies*. Fellows will perform 5 bone marrow biopsies and aspirates and will record these procedures in their ACGME and MedHub caselog.

Call schedule: Call schedule calendar available on pathologists.stanford.edu

- Fellows are on first backup call for CP residents, alternating weekly, with Sundays off (or Saturday/another day if previously arranged with PD/faculty on call).
- Faculty are always available by phone and to come in as needed.
- Examples of call issues: identification of blasts, APL vs non-APL blasts, malarial organisms, coag issues, communication with clinical team, suggesting/facilitating next steps (i.e. APL FISH, DIC panel), picking flow panels, expediting weekend signout of urgent cases

Fatigue: Please view the "Recognizing Fatigue & sleep deprivation Module"
Please notify attending on service when fatigued or nearing work hours limit. This is expected and there is no negative consequence. Attendings will take cases and resident call directly when needed.

Transitions of care: IPASS model: **I**llness severity, **P**atient summary, **A**ction list, **S**ituational awareness (contingency planning), **S**ynthesis

- *At end of call* – in addition to verbal handoffs, resident on call summarizes all calls/overnight issues by secure email to bone marrow/flow cytometry teams.
- *At end of service rotation* – resident rotating off compiles list of cases that are not finished and what is pending, and reviews this with the resident rotating on.

Graduated Responsibility:
Fellows will be promoted through levels of responsibility (1,2,3) over the course of the year by the program director with hematopathology faculty approval.
Details are provided in the fellowship handbook, which is posted on the pathologists.stanford.edu website.

Performance Evaluations and Feedback:
Receiving feedback: In addition to informal ongoing feedback, fellows will receive

- Written Milestones-based feedback from faculty monthly through MedHub
- formal evaluation of Milestones progress from the Clinical Competency Committee prior to mid-year and again prior to the end of the year
- Mentor meetings with Program Director quarterly and as needed
- FISHE (fellow in service hematopathology exam) in the fall and spring to evaluate didactic knowledge

Giving feedback:

- Fellows provide anonymized faculty feedback through MedHub
- Mid-year and end of year Annual Program Evaluation (APE) meeting
- Fellows and the PD will meet prior to APE meetings for a fellowship "town hall"
- Fellowship program director (Dita Gratzinger)
- Hematopathology director (Yaso Natkunam)
- Residency program director (Kim Allison)
- GME Office: Ann Dohn (GME Director) 650-723-5948
- Anonymously report a concern through the GME office
- Ombudsperson office: 650-498-5744

Resident Well-Being:

“The Department of Graduate Medical Education is committed to ensuring that residents and fellows remain physically and mentally healthy while completing their training program. Residency can be an inherently stressful time, and it is important to take care of yourself so that you can get the most out of your educational experience.”

If you are experiencing a particularly stressful or otherwise difficult situation, contact: HEALTH CONNECT: 650-724-1395 or Well-Being Panel 650-346-3241

Hematopathology FELLOWSHIP
Program Director: Dita Gratzinger MD, PhD

Rotations		**4 week blocks**
(A) Lab Hematology/Bone marrow diagnosis/flow cytometry		4
(B) Consult/Tissue Hematopathology	6	
(C) Cytogenetics/Molecular Diagnosis		1
(D) Coagulation/RBC Special Studies		1
(E) Elective/Research		1

General Philosophy

The goal of the Stanford Hematopathology Fellowship program is to provide comprehensive exposure to all aspects of hematology and hematopathology, including laboratory hematology (adult and pediatric), clinical coagulation, RBC special studies, surgical hematopathology, flow cytometry, immunodiagnosis, cytogenetics, and molecular diagnostics. The program provides extensive exposure to both bone marrow and lymph node pathology and in gaining sufficient expertise in integrating ancillary diagnostic testing. Participation in quality improvement activities is required. In addition, scholarly research and publication as well as presentation at national and international conferences, is strongly encouraged.

Educational didactics and small groups

Requirements are in bold

Hematopathology Educational Conference (weekly) *Tu 1:00-2:00pm*
Conference themes rotate on the first, second, third and fourth week of each block as follows

- Week 1: Fellow scope conference
- Week 2: Resident scope conference
- Week 3: CP heme conference
- Week 4: Fellow journal club: each fellow will present one article of interest for discussion with the group.

Heme consensus conference (weekly) *Th 1:00-2:00pm*
Challenging and/or interesting cases will be presented. During blocks 1-3, faculty will present all cases; starting in block 4, fellows may choose to present cases.

CP Conference (weekly) *Fri noon* Review of calls from the week followed by resident or fellow-run educational component. Fellows required to attend when on bone marrow rotation.

AP lecture series Faculty give didactic and case-based lectures relevant to both residents and fellows. Attendance at hematopathology lectures required, and attendance at lab management lectures highly recommended.

CP lecture series *(weekly)* Faculty and fellows give didactic and case-based lectures relevant to both residents and fellows. Attendance at hematopathology lectures required, and attendance at molecular pathology and lab management lectures highly recommended.

Current Concepts (weekly) AP residents present journal articles of clinical and scientific interest. Attendance highly encouraged to heme-relevant journal clubs.

CP journal club: (monthly) CP residents present journal articles of clinical and scientific interest. Attendance highly encouraged to heme-relevant journal clubs.

Clinical meetings: Tumor boards and QA/QI

Requirements are in bold

Pathology department QA/QI meeting (monthly) *3rd Tu noon.* Presentations by departmental and hospital personnel and pathology residents and fellows.

Hodgkin Conference (weekly) *Mon 8:00am*
Multiservice conference involving adult oncology, radiology subspecialties, and sometimes pediatric oncology as well as pathology focused on clinical care and clinical trial eligibility. Consult service fellows will review the cases ahead of conference, conferring with faculty for any difficult cases, and then briefly review the slides and address clinical and educational questions from the group. Time permitting, slides are pulled by department support staff and scanned.

Hematology didactic conference (monthly) *Wed 12 noon*
Hematology department educational conference focusing on teaching by hematology fellows with regular attendance by both senior and mid and junior-level hematology faculty and fellows. Hematopathology fellows are paired with the presenting hematology fellow; hematopathology fellows photograph and present key hematopathologic features of the case.

Pediatric tumor board (intermittent*) Tues 8:00am* When cases with a hematologic diagnosis are on the agenda, the fellow will preview and present the cases, reviewing any ambiguous or difficult cases with the attending. The responsible fellow is the fellow on the bone marrow/flow service; if there is no fellow on that service, a fellow on a non-consult service will substitute. Time permitting, slides are pulled by department support staff and scanned.

Pediatric stem cell transplant conference (intermittent) *Tues 4pm* Hematopathology input is periodically requested for this conference; when needed, the fellow on the bone marrow/flow service, or alternately a fellow on a non-consult service, will preview and present the cases.

Teaching/presentations

Requirements are in bold and fellows will record them in their MedHub portfolio

Case-based heme conference*: Fellows will give a case-based presentation on a hematopathology topic as part of the CP lecture series, as arranged with the CP chief.*

CP didactic talk: Fellows to give a half-hour educational presentation at CP conference, as scheduled with the CP chief. This may be an expansion of a heme consensus journal club discussion eg. on test utilization, or a topic review.

QA/QI Project: Fellows will carry out a QA/QI project with a faculty mentor. Mentoring of a pathology resident in a shared QA/QI project is encouraged. Fellows will present their QA/QI projects at the monthly pathology department conference.

Human health and disease course medical student labs (usually Feb/March) *10:30-12:30*
Small group sessions for second year medical students on hematology and hematopathology topics. Fellows are expected to participate in at least 4 of the 8 labs. Faculty will accommodate signout times and responsibilities as needed.

South Bay Pathology Society: The South Bay Pathology Society consists of pathologists from numerous local pathology practices as well as Stanford and UCSF. The Society meets once a month over dinner and members or their resident/fellow guests present challenging cases to the group. Fellows are encouraged to submit cases of interest to the group with a faculty member.

National Conferences: Fellows with an interest in attending/presenting at a national meeting are encouraged to confer early with a faculty member regarding potential projects that could be submitted to national conferences.

Graduated Responsibility

LEVEL 1 RESPONSIBILITY
Start of fellowship, with program director approval

Prior to signout:

- split cases among fellows and residents on service, seeking attending input as needed; when case load is high (particularly with large numbers of I/O cases) excess cases can be handed directly to attending to write up and sign-out the case
- preview cases, gather appropriate clinical, historical and ancillary study information, including communicating with other services or outside institutions as needed
- show clinically urgent cases or cases requiring an expedited workup to faculty same day
- discuss case status and ascertain clinical context and needs from submitting clinicians and pathologists
- consult texts (see resource listing) and the literature (PubMed) as needed
- may order unstained slides if indicated without attending input

At signout:

- briefly present relevant clinical, historical and ancillary study information
- be prepared to discuss overall impression, differential diagnosis, and diagnostic workup

After signout:.

- order and follow up necessary ancillary studies
- gather additional clinical information and consult the literature as needed
- produce a concise and complete report in a timely manner
- communicate urgent diagnoses and document the communication
- answer queries regarding cases, consulting with faculty on service as needed
- present cases of interest at Tuesday educational conference (fellow or resident)

LEVEL 2 RESPONSIBILITY *(conferred separately for consult and bone marrow service)*
Third block, with program director approval

In addition to the above:
Prior to signout:

- independently preorder up to 5 stains on cases belonging to the hematopathology service; if a more extensive workup is indicated up front, confer with attending
- case must be shown to the hemepath attending on service after the first round of up to 5 stains and within one business day
- cases may be shown to hematopathology fellows by other services (surgical pathology, neuropathology, dermatopathology) but the case must be reviewed by a hematopathology attending prior to ordering of stains and prior to signout

At signout:

- provide overall impression, differential diagnosis
- propose workup including therapeutically and prognostically relevant ancillary studies
- on bone marrow service, may review flagged peripheral blood smears independently and review with faculty only those they need help with

After signout:.

- may present difficult or ambiguous cases at consensus conference
- call consulting pathologists or other physicians to discuss resolution of cases

LEVEL 3 RESPONSIBILITY *(conferred separately for consult and bone marrow service)*
Fourth block of bone marrows, 5th block of consults, with program director approval

In addition to the above:
Prior to signout:

- may independently review and write up straightforward cases that require no workup; must hand off to faculty within one business day

At signout:

- may "junior attend" 2-3 straightforward cases on own or with a resident, including ordering up to 5 stains or adding on up to one round of 3 additional flow cytometry tubes. cases must be handed or shown to attending on service within one business day.

After signout:.

- review finalized cases in PowerPath and independently seek feedback from attending on service

Call Responsibilities

A hematopathology fellow is scheduled to be on call for all hematopathology cases after hours and on weekends. The CP resident on call (#12005) handles all calls after normal working hours and the HP fellow will function as the initial back-up to the CP resident on all days except Sundays (the fellow can choose to be off call Saturday or another day if needed; this must be arranged in advance so faculty and residents on call can be notified). The bone marrow service attending pathologist for any given week is the person responsible for all call cases and for supervision of the fellow. Monthly call schedules that designate the fellow and attending pathologists on call are posted on the first day of each month throughout the clinical laboratory.

During normal working hours, the fellows back-up all clinical calls on cases with faculty supervision. For example, if the CP resident is handling flow cytometry specimens in a given week, all requests related to flow cytometry will be initially directed to that resident, with the designated fellow and service attending available to assist the resident.

For evenings and weekends, “first-call” involving picking flow panels and morphologic evaluation of specimens submitted for flow cytometry evaluation should be taken by the CP resident/hemepath fellow covering the flow cytometry service. All other hematopathology related “first-call” (e.g., peripheral smears and body fluids) involving “critical” issues should be taken by the on-call CP resident (#12005 pager). Routine examination of peripheral blood smears and body fluids, however, will be performed by the CP resident/hemepath fellow covering the Peripheral Smears/Body Fluids service.

Procedures

Bone marrow biopsy and aspirate: Fellows are expected to attain independence in the following competencies: *Obtains informed consent; Performs bone marrow aspirate and biopsy; Ascertains adequacy; Prepares/stains slides; Triages for ancillary studies*

Fellows who have not already done so during residency training will perform 5 bone marrow biopsies and aspirates and will *record these procedures in their ACGME and MedHub caselog*. Fellows who have already done this will provide their ACGME caselog for our records. Even if biopsies have been performed during residency, fellows who have not already done so should work with special hematology on slide preparation and staining.

- *Bone marrow biopsy training:* The hematology fellowship has an orientation/skills workshop on the Wednesday before fellowship begins (coordinator: Laura Wang lmwang@stanford.edu). Fellows are expected to attend this training session. If unable to attend this training, fellows will be provided with a AAMC video on bone marrow biopsy technique to review prior to their first bone marrow procedure.
- *Bone marrow biopsy scheduling:* Fellows will schedule their bone marrow biopsy procedure with hematology NPs or accompany special hematology technologists on scheduled biopsies.
- *Slide staining/preparation*: Fellows should work with special heme.

Clinical laboratory and lab management competencies:

In addition to competencies acquired during the course of hematopathology fellowship rotations, hematopathology fellows will be expected to take part in CAP mock inspections and to complete online lab management courses as detailed below, and will document these in their MedHub learning portfolios.

CAP mock inspections:
Fellows will participate in CAP mock or self-inspections (or, if available, take part in external CAP lab inspections.)

Fellows will take the following free online CAP training prior to the mock inspection (if not already done during their prior training):

- *LAP Inspection Team Member Training*

Test Utilization:
Test utilization is an increasingly necessary skill in the evolving health care system. Fellows will take the following free online CAP course on test utilization:

- *Test Utilization for Residents*

Per CAP, fellows will learn to:

1. Recognize the impact of suboptimal test utilization on patient safety and cost to the institution and health care in general.
2. Manage test utilization in specific clinical situations by using both medical knowledge and interpersonal skills.
3. Identify strategies to provide effective consultative pathology services.

Laboratory Medical Director leadership:
Fellows will take the following online only ASCP or CAP courses on medical director leadership:

ASCP Lab Management University (department subscribes)

- *The Laboratory Medical Director: Roles, Responsibilities and Expectations*

Per ASCP: "This course explores the various roles, responsibilities and expectations of Laboratory Medical Directors. Participants will learn what knowledge and skills are essential to be successful at leading and managing laboratory strategies, processes and teams"

- *Appraising Employee Performance:* Per ASCP:" While each supervisor has a different style, if you do not have a basic understanding of the performance appraisal process and a way of communicating with and preparing your staff, this process may result in disappointments or frustrations for everyone involved. This course will review the performance appraisal process and explain how you and your employees can prepare. You'll also learn how to avoid common errors and best practices for a successful appraisal meeting."
- *Budget Analysis and Financial Performance:* Per ASCP: "Budget Analysis is a fundamental requirement for meaningful assessment of Financial Performance. Financial Performance is a critical measure of success (or failure) in an organization's pursuit of its strategic goals. This course provides a model for Financial Management of the lab, best practices for analyzing the Operating (Profit and Loss) Statement and ways to develop and interpret benchmarks to measure financial performance."

OR

CAP (will need to use your educational funds to pay)

- *LMD: Leading the Laboratory*

Per CAP: “Pathology laboratory medical directors to heighten their leadership roles and responsibilities within the medical laboratory.

1. Recognize opportunities to become involved in key organizational groups to ensure that laboratory and patient care needs are represented.
2. Use change management principles and techniques to implement laboratory improvements.
3. Use data to prepare and analyze the laboratory’s budget.
4. Use data to create a case to assess, identify, and justify laboratory needs.
5. Explain how to measure productivity and efficiency in the laboratory.
6. Use strategic planning tools and methodologies to make key decisions.
7. Demonstrate knowledge of and the proper behaviors that support organizational and legal hiring and employment policies.
8. Describe how to delegate tasks.
9. Follow appropriate processes and procedures to assess pathologists’ performance”

Detailed descriptions of each rotation

(A) Laboratory Hematology / Bone Marrows

1. The workload will be divided between AP and CP residents and Hematopathology Fellows among bone marrows, peripheral blood smears and body fluids at Stanford, and flow cytometry at Hillview.

2. For peripheral blood smears, each morning at Stanford the fellow will review held-over abnormal blood smears. As necessary, they will call physicians with results or to request further clinical information. Smears will be reviewed daily with the attending pathologist as part of bone marrow sign out.

3. For body fluids: Body fluids will be reviewed daily with the attending pathologist as part of bone marrow sign out. The fellow is responsible for entering results into the pathology information system (PowerPath).

4. At Stanford, from 9:30AM – noon each day fellows will attend the bone marrow sign-out and assume responsibility for a subset of the cases. This will initially involve signing-out with the attending and with increasing experience, independently work-up cases and ultimately “junior attend” on cases. This sign-out will include AP and CP residents and HP fellows as scheduled. Fellows should preview, perform 200-cell differential counts and be responsible for signing out at least 2 bone marrow cases per day.

5. The fellow will take call for all clinical questions and back-up the AP and CP residents.

6. Hematopathology fellows will also be responsible for signing out molecular and cytogenetic results weekly to create amendment reports to integrate results.

7. Fellows will contact clinicians for additional clinical history or for urgent diagnoses as necessary.

8. At Hillview, the fellow will interpret flow cytometry results with the attending, check the entered flow cytometry data for accuracy in Power Path/Epic, and will incorporate an

interpretation in the report. Fellows will also be expected to participate in picking appropriate flow panels. Graduated responsibility will be provided at the discretion of the program director and faculty. This will take the form of, first, interpreting flow cytometry results independently and forwarding the report to the attending, and second, of "junior attending" cases with residents on service. Cases will be dictated as soon as possible and, after correcting the dictation, fellows will forward the cases to the attending for sign-out on the same day. The slides and paperwork must be available to the attending for re-review.

9. ***Bench Training by Clinical Laboratory Scientists***: For fellows who have not had equivalent experience during residency training, each week as agreed upon with the supervisor the resident rotates through a different section of hematology for detailed instruction by a reference technician. The fellows are excused from their clinical work during this time. Fellows are to track their bench training in their MedHub learning portfolio.

Stanford Hospital: (coordinator: Mercy Dones, hematology supervisor)
a. Hematology specimen processing, automated hematology & QA
b. Body fluids
c. Urinalysis
d. Special hematology

Hillview:
a. Flow cytometry (2 sessions coordinated by flow supervisor)
b. RBC special studies laboratory (coordinated by Carolyn Wong, lead technologist in RBC SSL)

Summary of Weekly Laboratory Rotations

WEEKS	TOPIC DESCRIPTION
1	Specimen processing, slide preparation, malaria slide preparation and identification, manual counts, WSR. Observe tests and become familiar with appropriate use and interpretation. Review malaria study sets with Hematology Specialist Technologist.
2	Flow cytometry: Observe tests and become familiar with appropriate use and interpretation of flow panels and gating strategies. Analyze ungated archival cases stored in computer.
1	Automated hematology: Observe tests and become familiar with appropriate use and interpretation. Learn about interpretation of instrument scatterplots. Become familiar with factors that can cause spurious instrument results. Review laboratory algorithms for quality control. Review monthly QC data with Clinical Pathologist.
1	Body fluid cell count and morphology. Observe tests and become familiar with appropriate use and interpretation. Review abnormal body fluid slide sets with technologist. Optionally review previous year's files of malignant fluid slides.
1	Special stains, bone marrow slide preparation, Ficoll density gradient cell isolation, cryoglobulins, serum viscosity, G-6-PD screen. Observe tests and become familiar with appropriate use and interpretation.

Study sets
As it is not possible to see the large breadth of hematology during a rotation, glass slide sets are available for review of abnormalities on peripheral smear, bone marrow and body fluids. A list of correct diagnoses is provided. Independent study is strongly recommended to supplement the Hematology sign-out.

Although it is best to cover themes when problems and issues in those areas arise, here is an approximate guide for gaining experience in the following important topics during the rotations in Hematology and Coagulation.

TOPICS

Peripheral blood
1 THE CBC
2 Peripheral smear: RBC morphology
3 Peripheral smear: WBC morphology
4 Reticulocyte counts
5 CBC analyzers
6 WBC differentials

Coagulation Testing
7 Routine coagulation testing
8 Coagulation: special
9 INR
10 Platelet aggregometry

Coagulopathies
11 Factor deficiencies
12 Von Willebrand's Disease
13 Anticoagulation
14 Inhibitors
15 Platelet disorders
16 DIC and thrombotic disorders
17 Delayed bleeding disorders

Anemias
18 Marrow failure
19 Acquired Hemolysis
20 Abnormal membranes
21 Hemoglobinopathies
22 Abnormal Enzymes/Polycythemia

Special Hematology
23 HPLC/Hemoglobin electrophoresis/sickling tests
24 Serum viscosity, urine hemosiderin, Heinz bodies
25 Monospot, malaria smear, ESR, fecal blood
26 G6PD, osmotic fragility

Pediatric Hematology
27 Neonatal hematology
28 KB stain

Body Fluids
29 Body fluid morphology
30 Urinalysis

Flow Cytometry

31 Leukemias
32 Lymphomas
33 PNH
34 MDS
35 Lymphocyte subsets

Hematopathology
36 Lymphoproliferative disorders
37 Reactive disorders
38 Myelodysplastic syndrome
39 Myeloproliferative neoplasms

Miscellaneous
40 AP standards, QI/QC

Goals for Hematology/Clinical Laboratory rotation

Patient care

- Be familiar with a wide variety of adult and pediatric hematologic disorders
- Develop competency in peripheral blood smear, body fluid and bone marrow interpretation, including correlating morphology with ancillary tests used for diagnosis, such as special stains, flow cytometry, and tissue immunodiagnosis
- Gain skill in the technical and interpretive aspects of hematologic flow cytometry
- Correlate clinical findings with morphology of clinical hematology samples
- Learn appropriate selection of diagnostic tests in hematology
- Develop basic expertise in medical microscopy of body fluids
- Correlate findings in fluid samples with those in the cytopathology laboratory
- Learn the technique of performing bone marrow aspirates and biopsies
- Recognize the importance and time-sensitive nature of certain hematologic diagnoses

Medical knowledge

- Develop basic knowledge of the clinical, pathogenetic, morphologic, immunophenotypic and genetic features of the more common diseases of the hematopoietic system
- Understand the significance of various hematologic diagnoses in determining treatment plans
- Become familiar with outcomes and prognoses of common hematologic diseases

Interpersonal and communication skills

- Communicate clearly with clinical colleagues to obtain clinical information in case evaluation
- Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports
- Work closely with laboratory staff in coordinating timely specimen processing

Professionalism

- Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case
- Work effectively and efficiently with support and administrative staff in the

hematology/flow cytometry lab to maximize productivity and maintain the quality of the work environment
- Complete written reports in a timely fashion

Systems-based practice
- Learn the process of case evaluation and work flow in hematopathology, from accessioning and processing of specimens to sign-out and delivery of patient reports
- Use awareness of laboratory work flow to optimize efficiency and turn-around-time through working with laboratory, administrative and clerical staff
- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care
- Develop awareness of issues in coding and billing

Practice-based learning
- Use case-based learning as a tool for additional insight into the basis of disease
- Locate, appraise and assimilate pertinent data from scientific studies
- Demonstrate effective problem solving skills in diagnostic hematopathology using a wide variety of information resources, including laboratory and hospital information systems

(B) Consult/Tissue Hematopathology/Immunodiagnosis

During the five months dedicated to consult and selected inside/outside cases of lymph nodes, bone marrow and immunohistochemistry, the HP fellow will have the following responsibilities:

1. Attend the hematopathology sign-out sessions 5 mornings each week, with followup signout each afternoon when immunohistochemistry stains become available.
2. In addition to reviewing the cases, the fellow will assist with the ordering of immunohistochemical stains and molecular studies, communication with referring pathologists and clinicians, dictation of reports, and obtaining additional consultation, particularly in cases including lymph nodes or bone marrow materials.
3. Serve as a consultant, to determine which immunohistochemical stains and molecular studies to order on diagnostic problem cases.
4. Participate in monthly microscopic teaching sessions, presenting the most interesting hematopathology cases to the surgical pathology residents.

Goals for Consult/Tissue Hematopathology/Immunodiagnosis Rotation

Patient care
- Develop competency in interpretation of lymph nodes and other hematolymphoid tissues, including correlation of morphology with ancillary tests used for diagnosis, such as immunohistochemistry and in situ hybridization
- Attain proficiency in hematologic immunohistochemistry, including both technical and consultative aspects
- Gain skill in tissue in-situ hybridization techniques and interpretation
- Learn how histopathologic diagnoses in tissue hematopathology affect clinical prognosis and therapy
- Learn about quality control and quality assurance in surgical pathology
- Learn appropriate selection of diagnostic tests in the work up of hematopathology
- specimens

Medical knowledge

- Develop basic knowledge of the clinical, pathogenetic, morphologic, immunophenotypic and genetic features of the more common diseases of the hematopoietic system
- Understand the significance of various hematologic diagnoses in determining treatment plans
- Become familiar with outcomes and prognoses of common hematologic diseases

Interpersonal and communication skills

- Communicate clearly with clinical colleagues and consulting pathologists to obtain clinical information in case evaluation
- Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports
- Work closely with pathology staff in coordinating timely specimen processing

Professionalism

- Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case
- Work effectively and efficiently with support and administrative staff in the surgical pathology, immunodiagnosis, cytogenetic and molecular pathology labs to maximize productivity and maintain the quality of the work environment
- Complete written reports in a timely fashion

Systems-based practice

- Learn the process of case evaluation and work flow in hematopathology, from accessioning and processing of specimens to sign-out and delivery of patient reports
- Use awareness of laboratory work flow to optimize efficiency and turn-around-time through working with laboratory, administrative and clerical staff
- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care
- Begin to develop awareness of issues in coding and billing

Practice-based learning

- Use case-based learning as a tool for additional insight into the basis of disease
- Locate, appraise and assimilate pertinent data from scientific studies
- Demonstrate effective problem solving skills in diagnostic hematopathology using a wide variety of information resources, including laboratory and hospital information systems

(C) Cytogenetics/Molecular Diagnosis

Cytogenetics

Week One:

1. Initial orientation – setting up, harvesting and slidemaking for all sample types.
2. Fellow may initiate/harvest/make slides/do analysis of own peripheral blood cultures.
3. Review Cytogenetics Laboratory manual.
4. Attend conferences with the laboratory director.

Week Two:

1. Learn how to karyotype normal and abnormal chromosomes.
2. Learn how to write cytogenetic nomenclature per ISCN 2016.

3. Observe/participate in FISH analysis.
4. Observe other special staining and/or banding techniques.
5. Attend conferences with the laboratory director.

Week Three:

1. Do cytogenetic analyses of normal and abnormal unknowns.
2. Write proper nomenclature for these cases.
3. Attend conferences with the laboratory director.

Week Four:

1. Review normal/abnormal cases with the laboratory director and/or supervisor.
2. Attend conferences with the laboratory director.

In addition, the fellows have the opportunity to attend genetic counseling sessions in both prenatal diagnosis clinic and pediatric genetics clinic.

Molecular Diagnosis

1. Observe and/or perform basic molecular methods, including DNA and RNA extraction from blood, bone marrow and tissue; reverse transcription of RNA to cDNA; PCR methods for qualitative and quantitative amplification of genomic DNA and cDNA;
restriction enzyme digestion, agarose gel electrophoresis and Southern hybridization.

2. Review test procedures and interactive online teaching tool developed for this rotation, understand molecular basis for tests performed in the laboratory.

3. Interpret test results. Understand errors that can be made in test performance and limitations of tests. Under the supervision of the laboratory directors, participate in troubleshooting problems with tests.

4. Correlate molecular rest results with other complimentary tests, such as surgical pathology tissue diagnosis, flow cytometry immunophenotyping, FISH.

5. Under the supervision of the laboratory directors, function as a consultant to clinicians in test selection and result interpretation.

6. Attend laboratory QC/QA meetings.

(D) Coagulation/RBC Special Studies

1. Two weeks of intensive exposure to coagulation testing and interpretation, including specimen processing, routine coagulation tests and special coagulation tests (D-dimer, FSP, KC4, inhibitor screens, ATIII, factor assays, factor inhibitors, ristocetin cofactor, vW antigen, anticardiolipin, euglobulin clot lysis, factor XIII, clot retraction, protein S, protein C, platelet aggregation, alpha-2, plasminogen, Xa, factor V Leiden, PT20210A, MTHFR, HIPA, ELISA D-dimer, platelet function testing).
2. Observe techniques in Hb electrophoresis. Begin Hb electrophoresis unknown case sets and complete during your rotation. Review additional Hb electrophoresis study case materials.

(E) Elective/Research

There is one block in which the fellow can decide to schedule additional training in a subspecialty area of interest, additional experience on the consult service or pursue research endeavors under guidance of a faculty member. Research activities leading to a presentation at a national meeting and publication are strongly encouraged.

Cytogenetics, Molecular Diagnosis and Coagulation Rotation Goals

Patient care

- Learn cytogenetic and molecular techniques and procedures, including technical

https://stanford.medhub.com/u/a/evaluations.mhpitfalls and limitations

- Learn to detect visual chromosome banding abnormalities.
- Gain consultative skill in hematologic cytogenetic and molecular test selection and clinical interpretation.
- Learn about quality control and quality assurance in cytogenetics, molecular diagnosis and coagulation.
- Increase understanding of the relationship of the coagulation results to the diagnosis of clinical bleeding and thrombosis problems

Medical knowledge

- Learn cytogenetic and molecular nomenclature
- Increase understanding of FISH analysis
- Understand the correlation of cytogenetic and molecular testing with other complimentary test results, such as tissue morphology/diagnosis, flow cytometry immunophenotyping, FISH.
- Understand the significance of various hematologic diagnoses in determining treatment plans
- Become familiar with outcomes and prognoses of common hematologic diseases

Interpersonal and communication skills

- Communicate clearly with clinical colleagues and consulting pathologists to obtain clinical information in case evaluation
- Communicate diagnoses and describe the features that support those diagnoses effectively, both verbally and in written reports
- Work closely with pathology staff in coordinating timely specimen processing

Professionalism

- Recognize and be sensitive to the needs of the patients and clinicians in making a timely diagnosis in a cost-effective manner appropriate to the clinical circumstances of each case
- Work effectively and efficiently with support and administrative staff in the coagulation, cytogenetics and molecular pathology labs to maximize productivity and maintain the quality of the work environment
- Complete written reports in a timely fashion

Systems-based practice

- Learn the process of case evaluation and work flow in coagulation, cytogenetics and molecular pathology, from accessioning and processing of specimens to sign-out and delivery of patient reports
- Use awareness of laboratory work flow to optimize efficiency and turn-around-time through working with laboratory, administrative and clerical staff
- Develop skills in selecting the most cost-effective diagnostic studies that provide quality medical care
- Begin to develop awareness of issues in coding and billing

Practice-based learning

- Use case-based learning as a tool for additional insight into the basis of disease
- Locate, appraise and assimilate pertinent data from scientific studies

- Demonstrate effective problem solving skills in these specialized areas using a wide variety of information resources, including laboratory and hospital information systems

Training goals related to the Next Accreditation System (NAS)

ACGME has recently developed milestones associated with each of the six core competencies. Hematopathology Fellows at the end of their fellowship training should aim to satisfy level 4 of the core competencies. These are available at: http://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/HematologyPathologyMilestones.pdf

Major Texts and Learning Resources:

Swerdlow SH et al. WHO Classification of Tumours, Pathology & Genetics, Tumours of Haematopoietic and Lymphoid Tissues (2008). And the 2016 update
Jaffe ES, Harris NL, Vardiman JW, Campo E, Arber DA, eds. Hematopathology. Philadelphia: Elsevier (2011).
Bain B. Blood Cells. A Practical Guide, 4th Edition (2006)
Foucar K, K Reichard, D Czuchlewski. Bone Marrow Pathology, 3rd Edition (2010)
Galagan KA, Blomberg D, Cornbleet PJ, Glassy EF. Color Atlas of Body Fluids (2006).
Glassy EF. CAP Color Atlas of Hematology (2005).
Haber M, Blomberg D, Galagan K, Glassy EF, Ward P. CAP Color Atlas of the Urinary Sediment (2011).
Hoyer JD and Kroft SH. Color Atlas of Hemoglobin Disorders (2003)
Keren DF et al. Flow Cytometry in Clinical Diagnosis, 3rd Edition (2001)
Kjeldsberg C. Practical Diagnosis of Hematologic Disorders, 5th Edition (2010)
Kjeldsberg C & Knight J. Body Fluids, 3rd Edition (1993)
Knowles D. Neoplastic Hematopathology, 2nd Edition (2001)
McPherson RA, Pincus MR. Henry's Clinical Diagnosis and Management by Laboratory Methods. 21st Ed. (2006)
Nguyen D et al. Flow Cytometry in Hematopathology, 2nd Edition (2007)
Pereira I, George TI, Arber DA. Atlas of Peripheral Blood: The primary diagnostic tool. Lippincott Williams & Wilkins, Philadelphia, 2012.

Supervision and Evaluation:

The fellows will be supervised by an attending physician in all areas and rotations in hematopathology. This supervision includes all daily clinical responsibilities during normal working hours as well as on-call responsibilities. An attending physician is always scheduled to supervise the fellows' clinical activities. The fellows will at no time perform any unsupervised clinical work. The hematopathology coverage calendar, which lists attending pagers and telephone numbers, is updated and circulated monthly and is also posted at multiple key locations in the hematology and subspecialty laboratories, multi-headed scope rooms, House Staff offices and work rooms and on the pathology bulletin boards. The Stanford and Lucile Packard Hospital switch-board and page operators also have access to faculty pagers and other preferred mobile devices and home telephone numbers, and can assist fellows in contacting faculty when necessary, such that direct lines of communication are always available to the fellows at all times. Faculty responsibilities are outlined in detail in a separate document, which is updated and circulated to all hematopathology faculty once per year usually at the beginning of the fellowship year in July, or following any changes to these responsibilities. Major changes are discussed at hematopathology faculty meetings before implementation.

The fellow will be evaluated on his/her daily work as assessed by each faculty member and by

laboratory and other appropriate staff members designated by the program director and laboratory medical directors. Faculty members who work with the fellows each month will meet to discuss fellows' performance and will select one faculty member to fill out an evaluation in MedHub on behalf of the faculty. In addition, faculty will provide direct formative feedback to fellows as needed based on regular faculty meetings to discuss fellow progress. In addition, staff members, technologists, peers and program coordinator will also perform 360-degree evaluations through the MedHub system. These evaluations, or any alerts, are available to the fellows and to the program director through the MedHub system immediately. In addition, as per ACGME requirements, a Clinical Competency Committee will review fellow progress at at least two time points, one before December and one before June. Evaluations will be reviewed formally with the fellow at approximately six months and at the end of the year by the program director. In addition, mentor meetings will be set up during the course of the fellowship year, as needed, including career counseling and help with recommendations for job positions.

Molecular Genetic Pathology Fellowship

Director: Jason Merker

Co-Director: James Zehnder

The Molecular Pathology Fellowship is an ACGME-accredited fellowship offering comprehensive training in Molecular Genetic Pathology.

General overview of the one-year fellowship

Rotation	Length	Objectives
Molecular Pathology — CP aspects	3 months	Become proficient in a wide range of molecular diagnostic methods and interpretation, in the development of new assays, case interpretations, have interaction with physicians from other disciplines, and teaching sessions by attending physicians, give case presentations. Emphasis on DNA diagnostic tests and the forefront of diagnostic developments.
Clinical Genetics and Cancer Genetics	1 month	Expand knowledge of clinical cancer genetics, genetic counseling aspects, and examination and counseling of patients in genetics clinics.
Cytogenetics rotation	1 month	Become familiar with cytogenetic methods and interpretation, be able to make correlations with molecular genetic results, and explore diagnostic advantages and disadvantages of cytogenetic and molecular pathology techniques for individual genetic diseases.
Biochemical Genetics rotation	1 month	Become familiar with biochemical diagnostic methods and interpretation, their correlation with and confirmation by molecular methods, development of new assays, interaction with physicians from other disciplines, attend clinics and consults for biochemical genetic disorders.
Molecular Pathology research project	2 months	Carry out a Molecular Pathology research project. Fellows can choose from a large number of research projects and labs. This rotation may be spread out over the year. Research is expected to lead to publication and will provide residents with the opportunity to gain bench experience, critically evaluate research results, and understand the difference between molecular pathology research tools and diagnostic applications.

Rotation	Length	Objectives
Molecular Pathology — AP aspects	3 months	Become proficient in a wide range of molecular diagnostic methods and interpretation, in development of new assays, case interpretations; have interaction with physicians from other disciplines, and teaching sessions by attending physicians, give case presentations.
Molecular Virology and Microbiology	1 month	Become proficient in a wide range of molecular diagnostic methods and interpretation, and in case interpretations, have teaching sessions by attending physicians, give case presentations. Focused on molecular diagnostic tests for infectious diseases.

The Stanford Molecular Pathology program serves the adult and pediatric populations at Stanford and also sees referrals from Northern California and the U.S. The program is interdisciplinary and includes participation of faculty in the Departments of Pathology, Medicine, Pediatrics (Division of Medical Genetics) and Genetics.

Laboratory rotations include formal training in Biochemical Genetics and Cytogenetics. Fellows will be trained in assay development, quality assurance and results interpretation in the Molecular Pathology Laboratory at Stanford and the Kaiser-Permanente Regional Molecular Diagnosis Laboratory, a large reference laboratory for the Kaiser system which offers a testing menu that is complementary to that at Stanford.

Fellows are expected to initiate a research project during the fellowship. This project can be performed in any appropriate laboratory at Stanford, which offers unmatched opportunities for research in Molecular Pathology and Molecular Genetics. Departmental funding is available for suitable research projects. Moreover, additional funding may be available for qualified fellows to continue their research beyond the period of the formal fellowship.

Certification

Certification in molecular genetic pathology is a joint function of The American Board of Medical Genetics (ABMG) and the American Board of Pathology (ABP). Such function relates to qualifications of candidates and standards of examination. All candidates applying for certification must be physicians and hold a currently valid, full, and unrestricted license to practice medicine or osteopathy in the United States or Canada.

The ABMG and the ABP will qualify candidates for examination for certification in MGP who:

a. Are diplomates of the ABMG (physician diplomates only) or the ABP;

and

b. Applicants must complete at least 1 year of training in an ACGME accredited molecular genetic pathology program;

and

c. Submit a completed application according to current requirements.

Weekly schedule

Daily: sign-out cases with attending in the Molecular Pathology laboratory and the current lab of rotation /anatomic pathology area/ examine and counsel patients in pediatric and cancer genetics.

	Day	Time	Location
Molecular Pathology lab meeting	Mondays	9.00 AM	HV sign-out room
Metabolic Conference (Biocheminal Genetics)	Mondays	1:00 PM	A051
Hemepath clinpath correlation conference	Mondays	2:30 PM	Heme signout
Current Concepts lecture series	Tuesdays	8:00 AM	L201/HV
Genomic Medicine course	Tuesdays subset of Current Concepts lectures	8:00 AM/TBD	L201/HV
Advanced Genomic Medicine course	TBD	TBD	TBD
Biochemical Genetics lab meeting	Tuesdays	10:00 AM	HV sign-out room
Hematology Journal club	Tuesdays	noon	2nd fl., Cancer center
Human Genetics Journal Club	Wednesdays fellows give HGJC 1x	4:00 PM	LKS/TBD
Cytogenetics lab meeting	Every other Wednesday	10:15 AM	Cytogenetics Lab

	Day	Time	Location
Molecular Pathology staff meeting	TBD fellows give inservices	TBD	HV sign-out room
Hematology conference	Wednesdays	noon	2nd fl., Cancer center
Clinical Pathology lecture series. This series includes **MGP-related topics I**, which address critical aspects of genetic diagnostic testing in molecular, biochemical and cytogenetics.	Thursdays	12:00 PM	L201/HV
OB/Genetics Prenatal Clinical Conference	Thursdays	12:30 PM	OB Library, 3rd floor
Medical Genetics Grand Rounds Inter-disciplinary meeting with lecture and case presentations. General discussion of genetic concepts.	Fridays fellows give MGGR 1x	9 AM	LKS/TBD
Present interesting cases at the Friday Clinical Pathology residents call conference and discuss involvement in phone calls received from physicians regarding interpretation of genetic tests.	Fridays	12:00 PM	L201/HV
Pediatric Tumor Board conference	Tuesdays	5:00 PM	LPCH Board Room

Bold = mandatory core curriculum

Italics = only while on special rotations

Molecular Genetic Pathology Responsibilities

Responsibilities

- Regular working hours are approximately and minimally 8AM to 6PM, Monday-Friday. One of the Fellows will carry the on-call beeper for the laboratory during the week.
- Daily sign-out of all cases with the attending in the Molecular Pathology laboratory
- Develop new molecular pathology assays
- Perform and complete a research project
- Daily sign-out of cases with the attending in the lab of current rotation
- Attend and present at seminars and meetings as outlined in the weekly schedule
- Fulfill current subspecialty examination requirements
- Self study

Specific expectations

1. All cases are expected to be presented with knowledge of clinical history whenever possible (should always be available on Stanford patients in Epic, Cerner (for before mid-2014) or Powerpath, usually a short history is provided for UCSF patients. There should be a low threshold for contacting a referring clinician/resident/fellow if the reason for the test is unclear. They are usually glad to provide these details. This knowledge makes the experience more interesting and rewarding for all participants, as every case is a story, they are all interesting and unique, and there is always something to learn. It is also important for the context of the MGP interpretation.

2. It is critical that prior results from our lab always be documented and correlated with the current specimen. This is the standard of care for our laboratory, and deviations from this will require corrective action documentation.

3. The information from our lab must, where possible, be integrated with testing performed in other labs on the same patient. This most commonly (but by no means exclusively) happens in hemepath cases. For example, a referring physician may independently order histopath and molecular testing on a given specimen. It is critical that these data be correlated prior to result reporting (unless the molecular result is ready prior to other testing, which will only rarely be the case) so that discrepancies are addressed before the results are released.

4. It is not uncommon for equivocal or difficult cases to have repeat or additional testing performed, which can result in a significant increase in TAT. In such cases it is imperative for the fellow to communicate with the referring physician. Often this will lead to a discussion about the case, which results in a better understanding of why the test was ordered, additional tests which might be indicated, or study of additional specimens.

5. Similarly, if a result is equivocal or complex, it is our policy to call in advance the referring physicians and give them the opportunity to consider, question and discuss the result. Very few referring clinicians are experts on the nuances of molecular pathology, and they depend on the expertise provided to provide clarity in difficult cases, or, if a result is unclear, recommendations for additional evaluation and follow up.

6. The Laboratory Directors are always available to discuss these cases. As in all areas of medicine, fellows should not feel forced out of their comfort zone. If you don't know the answer to a question, rather than hedge or guess, involve the Director who will be signing out the case.

7. Additional specific expectations and details will be communicated at the beginning of the Fellowship.

Neuropathology Fellowship

Director: Hannes Vogel, MD

Duration: 24 months (contiguous)

Prerequisites: Completion of at least one year of Anatomic Pathology training

Organization of the Fellowship

Surgical neuropathology

During the first 6-9 months of the first year, the Fellow is expected to become familiar with the elements of surgical neuropathology necessary for the competent practice of diagnostic neuropathology in an academic or community setting. This includes competency in the skills required for frozen section, and the ability to diagnose most common CNS tumors, demyelinating, and infectious diseases as may be encountered in routine surgical neuropathology. At the latter portion of training (usually the final 2- 3 months), the Fellow functions as an experienced and capable developing neuropathologist, whereby the rationale for ordering appropriate special stains, immunocytochemistry, FISH, cytogenetics, and electron microscopy is learned. By this phase, the Fellow has greater autonomy and responsibility, but consults with a staff neuropathologist prior to any critical patient care related decisions being made.

Autopsy neuropathology

The Fellow devotes the first twelve months mainly to an introduction to the fundamentals of classical neuropathology that includes review of neuroanatomy, basic necropsy dissection, including both adult and pediatric brain and spinal cord removal, under close supervision.

Muscle and nerve pathology

The Fellow will learn the proper method of handling fresh muscle and nerve biopsies within the first months of the program, and occasionally be encouraged to be actively involved in the techniques of freezing muscle biopsies for enzyme histochemistry, nerve teasing, and cutting sections for plastic embedding.

Developmental and pediatric pathology

Over the 2-year Fellowship, the Fellow will gradually accrue exposure to common forms of pediatric neuropathology related to prematurity, chromosomal abnormalities and infection through the autopsy experience. The Fellow will also be expected to become knowledgeable in common metabolic and heritable diseases often presenting in childhood through responsibilities for muscle/nerve, skin, brain and other diagnostic procedures.

Neurodegenerative pathology

Through the gradual and continual accrual process of both in-house and consultative brain specimens in cases of neurodegeneration, the Fellow is expected to attain competency in the gross and microscopic diagnosis of common neurodegenerative diseases, and the proper technique of brain sampling for microscopy for such diagnoses. During the second year, a more complete familiarity with diverse neurodegenerative diseases and their etiologies is expected, along with an awareness of contemporary molecular diagnostic approaches.

Forensic Pathology

The Fellow will organize a plan for the equivalent of one month full time training in forensic neuropathology, during both years, using consultative material as well as the existing arrangement with the Alameda County Medical Examiner and the Santa Clara County Medical Examiner.

Individual research

After the first 3-6 months of training, the Fellow is expected to begin appropriate reading and discussion with faculty that will enable him/her to formulate and initiate research projects. Case reporting is expected to promote the skills of thinking, review of literature, and writing scientific papers.

Conferences

Pediatric Neuro-Oncology Tumor Board: (Monday 7:30 a.m. – 8:30 a.m.)– in LPCH, Radiology Department. Slides previewed previous Friday, and AP Resident from Friday attends the Monday conference, then may attend regular 8AM conference in progress or leave the Tumor Board in time to attend 8AM conference. Customarily the first year NP Fellow or AP resident is responsible for the presentation of cases as requested

Journal Club, Friday 11:30-12:30 p.m. Meet in R241 to go buy lunch (department provided). Select any article for informal presentation. No copies necessary.

Biweekly Monday Case Conference, R241 sign-out room, 5:00-6:00 PM every 1st and 3rd Monday.

Tuesday Muscle/Nerve Pathology Conference, R241 sign-out room, 5:00-6:00 PM, every 3rd Tuesday of the month

Adult Neuro-Oncology Tumor Board: Cancer Center, 1-2 p.m. every Friday

Brain Cutting, Tuesday 1:30-2:30 p.m.

Neurology Grand Rounds, Friday 8:00 a.m.-9:00 a.m.

Required reading

Manual of Basic Neuropathology. Escourolle & Poirier, 5th Edition

Other recommended texts

1. Ellison and Love Neuropathology Atlas, 3rd Edition
2. WHO 2016 Classification of CNS tumors
3. Greenfield's Neuropathology, 9th Edition
4. Practical Surgical Neuropathology, Perry and Brat, 2010
5. Vogel: Nervous System, 2009
6. Neuroanatom y through Clinical Cases, Blumfeld
7. Myology, 3rd Edition, Franzini-Armstrong, Engel, 2004
8. Biopsy Diagnosis of Peripheral Neuropathy, 2nd Edition, Bilbao and Schmidt, 2015

Goals and Objectives

COMPETENCY #1: PATIENT CARE IN NEUROPATHOLOGY

Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. In the context of neuropathology, this means recognizing one's personal responsibility to provide clear, accurate, and timely consultations in the context of a medical team. Fellows are expected to do the following:

- **Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families. For example, the Fellow must be available to explain the findings to the patient and/or next of kin in a sympathetic and understandable way and must recognize the private nature of all personal health information.**

  Assessment Tools:
  Objective structured clinical examination (OSCE): Opportunities to meet with families and access to standardized patients are often limited in a pathology training program. In the absence of these opportunities, one may utilize role-playing in which the resident provides information to a member of the clerical staff about a hypothetical situation.

  Checklist: Observe the resident's behavior for respectful interactions in the following or similar circumstances:

- Provides lay language answers to questions from families
- Observes discretion during awake surgical procedures
- Observes the right of privacy about personal health information in public places (elevator, hall, cafeteria conversations)

- **Gather essential and accurate information about their patients. For example, pertinent clinical history, imaging data, and laboratory results must be available at sign-out.**

  Assessment Tools:
  Checklists: Verify that essential history, imaging studies, and laboratory results are available at sign-out (meets minimal standards).
  Portfolio: The Fellow collects checklists and reflects on potential significance of missing information on cases (should show improvement over time).
  OSCE: Give test slide to Fellow and ask what extra information is needed to formulate differential diagnosis (minimal standards).

- **Make informed diagnoses that incorporate patient information, pathological/clinical judgment, and up-to-date scientific evidence. For example, formulation of the surgical neuropathologic diagnosis should include knowledge of the diagnostic and therapeutic implications for the individual patient. Formulation of the autopsy neuropathologic diagnosis should include consideration of the clinical history and the implications, if any, of the diagnosis for surviving family members.**

  Assessment Tools:
  Chart stimulated recall: Pull 10 reports, including frozen section cases and autopsy cases. Discuss the implications of each diagnosis for management Discuss the significance of differences between frozen section diagnosis and final diagnosis to assure that the resident understands the different circumstances under which each was rendered. This tutors the resident on his/her understanding of the art of rendering a frozen section diagnosis.
  Literature portfolio: As the resident progresses, he/she should show significant improvement in the ability to find and apply key literature with regard to a specific patient. This activity may also be used to document improvement in use of information technology over time.

- **Make informed selections of diagnostic tests, counsel the clinician on the appropriateness of test selection, and take responsibility for the cost and ethical implications of the tests ordered.**

  Assessment Tools:
  Chart stimulated recall: Pull cases with genetic and/or special tests. Query resident on the utility of the additional tests and the implications of the tests for patient/third party/departmental costs, further treatment, and disease prognosis.
  Checklist: The Fellow should bring a written list of recommended special stains to sign-out. After sign-out, compare tests on the list to tests actually ordered and determine the appropriateness of the suggested studies.
  Portfolio: Collect information above over time to determine progress.

- **Counsel and educate patients and their families. The Fellow should be able to**

explain the importance of medical tests in an understandable manner and be available for counseling on the results of tests.

Assessment Tools:
OSCE: Direct interactions with patients and families are often limited in pathology. However, one may utilize role-playing in which the resident provides information to a member of the clerical or technical staff about a hypothetical situation such as a new diagnosis of inherited or possibly inherited disease (such as Duchenne's muscular dystrophy, Alzheimer's disease, hemangioblastoma) or a misdiagnosed brain tumor. The staff member then completes a brief questionnaire on the Fellow's effectiveness (enough information given, information understandable, Fellow encouraged questions, etc.).

- **Use information technology to support patient care decisions and patient education. In neuropathology, this includes searching the current literature and the Web for help in difficult diagnostic situations.**

  Assessment Tools:
  Literature portfolio: Difficult and unusual cases frequently require literature searches for complete evaluation. Such cases can be used in a portfolio method to evaluate both information technology skills and improvement in these skills over time. The faculty member should provide a direct assessment of the pertinence of the literature collected and also give feedback as to inclusion of both recent and classic papers. This can be done on a scale of 1 (most pertinent and/or current) to 5 (irrelevant and/or obsolete).
  Record Review: Review appropriateness of citations in 10 neuropathology consults.
  OSCE: Case conferences offer an excellent opportunity for Fellows to perform literature searches, prepare reviews, and teach others. Conference evaluations may be kept to fulfill this requirement.

- **Perform competently all dissection and sectioning skills necessary to perform diagnostic services. For example, the Fellow must be able to remove brains at autopsy, localize pertinent brain regions, cut frozen sections on a cryostat, provide complete and accurate descriptions of gross and microscopic features, and provide appropriate descriptions of special stains and their results.**

  Assessment Tools:
  OSCE: Give the Fellow a test slide and have him/her describe and photograph the diagnostic features. This exercise can also be performed in the context of preparing for a case conference. Document an assessment of the trainee's initial conference preparation (choice of images, inclusion of proper diagnostic fields and special stains, etc.) and not just the final presentation, as the latter may reflect "coaching" by the attending.
  Checklist: Observe the Fellow as s/he cuts brains, prepares frozen sections, makes touch preps, etc. Evaluate surgical and autopsy gross descriptions for specimen size, weight, etc. according to organ- and disease-specific standards developed by the hospital or outside agencies.

- **Provide health care s e r v i c e s aimed at preventing health problems or maintaining health. For example, the Fellow may demonstrate the ability to counsel the clinician and the patient on the implications of DNA testing and can**

provide general health education on preventive neurological health maintenance (decreasing stroke risk, etc.).

Assessment Tools:
OSCE or oral examination: Opportunities to teach the patient directly are often limited in pathology training and practice. In the absence of such opportunities, one may utilize role-playing in which the resident provides information to a member of the clinical staff about a hypothetical situation. Alternatively, one may provide clinical scenarios and ask for either a verbal or a short essay answer. **Checklist:** Observe the resident's interactions with the clinicians.

- **Work with health care professionals, including those from other disciplines, to provide patient-focused care. In the context of neuropathology this includes ordering appropriate tests, keeping the patient's welfare at the forefront, and recognizing the sanctity of the human body in the context of autopsies, the operating room, and the laboratory.** These behaviors incorporate aspects of professionalism, ethical behavior, and interpersonal communication skills that are also tested in the other competencies**.**

  Assessment Tools:
  360° evaluation: Determine that the Fellow is taking personal responsibility for clinical consultations in the context of a health-care team. An instrument for this purpose is under development by ACGME staff (4/29/02).
  Checklist: A yes-no checklist for Fellows on surgical neuropathology rotations might include appropriate tests ordered, cases brought to sign-out in a timely manner, outside slides ordered in a timely fashion and followed up in a timely fashion, surgeon contacted and feedback elicited, reports completed in a timely and complete manner, resident available and prepared for discussions at interdisciplinary conferences.
  Global assessment: Document these behaviors in a qualitative assessment at the end of each.

COMPETENCY #2: MEDICAL KNOWLEDGE IN NEUROPATHOLOGY

Fellows must demonstrate knowledge about established and evolving biomedical, clinical and cognate (e.g.. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care in neuropathology. Fellows are expected to do the following:

- **Demonstrate an investigatory and analytical thinking approach to clinical situations.** From time to time in their training neuropathology Fellows will be confronted with difficult diagnostic problems that require extensive research of the medical literature and, in some cases, experimental laboratory investigation. The Fellow's ability to appropriately investigate the medical and scientific questions raised by these cases will often result in the advancement of medical science through publications in the peer-reviewed literature.

- Know and apply the basic and clinically supportive sciences that are appropriate to the practice of neuropathology. A large part of the Fellow's training will be the mastery of the large body of clinical, histologic, and scientific knowledge that constitutes modern neuropathology. Teaching that material and its application to diagnostic neuropathology is the primary mission of a neuropatholog y Fellowship program and is something most training programs have traditionally done very well. Only the required degree of documentation is new.

Assessment tools:
Oral examination: Possibly the most efficient assessment tool for evaluating the competency of a neuropathology Fellow in medical knowledge will be the regular use of oral examinations. Conducted informally on a daily basis in the context of case sign-outs and brain cuttings, these conversations provide both the Fellow and the mentor with regular feedback about the Fellow's progress through the program. These informal examinations should trigger the provision of immediate informal remedial instruction. For this teaching style to be counted as an assessment tool, the mentor must document both the results of the examinations and the subsequent instruction. In many programs it will also be desirable to conduct more formal oral examinations at regular intervals to assess and document the Fellow's progress through the program and his/her ultimate mastery of neuropathology.
Multiple-choice examination: This tool is a traditional way to monitor the Fellow's progress and to prepare him for the board examination. Large collections of excellent questions are available at many institutions and are freely circulated over the Internet.
Portfolio: Finally, a portfolio of presentations at scientific meetings and published papers is an excellent way of assessing and documenting the Fellow's competency in the use of investigatory and analytical thinking in the analysis of clinical situations.

COMPETENCY #3: PRACTICE-BASED LEARNING AND IMPROVEMENT IN NEUROPATHOLOGY

Fellows must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practice. Fellows in neuropathology are expected to do the following:

- Analyze practice experience and perform practice-based improvement activities using a systematic methodology. Tools listed on the ACGME website for this subcompetency include questionnaires for patients and colleagues about practice habits. Some general pathology curricula suggest a management project (quality assurance or continuing quality improvement project). The neuropathology Fellow is similarly expected to analyze his/her own practice in a systematic way for needed improvements (administrative, behavioral, or knowledge-based) and then make the improvements in a systematic way.

Assessment tool:
Hybrid tool combining record review, chart-stimulated recall, OSCE, and/or

portfolio formats: The Fellow or the faculty member can select current of

standardized cases for the Fellow to evaluate using a questionnaire similar to that below. The faculty will then evaluate the answers and provide feedback to the Fellow. These forms can also be incorporated into the Fellow's portfolio for further reflection and assessment and for documenting improvement over time.

Sample Practice-Based Learning Case Work-Up Questionnaire:

1. What are the critical issues in this case?
2. Do you have enough information to make a final diagnosis?
3. What information do the clinicians want and need with respect to this case?
4. What do you need to be able to complete this case?
5. How do you go about obtaining what you need and finalizing the case?

- Locate, appraise and assimilate evidence from scientific studies related to patient material in neuropathology cases. This includes knowing how to utilize hospital information systems (patient records, pathology records, radiology records), how to do a literature search, how to evaluate the validity and reliability of data, how to critically review a scientific study, and how and when to incorporate scientific data into everyday practice.

- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.

- Use information technology to manage information, assess online medical information and support their own educations.

Assessment tools for the above three subcompetencies:

Hybrid tool combining record review, chart-stimulated recall, OSCE, checklist, and/or portfolio formats: Identify an academic activity (departmental conference, classroom lecture, journal club, or other formal or informal presentation) where the Fellow will have had to review the literature and make a presentation. Complete an anchored rating form documenting that the Fellow performed an appropriate literature search, is able to critically analyze the studies, accurately synthesize new information from the literature, and appropriately judge the applicability of this information to neuropathology practice. For convenience, appropriate questions may simply be added to the written case-based hybrid tool described above. The following items could be incorporated:

Additional Questions for Practice-Based Learning Case Work-Up Questionnaire

1. The learner performed an appropriate literature search for this activity.
2. The learner is able to critically analyze the studies.
3. The learner is able to synthesize new information from the literature.

4. The learner is able to appropriately judge the applicability of this information.

Portfolio: The Fellow keeps the above rating forms for reflection and documentation of improvement over time.

Facilitate the learning of students and other healthcare professionals. Fellows should participate in divisional/departmental teaching activities, actively involve and guide rotating students and housestaff in service activities, and present appropriate information to clinicians and other healthcare professionals regarding optimal patient management.

Assessment tool:
Anchored 360° global rating: A sample form for evaluating and assessing competence in facilitating learning is attached in the Appendix. Such a form is recommended as a routine exit survey for rotators. Pertinent questions should also be incorporated into the faculty's monthly evaluation of each Fellow.

COMPETENCY #4: INTERPERSONAL AND COMMUNICATION SKILLS IN NEUROPATHOLOGY

Neuropathology Fellows must be able to demonstrate excellent interpersonal and communication skills that result in effective information exchange and teaming with patients, patients' families, colleagues, technicians, secretaries, other residents, and students. Fellows are expected to:

- Be able to explain diagnoses, procedures, results to be expected, costs associated with neuropathologic studies of autopsy and neurosurgical specimens to another person in a manner that will create ethically sound relationships with patients and their families.

- Promote a constructive working relationship with a colleague, resident/student, or subordinate during the study of a specific case and ensure that results are obtained in a timely and cost effective manner.

Assessment tools:

Portfolio: The Fellow's portfolio should document the following:

  - Formal presentations of clinical cases at pathology and interdisciplinary conferences
  - Scientific and clinical papers
  - Scientific and clinical presentations at professional meetings
  - Communication of findings in clinical cases to clinicians, family, and others (including samples of reports, letters, and notes about telephone calls)
  - Communication with other members of the pathology laboratory team
  - Analysis of the quality of the communication (attendings, administration, legal affairs, and resident)
  - Modification of the communication as indicated

360-degree evaluation instrument: Clinicians, clerical and technical personnel, and attendings rate the Fellow's interpersonal and communication skills. An anchored checklist would be an appropriate format. Such a checklist would include a list of desired behaviors or skills that are evaluated on a 5-point scale with verbal "anchors" describing the meaning of the scale. For example:

> Skill: Able to explain diagnosis and its implications for therapy
> Anchors: Rate from "Unable to provide understandable information" (1) to "Always provides clear and concise information" (5)
>
> Skill: Able to write diagnoses and reports in Standard English
> Anchors: Rate from "Unable to write intelligible reports" (1) to "Writes well organized, grammatically correct reports" (5)
>
> Skill: Able to work with technicians to solve problems
> Anchors: Rate from "Acts in ways that inhibit problem-solving in laboratory" (1) to "Always works effectively as a member of the laboratory team in problem-solving" (5)

COMPETENCY #5: PROFESSIONALISM IN NEUROPATHOLOGY

Fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diverse populations. It is recognized that neuropathologists interact only occasionally with patients and their families. More frequent interactions include those with colleagues in pathology, colleagues in neurology and neurosurgery, laboratory technicians, secretaries, other residents and students. Fellows are expected to:

- Carry out their duties in an altruistic, ethical, respectful and timely manner. This includes demonstrating a commitment to ethical principles pertaining to confidentiality of patient information, informed consent and business practices
- Show sensitivity when interacting with those who are different from them in educational level, cultural background, age, gender and disability status.
- Adopt practices that promote their own personal well being, both physical and mental, so that they can better perform their professional duties.

Assessment tools:

OSCE: Neuropathology Fellows will be asked to respond to open-ended queries based on a case scenario with professional/ethical choices. Multiple competencies may be tested from a single scenario. Scenarios may be presented in their entirety or adapted for progressive disclosure. Case scenarios may be formulated for oral, written, or computer-based testing.

Example #1: You are the neuropathology autopsy resident at brain cutting. You read the consent for the autopsy and read that all organs were to be returned to the body

after the autopsy. The brain is now before you on the table. What do you tell the family?

Example #2: A brain tumor support group asks you to speak at their next meeting. They request you to discuss the grading of astrocytomas to their lay audience. Outline your talk. A month later you are asked to participate in a CPC of a patient with an anaplastic astrocytoma. One section of your discussion will concern the grading systems of astrocytomas. Please outline your discussion.

Example #3 with progressive disclosure: You are a pathology Fellow assigned to surgical neuropathology. A therapeutic abortion specimen (approximately 18 weeks gestational age) is received. The specimen is referred to neuropathology due to a possible meningomyelocele. The attending is meeting with the dean but is available for urgent consultation.

The OB chief resident calls. Tissue from that fetus is immediately needed for Professor X's stem cell project. He requests that tissue for this fetus be sent to Professor X's lab. What will you do?

The district attorney calls. The pregnancy allegedly was the result of a rape. He wants immediate information about the specimen. What do you tell him?

The family calls 2 weeks later. Although they had spoken with their OB attending, they wanted to ask a neuropathologist about meningomyelocele. Should you speak with them? They found a story about fetal surgery for meningomyelocele and they weren't told about such surgery.

Portfolio: The Fellow's portfolio should document the following:

- Events where professional behavior was observable
- Analysis of the quality of the behavior (attendings, administration, legal affairs, and resident)
- Modification of the behavior as indicated

360-Degree Evaluation Instrument: The Fellow's professionalism is evaluated by technicians, clerical staff, attendings, administration, and legal affair (if indicated). An anchored checklist would be an appropriate format. For example:
Attitude or behavior: Respect for others
Anchors: "Treats others with disdain and disrespect" (1) to "Always highly respectful" (2)

Attitude or behavior: Altruism
Anchors: "Never inconveniences self for others" (1) to "Invariably helpful; delays personal wants to finish professional work" (5)

Attitude or behavior: Able to admit and correct mistakes

Anchors: "Never admits to making mistakes" (1) to "Actively moves to admit and correct mistakes" (5)

COMPETENCY #6: SYSTEMS-BASED PRACTICE IN NEUROPATHOLOGY

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care. In neuropathology, the Fellow must be able to provide effective guidance to the clinicians directly responsible for making treatment decisions and calling on system resources. The Fellow must be aware of the consequences to the patient of the diagnosis and play an active role in assuring that the appropriate care is provided. Fellows are expected to:

- Understand how their diagnostic opinions and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice. For example, neuropathology Fellows need to be aware of the specific deadlines faced by the clinical services that rely on their diagnostic information and to know the consequences of their turnaround times. At the same time Fellows need to know the costs of various tests both in terms of financial cost to the institution and in terms of the effort required by the technical and secretarial staff.

- Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources. Neuropathology Fellows need to understand the financial realities faced by health care system administrators and be sympathetic to decisions that result in what they may perceive as inadequate support of their services.

- Practice cost-effective health care and resource allocation that does not compromise quality of care. Neuropathology Fellows must demonstrate knowledge of the availability of outside resources (such as genetic testing labs, outside opinions, etc) and show good judgment in choosing when to use such resources.

- Advocate for quality patient care and assist the clinicians in dealing with system complexities. Neuropathology Fellows should be aware of the appropriate clinical protocols for treating the patients they diagnose, especially when there are diagnostic uncertainties in a particular case, and be prepared to provide guidance to other health care professionals. For example, in a glioma where grading is difficult, the Fellow should be able to provide some guidance as to how a specific patient should be treated. The Fellow should understand the importance of using only CLIA- approved laboratories for diagnostic testing and be able to refer specimens to appropriately certified reference laboratories for specialized testing (e.g., genetic or other "boutique" testing).

- Know how to partner with health care managers and health care providers to assess, coordinate and improve health care and know how these activities affect system performance. Neuropathology Fellows should know how to provide quality assurance (QA) on resource management in a pathology laboratory and be able to assure that their laboratory is conducting appropriate but not excessive special studies. Fellows

should know how to prepare a laboratory for inspection by the College of American Pathologists (CAP), the Joint Commission on Accreditation of Health Care Organizations (JCAHO), or a similar accrediting agency.

Assessment tools:

◨

360° evaluation instrument: The most effective assessment tool for evaluating the competency of a neuropathology Fellow in Systems Based Practice may be a 360 degree global rating. This need not be a lengthy questionnaire requiring substantial institution investment in staff time and effort. As long as the results of the assessment are rigorously documented, a simple questionnaire or even a telephone interview could suffice. For example, in one institution the residents are evaluated at the end of the monthly anatomic pathology (AP) section meeting by the attending staff with input from the senior technologist, the physicians' assistants, and the senior transcriptionist. Additional input in a neuropathology setting could be obtained from neurosurgeons and neurologists. In such an evaluation, open-ended questions like "Tell me about your interactions with Dr. X this month" may be the most effective way of eliciting the desired information. **OSCE:** The objective structured clinical examination is usually modified for a neuropathology setting by replacing the patient encounters with a description of a clinical scenario and an examination of pathologic material (slides or gross tissue).
Questions pertaining to Systems-Based Practice may be included along with more "traditional" questions on diagnosis.
Multiple-choice examination: Written multiple-choice questions could be another effective tool for evaluating some aspects of competency in Systems Base Practice. For example a Fellow should know the amount billed for a test like an immunohistochemical stain and how little reimbursement the institution actually receives from Medicare or a private insurance company. Questions about the financial health of the Fellow's own institution and department are also appropriate (are they operating in the black this year or not?), and the Fellow should be aware of the major contractual arrangements of the institution with insurance companies, HMO's,
and the like. **Clinician survey:** Since the primary interaction of a neuropathologist is with the referring neurosurgeon or neurologist rather than the patient, a survey of referring neurosurgeons or neurologists may be used in lieu of a patient survey. This tool could be very effective in the assessment of competency in neuropathology Systems Base Practice. For example, the referring physician might be asked, "Does Dr X often act as an advocate for
the patient (play an active role in insuring that the patient receives appropriate treatment or is enrolled on an appropriate protocol)". **Record review and chart stimulated recall:** These are less effective ways of assessing competency of a Fellow's own Systems Based Practice because in most training programs the attending neuropathologist makes the decisions reflected in the record or chart. However, they may be used as "springboards" for discussions with the Fellow.

Surgical Pathology Fellowship

Director: Megan Troxell MD/PhD

General Philosophy

The fellowship in surgical pathology is designed to offer advanced, focused and intensive training in diagnostic surgical pathology. Specific rotations include: “Hot Seat”, Frozen Section, subspecialty rotations including signout of consult and I/O material, surgical pathology sign-out (“junior attend”) of residents and elective time. Elective time may be designed to pursue additional subspecialty training in areas of gynecologic, soft tissue, breast, gastrointestinal, renal, cardiopulmonary, transplantation, molecular pathology, hematopathology, neuropathology, dermatopathology, cytopathology and/or research.

Specific Responsibilities

The specific responsibilities associated with each rotation will be discussed during the Surgical Pathology fellowship orientation, and are described below. Rotation goals and objectives are provided at the end of this document. Objectives and goals related to Cytopathology, Dermatopathology, Hematopathology, etc. can be found in their respective sections of this manual.

Surgical pathology fellows have attending back-up at all times including on-call. Increasing levels of responsibility are recognized through the year. Most fellows are PGY3 and above with at least 2 years of anatomic pathology experience.

Fellows participate in departmental and interdepartmental conferences such as Tumor Boards as well as medical student and resident teaching. The laboratory accessions over 50,000 specimens (14,000 of them consultation cases) annually and departmental resources and support for clinicopathologic and translational research projects are available.

On-Call Fellow

The Chief Resident(s) formulate the on-call schedule. Refer to the on-call schedule for specific coverage dates. Coverage is provided from 6:00PM to 7:30AM on weekdays and all day on Saturdays, Sundays and holidays. Responsibilities include preparation, interpretation and reporting of stat GMS specimens, preparation and assessment of FNA samples from Interventional Radiology/ Ultrasound for tissue adequacy, and frozen section coverage. The on-call fellow should contact the on-call faculty member by pager or home number when notified of a frozen section request. Neuropathology frozen section requests should be redirected to the Neuropathology attending on-call. Likewise, hematopathology, clinical pathology and transfusion have separate call.

Any requests for autopsy consents or other information should be directed to the Autopsy attending on-call. The beeper number is #13216. On occasion the tissue harvesting team makes inquiries about the use of the autopsy suite for tissue harvesting. There is a general approval provision on record for use of the room after hours.

Hot Seat Fellow

The Hot Seat Fellow issues preliminary diagnosis on surgical pathology cases. In general the initial set of slides arrive at the Hotseat by 9:00 AM. The fellow directs cases to the different services if necessary (Dermpath, Neuropath, etc.). The cases assigned to the Surgical Pathology Service are given a preliminary diagnosis that is recorded in the electronic "Hotseat book". In addition, the fellow is responsible for ordering both the necessary preliminary diagnostic (e.g. the initial immune panel on a poorly- differentiated neoplasm) and protocol-based stains, such as the breast cancer hormone panel. The details these and other IHC/Molecular panels are located on the bulletin board in Surg Path and online. (e.g. Mismatch Repair Protein testing on invasive colon cancers, Her2 IHC on esophageal and gastric adenocarcinomas, ALK & ROS1 FISH and STAMP on all new adenocarcinomas of the lung). The hotseat fellows should keep this list updated (as instructed by director of AP and other service directors) and refer to it frequently.

The Hot Seat Fellow is responsible for distributing cases to the residents for sign-out after issuing a preliminary diagnosis. A case 'cap' system has been established for first and second year residents and will be noted at the beginning of each monthly rotation in consultation with the faculty. At the initial rotation for the first year resident (or post-sophomore fellow), the cap is low and is gradually increased to over the ensuing rotation cycle. This will require judgment on the part of the Hot Seat in consultation with faculty and the Associate Director of Residency Training (Anatomic Pathology). Overflow cases are signed out by the designated faculty or fellow assigned to overflow for that particular subspecialty. Overflow cases should be selected by the Hot Seat so as not to diminish resident education. For example, although 'big' cases can go into overflow (especially early in the training year and during particularly high volume periods), no case grossed in by a trainee should go to overflow. Similarly, bone cases that require radiological correlation do not belong in overflow.

Frozen Section Fellow

The Frozen Section Fellow is responsible for frozen section coverage from 7:30AM to 2:00PM Monday through Friday. However, at the beginning of the year, when working with a first year resident in their first frozen section week(s), the fellow will cover frozen until 6 PM. Coverage hours may be adjusted during the year to meet the needs of fellow and residents. The fellow may be asked to help after 2 PM in extraordinary circumstances later in the year. It is expected that the fellow, in conjunction with the assigned resident in surgical pathology and the Pathologists' Assistant, prepare and interpret all frozen sections and touch preparations following discussion(s) with the submitting surgeon. How this occurs is dependent on the preferences and comfort level of both the fellow and assigned faculty member; however, that faculty member will be available for assistance and must review all frozen sections diagnoses as soon as practically possible either simultaneously with the fellow or following the fellow's preliminary report to the surgeon. The assigned faculty will take over frozen section coverage from the fellow after 2:00 PM (except at the beginning of the year). The on-call fellow starts at 6 PM.

The FS fellow/resident should check the OR schedule early each day to determine if/when additional help or specific diagnostic teams should be notified (e.g., the Hirschsprung team). Review of prior diagnoses and/or diagnostic slides may be warranted in some case.

Resident Signout ("Junior Attending") Fellow

During this rotation, the Surgical Pathology Fellow is responsible for resident sign-out. The fellow will be responsible for sign-out of either one resident or overflow-I/O each day. This will include ordering of additional stains, determination of cases to be shown to additional faculty, instruction provided to the resident concerning the gross, microscopic, and relevant diagnostic and differential diagnostic issues, as well as preparation of the final report. Once the report is completed and corrected by the fellow, the case is to be forwarded to the assigned faculty with the slides, and formally signed out by that faculty member. Close communication with on-service resident and faculty facilitates an ideal experience. Consult fellowship director and AP service director in advance of junior attending blocks to make arrangements.

Consult –Subspecialty rotations

Consults and I/O cases will be distributed by fellows. The priority on subspecialty rotations is these outside cases. The fellows are responsible for preview and work-up of all consult cases. This includes slide preview, reviewing cases with assigned faculty, showing cases to faculty consultants, preparing a consult report with relevant references and conveying these interpretations to the consulting physicians. In almost all cases, the fellow will be required to telephone the submitting physicians with preliminary diagnoses and requests for more clinical or pathologic data, additional slides/blocks and/or additional reports. At times, this may appear somewhat daunting, but the ability to discuss difficult cases with colleagues who may on occasion have differing opinions and develop a cogent report that addresses these differences is an important aspect of the fellow's training experience. Once the report is completed and corrected by the fellow, the case is forwarded to the assigned faculty and formally signed out by that faculty member. Individual subspecialty rotations will establish guidelines for workflow for fellows and residents, which may also include inside 'overflow' case. Please refer to those as delineated in handbook or separate materials. Close communication with faculty is key. For Soft tissue-pediatric-GU and ENT-Thoracic rotations, fellows will be expected to handle a subset of I/O cases based on case load and other obligations. If a subspecialty service lacks fellow coverage, consult cases will be assigned to another fellow (esp shared between Soft tissue-pediatric-GU and ENT-Thoracic).

Conferences

Fellow-specific conferences will be scheduled weekly. These include Thursday noon faculty led microscope conference or workshops, and Friday noon fellow led interesting case conferences. Fellows on consult-subspecialty cases should each bring several interesting complete cases to share with their peers (6-10 min per fellow); frozen sections may also be educational. Fellows are encouraged to attend didactic and 'at the microscope' conferences offered for all pathology housestaff (8 AM and noon most days) based on their interests.

Fellows should present 2 subspecialty-themed microscope conferences to residents during the year. The latter are meant to provide exposure (and teaching) of interesting consult cases to the first and second year residents. Also, fellows will participate in clinical tumor boards throughout the year (20 conferences).

Methods of assessment/evaluation

Surgical Pathology fellows are assessed by the surgical pathology faculty on-service during each rotation, using the Stanford Pathology Department's evaluation tool located at the MedHub website. Direct feedback is provided following the Consult, Hotseat, Frozen Section

and “Junior Attending” rotations by the senior faculty. The fellows meet biannually with the Surg Path Fellowship Director.

Policies and procedures

Stanford Hospital and Clinics House Staff Policies and Procedures govern the policies and procedures for the Stanford Hospital and Clinics residents and fellows during rotations.

Fellow personal time off guidelines

See policy for all fellows in the Department of Pathology (above)

Goals & objectives

Hotseat

ACGME competency	Goals & objectives
Patient care	Reviews and records accurate preliminary diagnosis for assigned inside surgical cases Triages cases requiring immediate faculty review Judiciously shares preliminary diagnosis and reviews slides with clinical team Orders appropriate levels, special stains and immunostains to facilitate efficient case completion, and recognizes their limitations Interprets laboratory data relevant to surgical pathology cases
Medical Knowledge	Applies contemporary diagnostic criteria to surgical cases; demonstrates an investigative and analytic approach Considers contemporary staging criteria in evaluation of surgical pathology cases Considers systematic differential diagnostic approach in challenging cases Consults references at-hand to further understanding of rare entities
Practice Based learning and improvement	Gives and receives feedback; incorporates diagnostic feedback in evaluation of subsequent cases Identify knowledge gaps, and learning activities to address Presents pearls and pitfalls at post-hotseat QA/QI conference Help identify errors (mislabel, floaters, missing cases); proactively identify and resolve issues Adhere to patient safety goals as they apply to surgical pathology specimens (use of two patient identifiers)
Interpersonal and communication skills	Judiciously discuss preliminary reports with clinicians; relays clinical concerns and additional patient history to signout team Instructs junior residents; serves as role model Discuss preliminary and final reports with pathology residents & faculty
Professionalism	Demonstrates ethical behavior pertaining to confidentiality. Complete hospital training; understand and apply privacy policies, hospital and departmental policies. Ensures continuity of care in case handoff and diagnosis check-

	off Demonstrates self-awareness of knowledge, skills, and emotional limitations Collaborates effectively with diverse staff to establish & maintain climate of trust, mutual respect, dignity, diversity and ethical integrity. Manage conflict between personal and professional responsibilities; adapts to changes; demonstrates healthy coping mechanisms
Systems based practice	Presents at post-hotseat QA/QI conference Cognizant of system errors Initiates additional ancillary studies with consideration of cost and utility. Become proficient at various Stanford information systems (e.g., PowerPath, EPIC)

Frozen section & call

ACGME competency	**Goals & objectives**
Patient care	Reviews OR schedule and relevant patient histories in collaboration with resident Promptly responds to intraoperative consultation calls Supervises triage, selection of tissue and preparation of sections to address intraoperative question Interprets history, radiology reports, laboratory data relevant to frozen section Analyzes prepared slides to arrive at intraoperative diagnosis with consideration of differential diagnosis and surgical implications Handles and sends tissue for special studies as clinically indicated
Medical Knowledge	Applies contemporary diagnostic criteria to intraoperative consults Considers contemporary staging criteria in evaluation of intraoperative consults Considers systematic differential diagnostic approach in challenging cases Consults references as needed
Practice Based learning and improvement	Consults colleagues judiciously Gives and receives feedback Follows permanent section diagnosis of challenging cases Identify knowledge gaps, and learning activities to address Ensures appropriate patient and specimen identification (2 patient identifiers), and completes all documentation
Interpersonal and communication skills	Promptly resolves any questions regarding specimen, orientation or intraoperative consultation Clearly communicates intraoperative diagnoses to surgical team Communicates intraoperative data (history, diagnostic

	considerations, intraoperative grossing) to gross room and signout team Instructs junior residents
Professionalism	Demonstrates ethical behavior pertaining to confidentiality. Complete hospital training; understand and apply privacy policies, hospital and departmental policies. Ensures continuity of care in case handoff between attendings and to call team Demonstrates self-awareness of knowledge, skills, and emotional limitations Collaborates effectively with diverse staff to establish & maintain climate of trust, mutual respect, dignity, diversity and ethical integrity. Manage conflict between personal and professional responsibilities; adapts to change; demonstrates healthy coping mechanisms
Systems based practice	Considers limitations of frozen section/touch prep technique Cognizant of system errors Become proficient at various Stanford information systems (e.g., PowerPath, EPIC)

Junior attending

ACGME competency	**Goals & objectives**
Patient care	Reviews a wide variety of assigned surgical cases Triages cases requiring immediate review Understands and applies diagnostic and staging criteria; recognizing implications for patient management, as informed by current guidelines Reviews prior pathology specimens and incorporates clinical history, imaging studies and laboratory data in case review Judiciously shares preliminary diagnosis and reviews slides with clinical team Orders appropriate ancillary studies including levels, special stains, immunostains, cytogenetic and molecular studies; recognizes their limitations, interprets results, and recognizes their limitations Independently interprets and classifies surgical pathology specimens, entering a complete report for attending review
Medical Knowledge	Applies contemporary diagnostic criteria to surgical cases; demonstrates an investigative and analytic approach Considers contemporary staging criteria in evaluation of surgical pathology cases Considers systematic differential diagnostic approach in challenging cases Consults references and primary literature as necessary Consults colleagues judiciously
Practice Based learning and improvement	Gives and receives feedback; incorporates diagnostic feedback in evaluation of subsequent cases Identify knowledge gaps, and learning activities to address

	Adhere to patient safety goals as they apply to surgical pathology specimens (use of two patient identifiers) Help identify errors (mislabel, floaters, missing cases); proactively identify and resolve issues Apply current reporting and staging guidelines to surgical pathology (examples: ASCO/CAP guidelines, CAP center guidelines, AJCC, WHO revisions) Apply cytology-histology, or biopsy-resection correlation in routine practice
Interpersonal and communication skills	Discuss pathologic findings, clinical history, imaging, and clinical concerns with clinical team Instructs junior residents in grossing, microscopic slide review and formulation of reports, including differential diagnoses, current diagnostic and staging criteria, ancillary studies, staging summaries; serves as role model Discusses cases with hotseat as needed Prepares a complete, concise and cogent pathology report (for faculty review) Consultant to clinical team
Professionalism	Demonstrates ethical behavior pertaining to confidentiality. Complete hospital training; understand and apply privacy policies, hospital and departmental policies. Ensures continuity of care in case handoff Demonstrates self-awareness of knowledge, skills, and emotional limitations Collaborates effectively with diverse staff (administrative, gross room, etc) to establish & maintain climate of trust, mutual respect, dignity, diversity and ethical integrity. Manage conflict between personal and professional responsibilities; adapts to change; demonstrates healthy coping mechanisms
Systems based practice	Cognizant of system errors Initiates additional ancillary studies with consideration of cost and utility. Become proficient at various Stanford information systems (e.g., PowerPath, EPIC)

Consult-subspecialty services

ACGME competency	**Goals & objectives**
Patient care	Previews consult, I/O and ‘inside’ material with consideration of referring pathologist concerns and clinical history Formulates and researches differential diagnosis Orders appropriate ancillary studies (recuts/levels, special stains, immunostains, cytogenetic, molecular studies) to address diagnostic questions, interprets results, and recognizes their limitations Interprets history, radiology reports, laboratory data relevant to surgical pathology cases Prepares final consultative pathology report for faculty review

	Judiciously shares preliminary and final diagnosis with referring pathologist
Medical Knowledge	Applies contemporary diagnostic criteria to consults, I/O and 'inside' cases; demonstrates an investigative and analytic approach
	Considers systematic differential diagnostic approach in challenging cases
	Consults textbooks, electronic references and primary literature to further understanding of rare entities
	Considers clinical implications of diagnosis
Practice Based learning and improvement	Gives and receives feedback
	Incorporates diagnostic feedback in evaluation of subsequent cases
	Identify knowledge gaps, and learning activities to address
	Adhere to patient safety goals as they apply to surgical pathology specimens (use of two patient identifiers); proactively identify and resolve issues
	Apply current reporting and staging guidelines in surgical pathology (examples: ASCO/CAP guidelines, CAP center guidelines, AJCC, WHO revisions)
	Apply cytology-histology, or biopsy-resection correlation in routine practice
Interpersonal and communication skills	Relays diagnostic concerns and additional patient history to consult team
	Discuss preliminary and final reports with referring pathologist; facilitates requests for additional materials
	Interfaces with staff to facilitate case coding, accessioning & request for additional materials
	Instructs junior residents; serves as role model
	Participates in and presents at tumor boards; consultant for clinical colleagues
Professionalism	Demonstrates ethical behavior pertaining to confidentiality.
	Complete hospital training; understand and apply privacy policies, hospital and departmental policies.
	Ensures continuity of care in case handoff across services (example: hematopathology, neuropathology), and at end of rotation
	Demonstrates self-awareness of knowledge, skills, and emotional limitations
	Collaborates effectively with diverse staff to establish & maintain climate of trust, mutual respect, dignity, diversity and ethical integrity.
	Manage conflict between personal and professional responsibilities; adapts to change; demonstrates healthy coping mechanisms
Systems based practice	Initiates additional ancillary studies with consideration of cost and utility.
	Cognizant of system errors
	Become proficient at various Stanford information systems (e.g., PowerPath, EPIC)

Transfusion Medicine Fellowship Program

Program Director: Lawrence Tim Goodnough, MD

Goals

This one year fellowship is intended to provide trainees with additional subspecialty competence in the practice of Blood Banking and Transfusion Medicine. At the end of the year trainees are expected to have acquired the foundation and expertise for an academic career in Transfusion Medicine, and to independently run a Transfusion Medicine Service and/or a Blood Center in an academic medical center. This expertise includes such domains as Patient Blood Management, immunohematology, blood collection and processing, stem cell collection and cellular therapies, consultative transfusion medicine, therapeutic apheresis, supervision and training of laboratory personnel, laboratory management, and quality assurance.

Objectives

The Transfusion Medicine Fellow will be an integral part of the Transfusion Service/Blood Center operations. He /she will have substantial responsibilities for patient care, and usually serve as the primary link between the clinical services and the Blood center/Transfusion Service. The following objectives and core competencies for the rotation are listed as follows:

Patient care

- To develop a thorough knowledge of blood collection, preparation, storage, and shipment
- To understand indications for transfusion and develop proficiency in selection of appropriate blood products for transfusion
- To understand pre-transfusion testing
- To attain proficiency in managing transfusion-related complications

Medical knowledge

- To understand the immunologic and genetic principles that underlie transfusion medicine
- To understand the role of transfusion medicine and cellular therapy in managing specific acute and chronic diseases
- To understand complications of blood transfusion, including infections and iron overload and other non-infectious side effects

Interpersonal and Communications Skills

- To teach medical technology staff thorough presentation of continuing education lectures
- To develop effective writing skills by writing a brief case report of an unusual case appearing during the rotation
- To serve as a liaison between blood bank staff and clinicians
- To communicate effectively in the role of first call consultant to clinicians with questions or problems
- To serve as a helpful resource for technologists and clinicians regarding blood banking/transfusion medicine issues
- To assist in teaching Core Lab rotation residents principles and practices of the Transfusion Service

Professionalism

- To complete interpretive reports in an accurate and timely fashion
- To interact in a professional, helpful and respectful manner with clinicians, other house staff, and technical and administrative staff
- To display sensitivity to ethical, cultural, and religious issues relating to blood transfusion

Systems-based Practice

- To develop an understanding of quality assurance in blood banking, transfusion medicine, and cellular therapy.
- To understand the role of the Stanford University Medical Blood Center in relationship to the Stanford Medical Center transfusion service
- To understand CAP and AABB accreditation requirements
- To provide consultation in cost-effective medical practice regarding indications for transfusion and selection of appropriate products
- To become familiar with the regulatory agencies and rules governing collection, processing and distribution of blood products
- To be aware of emerging pathogens and their potential impact on national blood supply

- To understand inventory management of blood products, at the local and national level

Practice-based Learning

- To use case-based learning as a tool for additional insight into the basis of disease
- To locate and assimilate pertinent evidence from scientific studies
- To demonstrate effective problem solving skills in transfusion medicine, using a wide variety of information resources

During the first six-months (three months each on TS and on SBC), the fellow will learn the basic immunologic and genetic principles of transfusion medicine, and will have hands-on experience with the bench work. The fellow will become familiar with blood donor questionnaire donor deferral, blood collection, preparation, storage, and shipment. The fellow will become familiar with typical consultative questions from clinical staff, including special needs, non-standard protocols, massive transfusion guidelines, ECMO protocols, etc. He/She will take first day calls and night and weekend calls in rotation with residents during the first two months and thereafter will take second calls, with coverage by the attending as third call.

During the seventh and eighth month, the fellow will have required rotations. Therapeutic Apheresis Unit, the HLA laboratory, the coagulation laboratory and the Stem Cell Processing Laboratory.

During months nine through twelve, the fellow will function with increasing independence in the evaluation of transfusion reactions and in consultative responsibilities with clinical staff, as deemed appropriate by the service director. During these last four months, the fellow(s) will also be expected to lead rounds daily (Monday – Thursday) at the SHC Transfusion Service and take second call during daytime and evening hours. Each fellow will similarly take call 2 weekends per month (second call), including Friday.

The Transfusion Medicine Fellow will be expected to attend all Clinical Pathology conferences related to Transfusion Medicine by the Transfusion Medicine / Blood Center Medical Directors and Staff. He/she will be expected to teach the residents and technical staff and will also be expected to actively participate in the Transfusion Medicine and Blood Center Management and quality meetings and to contribute substantially to a scholarly project which results in publication.

Additional Responsibilities

1) The fellow will lead the weekly conference (Mondays at 1 PM) during which weekly on-call transfusion /blood center issues will be presented.

2) The fellow will supervise residents and students on rounds and during calls (taking second call with the supervision of an attending as third call) as soon as the second or third quarter of the fellowship.

3) The fellow will participate in house staff training of clinical services in transfusion medicine. This will consist in a one hour lecture to residents and fellows in surgery, medicine, pediatrics, and anesthesia.

4) The fellow will develop at least one project to work on during his/her elective time for a potential presentation at a national meeting and/or a publication.

Evaluation

Monthly evaluations are generated through Medhub that includes all of the core competencies. The completed evaluation is electronically forwarded to the Trainee for review. All potentially negative evaluations must be discussed with the Trainee by the middle of the month, to allow the Trainee to improve before the formal evaluation is completed. All negative final evaluations must be discussed directly with the Trainee and a plan for improvement addressed. Additionally, the Trainee will complete quizzes throughout the year. These quizzes should serve as an assessment tool of the objectives to be met. A list of objectives will be handed out at the beginning of each rotation in the Transfusion Service, Blood center, HLA laboratory, Apheresis and stem cell lab, and coagulation lab. The Trainee will meet quarterly with the Director of the Program, review the list of objectives that have been completed, and discuss their progress in the program.

BREAST PATHOLOGY FELLOWSHIP

Director: Kimberly H Allison, MD

Goals and Objectives:

Goal: To gain expertise in breast pathology with the goal of becoming a specialist in the field.
Objectives:

11. Development of diagnostic skills in breast pathology such that the fellow can recognize both the basic diagnoses and higher level, complex or uncommon diagnoses.
12. Develop and expand on ability to correlate clinical findings, breast imaging, gross and histologic findings.
13. Achieve a higher-level understanding of ancillary studies used in breast cancer and be able to interpret, report and troubleshoot basic and challenging cases according to current guidelines.
14. Serve as a mentor/consultant to junior residents and clinical colleagues in breast grossing, histology and diagnostic reporting.
15. Craft well-written breast pathology reports according to institutional standards with well-considered, concise additional comments and references when necessary.
16. Be able to effectively communicate as a consultant with clinicians and referring pathologists.
17. Effectively present pathology findings in breast tumor board and participate in tumor board discussions.
18. Have knowledge of the clinical guidelines that relate to breast pathology (CAP/ASCO guidelines, NCCN guidelines).
19. Be familiar with current literature in breast pathology.
20. Be able to utilize and critically evaluate research approaches that contribute to evidence-based medicine practices in breast pathology.

Responsibilities: The specific responsibilities of the breast pathology fellow will vary depending on the specific rotation. However, throughout the year they will have the following general responsibilities:

- Consultation: The breast pathology fellow will serve as a consultant on breast pathology issues to clinicians and other pathologists.
- Mentorship: The breast pathology fellow will serve as an additional resource for teaching in breast pathology.
- Teaching sessions: The fellow will be responsible for at least one breast pathology fellow-run scope session for trainees.
- Conferences: Attendance at AP related conferences/scope sessions and didactics is required. The fellow will present at breast tumor board at a minimum when on Breast Service Fellowship Rotation. Breast Multi-Disciplinary Fellows Conference case presentations are mandatory and occur monthly.
- QA/QI project: The fellow will work with a resident and a breast pathology faculty member on a project that will examine quality assurance data in order to provide quality improvement suggestions to the surgical pathology service.
- Research: Develop an academic project or teaching materials in breast pathology.
- Cytogenetics for Her2 FISH: The fellow will schedule time early in the year with Dr Tena Cherry, Director of Cytogenetics, and Dana Bangs (based at Hillview) to review techniques of HER2 FISH analysis. The fellow will be responsible for work-up of HER2 FISH cases when on the Breast Service Fellowship Rotation.

- Additional testing request review and addendums (ex. Add-on IHC, OncotypeDX and STAMP)
- Evening/weekend call: Evening and weekend call will be similar to other Surgical Pathology Fellows with coverage from 6:00PM to 7:30AM on weekdays and all day on Saturdays, Sundays and holidays. See on call schedule for details.

Supervision:

- Breast fellows have attending back-up at all times, for all frozen section procedures, tumor board presentations and case sign-out. As fellows increase their diagnostic skills, they assume increased responsibility for independently performing intraoperative consultations as well as increased responsibility in supervising residents during intraoperative consultations and case sign-out, providing preliminary results and presenting pathology findings at multi-disciplinary conferences.

Rotations:

- Breast Service Fellowship Rotation (20 weeks): This rotation will include the following responsibilities:
  - Breast consults – The breast fellow on this service is responsible for preview and work-up of all breast consult cases. This includes showing individual cases to the relevant faculty, preparing a consult report with relevant references and conveying these interpretations to the consulting physicians. In almost all cases, the fellow will be required to telephone consulting physicians with preliminary diagnoses and requests for more clinical or pathologic data, additional slides/blocks and/or additional reports, if required. The ability to discuss difficult cases with colleagues who may on occasion have differing opinions and develop a cogent report that addresses these differences is an important aspect of the fellow's training experience. This can also be done at the weekly breast consensus conference. Once the report is completed and corrected by the fellow, the case is forwarded to the assigned faculty and formally signed out by that faculty member. All consult cases must have an initial review with faculty within 24 hours of receipt by the fellow.
  - Breast pathology outside reviews (Inside-Outside cases or I/Os) - are defined as review of breast pathology-related slides for Stanford and Stanford-affiliated clinicians on patients coming to Stanford for second opinions, follow-up or treatment of their breast-related diagnoses. IO case assignments will be triaged by the fellows on the breast pathology service (primarily the breast pathology fellow but also any rotating surgical pathology/subspecialty fellow). When consult and overflow volumes are high on the breast pathology fellow service, some IOs may go direct to faculty (see separate breast IO guidelines, including types of cases to send to South Bay pathologists when available). Fellows assigned to breast IOs will preview and write them up within 24 hours of receipt and notify faculty they have IO cases for them in a timely manner. Cases will be reviewed with the faculty member assigned to the breast service at a scheduled time in the early afternoon. Some cases may be not be double scoped with a fellow when they are comfortable acting as a "junior attending" on the cases and have no additional questions on straightforward cases. However, the faculty will be responsible for final signout of all cases and will provide verbal or written feedback on all cases to the fellow. In general, it is best when cases are reviewed in person.
  - Breast tumor boards (Fridays 9:30 AM – 10:30 AM) – Tumor board is an excellent place to learn how our diagnoses make a clinical difference as well as the latest in breast cancer treatment. The fellow will present the pathology of all cases requested for a pathology review. A case list will be posted online by Wednesdays at noon. Slides will be ready to review with the faculty assigned to tumor board by Thursday afternoon. The fellow and faculty both attend the tumor board but the fellow is responsible for presenting the cases.

- Ancillary studies/HER2 FISH cases – The breast fellow will be responsible for all ancillary studies that are not the responsibility of the resident on the breast service. The bulk of these include HER2 FISH cases. The list of the HER2 FISH cases will be emailed to the fellow by the cytogenetics team. The fellow will then be responsible for review, write-up and signout with faculty. Additional testing requests (breast panels, androgen receptor studies, OncotypeDX requests, other send outs etc.) by the clinical team will also be worked up by the breast fellow. Addendums will be issued by the fellow for these additional tests when results are back (including Oncotype DX/sendouts).
- "Point person" for breast clinical team – The breast fellow will help respond to clinical queries on cases, selection of blocks for ancillary study send-out requests, etc.
- Gross room consultations for junior residents and PAs– Early in the year the fellow will come with the faculty on service when there are breast gross specimens to review with the on service resident or PA. With graduated responsibility, the fellow may serve as the primary consultant on the gross review and sectioning, with the attending available as backup.
- In the event that a non-breast pathology fellow is on this service as well, the breast fellow is responsible for triaging consult, IO, overflow, FISH and tumor board responsibilities with the second fellow on the service (with coordination/input of the faculty on service).

- Breast Service Junior Attending (6 weeks): During this rotation, the fellow is responsible for resident sign-out of breast specimens. This will include ordering of additional stains, determination of cases to be shown to additional faculty, instruction provided to the resident concerning the gross, microscopic, and relevant diagnostic and differential diagnostic issues, as well as preparation of the final report integrating all the findings. Once the final report is completed and corrected by the fellow, the case is to be forwarded to the assigned faculty within the prescribed turn-around-time and formally signed out by that faculty member.
- Clinical Breast Imaging and Surgery experience (4 weeks): This rotaion will expose the fellow to the multidisciplinary aspects of breast health and disease. Time will be spent with the breast imaging team learning breast imaging techniques and focusing on radiology-pathology correlation. Time also will be spent in the operating room observing techniques in breast surgery as well as breast clinic exposure. This experience is intended to enhance the fellow's understanding of the clinical aspects of breast cancer planning and treatment.
- Hotseat (4 weeks): Breast fellows will rotate primarily on the breast/gyn/GU hotseat bench for rapid, prelim review of these cases. The fellow on hotseat will be responsible for initial hotseat preview, additional test ordering and triage of breast in-house core biopsies and breast surgical cases. Case distribution to the resident on the breast service should follow the rules of the trainee case caps and service distributions and be coordinated with the breast fellow and faculty on the breast service. Preliminary diagnosis will be recorded by the fellow, including relevant diagnostic details as time permits (this includes most templated elements for cancer cases such as margins, grade, etc). Preliminary diagnosis may be communicated to inquiring clinicians but should be documented. For any new diagnosis of invasive breast cancer a breast panel will be ordered by the fellow. Other ancillary diagnostic studies can be ordered for diagnostic purposes as needed. The resident, fellow or faculty on the breast service will communicate their diagnoses or additional work-up of all cases before signing out at "hotseat checkout." Any discrepancies in diagnosis will be discussed and handled as appropriate.
- Research and Elective (8 weeks): Electives can be in any AP or CP rotation but are contingent on space availability and approval by the relevant service chief and breast fellowship director. Research months are supervised by the fellowship director or the research mentor following approval by the fellowship director.

- Selective (3 weeks): In order to maintain some exposure to other surgical pathology subspecialties, the fellow will rotate on a surgical pathology subspecialty (one week blocks) and provide subspecialty fellow coverage of that service (typically consults, IO and possibly tumor board). The AP Chief Residents will coordinate these service assignments, taking into account fellow preferences as much as possible.
- Frozens (3 weeks): The fellow is responsible for frozen section coverage from 7:30AM to 5:00PM Monday through Friday during the frozen section rotation. It is expected that the fellow, in conjunction with the assigned resident in surgical pathology and the frozen section technician, prepare and interpret all frozen sections and touch preparations following discussion(s) with the submitting surgeon. This may include preparation of tissue for special studies. The assigned faculty is available for assistance and is expected to review all frozen sections and their diagnoses following the fellow's preliminary diagnoses. The assigned faculty will take over frozen section coverage from the fellow for the 5:00PM to 6:00PM period.

Additional Conferences Specific to Breast Fellowship:

- Breast Fellows Multi-Disciplinary Conference (monthly)
- AP Journal Club (required when breast-focused)
- Monthly breast scope sessions/workshops:
    - Fellows give to residents and other fellows 1-2 x year
    - Faculty give to fellows (residents also invited) 4-6 x year
    - Faculty give to residents (fellows also invited) 4-6 x year

Post Sophomore Year Fellowship

Co-Directors: John Higgins, MD and Megan Troxell, MD, PhD

Educational Goals

The goal of this one-year program is to offer a broad exposure to the practice of pathology to medical students who have completed their pre-clinical years. The year is comprised of approximately six months of clinical work and six months of research. The research months are primarily dedicated to a single research project, and fellows are strongly encouraged but not required to work with a faculty member in the Department of Pathology.

The clinical service months consist of about four x 4 week blocks of Surgical Pathology at SUMC, 1 x 4 week block of Autopsy at SUMC, and 2 x 4 week blocks of elective time. The elective blocks must be directed toward clinical activities in pathology, and may include rotations in subspecialty areas of Anatomic or Clinical Pathology. The research and clinical service schedule is set in Spring by discussions between the chief residents and the incoming fellows. In general, the responsibilities of the PSF are similar to those of the pathology residents, as outlined in this handbook, but on a smaller scale. It is not the intention of this program to have the PSF fill gaps in the resident schedule, but to allow them to carry a manageable workload for optimal educational benefit. However, their experience will be greatly enhanced by being an integral component of the workflow. They are required to assume full responsibility for the work-up and completion of their cases in a timely manner. The fellows should let their research advisers know that the extensive clinical duties during the Surgical Pathology months will take precedence over research during those four months.

Expectations on Surgical Pathology at SUMC

The PSF on Surgical Pathology at SUMC will rotate on the same weekly subspecialty schedule as residents, including weeks on gynecologic, breast, GI (biopsy/bigs), GU, ENT, soft tissue-pediatric-thoracic, along with separate weeks on cytology and frozen section. Each day during the subspecialty rotations, the student fellow will participate in sign-out with faculty, grossing cases, preview of slides and drafting of preliminary reports. Each of the rotations is described in a separate section of the handbook.

The PSF will initially be assigned 1 big or 2 small case in the Gross Room. These are to be cut-in under the guidance of the Pathology Assistants (PA). Based on the assessment of the faculty members with whom the PSF is signing out, the case ‘cap’ for sign-out will follow that of a first year resident on their first 1-2 weeks of any service. The appropriate number of cases handled will very considerably depending on the complexity, but in general, the PSF should be able to handle and should receive about 20 cases of moderate complexity per sign-out day by the end of the first month of surgical pathology. The PSF should be pro-active in seeking additional cases once they comfortably able to handle the current case load.

Prior to sign-out the PSF must:

1. Organize their slides and paperwork by case accession number.
2. Preview all cases and write the potential diagnoses on the cover page.
3. Read about the topics pertaining to the cases.
4. Pull all relevant prior specimens from the Surgical Pathology slide file.
5. With experience, be able to pre-dictate the diagnosis and comment prior to sign- out.

Following sign-out the PSF must:

1. Check all cases with the Hot Seat fellow.
2. Show cases with disputed diagnoses and cases that require consultation to other faculty.
3. Dictate the diagnosis and comment sections of the reports, being careful to comment on special stains, address clinical concerns, address issues raised in the gross description, include synoptic reports for neoplastic cases, include TNM and correlate frozen section diagnoses as appropriate. **Note: Most residents and PSFs find that typing diagnoses is more efficient than dictating. However, with increasing case complexity, dictation rather than typing is strongly encouraged.**
4. Proofread and correct the entire report.
5. Transfer the electronic version of the report to the sign-out faculty's folder, progress the status to "Needs Faculty Review" and deliver the paperwork and/or slides to him/her for sign-out.
6. Bring additional levels and special stains including IPOX to the faculty member as they become available or at a time arranged with that faculty member.
7. Be mindful of the importance of timely turnaround of cases and notify the faculty member of any cause for delay in case sign-out.

The PSF responsibilities on the Cytopathology day are the same as those of the first year residents on the Surgical Pathology rotation. These are detailed in the Cytopathology section of this handbook.

Grossing and previewing of cases over the weekend may occur on surgical pathology rotations as dictated by the daily schedule.

Expectations on Autopsy Pathology

The PSF rotates on Autopsy Pathology at SUMC with responsibilities similar to those of the residents as detailed in the Autopsy section of this handbook. The PSF should read and be familiar with these pages prior to beginning their Autopsy rotation. A sense of "ownership" of one's cases is particularly encouraged, but this may be somewhat constrained by the number of cases available and cases may be shared with the resident rotating on the

Autopsy service.

The Autopsy Service is an excellent opportunity to learn more about general medicine and pathophysiology. By the end of the rotation on the Autopsy Service, the PSF will be expected to analyze the autopsy findings and generate a cogent differential diagnosis, just as onewouldbe expected to do on a clinical clerkship.

Conferences

The PSF must attend all Tuesday – Friday 8:00 AM and noon Surgical Pathology conferences and preview unknown slides prior to those conferences when applicable. They are expected to attend daily Gross Room conferences while rotating on Surgical Pathology.

The PSF is expected to present cases at the "End-of-the-Month" case conference during each of their four months on Surgical Pathology. In addition, they are expected to give one "Current Concepts" talk on their research or a topic of their choice.

The PSF must attend the monthly QA/QI meetings, which usually occur in R358.

Supervision and evaluation

Mentors

The PSF will initially be assigned a faculty mentor, either Megan Troxell, MD PhD or John Higgins, MD. However, the PSF may choose a different mentor at any time. The mentor should be used as a resource for problems and questions about the training program. The mentor will also closely follow the PSF progress through the fellowship. The PSF should meet with their mentor at least once everysix months, but should not hesitate to approach their mentor more frequently if desired.

Individual Evaluations by Faculty

The PSF will receive a formal evaluation for each clinical month. These will be submitted to the Program Coordinator, Rachael Alegre Buenafe-Jacinto (rjacinto@stanford.edu) . Areas evaluated are identical to those of the residents.

Semi-AnnualEvaluationby Mentor

Every six months the PSF will meet with their mentors. Issues discussed at this meeting are recorded by the mentors, signed by both the mentor and the PSF, and entered into the PSF file.

Evaluations of Training Program & Faculty

Every 6 months the PSF will be asked for written evaluations of their rotations and the faculty members. These evaluations are anonymous and are collated by the Program Coordinator.

Vacation must be approved by the Chiefs and the Program Directors. The fellows must inform the coordinator at least two weeks prior to d e p a r t u r e .

General Telephone Numbers

The following phone number extensions should be dialed when calling from a Stanford phone. **If calling from a non-Stanford phone, call 650-72_- unless otherwise stated**.

Accessioning (Surg Path)	5-5190
Autopsy	
Resident's Room 1	5-5891
Resident's Room 2	3-7154
Autopsy Suite (Morgue)	3-7675
Bone Marrow Reading Room	8-6274/3-8847
Carolyn Fat (Chemistry Lab)	4-3342
Clinical Labs (SUH main)	3-6111
Cary Schrandt (LIS Support)	5-5619
Cytogenetics	5-6396
Cytogenetics Lab Supervisor	5-7476
Education Coordinator	3-9711
Flow Cytometry	4-2250
Fluids (e.g., CSF)	4-2252
Microbiology	3-6671
Molecular	3-6574
Special Heme (marrows)	4-2249
Virology	3-5706
Clinical Labs (LPCH main)	7-8614
Microbiology	7-8618
Cytology	3-7553
Dictation Access	(877) 729-9791
EM Lab	5-5196
Frozen Section Room	5-7145
Gloria Brown (Chemistry Lab)	5-5634
Gloria Magpantay (Derm)	5-5192/3-6736
Graduate Medical Education	3-5948 (Ann Dohn)
Gross Room	5-5191
Histology	5-5188
Information (SUH)	3-4000
Immunology/Endocrinology	6-2426
Immunoperoxidase Lab	3-6075
Immunoperoxidase Fellow	4-7800
John Williams (Heme Lab)	4-2246

Lane Medical Library	3-6831
Mercy Dones (Heme supervisor)	4-3594
Nancy Brooks (Dr. Mohler's nurse)	15556 pager
Neuropathology (main)	3-6041
Martin Estrada (Histotech)	3-6042
Resident's Room	5-4903
Operating Room Scheduling	3-6454
Operating Room Control Desk	3-7251
Individual Main ORs	4-70XX
Paging Access (in hospital)	222
Paging Access (outside hospital)	723-8222
Page Operator (in hospital)	288
Page Operator (outside hospital)	723-6661
Photo Lab	3-7521
Radiology File Room (SUH)	3-6717
Radiology File Room (LPCH)	7-8578
Radiology Reading Room	3-6737
Dr. Chris Beaulieu	#13168
Dr. Kate Stevens	#23202
Rosie Nolley (Urology)	8-4639
Residency Coordinator	5-8383 (Rachael Jacinto)
Security (hospital)/Cold room access	3-7222
Slide Room	8-7527
Surgical Pathology (reception)	3-7211
Transfusion Service Ed Coordinator	5-4493/3-6445
VA Hospital (main)	493-5000
Resident's Room (Autopsy)	6-5092
Resident's Room (Surg path)	6-6239
Autopsy Suite (Morgue)	6-5079
FAX	725-7023
Will Flores (Coagulation)	5-9866

ON CALL NUMBERS

Surgical Pathology Fellow (eve, S, S)	12642
Histotech Frozen Section Pager (days)	16032
FNA Pager	13378
Histotechnologist (on call, after hours)	17362
Autopsy Attending	13216
Weekday Resident Frozen Pager	17353
Clinical Pathology On Call Pager	12005

For other important numbers, please use the https://pathologists.stanford.edu/

Addresses

Laboratory of Surgical Pathology

Room H2110

300 Pasteur Drive Stanford, CA 94305-5243 (650) 723-7211 Telephone (650) 725-7409 FAX

Department of Pathology

Room L235

300 Pasteur Drive Stanford, CA 94305-5324 (650) 723-5252 Telephone (650) 725-6902 FA

Department of Pathology

Veterans Affairs Palo Alto Health Care System

3801 Miranda Avenue, Building 101

Palo Alto, CA 94304

(650) 493-5000 Main Telephone

(650) 725-7023 Pathology FAX

SHC Clinical Laboratory

3375 Hillview Avenue Palo

Alto, CA 94304

School of Medicine

Blood Center

3373 Hillview Avenue

Palo Alto, CA 94304

Frequently Asked Questions

Who do I call if I'm late/sick?

The most important person to call is your attending. If you can't reach that person, try contacting a chief resident or one of the senior residents or fellows for your rotation. It is also a good idea to contact the administrative support person(s) for your rotation (i.e., receptionists in surgical pathology, neuropathology, etc.).

What do I need to do before going on vacation?

Please see the vacation guidelines in this handbook. Coverage should be arranged (contact the chief residents for assistance). Leave detailed notes for or have a discussion with the covering resident on any pending cases. Alert your attending(s) and any other residents on your rotation well in advance, including the appropriate coverage. It is helpful for the receptionists and the accessioning staff to know when you will be gone and who will be covering so that they can appropriately direct inquiries.

Where can I get office supplies (pens, pencils, dotting pens, post-its, etc.)?

Many office supplies (ballpoint pens, staples, paper clips) are stored in the cabinets above the water cooler in Surgical Pathology, Room H2110. If you can't finding something or have any questions, one of the receptionists can usually point you in the right direction.

Where are pager batteries?

Pager batteries can be obtained in Surgical Pathology. Replacement batteries are also available from Pager Administration (located at Stanford University Hospital, room HC009) or from Security after hours (basement, approximately below the ATMs near the Emergency Room).

How does the paging systemwork?

The new **Spok Mobile** is fully implemented and its access and functionality will be explained to you during GME orientation. You can contact the page operator with specific questions. A physical frozen section pager will be used during VA rotation. According to Pager Administration, the range of standard housestaff pagers is 50 miles in **ideal** conditions. In practice, you may find that the range is closer to 15-20 miles. You may call the Page Operator and forward any pages to a cell phone if you will be out of range.

Who do I see about dictation problems?

Please contact the Service Desk (723-3333) for problems with dictation, your user ID, reports without gross dictations, etc.

What happens if I have an accident in the gross room?

If you have a chemical spill (including formalin), alert the gross room supervisor and one of the gross room employees. There are spill pillows and neutralizing agents available in the cabinets opposite the accessioning area.

If you get hurt (needle stick/scalpel wound), alert the gross room supervisor or one of the pathologist's assistants. You should be seen in Employee Health (3-5922) or the Emergency Room. Note if it was a clean or dirty blade/needle and note the name of the patient(s) from whom the specimen(s) you were working with came. If your injury is "dirty", you and the patient will undergo testing for blood-borne diseases and you may be provided with the opportunity to initiate anti-infective therapy, if available. Injuries at the VA should be seen at the VA Emergency Room; testing and treatment may start in the VA ER. Follow-up will be with Stanford Employee Health. For more information, please refer to the Hospital's Blood/Body Fluid Exposure policy. Finally, your injury should be documented within the department for Quality Assurance purposes.

What if my microscope isn't working/light bulb burns out?

Perform a cursory check of all cord connections, etc. If your bulb is burned out or your microscope doesn't seem to be working, contact Latisha Holland for assistance. The Department contracts with an instrument company to perform regular maintenance and emergency repair.

What do I do when a clinician wants to see a case?

If you do not feel comfortable showing the case, ask your attending, a senior resident or the hot seat fellow for assistance. If the clinician(s) is/are calling in advance, set up a convenient time **for yourself** to meet them. It's often easiest to show cases around the multi-headed derm room microscope or one of the multi-headed scopes in the faculty sign-out offices.

What do I do if a patient calls?

Occasionally a patient may request to speak to you. Be polite, respectful and understanding. The best thing to do is get the patient's phone number and ask if you can have your attending give them a call. If there is an unusual request, again defer a definitive answer until you check with your attending.

Where is the photo lab?

The photo lab is located in Room L206, in the Lane Building.

What if I've never given a pathology talk before?

Public speaking can be overwhelming and intimidating. Despite the initial impression that these talks are simply the means by which to torture trainees, the purpose of

resident presentations is truly educational. Your presentation skills will be enhanced, and your subject knowledge will improve greatly. It is easier said than done, but try to relax and enjoy yourself. Ask a more senior resident or attending for suggestions or assistance. Allow yourself plenty of time to prepare. Some people find practicing a talk in front of a mirror (or in front of another person) helpful. Some people use "case breaker" slides with humor or an outside area of interest (photos from a recent trip) to lighten the talk up every 15 minutes or so.

What do I have to do for the end of the month Surg Path presentation?

The end of the month Surgical Pathology presentations are meant to be casual and fun. There is no defined format, although most people present one-three interesting cases from the month. You can choose cases according to a theme, according to organ or completely at random. Try to choose cases for which you have a gross photograph available. You can solicit audience participation (your turn to put the senior residents or attendings on the spot) if you'd like. Ask a senior resident or fellow to help you take microscopic photos if you've never taken them before. Most residents read a little bit about the entity they will present to know its diagnostic features and the differential diagnosis, and then photograph areas to highlight these points or other interesting points from the case (a diagnostic pitfall, a rare finding, etc.). Text slides are not required and each resident's presentation should be no longer than 7 minutes. Residents are encouraged to make use of this opportunity to develop (& exhibit) their gross and microscopic photography skills.

What is available in our surgical pathology library?

Copies of almost all the major general and specialty surgical pathology textbooks and several pathology journals are available in the Surgical Pathology library. If you can't find the text you require, ask one of the Surgical Pathology fellows. If there is a text you think we need in the library, ask the Surgical Pathology director.

What do I need to know for the student labs?

Weeks in advance of your designated student lab, you will receive material from the pathology course coordinator, Vuong Vu, regarding your lab. In addition, there will be a meeting of all the residents and faculty participating in the given laboratory prior to that section, usually held in the Bing Dining Room with a free meal. You will be paired with an attending who will be able to answer any questions that you can't, so relax and have fun. If you are so motivated, you can review sections of Robbins or the course syllabus as a self-review and in preparation for the lab.

How do I call the VA?

The VAPA hospital main number is (650) 493-5000. An automatic greeting will then come on the line. You will then be instructed to enter the five-digit extension (VAPA extensions start with 6-XXXX) and be transferred. If you know the five-digit extension, press 1 when the greeting begins.

How do I get to the VA?

The Veterans Affairs Palo Alto Health Care System facility is located at 3801 Miranda Avenue in Palo Alto. From Stanford Hospital, exit to Campus Drive, heading in the direction of Highway 280 (west). Turn left on Junipero Serra Avenue, which becomes Foothill Expressway as you cross Page Mill Road. Turn left at Hillview Avenue and make an immediate right onto Miranda Avenue. The hospital will be the first left following the stop sign. Drive around the perimeter drive (watch your speed, the VA hospital is on government property and if you get a speeding ticket, you will have to appear in federal court in San Francisco!) to the helicopter pad in the back and park in the garage. You can go up the back stairwell of building 100 to the fourth floor. The pathology suite is down the first hallway to the right after you exit the stairwell on the fourth floor (the resident's room is straight back to the windows (great view!).

How do I get to Forensics (Santa Clara County Coroner)?

From the Palo Alto area, take Highway 280 South. Exit Winchester Boulevard towards Campbell. Turn left on Moorpark Avenue, cross under Highway 880 and take a right on Thornton Way. The office is located a few blocks down on the left, at 850 Thornton Way. There is a parking lot at the building.

Where are housestaff mailboxes?

Housestaff mailboxes are located on the wall outside the departmental office in Room L235, Lane Building. The first two rows of mailboxes are faculty mailboxes, organized alphabetically by last name. The mailboxes are located above the name. The next row is resident mailboxes, also alphabetical. The final row of mailboxes is for general lab groups and administrative assistants.

Where are faculty mailboxes?

In addition to the faculty mailboxes outside L235 (see above), Surg Path faculty have mailboxes located within Room H2110, Surgical Pathology. These are located near the sink and water cooler. Use the mailbox area above the posted name. These mailboxes generally have enough room to store slide flats.

Where can I keep my things?

All of the cubicles in Room H2110 have ample drawer and desktop space; many include vertical files. While it is safest not to bring in valuables, you can also obtain a key to lock the desk drawers from April Young. Because the cubicles relate to the position and not the person, the residents play monthly musical desks. See April Young for more permanent space if needed (there are cabinets available in the autopsy residents' room). As a courtesy to the person inheriting your desk at the end of the month, try to clean up any old paperwork or personal items in order for the other person to move in a timely manner. There is a small refrigerator in Room H2110 in which to store your lunch. Please promptly remove any items you do not plan to eat.

All AP residents are assigned a locker that is located in the Autopsy Resident Room (Lane building Room L236). You will be provided a key to your locker as well as a key to the Resident Room. You can keep your belongings in this locker for the entire duration of your AP training. If you have questions about your locker, please see the Residency Coordinator.

All CP residents are assigned a locker at 3375 Hillview Avenue. You will be provided a key to your locker as well as a code to the Resident Room. You can keep your belongings in this locker for the entire duration of your CP training. If you have questions about your locker, please see the Chief Resident for CP or the Residency Coordinator.

Appendix - Resident and Fellow Handbook Agreement

I. I have received the Stanford University Department of Pathology Resident and Clinical Fellow Handbook (2017-2018).

II. I have been informed of the following requirements for house staff:

1. Required conference attendance
2. Formal teaching responsibilities
3. Reporting of duty hours in MedHub
4. Safety policies and procedures
5. On call procedures
6. Procedure for schedule changes and vacation requests
7. Licensure requirements

III. I understand that it is my responsibility to be aware of the policies/procedures as stated in the handbook.

Name: _____

Signature: _____

Date: _____

**** Please submit this signature page to the Residency Coordinator, Rachael Buenafe-Jacinto, rjacinto@stanford.edu no later than July 21, 2017 ****