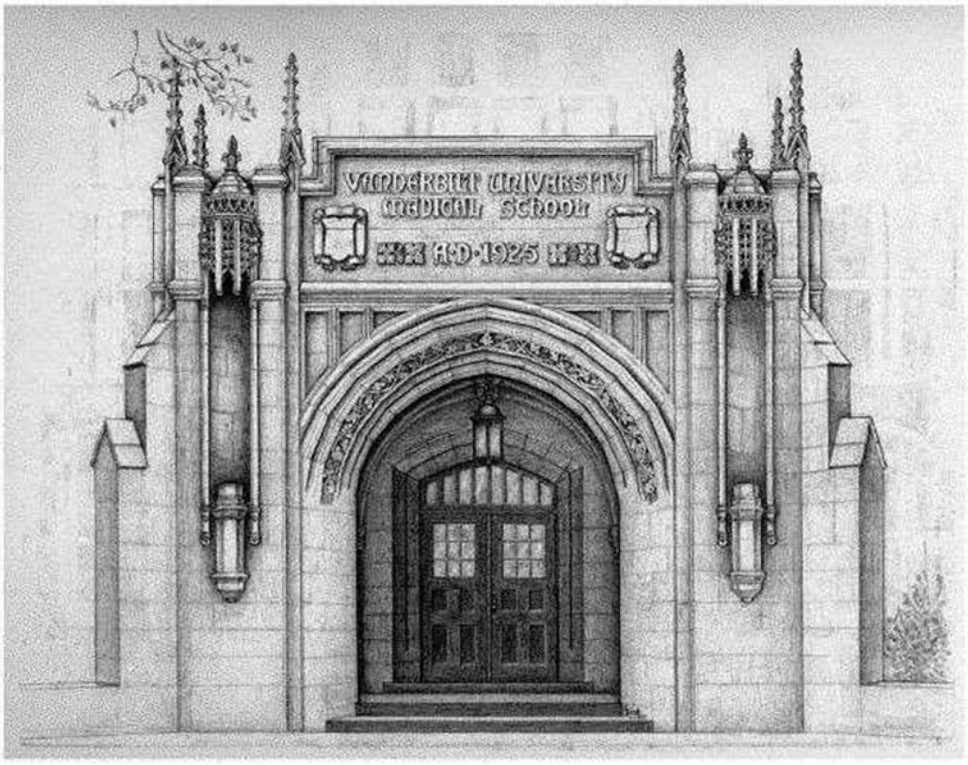
ROTATION GOALS & OBJECTIVES
2025 – 2026



RESIDENCY TRAINING PROGRAM

DEPARTMENT OF PATHOLOGY, MICROBIOLOGY AND IMMUNOLOGY
VANDERBILT UNIVERSITY MEDICAL CENTER

AUTOPSY

Rotation Description:

Welcome!. As part of our residency program, you'll have the exciting opportunity to spend four months rotating as a Prosector on the Autopsy service. Additionally, you'll take on a month as the Charge Resident, where you'll supervise and mentor junior residents during the early part of the academic year. Each month, we typically assign two to three residents to the Autopsy Service, providing a collaborative and supportive learning environment.
During your time on the Autopsy service, you'll perform autopsies on patients from Vanderbilt University Hospital and Monroe-Carell Jr. Children's Hospital in our dedicated autopsy suite, as well as on patients from the Department of Veteran's Affairs Tennessee Valley Healthcare System at the Nashville VA campus. Under the guidance of our experienced attending staff, you'll gradually take on more responsibilities, including chart reviews, clinician contact, consent reviews, sampling for ancillary studies, prosection, microscopic examination, and reporting on autopsy cases. You'll also have the chance to present the cases you've prosected at interdisciplinary conferences, showcasing your hard work and insights!

For added support, one of the residents on service—either the autopsy or charge resident—will hold the pager (615-835-0326) overnight and over weekends. Autopsy pages during these times are quite rare!

Rotation Director: Florencia Jalikis, MD

Rotation Goals:

- Develop the ability to correlate clinical findings with gross and microscopic observations to reconstruct the sequence of events leading to the patient's death.
- Provide valuable insights that contribute to improving the quality of patient care.
- Support families in the grieving process by offering clarity on the cause of death and the extent of the disease.

Residents are expected to gain the following competencies:

Patient Care

- Recognize the value of an autopsy in medical practice.
- Ensure proper identification of the decedent.
- Verify the validity of autopsy consent, confirming authorization from the appropriate individual and noting any restrictions.
- Identify cases that fall under the jurisdiction of the medical examiner.
- Conduct thorough reviews of medical records, including clinical notes, imaging, and lab results.
- Gain proficiency in external examination, evisceration, and dissection of adults, children, and fetuses while preserving anatomical relationships as needed.
- Adapt evisceration and dissection techniques when necessary to better demonstrate pathology in specific cases.
- Generate timely preliminary and final autopsy reports.

Medical Knowledge

Residents must demonstrate a strong understanding of biomedical, clinical, and epidemiological sciences and apply this knowledge effectively in pathology. They should be able to:

- Extract key clinical questions from medical records to guide autopsy examinations.
- Correlate clinical signs, symptoms, and diagnostic findings with pathologic findings at autopsy.
- Write comprehensive, well-organized, and educational summaries that address clinical questions and incorporate relevant literature to enhance understanding of disease processes.

Interpersonal and Communication Skills

Residents must develop effective communication and teamwork skills to interact with healthcare providers, patients, and families. They should:

AUTOPSY

- Engage with the clinical team and primary care providers before starting an autopsy to identify key questions.
- Present a concise, organized clinical summary to the attending pathologist before beginning the autopsy.
- Effectively consult, supervise, and collaborate with technicians, medical students, and fellow residents while maintaining primary responsibility for cases.
- Prepare and present cases at intradepartmental and interdepartmental conferences, selecting relevant pathological findings for discussion.
- Educate fellow residents, medical students, and pathology assistants on autopsy procedures and organ pathology.
- Write clear, grammatically accurate final reports with well-structured findings, cause of death, and clinicopathologic correlations.
- Communicate autopsy findings effectively to clinicians and pathologists.
- Engage with families of the deceased to discuss findings in a compassionate and supportive manner, under appropriate supervision.

Professionalism

Residents must uphold professional responsibilities, adhere to ethical principles, and demonstrate sensitivity to diverse populations. They should:

- Assist clinicians and families in obtaining proper informed consent for autopsies when appropriate.
- Show unconditional respect for the deceased.
- Honor patients' and families' religious beliefs regarding autopsy procedures.
- Demonstrate professionalism in interactions with clinical colleagues, laboratory staff, and other medical professionals.
- Conduct autopsies efficiently to minimize delays in funeral arrangements and departmental workflow.
- Maintain strict confidentiality and privacy regarding patient information.
- Follow universal safety precautions to protect all personnel involved in autopsy procedures.
- Support fellow residents in performing autopsies to ensure smooth service operations.
- Respect and consider the perspectives of clinicians when discussing discrepancies in clinical care.
- Communicate with clinicians in a professional and non-confrontational manner when addressing concerns related to patient management.
- Provide clear and empathetic communication to families regarding autopsy findings and general procedures.

Systems-Based Practice

Residents must understand and navigate the broader healthcare system to optimize pathology services. They should:

- Seek additional clinical and laboratory information by consulting hospital systems and discussing cases with clinicians.
- Participate in healthcare performance improvement initiatives, including reporting unexpected diagnoses and presenting cases at Morbidity and Mortality conferences.
- Adhere to regulations such as CLIA (Clinical Laboratory Improvement Amendments), HIPAA (Health Insurance Portability and Accountability Act), and CAP (College of American Pathologists) accreditation standards.
- Advocate for the role of autopsy in quality assurance by promoting autopsy permissions across hospital departments.
- Complete the preliminary autopsy diagnosis (PAD) within two working days and finalize the autopsy report within 60 working days to ensure timely communication of findings to clinicians and families.
- Follow CAP Laboratory Accreditation Program requirements for autopsy reporting.
- Collaborate with healthcare teams to improve patient care by applying autopsy findings to evidence-based medical strategies.
- Use special procedures judiciously, such as freezing tissues, retaining specimens, and performing cultures, to ensure accurate diagnoses without unnecessary resource utilization.
- Recognize the role of autopsy in quality assurance, patient safety, and risk management.

AUTOPSY

- Source https://www.cap.org/member-resources/councils-committees/autopsy-topic-center

Practice-Based Learning
Residents must continuously evaluate their diagnostic and consultative skills, incorporate scientific evidence, and refine their clinical practices. They should:

- Investigate prior pathology diagnoses within the anatomic pathology database.
- Utilize online resources to stay updated on recent advancements in disease pathology.
- Monitor their own case mix—including adult, pediatric, neuropathological, and forensic cases—to ensure broad-based exposure.
- Regularly attend departmental autopsy conferences to expand their knowledge.
- Accept and apply constructive feedback from faculty, clinicians, laboratory staff, and peers to improve their practice.

Situations in which even an experienced resident must call an attending:

- When any autopsy is to be performed, after contacting clinical team**.**
- When a death is discovered to be reportable to the Medical Examiner.
- When there is a finding that cannot be adequately represented photographically or histologically.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When findings are discovered that require significant deviation from standard dissection protocols.
- When limitations on the autopsy accidentally have been exceeded.
- When electron microscopy, molecular genetics, immunohistochemistry or special stains are ordered.
- When a possible specimen loss or misidentification has occurred.

AUTOPSY CHARGE

Rotation Description:

Residents typically complete four months rotating as a Prosector on the Autopsy service, plus an additional month as the Charge Resident, supervising junior residents during the early part of the academic year. The Charge Resident typically supervises two junior residents as they perform autopsies on patients from Vanderbilt University Hospital and Monroe-Carell Jr. Children's Hospital in the autopsy suite at Vanderbilt University Hospital, and on patients from the Department of Veteran's Affairs Tennessee Valley Healthcare System in the autopsy suite at the Nashville VA campus. The Charge Resident, who must be in the PGY3 year of the APCP4 program, or PGY2 of either AP3 or APNP4, provides a first level of direct supervision for junior residents. In every case, residents have at least indirect supervision by a member of the attending staff. Both the Charge and the attending pathologist help residents assume progressive responsibility for chart review, clinician contact, consent review, sampling for ancillary studies, prosection, microscopic review, and reporting of autopsy cases. Residents additionally are expected to present cases they have prosected at interdisciplinary conferences.

*One of the residents on service (either the autopsy or charge resident) will hold the pager (615-835-0326) overnight and over weekends. Autopsy pages during these times are rare.

Rotation Director: Florencia Jalikis, MD

Residents are expected to gain the following competencies:

Patient Care

- Foster in new trainees an anticipatory, analytic and integrative approach to autopsy diagnosis.
- Review cases for possible required reporting to Medical Examiner's Office before moving the body to the Autopsy Suite.
- Review cases for possible reporting of communicable diseases before moving the body to the Autopsy Suite.
- Review consent documents for proper completion before beginning prosection.
- Teach junior residents in all aspects of prosection and autopsy techniques, including standard dissection and removal of organs, including brain and spinal cord from both pediatric and adult decedents.
- Teach junior residents in selection and performance of routine and special (i.e., viral, Legionella, rabies, etc.) cultures.
- Teach junior residents in procurement and preservation of special body fluids (vitreous fluid, bile, urine, cerebrospinal fluid) for ancillary studies.
- Teach junior residents appropriate collection techniques for electron microscopy, molecular genetic, and cytogenetic studies.
- Teach junior residents to perform and interpret postmortem radiographic procedures including pediatric skeletal development and postmortem arteriography.
- Foster a culture of seeking appropriate consultations when difficult or unexpected historical, gross, microscopic or laboratory findings are encountered.

Medical Knowledge

- Understand and teach the need for consent for autopsy by relatives or others, as required by law.
- Understand and teach the meaning of a limited autopsy, or special autopsy requirements.
- Understand and teach basic concepts of disease and correlation with morphology.
- Demonstrate expertise in correlation of autopsy findings with clinical course.
- Understand and teach infectious, chemical, and physical dangers in autopsy practice and use appropriate methods and equipment to minimize risk of harm to anyone.
- Know and teach criteria for required reporting of deaths to the Medical Examiner's office, per Hospital and State regulations

AUTOPSY CHARGE

Interpersonal and Communication Skills

- Present autopsy findings to pathologists, medical students, and clinical staff, during autopsies, at gross conference and interdisciplinary conferences.
- Prepare clear and accurate autopsy reports in a timely manner.
- Formulate accurate statements of cause of death, mechanism of death and manner of death.
- Engage and teach medical students and clinical staff visiting the autopsy service.
- Teach new prosectors safe and effective autopsy practice by example while serving as Charge Resident or as a senior resident on service.

Professionalism

- Demonstrate respect, compassion, and integrity in the performance of the autopsy.
- Demonstrate sensitivity to the needs of different readers of autopsy reports, including family members, clinicians, and legal personnel
- Prepare written reports in a timely fashion following CAP guidelines.
- Work efficiently and effectively as a team with autopsy staff, and treat technical and administrative staff with respect.
- Provide timely and honest confidential evaluations of rotation activities to program staff and authorized regulatory agencies.

Systems-Based Practice

- Understand the role of autopsy in quality assurance of medical care.
- Understand the role of autopsy in research and education.
- Understand the role of the autopsy in determination of cause of death, and its impact upon epidemiologic studies using death certificate data.
- Practice cost-effective use of special techniques, such as chromosomal analysis and electron microscopy.
- Understand the rationale and necessity for hepatitis B vaccination and annual tuberculosis testing and ongoing formalin exposure testing.
- Understand rules for documentation of intra- and extradepartmental consultations.
- Understand rules for documentation of discrepancies in clinical and pathologic diagnosis.

Practice-Based Learning

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

Situations in which even an experienced resident must call an attending:

- When any autopsy is to be performed, after contacting clinical team**.**
- When a death is discovered to be reportable to the Medical Examiner.
- When there is a finding that cannot be adequately represented photographically or histologically.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When findings are discovered that require significant deviation from standard dissection protocols.
- When limitations on the autopsy accidentally have been exceeded.
- When electron microscopy, molecular genetics, immunohistochemistry or special stains are ordered.
- When a possible specimen loss or misidentification has occurred.

BLOOD BANKING

Rotation Description:

The CP-Blood Module covers the disciplines of Transfusion Medicine, and is oriented toward educating residents in the diagnosis and management of blood-related disorders. In the Transfusion Medicine component, the emphasis will be placed on understanding and proper utilization of immunohematological diagnostic and compatibility testing, as well as pathogenesis, diagnosis and transfusion support of disorders and conditions commonly encountered in the Transfusion Medicine practice. Residents will also gain knowledge regarding the management of apheresis patients, specifically focusing on photophoresis, CD34 stem cell collection and RBC exchange transfusion. Residents also have the opportunity to acquire practical knowledge related to donor selection, collection and manufacturing, as well as apheresis collection technique during off-site training at the American Red Cross Tennessee Valley Region. Pathology Residents will report to the Director of Transfusion Medicine/Transfusion Medicine Physician on service. Residents should perform all duties and assignments during their rotation and meet all goals and objectives. Training will be accomplished through daily discussions of interesting cases and abnormal laboratory results with attending physicians, and by work with medical technologists and supervisors within the laboratory. The residents will also manage, from a procedural perspective, patients undergoing peripheral stem cell collection, photophoresis and RBC apheresis exchange transfusion. Daily notes and patient evaluations will be carried out. Therapeutic apheresis topics will be covered predominantly by case study methodology.

Rotation Director: Shannon Walker, MD

Residents are expected to gain the following competencies:

Patient Care

- By the end of the Program, residents will develop clinical judgment skills in Transfusion Medicine practice, gain a working knowledge of Transfusion Medicine theory, and understand the technical and clinical aspects of Transfusion Medicine procedures and Blood Bank test result interpretation.
- Residents are expected to assess risk/benefit ratio, recognize inappropriate transfusion practices and recommend appropriate therapy (including evidence based practices). They should be able to resolve problems inherent in meeting demands for blood components in routine and emergency situations.
- Residents will attend an introductory session during the first week of their rotation to review policies and procedures related to patient safety during aphaeresis procedures. Residents will be able to distinguish major reactions requiring emergency assistance from minor reactions which may be managed by the resident.
- Residents will understand the indications, risks and benefits of peripheral stem cell collection and photopheresis procedures. They will manage minor reactions and ensure that procedure is being successfully performed.
- Residents will understand the indications, risks and benefits of automated red cell exchange procedures and manage the ordering of this procedure and complications during the procedure.
- Residents will serve as consultants to clinical colleagues and the technical staff. By the completion of the program, residents are expected to function as junior Blood Bank Attendings under the supervision of the Director of Transfusion Medicine or Transfusion Medicine Physician.

Medical Knowledge

- The resident will become sufficiently familiar with current fundamental knowledge to serve as consultant to clinical physicians and blood bank staff. Toward this end, the resident must:
    - *Understand basic immunology as applicable to Transfusion Medicine: antigens, antibodies, and complement; immune reactions, involving blood cells and blood constituents, both in vivo and in vitro.*
    - *Be conversant with blood group serology and genetics; including red cell, leukocyte, platelet, and plasma antigens; their respective antibodies; and the serologic techniques necessary for their demonstration.*
    - *Be familiar with the blood donation process, including the preparation, and storage of blood cells and components and apheresis procedures.*

BLOOD BANKING

- *Be familiar with blood component therapy; including knowledge of the coagulation mechanism, evaluation and treatment of coagulation disorders, and advantages and disadvantages of specific blood components.*
- *Understand the principles and practices of therapeutic apheresis procedures, including the various indications, complications, and management issues*
- *Be conversant with principles of tissue transplantation and blood transfusion; including red cell compatibility testing; histocompatibility testing; rejection phenomena; and hazards of blood transfusion, including transfusion reactions and infectious disease transmission.*
- *Be familiar with the clinical indications, mobilizing regimen and complications of peripheral stem cell collection*
- *Be familiar with the complications and indications for photopheresis*

- The resident will become sufficiently skilled in blood banking techniques (compatibility testing, and antibody identification) to recognize technical limitations and pitfalls, to interpret critically the data generated by these procedures, and to assist staff in the analysis and resolution of technical problems.
- The resident must work with a blood bank technologist at the bench to acquire additional education in this regard (and at minimum perform a type and screen at least once in their residency)
- The resident will develop sufficient clinical judgment in transfusion therapy to assess its risk/benefit balance, to recognize unreasonable or inappropriate demands for blood products, and when indicated, to recommend appropriate blood or component therapy. Judgment can be developed only by dealing directly with clinical problems. Residents also must be able to resolve logistic problems inherent in meeting demands for blood and components under routine and emergency conditions.

Interpersonal and Communication Skills

Demonstrate ability to:

- Interact with laboratory personnel and others.
- Participate in formal and informal medical education of medical technologists, apheresis nurses, and peers.
- Present end-of-rotation powerpoint presentation on assigned topic that impacts current TM practices (assigned by attendings with input from the resident about a topic that interests them). The resident must present at least twice during their residency training.

Professionalism

Demonstrate ability to:

- To interact in a professional, helpful, and respectful manner with clinicians, other house staff, and technical and administrative staff.
- To work effectively and efficiently with support and administrative staff in the clinical laboratory to maximize productivity and maintain the quality of the work environment.
- To notify clinicians of abnormal results in a timely and accurate manner.
- To interact with patients
- To prepare written reports, where applicable, in an accurate and timely fashion.

Systems-Based Practice

- To understand principles of QA (quality assurance) and QC (quality control) in the laboratory, including CAP (College of American Pathologists) proficiency testing.
- To learn safety issues and regulations relevant to the laboratory.
- To understand CAP and CLIA guidelines and requirements for the laboratory.
- To understand LIS (laboratory information systems) issues relevant to the laboratory.

Practice-Based Learning

- To use case-based learning as a tool for developing of Transfusion Medicine-related skills.
- To locate, appraise, and assimilate pertinent evidence from scientific studies.

BLOOD BANKING

- To demonstrate effective problem solving skills in the diagnosis and management of diseases and conditions most commonly encountered in Transfusion Medicine practice.
- Present an interesting case conference to share patient care process (if applicable to their end-of-rotation presentation)

CLINICAL CHEMISTRY

Rotation Description:

The Clinical Chemistry rotation provides training in analytical, clinical and managerial aspects of the clinical chemistry laboratory. The trainee receives didactic and experiential exposure to the principles of chemical pathology, both basic and applied, and learns to select and evaluate chemistry tests appropriate to the screening, diagnostic, and monitoring needs of clinical decision making.

Rotation Director: Shu-Ling Fan, PhD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in interpretation of general chemistry, esoteric chemistry, therapeutic drug monitoring, and clinical toxicology tests.
- To be familiar with the instrumentation and methods used in a clinical chemistry laboratory.
- To understand the limitations, specificity, and sensitivity of commonly used clinical chemistry tests.

Medical Knowledge

- To appreciate the clinical context of chemistry test results.
- To recognize the pathophysiology underlying abnormal test results.
- To develop expertise in appropriate choice of chemistry tests for different diseases.
- To gain understanding of how preanalytical variables affect test results.

Interpersonal and Communication Skills

- To effectively participate in quality control and managerial meetings of the technical staff, supervisors, and faculty.
- To provide consultation in interpretation of chemistry tests to clinical faculty, residents, and medical staff.
- To present continuing education lectures.
- To prepare and give effective case reports.
- To prepare and present concise and accurate summaries of clinical inquiries received.
- To read, summarize, and critically evaluate clinical chemistry literature.

Professionalism

- To complete interpretive reports in a timely fashion.
- To interact in a professional, helpful, and respectful manner with clinicians, other residents, and technical and administrative staff.
- To understand ethical and technical issues relating to toxicology testing.

Systems-Based Practice

- To appreciate the importance of quality control in clinical chemistry, by evaluation of quality control data and participation in quality control review meetings.
- To understand CAP accreditation requirements (and participate in mock inspection of the laboratory, as needed).
- To participate in a quality improvement, instrument verification, clinical or outcomes project.
- To consult in cost-effective medical practice regarding the ordering of clinical chemistry tests.
- To describe the workflow and daily operation of the laboratory and its relationship to staffing and equipment needs.

CLINICAL CHEMISTRY

Practice-Based Learning

- To use case-based learning as a tool for insight into disease pathophysiology.
- To locate, appraise, and assimilate pertinent evidence from patient case studies and scientific reviews.
- To demonstrate effective problem-solving skills, using a wide variety of information resources.
- To use the techniques of medical informatics to acquire and manage data.
- To participate in and support diagnostic management teams in clinical chemistry.

Situations in which even an experienced resident must call an attending:

- When there is an urgent need to sign out or modify a report.
- To discuss off-hours test requests (HbS, Amino Acid, Immunosuppressive) after collecting all necessary supporting information.
- When a critical value for a clinic patient is received by a resident on-call after the clinic had already closed and unable to reach the licensed ordering provider.

CLINICAL CYTOGENETICS

Rotation Description:

This rotation is designed to provide an understanding of the clinical utility of cytogenetics including constitutional (prenatal and postnatal) and acquired (cancer) chromosome analysis, FISH and cytogenomic microarray. This includes classical chromosomal syndromes as well as micro-deletion and duplication syndromes. In addition to constitutional chromosome anomalies, acquired anomalies seen in neoplasia will be covered in detail. Residents and Fellows will have an opportunity to understand the managerial aspects of the cytogenetics laboratory including the qualifications and certification requirements of personnel, accreditation by CAP and other agencies, licensing requirements and proficiency testing.

Rotation Director: Ashwini Yenamandra, Ph., FACMG

Residents are expected to gain the following competencies:

Patient Care

- To participate in processing of culture material, including peripheral blood, bone marrow samples, and solid tumors.
- To become familiar with the use of karyotype, fluorescence in situ hybridization (FISH) and cytogenomic microarray analysis as diagnostic cytogenetic techniques.
- To understand cytogenetic and patient counseling issues in prenatal diagnosis using cytogenetic and microarray tools.

Medical Knowledge

- Learn gross morphology of human chromosomes, and the International System for Human Cytogenetic Nomenclature (ISCN, 2016).
- To become familiar with recurrent autosomal and sex chromosome abnormalities.
- To understand classical chromosomal syndromes and newly recognized micro-deletion/duplication syndromes.
- To become familiar with how to perform a constitutional chromosome study by preparing cultures, obtaining Giemsa banded metaphase spreads, and analysis using computer imaging to make a karyotype from own blood sample.
- To become familiar with acquired chromosomal abnormalities in hematologic malignancies and solid tumors and correlate with morphology and prognosis.
- To develop an investigatory and analytic thinking approach to cytogenetic analysis and correlation with disease.

Interpersonal and Communication Skills

- To develop proficiency in presentation of cytogenetic findings to pathologists, medical students, and clinicians.
- To present an interesting or challenging cytogenetics case, with clinicopathologic correlation, and in-depth discussion with review of pertinent literature, as a continuing education presentation to laboratory personnel.
- To learn to generate effective reports containing karyotype/clinical correlation, diagnostic and prognostic significance in case of acquired chromosome aberrations, and estimation of recurrence risk in case of constitutional anomalies.

Professionalism

- To demonstrate understanding of ethical issues involved in cytogenetic testing.
- To demonstrate respect, compassion, and integrity in observing and participating in counseling encounters in the VUMC Pediatrics-Genetics Division.
- To complete written reports and sign the repots in a timely fashion.
- To work effectively as a team with technical and administrative staff, and treat technical and administrative staff with respect.

CLINICAL CYTOGENETICS

Systems-Based Practice

- Become familiar with the general functions of the laboratory including referral pattern, specimen intake, accessioning, setting up of specimens, harvesting and the quality of chromosome spreads needed for analysis and general QA/QC of the laboratory.
- To become familiar with technical aspects of quality assurance and quality control in the cytogenetics laboratory.
- To understand aspects of QA/QC issues involving prenatal diagnosis, culture failure, culture contamination, etc.
- To become familiar with cost-effective management of the cytogenetics laboratory.
- To become familiar with regulatory issues such as qualification and certification requirements of personnel, and licensing requirements.
- To understand the role of CAP inspections and proficiency testing as they pertain to the cytogenetics laboratory.

Practice-Based Learning

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

COAGULATION

Rotation Description:

The Coagulation Rotation is oriented toward educating resident and fellow physicians in the diagnosis and management of bleeding and thrombotic disorders. Emphasis will be placed on understanding pathogenesis, diagnostic criteria, and differential diagnoses, which will promote the proper use of the laboratory in establishing diagnoses and managing therapies for these disorders. Training will be accomplished through daily (Monday through Friday) meetings of the coagulation Diagnostic Management Team (DMT), where patient cases and abnormal laboratory values will be discussed with attending physicians. Interpretive reports will be generated by the resident and attending physician, which will be entered into the patient record. Didactic sessions will be used to present key background material. The following goals and objectives refer specifically to the coagulation laboratory.

Rotation Directors: David Gailani, MD and Jeremy Jacobs, MD, MHS

Residents are expected to gain the following competencies:

Patient Care

- To develop an understanding of the importance of the patient' clinical and family history and physical examination in evaluating bleeding and thrombotic disorders.
- To understand the principles and techniques for appropriate blood collection for coagulation tests.
- To develop an understanding of the use of the prothrombin time (PT), activated partial thromboplastin time (PTT), and screening tests for platelet function (PFA-100) in initial evaluation of bleeding disorders.
- To develop an understanding of the use of coagulation parameters as guides for transfusion therapy.
- To understand the role of the coagulation laboratory in the evaluation and treatment of patients with congenital bleeding disorders such as Hemophilia and von Willebrand disease.
- To understand the role of the laboratory in identifying and treating specific and non-specific antibody inhibitors of coagulation.
- To understand the role of coagulation testing in monitoring therapy with anticoagulants and antiplatelet agents.
- To understand the clinical spectrum and laboratory evaluation of patients suspected of having heparin-induced thrombocytopenia, and the role of the laboratory in monitoring therapy for this disorder.
- To understand the evaluation of acute consumptive coagulopathies in critically ill patients, and chronic consumptive coagulopathies in patients with cancer or vascular disorders.
- To be able to distinguish the laboratory abnormalities caused by consumptive coagulopathy from liver disease and vitamin K deficiency.
- To understand the indications for evaluations of hypercoagulable states and thrombotic disorders.
- To understand the indications for, and interpretation of, platelet aggregation studies.
- To understand the role of the coagulation laboratory in evaluating thrombocytopenia.
- To understand the role of the laboratory, and the role of point-of-care coagulation testing, in managing patients in the operating rooms and cardiac catheterization suites.

Medical Knowledge

- To develop an understanding of the physiology of the plasma and platelet components of hemostasis, and how these components interact with blood vessels.
- To understand the natural differences in hemostatic systems at different ages and during pregnancy.
- To be able to generate a differential diagnosis for the cause of a bleeding disorder, based on clinical history and coagulation laboratory screening tests.
- To be able to appropriately order special coagulation tests based on patient history and screening test results.
- To understand the processes that regulate normal coagulation, the pathophysiology of thrombosis, and genetic factors that predispose to thrombosis.
- To be familiar with the common causes of consumptive coagulopathies and their diagnosis.
- To understand the principles on which plasma coagulation analyzers and platelet aggregometers operate.

COAGULATION

- To understand the effects of blood products and medications on coagulation tests.
- To understand the differential diagnosis and pathophysiology of thrombocytopenia.

Interpersonal and Communication Skills

- To serve as a liaison between the coagulation laboratory staff and clinicians.
- To serve as a ”first call” consultant (with attending physician backup) for clinicians who need immediate evaluation and analysis of a bleeding or thrombotic disorder.
- To serve as a first call consultant to medical technologists in the coagulation laboratory who require guidance on testing issues, requests, and/or interpretation.
- To communicate clearly with clinical colleagues to obtain clinical information for case evaluation.
- To communicate effectively with laboratory staff to facilitate proper patient evaluation.
- To communicate diagnostic interpretations clearly to clinicians, either verbally and/or by written reports.

Professionalism

- To interact in a professional, helpful, and respectful manner with clinicians, other house staff, and technical and administrative staff.
- To notify clinicians of abnormal results in a timely and accurate manner.
- To prepare written reports in an accurate and timely fashion.

Systems-Based Practice

- To understand principles of QA (quality assurance) and QC (quality control) in the coagulation laboratory.
- To participate in interpretation of results for CAP (College of American Pathologists) proficiency testing.
- To learn safety issues and regulations relevant to the coagulation laboratory.
- To understand CAP and CLIA guidelines and requirements for the coagulation laboratory.
- To understand LIS (laboratory information systems) issues relevant to the coagulation laboratory.
- To understand how normal ranges are established in the coagulation laboratory.

Practice-Based Learning

- To provide interpretative reports of coagulation assay results based on the patient history and recent clinical course.
- To use case-based learning as a tool for additional insight into the basis of blood-related diseases.
- To locate, appraise, and assimilate pertinent evidence from scientific studies.
- To demonstrate effective problem-solving skills in the diagnosis of blood-related disease.

Situations in which even an experienced resident must call an attending:

- When any test is requested outside of the standard testing schedule (e.g. urgent factor activities overnight, antiphospholipid antibody testing)
- When a clinician requests help with complex interpretation of testing urgently
- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When a possible specimen loss or misidentification has occurred.

CYTOPATHOLOGY (VUMC)

Rotation Description:

The purpose of the Cytopathology Module is to educate the pathology resident in all aspects of cytology. The goal is to develop the skills necessary to make accurate cytologic diagnoses that allow for treatment of disease; including benign, malignant and infectious processes. Residents also gain competency in the performance and interpretation of fine needle aspiration biopsies.

Rotation Director: Kim A. Ely, MD

Residents are expected to gain the following competencies:

Patient Care

- Develop basic proficiency in fine needle aspiration (FNA) techniques, under the supervision of attending faculty.
- Understand cytopreparatory techniques, types of preparations and their usage and indications.
- Understand ways in which cytologic diagnoses are applied to therapeutic decision-making by the clinical staff.
- Serve as a first-line consultant relaying cytologic diagnoses for the clinical staff.

Medical Knowledge

- Achieve basic competency in recognizing commonly observed lesions in gynecologic cytology, body fluid, and FNA specimens.
- Understand and be able to apply the systems in current usage for classifying and reporting cytologic findings.
- Learn the appropriate application of ancillary techniques such as immunohistochemistry and flow cytometry, to cytopathologic specimens.
- Understand basic concepts of disease and correlation with morphology.
- Develop an investigatory and analytic thinking approach to cytopathologic diagnoses.

Interpersonal and Communication Skill

- Develop proficiency in presentation of cytopathology findings to cytotechnologists, pathologists, medical students and clinicians.
- Use effective writing skills and appropriate terminology to generate the cytopathology report.
- Communicate effectively and in a reassuring manner with patients regarding indications and performance of fine needle aspiration.

Professionalism

- Demonstrate respect, compassion and integrity in the performance of fine needle aspiration procedures.
- Complete written reports in timely fashion.
- Work effectively as a team with cytotechnologists and other technical and support staff, and treat technical and administrative staff with respect.

Systems-Based Practice

- Gain familiarity with principles of screening.
- Understand principles and specific systems of QA and QC in the cytopathology laboratory.
- Understand regulatory issues governing microscopic screenings, QA, and QC.
- Understand the role of cytopathology in population screening and its impact on natural history of disease.

Practice-Based Learning

- Use case-based learning as a tool for additional insight into cytologic diagnoses.
- Locate, appraise, and assimilate pertinent evidence from scientific studies.
- Gain an understanding of newer technologies available for cytologic diagnoses.

CYTOPATHOLOGY (VUMC)

- Demonstrate effective problem solving skills, using a wide variety of information and resources.

Situations in which even an experienced resident must call an attending:

- After an FNA has been performed by the resident (may also notify fellow as the residents cannot sign out preliminary diagnoses).
- When the resident has decided that an FNA is not indicated. (may also notify fellow).
- Immediately when there has been any complication during a fine needle aspiration procedure.
- Before ordering immunostains, special stains, molecular genetic testing or the specimen needs to be triaged for flow cytometry.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When a possible specimen loss or misidentification has occurred.

DERMATOPATHOLOGY (100 OAKS)

Rotation Description:

The Dermatopathology rotation is offered in collaboration with the Department of Dermatology on the Vanderbilt One Hundred Oaks campus. Residents spend a minimum of one month learning histopathologic diagnosis of inflammatory and neoplastic skin diseases, supplemented when possible by seeing skin diseases in the adjoining Dermatology Clinic.

Rotation Director: Alan S. Boyd, MD

Residents are expected to gain the following competencies:

Patient Care

- Interpret common tumors and inflammatory conditions presenting in the skin
- Interpret hair shaft abnormalities
- Interpret indirect immunofluorescence studies (antigenic mapping) to diagnose and subclassify patients with inherited epidermolysis bullosa.
- Demonstrate familiarity with typical immunofluorescence patterns associated with various skin conditions
- Know appropriate routine and immunohistochemical stains for a given biopsy
- Demonstrate knowledge of the features of routine and immunohistochemical stains available for skin pathology specimens
- Interpret potassium hydroxide, Tzanck and oil treated skin scrapings

Medical Knowledge

- Demonstrate understanding of normative classification of inflammatory and neoplastic skin diseases, and algorithms used for diagnosis.
- Demonstrate understanding of clinical-microscopic correlations of inflammatory and neoplastic skin lesions.
- Demonstrate understanding of classification of hair shaft abnormalities.
- Know autoimmune dermatological diseases for which results of direct and indirect immunofluorescence may be diagnostically helpful, and in which diseases one or both of these diagnostic tests is mandatory.

Interpersonal and Communication Skill

- Render appropriate microscopic differential diagnoses for skin lesions.
- Gather and communicate essential clinical information to assist diagnostic interpretation.
- Compose accurate and succinct diagnostic reports.

Professionalism

- Be prompt and prepared for all teaching activities.
- Demonstrate respect for patients, physicians and staff at all times.
- Demonstrate appropriate understanding of one's own limitations.
- Know common medico-legal ramifications of cutaneous pathology diagnoses.

Systems-Based Practice

- Demonstrate understanding of specimen preparation and interpretation costs to provide cost-effective service.
- Understand when and how to obtain appropriate outside consultations for given specimens

Practice-Based Learning

- Attend microscopic diagnostic sessions and clinic visits with a spirit of inquiry.
- Participate actively in microscopic diagnostic sessions and clinic visits to find new learning topics.
- Use readings and teaching sets to expand and reinforce learning experiences gained during clinical service responsibilities.

FORENSICS (MEO)

Rotation Description:

The overall objective of the rotation at the Medical Examiner's office is to understand the duties and responsibilities of the medical examiner to the community and legal system and prepare to perform those duties when called upon to do so. One month of required rotation is usually undertaken, during which time residences prosect and review autopsies under the supervision of the medical examiner's staff, learn methods and procedures for trace evidence, forensic toxicology, and forensic molecular diagnostics, and if possible interact with law enforcement and judicial authorities by participating in scene investigations and witnessing court activities such as depositions and in-court testimony.

Rotation Director: Miguel Laboy, MD

Residents are expected to gain the following competencies:

Patient Care

- Demonstrate uncompromising respect for human remains and foster this attitude among other personnel.
- Demonstrate suitable diagnostic skills using both autopsy and microscopic techniques from a variety of case types.
- Complete assigned autopsy prosection case work in a timely fashion.

Medical Knowledge

- Read one of the following books in its entirety and to be familiar with the others: Medico-Legal Investigation of Death, Spitz and Fisher; Forensic Pathology, DiMaio and DiMaio.
- Understand the difference between and the reason for medicolegal autopsies and hospital autopsies.
- Know the differences between a cause of death, a mechanism of death, and a manner of death.
- Demonstrate the ability to complete a death certificate by understanding and applying immediate and underlying causes of death.
- Become familiar with means of identification of unknown victims.
- 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.
- Recognize postmortem artifacts such as insect bites, animal destruction, pressure artifacts, postmortem injury, Tardieu spots, Tache noire, and decomposition.
- Describe the disease entities which most commonly result in sudden natural death.
- List the typical items collected at autopsy as evidence. Describe chain of custody and its significance.
- Be able to identify the characteristics and identifying criteria of the following types of gunshot wounds: entrance and exit gunshot wounds, contact wounds, and near or distant range wounds.
- Become familiar with ammunition components used in handguns, rifles, and shotguns.
- Discuss the significance of examination of the clothing in forensic cases.
- Discuss suicide deaths in terms of the most common means, reasons and findings at the scene and at autopsy.
- Recognize the importance of taking x-rays in all penetrating injury cases, burn victims, and suspected victims of child abuse.
- Be able to describe the findings at autopsy of manual versus ligature strangulation.
- List findings in typical cases of drowning.
- List the basic mechanisms of asphyxia. Contrast and compare their typical findings at autopsy.
- Describe the distinguishing features of lacerations, abrasions, contusions, incised wounds, hesitation marks, and stab wounds.
- Be able to recognize defense wounds and discuss their significance, appearance, and location.
- Define the significance of patterned injuries.
- Describe possible findings in electrocution deaths and lightning deaths.
- Recognize epidural hematomas, subdural hematomas, and the most common causes of death.

FORENSICS (MEO)

- Understand coup and contrecoup injury of the brain.
- Recognize and understand the significance of the features of battered child syndrome.
- Demonstrate the ability to select appropriate toxicology specimens.
- Become familiar with the mechanisms of action and pathology of common poisons and drugs of abuse.

Interpersonal Communication

- Identify cases falling under the jurisdiction of a medical examiner.
- 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”.

Professionalism

- Demonstrate the ability to objectively evaluate anatomic evidence in the context of determining cause and manner of death despite the emotional components expected in unexpected or tragic deaths.
- Demonstrate uncompromising respect for human remains and foster this attitude among other personnel.

Systems-Based Practice

- To practice cost-effective medicine by learning appropriate choice of special tests for interpretation of renal biopsies.
- Understand Tennessee state law related to postmortem examination (Tennessee Code Annotated §38-7-101 to 119) and the various legal concepts.
- Understand the requirement to report certain deaths to a medical examiner as defined by TCA §38-7-108.
- Understand the procedures required for legal evidence to document chain of custody.
- Become familiar with the working relationships between the medical examiner and legal authorities, media representatives, and governmental agencies.

Practice-based Learning

- Learn proper techniques for photography, documentation, and collection of samples from clothing and the body surface for use as evidence.
- Learn proper procedures for retrieving projectiles at autopsy to preserve their value as ballistic evidence.
- Learn proper techniques used for sampling fluids and tissue for forensic toxicology.

HEMATOPATHOLOGY

Rotation Descriptions:

The Hematopathology Rotation is divided into three parts – two bone marrow rotations (BM1 & BM2) and one tissue rotation. The primary responsibility of the residents on these rotations is the work-up and report generation of four types of cases: (1) VUMC bone marrows (up to a maximum number per day), (2) VUMC lymph nodes and other tissues seen by the hematopathology service, (3) outside referral cases involving bone marrows, lymph nodes, or other tissues from patients that are to be seen at VUMC, and (4) outside consult bone marrow and tissue cases.

As this is the BM1 resident's first exposure to hematopathology, he/she will start the rotation focusing on bone marrows, learning the morphologic characteristics of normal and abnormal bone marrow and peripheral blood cells, the basic differential diagnoses of marrow-based diseases, and the appropriate ancillary tests to order for diagnosis, as well as gaining skill in performing bone marrow differential counts. The BM1 resident will also be responsible for preparing the daily bone marrow biopsy list in the DMT , which includes patient histories and preliminary ancillary testing expected. Initially (in the first week of the rotation), the BM1 resident will be limited to a maximum of 5 in-house marrow cases and no referral cases. As the BM1 resident becomes more experienced during the rotation, he/she will take on primary responsibility for additional in-house marrows, the flow cytometric analysis for these cases, and referral bone marrow cases.

The BM2 will share similar responsibilities to the BM1 resident with the addition of outside consult bone marrow cases and the subtraction of preparing the daily bone marrow list. He/she will divide the bone marrows with the BM1 resident and will participate in training the BM1 resident as needed, assisted by fellows and faculty. The BM2 resident will be responsible for dividing the case responsibilities on a daily basis according to the capacity of the BM1 resident, as determined by the attending pathologists on service and the rotation director. After the resident has reviewed the case and patient history he/she will go over the case at the microscope with the hematopathology attending; at that time, additional testing will be discussed and the draft report generated by the resident will be reviewed. For half (2 weeks) of the rotation, the BM2 resident will rotate on the VA hematopathology service, which involves a mixture of bone marrow and tissue samples. During this time, there will be a hematopathology fellow or another senior resident to work with the BM1 resident at VML.

All residents rotating in this service will have had at least one month of hematopathology experience. The responsibilities will be related to the evaluation of tissues, peripheral bloods, and body fluids. The in-house tissues (H cases and S/C/N cases) referred from other divisions (i.e. surgical pathology, neuropathology, and cytopathology) will be handled entirely by the trainee on this rotation. It is expected that the trainees will gather the pertinent clinicopathologic information and generate a differential diagnosis for each case. The trainees are also expected to compose an adequate preliminary report. In addition, the trainees will review and complete the flow cytometry report associated with each case (if available). The tissues sent for referral (orange folders) and consultation (blue folders) will also be handled by the trainees in the same way. Fluids and peripheral blood smears flagged in the hematology laboratory for pathology review will be part of the trainee education during this rotation. The trainees are initially expected to gather the slides for review during sign-out with the attending on service. The trainees are initially NOT required to preview the hematology slides or gather clinical histories. As the trainees gain experience and become more comfortable with the service, the attending on-service may decide to gradually give the trainees more autonomy in completing these cases. Peripheral blood flow cytometry review is also part of this service. Initially, this part of the service will be entirely managed by the attending on service. Again, as the trainees gain more experience, they may be expected to handle some of the cases independently, especially cases of-interest such as new leukemias/lymphomas.

The residents will also participate in the medical student education activities of the division, the hematopathology intra-divisional consensus conference, and the pediatric benign hematology conference. In addition, the residents are expected to go through study sets on peripheral blood smears, bone marrow, and lymph nodes and review these with the hematopathology attendings.

HEMATOPATHOLOGY

Rotation Directors: Elliott Denney, MD (BM1), Jonathan Douds, MD (BM2), and Nico Lopez-Hisijos, DO (Tissue)

Residents are expected to gain the following competencies:

Patient Care

- To understand the clinical indications for bone marrow and lymph node evaluation.
- To gain expertise in gathering essential, relevant, and accurate information about patients.
- To develop proficiency in making accurate diagnoses of hematolymphoid disorders, both reactive and neoplastic.
- To learn appropriate selection of diagnostic tests, including flow cytometry, immunohistochemistry, cytogenetics, and molecular diagnostics using the Standard Operating Protocols of the Hematopathology Diagnostic Management Team (DMT).
- To correlate the results of additional diagnostic tests with patient history and morphologic findings to generate a comprehensive diagnosis, and to understand the significance of these results in determining prognosis, directing therapy, and monitoring patient response to therapy.

Medical Knowledge

- To learn the morphologic characteristics of normal bone marrow, peripheral blood, lymph nodes, and other lymphoid tissues.
- To develop basic knowledge of the clinical, morphologic, immunophenotypic, and genetic features of the most common reactive and neoplastic hematolymphoid disorders.
- To understand the WHO and ICC classification of tumors of the hematopoietic and lymphoid tissues, and learn to apply the appropriate diagnostic criteria to individual cases.
- To become familiar with outcomes and prognoses of common hematolymphoid malignancies.
- To become proficient in using findings from appropriate peer-reviewed journals to support diagnoses.

Interpersonal and Communication Skills

- To communicate clearly with clinical colleagues to obtain clinical information in case evaluation.
- To effectively communicate diagnoses, and to clearly describe the features that support those diagnoses, both verbally and in written reports.
- To effectively communicate critical or unexpected findings to the clinicians and document these communications in an appropriate fashion.
- To effectively present cases at inter- and intra-divisional conferences, including presenting accurate clinical history, relevant morphologic and immunophenotypic findings, and any diagnostic or clinical questions about the case.
- To participate in the medical school teaching activities of the division by teaching medical students who are rotating on the hematopathology service.

Professionalism

- To recognize and be sensitive to the needs of patients and clinicians in making timely diagnoses in a cost-effective manner appropriate to the clinical circumstances of each case.
- To demonstrate responsiveness to the needs of patients that supersedes self-interest.
- To demonstrate principles of confidentiality when dealing with patient information.
- To work effectively and efficiently with medical technologists and administrative staff in the hematology lab, flow cytometry, and hematopathology to maximize productivity and maintain the quality of the work environment.
- To work with their co-resident or fellow to apportion individual case loads appropriate for their relative stages of training.
- To complete written reports in a timely fashion.

HEMATOPATHOLOGY

Systems-Based Practice

- To learn the process of case evaluation and work flow in hematopathology, from obtaining specimens, accessioning and processing samples, ordering of appropriate additional diagnostic tests, and sign-out and delivery of patient reports.
- To utilize the DMT system to understand the proper cost-effective use of additional cytogenetic and molecular testing for diagnostic, prognostic, and therapeutic purposes.
- To use awareness of laboratory work flow to optimize efficiency and turn-around time through working with laboratory, operations, and administrative staff.

Practice-Based Learning

- To use case-based learning as a tool for additional insight into the basis of disease.
- To locate, appraise and assimilate pertinent evidence from peer-reviewed scientific studies.
- To demonstrate effective problem solving skills in diagnostic hematopathology, correlating results from flow cytometry, molecular diagnostics, immunohistochemistry and cytogenetics. Review of the comprehensive reports written by the hematopathology attending, in which all of the ancillary lab results are correlated with the bone marrow results, will be utilized as a method to gain understanding of the significance of the tests ordered.

Situations in which even an experienced resident must call an attending pathologist:

- When the resident/fellow is called to look at a peripheral blood smear for blasts (>5%) on a new patient and he/she is unsure if they are blasts or if there is a possibility that the patient has acute promyelocytic leukemia.
- Before the clinical team starts preparations for therapy for a new diagnosis of leukemia, lymphoma, or metastatic tumor in a bone marrow.
- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When a possible specimen loss or misidentification has occurred.

SURGICAL PATHOLOGY VUH: INTRODUCTION TO SURGICAL PATHOLOGY

Rotation Directors: Melissa Hogan, MD and Leonel (Leo) Maldonado, MD

Rotation Description:

This four-week rotation is designed to serve as the initial experience for pathology residents in surgical pathology. It represents a bridge between medical school and residency. The emphasis is on the techniques of gross examination, performance of ancillary testing, appropriate sectioning and handling of tissue samples for intraoperative frozen and permanent histological assessment, as well as basic surgical pathology sign-out and reporting.

Following appropriate gross room orientation, safety training, and histology overview, the first-year resident will be assigned to grossing surgical specimens and biopsies under proper supervision for 3 weeks (Dedicated Teaching Pathologist Assistant or Senior Pathology Resident). On the third grossing week, the first-year resident will choose 2 surgical specimens they grossed to perform a histologic evaluation (preview of H&E slides) and correlate the histologic and grossing findings. Subsequently, the resident will join the Attending Pathologist to sign out each case. In the fourth week, the rotating resident will perform intraoperative consultations, in the form of frozen sections and/or intraoperative gross examination, under proper supervision by a Dedicated Teaching PA. The responsibilities for each week are as follows:

FROZEN SECTION OBJECTIVES:

- Perform intraoperative consultations (frozen sections, intraoperative consultations, imaging studies) alongside the assigned Pathologist Assistant.
- Review frozen section slides with the on-call/frozen section surgical pathology fellow/resident and/or attending, as well as participate in FS sign-out and OR call back.
- When not performing FS consultations, the resident is expected to help prepping and grossing specimens. They are not expected to preview cases.

GROSSING/SIGN-OUT OBJECTIVES:

- Grossing: The resident is expected to be exposed to a wide variety of surgical pathology specimens across various services to learn the most appropriate grossing techniques for each subspecialty. The resident will be supervised by the assigned Dedicated Teaching Pathologist Assistant for that week.
- In the third week of the rotation the resident will follow at least two surgical complex cases from grossing and previewing until final sign-out. This exercise will include:
    - preparing a grossing sheet (if applicable) with the Dedicated Teaching PA,
    - grossing the specimen,
    - previewing and preparing the case for final sign-out.
- Residents are NOT expected to sit in on sign-out of cases they did not gross, but rather should plan to spend the remaining time in the gross room grossing specimens. This latter experience is expected to be maximized during this rotation, including a broad swath of surgical pathology specimens

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in performance of frozen section diagnoses.
- To develop proficiency in description and handling of gross surgical pathology specimens.
- To understand indications and use for commonly encountered fixatives.
- To understand basic procedures of tissue processing, embedding, sectioning, and staining.
- To develop proficiency in reviewing the electronic medical record for, and acquiring appropriate information about, patient's clinical histories.
- To develop understanding of, and basic proficiency in, surgical pathology sign-out workflow including preview and preparation of cases for sign-out.

SURGICAL PATHOLOGY VUH: INTRODUCTION TO SURGICAL PATHOLOGY

Medical Knowledge

- To understand basic concepts of disease and correlation with morphology.
- To develop an investigatory and analytic thinking approach to surgical pathology diagnoses.
- To understand the role of intraoperative consultations in clinical decision-making.
- To correlate surgical pathology findings with clinical presentation and disease pathogenesis.

Interpersonal and Communication Skills

- To be able to communicate effectively with all other team members in surgical pathology, including other residents, pathologist assistants, pathology technicians/technologists, clinical fellows, attending pathologists, lab service representatives and histotechnologists.
- To learn to communicate effectively with surgeons in the setting of intraoperative consultations and frozen section diagnoses.
- To learn to prepare accurate, effective, concise written reports.

Professionalism

- To demonstrate respect, compassion, and integrity in encounters with patients, clinicians, faculty, other residents, and staff in the supervised practice of surgical pathology.
- To work effectively as a team with technical and administrative staff and treat all with respect.

Systems-Based Practice

- To recognize the impact of good teamwork and effective communication on quality and patient safety
- To understand safety issues in surgical pathology and the role of OSHA in setting workplace safety standards.
- To understand the role of regulatory agencies and professional organizations such as CAP in the accreditation of hospital laboratories.
- To understand the importance of accurate billing and coding in surgical pathology, and the importance of accuracy in the surgical pathology report as it impacts on billing.
- To understand the use of laboratory informatics systems in anatomic pathology, for ordering, reporting, quality assurance, and billing purposes.
- To learn current tumor staging and grading systems and understand the role of these in data collection for tumor registries and national cancer databases.

Practice-Based Learning

- To use case-based learning as a tool for additional insight into disease pathogenesis.
- To demonstrate effective problem-solving skills in surgical pathology, using a wide variety of information resources.

Situations in which even an experienced resident must call an attending:

- When there is a finding that cannot be adequately represented photographically or histologically.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative or any party who is not secured by HIPAA requesting information.
- When there is contact by an unsettled clinician due to a clinical case.
- When findings are discovered that require significant deviation from standard dissection protocols.
- Before EM is ordered.
- When a possible specimen loss or misidentification has occurred.
- When a patient or family member contacts the lab/resident directly.
- When dissection specimen reveals a finding with urgent clinical implications or which differs substantially from the original clinical indication for the operation.
- Any time the resident is unsure how to proceed, and no one in the vicinity has the skills or expertise to assist.

MICROBIOLOGY

Rotation Description:

The purpose of the Microbiology Module is to educate the pathology resident and Clinical Microbiology fellow in the role of the microbiology/virology/molecular infectious disease laboratories in the diagnosis, treatment, and prevention of infectious diseases.

Rotation Director: David Gaston, MD, PhD

Residents are expected to gain the following competencies:

Patient Care

Demonstrate ability to:

- Utilize clinical microbiology skills for the diagnosis/treatment of infectious diseases.
- Interpret results from clinical microbiology testing.
- Interpret antimicrobial susceptibility/resistance results.
- Communicate clinical microbiology results/issues clearly to others.
- Evaluate options for laboratory testing and recommend most appropriate approach based on clinical situation and suspected pathogens.
- Take appropriate anticipatory actions (including direct consultative communications with clinicians) to maximize benefit of microbiology testing to timely interventions.

Medical Knowledge

Demonstrate knowledge of:

- Pathogenesis and etiologic agents of important infectious diseases.
- Methods used to identify these pathogens in clinical specimens.
- Safety issues related to the clinical laboratories.
- Epidemiology/infection control issues related to the clinical laboratories.
- Appropriate choice of antibiotics in the clinical setting.
- Specialized and referral tests for infectious diseases.

Interpersonal and Communication Skills

Demonstrate ability to:

- Interact with laboratory personnel and others.
- Participate in formal and informal medical education.

Professionalism

Demonstrate ability to:

- Provide helpful, timely consultations.
- Establish effective and respectful team-oriented interactions with others.
- Take leadership role in daily clinical microbiology rounds and DMT rounds.

Systems-Based Practice

Demonstrate knowledge of:

- Role of clinical microbiology in the delivery of health care.
- Laboratory management practices.
- Mechanisms and role of quality assurance in the clinical laboratory.
- Organization, structure, and operation of laboratory outreach services.
- Informatics and laboratory information systems.
- Regulatory issues.

MICROBIOLOGY

Practice-Based Learning

Demonstrate ability to use:

- Effective problem-solving skills in clinical microbiology.
- Medical literature for self-learning and to teach others.
- Review-based group-discussion learning for insight into the pathogenesis/diagnosis of infectious diseases.
- DMT rounds for self-learning and to provide clinical microbiology interpretive notes as appropriate.

MOLECULAR DIAGNOSTICS

Rotation Description:

The goal of this rotation in the Molecular Diagnostics Lab (MDL) is to expose the resident to the field of molecular pathology with a primary emphasis on understanding molecular testing methodologies and the role of molecular testing in the diagnosis and management of somatic and inherited diseases. Interactive didactic sessions on a variety of topics related to molecular diagnostics will be held daily by molecular fellows and/or faculty on service in MDL. The resident will actively participate in the interpretation of patient results and collect case histories for daily sign out sessions. One week of the MDL rotation will focus on gaining a basic understanding of next generation sequencing (NGS) and the interpretation of myeloid NGS results. Residents who return for elective rotations in MDL beyond the minimum requirement will be given an opportunity to customize the rotation experience to accommodate individualized learning objectives. If interested, residents are encouraged (but not required) to prepare a PowerPoint presentation on a molecular diagnostics topic of interest during the MDL rotation that may be used as the basis for a presentation at Laboratory Medicine Rounds. Through these activities, the resident will gain understanding of the integral role of molecular pathology in the care and management of patients.

Rotation Director: Laura Lee, MD, PhD

Residents are expected to gain the following competencies:

Patient Care

- To learn to integrate molecular diagnostics into patient care.
- To learn to correlate morphologic and clinical findings with DNA results.
- To understand ethical and clinical implications of genetic testing.

Medical Knowledge

- To gain understanding of laboratory techniques commonly used in molecular diagnostics, including capillary electrophoresis, TaqMan assays, quantitative and qualitative PCR, Sanger and Next Generation Sequencing.
- To learn the specificity, sensitivity, limitations, and interpretations of each assay.
- To gain further understanding of the pathogenesis of certain inherited and somatic diseases.
- To understand the role of pharmacogenetics in precision medicine.
- To develop an analytic approach to molecular diagnostics.

Interpersonal and Communication Skills

- To develop effective communication skills through interactions with other team members.

Professionalism

- To demonstrate respect and compassion for patients.
- To review patient results in a timely fashion.
- To work effectively as a team player and treat fellow colleagues, technical, and administrative staff with respect.

Systems-Based Practice

- To understand the importance of proficiency testing in the Molecular Diagnostics Lab and to understand how it is performed.
- To critically evaluate the need for genetic testing.
- To understand quality control and quality assurance issues in molecular diagnostics.

Practice-Based Learning

- To use case-based learning as a tool for better understanding the molecular basis of 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.

MOLECULAR DIAGNOSTICS

Situations in which even an experienced resident must call an attending:

- When there is contact by an attorney, a relative, or any party not secured by HIPAA who is requesting information.
- When there is contact by an upset clinician or pathologist.
- When a possible specimen misidentification or swap is suspected.
- When a preliminary or final diagnosis is requested.
- When unusual results are observed and the resident is unsure how to troubleshoot the situation to avoid delay in repeat testing.
- When there is a conflict involving the resident and another laboratory professional.
- When the resident is unsure how to process or store a unique laboratory specimen.
- When there is a laboratory error or instrument failure involving unique patient specimens.

MOLECULAR INFECTIOUS DISEASE

Rotation Description:

The purpose of the elective Molecular Infectious Diseases Rotation is to educate the pathology resident in the role of the Molecular Infectious Diseases Laboratory in the diagnosis, treatment, and prevention of infectious diseases through a one-month rotation. Residents will gain familiarity with the design and interpretation of nucleic acid-based testing for infectious organisms using body fluids and fresh and processed tissues.

Rotation Director: David Gaston, MD, PhD

Residents are expected to gain the following competencies:

Patient Care

Demonstrate ability to:

- Utilize molecular microbiology skills for the diagnosis and treatment of infectious diseases.
- Interpret results from molecular microbiology testing.
- Effectively communicate molecular microbiology results and issues to others.
- Synthesize laboratory and clinical information to facilitate timely clinical decision-making and optimize molecular test utilization.

Medical Knowledge

Demonstrate knowledge of:

- Pathogenesis of important infectious diseases at the molecular level.
- Test principles and methods used to molecularly identify microbial pathogens in clinical specimens.
- Safety issues related to the clinical laboratories.
- Epidemiology and infection control considerations related to the clinical laboratories.
- Specialized and referral molecular testing for infectious diseases.

Interpersonal and Communication Skills

Demonstrate ability to:

- Interact productively with laboratory staff and non-laboratory personnel.
- Participate in formal and informal medical education of trainees at all levels.

Professionalism

Demonstrate ability to:

- Provide helpful, timely consultations, including participation on the Microbiology Diagnostic Management Team.
- Establish effective and respectful team-oriented interactions with others.
- Assume a leadership role in daily clinical microbiology rounds.
- Seek resolution of general or collective problems with an attitude of personal responsibility.

Systems-Based Practice

Demonstrate knowledge of:

- Role of molecular microbiology in the delivery of health care.
- Laboratory management practices.
- Mechanisms and role of quality assurance in the clinical laboratory.
- Organization, structure, and operation of laboratory outreach services.
- Informatics and laboratory information systems.
- Regulatory issues.
- Laboratory testing in the effectiveness and cost of health care.

MOLECULAR INFECTIOUS DISEASE

Practice-Based Learning

Demonstrate ability to use:

- Effective problem solving skills in clinical and molecular microbiology.
- Medical literature for self-learning and to teach others at the molecular level.
- Case-based learning for insight into the pathogenesis, diagnosis, and therapy of infectious diseases.
- Cognitive skills in molecular microbiology as tools to understand and improve technical aspects of microorganism detection and identification.

NEUROPATHOLOGY

Rotation Description:

Resident education on the Neuropathology rotation is multifaceted, consisting of full participation on the surgical neuropathology and autopsy neuropathology services, self-instruction with study aids, in-depth study of selected topics, attendance at seminars and working conferences, and didactic sessions.

Rotation Director: Bret C. Mobley, MD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in interpretation of frozen and permanent sections of lesions of the nervous system.
- To learn to correlate clinical, radiographic, and morphologic findings to arrive at a diagnosis in diseases of the nervous system.
- To understand the application of immunohistochemical and histochemical stains for the evaluation of neurologic and skeletal muscle specimens.

Medical Knowledge

- To become familiar with pathogenesis and morphology of diseases of the nervous system and skeletal muscle.
- To understand natural history and prognosis of diseases of the nervous system and skeletal muscle.
- To understand the role of muscle and peripheral nerve biopsies in the evaluation of neuromuscular disorders.

Interpersonal and Communication Skills

- To participate actively in weekly divisional conferences.
- To use effective verbal communication skills in the frozen section diagnosis setting.
- To prepare effective written neuropathology reports on surgical and autopsy cases.

Professionalism

- To complete written reports in a timely fashion.
- To work effectively as a team with technical and administrative staff, and to treat technical and administrative staff with respect.
- To interact in a professional, helpful manner with clinicians in the performance of frozen sections, surgical neuropathology cases, and autopsy neuropathology cases.

Systems-Based Practice

- To develop an understanding of the role of quality assurance in diagnostic neuropathology.
- To practice cost-effective medicine in the selection of special studies as applied to neuropathology cases.
- To understand the role of neuropathology in the multidisciplinary diagnosis of a patient with a neurological disorder.

Practice-Based Learning

- 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 information resources.

NEUROPATHOLOGY

Situations in which even an experienced resident must call an attending:

- When notified of any intraoperative consultations.
- Before undertaking any autopsy or brain biopsy in which prion disease is in the differential diagnosis.
- Prior to grossing muscle biopsy specimens, hippocampectomies, globes, and any unusual or uncommon specimen.
- When electron microscopy, molecular genetics, immunohistochemistry or special stains are ordered.
- When there is contact by an upset clinician.
- When there is contact by an attorney, a relative or any party not secured by HIPAA requesting information.
- When a possible specimen loss or misidentification has occurred.

NEXT-GENERATION SEQUENCING (GERMLINE TESTING)

Rotation Description:

In this one-month elective rotation, residents will gain skills in the interpretation of germline next-generation sequencing (NGS) data for the diagnosis of both rare and some common genetic disorders. The VUMC Clinical Genomics Lab offers clinical whole exome sequencing (WES) and exome-based NGS panel testing, including panels designed for the diagnosis of inherited cardiac and neurologic conditions. Residents will actively participate in the interpretation of germline NGS results and preparation of detailed clinical NGS reports. The core activities of this rotation can be performed remotely.

Rotation Director: Lijun Wang, MD, PhD

Residents are expected to gain the following competencies:

Patient Care

- To learn to incorporate germline clinical NGS testing into patient care.
- To learn to correlate clinical and pathologic findings with genetics results.
- To understand ethical and clinical implications of germline testing.

Medical Knowledge

- To understand the laboratory techniques used for NGS on the Illumina platform.
- To understand the importance of levels of evidence for the interpretation of NGS results.
- To gain experience with the application of ACMG criteria for the classification of gene variants.
- To understand the importance of computer processing of NGS data.

Interpersonal and Communication Skills

- To prepare detailed, accurate, and clearly written genetics reports using the lab analyzer portal.
- To actively participate in Clinical Genomics Lab group huddles.
- To present at least two interesting cases at biweekly and/or monthly conferences attended by clinical colleagues.

Professionalism

- To demonstrate respect and compassion for patients and other team members.
- To review patient results and prepare clinical genetics reports in a timely fashion.
- To work effectively as a member of a diverse team that includes medical directors, laboratory geneticists, genetic counselors, variant scientists, clinical geneticists, medical technologists, and business/finance managers.

Systems-Based Practice

- To maintain clear communication about cases with the clinical team as appropriate.
- To gain familiarity with issues surrounding insurance pre-authorization for clinical germline genetics testing by attending at least two regularly held meetings with the finance team.

Practice-Based Learning

- To review and learn from NGS interesting case files.
- To become familiar with sources of valid and useful information for the assessment of NGS data.
- To learn how to investigate and interpret possible unexpected findings.

Situations in which even an experienced resident must call an attending:

- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.

NEXT-GENERATION SEQUENCING (GERMLINE TESTING)

- When a possible specimen loss or misidentification has occurred.
- When a preliminary or final diagnosis is requested.
- When unusual results are observed, and the resident is unsure how to troubleshoot the situation to avoid delays in repeat testing.
- When there may be a conflict involving the resident and another laboratory professional.
- When the resident is unsure how to process a unique laboratory specimen.
- When important data processing systems unexpectedly fail.

NGS Testing at VUMC:

- Whole Exome
- Epilepsy Panel
- Aortopathy Panel (connective tissue)
- Neuromuscular Panel
- Neuropathy Panel
- Arrhythmia Panel
- Cardiomyopathy Panel
- Comprehensive Cardiac Panel

PEDIATRIC PATHOLOGY

Rotation Description:

The Pediatric Pathology Rotation is a supervised one month rotation through Monroe Carell Jr. Children's Hospital at Vanderbilt. The rotation is structured to educate the resident in the proper handling, description, work-up and rendering of a correct final microscopic diagnosis for pediatric anatomic pathology specimens, while developing an analytical approach to pediatric pathologic diagnoses, and further develop proper interactions with surgeons and clinicians. These activities are intended to prepare the resident for a successful professional practice.

Rotation Director: Caitlin Hughes, MD

Residents are expected to gain the following competencies:

Patient Care

To develop proficiency in:

- Description and adequate handling of any pediatric gross surgical pathology specimen.
- Appropriate evaluation and selection of tissue samples for preparation of frozen sections of diagnostic quality.
- Adequate performance and accurate interpretation of frozen sections.
- Accurate histologic identification of any tissue obtained from a pediatric patient.
- Selecting and ordering special stains as indicated for each specimen.
- Rendering a differential diagnosis and formulating the correct diagnosis in pediatric surgical pathology cases.

Medical Knowledge

Demonstrate knowledge of:

- Common and classic pediatric disease pathogenesis.
- Correlate morphologic, histologic and pathologic findings with clinical presentation.
- Natural history and prognosis of pediatric diseases.
- Correlation of morphologic changes with genetic and/or molecular alterations in common pediatric disorders.

Interpersonal and Communication Skills

Demonstrate ability to:

- Develop proficiency in effective verbal communication skills in the frozen section diagnosis setting.
- Demonstrate effective presentation of pediatric pathology cases to pathologists, residents, surgeons and clinicians.
- Prepare clear, concise, and useful written pediatric pathology reports.
- Interact with laboratory personnel and others in a professional manner.
- Prepare accurate and well organized presentations at pediatric pathology conferences.

Professionalism

Demonstrate ability to:

- Complete written reports in a timely fashion.
- Work effectively as a team with technical, administrative staff.
- Treat colleagues, faculty, and all technical and administrative staff with respect.
- Interact in a professional, helpful manner with pathology and clinical faculty in the performance of frozen sections, and surgical pediatric pathology cases.
- Attend appointed conferences as expected.

Systems-Based Practice

Demonstrate knowledge of:

- Appropriate handling and sampling of gross specimens to reach a correct diagnosis.

PEDIATRIC PATHOLOGY

- The techniques involved in sample procurement for national studies such as Children's Oncology Group and special research studies of faculty.
- The practice of appropriate selection of special studies as applied to pediatric pathology cases.
- How to interact effectively with other clinical services to render and communicate diagnoses.
- How to appropriately support research colleagues involved in pediatric research protocols.

Practice-Based Learning

Demonstrate ability to use:

- Effective problem solving skills during the work-up of pediatric surgical cases in diagnostic pediatric pathology, using a wide variety of information resources including textbooks, electronic resources and peer reviewed medical literature.

Situations in which even an experienced resident must call an attending:

- When a pediatric frozen is anticipated and/or has arrived to the gross room.
- When a new pediatric tumor (solid or hematolymphoid) has arrived to the gross room.
- When a fetus (or fetal tissue) has arrived to the gross room without proper requisition forms.
- When notified about a pediatric autopsy from decedent affairs and/or autopsy team.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When a possible specimen loss or misidentification has occurred.

RENAL PATHOLOGY/ELECTRON MICROSCOPY

Rotation Description:

This rotation will enable the resident to become familiar with diagnostic criteria of medical and transplant renal biopsy conditions, and by self-study of a teaching set, learn basic abnormalities in non-renal entities diagnosed by electron microscopy. The resident will learn the diagnostic criteria and prognostic features of these entities by two major modes of study: (1) work-up of current cases received on the service and (2) study set cases. The rotation duration is 4 weeks. Resident responsibilities do not vary with year of training.

Rotation Director: Agnes B. Fogo, MD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in interpretation of medical and transplant renal biopsies, by applying light microscopy, electron microscopy, and immunofluorescence studies as indicated, and key diagnostic features of common nonrenal entities diagnosed by electron microscopy.
- To become familiar with the operation of an electron microscope.
- To learn interpretation of immunofluorescence studies as applied to renal, heart and skin biopsies.
- To understand tissue processing for electron microscopy and immunofluorescence.

Medical Knowledge

- To understand the clinical features and pathogenesis of commonly encountered renal biopsy diagnoses.
- To understand the clinical features and pathogenesis of allograft rejection.
- To become familiar with ultrastructural features of renal diseases and selected nonrenal diseases commonly diagnosed using electron microscopy.

Interpersonal Communication

- To participate effectively in renal transplant and renal native biopsy conferences.
- To present morphologic findings effectively in a multidisciplinary conference setting.
- To prepare effective, comprehensive renal biopsy reports.

Professionalism

- To exhibit sensitivity, compassion, and professionalism towards patients while observing the renal biopsy procedure.
- To complete written reports in a timely fashion.
- To work effectively as a team with technical and administrative staff, and treat technical and administrative staff with respect.
- To interact in a professional, helpful manner with clinicians in relaying biopsy results in a timely manner.

Systems-Based Practice

- To practice cost-effective medicine by learning appropriate choice of special tests for interpretation of renal biopsies.

Practice-based Learning

- 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 renal pathology and electron microscopy, using a wide variety of information resources.

RENAL PATHOLOGY/ELECTRON MICROSCOPY

Situations in which even an experienced resident must call an attending:

- When notified of any incoming frozen section assessment request.
- When a clinician requests stat after hours processing.
- When a preliminary or final diagnosis is requested by any clinician.

SURGICAL PATHOLOGY VANDERBILT UNIVERSITY HOSPITAL

Rotation Description:

Under faculty supervision, the resident is responsible for ALL aspects of his/her assigned Surgical Pathology cases, including but not limited to review of the medical record, communication with clinical staff, gross examination, submission of tissue samples for histologic assessment, performance of appropriate ancillary testing, , independent evaluation of the histologic slides prior to meeting with responsible Faculty, ordering and interpretation of ancillary testing, composition of the full report with formulation of final diagnoses, and completion of coding and quality assurance data if needed. In addition, all residents are expected to participate in the daily huddles/briefing sessions in surgical pathology. Graduated responsibility applies particularly to the following:

1. Grossing skills: Primary teachers here include AP fellows covering the "FS/Gross Room" service; Pathologist Assistants; more senior residents; and faculty. The complexity of assigned cases will increase as the resident gains experience. Residents review each day's OR schedule for cases to gross and choose with the guidance of the Pathologist Assistants. The degree of independence in grossing a particular case is determined by general experience and whether the resident has previously grossed a particular type of resection. Direct supervision may be provided by the AP fellow, a pathologists assistant or more experienced resident, or a faculty member. Schedules are constructed such that the team will include at least one upper level experienced resident. The Faculty have primary responsibility for evaluating resident progress and ensuring appropriate progressive independence and greater responsibility.
2. Ordering of ancillary studies: As a resident gains experience with a particular type of case, it is expected that ancillary tests will be increasingly appropriately recommended at signout and then ordered appropriately.
3. Recognition and solving of histology issues: In reviewing slides, a more experienced resident will be able to recognize the need for recuts, reorientation, or reprocessing, and recommend a solution to the attending before or during signout. Similarly, with increasing experience, a resident will recognize the need for additional sections from the gross specimen, and will obtain those sections immediately upon reviewing slides for a case.
4. Communication with clinical colleagues: While entry-level residents typically require detailed faculty supervision in order to gain a clear and accurate understanding of what facts need to be communicated and how best to communicate them, more experienced residents will routinely communicate with clinicians independently.
5. Quality improvement and lab management: As residents gain experience in surgical pathology, greater involvement in quality improvement and increasing understanding of lab management in anatomic pathology is expected. This would entail active participation in the daily huddle and, for more experience residents, in quality improvement team meetings, where potential improvement projects could be presented, discussed and evaluated after implementation. Residents should also become increasingly familiar with the different quality matrixes in surgical pathology, including how they are measured and how they are impacted by different factors.

Rotation Directors: Mitra Mehrad, MD (ENT/ENDO), Mitra Mehrad, MD (Thoracic), Mirna Podoll, MD (Gynecologic), Reena Singh, MD (BST), Deyali Chatterjee, MBBS (GIPL), Melinda E. Sanders, MD (Breast), Aida Valencia, MD (Genitourinary), Joyce Johnson, MD (Heart), Daniel Shepherd, MD (Frozen section), Aravindan Sriharan, MD (Skin)

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in the description and handling of gross surgical specimens.
- To understand indications for, and use of, commonly encountered fixatives.
- To understand basic procedures of tissue processing, embedding, sectioning, and staining.
- To develop proficiency in performance and interpretation of frozen section diagnoses.
- To develop proficiency in reviewing the electronic medical record for, and acquiring appropriate information about, patient's clinical histories.
- To learn appropriate application of ancillary techniques to surgical pathology specimens, including immunohistochemistry, molecular testing, and electron microscopy.

- To develop proficiency in recognition, description, and reporting of lesions encountered in surgical pathology practice.

Medical Knowledge

- To understand basic concepts of clinical disease and correlation with morphology.
- To develop an investigative and analytic approach to surgical pathology diagnosis.
- To understand the role of intra-operative consultations in operative decision-making.
- To understand the correlation of morphology with genetic alterations in commonly occurring tumors.
- To understand the scientific principles of immunohistochemistry.
- To correlate surgical pathology findings with clinical presentation and disease pathogenesis.

Interpersonal and Communication Skills

- To be able to communicate effectively with all other team members in surgical pathology, including other residents, pathologists assistants, pathology technicians/technologists, clinical fellows, attending pathologists, lab service representatives and histotechnicians/histotechnologists.
- To develop proficiency in presentation of surgical pathology findings to pathologists, medical students, and clinicians.
- To teach medical students who are serving a surgical pathology clerkship. In this role, the resident will develop the ability to explain the gross specimen and microscopic findings, clarify clinicopathologic issues, and direct students to appropriate faculty with specific expertise.
- To learn to communicate efficiently and accurately with surgeons in the setting of intra-operative consultation.
- To prepare accurate, effective, concise written reports.
- To learn to communicate efficiently and accurately with clinicians regarding the specimens on their patients and the preliminary and final diagnoses for these specimens.

Professionalism

- To demonstrate respect, compassion, and integrity in encounters with patients, clinicians, faculty, other residents, and staff in the supervised practice of surgical pathology.
- To complete written reports and all administrative details in a timely fashion.
- To work effectively as a team with technical and administrative staff, and treat all with respect.
- To be a good “lab citizen”: to maintain a commitment to accurate and timely archiving of glass slides and paperwork, and assisting and enabling the lab to effectively accomplish all aspects of its mission.
- To actively participate in all surgical pathology teaching conferences.

Systems-Based Practice

- To recognize the impact of good teamwork and effective communication on quality and patient safety
- To develop an understanding of the role of quality assurance in diagnostic surgical pathology by participating in quality assurance conferences and other activities.
- To practice cost-effective medicine in the selection of special studies.
- To understand safety issues in surgical pathology and the role of OSHA in setting work place safety standards.
- To understand the role of regulatory agencies and professional organizations such as CAP in the accreditation of hospital laboratories.
- To understand the importance of accurate billing and coding in surgical pathology, and the importance of accuracy in the surgical pathology report as it impacts billing.
- To understand the use of laboratory informatics systems in anatomic pathology for the purposes of ordering, reporting, quality assurance, and billing.

- To gain familiarity with current tumor staging and grading systems, and understand the role of these systems in patient care and in data collection for tumor registries and national cancer databases.

Practice-Based Learning

- To use case-based learning as a tool for gaining additional insight into disease pathogenesis.
- To locate, appraise, and assimilate pertinent evidence from scientific studies.
- To demonstrate effective problem solving skills in surgical pathology, using a wide variety of information resources.
- To become proficient at generating differential diagnoses, and applying them in deciding next steps in case management.

Situations in which even an experienced resident must call an attending:

- When there is a finding that cannot be adequately represented photographically or histologically.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative, or any party who is not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When findings are discovered that require significant deviation from standard dissection protocols.
- Before EM is ordered.
- When a possible specimen loss or misidentification has occurred.
- When a patient or family member contacts the lab/resident directly.
- When dissection specimen reveals a finding with urgent clinical implications or which differs substantially from the original clinical indication for the operation.
- Any time the resident is unsure how to proceed, and no one in the vicinity has the skills or expertise to assist.

CYTOPATHOLOGY VETERANS ADMISTRATION

Rotation Description:

One resident rotates through the VA Cytopathology section each month. As an important element of graduated responsibility in the Vanderbilt Pathology Residency program, the cytopathology resident will be responsible for all aspects of cytopathology cases, including the following:

- Participating in the collection of specimens through performing fine needle aspiration procedures on palpable lesions and attending rapid on-site evaluation (ROSE) for bronchoscopy and ultrasound guided procedures.
- Previewing cytopathology cases, including review of pertinent imaging and clinical information from the medical record.
- Recommending, ordering, and interpreting ancillary studies under the guidance of the attending pathologist
- Composing and dictating cytopathology reports
- Communicating with the clinical teams
- Collecting and recording quality assurance data

As a senior level rotation, the residents also are expected to provide guidance and assistance to the junior resident rotating on the VA surgical pathology rotation. This includes assisting in the gross room and helping with dictation of final reports, as well as taking half of the VA anatomic pathology call. All aspects of the rotation are performed under the direct supervision of the VA Anatomic Pathology Faculty. Since this experience builds upon prerequisite skills acquired on the Vanderbilt Cytopathology rotation and VA Surgical Pathology rotation, schedules are constructed such that residents have completed at least 1 month of Vanderbilt Cytopathology, including FNA training at Vanderbilt before this rotation, as well as at least 1 month of VA Surgical Pathology.

*The VA Surgical Pathology and VA Cytopathology residents will alternate holding the pager (615-317-3323) overnight and over weekends. Pages during these times are rare.

Rotation Director: Nevene Andraws, MD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in diagnosis and reporting of cytopathology specimens.
- To understand indications and use for commonly encountered fixatives and implications for ancillary testing such as prognostic hormone studies on cell block material.
- To learn appropriate application of ancillary techniques such as immunohistochemistry, flow cytometry, and molecular testing.
- Build upon proficiency in fine needle aspiration (FNA) techniques, under the supervision of attending faculty.
- To develop aptitude in performing rapid onsite evaluation (ROSE)

Medical Knowledge

- To develop an investigatory and analytic approach to cytopathology
- To understand the role of rapid on-site evaluation in clinical decision making and specimen adequacy
- To understand the molecular pathogenesis and common mutations for tumors of the bladder, lung, salivary gland, and thyroid
- To understand the role of HPV in cervical dysplasia and the evidence basis for HPV testing
- To correlate cytologic findings with clinical presentation, radiologic features, and disease pathogenesis.
- Build upon earlier competency in recognizing commonly observed lesions in gynecologic cytology, body fluid, and FNA specimens.

CYTOPATHOLOGY VETERANS ADMISTRATION

Interpersonal and Communication Skills

- To develop proficiency in presentation of cytopathology and surgical pathology findings to pathologists, medical students, and clinicians.
- To use standardized communication in conveying results to clinical colleagues
- To learn how to present pathologic findings at multidisciplinary tumor boards
- To teach medical students who rotate through the VA pathology department, providing opportunities for students to participate on the service as determined in consultation with attendings.

Professionalism

- To demonstrate respect, compassion, and integrity in encounters with patients, clinicians, other residents, and staff in the setting of surgical pathology and cytopathology.
- To submit accurate and complete written reports in a timely fashion.
- To work effectively as a team with technical and administrative staff and treat technical and administrative staff with respect, while learning from them and teaching them.

Systems-Based Practice

- To develop an understanding of the role of quality assurance in diagnostic surgical pathology and cytopathology by participating in all aspects of the Department's quality control and assurance activities, including, but not limited to, tracking cases to be presented at the bi-monthly Transfusion and Tissue Committee meetings and obtaining second review for a subset of new or difficult diagnoses.
- To practice cost-effective medicine in the selection of special studies
- To understand safety issues in laboratory medicine and the role of OSHA in setting workplace safety standards.
- To understand the role of regulatory agencies and professional organizations such as CAP and the Joint Commission in the accreditation of hospital laboratories.
- To understand the role of CLIA in setting standards for gynecologic cytology
- To understand the importance of accurate billing and coding in anatomic pathology, and the importance of accuracy in the pathology report as it impacts on billing.
- To understand the use of laboratory informatics systems in anatomic pathology, for reporting and quality assurance purposes.
- To learn special regulations, systems and practices that apply to the practice of diagnostic pathology within an agency of the United States Government.

Practice-Based Learning and improvement

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

Situations in which even an experienced resident must call an attending:

- For all fine needle aspirations and other preliminary diagnoses.
- For decisions regarding flow cytometry on lymphoid specimens
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a relative, or any party not secured by HIPAA requesting information.
- When there is contact by an upset clinician.
- When a possible specimen loss or misidentification has occurred.
- When a patient or family member contacts the lab/resident directly.

CYTOPATHOLOGY VETERANS ADMISTRATION

- When cytologic evaluation reveals a finding with urgent clinical implications, or which differs substantially from the original clinical indication for the operation.
- Any time the resident is unsure how to proceed, and no one in the vicinity has the skills or expertise to assist.

DERMATOPATHOLOGY VETERANS ADMISTRATION

Rotation Description:

Three residents rotate through the VA Anatomic Pathology laboratory each month. As an important element of graduated responsibility in the Vanderbilt program, the residents on the VA anatomic pathology services are responsible for ALL aspects their individual cases. All aspects of the rotation are performed under the direct supervision of the VA Anatomic Pathology Faculty.

One resident will rotate through the dermatopathology service each month. The rotation will include all surgical cases related to skin, including skin biopsies, excisions, and re-excisions. The resident will take ownership of individual cases with responsibilities including, but not limited to:

- Review of the medical record
- Gross examination and submission of tissue for histologic assessment
- Independent evaluation of the histologic slides prior to meeting with the responsible faculty
- Recommending, ordering and interpretation of appropriate ancillary testing
- Composition of the full report, including dictation, and formulation of the final diagnoses
- Preparing cases to show for expert dermatopathology review
- Completion of coding and quality assurance data
- Communication with clinical staff as necessary
- Attend TVHS multidisciplinary tumor board when their cases are presented, as time allows

Since this rotation builds upon prerequisite skills acquired on the Vanderbilt University Medical Center Surgical Pathology rotations, residents must have completed at least 1 month of a surgical pathology rotation at Vanderbilt University Medical Center.

Rotation Directors: Eszter Szentirmai, MD and Nevene Andraws, MD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in description and handling of gross skin surgical pathology specimens, including biopsies.
- To understand indications and use for commonly encountered fixatives.
- To understand basic procedures of tissue processing, embedding, sectioning and staining.
- To learn appropriate application of ancillary techniques such as immunohistochemistry, flow cytometry, and molecular testing, to dermatopathology specimens.
- To develop proficiency in recognition, description and reporting of lesions encountered in dermatopathology practice.

Medical Knowledge

- To understand basic concepts of disease and their correlation with morphology.
- To develop an investigatory and analytic approach to dermatopathology diagnoses.
- To understand the correlation of morphology with genetic alterations in commonly acquired tumors.
- To understand the scientific basis for immunohistochemistry.
- To correlate dermatopathology findings with clinical presentation and disease pathogenesis.

Interpersonal and Communication Skills

- To develop proficiency in presentation of dermatopathology findings to pathologists, medical students, and clinicians.
- To teach medical students who rotate through the VA Anatomic Pathology laboratory, providing opportunities for students to participate on the service as determined in consultation with attendings.

- To learn to communicate effectively with the clinical team in the setting of new malignant diagnoses, specimen errors or need for additional clinical information by telephone.
- To learn consultation practices between pathologists for difficult cases, including second review of new malignant diagnoses and complex dermatopathology diagnoses.
- To prepare accurate, effective, and concise written reports.

Professionalism

- To demonstrate respect, compassion, and integrity in encounters with patients, clinicians, other residents, and staff in the setting of anatomic pathology.
- To submit accurate and complete written reports in a timely fashion.
- To work effectively as a team with technical and administrative staff.
- To treat technical and administrative staff with respect, while learning from them and teaching them.

Systems-Based Practice

- To develop an understanding of the role of quality assurance in diagnostic anatomic pathology by participating in all aspects of the Department's quality control and assurance activities, including, but not limited to, tracking cases to be presented at the bi-monthly Transfusion and Tissue Committee meetings and obtaining second review for a subset of new or difficult diagnoses.
- To practice cost-effective medicine in the selection of special studies as applied to cases.
- To understand safety issues in anatomic pathology and the role of OSHA in setting workplace safety standards.
- To understand the role of regulatory agencies and professional organizations such as CAP and the Joint Commission in the accreditation of hospital laboratories.
- To understand the importance of accurate billing and coding in anatomic pathology, and the importance of accuracy in the surgical pathology report as it impacts on billing.
- To understand the use of laboratory informatics systems in anatomic pathology, for reporting and quality assurance purposes.
- To learn current tumor staging and grading systems and understand the role of these in data collection for tumor registries and national cancer databases.
- To learn special regulations, systems and practices that apply to the practice of diagnostic pathology within an agency of the United States Government.

Practice-Based Learning and improvement

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

Situations in which even an experienced resident must call an attending:

- For all preliminary diagnoses.
- When findings are discovered that have urgent clinical implications, or which differ substantially from the original clinical indication for the procedure.
- When findings are discovered that require significant deviation from standard protocols.
- When there is a gross finding that cannot be adequately represented photographically or histologically.
- When a possible specimen loss or misidentification has occurred.
- When there is contact by an upset clinician or an urgent clinical question that the resident feels uncomfortable addressing.
- Before electron microscopy is ordered.

- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a patient or relative, or any party not secured by HIPAA requesting information.
- Any time the resident is unsure how to proceed, and no one in the vicinity has the skills or expertise to assist.

GENERAL SURGICAL PATHOLOGY VETERANS ADMISTRATION

Rotation Description:

Three residents rotate through the VA Anatomic Pathology laboratory each month. As an important element of graduated responsibility in the Vanderbilt program, the residents on the VA anatomic pathology services are responsible for ALL aspects their individual cases. All aspects of the rotation are performed under the direct supervision of the VA Anatomic Pathology Faculty.

One resident will rotate through the general surgical pathology service each month. The rotation will include all surgical cases except for dermatopathology cases. The resident will take ownership of individual cases with responsibilities including, but not limited to:

- Review of the medical record
- Gross examination and submission of tissue for histologic assessment
- Independent evaluation of the histologic slides prior to meeting with the responsible faculty
- Recommending, ordering and interpretation of appropriate ancillary testing
- Composition of the full report, including dictation, and formulation of the final diagnoses
- Completion of coding and quality assurance data
- Communication with clinical staff as necessary
- Attend TVHS multidisciplinary tumor board when their cases are presented, as time allows

Since this rotation builds upon prerequisite skills acquired on the Vanderbilt University Medical Center Surgical Pathology rotations and VA Dermatopathology rotation, residents must have completed at least 1 month of VA Dermatopathology, and rotated on all the core benches for the Vanderbilt surgical pathology services.

*The VA Surgical Pathology and VA Cytopathology residents will alternate holding the pager (615-317-3323) overnight and over weekends. Pages during these times are rare.

Rotation Director: Eszter Szentirmai, MD

Residents are expected to gain the following competencies:

Patient Care

- To develop proficiency in description and handling of gross surgical pathology specimens.
- To understand indications and use for commonly encountered fixatives.
- To understand basic procedures of tissue processing, embedding, sectioning and staining.
- To develop proficiency in performance, interpretation, and reporting of frozen sections.
- To learn appropriate application of ancillary techniques such as immunohistochemistry, flow cytometry, and molecular testing, to surgical pathology and cytopathology specimens.
- To develop proficiency in recognition, description and reporting of lesions encountered in surgical pathology and cytopathology practice.

Medical Knowledge

- To understand basic concepts of disease and their correlation with morphology.
- To develop an investigatory and analytic approach to surgical pathology diagnoses.
- To understand the role of intraoperative consultations in clinical decision-making.
- To understand the correlation of morphology with genetic alterations in commonly acquired tumors.
- To understand the scientific basis for immunohistochemistry.
- To correlate surgical pathology findings with clinical presentation and disease pathogenesis.

GENERAL SURGICAL PATHOLOGY VETERANS ADMISTRATION

Interpersonal and Communication Skills

- To develop proficiency in presentation of surgical pathology findings to pathologists, medical students, and clinicians.
- To teach medical students who rotate through the VA Surgical Pathology service, providing opportunities for students to participate on the service as determined in consultation with attendings.
- To learn to communicate effectively with surgeons in the setting of intraoperative consultations, new malignant diagnoses, specimen errors or need for additional clinical information by telephone.
- To learn consultation practices between pathologists for difficult cases, including second review of new malignant diagnoses and complex diagnoses.
- To prepare accurate, effective, and concise written reports.

Professionalism

- To demonstrate respect, compassion, and integrity in encounters with patients, clinicians, other residents, and staff in the setting of surgical pathology.
- To submit accurate and complete written reports in a timely fashion.
- To work effectively as a team with technical and administrative staff.
- To treat technical and administrative staff with respect, while learning from them and teaching them.

Systems-Based Practice

- To develop an understanding of the role of quality assurance in diagnostic surgical pathology by participating in all aspects of the Department's quality control and assurance activities, including, but not limited to, tracking cases to be presented at the bi-monthly Transfusion and Tissue Committee meetings and obtaining second review for a subset of new or difficult diagnoses.
- To practice cost-effective medicine in the selection of special studies as applied to surgical pathology.
- To understand safety issues in surgical pathology and the role of OSHA in setting workplace safety standards.
- To understand the role of regulatory agencies and professional organizations such as CAP and the Joint Commission in the accreditation of hospital laboratories.
- To understand the importance of accurate billing and coding in surgical pathology, and the importance of accuracy in the surgical pathology report as it impacts on billing.
- To understand the use of laboratory informatics systems in anatomic pathology, for reporting and quality assurance purposes.
- To learn current tumor staging and grading systems and understand the role of these in data collection for tumor registries and national cancer databases.
- To learn special regulations, systems and practices that apply to the practice of diagnostic pathology within an agency of the United States Government.

Practice-Based Learning and improvement

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

Situations in which even an experienced resident must call an attending:

- For all frozen sections and other preliminary diagnoses.
- When findings are discovered that have urgent clinical implications, or which differ substantially from the original clinical indication for the procedure.
- When findings are discovered that require significant deviation from standard protocols.

- When there is a gross finding that cannot be adequately represented photographically or histologically.
- When a possible specimen loss or misidentification has occurred.
- When there is contact by an upset clinician or an urgent clinical question that the resident feels uncomfortable addressing.
- Before electron microscopy is ordered.
- When an unexpected health or safety hazard is identified.
- When there is contact by an attorney, a patient or relative, or any party not secured by HIPAA requesting information.
- Any time the resident is unsure how to proceed, and no one in the vicinity has the skills or expertise to assist.