NEUROLOGY RESIDENT HANDBOOK

2025-2026

DEPARTMENT OF NEUROLOGY
UNIVERSITY OF ROCHESTER
SCHOOL OF MEDICINE AND DENTISTRY

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FOREWORD

This Neurology Resident Handbook is intended as a handy reference for all Neurology clinical faculty, residents and administrative staff. The handbook is divided into seven sections as follows:

- ACGME New Accreditation System: This section contains specific program goals and objectives for the neurology residency, the neurology core competencies that are part of the ACGME New Accreditation System, the Neurology Milestones, and descriptions of specific evaluation instruments used to evaluate neurology residents at the University of Rochester.
- Research Initiatives and Didactics: This section includes information about the resident research experience and descriptions of academic half day and other educational conferences
- Inpatient Rotation Guidelines: This section contains guidelines for the neurology residents for all the core inpatient rotations.
- Elective Guidelines: This section contains guidelines for the neurology residents for departmental and inter-departmental electives.
- Outpatient Rotation Guidelines: This section contains guidelines for the resident firms and ambulatory subspecialty rotations.
- Policies: This section contains the specific policies that involve neurology residents, as mandated by the ACGME.
- Bibliography: This section contains a bibliography for adult neurology and should be used as a guide to reading for neurology residents.
- Schedules: The final section of this handbook contains the rotation and clinic schedules for neurology residents and faculty for the current academic year.

The Residency Review Committee for Neurology mandates that we collate all of this information and distribute it annually to all clinical faculty and residents in our department. All neurology faculty and residents should be familiar with the goals and objectives, rotation guidelines and policies included in this handbook. A thorough understanding of these goals, guidelines and policies will help ensure that our residency program runs smoothly and meets its mission of excellence in patient care, education and research.

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Adult Neurology Residency Program Director

July 1, 2025

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ACGME NEW ACCREDITATION SYSTEM

At its February 1999 meeting, the ACGME endorsed general competencies for residents in the areas of

- Patient care
- Medical knowledge
- Practice-based learning and improvement
- Interpersonal and communication skills
- Professionalism
- Systems-based practice

Identification of general competencies is the first step in a long-term effort designed to emphasize educational outcome assessment in residency programs and in the accreditation process. As of July 2002, the ACGME's Residency Review and Institutional Review Committees have incorporated the general competencies into their Requirements. The following Neurology Core Competencies were developed by the American Board of Psychiatry and Neurology, and represent what each graduate of the adult neurology residency training program at the University of Rochester is expected to learn by the end of his/her residency. All evaluation instruments are keyed to these six core competencies.

In 2013, the ACGME adopted the New Accreditation System (NAS), effectively replacing the previous system of five-year site visits to residency programs that was focused on process and not outcomes. A key feature of the NAS will be the Milestones, which are a set of competency-based developmental outcomes (e.g., knowledge, skills, attitudes, and performance) that can be demonstrated progressively by residents and fellows from the beginning of their education through graduation to the unsupervised practice of their specialties. Milestones were developed for each specialty by committees consisting of representatives from the Specialty Boards, Residency Review Committees, Program Director Associations, and Resident and Fellow representatives. Residency programs will now undergo 10-year self-study visits that replace the traditional five-year site visits. In addition, each hospital that sponsors residency programs will undergo a Clinical Learning Environment Review (CLER) visit every 18 months, which will focus on patient safety, quality improvement, and resident work hours.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY
NEUROLOGY CORE COMPETENCIES

I. Patient Care and Procedural Skills

A. Neurologists shall demonstrate the following abilities:

1. To perform and document a relevant history and examination on culturally diverse patients to include as appropriate:
    a. Chief complaint
    b. History of present illness
    c. Past medical history
    d. A comprehensive review of systems
    e. A family history
    f. A sociocultural history
    g. A developmental history (especially for children)
    h. A situationally germane general and neurologic examination
2. To delineate appropriate differential diagnoses
3. To evaluate, assess, and recommend effective management of patients

B. Based on a comprehensive neurological assessment, neurologists shall demonstrate the following abilities:

1. To determine:
    a. If a patient's symptoms are the result of a disease affecting the central and/or peripheral nervous system or are of another origin (e.g., of a systemic, psychiatric, or psychosomatic illness)
    b. A formulation, differential diagnosis, laboratory investigation, and management plan
2. To develop and maintain the technical skills to:
    a. Perform comprehensive neurological examination
    b. Perform screening psychiatric examination
    c. Perform lumbar puncture, edrophonium, and caloric testing
    d. Identify and describe abnormalities seen in common neurological disorders on radiographic testing, including plain films, myelography, angiography, CT, isotope, and MRI
    e. Evaluate the application and relevance of investigative procedures and interpretation in the diagnosis of neurological disease, including the following:
        i. Electroencephalogram
        ii. Motor and nerve conduction studies
        iii. Electromyography

iv. Evoked potentials

v. Polysomnography

vi. Autonomic function testing

vii. Electronystagmogram

viii. Audiometry

ix. Perimetry

x. Psychometrics

xi. CSF analysis

xii. Imaging with ultrasound (Duplex, transcranial Doppler)

xiii. Radiographic studies as outlined above

f. Identify and describe gross and microscope specimens taken from the normal nervous system and from patients with major neurologic disorders

II. Medical Knowledge

A. Neurologists shall demonstrate the following:

1. Knowledge of major disorders, including considerations relating to age, gender, race, and ethnicity, based on the literature and standards of practice. This knowledge shall include:

   a. The epidemiology of the disorder

   b. The etiology of the disorder, including medical, genetic, and sociocultural factors

   c. The phenomenology of the disorder

   d. An understanding of the impact of physical illness on the patient's functioning

   e. The experience, meaning, and explanation of the illness for the patient and family, including the influence of cultural factors and culture-bound syndromes

   f. Effective treatment strategies

   g. Course and prognosis

2. Knowledge of healthcare delivery systems, including patient and family counseling

3. Systems-based Practice

4. Knowledge of the application of ethical principles in delivering medical care

5. Ability to reference and utilize electronic systems to access medical, scientific, and patient information

B. Neurologists shall demonstrate knowledge of the following:

1. Basic neuroscience that is critical to the practice of neurology

2. Pathophysiology and treatment of major psychiatric and neurological disorders and familiarity with the scientific basis of neurology, including:
    a. Neuroanatomy
    b. Neuropathology
    c. Neurochemistry
    d. Neurophysiology
    e. Neuropharmacology
    f. Neuroimmunology/neurovirology
    g. Neurogenetics/molecular neurology and neuroepidemiology
    h. Neuroendocrinology
    i. Neuroimaging
    j. Neuro-ophthalmology
    k. Neuro-otology
    l. Child neurology
    m. Geriatric neurology
    n. Interventional neurology (basic principles only)
3. Neurologic disorders and diseases across the lifespan, including treatment for the following:
    a. Dementia and behavioral neurology disorders
    b. Epilepsy and related disorders
    c. Neuromuscular disorders
    d. Demyelinating and dysmyelinating disorders of the central nervous system
    e. Cerebrovascular disorders
    f. Infectious diseases of the nervous system
    g. Neoplastic disorders and tumors of the nervous system
    h. Nervous system trauma
    i. Toxic and metabolic disorders of the nervous system
    j. Acute, chronic pain
    k. Sleep disorders
    l. Changes in mental state second to therapy
    m. Critical care and emergency neurology
    n. Coma and brain death
    o. Headache and facial pain
    p. Movement disorders, including abnormalities caused by drugs
    q. End of life care and palliative care

r. Neurologic disorders associated with vitamin deficiency or excess

4. Patient evaluation and treatment selection, including:
   a. The nature of patients' histories and physical findings and the ability to correlate the findings with a probable localization for neurologic dysfunction
   b. Probable diagnoses and differential diagnoses
      i. In adults
      ii. In children
   c. Planning for evaluation and management
   d. Potential risks and benefits of potential therapies, including surgical procedures
5. Psychiatry, including:
   a. Psychopathology, epidemiology, diagnostic criteria, and clinical course for common psychiatric disorders, including
      i. Disorders usually first diagnosed in infancy, childhood, or adolescence
      ii. Schizophrenic and other psychotic disorders
      iii. Mood disorders
      iv. Anxiety disorders
      v. Somatoform disorders
      vi. Factitious disorders
      vii. Dissociative disorders
      viii. Sexual and gender identity disorders
      ix. Eating disorders
      x. Adjustment disorders
      xi. Delirium, dementia, amnestic, and other cognitive disorders
      xii. Mental disorders due to general medical conditions
      xiii. Neurologic presentations following emotional, sexual, and/or physical abuse
      xiv. Substance-related disorders
      xv. Disorders of higher cortical function
   b. Psychopharmacology
      i. Major drugs used for treatment, e.g., antipsychotics, antidepressants, antianxiety agents, mood stabilizers
      ii. Side effects of drugs used for treatment, e.g., acute, motor, neuroleptic malignant syndrome

iii. Iatrogenic disorders in psychiatry and neurology, changes in mental status, and movement disorders

iv. Nonpharmacologic treatments and management

6. Employment of principles of quality improvement in practice

III. Interpersonal and Communications Skills

A. Neurologists shall demonstrate the following competencies:

1. To listen to and understand patients and to attend to nonverbal communication
2. To communicate effectively with patients using verbal, nonverbal, and written skills as appropriate
3. To develop and maintain a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort in the relationship with physicians
4. To partner with patients to develop an agreed upon healthcare management plan
5. To transmit information to patients in a clear and meaningful fashion
6. To understand the impact of physicians' own feelings and behavior so that it does not interfere with appropriate treatment
7. To communicate effectively and work collaboratively with allied healthcare professionals and with other professionals involved in the lives of patients and families
8. To educate patients, their families, and professionals about medical, psychosocial, and behavioral issues
9. To preserve patient confidentiality

B. Neurologists shall demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties. This shall include:

1. Knowing when to solicit consultation and having sensitivity to assess the need for consultation
2. Formulating and clearly communicating the consultation question
3. Discussing the consultation findings with the consultant
4. Discussing the consultation findings with the patient and family

C. Neurologists shall serve as an effective consultant to other medical specialists, and community agencies by demonstrating the abilities to:

1. Communicate effectively with the requesting party to refine the consultation question
2. Maintain the role of consultant
3. Communicate clear and specific recommendations
4. Respect the knowledge and expertise of the requesting professionals

D. Neurologists shall demonstrate the ability to communicate effectively with patients and their families by:

   1. Matching all communication to the educational and intellectual levels of patients and their families
   2. Demonstrating sociocultural sensitivity to patients and their families
   3. Providing explanations of psychiatric and neurological disorders and treatment that are jargon-free and geared to the educational/intellectual levels of patients and their families
   4. Providing preventive education that is understandable and practical
   5. Respecting patients' cultural, ethnic, religious, and economic backgrounds
   6. Developing and enhancing rapport and a working alliance with patients and their families
   7. Ensuring that the patient and/or family have understood the communication
   8. Responding promptly to electronic communications when used as a communication method agreed upon by neurologists and their patients and patients' families

E. Neurologists shall maintain up-to-date medical records and write legible prescriptions. These records must capture essential information while simultaneously respecting patient privacy, and they must be useful to health professionals outside neurology.

F. Neurologists shall demonstrate the ability to effectively lead a multidisciplinary treatment team, including being able to:

   1. Listen effectively
   2. Elicit needed information from team members
   3. Integrate information from different disciplines
   4. Manage conflict
   5. Clearly communicate an integrated treatment plan

G. Neurologists shall demonstrate the ability to communicate effectively with patients and their families while respecting confidentiality. Such communication may include:

   1. The results of the assessment
   2. Use of informed consent when considering investigative procedures
   3. Genetic counseling, palliative care, and end-of-life issues when appropriate
   4. Consideration and compassion for the patient in providing accurate medical information and prognosis
   5. The risks and benefits of the proposed treatment plan, including possible side-effects of medications and/or complications of non-pharmacologic treatments
   6. Alternatives (if any) to the proposed treatment plan

7. Appropriate education concerning the disorder, its prognosis, and prevention strategies

IV. Practice-Based Learning and Improvement

A. Neurologists shall recognize limitations in their own knowledge base and clinical skills, and understand and address the need for lifelong learning.

B. Neurologists shall demonstrate appropriate skills for obtaining and evaluating up-to-date information from scientific and practice literature and other sources to assist in the quality care of patients. This shall include, but not be limited to:

1. Use of medical libraries
2. Use of information technology, including Internet-based searches and literature databases
3. Use of drug information databases
4. Active participation, as appropriate, in educational courses, conferences, and other organized educational activities both at the local and national levels

C. Neurologists shall evaluate caseload and practice experience in a systematic manner. This may include:

1. Case-based learning
2. Use of best practices through practice guidelines or clinical pathways
3. Review of patient records
4. Obtaining evaluations from patients, e.g., outcomes and patient satisfaction
5. Employment of principles of quality improvement in practice
6. Obtaining appropriate supervision and consultation
7. Maintaining a system for examining errors in practice and initiating improvements to eliminate or reduce errors

D. Neurologists shall demonstrate the ability to critically evaluate relevant medical literature. This may include:

1. Using knowledge of common methodologies employed in neurologic research
2. Researching and summarizing a particular problem that derives from their own caseloads

E. Neurologists shall demonstrate the abilities to:

1. Review and critically assess scientific literature to determine how quality of care can be improved in relation to one's practice, e.g., reliable and valid assessment techniques, treatment approaches with established effectiveness, practice parameter adherence. Within this aim, neurologists shall be able to assess the generalizability or applicability of research findings to one’s patients in relation to their sociodemographic and clinical characteristics
2. Develop and pursue effective remediation strategies that are based on critical review of the scientific literature

V. Professionalism

A. Neurologists shall demonstrate responsibility for their patients' care, including:

1. Responding to communication from patients and health professionals in a timely manner
2. Establishing and communicating back-up arrangements, including how to seek emergent and urgent care when necessary
3. Using medical records for appropriate documentation of the course of illness and its treatment
4. Providing coverage if unavailable, e.g. when out of town or on vacation
5. Coordinating care with other members of the medical and/or multidisciplinary team
6. Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary

B. Neurologists shall demonstrate ethical behavior, integrity, honesty, compassion, and confidentiality in the delivery of care, including matters of informed consent/assent, professional conduct, and conflict of interest.

C. Neurologists shall demonstrate respect for patients and their families, and their colleagues as persons, including their ages, cultures, disabilities, ethnicities, genders, socioeconomic backgrounds, religious beliefs, political leanings, and sexual orientations.

D. Neurologists shall demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care and clinical competence.

E. Neurologists shall review their professional conduct and remediate when appropriate.

F. Neurologists shall participate in the review of the professional conduct of their colleagues.

VI. Systems-Based Practice

A. Neurologists shall have a working knowledge of the diverse systems involved in treating patients of all ages, and understand how to use the systems as part of a comprehensive system of care in general and as part of a comprehensive, individualized treatment plan. This shall include the:

1. Evaluation and implementation, where indicated, of the use of practice guidelines
2. Ability to access community, national, and allied health professional resources that may enhance the quality of life of patients with chronic neurologic and psychiatric illnesses
3. Demonstration of the ability to lead and work within health care teams needed to provide comprehensive care for patients with neurologic and psychiatric disease and respect professional boundaries

4. Demonstration of skills for the practice of ambulatory medicine, including time management, clinical scheduling, and efficient communication with referring physicians
5. Use of appropriate consultation and referral mechanisms for the optimal clinical management of patients with complicated medical illness
6. Demonstration of awareness of the importance of adequate cross-coverage
7. Use of accurate medical data in the communication with and effective management of patients

B. In the community system, neurologists shall:

1. Recognize the limitation of healthcare resources and demonstrate the ability to act as an advocate for patients within their sociocultural and financial constraints
2. Demonstrate knowledge of the legal aspects of neurologic diseases as they impact patients and their families
3. Demonstrate an understanding of risk management.

C. Neurologists shall demonstrate knowledge of different health care systems, including:

1. Working within the system of care to maximize cost effective utilization of resources
2. Participating in utilization review communications and, when appropriate, advocating for quality patient care
3. Educating patients concerning such systems of care

D. Neurologists shall demonstrate knowledge of community systems of care and assist patients to access appropriate care and other support services. This requires knowledge of treatment settings in the community, which include ambulatory, consulting, acute care, partial hospital, skilled care, rehabilitation, nursing homes and home care facilities, substance abuse facilities, and hospice organizations. Neurologists shall demonstrate knowledge of the organization of care in each relevant delivery setting and the ability to integrate the care of patients across such settings.

E. Neurologists shall be aware of safety issues, including acknowledging and remediating medical errors, should they occur.

[1]Cultural diversity includes issues of race, gender, language, age, country of origin, sexual orientation, religious/spiritual beliefs, sociocultural class, educational/intellectual levels, and physical disability. Working with a culturally diverse population requires knowledge about cultural factors in the delivery of health care. For the purposes of this document, all patient and peer populations are to be considered culturally diverse.

[2]For the purposes of this document, “family” is defined as those having a biological or otherwise meaningful relationship with the patient. Significant others are to be defined from the patient’s point of view.

GOALS OF THE NEUROLOGY RESIDENCY TRAINING PROGRAM

Overall Competency-Based Program Goals

Patient Care

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

Residents must demonstrate competency in the management of outpatients and inpatients with neurological disorders across the lifespan, including those who require emergency and intensive care.

Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care.

Residents must demonstrate understanding about major developments in the clinical sciences relating to neurology, and must demonstrate understanding of the basic sciences through application of this knowledge in the care of their patients and by passing clinical skills examinations.

Practice-based Learning and Improvement

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:

1. Identify strengths, deficiencies, and limits in one's knowledge and expertise
2. Set learning and improvement goals
3. Identify and perform appropriate learning activities
4. Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement
5. Incorporate formative evaluation feedback into daily practice
6. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
7. Use information technology to optimize learning
8. Participate in the education of patients, families, students, residents and other health professionals
9. Supervise other residents, medical students, nurses, and other health care personnel

Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Residents are expected to:

1. Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
2. Communicate effectively with physicians, other health professionals, and health related agencies
3. Work effectively as a member or leader of a health care team or other professional group
4. Act in a consultative role to other physicians and health professionals
5. Maintain comprehensive, timely, and legible medical records

Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

1. Compassion, integrity, and respect for others
2. Responsiveness to patient needs that supersedes self-interest
3. Respect for patient privacy and autonomy
4. Accountability to patients, society and the profession
5. Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

Systems-based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

1. Work effectively in various health care delivery settings and systems relevant to their clinical specialty
2. Coordinate patient care within the health care system relevant to their clinical specialty
3. Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate
4. Advocate for quality patient care and optimal patient care systems
5. Work in inter-professional teams to enhance patient safety and improve patient care quality
6. Participate in identifying system errors and implementing potential systems solutions

Overall Program Goals

1. To prepare the physician for the independent practice of clinical neurology by providing training based on supervised clinical work with increasing responsibility for outpatients and inpatients. *PC*
2. To provide a foundation of organized instruction in the basic neurosciences. *MK*
3. To provide an opportunity to develop and maintain an investigative career in the basic neurosciences and in clinical neurology. *MK*
4. To acquire an appreciation for the history of neurology and the rich traditions of our specialty. *SBP*
5. To acquire the many personal attributes necessary for becoming an effective physician, including honesty, compassion, reliability, and effective communication skills. *P, ICS*

Goals for the First Year in Neurology

1. To elicit an accurate neurologic history and to perform and interpret a neurological examination on patients presenting with neurological symptoms. *PC*
2. To appropriately order laboratory studies in neurology: EEG, EMG, nerve conduction studies, evoked potentials, lumbar puncture, CT and MR imaging of the brain and spinal cord. *PC*
3. To appropriately evaluate and treat common neurological problems:
   - Neurological Emergencies: Coma and mental status changes, stroke, seizures. *MK, PC*
   - Common outpatient neurological problems: Headache, dizziness, back and neck pain, peripheral neuropathies. *MK, PC*
4. To demonstrate effective written and oral communication skills. *ICS*

Goals for the Second Year in Neurology

1. To perfect the resident's history-taking skills and neurologic exam in infants and children. *PC*
2. To diagnose, evaluate and treat multiple sclerosis, Parkinson's disease and other movement disorders, neuromuscular diseases, dementia, central nervous system infections, and tumors of the nervous system. *PC, MK*
3. To interrelate abnormalities of the nervous system with normal growth and development of the nervous system. *PC*
4. To provide the resident with an exposure to and a forum for discussion of a wide variety of neurologic problems in adults and pediatric patients. *PBLI*

Goals for the Third Year in Neurology

1. To independently evaluate and manage patients presenting with a wide variety of inpatient and outpatient neurological disorders. *PC*
2. To perform and interpret EMG's, Nerve Conduction Studies, EEG's and evoked potential testing. *PC, MK*
3. To supervise junior residents on the inpatient neurology services at Strong Memorial Hospital. *PBLI, SBP*
4. To participate as a laboratory instructor in the Medical Student Nervous System Course. *PBLI*

Goals for General Neurology Rotations

1. To develop skills in obtaining complete neurological histories, in performing accurate neurological examinations, and in selecting appropriate therapies on a general neurology consultation service in a tertiary referral center. *PC*
2. To acquire in-depth knowledge of major categories of neurological disease, with special emphasis on epilepsy, coma and mental status changes, movement disorders, neuromuscular disorders, demyelinating disorders, infections of the nervous system, tumors of the nervous system, head trauma and dementia. *MK*
3. To gain experience in the appropriate ordering and interpretation of neurodiagnostic tests, including head and spine CT and MR scans, EEG, Evoked Potential Testing, Neurovascular testing, and EMG and nerve conduction studies. *PC, SBP*
4. To develop and improve written and oral communication skills. *ICS*

Goals for Stroke Rotations

1. To recognize the signs and symptoms of acute ischemic stroke. *PC*
2. To utilize current treatment guidelines for ischemic stroke, especially concerning blood pressure management, anticoagulation, and use of thrombolytic therapy. *MK*
3. To identify common risk factors for stroke. *MK*
4. To utilize current recommendations for the use of anti-platelet agents and oral anti-coagulants in stroke prevention. *MK*
5. To utilize strategies for preventing and treating increased intracranial pressure. *MK*
6. To perform and record the National Institutes of Health Stroke Scale. *PC, SBP*

Goals for Chief Resident Year

1. To become independent in the evaluation and management of patients presenting with a wide variety of inpatient and outpatient neurological disorders. *PC*
2. To gain experience supervising junior residents on the inpatient neurology services at Strong Memorial Hospital. *PBLI, SBP*
3. To develop administrative skills with respect to organizing and scheduling teaching conferences for the department of neurology. *SBP*

Key to Core Competencies:

PK Patient care
MK Medical knowledge
PBLI Practice-based learning and improvement
ICS Interpersonal and communication skills
P Professionalism
SBP Systems-based practice

Goals for other rotations and electives are included with the specific rotation guidelines later in the handbook.

The ACGME Milestones Project

As the ACGME began to move toward continuous accreditation, specialty groups developed outcomes-based milestones as a framework for determining resident and fellow performance within the six ACGME Core Competencies.

What are Milestones?
Simply defined, a milestone is a significant point in development. For accreditation purposes, the Milestones are competency-based developmental outcomes (e.g., knowledge, skills, attitudes, and performance) that can be demonstrated progressively by residents and fellows from the beginning of their education through graduation to the unsupervised practice of their specialties.

Who developed the Milestones?
Each specialty's Milestone Working Group was co-convened by the ACGME and relevant American Board of Medical Specialties (ABMS) specialty board(s), and was composed of ABMS specialty board representatives, program director association members, specialty college members, ACGME Review Committee members, residents, fellows, and others.

Why Milestones?
First and foremost, the Milestones are designed to help all residencies and fellowships produce highly competent physicians to meet the health and health care needs of the public. To this end, the

Milestones serve important purposes in program accreditation:
- Allow for continuous monitoring of programs and lengthening of site visit cycles
- Public Accountability – report at a national level on aggregate competency outcomes by specialty
- Community of practice for evaluation and research, with focus on continuous improvement of graduate medical education

For educational (residency/fellowship) programs, the Milestones will:
- Provide a rich descriptive, developmental framework for clinical competency committees
- Guide curriculum development of the residency or fellowship
- Support better assessment practices
- Enhance opportunities for early identification of struggling residents and fellows

And for residents and fellows, the Milestones will:
- Provide more explicit and transparent expectations of performance
- Support better self-directed assessment and learning
- Facilitate better feedback for professional development

How will the Milestones be used by the ACGME?
Residents'/fellows' performance on the Milestones will become a source of specialty-specific data for the specialty Review Committees to use in assessing the quality of residency and fellowship programs and for facilitating improvements to program curricula and resident performance if and when needed. The Milestones will also be used by the ACGME to demonstrate accountability of the effectiveness of graduate medical education within ACGME-accredited programs in meeting the needs of the public.

Milestone Reporting

Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident progresses from entry into residency through graduation.

Milestones are arranged into numbered levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert. These levels do not correspond with post-graduate year of education. Selection of a level implies that the resident substantially demonstrates the milestones in that level, as well as those in lower levels.

Level 1: The resident demonstrates milestones expected of a resident who has completed his or her first post-graduate year of education.

Level 2: The resident is advancing and demonstrates additional milestones but is not yet performing at a mid-residency level.

Level 3: The resident continues to advance and demonstrate additional milestones, consistently including the majority of milestones targeted for residency.

Level 4: The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency. This level is designed as the graduation target.

Level 5: The resident has advanced beyond performance targets set for residency and is demonstrating "aspirational" goals so that the resident serves as a role model for others. It is expected that only a few exceptional residents will reach this level.

Patient Care 1: History

Level 1	Level 2	Level 3	Level 4	Level 5
Obtains a basic neurologic history	Obtains a complete and relevant neurologic history	Obtains an organized neurologic history, including collateral information as appropriate	Efficiently obtains an organized hypothesis-driven neurologic history	Serves as a role model in obtaining a hypothesis-driven neurologic history
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

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Patient Care 2: Neurologic Exam				
Level 1	Level 2	Level 3	Level 4	Level 5
Performs some components of a neurologic exam	Performs a standard neurologic exam accurately	Performs a relevant neurologic exam incorporating additional appropriate maneuvers	Performs a hypothesis-driven neurologic exam	Serves as a role model for performing a hypothesis-driven, complete, relevant, and organized neurologic exam
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				
Comments:				
				Not Yet Completed Level 1 ☐
				Not Yet Assessable ☐

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Patient Care 3: Formulation				
Level 1	Level 2	Level 3	Level 4	Level 5
Summarizes history and exam findings	Generates a broad differential diagnosis based on history, exam, and localization	Synthesizes relevant information to focus and prioritize diagnostic possibilities	Continuously reconsiders diagnosis in response to changes in clinical circumstances and available data	Serves as a role model for clinical reasoning by demonstrating sophisticated formulation in complex presentations
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Patient Care 4: Diagnosis and Management of Neurologic Disorders in the Outpatient Setting				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies typical presentations of commonly encountered neurologic conditions	Diagnoses commonly encountered neurologic conditions Develops an initial treatment plan for commonly encountered neurologic disorders	Identifies atypical presentations of commonly encountered neurologic conditions Individualizes management and follow-up plan for commonly encountered neurologic disorders, considering risks, benefits, and non-pharmacologic strategies	Diagnoses uncommon neurologic conditions Adapts management plan based upon patient response and complications of therapy; identifies when to change acuity of care	Identifies atypical presentations of uncommon neurologic conditions Longitudinally manages uncommon neurologic conditions
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Patient Care 5: Diagnosis and Management of Neurologic Disorders in the Inpatient Setting				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies typical presentations of commonly encountered neurologic conditions	Diagnoses commonly encountered neurologic conditions Develops an initial treatment plan for commonly encountered neurologic disorders	Identifies atypical presentations of commonly encountered neurologic conditions Individualizes management plan, ensuring the appropriate level of care throughout hospitalization and upon discharge	Diagnoses uncommon neurologic conditions Adapts management plan based upon treatment response, disease progression, and complications of therapy	Identifies atypical presentations of uncommon neurologic conditions Leads the management of patients with complex and uncommon neurologic conditions
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Patient Care 6: Diagnosis and Management of Neurologic Emergencies

Level 1	Level 2	Level 3	Level 4	Level 5
Describes the typical presentation of neurologic emergencies Seeks assistance and conveys pertinent details during a neurologic emergency	Recognizes when a patient's presentation is a neurologic emergency Initiates management for a neurologic emergency	Diagnoses neurologic emergencies, using appropriate diagnostic testing Manages patients with common neurologic emergencies	Re-appraises diagnostic considerations based on treatment response, disease progression, and complications of therapy Manages complex neurologic emergencies	Serves as a role model for management of neurologic emergencies
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

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Patient Care 7: Determination of Death by Neurologic Criteria

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of medical and legal significance of death by neurologic criteria	Lists the components for determining death by neurologic criteria	Describes supplemental testing used to determine death by neurologic criteria	Accurately performs determination of death by neurologic criteria	Educates others in the determination of death by neurologic criteria, including appropriate use of supplemental testing, as well as controversies
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

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Patient Care 8: Interpretation of Neuroimaging

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies basic neuroanatomy on brain and vascular anatomy of the head and neck magnetic resonance (MR) and computed tomography (CT)	Identifies major abnormalities of the brain and cerebrovascular system on MR and CT Identifies basic anatomy of the spine and spinal cord on MR and CT	Interprets typical abnormalities of the brain and cerebrovascular system on MR and CT Identifies abnormalities of the spine and spinal cord on MR and CT	Interprets subtle abnormalities of brain and cerebrovascular system on MR and CT Interprets MR and CT of the spine	Interprets advanced neuroimaging
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Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Patient Care 9: Electroencephalogram (EEG)				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies patients for whom EEG is appropriate	Recognizes normal EEG features, including common artifacts, in children and adults	Recognizes patterns of status epilepticus, normal EEG variants, and common abnormalities in children and adults	Interprets common EEG abnormalities and patterns that could represent status epilepticus	Interprets uncommon EEG abnormalities and creates a report
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

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Patient Care 10: Nerve Conduction Study/Electromyogram (NCS/EMG)				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies patients for whom NCS/EMG is appropriate	Identifies NCS/EMG findings for common disorders	Correlates NCS/EMG results to patient presentation, including identification of potential study limitations	Formulates basic NCS/EMG plan and interprets data for common clinical presentations	Performs, interprets, and creates a report for NCS/EMG
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Comments:				
				Not Yet Completed Level 1 ☐
				Not Yet Assessable ☐

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Patient Care 11: Lumbar Puncture

Level 1	Level 2	Level 3	Level 4	Level 5
Lists the indications, contraindications, and complications for lumbar puncture	Performs lumbar puncture under direct supervision	Performs lumbar puncture without direct supervision and manages complications	Performs lumbar puncture on patients with challenging anatomy	Performs lumbar puncture using image guidance
☐	☐	☐	☐	☐ ☐ ☐ ☐

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Patient Care 12: Psychiatric and Functional Aspects of Neurology				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes contributions of common psychiatric disorders and their treatment to neurologic diseases	Develops a treatment plan that considers psychiatric comorbidities and side effects of psychiatric medications	Accurately differentiates psychiatric or functional contributions to neurologic symptoms	Leads a discussion with a patient and/or caregiver that explains the psychiatric or functional contribution to the patient's neurologic symptoms	Develops a shared management plan that addresses the psychiatric or functional contribution to neurologic symptoms
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Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Medical Knowledge 1: Localization				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes the role of localization in neurologic diagnosis	Localizes lesions to general regions of the nervous system	Localizes lesions to specific regions of the nervous system	Localizes lesions to discrete structures of the nervous system	Consistently demonstrates sophisticated and detailed knowledge of neuroanatomy in localizing lesions
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				
Comments:				
				Not Yet Completed Level 1 ☐ Not Yet Assessable ☐

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Medical Knowledge 2: Diagnostic Investigation

Level 1	Level 2	Level 3	Level 4	Level 5
Discusses a general diagnostic approach appropriate to clinical presentation	Lists indications, contraindications, risks, and benefits of diagnostic testing	Prioritizes and interprets diagnostic tests appropriate to clinical urgency and complexity	Uses complex diagnostic approaches in uncommon situations	Demonstrates sophisticated knowledge of diagnostic testing and controversies
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Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

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Systems-Based Practice 1: Patient Safety

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of commonly reported patient safety events Demonstrates knowledge of how to report patient safety events	Identifies system factors that lead to patient safety events Reports patient safety events through institutional reporting systems	Participates in analysis of patient safety events Participates in disclosure of patient safety events to patients and patients' families	Conducts analysis of patient safety events and offers error prevention strategies Discloses patient safety events to patients and patients' families	Actively engages teams and processes to modify systems to prevent patient safety events Role models or mentors others in the disclosure of patient safety events
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Comments:

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Systems-Based Practice 2: Quality Improvement

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)	Participates in local quality improvement initiatives	Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the institutional or community level
☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐

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Systems-Based Practice 3: System Navigation for Patient-Centered Care

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care coordination	Coordinates care of patients in routine clinical situations effectively using the roles of the interprofessional team members	Coordinates care of patients in complex clinical situations effectively using the roles of the interprofessional team members	Role models effective coordination of patient-centered care among different disciplines and specialties	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Performs safe and effective transitions of care/hand-offs in routine clinical situations	Performs safe and effective transitions of care/hand-offs in complex clinical situations	Supervises transitions of care by other team members	Role models safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings	
Demonstrates knowledge of population and community health needs and disparities	Identifies specific population and community health needs and inequities for the local population and community	Effectively uses local resources to meet the needs of a patient population and community	Adapts practice to provide for the needs of specific populations	Leads innovations in adapting practice and systems for populations and communities with health care disparities
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Systems-Based Practice 4: Physician Role in Health Care Systems

Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic health care payment systems, (e.g., government, private, public, uninsured care) and practice models	Delivers patient-centered care, considering the patient's economic constraints	Engages with patients in shared decision making, informed by each patient's payment models	Uses available resources to promote optimal patient care (e.g., community resources, patient assistance resources) considering each patient's payment model	Advocates for systems change that enhances high-value, efficient, and effective patient care
Identifies basic knowledge domains for effective transition to practice (e.g., information technology, legal, billing and coding, financial, personnel)	Demonstrates use of information technology required for medical practice (e.g., electronic health record, documentation required for billing and coding)	Consistently demonstrates timely and accurate documentation, including coding and billing requirements	Implements changes in individual practice patterns in response to professional requirements and in preparation for practice	Educates others to prepare them for transition to practice
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1 ☐

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Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence, and to incorporate patient preferences and values to care for a routine patient	Articulates clinical questions and elicits patient preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Critically appraises and applies evidence, even in the face of uncertainty, and interprets conflicting evidence to guide care, tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

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Not Yet Completed Level 1 ☐

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Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth

Level 1	Level 2	Level 3	Level 4	Level 5
Accepts responsibility for personal and professional development by establishing goals	Demonstrates openness to performance data (feedback and other input) to inform goals	Seeks performance data sporadically, with adaptability and humility	Seeks performance data consistently	Role models seeking performance data, with adaptability and humility
Identifies the factors that contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance	Institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Challenges assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance	Coaches others on reflective practice
Actively seeks opportunities to improve	Designs and implements a learning plan, with prompting	Independently creates and implements a learning plan	Uses performance data to measure the effectiveness of the learning plan, and, when necessary, improves it	Facilitates the design and implementation of learning plans for others
☐	☐	☐	☐	☐ ☐ ☐ ☐

Comments:

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Professionalism 1: Professional Behavior and Ethical Principles

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies and describes potential triggers for professionalism lapses and how to report Demonstrates knowledge of ethical principles related to patient care	Demonstrates insight into professional behavior in routine situations and takes responsibility Analyzes straightforward situations using ethical principles	Demonstrates professional behavior in complex or stressful situations Analyzes complex situations using ethical principles	Intervenes to prevent professionalism lapses in oneself and others Recognizes and uses appropriate resources for managing and resolving ethical dilemmas as needed	Coaches others when their behavior fails to meet professional expectations Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution
☐	☐	☐	☐	☐ ☐ ☐ ☐

Comments:

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Professionalism 2: Accountability/Conscientiousness

Level 1	Level 2	Level 3	Level 4	Level 5
Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future Responds promptly to requests or reminders to complete tasks and responsibilities	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations Recognizes situations that may impact own ability to complete tasks and responsibilities in a timely manner	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations Proactively implements strategies to ensure that the needs of patients, teams, and systems are met	Recognizes situations in which one's own behavior may impact others' ability to complete tasks and responsibilities in a timely manner	Develops or implements strategies to improve system-wide problems to improve ability for oneself and others to complete tasks and responsibilities in a timely fashion
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐

Comments:

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Professionalism 3: Well-Being

Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes sense of personal and professional well-being, with assistance	Independently recognizes status of personal and professional well-being	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize personal and professional well-being	Coaches others when emotional responses or limitations in knowledge/ skills do not meet professional expectations
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐

Comments:

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Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication

Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and non-verbal behavior to demonstrate respect and establish rapport	Establishes a therapeutic relationship in straightforward encounters using active listening and clear language	Establishes a therapeutic relationship in challenging patient encounters	Easily establishes therapeutic relationships, with attention to the patient's/patient's family's concerns and context, regardless of complexity	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships
Identifies the need to individualize communication strategies based on the patient's/patient's family's expectations and understanding	Communicates compassionately with the patient/patient's family to clarify expectations and verify understanding of the clinical situation	Communicates medical information in the context of the patient's/patient's family's values, uncertainty and conflict	Uses shared decision making to align the patient's/patient's family's values, goals, and preferences with treatment options	Role models shared decision making in the context of the patient's/patient's family's values, uncertainty and conflict
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐

Comments:

Not Yet Completed Level 1 ☐

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Interpersonal and Communication Skills 2: Barrier and Bias Mitigation

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies common barriers to effective patient care (e.g., language, disability)	Identifies complex barriers to effective patient care (e.g., health literacy, cultural)	Recognizes personal biases and mitigates barriers to optimize patient care, when prompted	Recognizes personal biases and proactively mitigates barriers to optimize patient care	Mentors others on recognition of bias and mitigation of barriers to optimize patient care
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐

Comments:

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Interpersonal and Communication Skills 3: Interprofessional and Team Communication

Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully requests a consultation	Confirms understanding of consultant recommendations	Clearly and concisely formulates a consultation request	Coordinates recommendations from different members of the health care team to optimize patient care	Role models and facilitates flexible communication strategies that value input from all health care team members, resolving conflict when needed
Recognizes the role of a neurology consultant	Respectfully accepts a consultation request	Clearly and concisely responds to a consultation request		
Uses language that values all members of the health care team	Communicates information effectively with all health care team members	Uses active listening to adapt communication style to fit team needs	Solicits and communicates feedback to other members of the health care team	
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Comments:

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Interpersonal and Communication Skills 4: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Documents accurate and up-to-date patient information Communicates in a way that safeguards patient information	Demonstrates diagnostic reasoning through organized and timely notes Communicates through appropriate channels as required by institutional policy	Communicates the diagnostic and therapeutic reasoning Selects optimal mode of communication based on clinical context	Demonstrates concise, organized written and verbal communication, including anticipatory guidance	Guides departmental or institutional communication policies and procedures
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DEPARTMENT OF NEUROLOGY
RESIDENT EVALUATION INSTRUMENTS

Valid evaluation systems must employ several different instruments, since no single evaluation instrument can assess each of the six ACGME Core Competencies. The following seven evaluation instruments will be used to evaluate University of Rochester Neurology Residents' mastery of the Core Competencies:

- RITE (Residency In-service Training Examination)
- Clinical Skills Evaluations
- Attending Assessments
- Medical Student Assessments
- Documentation ad Billing/Coding Assessment
- Resident Case and Procedure Logs
- Resident Portfolio

Each of these evaluation instruments is described below. In addition, three tables delineate where the six core competencies are taught during the residency program, and how they will be evaluated.

THE RESIDENCY IN-SERVICE TRAINING EXAM (RITE)

Objective

The American Academy Neurology (AAN) Residency In-service Training Examination (RITE) is a self-assessment tool designed to gauge knowledge of neurology and neuroscience, identify areas for potential growth, and provide references and discussions for each.

Examination Features

- Content outline that aligns with the ABPN Certification Examination in Neurology. View the 2024 topic outline here.
- 400 multiple-choice questions administered in two parts (3.5 hours each) on the same day
- Written and reviewed by a panel of recognized experts to ensure accuracy, clarity, relevance to practice, and topical balance of questions
- Images that include CT scans, MR images, EEGs, and full-color pathologic representations
- Online exam administration via the web-based Surpass platform
- A scoring process conducted by a professional data systems company to ensure the highest quality data collection with an accuracy rate in excess of 99.9%
- A downloadable RITE Discussion and Reference Manual that provides the test questions, explanations of the correct answers, relevant images, and current references to guide independent study

RITE Scores

- Residents will receive an email with a link to their individual score report, which includes total percent correct for the entire exam and percent correct in five content categories, along with their percentile rank compared with other residents in the same NYIT.
- Program directors will receive an email with a link to the program summary report, which includes both total program and individual resident percent correct and percentile ranking data, and the Missed Items list for their program.

RITE Content

Questions on the RITE are distributed according to the following blueprint:

Content Area	**Number of Items**	**Percentage of Exam**
Behavioral Neurology	32	8%
Epilepsy	40	10%
Genetic and Developmental Disorders	32	8%
Vascular Neurology	40	10%
Neuromuscular Diseases and ANS Disorders	48	12%
Demyelinating Diseases	40	10%
Movement Disorders	40	10%
Trauma, Neuro ID, Metabolic and Toxic Disorders	48	12%
Sleep Disorders and Psychiatric Disorders	40	10%
Neuro-ophthalmology, Neuro-otology, Neuro-oncology, Headache and Pain Disorders	40	10%
TOTAL	**400**	**100%**

Test Dates

The examination, which is computer-based, is scheduled for February 12-17, 2026, and is given in two sessions during the same day. Each session lasts three and a half hours. Residents are not allowed to take vacation during the week of the RITE.

CLINICAL SKILLS EVALUATION

The Annual Clinical and Communication Skills Evaluation has two components: a clinical vignette hour and a communication and professionalism hour. The examination is scheduled for Friday, October 24, 2025 and November 7, 2025.

- **Communication and Professionalism Hour:** During the communication and professionalism hour, each resident is asked to role play common challenging communication scenarios with standardized patients/learners, supervised by faculty.

- **Clinical Vignette Hour:** During the clinical vignette hour, each resident is asked to discuss six short vignettes with faculty. One of these vignettes is a child neurology vignette.

- **Evaluation and Feedback:** A numeric grade is assigned by each faculty member for each vignette. Feedback is then provided to each resident by the faculty.

- **Failure:** Residents who fail any hour of the examination must successfully remediate to the satisfaction of the Program Director before the end of the academic year.

ABPN CLINICAL SKILLS EVALUATION OF RESIDENTS

The American Board of Psychiatry and Neurology (ABPN) mandates that demonstration of clinical skills competency is a basic requirement in order to apply for certification in the specialties of neurology and neurology with special qualification in child neurology. Competency in these skills should be achieved during residency. The ABPN requires that residents demonstrate competency in the following areas:

- Medical interviewing
- Neurological examination
- Humanistic qualities, professionalism, and counseling skills

Demonstration of competency in evaluating a minimum of five different patients during residency training is required, as follows:

1. Critical care: One critically ill adult patient with neurological disease (may be in either an intensive care unit or emergency department setting or an emergency consultation from another inpatient service)
   - **Typically completed during PGY2 during Highland Hospital consult rotation**
2. Neuromuscular: One adult patient with a neuromuscular disease (may be in either an inpatient or outpatient setting)
   - **Typically completed during PGY2 during Basic EMG/Neuromuscular subspecialty rotation**
3. Ambulatory: One adult patient with an episodic disorder, such as seizures or migraine (most likely in an outpatient setting)
   - **Typically completed during PGY2/3/4 during FIRM**
4. Neurodegenerative: One adult patient with a neurodegenerative disorder, such as dementia, a movement disorder, or multiple sclerosis (most likely in an outpatient setting)
   - **Typically completed during PGY2/3 during Movement/Memory Care subspecialty rotation**
5. Child patient: One child patient with a neurological disorder (most likely in an outpatient setting)
   - **Typically completed during PGY3 during Pediatric Neurology outpatient rotations**

It is the responsibility of the resident to ensure that these are completed during these rotations or make other arrangements if that is not possible. All five clinical skills evaluations must be successfully completed prior to the end of residency training. Residency training requirements will not be considered satisfied until all five clinical skills evaluations are successfully completed. The clinical skills evaluation session must be scheduled with the attending in advance and the evaluation form must be completed by and discussed with the attending immediately following the encounter. Retrospective completion of the evaluation form by the attending is not allowed by the ABPN.

MEDICAL STUDENT ASSESSMENT

UR medical students complete evaluation forms on neurology residents using the MedHub system. All neurology residents are evaluated by 3rd year medical students for their teaching efforts during the 3rd year neurology clerkship. In addition, the neurology chief residents are evaluated by the 2nd year medical students for their teaching efforts in the Mind, Brain and Behavior course, where the residents function as laboratory instructors and PBL tutors. The program director reviews this medical student feedback with each resident during the semi-annual evaluation meetings. This feedback is also filed in each resident's portfolio.

ATTENDING GLOBAL ASSESSMENT

Global rating forms are distinguished from other rating forms in that (a) a rater judges general categories of ability (e.g. patient care skills, medical knowledge, interpersonal and communication skills) instead of specific skills, tasks or behaviors; and (b) the ratings are completed retrospectively based on general impressions collected over a period of time (e.g., end of a clinical rotation) derived from multiple sources of information (e.g., direct observations or interactions; input from other faculty, residents, or patients; review of work products or written materials).

All rating forms contain scales that the evaluator uses to judge knowledge, skills, and behaviors listed on the form. Typical rating scales consist of qualitative indicators and often include numeric values for each indicator, for example, (a) very good = 1, good =2, fair = 3, poor =4; or (b) superior =1, satisfactory =2, unsatisfactory =3. Written comments are important to allow evaluators to explain the ratings.

Global rating forms are most often used for making end of rotation and summary assessments about performance observed over days or weeks. Scoring rating forms entails combining numeric ratings with comments to obtain a useful judgment about performance based upon more than one rater.

Rotation-specific Global Rating Forms have been constructed for neurology residents that incorporate a subset of relevant Milestones as well as a box for narrative comments. These must be completed by each attending at the end of his/her two-week rotation with a specific resident. These Global Rating Forms address all six Core Competencies, and are found on-line at http://urmc.medhub.com/index.mh. . The Program Director reviews the Global Rating Forms with each resident during his/her semi-annual evaluation meeting.

DOCUMENTATION AND CODING REVIEWS

Chart review can provide evidence about clinical decision-making, follow-through in patient management and preventive health services, and appropriate use of clinical facilities and resources (e.g., appropriate laboratory tests and consultations). These reviews help us satisfy requirements for the ACGME Practice-Based Learning and Improvement and Interpersonal Communication Skills competencies.

Each resident will select one new patient consultation or admission note, and one new outpatient clinic note semi-annually and submit these to the supervising attendings for their review. The neurology attendings will complete the form below and will also provide verbal feedback to the resident concerning the written notes.

The following items from each note will be specifically reviewed by the attending:

- Chief complaint or reason for consultation
- History of the Present Illness
- Past medical history
- Neurological examination
- Assessment and differential diagnosis
- Diagnostic and treatment plan
- Selected diagnosis and billing codes

Department of Neurology
University of Rochester
Documentation Review

Resident _____ **Year in training** _____

Attending _____ **Rotation** _____

Patient EMRN _____ **Date of review** _____

Each resident will select one new patient consultation or admission note, and one new outpatient clinic note every 6 months, and submit these to the supervising attendings for their review. The neurology attendings will complete the form below and will also provide verbal feedback to the resident concerning the written notes. Please return completed form to program administrator.

	Satisfactory Y or N	Comments
Chief complaint or reason for consultation		
History of the Present Illness		
Past medical history		
Neurological examination		
Assessment and differential diagnosis		
Diagnostic and treatment plan		
Diagnosis/billing codes		

Attending signature and date _____

Resident signature and date _____

RESIDENT CASE LOG

Case logs document each patient encounter by medical conditions seen. Patient case logs involve recording of some number of consecutive cases in a designated time frame.

Logs of types of cases seen are useful for determining the scope of patient care experience. Regular review of logs can be used to help the resident track what cases must be sought out in order to meet residency requirements or specific learning objectives. Patient logs documenting clinical experience for the entire residency can serve as a summative report of that experience; the numbers reported do not necessarily indicate competence.

Residents are encouraged to create a case log of inpatients seen while they are on service in the eRecord system, including:

- ED consultations
- Hospital adult consultations
- Hospital pediatric consultations
- 5-1600 inpatients
- Highland Hospital consultations

Each resident must log the following procedures in MedHub:

1. Successful lumbar puncture (5 are required by the end of PGY4)

2. NIH Stroke Scale certification, which can be completed via one of the following online resources:
   - BlueCloud (free) https://www.healthcarepoint.com/sign-up-home-page/
   - The American Heart Association ($10 cost associated) https://education.heart.org/productdetails/nih-stroke-scale-test-group-a

3. Tenecteplase training

4. Barnes Jewish bedside dysphagia training must be completed in MyPath, followed by an in-person observation by a member of our Stroke quality team. Once this observation is completed, the resident must attest completion in MyPath

5. Teleneurology training

The Program Director will review the case and procedure logs with each resident during his/her/their semi-annual evaluation meeting.

360-DEGREE EVALUATION

360-degree evaluations consist of measurement tools completed by multiple people in a person's sphere of influence. Evaluators completing rating forms in a 360-degree evaluation usually are superiors, peers, subordinates, and patients and families. Most 360-degree evaluation processes use a survey or questionnaire to gather information about an individual's performance on several topics (e.g., teamwork, communication, management skills, decision-making). Most 360-degree evaluations use rating scales to assess how frequently a behavior is performed (e.g., a scale of 1 to 5, with 5 meaning "all the time" and 1 meaning "never"). The ratings are summarized for all evaluators by topic and overall to provide feedback.

A 360-degree evaluation can be used to assess interpersonal and communication skills, professional behaviors, and some aspects of patient care and systems-based practice.

Multisource feedback (also known as 360 degree feedback) is a process in which individuals are evaluated by supervisors, subordinates, peers and others. For the UR neurology 360-degree evaluation, the evaluators (observers) include nurses, other healthcare providers, and administrative staff.

The 360-degree evaluation emphasizes observable behaviors rather than attitudes or motivations. The focus is on those behaviors that support positive outcomes such as improved experience of care, increased adherence to treatment recommendations, and improved patient safety. The resulting feedback reports are expected to help our residents gain insight into their strengths and developmental needs, and lead behavioral change. In the aggregate, these feedback reports may provide a basis for evaluating system-wide strengths and weaknesses.

The SMH Customer Satisfaction Survey is used to obtain patient feedback concerning resident performance in the outpatient clinic. This 360-degree evaluation survey instrument includes 14 behavioral items rated on a five-point frequency scale, one global evaluation item, and two free-text comment areas to record behaviors that merit commendation and behaviors that may be a focus for improvement. The program director reviews the survey results with each resident individually during their semi-annual evaluation meetings in January and June.

UNIVERSITY OF ROCHESTER
DEPARTMENT OF NEUROLOGY
360 DEGREE ASSESSMENT

Resident:
Evaluator:
Site:
Period:
Dates of Activity:
Position:
Evaluation Type: Trainee

Core Competencies

Interpersonal and Communication Skills

Available to Staff *(Question 1 of 7 - Mandatory)*

The resident was available to staff within a reasonable time when assistance was needed.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Communicated Effectively and Respectfully *(Question 2 of 7 - Mandatory)*

The resident communicated effectively and respectfully with patients and their family members.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Professionalism

Demonstrated Respect and Compassion *(Question 3 of 7 - Mandatory)*

The resident demonstrated respect and compassion for patients and their family members.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Demonstrated Respect for Staff *(Question 4 of 7 - Mandatory)*

The resident demonstrated respect for the role and opinions of staff.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Overall/Summary

Work with Resident Again *(Question 5 of 7 - Mandatory)*

I would be happy to work with this resident again.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Participate in Care for Member of Family *(Question 6 of 7 - Mandatory)*

I would be happy to have this resident participate in the care of a member of my family.

No Interaction	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
0	1	2	3	4	5

Comments *(Question 7 of 7)*

(Please write about Strengths, Weaknesses and Areas for Improvement)

RESIDENT PORTFOLIO

A portfolio is a collection of products prepared by the resident that provides evidence of learning and achievement related to a learning plan. A portfolio typically contains written documents but can include video- or audio-recordings, photographs, and other forms of information. The ACGME Core Competency Project includes a resident portfolio as a valid assessment method.

Reflecting upon what has been learned is an important part of constructing a portfolio. In addition to products of learning, the portfolio can include statements about what has been learned, its application, remaining learning needs, and how they can be met.

In graduate medical education, a portfolio might include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counseling provided to patients.

We create a portfolio for each resident at the beginning of his/her/their residency, akin to a “permanent record” which is the master summary of his/her/their performance. Additionally, each resident is responsible for maintaining information below:

- Curriculum vitae
- Neurology Grand Rounds PowerPoint presentations
- Resident research project results
- Abstracts presented at national meetings
- Papers published during the residency
- Listing of meetings attended each year
- Written self-reflection to discuss at each semi-annual meeting

The Neurology Residency Program Director reviews the Portfolio with the resident every six months, during her semi-annual evaluation meeting with the resident.

SEMI-ANNUAL EVALUATIONS

Each resident will meet with the Adult Neurology Program Director on a semi-annual basis to review his/her progression through each post-graduate year. Topics for discussion include:

- Evaluations from faculty and medical students
- Compliance with program and institutional requirements
- Assessment of wellness
- Performance on clinical skills exams and RITE
- Quality improvement/research project development and progress
- Fellowship/career planning.

At least one inpatient and one outpatient chart review with brief literature search should be completed and submitted prior to every semi-annual meeting, and all completed required procedures should be updated in MedHub.

Each resident should also prepare a written one-page self-reflection with an individualized learning plan to discuss at every meeting, including answers to the following three questions:

1. What are your strengths?
2. What are your areas for development?
3. What are your plans to achieve these goals?

After each semi-annual meeting, the Adult Neurology Program Director will prepare a summary letter for each residents' file, which needs to be reviewed and signed by the resident before filing.

RESIDENT SEMI-ANNUAL MEETING

Resident:
Level:
Date of Meeting:

1. Inpatient Setting
- Duty hours submission
- Medical student evaluation submission
- Evaluations
- Inpatient chart review

2. Outpatient Setting
- Evaluations
- Clinic note completion
- Evaluations
- Clinic chart review

3. LP documentation in MedHub

4. Didactics/Grand Rounds attendance

5. Regional/national meeting attendance

6. RITE performance

7. CSE completion and performance
- Critical care
- Ambulatory
- Child Neurology
- Neurodegenerative
- Neuromuscular

8. Scholarship/QPS
- Scholarly activity/QI project
- IHI module completion
- MyPath module completion

9. Wellness fuel gauge

10. Strong stars/patient and family feedback

11. Self-assessment results

12. Fellowship/career plans

13. Feedback regarding the program

ACGME Core Competency Project
University of Rochester Neurology Residency Training Program
Methods of Evaluation

Competency	RITE	Clinical Skills Evaluation	Chart Review	Resident Case Log	Attending Global Assessment	360° Evaluation	Resident Portfolio
Patient Care		X	X	X	X		X
Medical Knowledge	X	X	X		X		X
Practice-Based Learning and Improvement					X	X	X
Interpersonal & Communication Skills		X	X		X	X	
Professionalism		X			X	X	
Systems-Based Practice		X			X	X	

ACGME Core Competency Project
University of Rochester Neurology Residency Training Program
Methods of Instruction - Sites

Competency	Inpatient Neurology Rotation	Inpatient Consultation Rotation	HH Rotation	ED Consultations	Neurology FIRM	Faculty Clinics	Resident Conferences and Rounds
Patient Care	X	X	X	X	X	X	X
Medical Knowledge	X	X	X	X	X	X	X
Practice-Based Learning and Improvement	X	X	X	X	X	X	X
Interpersonal & Communication Skills	X	X	X	X	X	X	X
Professionalism	X	X	X	X	X	X	X
Systems-Based Practice	X	X	X	X	X	X	X

ACGME Core Competency Project
University of Rochester Neurology Residency Training Program
Methods of Instruction

Competency	Morning Report	Attending and Professor Rounds	Journal Club	Academic Half-Day Didactics	Health Team Rounds	Grand Rounds	MBB Course
Patient Care	X	X	X	X	X	X	
Medical Knowledge	X	X	X	X		X	X
Practice-Based Learning and Improvement	X	X	X	X		X	X
Interpersonal & Communication Skills		X		X	X		X
Professionalism		X		X			X
Systems-Based Practice		X		X	X		

DEPARTMENT OF NEUROLOGY
RESIDENT MENTORING PROGRAM

The Neurology Resident Mentoring Program is a longitudinal 4-year experience that focuses on guiding residents in 4 key areas:

1. Fellowship and career decisions
2. Structured development of a scholarship project
3. Defining personal and professional career goals
4. Developing leadership skills

YEAR ONE
Residents complete a written assessment to identify goals, career interests, and research interests, and meet individually with the mentorship director to discuss. Residents are then paired with a specific mentor by the end of PGY1. Their mentors are intended to help throughout residency and may also serve as their research, content, and/or subspecialty mentor.

YEAR TWO
Following a kickoff social event, mentor-mentee pairs meet at least quarterly to discuss progress, career goals and interests, elective selections, and scholarship projects. Toward the end of this year, mentors begin to work with mentees to begin planning for fellowship applications. Other content, project, and/or subspecialty mentors are identified. Formal updates are provided by faculty mentors.

YEAR THREE
Mentor-mentee pairs continue to meet at least quarterly to update on the fellowship process, discuss future career plans, and implementing scholarship projects. Barriers to future success are also addressed. Additional content, project, and/or subspecialty mentors are identified to bolster the mentorship team as needed. Formal updates are provided by faculty members.

YEAR FOUR
Residents are encouraged to continue their scholarship work but are also expected to be more independent and create their own timelines. The primary focus of this year is leadership and career development, with a curriculum that culminates in creation of a structured academic development plan that the resident will initiate after completion of residency and the development and implementation of a chief resident group leadership project.

The curriculum is focused on defining core values and understanding strengths in order to define and achieve goals. Topics addressed are listed below:

- Identifying, clarifying, and prioritizing your values
- CV workshop: strengthening your CV and aligning it with your values
- Developing long term goals: deciding what you want to do with your life
- Identifying the short-term goals that will lead to success

- Creation of a one-year learning contract
- Determine your personal mission and vision
- Using your time wisely and efficiently
- Understanding your own emotional intelligence
- Building and sustaining teams
- The work of becoming a leader

The chief resident leadership project consists of:
- Identifying objectives
- Creating an action plan
- Addressing barriers
- Implementing the project

RESEARCH MENTORSHIP
In addition to working towards career goals in years two through four, there is also a focus on developing and implementing a structured and guided scholarship project to present at the annual Schwid Resident, Fellow and Student Research Symposium, and ideally submit as a manuscript and/or poster on a national level over the course of residency. This process is guided not only by general and research mentors, but also takes advantage of the breadth of research expertise of our diverse faculty. Residents participate in a longitudinal curriculum integrated within the academic half day, in which they will discuss development of their projects, learn new skills, and identify resources for completing their scholarly activities.

This curriculum covers the following topics:

YEAR TWO
- Finding your project and mentor
- Development of a research question
- Reviewing the literature on your topic
- Study design
- Research methods
- Proposal presentations and critiques

YEAR THREE
- IRB guidance
- Data collection

YEAR FOUR
- Statistical methods for data analysis
- Writing an abstract
- Creating a poster
- Presenting your work
- Writing a manuscript

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MENTOR-MENTEE ASSIGNMENTS 2025-2026

Graduating Class of 2026

Mentee	Mentor
Bryce Aidukaitis	Adam Kelly
Kyra Curtis	Jessica Robb
Tiffany Duong	Lauryn Hemminger
Allen Hoste	Robert Griggs
Anna Gershteyn	Benzi Kluger
Alexandra Kuhajda	Imad Khan
AJ Logosh	Christopher Tarolli
Namita Patel	Gretchen Birbeck

Graduating Class of 2027

Mentee	Mentor
George Albert	Ben George
Meg Barlet	Jackie Burch
Alex Gerhardstein	Nimish Mohile
Tim McWilliams	Patrick Rooney
Jonathan Spiegel	Andy Lin
Audra Supraski	Bob Holloway
Wade Whitt	Emma Ciafaloni
Ryan Wolfe	Mel Braun

Graduating Class of 2028

Mentee	Mentor
Tameem Ahsan	Bogachan Sahin
John Ciarletta	Deb Roberts
Andrew Duffy	Phil Mongiovi
Ben Fang	Ania Busza
Courtney Seigel	Giovanni Schifitto
Rachel Siegel	Blanca Valdovinos
Sammi Tidd	Lauren Zoghlin
Will Yakubik	Deana Bonno

RESIDENT RESEARCH EXPERIENCE

The Department of Neurology has a strong tradition of basic, translational, and clinical research. Many internationally recognized clinician-researchers are members of the faculty. The department consistently ranks as one of the top neurology departments in the United States for extramural research funding from the National Institutes of Health.

The philosophy of the Department of Neurology is that research should be part of each resident's educational experience. The ACGME Neurology Residency Review Committee also mandates resident participation in scholarly pursuits. Accordingly, residents are required to participate in a clinical or basic research project during their residency, culminating in a formal departmental presentation at the Annual Schwid Research Symposium. Abstract submission to the American Academy of Neurology, the American Neurological Association, the Child Neurology Society, or a subspecialty meeting is also highly encouraged.

Each resident will choose a faculty mentor to support this project. In addition to overseeing the specific project, the mentor will instruct the resident in more general issues of study design, funding, implementation, and reporting relevant to the research project.

Examples of research projects include the following:

- Basic and translational science
- Clinical research
- Quality improvement, outcomes and health care utilization research
- Education research
- Clinical case presentation with review of the literature

Elective time may be used for research projects. Residents wishing to do a research elective must identify a faculty supervisor for the elective and a specific deliverable for completion during that time. Research may be conducted during a block rotation or longitudinally.

A suggested timeframe for this research experience is as follows:

- First year: Identify a faculty mentor and meet to discuss possible projects
  Inform the Program Director of your project and mentor
  Poster presentation at the Annual Schwid Research Symposium
- Second year: Begin research project during an elective block or longitudinally
  Poster presentation at the Annual Schwid Research Symposium
- Third year: Complete research project
  Submit an abstract to a national meeting
  Oral presentation at the Annual Schwid Research Symposium

DEPARTMENT OF NEUROLOGY
RESIDENT AND FELLOW RESEARCH SYMPOSIUM

The annual Steven R. Schwid, MD Neurology/Neurosurgery Resident and Fellow Research Symposium occurs each June. The symposium highlights a very broad range of basic, translational, and clinical research performed in the departments of neurology and neurosurgery. The 2025 Schwid Symposium will take place on Wednesday June 17, 2026.

All Neurology residents are expected to prepare a poster presentation for this symposium, each year of Neurology residency.

The abstracts should follow the AAN Annual Meeting Abstract format. The abstract body should include the following headings: OBJECTIVE (should be one sentence), BACKGROUND, DESIGN/METHODS, RESULTS and CONCLUSIONS. There is a maximum of 300 words allowed per abstract. The word count includes the body only. Case reports are allowed and should use the headings that are applicable to the work.
Each abstract should have the presenting resident or fellow as the first author and must include at least one faculty mentor/advisor who has reviewed the abstract prior to submission.
Each abstract will be reviewed by a member of the Schwid Symposium committee and the author will be provided with specific suggestions for revision. Details on the presentation format will be provided closer to the symposium. Residents selected to give an oral platform presentation instead of/in addition to a poster (if desired) will be notified by Friday, May 15, 2026.

Please note the following deadlines:

- General plan/identification of mentor by Wednesday, December 10, 2025
- Initial Draft Submission Due: Wednesday April 8, 2026
- Feedback provided by Monday April 27, 2026
- Revised Submission Due: Monday, May 5, 2025
- Poster feedback must be requested by Wednesday, May 20, 2026
- Posters due at Copy Center by Friday, May 29, 2026
- Symposium is Wednesday, June 17, 2026
- Participation is **required** for all Adult and Child Neurology Residents, and these deadlines are firm.

Below are some resources for writing abstracts (Accessed from https://smhs.gwu.edu/medicine-residents/scholarly-activities/abstract-writing-resources)

Resources for research abstracts

- ACP's "Writing a Research Abstract"
- Scientific Abstract Checklist
- Example of a Research Abstract
- How to Write an Abstract, by Philip Koopman, from The Carnegie Mellon University, Pittsburgh, PA

Funds are available to support printing charges for the residents. Prizes will be awarded for the best oral presentation and best poster from each trainee group (students, residents, fellows).

DEPARTMENT OF NEUROLOGY
RESIDENT JOURNAL CLUB

Journal Club occurs monthly, usually on a Wednesday evening. Neurology faculty members host Journal Club at their homes on a rotating basis. This enhances the practical understanding of evidence-based neurology and also provides an informal setting for the discussion of journal articles with the active involvement of attendings.

The purpose of Journal Club is to review a clinically relevant journal article and to consider:

- Study design (clinical question and selection of germane evidence)
- Potential areas of bias and error in design and execution
- Evidence validity, impact and applicability

The first Journal Club of the year will be devoted to a review of evidence based principles. For each subsequent Journal Club, the hosting faculty member selects a journal article for discussion, in consultation with the chief resident organizing Journal Club for the year. This will be a chance for the faculty member to bring his/her own clinical interests into a forum of discussion with the neurology house staff. Two articles per year will have a diversity/SDOH focus as part of the Neurology Resident DEI curriculum. One resident will be asked to review the article using evidence-based principles. This resident will also lead the discussion. The faculty member provides a light dinner and refreshments.

The reference book for Journal Club is Biller and Bogousslavsky's *Clinical Trials in Neurologic Practice: The Blue Books of Practical Neurology #25*.

GENERAL GUIDELINES FOR THE ACTIVITY OF THE NEUROLOGY RESIDENT AT SMH

Organization of the Neurology Inpatient Service (5-1600)

Organization:

- The Adult Neurology Inpatient Unit consists of twenty-four beds, which are divided among three teams: the Stroke (Red) and General Neurology (Blue) Teams (Neurology Inpatient Service), and the Strong Epilepsy Service. The Neurology Unit is responsible for the care of all patients with neurologic disorders admitted from the emergency department or transferred out of the Neuro ICU, admitted from the neurology outpatient clinics, or electively.

- The Stroke (Red) and General (Blue) Teams follow all patients admitted to the neurology inpatient service, with the exception of those admitted to the Epilepsy Service for long-term video EEG monitoring. Each team consists of a neurology PGY-2, a neuroscience APP (primarily on Red Team), a neurology, psychiatry or anesthesiology PGY-1, one or two 3rd year medical students and, on occasion, a 4th year neurology sub-intern. There is a neurology PGY-4 (chief resident) who supervises each of the teams. The organization of the Stroke and General Teams (Neurology Inpatient Service) is described below.

- The Epilepsy Service follows all patients admitted to the Strong Epilepsy Center for long-term EEG monitoring and treatment of seizures. The epilepsy team consists of the Epilepsy Attending, an epilepsy fellow and a neurology PGY-2 or 3 or a psychiatry PGY-1.

Personnel:

- **Attending:** There are two attending neurologists who supervise the residents on their respective teams: the Stroke Inpatient Attending and the General Neurology Inpatient Attending. These Attendings are ultimately responsible for all decisions regarding the care of their patients. Subspecialty services such as Neuromuscular, Neuro-oncology, Neuroimmunology and Movement Disorders are available on a consultative basis only.

  The Stroke and General Neurology Inpatient Attendings are responsible for making daily teaching rounds for their respective teams, and for providing daily teaching, feedback and a final evaluation for each resident whom they supervise. In order to do this, they must be readily available between 7:30 am and 5:00 p.m. daily for patient care and teaching activities. Pre-scheduled meetings are to be kept to a minimum and should be easily canceled if necessary. Outpatient clinics are not to be scheduled for the attendings when they are on service.

- **Neuroscience APP (6:30 AM – 7:30 PM):** The Neuroscience APPs are part of the Red team but also assist with Blue Team patients when needed. They see 5-6 stroke patients daily, primarily follow up patients but also new patients depending on census, acuity, and team needs. They assist the Neurology Chief Resident with overseeing rounds and patient

care. They attend morning huddle at 8:30 a.m. and afternoon huddle at 2:30 p.m. on 516/2:40 p.m. on 536 (if applicable). They take sign out from the Red and Blue teams at 4:30 p.m. and provide cross-coverage until 7:30 PM. At that time, the Neuroscience APPs sign out to the Medicine APPs on call overnight. There is a shared APP stroke list for other team members to look at so the PGY1/2 residents on Red Team know who they do/do not need to see. Patients are placed on the list by the APP at the end of the day. The Neuroscience APP independently evaluates the patient, writes the daily notes, and performs discharge paperwork including the discharge summary. They oversee all stroke patients and assist with their care as needed. They also assist the Blue Team when needed, including when Neurology PGY2 residents are released to attend didactics on Wednesday afternoons.

- **Neurology Chief Resident:** The Neurology Chief Residents (PGY-4) are responsible for the smooth running of the neurology inpatient and consultation services. There will be a General Chief Resident and a Stroke Chief Resident who are responsible for overseeing the rounding and patient care on the respective inpatient teams and assisting consult residents as needed. They are also responsible for attending the nursing huddle at 8:30 a.m. Mon - Fri when the PGY2 is unavailable to discuss patients on 5-1600 for their respective teams as well as the afternoon nursing huddle with the charge nurse at 2:30 p.m. Mon - Fri. The chief residents are also responsible for supporting the on-call residents during the evening and overnight shifts.
- **Neurology PGY-2:** The Neurology PGY-2s are responsible for all admissions to the neurology inpatient service. They receive new admissions each morning and throughout the day based on suspected admission diagnosis (stroke vs. general), between 8:00 a.m. and 4:30 p.m., Mon - Fri. They attend morning and afternoon nursing huddle with the charge nurse and the chief residents at 2:30 p.m., Mon - Fri. They are also responsible for seeing, writing notes, and caring for all patients above the 10 patient intern cap.
- **Neurology, Psychiatry and Anesthesiology PGY-1:** The PGY-1s work together with the Neurology PGY-2s on the Stroke or General Teams, and are responsible for assisting the neurology PGY-2s in managing their floor teams. The PGY-1s care for and write progress notes daily on all inpatients on their teams, up to the 10-patient cap mandated by RRC guidelines. It is the responsibility of the PGY-1 to take sign-out in the mornings from the APPs who were cross-covering overnight (using WebPaging “directory” tab, type “APP” and text page a call back number to receive sign out for Stroke/General team). Similarly, it is the responsibility of the PGY-1 to give sign-out and assign the appropriate Neuromedicine APP as covering provider at the end of the day, 4:30pm at the earliest. This will generally take place during sign out rounds at 4:30 p.m.

- **Fourth Year Medical Student Sub-Intern:** The fourth year medical externs work together with the Neurology PGY-2s on the Stroke or General Teams. They function as a substitute intern (PGY-1) and will be responsible for both new admissions and follow-up patients. They also write progress notes daily on their patients.
- **Third Year Medical Students:** The third year medical students work directly under the neurology PGY-2s. Each student is responsible for obtaining a complete history, performing a complete general and neurological examination, generating a differential diagnosis and formulating a plan of treatment for approximately three new patients per week. He/she will be responsible for completing the work-up on the same day that the patient is evaluated, and for presenting each assigned patient as needed on rounds. Progress notes are to be written daily on all inpatients that are followed by the student.

Teaching Rounds:

- Teaching Rounds are held every weekday morning from 9:00 am – 12:00 pm. Times are subject to change, depending on census, acuity of the patients, and afternoon responsibilities of the residents on service (i.e. FIRM, didactics).

The goals and objectives for Attending Rounds, as well as guidelines for conducting them, are included elsewhere in this handbook.

Admission Guidelines - Weekdays:

- The Stroke and General Teams accept admissions from General and Stroke consult services based on suspected admission diagnosis each weekday in the morning and throughout the day if the patient arrives to the Neurology floor prior to sign-out rounds at 4:30 p.m.

- **Elective admissions:** Elective admissions that arrive on the floor by 4:30 p.m. are admitted by the appropriate floor team, either the neurology PGY-2 or, if unavailable, the respective chief resident based on the patient's respective diagnosis. Admissions called to the floor after 4:30 p.m. are evaluated by the on-call neurology resident and are picked up the following day by the appropriate team.

- **Call-out admissions**: Hospitalized patients who are in the ICU or on a non-neurological service may be transferred to the Neurology service. If the patient is coming from a non-neurological service, the consulting resident who knows the patient should inform the Neurology inpatient team that the patient may be transferred. Once the patient has arrived in a bed covered by the Neurology inpatient team, he/she will begin to be covered by appropriate the Neurology service. If this occurs before 4:30 p.m., the Stroke or General team will assume care of the patient. If this occurs after 4:30 p.m., the patient will be covered by the on-call neurology resident until the following morning when he/she will be assigned to a neurology inpatient team.

  For call-outs from the NMICU, the NMICU will contact the chief resident to let them know about the call-out and provide verbal sign out if prior to 4:30 pm. Once the patient has arrived in a bed covered by the Neurology inpatient team, the chief resident will evaluate the patient and write an accept note for the patient. If a patient is called out after 4:30 pm, the NMICU will contact the EF resident if before 8:00 pm or the NF resident if after 8:00 pm to let them know about the call-out and provide verbal sign out. Once the patient has actually arrived in a bed covered by the Neurology inpatient team, the appropriate resident on call will then evaluate the patient and write an accept note. The patient does not need to be evaluated or a note written prior to their physical arrival on the Neurology unit. For any NMICU call-outs, it should be made sure that they are on the admitted list so that they can be assigned to the appropriate team in the morning.

- **ED admissions:** Patients seen in the ED prior to 4:30 p.m. who are admitted to Neurology are covered by the appropriate floor team (Stroke or General) if they arrive on 5-1600 prior

to 4:30 p.m. Patients that do not arrive on 5-1600 by 4:30 p.m. or are seen in the ED after 4:30 p.m. by the on-call neurology resident and subsequently admitted to Neurology, are covered by the on-call resident until they are picked up by the appropriate team the following day.

- The PGY-1s may leave the hospital after sign out rounds at 4:30 pm once they have finished all of their work including signing out to the APP cross-cover and assigning the appropriate covering providers at sign out rounds. Ideally PGY-1s and PGY-2 will both be present at sign out rounds.

Admission Guidelines - Weekends:

- The neurology PGY-2, the PGY-1, and the medical students on the Stroke and General teams each have one day off every weekend. The PGY-1 residents should always come in the same day as their respective chief (i.e. the Stroke chief and stroke PGY-1 will come in on the same weekend day and vice versa for General). The Stroke/General PGY-2 and medical student will come in on the opposite day of their chief. For most weekends, the Stroke chief and PGY-1 will come in on Saturdays and the Stroke PGY-2 and medical student will come in on Sundays. The opposite is true for the General floor team. The new admissions are taken by the chief resident and PGY-2 of each respective team. For example, on Saturday, the Stroke chief will take new stroke admissions and the General PGY-2 will take new General admissions.

- If the Stroke/General PGY-2 **is on-call** (back-up shift), they will sign out his/her team to the other team's PGY-1 as soon as they are done with their work and then begin the call shift. This sign out must occur by 12pm at the latest. If the Stroke/General PGY-2 **is not on-call**, they are able to sign out to the other team's PGY-1 after work is completed and no earlier than 12 p.m. The PGY-1 is expected to cross-cover both teams until 4:30 p.m., when he/she may sign out both teams to the APP cross cover.

Evening and Night Call:

- The neuroscience APPs will cover the patients admitted to the neurology inpatient service from 4:30 until 7:30 pm currently Monday-Saturday. There are plans to expand this to include Sundays as well. The neuroscience APP will then sign the patients out to the medicine APP who will continue to cover the patients overnight until am sign out. The neurology, anesthesia, and psychiatry PGY-1's must sign out to the appropriate APP covering provider prior to leaving the hospital each evening, and receive sign out each morning prior to 7:00 am. The correct APPs need to be assigned as covering provider to every patient (except step down) each evening. In addition, the UCEF Neurology resident should be assigned as a second covering provider each evening from 4:30pm to 8pm. Neurology step-down patients are always covered by the Neurology on-call resident. The neurology on-call resident provides back-up supervision to the APP cross-cover for all Neurology inpatients on 5-1600.

Teaching Responsibilities:

- The Neurology PGY-2 is responsible for supervising any medical students assigned to their team, including reviewing their patient work-ups.

Miscellaneous Considerations:

- The neurology PGY-2 is responsible for consulting other services on patients admitted to Neurology, but may delegate this to the PGY-1.

- When the Neurology PGY-2 is in clinic, the team should be signed out to the appropriate chief resident, or PGY-1 if the chief is unavailable, for cross coverage.

- When the Neurology PGY-1 is in clinic or off-service PGY-1 is at education, the team should be signed out to the appropriate PGY-2 and chief resident for cross coverage.

- In the unusual situation where the Neurology PGY-1 and PGY-2 are both in clinic on the same day, the chief resident of the respective team will provide cross coverage.

- The interns will be capped at 10 patients per team, due to medicine RRC program requirements. When the number of patients on the Stroke or General teams exceeds 10 patients, the neurology PGY-2 will be responsible for seeing additional follow-up patients. On the weekends, the Chief will see patients who are in excess of this cap.

Organization of the Neurology Consult Services

Organization: There are two adult neurology consultation services at SMH: the General neurology consultation service and the Stroke consultation service. An attending neurologist, a neurology PGY-3, and two 3rd year medical students staff each service. There are a variety of rotators on each consult service, which vary throughout the year, including: Medicine or Medicine-pediatrics PGY-1, Ophthalmology PGY-1, PM&R PGY-1, Neurology PGY-1, and Neurosurgery PGY-3 (General consult only).

- **General neurology service:** The General neurology service provides general neurology consultations on the adult hospital wards, the R wing, the ED, WCC, and in the ICUs. These patients are first seen by the neurology PGY-3 or a PGY-1 on the General Service and are then staffed with the General neurology consult attending. The neurology PGY-3 should triage and oversee the PGY-1 consults to ensure timely and appropriate medical decision making.

- **Stroke consultation service:** The Stroke consultation service provides consultations for patients suspected of having a stroke, TIA, or intracranial hemorrhage. Patients may be seen on the adult hospital wards, R wing, ED, WCC or in the ICUs. The stroke service also follows all acute stroke patients in the Neuromedicine ICU who receive thrombolytic therapy, as well as any other ICU patients with cerebrovascular disease.

Consultation hours: 8:00 am - 4:30 p.m. Monday through Friday. Any consultation called to the General or Stroke neurology PGY-3 during those hours is typically seen by the resident that day. If there are multiple consults called late in the day shift, generally between 4:00 pm and 4:30 pm, the acute consults must be seen by the day consult resident, but non-acute consults may be passed off to the evening/night shift. No more than 2 total consults should be passed off from one shift to the next.

Consult rounds: Each consultation team will round with the Attending usually twice daily at a mutually convenient time (typically in AM and then early PM). All new patient consultations should be formally presented to the Attending on rounds that day. Follow-up patients may be seen by the Attending at the discretion of the PGY-3 neurology resident and the Attending on service.

Transfer notes and orders: The neurology PGY-3s on each consultation service are responsible for writing a transfer accept note for any of their patients who are being transferred to 5-1600 from an ICU other than the NMICU or another service. The transfer/accept notes for patients being called out of the NMICU are written by the appropriate chief or call resident. Transfer orders also need to be written, and may be entered by either the consult resident or the accepting team.

Admission notes and orders: When a patient seen in consultation will be admitted to the Stroke or General floor team, the neurology PGY-3 consult resident is responsible for writing the admission note and orders for that patient and adding the patient to the "admitted list" in e-record. The neurology PGY-3 should then communicate the pertinent information regarding the patient's presentation and plan to the appropriate inpatient team.

Cross-Coverage: The neurology urgent care (UCEF) resident cross-covers for the Stroke and General neurology consult residents on the afternoons when either of them is in clinic.

Weekend coverage: The neurology PGY-3 consult residents each come in on one day each weekend and will round on **both** consult teams providing cross coverage of the consult services. If the resident is also on-call and is the primary day float resident, this shift starts at 8am and they must often be on-call and rounding with attendings simultaneously with the back up call resident free to assist in seeing consults by 12 pm. If they are on back-up call on the weekends, they should complete their work by 12 pm to be able to start assisting the day float resident. If the consult resident is not on-call, they are free to leave the hospital once all of their work is completed.

Evening, Night, and Weekend Coverage

- The neurology evening and night float residents are responsible for all adult ED patients triaged to Neurology, as well as adult and pediatric neurology consultations in the hospital, the ED, the R wing, WCC, and the ICUs. They are the primary providers for all admitted SEC patients. In addition, they may be called concerning problems with patients already being followed on the consult services and provide back-up coverage to the APP service cross-covering neurology inpatients on 5-1600.
- On Saturdays and Sundays, the neurology weekend (day float) and night float residents are responsible for all neurology consultations and admissions, including direct admissions to 5-1600.
- There are two residents on call during the day on all weekends from 8 am to 8 pm. The primary call resident is the day float resident and the second resident is the **"Back-up,"** which is essentially a second day float. This "back-up" resident typically has inpatient duties (floors, chief, consults). The BU is expected to start splitting consults and clinic calls (1:1) with the DF as soon as they complete their inpatient work, and no later than 12pm.

They will then stay until 8pm with the day float. If the BU has no inpatient work to complete, the shift goes from 8am to 8pm.

- The night float is expected to attend morning report on Mondays, Tuesdays and Fridays, and the Neuroradiology Conference on Thursdays.
- Evening float, weekend call, and Saturday overnight coverage is provided by PGY-2, PGY-3, and PGY-4 neurology residents, as predetermined on the call schedule.
- The Neurology Chief Residents are responsible for constructing the Evening Float and Weekend call schedules.
- The Evening Float and Night Float resident as well as the on-call Weekend resident are responsible for triaging and returning calls for resident firm clinic patients. All other neurology clinic calls, including subspecialty clinics, should be triaged and returned by the appropriate provider on call for that subspecialty. If there is a Pediatric Fellow on-call, they will take the Pediatric Neurology clinic calls.

Sign-Out Rounds

Morning Sign-Out

- *Location*: Resident room
- *Time*: **630-7am**
- Floor teams expected to get verbal sign out from NF at 630am at the latest
- Consult teams expected to get verbal sign out from NF at 645am at the latest (if M-F, must also obtain pagers at this time)

Monday – Friday Evening

- *Location*: SEC conference room
- *Time*: **4:30pm**
- Consult, floor residents, evening float, UCEF
- Floor teams sign out to UCEF
- Consult teams sign out to Evening float
- Urgent consults that come during sign out should be taken by the EVENING FLOAT

Night Sign-Out

- *Location*: Pending location of on-call resident (communication is key)
- *Time*: **8pm**
- Evening float + UCEF vs day float + back-up, night float
- Urgent consults that come during sign out M-F will be taken by the UCEF resident

Triaging consults prior to change to change of shift:

- Consult residents (general, stroke, peds) are expected to triage consults that come late in the day prior to change of shift, which generally refers to consults between 4 pm and 4:30 pm.
- The consults should be called back by the day consult resident in order to triage acuity
- Consults that are urgent (i.e. stroke alert, status) need to be seen by the day consult resident

- Non-urgent consults should be passed off to evening shift residents along with information about how to contact the consultant, this should not exceed more than two passed-off consults per shift
- Rarely there are very non-urgent consults that can be seen the following day by the consult team, but several criteria must ALL be met:
    - Needs to be approved to be seen tomorrow by consult attending/fellow
    - Patient added to appropriate list and hand off updated to say "will be seen by day consult team in AM" in to-do section
    - Only appropriate if you are passing the consult off to yourself -- i.e.: a Friday 4pm consult is not appropriate to pass off to the Saturday day float
- Evening and night residents should also be triaging at the end of their shift -- non-urgent consults should be passed off to day/night team though the goal should be to generally avoid passing consults to the night float resident unless there is an abnormally high volume of consults during the evening float shift. The UCEF resident will generally see any consults that come in between 7:30 pm and 8:00 pm. The general and stroke consult residents will generally start seeing any consults that come in after 6:45 am.

Urgent Care Rotation

The Urgent Care (UC) Rotation was instituted in 2011 to address the increased volume and acuity of general neurology consultations in the afternoon and evening hours. Given the advances in stroke care and the increased complexity of neurologic consultations due to advances in transplantation medicine and oncology treatments, neurology consultations are becoming more complex and time-consuming. This rotation is planned to provide a rich educational experience for the resident, while simultaneously decreasing the workload of the residents covering the stroke and general consultation services during the evening and night shifts. The UC rotation is organized as follows:

- The resident on the UC rotation works 5 days per week, Monday through Friday, from 12pm until 8-10pm. The rotation is two weeks in length.
- This is a PGY-2 rotation.
- The UC resident will attend didactics on Wednesday afternoons.
- During the afternoon hours (1-4:30 pm), the UC resident will have the following responsibilities:
    - Provide cross coverage for the Stroke and General Neurology consult residents when they are in clinic two afternoons per week, starting at 12:00 pm.
    - Attend their own resident firm one afternoon per week, which is scheduled to end by 4:00 pm.
    - The activities of the other two afternoons during the UCEF may include Jeopardy coverage, LP clinic, and/or reading time.
- The UC resident will staff new patient consultations with the stroke and general neurology attendings by telephone or in person, as per current policy.

- The UC resident should participate in sign-out rounds at 4:30 pm, taking sign out from the floor teams regarding any active patients or patients in the Neurology step-down unit and will then subsequently provide this information to the Night Float resident.
- During the evening hours (4:30 pm to 10 pm), the UC resident will have the following responsibilities:
    - Work together with evening float (EF) resident in performing inpatient consults. The EF will receive the consult and clinic call pages and will divide these equally with the UC resident. The UC and EF residents should both carry a consult mobile phone to facilitate direct communication.
    - The UC resident should be assigned as covering provider for all SEC inpatients, newly-admitted patients, and step-down patients until 8 pm. They, as well as the EF, will also provide assistance to the covering APPs for the floor patients as needed, particularly with acute neurologic problems or concerns.
    - All consults, clinic calls, and acute patient issues should be evenly distributed between the EF and the UC residents to ensure timely care to patients and equal distribution of work, with the goal of having the EF leave by 9:00 PM.
    - In general, the EF resident will not see new consults after 7:30 PM. The UC resident will then be responsible for new consults and clinic calls that are called before 8:00 PM. Rarely, if the night float becomes extremely busy at the beginning of the shift, the UCEF may be asked to help with acute consults. The UC resident can leave the hospital after work is completed and they have checked in with the night float, in general UC residents should never be leaving after midnight. The UC should generally not be passing off consults to the NF unless there is an abnormally high consult volume. Their function is to absorb late consults and tasks to help the EF leave on time and to avoid unnecessary passing off of consults and tasks to the NF as the beginning of the NF shift can sometimes be busy.
    - The EF and UC residents are responsible for updating all patient lists and hand-offs to ensure appropriate sign out to the receiving consult and floor teams. A verbal sign out should be given to the night float regarding pending consults, unstable patients, acute floor issues, etc.

UCEF Rotation Hours:

12:00 – 1:00 PM	Grand Rounds (Wednesdays only)
12:00 – 4:30 PM	Cross-cover general and stroke consult residents when they are in clinic (2 afternoons per week)
1:00 – 4:00 PM	Attend his/her/their resident firm (1 afternoon per week)
4:00 PM – 10:00 PM	Cover all neurology step-down, SEC, and newly admitted patients.
	Evenly divide all new consults, clinic calls, and acute patient care issues with the EF until 7:30 PM, at which point the UC resident absorbs all new tasks.

Evening and Night float hours:

Night float:	Week 1: Saturday through Friday	8 PM – 8 AM (home by 9:00 AM)
	Week 2: Sunday through Friday	
	Saturday night:	Off
Evening float:	Monday through Friday:	4:30 PM – 8 PM (off by 9:00 PM)
Urgent care:	Monday through Friday:	12 PM – 10 PM
Weekends:	Saturday day float/back-up:	8 AM – 8 PM
	Saturday night float:	8 PM – 8 AM
	Sunday day float/back-up:	8 AM – 8 PM

Attending and Chief Resident Back-up:

- The General neurology inpatient attending should be notified of all patients admitted to the 5-1600 inpatient service at the time of admission.
- The General neurology consult attending or Acute Stroke attending should be notified of any new ICU consults shortly after the patient is seen.
- The General neurology consult attendings and Acute Stroke attendings should be involved with all adult patients seen in consultation by the on-call and consult residents.
- The on-call Pediatric Neurology attending or fellow must be notified of all pediatric consultations.
- The chief resident is available 24 hours a day by phone or pager to provide support to residents on-call.

Miscellaneous considerations:

- The on-call resident can order an after-hour emergency EEG in cases of suspected herpes encephalitis, and in cases of suspected status epilepticus. In these cases, the on-call resident pages the EEG attending for approval and then the EEG technician through the page office. EEG technicians are available 24 hours a day to perform the study, and the EEG attending will then read the tracings.
- The on-call resident is responsible for answering patient calls from neurology firm patients during off-hours and from pediatric neurology patients overnight. Clinic calls from Westfall Road general neurology patients, subspecialty neurology patients, and child neurology patients (after 8 pm) will be answered and returned by the appropriate provider on call for these clinics and subspecialties. An e-record note should be sent to each practitioner regarding patient calls after-hours.

- All patients located in the neurology step-down unit will be covered by the Neurology on-call resident as mentioned above. These patients should not be covered by the APP service.

- All consults seen by the on-call resident should be staffed with either the stroke fellow/attending, chief resident, or general neurology attending. Any general patient who is being admitted to the hospital or is already admitted can be staffed by the chief resident unless the chief feels that attending input is needed. Stroke consults should be staffed with the stroke fellow on call or attending if no fellow is on call. Any patient that is being discharged from the hospital or ED or may be discharged should be staffed with a fellow or attending.

Responsibilities of the Neurology Chief Resident

- **General Responsibilities:** The Neurology Chief Residents are responsible for the smooth operation of the Neurology Inpatient General and Stroke Services on 5-1600 as well as the consult services. Each chief should closely monitor work-up and management for all patients admitted to Neurology and their respective Stroke/General teams, assist with the evaluation of acutely unstable patients, provide support and give feedback to all 5-1600 house staff. They are also responsible for seeing any NMICU call-outs during the day. They should also be available to help with any tasks for the inpatient teams, such as updating families, helping with discharge summaries, and other tasks as needed.

- **Work rounds on 5-1600:** The Stroke and General Chief Residents will attend work rounds at 9:00 AM with their respective teams.

- **Support for the on-call Resident:** The Chief resident on-call provides primary support for the neurology on-call resident. This is particularly crucial for the neurology PGY-2s, and especially during the first six months of their residency. **The Chief Resident should specifically be notified if the on-call resident is more than 4 consults behind and/or has more than 2 acute consults within 30 minutes.** Otherwise, on-call residents are expected to call the Chief with any other concerns and the Chief is expected to provide assistance both via phone and in person as necessary. It is also expected that any general neurology patients seen by the call residents, including overnight, who are either being admitted to the hospital or are already admitted to the hospital be staffed with the chief resident on call. Any patients who are being discharged from the hospital or ED should be staffed with an attending or fellow.

- **Availability:** The Chief Resident who is listed on-call is expected to be available at all times, including overnight.

- **Weekends:** The Stroke and General Chief will come in on one day each weekend, these are pre-designated in the call-schedule. The intern of their respective team will come in on the same day as the chief. The chief is responsible for all new admissions for their respective team and seeing follow-ups beyond the 10-patient intern cap. The chief is responsible for providing support to all junior residents on the weekends.

- **Direct Admissions:** The chief resident is responsible for coordinating direct admissions to the Neurology service from the outpatient setting.

- **Urgent Outpatient Consultations:** The Chief Resident is responsible for arranging to see any outpatients who need to be evaluated urgently and who cannot be scheduled in the Firms within a week. He/she will have a room reserved in the Neurology clinic one afternoon each week for these patients. The General Neurology Attendings are responsible for staffing these patients with the Chief Resident.

- **Grand Rounds:** One Chief Resident is designated to be in charge of scheduling and emceeing weekly Grand Rounds, with assistance from the Chair of Neurology and Associate Chair for Education.

NEUROLOGY CONFERENCES/TEACHING ROUNDS SCHEDULE

MONDAY

7:30 AM – 8:00 AM:	Morning Report
9:00 AM – 12:00 PM:	Attending Rounds

TUESDAY

7:30 AM – 8:00 AM:	Morning Report
9:00 AM – 12:00 PM:	Attending Rounds

WEDNESDAY

9:00 AM – 12:00 PM:	Attending Rounds
12:00 PM – 1:00 PM:	Department of Neurology Grand Rounds
1:00 PM – 5:00 PM:	Neurology Resident Didactics

THURSDAY

7:30 AM – 8:00 AM:	Neuroradiology Conference
9:00 AM – 12:00 PM:	Attending Rounds

FRIDAY

7:30 AM – 8:00 AM:	Morning Report
9:00 AM – 12:00 PM:	Attending Rounds
12:00 PM – 1:00 PM:	Resident Business Meeting

Additional special teaching and/or career development conferences may be scheduled during the week based on availability, at the discretion of program leadership.

NEUROLOGY RESIDENT DIDACTIC SERIES
ACADEMIC HALF DAY

Formal resident learning experiences will occur in a four-hour educational block on Wednesday afternoons throughout the year. The goal of these sessions is to build neurological knowledge and allow residents the ability to apply this knowledge in active learning session. All PGY2,3, and 4 residents who are not on vacation, on night float, or providing clinical coverage are **REQUIRED** to attend, and will be relieved of clinical duties for the afternoon.

In general, Wednesday afternoons will take the following schedule:

Time	Session	Format
12:00 – 1:00 PM	Neurology Grand Rounds	--
1:00 – 2:00 PM	Topic 1: Basic information	Pre-recorded video review (Blackboard)
2:00 – 3:00 PM	Topic 1: Application of knowledge	In-person, active learning
3:00 – 4:00 PM	Topic 1: Practical session - or - Topic 2: Application of knowledge	In person, active learning
4:00 – 5:00 PM	Self-study material (Topic 1 or Topic 2) Session multiple choice questions Session feedback survey	Self-study

Course content, including the schedule and all materials required for each day's sessions, will be hosted on the Blackboard Learn website (learn.rochester.edu) in the **Neurology Resident Education** course.

Clinical Coverage during Didactics for 2024-2025:

	Attending	Fellow	APP	Resident	Others
Blue Team	Blue				PGY1
Red Team	Red		X		PGY1
General Consults	General Consult			**General Consult Attending**	Rotators, PGY1
Stroke Consults	Stroke Consult	X		**Stroke Fellow**	Rotators
NMICU	NMICU	X	X		
Peds inpatient	Peds	X		**Alternating Child Chief**	
SEC	SEC	X	X		Psych PGY1
Highland	HH			**HH Attending**	
FIRM emergencies	FIRM/Aman				Resident RN, FIRM anchors

Sign-out and Coverage Details:
Before being excused for educational conferences, all residents MUST sign-out to the covering team members. They also should make their personal pager unavailable, list their Haiku secure chat status as unavailable (and list the covering provider), and hand off the service pagers. Excused residents must ensure that handoffs and patients lists are updated before leaving for didactics. Neurology PGY1 residents do not attend the Wednesday afternoon educational sessions, unless the inpatient service is very light; in that case, they must remain available by pager/phone/e-record at all times and excuse themselves if required for patient care.

The Blue PGY2 will sign-out to the covering Attending and Blue PGY1.
The Red PGY2 will sign-out to the Neuromedicine APP on the Red Team.

The Stroke consult service will be covered by the Acute Stroke attending, the Stroke fellow, and off-service rotators.

The General consult service will be covered by the General Consult attending and off-service rotators.

Around 4:30pm, all covering providers MUST sign-out to the evening floats/APPs as applicable, update handoffs/patient lists, and turn over the service pagers as applicable.

INPATIENT ATTENDING PHYSICIAN'S RESPONSIBILITIES

Teaching Responsibilities

1. The primary responsibility of the Stroke and General Neurology Attending Physicians is to teach the House Staff on the inpatient and consultation services. A focal point of this teaching are the Attending Rounds, which occur daily according to the schedule below. However, Attending Physicians may elect to start rounding earlier, depending on the needs of the team on a given day.

Monday	9:00 am - 12:00 pm	Attending Rounds
Tuesday	9:00 am - 12:00 pm	Attending Rounds
Wednesday	9:00 am - 12:00 pm 12:00 pm - 1:00 pm	Attending Rounds Neurology Grand Rounds
Thursday	9:00 am - 12:00 pm	Attending Rounds
Friday	9:00 am - 12:00 pm	Attending Rounds

2. Residents are asked to be well prepared for Attending Rounds and to meet promptly at the appointed hour. Each resident is expected to be at Rounds unless an acutely ill patient needs immediate attention.

3. Rounds should be built around the patient's central problem with teaching directed primarily at the first year neurology residents. Patient presentations should take place at the bedside, when possible.

4. Attending Rounds will include formal case presentations by the intern or medical student, bedside teaching by the attendings, and management discussions with the team.

5. Interruption of Rounds should be kept to a minimum. Where there is an acute problem needing attention, the chief resident should excuse him or herself and see the patient allowing the PGY-1 and PGY-2 to remain at Rounds. Attendings should pay particular attention to time on Wednesdays, in order to complete morning work in time for residents to be released to attend Grand Rounds followed by Wednesday afternoon didactics.

6. Attending Rounds should be directed actively by the Attending with appropriate challenge to the residents, including give-and-take Socratic teaching. Primary data should be challenged as to their accuracy and completeness; residents should defend logically their diagnostic and therapeutic plans; and they should be stimulated to acquire new knowledge. Cost-effectiveness and evidence-based medicine should be stressed.

7. A variable approach to Rounds is encouraged which will depend on the problems the patient presents. Areas to be covered include: basic science correlation and pathophysiology of disease, clinical skills used to acquire and record clinical data, diagnostic reasoning, differential diagnosis, up-to-date description of disease entities, personal and social problems of the patient, medical ethics, discriminative laboratory utilization, appropriate use of consultants, individualized therapy and knowledge of drug action, preventive medicine, and follow-up plans for the patient.

Evaluation Responsibilities

1. The Residency Program Director is required to certify that each resident, at the end of his or her residency training, is clinically competent in each of the six ACGME Core Competencies in order to be qualified to sit for the ABPN Certifying Examinations. Ongoing evaluation is required of faculty members who teach and supervise residents.

2. Global Assessment Forms evaluating all six ACGME Core Competencies and a subset of the Milestones are available through the MedHub system and must be filled out by the Attending for each resident with whom he/she has worked for at least one week. It is important to write at least 2 or 3 sentences in the text box summarizing the resident's performance. In order to provide more accurate evaluations, the attending should keep notes on the performance of each resident throughout the attending period.

3. The attending should direct teaching not only to enhance medical knowledge and clinical judgment, but also to improve individual clinical skills. During the attending period, the PGY-1 or PGY-2 should be asked to demonstrate for 5-10 minutes at the bedside, selected interview and physical diagnosis skills.

4. At least one medical record must be reviewed by the Attending to determine the quality of record keeping, including clinical decision-making, follow-through in patient management and preventive health services, and appropriate use of clinical facilities and resources (e.g., appropriate laboratory tests and consultations). Each neurology resident will select a new patient consultation note or admission note, print this note and submit it to the attending for his/her review. The neurology attending will complete the resident chart review form and provide verbal feedback to the resident concerning the written note.

5. Feedback should be provided to the PGY-1's, PGY-2's, PGY-3's, Chief Residents, and medical students on an ongoing basis. Ideally, the attending should meet briefly immediately after Attending Rounds with the resident who presented the case. In addition, the attending is expected to meet individually with each resident and medical student at the end of his/her rotation to provide verbal feedback.

6. The Residency Program Director should be contacted personally if any particular Neurology resident is performing unsatisfactorily.

Evaluation of Attendings

Each resident is asked to evaluate the attending on the following 10 areas:

	Low 1	2	3	4	High 5
1. Interest in Teaching					
2. Ability to Teach Outside Own Specialty					
3. Demonstrating Appropriate Physician Attitudes					
4. Bedside Teaching of Interview and Physical Dx					
5. Basic Science Correlation					
6. Teaching Diagnostic Reasoning					
7. Teaching Medical Facts					
8. Appropriate Involvement of all on Rounds					
9. Stimulating Acquisition of New Knowledge					
10. Review of Medical Records with Comments					
OVERALL RATING					

Attendings are encouraged to review their own evaluation file kept in the Chair's office.

HIGHLAND HOSPITAL
1st YEAR NEUROLOGY RESIDENT ROTATION

Highland Hospital
1000 South Avenue
Rochester, NY 14620

Highland Hospital is a 261-bed, full service hospital established in 1889. It became part of the University of Rochester Medical Center in 1997, and has developed centers of excellence in geriatric medicine, women's health, obstetrics, bariatric surgery, and joint replacement surgery. While it is part of a major medical center, Highland Hospital has been able to maintain its identity and important role as a smaller, patient-centered, community-based hospital. In many departments, the medical staff is comprised of physicians in private practice as well as physicians who are employed by URMC.

The URMC Department of Neurology began providing full consultative neurological services at Highland Hospital in 2004. There is no neurology attending service at Highland Hospital at this time. Several years ago, a 22-bed Neuromedicine Unit opened on East 7. In addition to East 7, many patients with neurological disorders are admitted to West 7; together, these two areas comprise Highland's stroke unit. With the exception of neonatal and child neurology, first-year residents on service at Highland should expect to encounter the full spectrum of neurological disease.

Highland Hospital is a New York State designated Stroke Center. All patients who present to the Emergency Department with symptoms of acute stroke are first evaluated by a well-trained and coordinated stroke team comprised of emergency medicine physicians, PAs, and nurses. During weekday business hours, the in-house neurology team is responsible for working up acute strokes and making acute treatment decisions with the ED providers. The stroke fellow and acute stroke attending at Strong Memorial Hospital are available for backup during these hours. On weeknights, all acute stroke cases are staffed with the stroke fellow or acute stroke attending prior to initiating acute therapies. From 8 AM to 12 PM on weekends, the in-house neurology team is once again responsible for acute strokes, with the stroke fellow and telestroke attending serving as backup. After 12 PM on weekends, all stroke alerts go to the stroke fellow or telestroke attending. The "Stroke Team" page refers to a patient with symptoms of acute stroke either in the ED or inpatient on a medical/surgical floor. First responders to an inpatient Stroke Team page are Internal Medicine or Critical Care PAs who are trained to perform the NIH stroke scale and evaluate patients with acute symptoms.

One goal of this rotation is to use Highland's "community hospital" atmosphere to simulate the consultative feel of the private general neurology practice environment in which many neurologists work. The resident also gains experience supervising and teaching medical students, as well as interacting with providers from other services, in particular Internal Medicine and Family Practice.

The Department of Neurology office, which includes work space and full computer access for both residents and medical students, is located in the Professional Office Building, Room 040 (on level BA, also referred to as the Garden level). The entry code for the neurology office is 4011. Contact Christy Miller (Phone: 273-5578, Room 5-4327A within 5-4327 suite-SMH). Keys should be returned after each rotation as there are a limited number for the Department to share.

Core Neurology Faculty

- Curt Benesch, MD: Interim Chief of Neurology and Director, Stroke Center
- Anthony Maroldo, MD: Medical Education Site Director

Goals for the 1st Year Highland Hospital Rotation

1. Develop skills in the following areas: obtaining complete neurological histories, performing accurate neurological examinations, developing appropriate and complete differential diagnoses, and selecting appropriate therapies.

2. Become comfortable performing neurological consults in an emergency department setting in a timely and efficient manner.

3. Gain aptitude at communicating recommendations for evaluation and treatment of patients with neurological disease to the healthcare providers on attending medical and surgical teams, as well as working with those providers in an ongoing consultative role during a patient's hospital stay.

4. Gain in-depth knowledge of major categories of neurological disease, especially with respect to the populations represented at Highland Hospital (i.e. geriatrics, obstetrics).

5. Become familiar with changes in the neurologic exam associated with normal and abnormal aging.

6. Become familiar with special considerations in the evaluation and treatment of common neurological disorders (i.e. migraine, seizure, peripheral neurology) during pregnancy.

Expectations of Residents

1. The resident will be available to see new consults between 8 AM and 5 PM Monday through Friday, except on the afternoon that he or she sees patients in the resident FIRM. The resident will also be excused for didactics on Wednesday afternoons. The actual times that the workday begins and ends will vary depending on the case load.

2. The resident will round with the attending and see new consults from the previous night on Saturday mornings and is expected to be out by noon. There is no overnight neurology resident coverage.

3. The neurology resident is expected to field and triage new consultations from the requesting services; on weekends and when the resident is in clinic, the attending neurologist will be responsible for taking new consults and triaging calls.

4. The resident will educate himself or herself about the neurological disorders encountered on the consult service by reading appropriate texts, journals, and on-line material.

5. The resident will supervise and teach the 3rd year medical students rotating in Neurology at Highland Hospital.

CHILD NEUROLOGY RESIDENT ROTATION

Objectives

The overall goal for the three-month rotation in Child Neurology is for the neurology resident to be proficient in obtaining histories and performing neurologic examinations on infants and children. Additional goals include learning about normal growth and development and understanding the interrelationship between development and abnormalities of the nervous system.

In order to achieve these goals, the resident should be involved in the work-up and management of infants and children of various ages in both the inpatient and outpatient settings. Furthermore, the resident should have an opportunity to discuss and read about the problems he/she is seeing.

The common neurologic problems of childhood are to be emphasized. These include:

1. Perinatal Problems in Premature and Full Term Infants
   - Perinatal asphyxia
   - Intracranial hemorrhage and hydrocephalus
   - Hypotonia
   - Seizures
   - Birth injuries to the nervous system (including to the brachial plexus)

2. Developmental Delay and Intellectual Disability
   - Global Developmental Delay
   - Delayed motor development (including cerebral palsy)
   - Delayed speech/language development
   - Delayed cognitive development
   - Abnormal social development (including autism)

3. Childhood Seizures
   - Neonatal Seizures
   - Febrile Seizures
   - Idiopathic Generalized Epilepsies (including childhood absence and juvenile myoclonic)
   - Idiopathic and Symptomatic Focal Epilepsies (including Benign Rolandic)
   - Infantile Spasms (West Syndrome)
   - Lennox-Gastaut syndrome

4. Headaches
   - Migraine and variants in childhood including:
     - Benign paroxysmal torticollis
     - Benign paroxysmal vertigo of childhood
     - Hemiplegic migraine
     - Abdominal migraine / cyclic vomiting
     - Ophthalmoplegic migraine

- Idiopathic Intracranial Hypertension

5. Learning, Attention, and Behavioral Disorders
   - Attention Deficit Hyperactivity Disorder
   - Learning disabilities (including dyslexia)

6. Movement Disorders
   - Tics
   - Dystonia/Chorea
   - Ataxia

7. Head injuries
   - Acute and subacute care
   - Sequelae and rehabilitation

8. Neurogenetics
   - Genetic considerations in developmental disability, CNS malformation, and epilepsy
   - Chromosomal disorders
   - Inborn errors of metabolism

Ideally, there will also be opportunities for the resident to evaluate children with less common problems, including strokes in infancy and childhood, central nervous system malformations, CNS tumors, and pediatric demyelinating disorders, and the neurologic complications of both childhood systemic diseases and immunizations.

Child Neurology Rotation Overview

The Child Neurology rotation is divided into three services: inpatient/urgent, consult & call, and outpatient.

General Expectations

- The resident is expected to actively participate in patient care, as this leads to the best learning experience.
- If, at any time during the rotation, the resident cannot be present, they should speak with the child neurology chief resident or attending as soon as possible to assist in establishing coverage. This includes the outpatient portion of the rotation as frequently attendings are double-booked and require a second provider.
- The resident is expected to teach medical students and residents who are rotating from other services, including pediatrics, physical medicine and rehabilitation, and psychiatry.
- The resident is expected to attend all required conferences when rotating on Child Neurology.

- The neurology resident will be expected to read about the problems they are seeing, both in the standard pediatric neurology texts and in the literature. A suggested reading list with links to articles is available on the Neurology intranet page under Pediatric Neurology at http://intranet.urmc-sh.rochester.edu/depts/neurology/peds/.
- Typically, the neurology resident will be assigned 4 weeks on the inpatient service, 2 weeks on the consult & call rotation, and 6 weeks on the outpatient service.

Responsibilities of the Adult Neurology Resident

- Please refer to the University of Rochester Child Neurology resident handbook for current guidelines and resident responsibilities for each child neurology rotation.

NEUROLOGY ED CONSULT ROTATION

Description:
The Neurology ED Consult role was created to enable senior residents to improve their acute care and patient triage skills, as well as to offload the busy inpatient consultation services to maintain duty hours restrictions and improve wellness among residents.

Objectives:

1. To evaluate acute, undifferentiated neurologic patients in the SMH emergency department.

2. To initiate appropriate urgent management as required.

3. To triage evaluated patients for either discharge or admission to the most appropriate inpatient medical or surgical service.

4. To communicate treatment and disposition decisions effectively to emergency room and inpatient personnel (including inpatient Neurology services if applicable).

RESPONSIBILITIES OF NEURO ED RESIDENT

HOURS: 12PM-8PM, Monday-Friday

The Neuro ED resident is responsible for seeing all NON STROKE ALERT ED consults during the above hours.
They must ensure that patients are stabilized and appropriate clinical management is maintained until the patient is discharged home or admitted to an inpatient service (including Neurology).

Patients NOT being admitted to neurology are staffed with the appropriate consult attending:

- Subacute strokes that are not being admitted to neurology are staffed with the Stroke consult attending
- General neurology consults that are not being admitted to neurology are staffed with the General consult attending

Patients seen by the Neuro ED consult and admitted to non-Neurology services will be seen by the appropriate
consult teams the following day.

Patients being admitted to neurology will go directly to the inpatient team:

- The Neuro ED resident will briefly staff over the phone with the consult attending to ensure they agree that admission is appropriate
- The Neuro ED will notify the Red/Blue PGY2 of the pending admission
- The Red/Blue PGY2 will see the patient in the ED, write a full H&P, place admission orders, and act as covering provider for the duration of their shift
- The inpatient attendings on service get first right of refusal to staff the new admission
- If the inpatient attending is unable to staff the new admission, the PGY2 staffs with the relevant consult attending

- Each newly admitted patient MUST be seen IN PERSON by an attending (either the inpatient attending or the consult attending) on the day of their admission

In rare circumstances where the inpatient PGY2 and inpatient chief resident are both extremely busy and unable to admit the patient during the day, the Neuro ED resident acts a safety net and should admit the patient themselves, staff and see the patient with an attending, and cover the patient until the inpatient team is able to assume care of the patient.

If the Stroke Consult or General Consult resident receives a page about a new ED consult, that should routed to the Neurology ED Consult resident. If the Neurology ED Consult resident receives a page about a stroke alert or an inpatient consult, that should be routed to the appropriate service.

The Neurology ED Consult resident does NOT attend academic half-day, and continues in their usual role on
Wednesday afternoons.

The Neurology ED Consult resident will NOT have FIRM during this rotation, and their FIRM will be rescheduled before/after to maintain access and ensure the minimum required number of FIRMs per academic year.

Around 4:30 PM the Neurology ED Consult resident will transition to evening float, alternating/splitting new consults with the Float resident.

PSYCHIATRY ROTATION
For Neurology Residents

PSYCHIATRY CONSULTATION / LIAISON SERVICE (PCLS)

The four-week psychiatry rotation for neurology residents is designed to teach fundamentals of psychiatry that are beneficial for the practice of neurology. This rotation was established as a result of the Neurology RRC guidelines, which mandate a one-month rotation in Psychiatry, under the direction of a board-certified psychiatrist.

Rotation Director - Jennifer Richman, MD - Medical Director, PCLS

Phone: 275-3592 (Constance Smith, Division Secretary)

Faculty: Jennifer Richman, MD; Aspen Ainsworth, MD; Paul Geha, MD; Mark Oldham, MD; Greg Sherman, MD;

Clinical Coordinator: Barbara Olesko, MS, RN, CS, NP (Pager number 3858)

First day of service: Report to the PCLS office, Room 1-8129 at 8:45 am.

Program Description

The Psychiatric Consultation–Liaison Service provides evaluation and assistance with the management of psychiatric disorders occurring in medically ill inpatients throughout SMH. During their C/L rotation, PGY-4 residents will develop skills in the assessment of psychiatric problems in a medical setting, master the understanding of the interaction and medical and neurological conditions with psychiatric disorders, and begin to develop the skills of a specialty consultant.

A wide variety of neuropsychiatric, forensic and psychosomatic problems are frequently encountered on the C/L Service, including:

- Acute confusional states and delirium
- Dementing disorders
- Depression in the elderly or medically ill
- Capacity to make informed decisions
- Suicide attempts and suicidality on the medical floors
- Somatoform and factitious disorders
- Psychogenic nonepileptic attacks (PNEA)
- Anxiety/agitation in the medically ill
- Secondary anxiety, mood and psychotic disorders
- AIDS-related secondary mental disorders
- Substance abuse

Training Objectives

Medical Knowledge

1. Develop knowledge base of psychiatric and neurologic aspects of psychiatry, psychosomatic disorders, delirium, depression and anxiety in the elderly and the medically ill patient.
2. Management of primary mental disorders and mental disorders secondary to medical conditions in the medical setting.
3. Understand potential risks/benefits of using psychotropic medications in the medically ill and geriatric patient.
4. Assessment of suicide risk and management on medical floor.

Patient Care

1. Conduct comprehensive and accurate psychiatric interviews and review of data.
2. Formulate a comprehensive differential diagnosis, case formulation, and treatment recommendation.
3. Develop and sustain effective therapeutic and ethnically sound relationships with patients.

Professionalism

1. Seek necessary consultation to interpret complex medical data.
2. Enhance communication and harmony on team and between services.
3. Advocate for best disposition plan for patients.
4. Teaching medical students at bedside and with formal didactics.

Roles and Responsibilities

Resident will:	Attending supervisor will:
Scheduling and Attendance	
•	
• Attend daily triage meeting at 9:00 a.m. (Thaler Room, 1-8136); Ader room on Wednesday.	• Attend daily triage meeting at 9:00 a.m. (Thaler Room, 1-8136); 8:45 a.m. on Wednesday.
• Attend afternoon rounds with attending physician and team Monday through Friday 1:00 p.m., rooms announced daily.	• Attend afternoon rounds with attending physician and team Monday through Friday 1:00 p.m., rooms announced daily.
• Be available Monday through Friday 8:30 a.m. – 5:00 p.m. (minimum hours) with the exception of core didactic time, and preceptor/supervisor time.	
• Contact Barbara Olesko, RN, MS, NP, Coordinator and the PCLS secretary at 275-3592 with any conflicts, absences, etc.	

Mentorship	
• Be familiar with the training objectives and expectations of this clinical rotation.	• Review the training objectives and the site expectations herein with the resident at the beginning of the rotation.
• Complete readings as clinically indicated and assigned.	• Provide readings to resident as clinically indicated.
• Meet with the attending supervisor or responsible person one half hour weekly for supervision in addition to bedside teaching.	• Meet one half hour per week with resident for individual supervision in addition to bedside teaching.
Clinical Responsibilities	
• Complete new consults as assigned daily, approximately 2-3 consults per day (dependent on consults requests received). Obtain daily sheet from PCLS secretary. Discuss assessment and recommendation with attending prior to putting note into chart.	• Round on all new patient consultations within 24 hours. Offer feedback on interview skills, oral and written presentations.
• Complete follow-up on cases at a minimum of 2 – 3 times/week.	• Review and critique management recommendations.
• Round with attending a minimum of once a week for follow-ups.	• Round at least once a week with resident for follow-ups.
• Make changes in recommendation only with attending approval.	• Be available to resident for consultation as needed.
• Complete transfers when indicated.	
Academic Responsibilities	
• Provide supervision and bedside teaching to medical students as indicated.	• Offer mentorship regarding teaching activities.
Evaluation and Feedback	
• Ask for regular, ongoing oral feedback. Be receptive to feedback.	• Provide regular, ongoing feedback to the resident.
• At the end of the rotation, provide a written feedback to the program regarding the attending's teaching and the service as a teaching site.	• Provide a written evaluation to the program at the end of the clinical rotation.

NEUROMEDICINE INTENSIVE CARE ROTATION
For PGY-2 and PGY-3 Neurology Residents

Medical Director: Debra Roberts, MD, PhD
Surgical Co-Director: Thomas Mattingly, MD
Nurse Manager: Sarah Gantz, RN, MSN
Lead Advance Practice Practitioner/Scheduler: Jeanette McCorry MS, PA-C

NMICU Intensivists:

- Neuro Critical Care: Imad Khan MD; Ben George MD, Remi Okwechime MD
- Anesthesia Critical Care: Peter Papadakos MD

Advance Practice Providers:

- Jeanette McCorry, PA-C, NMICU Lead APP
- Samantha Deland, PA-C
- Sara Finney, PA-C
- Jenna Gonillo-Davis MS, ACNPC-AG, CCRN
- Abby Judd, PA-C
- Kelli Outlaw-Wilder, ACNP
- Jamie Pica, ACNP
- Christina Skifstad, ACNP
- Andrew Tsavaris, ACNP

For schedule questions please contact: Pam Marks, Pamela_marks@urmc.rochester.edu. 585-275-9238.

Mission Statement

The NeuroMedicine Intensive Care Unit's mission is to provide state-of-the-art intensive care to critically ill neurosurgical and neurological patients.

Patient Population

The patient population includes critically ill patients with complex, potentially life-threatening neurosurgical and neurological illnesses. These illnesses include but are not limited to: ischemic stroke, hemorrhagic stroke, subarachnoid hemorrhage, ruptured AV malformations, brain herniation, status epilepticus, neuromuscular disorders requiring mechanical ventilation, head and spinal cord trauma, brain tumors, CNS infections, as well as any Neurology/Neurosurgery patient deemed critically ill and requiring ICU level care.

Goals of the Educational Experience

The goal of the NeuroMedicine ICU rotation is to allow fellows, residents, APPs and medical students an opportunity to learn and apply neuro critical care principles in the above patient population. Unique aspects of this rotation are as follows:

- Management and post-operative care of neurosurgery patients including ICP and cerebral edema, advanced neuro-monitoring, and targeted temperature management.
- Diagnosis and management of neurological diseases that require critical care such as acute neuromuscular respiratory failure, infectious and/or autoimmune encephalopathy and status epilepticus.
- Exposure to life supporting interventions and devices including: vasopressors, arterial and central venous lines, mechanical ventilators, hypothermia, hemodynamic monitoring and Continuous Renal Replacement (CRRT).
- Identification and management of common critical care problems including, but not limited to, acute coronary syndrome, shock, sepsis, cardiac arrhythmias, adult respiratory distress syndrome (ARDS), and acute kidney injury (AKI).
- Working as part of a multidisciplinary team including critical care APPs, residents (neurology, neurosurgery, anesthesia, emergency medicine and PM&R) and critical care fellows (Anesthesiology, Surgery and Internal Medicine), nurses, pharmacist, respiratory therapy, social work, physical/occupational/speech therapy.

Description of NeuroMedicine ICU team members and responsibilities

NeuroMedicine ICU Attending

The NeuroMedicine ICU Attending is responsible for coordinating and supervising all activities within the unit. These include: patient care, education, triage of inter- & intra-hospital transfers, and communication among the ICU team and consulting services. It is the Attending who has the final responsibility in all aspects of unit function. It is expected that the NMICU Attending will be either present in the NMICU/ physician workroom or easily reachable and able to be bedside within 5 minutes of a call throughout the day. Likewise, the NeuroMedicine Attending's should be easily reachable at night and be expected to return pages within 10 minutes.

In the event there is an issue that cannot be resolved by the NeuroMedicine ICU Attending the Director of the NeuroMedicine ICU (Dr. Roberts) should be contacted immediately.

APPs: Nurse Practitioners (NPs) and Physician Assistants (PAs)

The NeuroMedicine ICU APPs are familiar with all patients admitted to the service. It is the expectation that the APP will pre-round on every patient. They should be seen as a resource and utilized for any questions residents may have as they formulate patient care plans. On rounds the APP will assign roles as to who will write orders and update the hand-off. The APP is also responsible for triaging admissions, transfers and changes in patient status, performing

procedures and keeping the attending informed of any emergent situations. They also assist with resident education when time allows.

Depending on the census, the APP may pick up patients. However, this will mainly fall to the residents as the APP chief responsibilities will be to carry the primary phone for the unit (x44569), attend to acute issues that arise with patients throughout the day and cover the fellow responsibilities when the fellow is not on the schedule or has educational requirements.

NeuroMedicine ICU Residents

The resident, under the direct supervision of the NeuroMedicine ICU attending, is the primary practitioner responsible for the care of patients (usually not more than 5) during the daytime. This includes pre-rounding each morning, presenting assigned patients (see format below), following up on the daily plan for their patients and assisting with family discussions, and performing supervised procedures (when appropriate). When not presenting on rounds, residents are expected to write orders or complete the electronic handoff for patients.

Residents are also responsible for admitting the majority of patients covered by the NMICU. This includes writing the H&P, placing orders, discussing case with attending and/or APP & fellow and creating an “interim hospital course summary” note. The interim summary should be updated daily by the covering resident.

When a patient is ready for transfer out of the ICU the resident is expected to complete their “interim hospital course summary” note and give verbal sign-out to the accepting provider team.

Residents will carry an assigned phone at all times when on the NMICU service. Each morning the resident should update the white board by the bar with the room numbers of the patients they are covering and the phone they are carrying that day. This assists the ICU nurses knowing who to call regarding questions about a patient.

The resident should be present and prepared for sign-out at 0600, attending rounds at 0830. They will also participate in afternoon rounds around 1630, and give report to the night team at 1800 on the unit. Residents are encouraged and allowed to attend pre-determined mandatory lectures, conferences and meetings. Residents are expected to notify the team and sign out their patients prior to leaving for education and other clinical obligations (outpt clinic).

The NMICU consult service now covers all post-cardiac arrest prognostication consults, as well as other NMICU consults arising from the other ICUs. This team is available Monday – Friday from 8a-4p, with the primary NMICU team covering the remainder of the time. Neurology residents rotating in the NMICU may be asked to see/staff these patients in the evenings or weekends when the consult team is not available. Most of these patients do not require daily notes and do not necessarily need to be seen daily. If the rotating Neuro resident is interested in seeing post-arrest patients, please let the consult team know and they will work to incorporate you into rounds and patient discussions when you are not busy in the ICU.

NeuroMedicine ICU Critical Care Fellow

The Critical Care Fellow, under the supervision of the NeuroMedicine Critical Care Attending, is responsible for supervising and coordinating the care of all patients in the ICU. They may be asked to be the “covering provider” for patients depending on staffing and census fluctuations. The fellow is also responsible for keeping the attending informed as to admissions, transfers and patient status. The fellow may be asked to assist and supervise procedures and/or family

meetings. The fellow may lead daily rounds, as appropriate and to be determined by the attending on service.

Because of the full time presence of the APPs in the NMICU, off-service fellows should utilize the APPs as a resource for learning Neuro-critical care procedure and treatment algorithms. The APPs will cover the fellow responsibilities when the fellow is not on the schedule or has educational requirements (i.e. conference) that will not allow the fellow presence in the ICU and vice versa.

When the fellow leaves the unit for the conference they must inform the APP and charge nurse of when they plan to return. The fellow will be expected to answer the pager for patient questions when on duty. The fellow will sign their patients out to the appropriate APP when finishing the shift. Sign out occurs on the unit at 1800.

Third and Fourth Year Medical Students/Sub-intern/APP students

The Medical students and APP students on the NeuroMedicine ICU service will be assigned patients to admit, evaluate, and present at morning rounds. Patient evaluation and procedures may be done by the student under appropriate supervision by the resident and/or Fellow or Attending.

Nursing Staff

A strong professional working relationship and communication with the nursing staff is of the utmost importance. The bedside nurse, using the structured format below, will lead rounds and they are encouraged to participate in formulation of the care plans for their patients. In addition to the bedside nurse, rounds are to include the charge nurse and/or care coordinator. Nursing will also attempt to avoid interrupting rounds for routine matters. Emergent issues should be brought to the team's immediate attention.

Daily Routine of the NeuroMedicine ICU

Sign Out Rounds – 0600 daily

The incoming day practitioners will obtain a report from the night provider at 0600 regarding the overnight events, care plans and possible transfers in/out of the NMICU. Ideally, this should be done as a "walking sign-out" from room to room. This has several benefits: the bedside nurse can participate, electronic handoff can be updated, and it allows the team to see each patient and obtain a consistent exam. All sign in/out activities will follow a structured format that adheres to the URMC GME Guidelines.

Morning Rounds – approximately 0830 daily

Bedside rounds with the NeuroMedicine ICU Attending will begin at approximately 0830 unless extenuating circumstances prevail – in which case the attending should make every effort to communicate with the charge RN and the team about the start time for rounds. Rounds are conducted using an interdisciplinary rounding style detailed in the attached "Rounding guide" and "Anatomy of a Presentation". During rounds, if you are not presenting the patient, then you are either placing orders or updating the electronic handoff on that patient. Playing on your cell phone is not acceptable and will not be tolerated.

Evening Sign-out – 1800 Daily

The night provider(s) arrive at 18:00. Evening sign-out is conducted in exactly the same way as morning sign-out.

Notes

An admission or progress note will be written daily on every patient written and is the responsibility of the assigned resident responsible for that patient. *A medical student's note is not considered the daily patient note and may NOT be copied for use in a provider note.* An Attending physician should cosign all notes written by a resident and fellow in a manner consistent with compliance guidelines.

Note Writing Templates

These are the only templates that should be used for Admission or Progress notes on NMICU patients. All sections must be completed including "Principle Diagnosis".

Progress notes	Admission Notes
.NMICUProgress	.NMICUHP

Cardiac arrest: .NMICUCA

Post-arrest TTM: .NMICUTTM

Discharge and Interim Summaries

NMICU "interim hospital course summary" note will be written by the provider assigned responsible for that patient within 24 hours of admission and should be updated daily. This should then be converted into a discharge or transfer summary when the patient expires or moves out of the NMICU. In addition, a verbal sign out is expected between the NMICU and the receiving team at the time of transfer. If applicable discharge orders/plans should be verified with the team that will follow the patient after discharge.

Electronic Handoff

Electronic handoff should be updated each shift while rounds are occurring on the patient. These are then updated to reflect any new information/changes in care plan that may occur throughout the shift. The handoff is organized into several sections, which are outlined below along with their accompanying smart-phrases.

- Descriptive Sentence - .descriptivenmicu
  - 1 – 2 lines with significant PMH and diagnosis
  - current neuro exam (focus primarily on level of alertness and any focal findings)

- Active Issues - .activenmicu

    - Active issues/diagnosis only in a System by System format – This is **NOT THE CARE PLAN**. This is basically a fast reference for the overnight team if they need to know if "something is new"

- To Do:
    - All orders, plan changes and items that require follow up which were discussed on rounds are to be documented as a checklist
    - **DO NOT** delete items when completed, check them off so night providers know what has occurred and what needs follow-up.
    - The list should be deleted the next morning on rounds and the new day's plan updated.

- Anticipatory Guidance:
    - Include important high risk events to watch for and/or ongoing follow up items
    - This section is also where the night team puts in any events or changes that happen overnight

Consulting Services

The Neuromedicine ICU is a closed unit but communication among the ICU staff and consulting services is absolutely essential to the smooth function of the unit. The quality of patient care depends on the lines of communication being open and used frequently.

While admitted to the unit, the NMICU will act as the primary provider team. Consulting services can make recommendations, but orders must be placed by the NMICU and approved by the NeuroMedicine Attending. Significant changes in care plans, a patient's exam and/or their level of status should be communicated as soon as possible. Anticipated discharge of a patient from the ICU must be communicated in a timely fashion. Emergent admissions or discharges will be handled as judiciously as possible.

Any conflicts in the management of patients between the consulting services and the critical care team that cannot be resolved in a timely fashion should be brought to the attention of the Director of the NeuroMedicine ICU (Dr. Roberts) immediately.

Quality Assurance

The NeuroMedicine ICU reviews all Morbidity and Mortality cases monthly. A monthly M&M is held for review of NMICU—Stroke cases. NMICU—Neurosurgery M&M cases are reviewed every 2 weeks at Neurosurgery Friday conference. A list of NMICU morbidity cases maintained on the Charge computer and is reviewed monthly.

Unit Meetings

- NMICU provider meetings: first Thursday of the month at 5:00 pm – 7:00 pm
  - Teaching Lectures/Case Conference
  - Unit Business Meetings
  - Research Meeting
  - Mortality and Morbidity
- Neurocritical Care Journal Club: 1 hour weekly, day of week varies based on schedules
  - Residents will be assigned a paper to present and will be discussed by the group
- Critical Care Teaching sessions: Monday-Friday 3-4 pm
  - Rotating sessions giving by faculty from all of the ICUs, Pharmacy and Ethics focusing on high yield critical care topics, given at the resident level.

Research

A number of clinical trials are in the works. In addition considerable effort is going into the creating and maintenance of a comprehensive neuro-critical care research database in order to facilitate future research efforts. The residents/fellows and APPs are welcome to discuss research opportunities.

Recommended Reading

1. Jose I. Suarez: Critical Care Neurology and Neurosurgery. Springer 2010.

2. Jenifer A Frontera. Decision Making in Neurocritical Care. Thieme Medical 2009.

3. Wijdicks EFM, The Clinical Practice of Critical Care Neurology (2nd ed.), Oxford University Press, USA, 2003

4. Wijdicks EFM, Catastrophic Neurologic Disorders in the Emergency Department (2nd ed.), Oxford University Press, 2004

5. Claude Hemphill & Alejandro Rabinstein. The Practice of Neurocritical Care. Neurocritical Care Society 2015

6. Kiwon Lee. The Neuro ICU Book. McGraw Hill Professional 2011.

NMICU Rounding Expectations:

Pre-rounds:

- Talk to the nurse/RT/social work prior to rounds for any updates/needs/ concerns
- Notify charge nurse and APP each morning before 0830 of any "call outs".
    - You will need to know the service, attending, and level of care.

During Rounds:

- When presenting, present to the ***whole*** team
- If you are not presenting, pull up imaging, fill out the handoff, or enter orders.
    - One person will place orders
    - Another will complete the handoff and pull up any new imaging
    - ***State what you are doing just prior to the start of the presentation so the rest of the team knows***
- Anatomy of the presentation is described on following pages
    - Goal is to be thorough and thoughtful, but not redundant
    - When presenting events and data, provide context and tell a story, why is this data and its change/stability important.
    - Don't state things in the plan that were discussed in the date (or vice versa).
    - Standing medications & orders are in the plan.
    - ***Do NOT present with the idea that a plan will be told to you. It is absolutely okay to be off the mark. Just share what you are thinking and why. You are here to learn. We can do that best if we know what you know.***

Outside of rounds:

- OWN your patients. You should run changes by or ask for help from the APP/Fellow (x44569) or attending but if nursing comes to you with concerns you are comfortable with feel free to address them.
- Have the Neurology and Neurosurgery residents in close contact. Update them in real time with changes in neuro exams and pertinent plan changes
- Do not blindly implement recommendations of consultants. The vast majority of the time they will be helpful, but they may conflict with the big picture or fail to consider some crucial data/ information.
- Keep families up-to-date. ALWAYS know who their surrogate/ proxy/ point person is. If you see them in the room, say hello, introduce yourself, and offer to answer any questions.
    - One word of caution: sometimes visitors are NOT part of the family. Before relaying information about the patient, be sure you are speaking to the correct person. If they are not the point person, politely inform them who in the family is being kept up to date and that they should speak with that person for information.

Anatomy of the Presentation:

Introduction:

Provider **Nursing**

1. Patient introduction
2. Events since rounds the prior day
3. 24hr pertinent data
4. Imaging since evening sign out
5. Additional 24hr information
6. Neuro exam
7. Neuro exam
8. Rates of current infusion

Assessment and Plan

- We round moving through body systems in the following order:

1. NEURO	5. GASTROINTESTINAL
2. PULMONARY	6. ENDOCRINE
3. CARDIOVASCULAR	7. HEME
4. RENAL	8. INFECTIOUS DISEASE

- Each system will be addressed individually using the outline below:

Provider **Nursing**

1. Introduction of body system (aka "Respiratory")
2. Physical exam if applicable
3. Observations and subjective data (aka secretions, urine color, IV access)
4. Diagnoses
5. Current device settings and anticipated changes (ICP monitor, Ventilator, CRRT, etc)
6. input from consultant services
7. Proposed plan
8. Feasibility of plan

Summary

1. Review of lines, lab frequency
2. Review of orders
3. Review of nursing plan & expectations

Body systems data:

This is a list of the most commonly seen data points we look for in each system. Not all data will exist for each patient and there may be relevant information not mentioned below. Please use your clinical judgment when deciding what needs to be presented.

1. Neuro

- ***Examination*:**
  - Level of Consciousness
  - Cranial Nerves / pupils
  - Language
  - Motor
  - Sensory
  - Tone / Reflexes
  - Coordination / Gait
- **24-hour data**
  - EVD (level, output)
  - ICP Range
  - CPP Range
  - ICP Waveform
  - Pbt O_2 range
  - Brain temp range
  - CSF results
  - AED levels
  - Sedatives / analgesics / Anti-psychotic PRNs
  - Shivering meds
  - TCDs
  - EEG results
  - Neuroimaging

2. Pulmonary

- ***Examination*:**
  - secretions
  - breath sounds
- **24-hour data**
  - Vent or noninvasive O_2 needs
    - Tidal volume, PEEP RSBI, RR, FiO_2
  - $EtCO_2$
  - SpO_2
  - ABG (with FiO_2 and Vent settings when drawn)
  - CXR
  - Bedside (ICU) Lung U/S
  - Respiratory / Secretion PRN Meds

3. Cardiovascular

- **24-hour data**
  - Rhythm, HR
  - BP/MAP range
  - Cardiac gtt requirements
  - BP PRNs given
  - Echo Results
  - EKG results
  - Troponins:
  - Lactate ranges

4. Renal/ Fluids/ Electrolytes

- **24-hour data**
  - IVF (type, rate)
  - Tube Feeds (type, rate)
  - U/O (mL/kg/hr)
  - Net I/O over 24hrs
  - Daily weight
  - Abnormalities on BMP
  - Osmols
  - Urine studies

5. GI/ Nutrition/ Endo:

- **24-hour data**
  - Residuals
  - Last BM
  - Bowel Regimen PRNs given
  - LFTs, Lipase, Prealbumin
  - Swallow Evaluation Result
  - Glucose range:
  - 24 insulin need
  - Hb A1c
  - Thyroid Studies

6. Heme

- **24-hour data**
  - H/H
  - Platelets
  - Coags
  - Vascular Doppler results
  - VTE prophylaxis

7. Infectious Disease

- **24-hour data**
  - T_{max}
  - Temp range
  - WBC trend
  - Culture results
  - Antibiotic Level

CLINICAL NEUROPHYSIOLOGY and EPILEPSY ROTATIONS FOR 1st, 2nd and 3rd YEAR NEUROLOGY RESIDENTS

Faculty:
Derek Bauer, M.D.
Michel Berg, M.D.
Evelyn Berman, M.D.
Gretchen Birbeck, M.D., M.P.H.
Deana Bonno, MD
Michael Chilungu, M.D.
Jacob Korzun, M.D.
James Gugger, M.D., Pharm.D.
Inna Hughes, M.D., Ph.D.
Laurie Seltzer, D.O.
Trenton Tollefson, M.D
Thomas Wychowski, MD

Psychosocial Faculty:
Dalin Pulsipher, Ph.D.
William Watson, Ph.D.
Kelly Nye, Ph.D.
Adrianna Hutchinson, M

The Clinical (central) Neurophysiology Laboratory is part of the epilepsy unit. The laboratory structure is highly integrated with the clinical operation. The neurophysiology laboratory includes out-patient and in-patient EEG and EP laboratories, intraoperative monitoring and long term EEG monitoring services. The epilepsy unit is divided into the adult and pediatric teams. Lynn Liu, MD supervises the fellow and residency training.

Epilepsy Monitoring Unit (EMU) Resident Rotations: General Guidelines

Each of the PGY-2 and PGY-3 neurology residents spend a two-week block on the inpatient EMU service. One week will be on the adult service and the other week will be on the pediatric service.

Description:
The neurology resident on the EMU service is responsible for care of either the adult or pediatric epilepsy service inpatients. The team may consist of an epilepsy fellow, a psychiatry PGY-1, or the Epilepsy APP with an adult or pediatric epilepsy attending of the week. During this rotation the resident will be introduced to the field of epilepsy and basic EEG.

Objectives:
1. Describe the characteristics of seizures and epilepsy syndromes including differentiating types and determining appropriate treatment options.
2. Discuss basic understanding of the etiologies and pathophysiology of seizures and their clinical implications.
3. Demonstrate competency in the evaluation and management of patients with epilepsy, including all aspects of neurophysiological, medical, psychosocial, and surgical approaches.
4. Display a thorough understanding of the psychosocial implications and limitations of a diagnosis of epilepsy and develop an empathetic approach towards these patients.

5. Participate in the diagnosis and treatment of psychogenic events (conversion disorders), by learning the etiologies, psychosocial dynamics, and approaches to interactions.

6. By the end of the rotation, be competently able to formulate and implement treatment plans for patients with seizures, epilepsy and the differential diagnoses of paroxysmal events.

Assessment:
Performance is evaluated at the end of each resident rotation by the supervising attending, based on the direct observation of the resident to achieve the goals of the rotation.

Responsibilities:

Daily Management of EMU inpatients:

- Pre-round around 8:30 - 9:00 AM to assess how the patient has done overnight and if there have been any episodes.

- Sign-in rounds (LTM Room 5-2530) with the adult and pediatric EMU attendings between 9:30-10:00 AM Monday-Thursday and as arranged on Fridays). During the sign in the team will review the EEG over the past 24 hours and make a plan for the day – reduce medications, additional provocative actions, other tests, etc. Then you will round with the attending and share the plan with the patients. Contact Sarah Emond (5-8035) to arrange access to EEG reading room.

- Document in a daily progress note in eRecord and send the note for attestation by the EMU attending and write any necessary orders. *.secprogip*

- Document the EEG results of the last 24 hours in the progress note under the section: Interim video-EEG long term Monitoring (LTM) report: ***.

- For intracranial monitoring cases, make sure they have antibiotics every day. Check vital signs more frequently. Check the plan for steroids with neurosurgery. Do not touch the dressing. CSF leak and pain management issues should be addressed to neurosurgery.

Admission Duties

- Admit any scheduled admissions to 5-1600 or 8North, write the admission note *.secadmit* and place any admission orders with medication reconciliation in E-Record.

- Discuss case, plan, and recommendations with the attending.

- Use the Epilepsy Order Set, it should walk you through: Seizure precautions, vital signs daily for the adults, Rescue benzodiazepine, Pain meds (acetaminophen or ibuprofen), and diphenhydramine for the itching of the electrodes.

- See urgent inpatient or outpatient EMU consultations. Evaluate and discuss the plan for the patient with the EMU attending.

- Handoff at the end of the day for each patient.
  - Write the one liner about the patient and add *.gagsec* (general anticipatory guidelines)
  - Customize specific rescue plan for each patient

- Then assign a covering provider evening and night float residents:
- Neurology First call: evening 4-8 PM and nights 8 PM-8 AM

Discharge Duties

- Attend discharge discussion to know the conclusion of the monitoring evaluation and the patient's and their families understanding. Document in the *discharge instructions/avs*.

- Complete the discharge instructions and discharge summaries in E-Record for the patients. Send a copy to the PCP and the referring neurologist and EMU physician (If there is one – when E-Record able). *.secdcavs* and *.secdischargesummary*

- If the patient was diagnosed with PNEA, there is a specific template: *.pneadc* (AVS) and *.pneadcsummarycourse.* There is even a Spanish version of the AVS: *.pneaspan*
- To schedule a follow up appointments in about 6-8 weeks at the University of Rochester Epilepsy Clinic at Westfall call the physician line at 341-8970.
- To schedule a follow up appointments in about 6-8 weeks at the University of Rochester Medical Center Pediatric Epilepsy Clinic at East River Road call the physician line at 275-2808.

- If the patient will need a surgical discussion, remember to put in an order for a for Patient Review Conference (PRC) discussion for surgical patients (coordinate with Sara Ludwig 5-3681) and make sure the appointment is after this discussion.

Weekend rounding responsibilities

- Work with the attending, fellow, and psychiatry resident to round one weekend day a week (whether it be Saturday or Sunday). You should have one weekend day off per week.

- Round with attending and write daily progress notes on all EMU admitted patients

Miscellaneous Considerations

- As cases allow, attend:
  - Observe at least one LTM patient hook-up and review LTM data with the technologists.
  - Intraoperative electrocorticography during craniotomy for epilepsy surgery
  - Brain mapping sessions in patients with subdural grids admitting for monitoring
  - Intracarotid amobarbital procedures (IAP or Wada tests) for memory and language localization

- Attend Wednesday Noon Clinical Neurophysiology conferences (Garvey Room)

- As time permits, attend Wednesday 3:00 PM Patient Review Conference (PRC) discussion of patient being evaluated for surgical resection (Garvey Room).

Recommended Reading List:

1) Use the Blackboard course created for the Neurology Residents on Seizure Medications
Go to the Miner Library -> Blackboard -> use your NetID to log in -> select Fall2020 EDE486 - Liu, Lynn

2) Devinsky, O., Vezzani, A., O'Brien, T. *et al.* Epilepsy. *Nat Rev Dis Primers* **4,** 18024 (2018). https://doi.org/10.1038/nrdp.2018.24 Epilepsy (nature.com) (click on link)

3) Graeme J. Sills, Michael A. Rogawski, Mechanisms of action of currently used antiseizure drugs, Neuropharmacology, Volume 168, 2020, 107966, https://doi.org/10.1016/j.neuropharm.2020.107966. https://www.sciencedirect.com/science/article/pii/S0028390820300320

4) Jette N, Reid AY, Wiebe S. Surgical management of epilepsy. CMAJ. 2014 Sep 16;186(13):997-1004. doi: 10.1503/cmaj.121291. Epub 2014 Jun 9. PMID: 24914117; PMCID: PMC4162780. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4162780/pdf/1860997.pdf

INTEGRATED NEUROMUSCULAR DISEASE/EMG ROTATION

Overview of the Rotation

PGY-2 and PGY-3 Residents spend 2 weeks in this rotation. In these years, the focus is more on the clinical aspects of neuromuscular disease, with slightly less time spent on the electrophysiologic studies. PGY-4 Neurology Residents spend a minimum of 4-week blocks on the Neuromuscular/ EMG rotation and during this time, the EMG/NCS component takes on a greater role. Those residents who are interested in a further neuromuscular disease or EMG experience are encouraged to spend an additional 2-4 weeks on this rotation. With that additional time, there is some flexibility to tailor the rotation to a more clinical focus or a more EMG focus depending on resident interest.

Faculty and Staff

- Emma Ciafaloni, MD (Co-Director Muscular Dystrophy Association Clinic)
- Peter Creigh, MD (ALS clinic Director)
- Johanna Hamel, MD
- Chad Heatwole, MD
- David Herrmann, MD (Neuromuscular Unit Chief, Peripheral Neuropathy Clinic Director)
- Bo Hoon Lee, MD
- Eric Logigian, MD (University of Rochester EMG Laboratory Director)
- Sam MacKenzie, MD, PhD
- Phillip Mongiovi, MD (Neuromuscular Medicine Fellowship Program Director Neuromuscular/EMG Rotation Director)
- Tyler Rehbein, MD
- Michael Stanton, MD
- Patrick Curry, MD
- Michele Ferguson (EMG Lab Manager)
- Sherry Estes (EMG technician)
- Adriana Marino (EMG technician)
- Lisa Martinez (EMG technician)
- Julie Thon (EMG technician)
- Bill Williamson (EMG technician)

General Overview of the 1-Month Rotation

The following components will run concurrently for the rotation:

1. EMG laboratory – 3-5 half days/week

2. Neuromuscular clinics – 4-5 half days/week

3. Weekly EMG conference - Friday 10 or 11 AM - 1 hour didactic teaching in EMG

4. Sign out conference in the EMG lab - daily 5 PM. (Applicable when resident is scheduled in EMG for the afternoon)

5. To document improvement in knowledge base, two brief written examinations are given at the beginning and end of the rotation for PGY-4 residents.

6. Continuity experience:

    a. Residents who rotate through neuromuscular/MDA and Peripheral Neuropathy clinics will participate in and perform electromyography studies on their clinic patients (from the morning), the same afternoon where possible.

    b. Residents will interact with many members of the neuromuscular faculty both in neuromuscular clinic and EMG during their rotations.

Overall Goals of the Neuromuscular/EMG Rotation

1. To learn the clinical presentation of the major neuromuscular diseases, and to perform a neuromuscular history and examination.

2. To learn the detailed spatial anatomy of the peripheral nervous system with reference to surface landmarks.

3. To localize peripheral nerve lesions precisely, and to determine their pathophysiology, severity and prognosis.

4. To gain a basic understanding of the electrical signature of the various neuromuscular diseases affecting anterior horn cell, nerve, neuromuscular junction, and muscle.

PGY-4 level goals

5. To learn to perform nerve conduction studies for common nerves using surface electrodes and percutaneous nerve stimulation.

6. To learn basic needle electromyography techniques and motor unit analysis.

7. To gain familiarity with neuromuscular ultrasound and its diagnostic utility in disorders of nerve and muscle.

Objectives of the EMG Laboratory Component

1. Learn as much peripheral anatomy as possible.

2. Learn the basic physiology of nerve conduction and EMG.

3. Understand the strategy to rule in or out:

    a. Myopathy

b. Disorder of muscle membrane

c. Disease of NMJ

d. Polyneuropathy

   i. Axonal

   ii. Demyelinating

   iii. Sensory, motor, autonomic

e. Mononeuritis multiplex

f. Entrapment neuropathy

g. Plexopathy

h. Radiculopathy

i. Motor neuron disease

j. Sensory neuronopathy

PGY-4 level goals

4. Be able to perform basic nerve conduction studies independently but understand advanced conduction studies, late responses, reflex studies, and repetitive stimulation.

5. Understand, and if desired, begin to perform needle electromyography and recognize common abnormal waveform patterns.

Detailed Description of the EMG laboratory Component

Patients are seen in EMG laboratories at University of Rochester Medical Center and at Westfall Road daily. Patients are typically seen in 60-90 minute time slots.

The goals of each electrophysiologic study are to localize the lesion precisely, and determine its pathophysiology, severity and prognosis. This is accomplished as follows: A directed history and a neurological examination are performed and recorded. A diagnostic hypothesis is generated, and an individualized electrodiagnostic study is then planned and performed. Nerve conduction studies are performed first, followed by needle electromyography. As the results of the study come in, the hypothesis may be changed and the study may be redesigned as necessary. At the end of the study, the electrophysiologic abnormalities must be internally consistent and correlate closely with the patient's signs and symptoms.

It follows that clinical electrodiagnosis requires knowledge of neuromuscular diseases, detailed knowledge of anatomy of the peripheral nervous system, understanding of normal and abnormal

electrophysiology of nerve and muscle, technical expertise in performing the various tests and ability to differentiate abnormal from normal electrical signals. The resident rotation in EMG is designed to teach the fundamentals in these various areas.

During the EMG rotation, residents will begin to learn the detailed spatial anatomy of the peripheral nervous system with reference to surface landmarks. In addition, they will gain a basic understanding of the electrical signature of the various neuromuscular diseases affecting nerve, neuromuscular junction, and muscle. They will begin to learn to perform nerve conduction studies using surface electrodes and percutaneous nerve stimulation.

Residents will have the opportunity to perform common nerve conduction studies on patients referred to the laboratory, under direct supervision, and only after they pass a test documenting basic knowledge of peripheral anatomy, electrophysiological abnormalities of the most important neuromuscular diseases, and demonstrate that they are technically competent in placement of electrodes, stimulation of nerves, needle electromyography, and use of the EMG machine.

In addition to the supervised evaluation of patients, there are other teaching opportunities. There is a daily EMG sign-out at which time pertinent cases from the day are reviewed. There is also an EMG conference once per week from 11:00 am to noon on Fridays (occasionally at 9:00 am). This is a recommended didactic lecture series, given by EMG/Neuromuscular staff and Fellows, in which the basic principles of electrodiagnosis, and the clinical and electrophysiologic findings of the major neuromuscular diseases are reviewed.

Resident Responsibilities and Expectations in the EMG Laboratory

First Week

1. Observe for 1-2 days

2. Read introductory chapters in Preston & Shapiro, Chapters 1-4.

3. Learn surface anatomy for nerves and muscles in the arm (See Aids to the Examination of the PNS).

4. Read chapter 10: Routine Upper Extremity Nerve Conduction Techniques.

5. Practice on self/Fellows/Technicians: learn to perform median, ulnar, tibial, and peroneal motor and sensory nerve conduction studies and F responses.

6. Take initial exam

Second Week

1. Practical test.

2. Read chapter 8: Artifacts and Technical factors.

3. Read Chapter 11: Routine Lower Extremity Nerve Conduction Techniques.

4. Perform median, ulnar, peroneal, and tibial nerve conduction studies with supervision in patients with carpal tunnel syndrome, ulnar neuropathy, cervical radiculopathy, peripheral neuropathy, and lumbosacral radiculopathy.

5. Read relevant chapters in Preston & Shapiro on each patient seen.

Third Week

1. Continue to practice and perform routine nerve conduction studies.

2. Read Chapter 6: Repetitive Nerve Stimulation, and perform 3 Hz repetitive stimulation of the ulnar nerve if available.

3. Read chapters 12, 13, 14 on needle EMG; view recordings of EMG activity.

4. Begin needle examination with supervision.

Fourth Week

1. Continue to practice and perform routine nerve conduction studies.

2. Read chapter 15: Clinical and Electrophysiologic Correlations: Overview and Common Patterns

3. Take Final Exam

Month 2 (if applicable)

1. Residents will be assigned cases in the electromyography laboratory of increasing complexity as time goes on, and will perform all aspects of the electrodiagnostic evaluation on their cases.

2. Residents can perform electrodiagnostic examinations on cases they refer from the neuromuscular clinics.

Description of the Neuromuscular Clinic and Muscle/Nerve Pathology Component

Residents will spend at least three half-days of the week rotating through the neuromuscular/MDA/ALS and peripheral neuropathy clinics at University Rochester Medical Center during their rotation. Residents will participate fully in these clinics and conduct both new patient and interesting follow-up patients in conjunction with a neuromuscular attending.

When possible, residents will also be involved in any electrodiagnostic testing that is conducted on these patients during the rotation. Residents will be responsible for following up on patients seen during the rotation under the supervision of a neuromuscular attending.

Learning Objectives of the Neuromuscular Clinic and Muscle/Nerve Pathology Component

1. To expose the resident to a wide variety of acquired and inherited disorders of muscle, nerve, neuromuscular junction and anterior horn cells.

2. To develop a comfort level in the clinical evaluation, selection and interpretation of diagnostic testing and management of neuromuscular disorders.

3. To develop a comfort level in decision making in neuromuscular disorders – e.g. when to admit a myasthenic patient, when to use plasma exchange or IVIg in myasthenia gravis.

4. To gain experience in the use and indications for various immune therapies in neuromuscular disorders (steroids, azathioprine, methotrexate, mycophenolate, IVIg, plasma exchange).

5. To gain experience in the supportive management of patients with chronic neuromuscular disorders (e.g. ALS, CMT, muscular dystrophy, neuropathy).

6. To learn basic histopathology of common neuromuscular disorders.

7. To develop a sound theoretical knowledge base in neuromuscular disorders through targeted reading, clinical exposure and faculty teaching.

Neuromuscular/EMG Rotation Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Neuropathy Clinic	NMD clinic or EMG SMH	NMD/MDA/ALS Clinic	Neuropathy Clinic	EMG Lecture/Conference
PM	NMD clinic or EMG SMH	EMG SMH	Academic Half-day	EMG SMH	Pathology or EMG

Residents will participate in their own continuity clinic rather than on the NMD/EMG rotation on their assigned firm ½ day.

Rotation Conclusion

A multiple choice examination will be administered to test knowledge of neuromuscular disorders, neuroanatomy and principles of electromyography.

Basic EEG Rotation

Each of the PGY2 Adult Neurology residents spend a 2 week block on the EEG service. The resident is directly supervised by the clinical neurophysiology fellow and EEG attending of the day.

Description:

The purpose of the EEG elective is to provide an introduction to EEG and other neurophysiological procedures.

While on the EEG service the residents have no other epilepsy service clinical responsibilities (specifically they have no outpatient or in-patient direct care responsibilities), except for their weekly outpatient resident FIRM.

Objectives:

1. Describe the basic neurophysiological generators of the EEG patterns.
2. Differentiate normal adult and child recordings and their various patterns in all normal states.
3. Recognize common abnormal EEG patterns including:
   - Gross focal features and asymmetries
   - Encephalopathy and coma
   - Epileptiform discharges and ictal patterns
4. Identify EEG recording techniques and equipment in all age groups and conditions. Understand the variety of sources responsible for artifacts.
5. List other applications of EEG and Evoked Potentials (e.g. intraoperative).
6. Generate normal and abnormal EEG reports using ACNS guidelines.

Responsibilities:

All Neurology Residents should have access to the Citrix server and access to Natus the EEG reading software. If you do not, contact Steve Erickson or Ramona Cramner. Contact Sarah Emond (5-8035) to arrange access to EEG reading room. If you have any concerns about your EEG rotation, contact Lynn Liu.

During the first two weeks:

1. Attend from start to finish at least one:
   - Inpatient EEG adult and child
   - Have an EEG done and demonstrate reactivity of occipital rhythm, mu rhythm, lambda waves, and stimulus evoked K-complexes.
   - Portable EEG (Coma, r/o status epilepticus, ECI)
2. Writing Reports
   - Write reports on EEGs assigned by the EEG fellow

- Receive feedback on each report from an EEG attending
- Read about the EEG finding and associated epilepsy syndrome or clinical condition

During the entire session:

1. Learn basic approach to EEG interpretation; study daily outpatient and inpatient EEGs with EEG fellows and attending.
2. Attend weekly conferences:
   - Monday through Friday daily LTM conference 9:30 AM - LTM room (5-2530)
   - Wednesday 3:00-5:30 PM Patient Review Conference (PRC) – Garvey room
   - Wednesday Noon Clinical Neurophysiology - EEG conference - Garvey room
3. Spend all other time in the EEG reading room.

Recommended reading list:

1. Use the Blackboard Neurology Resident EEG Course
   Go to the Miner Library -> Blackboard -> use your NetID to log in -> select Neurology Residency
2. "Orange Book" – ask for it the first day of the elective
3. Tatum, William O.; Olga, Selioutski; Ochoa, Juan G.; Munger Clary, Heidi; Cheek, Janna; Drislane, Frank; Tsuchida, Tammy N. American Clinical Neurophysiology Society Guideline 7: Guidelines for EEG Reporting, Journal of Clinical Neurophysiology: August 2016 - Volume 33 - Issue 4 - p 328-332 doi: 10.1097/WNP.0000000000000319 https://journals.lww.com/clinicalneurophys/Fulltext/2016/08000/American_Clinical_Neurophysiology_Society.9.aspx
4. Kaplan PW, Benbadis SR. How to write an EEG report: dos and don'ts. Neurology. 2013 Jan 1;80(1 Suppl 1):S43-6. doi: 10.1212/WNL.0b013e3182797528. PMID: 23267044; PMCID: PMC3590044.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3590044/pdf/WNL204522.pdf

Ebersole, Current Practice of Clinical Encephalography:
Chapters 2: Electrical Fields & Recording Techniques
Chapters 4: Artifacts
Chapters 6: An Orderly Approach to Visual Analysis: Characteristics of the Normal EEG of Adults & Children
Chapters 8: Benign EEG Variants & Patterns of Uncertain Clinical Significance
Chapters 9: An Orderly Approach to the Abnormal EEG

Advanced EEG Rotation

Each of the PGY-4 neurology residents will spend a 4 week block on the EEG service. The resident is directly supervised by the clinical neurophysiology fellow and EEG attending of the day.

Description:

- The purpose of the EEG elective is to build on your EEG knowledge and be able to interpret EEG, write reports, and recognize other neurophysiological procedures.
- While on the EEG service the residents have no other epilepsy service clinical responsibilities (specifically they have no outpatient or in-patient direct care responsibilities), except for their weekly outpatient resident firm or Westfall Road Clinic.
- The PGY-4 neurology resident will review daily EEGs focusing on increasingly challenging EEGs. They will write the EEG reports under the supervision of the EEG fellow and attending.
- The PGY-4 neurology resident may work as a junior fellow in the EEG lab (especially on Thursdays).

Objectives:

1. Solidify knowledge of seizures and epilepsy (improve on all the objectives expected for PGY-2 year).
2. Advancing foundation of reading and interpreting EEG or LTM.
3. Demonstrate competence in generating normal and abnormal EEG reports.
4. Identify EEG recording techniques and equipment in all age groups and conditions. Understand the variety of sources responsible for artifacts.
5. List other applications of EEG and Evoked Potentials (e.g. intraoperative).
6. Generate normal and abnormal EEG reports using ACNS guidelines.

Responsibilities on the EEG rotation:

All Neurology Residents should have access to the Citrix server and access to Natus the EEG reading software. If you do not, contact Steve Erickson or Ramona Cramner. Contact Sarah Emond (5-8035) to arrange access to EEG reading room. If you have any concerns about your EEG rotation, contact Lynn Liu.

1. Daily reading of EEGs with EEG fellow and Neurophysiology attending:
   - Daily review of outpatient and inpatient EEGs as directed by EEG fellow.
   - Review the study with the Neurophysiology attending.

- Generate EEG reports of normal and abnormal EEGs using ACNS guidelines.

2. Attend at least:
   - One intraoperative electrocorticography monitoring during a craniotomy for resection
   - One intracarotid amobarbital procedure (Wada test) for memory and language lateralization
   - One intraoperative monitoring during carotid endarterectomy or tilt table test with EEG or PET scan if available
   - One intraoperative EP recording during complex spine surgery

3. Attend LTM, PRC & EEG Conferences.

During the first two weeks:

1. Attend from start to finish at least one:
   - Inpatient EEG adult and child
   - Have an EEG done and demonstrate reactivity of occipital rhythm, mu rhythm, lambda waves, and stimulus evoked K-complexes.
   - Portable EEG (Coma, r/o status epilepticus, ECI)
   - Neonatal EEG
   - Evoked potential study

2. Introduction to the EEG machine
   - Learn to run a study with one of the EEG technologist
   - Learn electrode placement system on mannequins
   - If interested, place electrodes on a human with the assistance of an EEG technologist

3. Writing Reports
   - Write reports on EEGs assigned by the EEG fellow
   - Receive feedback on each report from an Neurophysiology attending
   - Read about the EEG finding and associated epilepsy syndrome or clinical condition

During the entire session:

1. Learn basic approach to EEG interpretation; study daily outpatient and inpatient EEGs with EEG fellows and attending.
2. As cases allow, attend at least:
   - One intraoperative monitoring during carotid endarterectomy, tilt table test with EEG or electrocorticography
   - One intraoperative EP recording during complex spine surgery
   - Wednesday 3:00-5:30 PM Patient Review Conference (PRC) – Garvey room
   - Wednesday Noon Clinical Neurophysiology - EEG conference - Garvey room

3. Spend all other time in the EEG reading room.

Recommended reading list:

1. Use the Blackboard Neurology Resident EEG Course
   Go to the Miner Library -> Blackboard -> use your NetID to log in -> select Neurology Residency

2. "Orange Book" – ask for it the first day of the elective

3. Kang, Joon Y.; Krauss, Gregory L. Normal Variants Are Commonly Overread as Interictal Epileptiform Abnormalities, Journal of Clinical Neurophysiology: July 2019 - Volume 36 - Issue 4 - p 257-263 doi: 10.1097/WNP.0000000000000613
   Normal_Variants_Are_Commonly_Overread_as.3.pdf

4. Kuratani J, Pearl PL, Sullivan L, Riel-Romero RM, Cheek J, Stecker M, San-Juan D, Selioutski O, Sinha SR, Drislane FW, Tsuchida TN. American Clinical Neurophysiology Society Guideline 5: Minimum Technical Standards for Pediatric Electroencephalography. J Clin Neurophysiol. 2016 Aug;33(4):320-3. doi: 10.1097/WNP.0000000000000321. PMID: 27482791.
   JCNP-D-16-00138 320..323 (acns.org)

5. Hirsch, Lawrence J.; Fong, Michael W.K.; Leitinger, Markus; LaRoche, Suzette M.; Beniczky, Sandor; Abend, Nicholas S.; Lee, Jong Woo; Wusthoff, Courtney J.; Hahn, Cecil D.; Westover, M. Brandon; Gerard, Elizabeth E.; Herman, Susan T.; Haider, Hiba Arif; Osman, Gamaleldin; Rodriguez-Ruiz, Andres; Maciel, Carolina B.; Gilmore, Emily J.; Fernandez, Andres; Rosenthal, Eric S.; Claassen, Jan; Husain, Aatif M.; Yoo, Ji Yeoun; So, Elson L.; Kaplan, Peter W.; Nuwer, Marc R.; van Putten, Michel; Sutter, Raoul; Drislane, Frank W.; Trinka, Eugen; Gaspard, Nicolas. American Clinical Neurophysiology Society's Standardized Critical Care EEG Terminology: 2021 Version, Journal of Clinical Neurophysiology: January 2021 - Volume 38 - Issue 1 - p 1-29 doi: 10.1097/WNP.0000000000000806
   American_Clinical_Neurophysiology_Society_s.1.pdf

Ebersole, Current Practice of Clinical Encephalography:
Chapter 5: Physiological Basic of the EEG
Chapter 7: Electroencephalography of the Newborn
Chapter 10: Epilepsy and Syncope
Chapter 11: Focal Brain Lesions
Chapter 12: Diffuse Encephalopathies
Chapter 13: Organic Brian Syndromes and Dementias
Chapter 14: Coma, Other States of Altered Responsiveness and Brain Death
Chapter 15: Drug Effects
Chapter 16: Long-Term Monitoring
Chapter 17: Chronic Intracranial Recording and Electrocorticography
Chapter 23: Intraoperative Monitoring

Niedermeyer, Electroencephalography, Clinical Application, and Related Fields:
Chapter 9: The Normal EEG of the Waking Adult
Chapter 10: Sleep and EEG
Chapter 11: Maturation of the EEG: Development of Waking and Sleep Patterns

Pedley/Engel or Wyllie chapters on seizures and epilepsy, as directed by the SEC attending

GUIDELINES FOR THE RESIDENT FIRMS

Director: Christina Aman, MD
Clinic Nurse: Cody Henderson, RN

Philosophy of the FIRMS

The neurology resident FIRMS were established in 1987 to provide the best possible patient care and resident education in a hospital-based neurology continuity clinic. The FIRMS were set up in such a way as to simulate, as much as possible, a private-practice setting. Continuity of patient care and resident education were a high priority in the design of the firms. Hence, residents are assigned to a specific firm, headed by two attending neurologists, for their entire four years of their residency. Also, the patients are maintained as much as possible in the same firm, even though residents change every four years. In this way, the firm attendings will be familiar with the more complex firm patients and smooth the transition of resident turnover.

We view the FIRM as the most important outpatient activity for the neurology residents, since they provide a continuity experience for learning how to care for a cohort of patients. In addition, a unique mentoring relationship develops between the residents and the firm attendings over four years.

In order to ensure that the firms operate as efficiently as possible, the following guidelines have been developed:

Appointments

Patient appointments for the Neurology Resident Firms at Strong Memorial Hospital are scheduled from 1:00 – 4:30 pm during the week. Appointments are made by the Scheduling Center in the Department of Neurology, according to the following rules:

- PGY-1 residents are allotted one hour for both new and follow-up patients from July through September. Starting in October, they will be allotted one hour for new patients and 30 minutes for follow up patients, and will have a 30-minute unavailable slot in their schedule to complete administrative tasks or to use at their discretion to add an urgent follow up appointment.
- Residents will be allotted one hour for new patients and 30 minutes for follow up patients with a 30-minute unavailable slot in their schedule to complete administrative tasks or to use at their discretion to add an urgent follow up appointment.

<u>Appointment length summary:</u>

New	60 minutes
Follow-up	30 minutes (60 minutes for PGY-1's for the first 3 months)
Un-Admin	30 minutes for all levels

Residents may not change their FIRM dates/templates without prior approval from their FIRM attending and/or FIRM director, depending on the request. Once a change is approved, please email the staff using the “Neuro Schedule” Outlook user group.

Residents are expected to personally follow in their own FIRM those patients they treated as inpatients or in the ED. However, the resident clinic nurse and support team can assist with other provider options if no slots are available. Residents should send an in-basket telephone encounter to the Neurology Resident Nurse Pool. Please include the name of the resident with whom the patient should be scheduled, when the patient needs to be seen, and how long the appointment should be (30 or 60 minutes), using the .neurdischfuv dot phrase in e-record.

It is the responsibility of the resident to see patients in a timely manner. Residents should inform waiting patients if they are running late. Patients should not be turned away because a resident is running behind schedule. Documentation for patient visits must be completed and sent to the supervising attending **within 72 hours** of the patient’s appointment.

Every effort is made to obtain the medical record and/or medical information for every patient. Occasionally no information is available at the time of the visit (but this should be a rare occurrence). Patients are to be seen whether or not a medical record is available at the time of the appointment.

If upon reviewing the patient’s records in advance, you feel an error in scheduling has been made, please notify the clinic chiefs as soon as possible for assistance in rescheduling with the appropriate provider.

Some insurance companies require a valid referral from a patient’s primary care provider or specialist before the patient can be seen. This will be confirmed by our referral coordinators prior to scheduling the patient.

Follow-up appointments are scheduled at checkout at the convenience of the patient. If the hour is late and an appointment cannot be scheduled at checkout, please ask the patient to call the scheduling office (access center) at 275-1200 the following day for an appointment.

Test scheduling: An order must be placed in e-record by the resident before any test can be scheduled. Checkout staff cannot schedule tests without a properly entered order for a test. The patient note must be completed within 24 hours so that authorization for the test can be obtained. Note must be completed stat for all stat orders. Please ensure that you are logged into e-record under the “SMH Neurology” location when seeing patients in the FIRM, or else orders to be completed on an outpatient basis will not go through.

Messages

Patient telephone/MyChart messages and prescription requests are reviewed by the resident clinic RN. Messages requiring a response will be routed to the resident’s In-Basket through e-record. **Residents are responsible for checking and addressing their In-Basket messages throughout the day, regardless of what clinical rotation they are on.**

All medication refills requests must be addressed within 24 hours.
All non-urgent phone messages and MyChart messages must be addressed within 2 business days.

All urgent messages (noted with a red “high priority” arrow) must be addressed by the end of the business day. If paged regarding an outpatient issue, this call must be returned immediately.

Phone Numbers

The patient appointment number is: 585-275-1200.

Other useful numbers:

Support staff/schedulers	1-7450
Direct line to secretaries (not for patient use)	1-7450
Check-in	5-1247 / 5-7198
Check-out	5-1247 / 5-7198
Administrator	1-7429 or 764-9038
Nurse manager	5-8796
Staffing room	5-1202 5-7199
Fax	756-5189

Correspondence/Forms

All mail (in-house and out-of-hospital) should be placed in the mail bin located in the front office. All inter-office mail should go in a blue envelope or in a large tan interoffice mail envelope. Please do not use pre-stamped envelopes for inter-office mail.

Please complete all forms (DMV, Disability, etc.) within 7-10 business days, sooner if considered time-sensitive. Forms awaiting completion are uploaded to the resident’s efolder in BOX. Once completed, please move the forms to the appropriate attending’s efolder in BOX if cosignature is required; if not, please move the form to the Completed Files-all providers efolder in Box. A copy of the completed form will be faxed, mailed and scanned into the record by the support staff, as applicable.

There are various consent/ release of information forms (i.e., hospital to patient, physician’s office to hospital, etc.) Be sure that you are using the correct form for a timely response to the request.

All patient notes must be entered electronically into the medical record using e-record. The HPI and Assessment and Plan should be complete, organized and typed in prose into the electronic patient record. The medications, allergies, and PMH must also be reconciled in e-record for all new patients and should be updated at each visit.

Medication reconciliation: Medication reconciliation is a hospital and Joint Commission requirement. The purpose of medication reconciliation is to avoid medication errors, which include errors of omission, duplication of therapy, and drug-drug and drug-disease interactions. Medication lists in e-record should be reviewed by the resident to ensure that they are correct and that all medications prescribed are appropriate (patients will get a print-out of their meds on arrival to the clinic to make any changes so the provider or medical technician can enter these into the record). Changes should be noted in the clinic note. Updated medication lists will be listed on the After Visit Summary (AVS) that will be printed at check-out desk and handed to the

patient at the completion of the visit. These lists will be audited and the resident will be notified if the lists are incomplete. Whenever any new medication is prescribed, appropriate patient counseling should be performed and documented in the visit note.
Problem List: It is a hospital and Joint Commission requirement for ambulatory care areas to maintain an updated problem list for each patient that contains significant medical diagnoses, and operative and invasive procedures. Please review and update this list at each visit.

Allergies: All allergies need to be documented and verified in the medical record and reconciled at every visit.

Visit Navigator:
Patient Instructions: This area of the visit navigator should be completed prior to the patient leaving so that these can be provided on the AVS.
LOS and Follow Up: Resident must assign a visit diagnosis and a level of service in the visit navigator prior to the patient leaving the office.

Imaging

CD's containing neuroimages that need to be uploaded into the Imagecast system should be placed in the folder in the physicians' work room with the appropriate form completed. The back office staff will deliver the CD's to the radiology department for uploading. Please note that the radiology office staff does not return CD's.

Vacations and Cancellation of Clinic

According to department policy, residents receive four weeks of vacation per year. All vacations must be scheduled annually in advance, and all vacation requests must be approved by the Program Director. Vacations may not be taken during the first year SMH inpatient rotations, second year general neurology, stroke, pediatric neurology or psychiatry rotations, or during the third year acting chief resident or MBB rotations.

A resident's clinic should only be canceled in the event of an emergency. If a resident requests that his/her/their clinic be rescheduled for any reason other than a true emergency, the residency program director must be notified and must approve the schedule change. The resident needs to take an active part in rescheduling the patients, working collaboratively with the scheduling office staff, and should open up a non-clinic day to reschedule patients if necessary. Every effort must be made when scheduling fellowship/job interviews or travel arrangements for conferences to ensure no disruption to the FIRM schedule.

Coverage

Residents must arrange for coverage of their patients whenever they are away. In general, coverage is best provided by another resident in the same FIRM, and that resident should be attached to the away resident's In-Basket. The Clinic RN and FIRM attending must both be informed as to which resident is providing coverage. The covering resident must monitor and respond appropriately to In-Basket messages for the resident whom he/she/they are covering, including any medication renewals.

Scheduling Errors

A scheduling error may occur on occasion, resulting in a patient arriving in clinic without an appointment. If this occurs, the patient will be informed of the error and will be given the option of rescheduling the appointment or being seen later that afternoon by a resident as soon as a time slot is available. The clinic chief and FIRM attending will decide which resident will see that patient. They will decide the best way to accommodate the patient.

Policy for Providers when Patients Arrive Late for Appointment

Patients who arrive within 20 minutes of their scheduled new patient OR follow up appointment will be given the opportunity to be seen by their provider. If the patient arrives twenty minutes or longer after their appointment time, the patient will be given the option to be worked in at a different time if possible or to be rescheduled to a different date.

Patients who have been “lost” in the medical center will be given special consideration. Patients who travel from a distance will also be given special consideration. If at all possible the provider should be the one to talk with the patient if he/she cannot be seen. If concern is expressed over the emergent nature of the visit, the provider will discuss this directly with the patient.

Patient Cancellations

If a patient cancels a clinic appointment, every effort is made by the scheduling staff to fill the open slot. If the schedule that you receive the day before clinic has an open slot, please do not assume that this time slot will be free the next day. Every effort is made to insure that clinics are fully booked. Please note that an open slot on a resident’s schedule may be filled as late as 12:00 noon on the clinic day. If an open clinic slot on a clinic day is to be filled after 12:00 noon, clinic staff must first check with the resident before scheduling the patient.

Teamwork

If a resident is running behind due to a late patient or patient emergency, another resident is welcome to offer to see subsequent patients for that resident to help preserve the flow of clinic, if his/her/their schedule permits. This may also occur if a resident is ill and unable to attend FIRM, but his/her/their patient(s) arrives before receiving notification that the appointment was to be canceled. Both residents should consult with each other and their FIRM attendings to create a plan that all are amenable to and still ensures timely and appropriate patient care.

AMBULATORY SUBSPECIALTY BLOCKS FOR RESIDENTS 2025-2026

Description:
Each Adult Neurology resident will rotate through six required ambulatory subspecialty blocks during their second and third years of training. The purpose of these blocks is to gain exposure and comfort with outpatient-based specialized neurological care. This allows residents to deepen their knowledge base, improve their history and examination skills in the outpatient setting, and practice patient and family communication and counseling. Scheduling these blocks early in training also enables residents to better consider these subspecialties as potential fellowship/career options.

Objectives:

5. To learn the clinical presentation of a variety of both straightforward and complex neurological conditions in the outpatient setting.

6. To become more familiar with the scope of practice of ambulatory-based neurological subspecialists.

Residents will be released from block duties in order to attend their weekly resident FIRM as well as the Wednesday afternoon didactics sessions. Each block will also include at least one half-day of “flex time” to allow residents time for personal responsibilities, appointments, independent study, etc. Please see the back of the handbook for schedules for each block.

The director/coordinator for each block should contact you prior to the beginning of the rotation to discuss your specific schedule. If you have not heard from anyone regarding the block within a week of the first day of the rotation, please contact the appropriate individual(s) for more information regarding your specific schedule. If you are unable to attend your assigned clinics due to illness, Jeopardy pull, or other emergency, please contact the block coordinators as soon as possible.

The six ambulatory subspecialty blocks are as follows:

Neuromuscular/EMG
Director: Phillip Mongiovi, MD
Coordinator: Lorie Wolfanger

Location: Strong Memorial Hospital, AC-1 Neuromuscular clinic/EMG laboratory

Headache
Directors: Raissa Villanueva, MD, MPH
Coordinator: Karyn Bergeron

Location: Clinton Crossings, 919 Westfall Road, Building C, Suite 220

Epilepsy/Sleep Medicine
Directors: Inna Hughes, MD, PhD/Michael Yurcheshen, MD
Coordinators: Sarah Emond (Epilepsy), Michael Yurcheshen, MD (Sleep)

Location: Clinton Crossings, Westfall Road, Building D (Epilepsy)
South Clinton Sleep Clinic, 2337 South Clinton Avenue (Sleep)

Neuro-Oncology/Stroke
Directors: Lauryn Hemminger, MD (Neuro-Oncology)/Curt Benesch, MD, MPH (Stroke)
Coordinators: Amy Dodge (Neuro-Oncology)/Karen Sukert (Stroke)

Location: Wilmot Cancer Center at Strong Memorial Hospital (Neuro-Oncology)
Clinton Crossings, Westfall Road, Building D (Stroke)

Neuro-Immunology
Directors: Megan Hyland, MD (NI)
Coordinators: Amy Dodge (NI)

Location: Strong Memorial Hospital, AC-1 Neuroimmunology clinic
Clinton Crossings, 919 Westfall Road, Building C, Suite 220 (NI)

Movement Disorders/Memory Care
Directors: Jamie Adams, MD (Movement)/Fred Marshall, MD (Memory Care)
Coordinators: Anthony Minervino (Movement)/Judy Shafer (Memory Care)

Location: Clinton Crossings, Building D, (Movement)
Science Park, 315 Science Parkway, Entrance B, Suite 200
(Memory Care- Dr. Marshall)
UR Batavia, 7995 Call Parkway, Batavia NY 14020
(Memory Care- Dr. Gill)

ELECTIVES FOR NEUROLOGY RESIDENTS 2025-2026

Description:
Neurology residents at the University of Rochester have several months of elective time during residency to more fully pursue their specific interests within Neurology and/or related specialties/areas. We offer several clinical electives at both “basic” and “advanced” levels for many subspecialties. Basic electives primarily involve more straightforward patient evaluation and management, while advanced electives allow for evaluation and management of more complicated patients as well as more unique opportunities to observe specialized procedures relevant to the specialty. In general, residents should successfully complete a basic elective (or other pre-requisites) **before** doing an advanced elective. Please note that not all basic and/or advanced electives are available for each block, as it depends on faculty and service/facility availability and on the presence/absence of other rotating residents/students.

We also have research, educational, and special electives (with approval of the Neurology Residency Program Director) to allow residents time to create and implement scholarly and other types of projects.

Objectives:

1. To gain a deeper understanding of the major neurological subspecialties and/or types of fellowship/career paths available to neurologists

2. To allow for varying levels of care of both straightforward as well as more complex neurological patients in applicable settings, based on the resident’s level of training and particular interests.

3. To provide protected time for residents to pursue scholarly activities in research and/or education, under the supervision of the Neurology Residency Program Director and appropriate faculty.

Options for Basic and Advanced Electives:

- Movement Disorders
- Neuroimmunology
- Headache
- Neuro-Oncology
- Epilepsy

Options for Advanced Electives (required pre-requisites listed):

- Stroke (available to PGY3 and above, after completion of ≥ 1 block of Stroke consults)
- NMICU (must first complete one block of NMICU as a PGY2 AND PGY3)
- Sleep (must first complete the Epilepsy/Sleep ambulatory subspecialty block)
- Neuromuscular (must first complete the Neuromuscular/Basic EMG ambulatory subspecialty block)

For research and educational electives:
Any resident wishing to spend elective time working on research or an educational project must identify an appropriate faculty supervisor PRIOR to beginning the elective and MUST create an objective deliverable and/or other proof of progress to submit to the faculty supervisor and Neurology Residency Program Director within 2 weeks of the end of the elective.

Requests for any other kind of special elective MUST be approved by the Program Director PRIOR to the start of the rotation.

Evaluations will be completed by faculty and medical students in MedHub as for all other resident rotations following the rotation.

HEADACHE ELECTIVE
For 2nd and 3rd year Neurology Residents

Faculty

- Patrick Asselin, MD
- Nathalia Figueiredo, MD
- Kathleen Sellick, MD
- Raissa Villanueva, MD

Description

Headaches of all types, both primary and secondary, play an important role in the practice of general neurology. A solid understanding of the primary headache disorders and some of the more common secondary headache disorders and their treatments is an invaluable skill for any neurologist planning to practice clinical neurology.

The goal of this rotation is to teach residents how to effectively diagnose and treat various headache disorders and to learn about the underlying pathophysiology of these disorders. Headache is a specialty within neurology that is rapidly expanding in terms of our understanding of the pathophysiology of migraine and other primary headaches. It is also a very rewarding specialty because there is an opportunity to make a significant impact upon the quality of life of your patients. The majority of the patients you will see in a specialized headache practice are chronic and have difficult to treat migraines and other primary headache disorders. You will have an opportunity to learn how to do botulinum toxin injections for the treatment of migraines as well as various nerve blocks for acute treatment of severe headaches.

Learning Objectives

1. Become familiar with the headache classification system
2. Learn how take an effective headache history
3. Learn when further work-up is needed for certain headache types and what work-up is indicated.
4. Become familiar with the diagnosis of migraine with and without aura and the appropriate preventive and acute treatment strategies
5. Become familiar with the diagnosis of cluster headaches and other trigeminal autonomic cephalalgias and learn the appropriate acute treatment and preventive treatment strategies
6. Become familiar with other primary headache disorders such as: new daily persistent headache, hemicrania continua, exertional headaches, hypnic headache and thunderclap headache.
7. Learn the treatment protocol for botulinum toxin injections for chronic migraine
8. Learn how to perform occipital nerve block, auriculo-temporal nerve blocks and supra-orbital nerve blocks, trigger point injections

Resident Responsibilities

1. The resident will attend clinic at the URMC Headache Center. Half-day sessions will occur on Mondays, Tuesdays and Thursdays with procedure days on Monday afternoons and Fridays. Clinic hours are from 8am to 12 noon and 1pm to 5pm for half-day sessions.

2. Call Schedule: There is no call on this rotation.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be heavily weighted upon your level of interest and involvement and your ability to demonstrate knowledge in headache specialty care.

Required Reading

1) Wolff's Headache. Silberstein, Lipton and Dodick.
2) International Headache Society Classification of Headache Disorders version 3- ICHD-3
3) Comprehensive Review of Headache Medicine. Morris Levin.
4) Journal articles to be decided during the rotation depending up on the interests of the resident

MEMORY CARE PROGRAM ELECTIVE
For 2nd and 3rd year Neurology Residents

Location: Rochester Science Park,
315 Science Pkwy, Entrance B, Suite 200
Rochester, NY 14620

Director: Frederick Marshall, MD (Neurology)

Faculty:

- Marie Bilinski, NP (Psychiatry Nurse Practice)
- Elizabeth Santos, MD (Psychiatry)
- David Gill, MD (Neurology)
- Michael Hasselberg, NP (Psychiatry Nurse Practice)
- Anton Porsteinsson, MD (Psychiatry)
- Carol Podgorski, PhD (Marriage and Family Therapy)
- Susan Ruhlin, LMSW (Social Work)

Description

The Memory Care Program is a multidisciplinary out-patient practice devoted to the diagnosis and management of patients with a variety of dementias. Residents will gain exposure to a wide range of neurobehavioral syndromes and will benefit from the varying clinical perspectives of the MCP faculty. During the elective, residents will focus on the clinical assessment of patients, development of treatment plans, counseling and coordination of patient care. The importance of care-givers in the provision of patient care, familiarity with community support services, and collaboration with the Alzheimer's Association will be stressed. In addition, residents will become familiar with the array of natural history studies, translational studies, and clinical experimental therapeutic trials currently conducted by program faculty.

Learning Objectives

1. Understand the differential diagnosis, epidemiology and diagnostic criteria for common dementing illnesses.
2. Outline the appropriate use of imaging, electrophysiology, laboratory, and formal neuropsychological testing in the evaluation of individuals presenting with cognitive disorders.
3. Identify the indications and limitations of the cognitive-enhancing medications, and demonstrate familiarity with their prescribing information.
4. Recognize the importance and variability of psychological, social, and familial factors in the care and management of patients with dementing illness.

Responsibilities of the Resident

The resident will initially participate as an observer in the outpatient clinic, evaluating patients and meeting with families along with the primary MCP clinician(s) assigned. In this capacity, the resident will have an opportunity to round with each of the disciplines represented within the MCP (neurology, psychiatry, neuropsychology, nurse-practice, social-work and family-therapy). Once familiar with the assessment approach and care-team model, the resident will perform independent outpatient assessment of MCP patients and formulate diagnostic and treatment plans with close faculty supervision.

General Guidelines

The rotation is intended to be two to four weeks in duration. Reading should include the following, as well as appropriate literature searches triggered by specific patients evaluated.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be weighted on your level of interest and involvement.

References

1. Richard L Strub and F William Black (eds.). The Mental Status Examination in Neurology, 4th Edition. FA Davis; 2000
2. Nancy L Mace and Peter V Rabins. The 36-Hour Day: A Family Guide to Caring For Persons with Alzheimer Disease, Related Dementing Illnesses, and Memory Loss, 5th Ed. Johns Hopkins Press; 2011
3. John O'Brien, Ian McKeith, David Ames, Edmond Chiu (eds.). Dementia with Lewy Bodies and Parkinson's Disease Dementia. Taylor & Francis; 2006
4. Michael S Gazzaniga, Richard B. Ivry, George R Mangun. Cognitive Neuroscience: the Biology of the Mind, 3rd Ed., Norton; 2009
5. Murial Lezak, Diane B Howeison, David W Loring. Neuropsychological Assessment, 4th Ed., Oxford; 2004

Selected Journal Articles for Review

<u>Alzheimer Disease</u>

1. McKhann G, Drachman DA, Folstein M, Katzman R, Price DL, Stadlan EM: Clinical diagnosis of Alzheimer's disease—report of the NINCDS–ADRDA work group under the

auspices of Department of Health and Human Services Task Force on Alzheimer's disease. *Neurology* 34. 939-944.1984

2. Dubois B, Feldman HH, Jacova C, et al. Research criteria for the diagnosis of Alzheimer's disease: revising the NINCDS-ADRDA criteria. Lancet Neurol 2007:6:734-746.

Dementia with Lewy Bodies

3. McKeith IG, Dickson DW, Lowe J, et al. Diagnosis and management of dementia with Lewy bodies. Third report of the DLB consortium. Neurology 2005;65:1863-1872

Frontotemporal Dementia:

4. Rascovsky K, Hodges JR, Knopman D, et al. Sensitivity of revised diagnostic criteria for the behavioural variant of frontotemporal dementia. Brain 2011:134;2456-2477
5. Seelaar H, Rohrer JD, Pijnenburg YAL, et al. Clinical, genetic and pathological heterogeneity of frontotemporal dementia: a review. J Neurol Neurosurg Psychiatry 2011;82:476-486.

Vascular Dementia/ Vascular Cognitive Disorder

6. Roman GC, Sachdev P, Royall DR, et al. Vascular cognitive disorder: a new diagnostic category updating vascular cognitive impairment and vascular dementia. J Neurol Sci. 2004:226;81-87.

Parkinson Dementia

7. Barton B, Grabli D, Bernard B, et al. Clinical validation of Movement Disorder Society-recommended diagnostic criteria for Parkinson's disease with dementia. Movement Disorders 2011;27:248-253.

MOVEMENT DISORDER ELECTIVE
For 1st, 2nd and 3rd Year Neurology Residents

Faculty

- Jamie Adams, MD
- Richard Barbano, MD, PhD
- Karlo J. Lizárraga, MD, MS
- Frederick Marshall, MD
- Peter Morrison, DO
- Irene Richard, MD
- Ruth Schneider, MD
- Benzi Kluger, MD
- Christopher Tarolli, MD, MHPE
- Blanca Valdovinos, MD
- Melanie Braun, MD
- David Sell, DO
- Patrick Gilson, MD
- Nami Shah, MD
- William Barbosa, MD

Overview of Movement Disorders

The term “movement disorders” can refer to symptoms (e.g. slowness, tremulousness, twitches or postures), physical signs (e.g. bradykinesia, tremor, myoclonus or dystonia), syndromes (e.g. Parkinsonism, myoclonus-dystonia syndrome) or the specific etiologies associated with abnormal movements (e.g. Parkinson’s disease, DYT-*SGCE*).

In general, “movement disorders” involve abnormalities of motor control that localize to sensorimotor circuits connected to the basal ganglia. However, “movement disorders” comprise a large variety of other motor manifestations that can lead to “disorders of movement” and are not necessarily due to dysfunction of the basal ganglia (e.g. slowness due to arthrosis, twitches due to fasciculations or seizures). Similarly, basal ganglia dysfunction may be associated with non-motor problems. The term “extrapyramidal” is thus inaccurate and it is rapidly disappearing from the field.

Abnormal movements may be the only manifestation of a disease (e.g., tremor in Parkinson’s disease or essential tremor) and many diseases may be associated with more than one type of abnormal movement (e.g. tremor, rigidity and bradykinesia in Parkinson’s disease; tremor with dystonic features in essential tremor). Movement disorders are typically conceptualized as either hypokinetic (paucity of voluntary and automatic movements) or hyperkinetic (excessive movement). “Dyskinesia” could be used to describe unnatural movements that may not necessarily be excessive. However, the terms hyperkinesia and dyskinesia are usually interchangeable.

The differential diagnosis for a patient with abnormal movements requires careful observation. Here is a suggested approach with three steps:

1. Are the abnormal movements due to a “movement disorder” or a “disorder of movement”?

Normal movements such as gestures and mannerisms can mimic movement disorders. Abnormal movements can be due to musculoskeletal and other neurological and non-neurological conditions ("disorders of movement").

2. What is the predominant phenomenology?

   Note whether the abnormal movements are predominantly hypokinetic or hyperkinetic, the specific anatomical distribution, relation to rest, posture or action, speed, duration, rhythmicity, variability, etc. Then, determine the predominant phenomenology: Parkinsonism, ataxia, chorea, dystonia, myoclonus, tics, tremor, etc.
   Immediate impressions are useful to determine the predominant phenomenology. However, prolonged observation is usually required. After obtaining consent from the patient, consider videotaping the abnormal movements to facilitate future observation, consultation and communication.

3. What is the most likely cause of the abnormal movements?

   Based on the above information, history and rest of neurological exam, determine whether the predominant phenomenology corresponds to a primary movement disorder (e.g., Parkinson's disease), a secondary movement disorder (e.g., tardive or drug-induced Parkinsonism) or if the abnormal movements may be symptomatic of another condition (e.g. Parkinsonism due to pallidal infarction) or associated with other neurological signs (e.g. Parkinsonism, chorea and neuropsychiatric manifestations in Huntington's disease). Consider the appropriate workup based on your clinical suspicion.

Essential tremor and restless legs syndrome are the most common movement disorders, followed by Parkinson's disease, dystonia and drug-induced movement disorders (also known as tardive syndromes). Other movement disorders include atypical Parkinsonian syndromes (such as multiple systems atrophy, progressive supranuclear palsy, corticobasal degeneration, dementia with Lewy bodies), Wilson's disease, Huntington's disease, Tourette's syndrome, spinocerebellar ataxias, paroxysmal dyskinesias, functional movement disorders, peripherally induced movement disorders (e.g. painful legs and moving toes syndrome) and peripheral movement disorders.

Learning Objectives

1. Recognize when a patient with abnormal movements may have a movement disorder (ACGME level 1) and identify the predominant phenomenology (ACGME level 2) to initiate the differential diagnosis and workup.

2. Diagnose and manage common movement disorders (ACGME level 3) such as Parkinson's disease, essential tremor, dystonia and restless legs syndrome.

3. Become familiar with the diagnosis, prognosis and treatment for other movement disorders such as atypical Parkinsonian syndromes, Huntington's disease, tic disorders, ataxias and functional movement disorders (ACGME levels 4 and 5).

4. Become familiar with medications typically used to treat common movement disorders (ACGME level 3) as well as other therapies including botulinum toxin injections and deep

brain stimulation. Appropriately refer a movement disorder patient for a surgical evaluation or other interventional therapies (ACGME level 4).

5. Become familiar with other motor and non-motor areas of impairment experienced by patients with movement disorders (e.g. psychiatric, cognitive, gait/posture/balance, speech/swallowing) and when to refer for further evaluation and treatment (e.g. neuropsychological evaluation, physical therapy, speech therapy).

6. Become familiar with advanced diagnostic options for patients with movement disorders, including neuropsychological testing, nuclear imaging (e.g. DATSCAN), electrophysiology and gait analysis.

7. Identify (ACGME level 3) and manage (ACGME level 4) movement disorders emergencies such as neuroleptic malignant syndrome, serotoninergic syndrome, malignant catatonia and status dystonicus.

Resident Responsibilities

Most of the clinical activity during the movement disorders elective will take place in the outpatient setting at 919 Westfall Road, Building C, Suite 100. Residents are welcome to observe inpatient movement disorders consultations but there are generally no inpatient activities and there will be no call responsibilities. Rotating residents are also welcome to attend educational activities of the division (video rounds, lectures and journal club). These are generally scheduled on Fridays at noon (except for the first Friday of the month when we have division administrative meeting).

Clinic

- Movement disorder clinics currently take place Monday, Tuesday, Wednesday, Thursday and some Fridays. Residents are scheduled for 6-7 clinics each week and are not scheduled during Wednesday afternoon or the afternoon of their own FIRM. Residents will receive a “welcome” email the Friday before his/her elective begins with the schedule and other information pertinent to the elective.

- The general movement disorders clinics will involve a mix of new evaluations and follow-up visits for patients with Parkinson’s disease and related disorders, essential tremor, tic disorders and other conditions (e.g., restless legs syndrome, dystonia, myoclonus, ataxia) (Drs. Adams, Morrison, Schneider, Tarolli, Valdovinos).

- Huntington’s disease clinic takes place on the 2nd Thursday of each month (Drs. Adams, Marshall and Schneider).

- Botulinum toxin injections are performed Tuesday, Wednesday, Thursday and some Friday afternoons (Drs. Adams, Barbano, Lizárraga, Morrison, Tarolli and Valdovinos). These clinics include patients treated for dystonia, tremor, tics and occasionally other conditions (e.g., tardive dyskinesia).

- Deep brain stimulation multidisciplinary clinic (1st and 3rd Tuesday morning of the month) includes evaluation of new patients being considered for surgery and programming of

implanted stimulators. The resident may also observe a deep brain stimulation surgery if one is scheduled during the rotation (Monday mornings at SMH). Please let Dr. Adams and Dr. Lizárraga know in advance if interested.
- Electrophysiological procedures and gait analysis for clinical purposes are scheduled every other Wednesday AM and some Friday afternoons. Please let Dr. Adams and Dr. Lizárraga know in advance if interested.

Research

Residents are welcome to join attendings for clinical research activities that take place at the movement disorders clinic. These activities include research visits for clinical trial assessments, drug administration, neuropsychological testing, electrophysiological procedures, gait analysis, etc. The schedule for clinical research activities varies based on scheduled study visits, etc. Please coordinate with the corresponding attending if interested.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology and will be heavily weighted upon your level of interest and involvement. We will also consider your level of knowledge and performance for your level of training based on the levels proposed by the ACGME.

For residents on their movement rotation, we will arrange for a virtual, 15-minute pre-test and post-test with one of our Faculty members (usually Dr. Lizárraga). The pre-test will usually take place on the first Monday and the post-test on the last Friday of the rotation. The goal of the pre-test is for the Faculty member to demonstrate the suggested approach to the patient with abnormal movements based on review of 2-3 randomly chosen videos of patients with classic movement disorders. The goal of the post-test is for the rotating resident to provide feedback on the rotation and to assess her/his own growth in knowledge and performance based on re-review of the same 2-3 videos initially chosen for the pre-test.

Recommended Reading

Most references mentioned below are available in our “movement didactic curriculum” folder in Box, which will be shared with rotating residents. Other references and books are available through the Miner Library.

Movement Disorders (overview)

Continuum (Minneap Minn). 2019 Aug; 25 (4: Movement Disorders). This volume of Continuum is an excellent resource for an up-to-date overview of movement disorders.

A practical approach to movement disorders: Diagnosis and Management. Fernandez, Hubert et al. Demos Medical Publishing 2014 Proquest Ebook Center (Available online, Miner Library)

Principles and practice of movement disorders. Fahn, Jankovic and Hallet. El Sevier. (Second Edition, 2011). The electronic version of this book includes hundreds of videos. (Available online, Miner Library)

Parkinson's Disease
Bloem BR, Okun MS, Klein C. Parkinson's Disease. Lancet. 2021 Apr 9:S0140-6736(21).

Heinzel S, Berg D, Gasser T, et al., Update of the MDS research criteria for prodromal Parkinson's disease. Mov Disord. 2019; 34 (10):1464-70.

Postuma RB, Poewe W, Litvan I, et al., Validation of the MDS clinical diagnostic criteria for Parkinson's disease. Mov Disord. 2018; 33 (10):1601-8.

Berg D, Postuma RB, Adler CH, et al., MDS research criteria for prodromal Parkinson's disease. Mov Disord. 2015; 30 (12):1600-11.

Postuma RB, Berg D, Stern M, et al., MDS clinical diagnostic criteria for Parkinson's disease. Mov Disord. 2015; 30 (12):1591-601.

Fox SH, Katzenschlager R, Lim SY, et al., International Parkinson and movement disorder society evidence-based medicine review: Update on treatments for the motor symptoms of Parkinson's disease. Mov Disord. 2018; 33 (8):1248-66.

Seppi K, Chaudhuri KR, Coelho M, et al., Update on treatments for non-motor symptoms of Parkinson's disease-an evidence-based medicine review. Mov Disord. 2019; 34 (2):180-198.

Ba F, Martin WR. Dopamine transporter imaging as a diagnostic tool for parkinsonism and related disorders in clinical practice. Parkinsonism Relat Disord 2015 Feb; 21(2):87-94.

Atypical Parkinsonian Syndromes

Bhidayasiri R, Sringean J, Reich SG, Colosimo C. Red flags phenotyping: A systematic review on clinical features in atypical parkinsonian disorders. Parkinsonism Relat Disord. 2019; 59:82-9.

Miki Y, Foti SC, Asi Y, et al., Improving diagnostic accuracy of multiple system atrophy: a clinicopathological study. Brain. 2019; 142 (9):2813-27.

Fanciulli A, Wenning GK. Multiple-system atrophy. New Engl J Med. 2015; 372(3):249-6.

Hoglinger GU, Respondek G, Stamelou M, et al., Clinical diagnosis of progressive supranuclear palsy: The movement disorder society criteria. Mov Disord. 2017; 32 (6):853-64.

Jabbari E, Holland N, Chelban V, et al., Diagnosis across the spectrum of progressive supranuclear palsy and corticobasal syndrome. JAMA Neurol. 2020; 77(3):377-87.

Armstrong MJ, Litvan I, Lang AE, et al., Criteria for the diagnosis of corticobasal degeneration. Neurology 2013; 80:496-503.

Diagnosis and management of dementia with Lewy bodies. Fourth consensus report of the DLB Consortium. Neurology 2017; 89:88–100.

Tremor and Essential Tremor

Bhatia KP, Bain P, Bajaj N, et al., Consensus statement on the classification of tremors. From the task force on tremor of the International Parkinson and Movement Disorder Society. Mov Disord. 2018; 33 (1):75-87.

Elias WJ, Shah BB. Tremor. JAMA. 2014; 311 (9):948-54.

Ferreira JJ, Mestre TA, Lyons KE, et al., MDS evidence-based review of treatments for essential tremor. Mov Disord. 2019; 34 (7):950-58.

Ondo WG. Current and emerging treatments of essential tremor. Neurol Clin. 2020; 38 (2):309-323.

Dystonia

Albanese A, Bhatia K, Bressman SB, et al., Phenomenology and classification of dystonia: a consensus update. Mov Disord. 2013; 28(7): 863.

Jinnah HA, Factor SA. Diagnosis and treatment of dystonia. Neurol Clin. 2015; 33(1):77-100.

Jost WH, Tatu L. Selection of Muscles for Botulinum Toxin Injections in Cervical Dystonia. Mov Disord Clin Practice. 2015; May 7;2(3):224-226.

Lizarraga KJ, Al-Shorafat D, Fox S. Update on current and emerging therapies for dystonia. Neurodegener Dis Manag. 2019; 9 (3):135-47.

Jost WH, Tatu L. Selection of Muscles for Botulinum Toxin Injections in Cervical Dystonia. Mov Disord Clin Practice. 2015; May 7;2(3):224-226.

Tourette's syndrome

Dale, RC. Tics and Tourette: a clinical, pathophysiological and etiological review. Curr Opin Pediatr. 2017 Dec;29(6):665-673.

Pringsheim T, Okun MS, Müller-Vahl K, et al., Practice guideline recommendations summary: Treatment of tics in people with Tourette syndrome and chronic tic disorders. Neurology. 2019; 92 (19):896-906.

Huntington Disease

A Physician's Guide to the Management of Huntington's Disease. Available for free download from www.hdsa.org.

Maestre TA. Chorea. Continuum (Minneap Minn). 2016 Aug;22(4 Movement Disorders):1186-1207.

Tardive Syndromes

Savitt, D, Jankovic J. Tardive syndromes. J Neurol Sci. 2018; 389: 35–42.

Bhidayasiria, R, Jitkritsadakula, O, Friedman JH, Fahn C. Updating the recommendations for treatment of tardive syndromes: A systematic review of new evidence and practical treatment algorithm. J Neurol Sci. 2018; 389: 67–75.

Ataxia

Pulst, SM. Degenerative ataxias, from genes to therapies: The 2015 Cotzias Lecture. Neurology. 2016 Jun14;86(24):2284-90.

Theresa A. Zesiewicz TA, Wilmot G Kuo S-H Comprehensive systematic review summary: Treatment of cerebellar motor dysfunction and ataxia. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the AAN. Neurology 2018; 90:464-471

Other Movement Disorders

Bhatia KP. **Paroxysmal dyskinesias**. Mov Disord. 2011 May; 26(6):1157-65

Baizabal-Carvalloa JF, Jankovica, J **Autoimmune and paraneoplastic** movement disorders: An update. J Neurol Sci 2018; 385: 175–184

Czarnecki K, Hallett M. **Functional (psychogenic)** Movement Disorders. Curr Opin Neurol 2012; 25:507-512

Lozsadi D. **Myoclonus**: a pragmatic approach. Practical Neurology 2012; 12:215-224

Winkelman JW, Armstrong MJ, Allen RP, et al., Practice guideline summary: Treatment of **Restless Leg Syndrome** in adults. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the AAN. Neurology 2016; 87:2585–2593

Wong JK, Hess CW, Almeida L, et al. **Deep brain stimulation** in essential tremor: targets, technology, and a comprehensive review of clinical outcomes. Expert Rev Neurother. 2020; 20 (4):319-331.

Lozano AM, Lipsman N, Bergman H, et al. **Deep brain stimulation**: current challenges and future directions. Nat Rev Neurol. 2019; 15 (3): 148-160.

NEURO-ONCOLOGY ELECTIVE
For 2nd and 3rd year Neurology Residents

Faculty

- Nimish Mohile, MD
- Katie Eszes, MD
- Max Jean, MD, PhD
- Lauryn Hemminger, MD

Description

The practice of neuro-oncology involves the diagnosis and treatment of primary and metastatic intracranial tumors as well as the neurological complications of cancer. The most common malignant tumor in adults is glioblastoma, and treatment of patients with this disease can be challenging. In addition patients with cancer present with a gamut of neurological diseases and symptoms. Patients with primary brain tumors and neurological complications are seen in both the inpatient and outpatient setting.

The goal of this rotation is to introduce residents to a growing field in neurology. Residents are encouraged to evaluate patients independently and formulate assessments and plans for treatment on their own. They will do this under the guidance of the attending on-service, and our plan is to be readily available so that patients are discussed and seen together, and feedback is immediate. Residents are encouraged to read relevant literature and when appropriate, pertinent texts or papers will be provided.

Learning Objectives

1. Become familiar with the diagnosis, prognosis and treatment options for gliomas and other primary brain tumors.
2. Become familiar with the diagnosis, prognosis and treatment options for brain metastases.
3. Become familiar with the diagnosis and management of common neurological complications of cancer including neuropathy, seizures, cord compression, radiation necrosis, and steroid myopathy.
4. Become familiar with appropriate palliative interventions and treatments.
5. Gain experience with discussing prognosis, goals of care, and advance directives with patients and families.

Resident Responsibilities

Inpatient: Residents will see new inpatient and ED consults during the day (8am-4pm), and Resident Responsibilitstaff them with the neuro-oncology attending on-service. They will also see follow-up consults as needed.

Outpatient: The resident will attend neuro-oncology clinic on Tuesdays and Wednesdays at the James P. Wilmot Cancer Center. Priority will be given to seeing new patients or follow-up patients with active problems and unique diagnoses.

Call Schedule: There is no evening, weekend or overnight call on this rotation.

Conferences: Residents will attend the weekly multi-disciplinary Brain Metastases Conference on Wednesdays at 7:30 and the Brain Tumor Conference on Thursday mornings at 8:00 am. They are also encouraged to attend the academic conferences 12PM on Thursdays.

Readings: There will be assigned readings covering major topics and particular interests of the residents. These will be discussed weekly with the attending physician.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be heavily weighted upon your level of interest and involvement.

Suggested Reading

Glioblastoma Multiforme

1. Stupp R. Chemoradiotherapy in malignant glioma: Standard of care and future directions. Journal of clinical oncology. 2007;25(26):4127.
2. Stupp R. Radiotherapy plus concomitant and adjuvant temozolomide for glioblastoma. New England Journal of Medicine, The. 2005;352(10):987.
3. Hegi ME. MGMT gene silencing and benefit from temozolomide in glioblastoma. New England Journal of Medicine, The. 2005;352(10):997.
4. Keime-Guibert F. Radiotherapy for glioblastoma in the elderly. New England Journal of Medicine, The. 2007;356(15):1527.
5. Brandsma D. Molecular targeted therapies and chemotherapy in malignant gliomas. Current opinion in oncology. 2007;19(6):598.
6. Stupp R. Maintenance Therapy with Tumor-Treating Fields Plus Temozolomide vs. Temozolomide alone for Glioblastoma. JAMA 2015; 314(23):2535-2543

Anaplastic Oligodendroglioma and Low grade Gliomas

7. van den Bent, Martin J. Adjuvant procarbazine, lomustine, and vincristine improves progression-free survival but not overall survival in newly diagnosed anaplastic oligodendrogliomas and oligoastrocytomas: A randomized European organisation for

research and treatment of cancer phase III trial. Journal of clinical oncology. 2006;24(18):2715.

8. Cairncross G. Phase III trial of chemotherapy plus radiotherapy compared with radiotherapy alone for pure and mixed anaplastic oligodendroglioma: Intergroup radiation therapy oncology group trial 9402. Journal of clinical oncology. 2006;24(18):2707.

9. Macdonald DR. Successful chemotherapy for newly diagnosed aggressive oligodendroglioma. Annals of neurology. 1990;27(5):573.

10. Jakola, AS et al. Comparison of a Strategy Favoring Early Surgical Resection vs. a Strategy Favoring Watchful Waiting in Low-Grade Gliomas. JAMA 2012; 308(18); 18881-1888

11. Buckner, J et al. Radiation plus Procarbazine, CCNu and Vincristine in Low Grade Glioma. New Eng J Med 2016; 374:1344-1355

12. The Cancer Genome Atlas Research Network. Comprehensive, Integrative Genomic Analysis of Diffuse Lower-Grade Gliomas. N Engl J Med 2015;372;2481-2498

Brain Metastases

13. Patchell RA. A randomized trial of surgery in the treatment of single metastases to the brain. New England Journal of Medicine, The. 1990;322(8):494.

14. Patchell RA. Radiosurgery plus whole-brain radiation therapy for brain metastases. JAMA. 2006;296(17):2089.

15. Andrews DW. Whole brain radiation therapy with or without stereotactic radiosurgery boost for patients with one to three brain metastases: Phase III results of the RTOG 9508 randomised trial. Lancet, The. 2004;363(9422):1665.

16. Aoyama H. Stereotactic radiosurgery plus whole-brain radiation therapy vs stereotactic radiosurgery alone for treatment of brain metastases: A randomized controlled trial. JAMA. 2006;295(21):2483.

Primary CNS Lymphoma

17. Abrey LE. Treatment for primary CNS lymphoma: The next step. Journal of clinical oncology. 2000;18(17):3144.

18. Ferreri, Andres J.M et al. How I treat primary CNS lymphoma. Blood: July 21, 2001

Metastatic Epidural Spinal Cord Compression

19. Patchell RA et al. Direct decompressive surgical resection in the treatment of spinal cord compression caused by metastatic cancer: a randomised trial. Lancet 2005; 366: 643–48

Reference Texts

20. DeAngelis LM, Gutin PH, Leibel SA and Posner JB Intracranial Tumors. Diagnosis and Treatment.. Martin Dunitz, 1995

21. DeAngelis LM and Posner JB Neurologic Complications of Cancer (2nd ed.) Oxford University Press, 2009

NEURO-OPHTHALMOLOGY ELECTIVE
For 2nd and 3rd year Neurology Residents

Director:
Zoë R. Williams, MD

Faculty:
Bayan Al Othman, MD
Zoë R. Williams, MD
Natalie Brossard Barbosa, MD

Location:
Flaum Eye Institute, Strong Memorial Hospital Department of Ophthalmology, 585-275-6180

Description

About 1/3 of brain structure is related to the afferent or efferent visual pathways, or the cortical processing of visual input. Therefore, an understanding of neuro-ophthalmology is crucial for a neurologist. Neuro-ophthalmic disorders can occur with diseases at any level of the nervous system, including CNS, PNS, neuro-muscular junction and muscle. There is also considerable interface with general medicine, pediatrics, neurosurgery, endocrinology and a myriad of other clinical specialties.

The faculty in the Neuro-ophthalmology section at U of R is multifaceted. Dr. Feldon practices Adult Neuro-ophthalmology and Oculoplastics. Dr. Al Othman practices Adult and Pediatric Neuro-ophthalmology. Dr. Williams practices Adult Neuro-ophthalmology and Strabismus surgery. They have different clinical and research interests.

Dr. Al Othman's research interests include optic nerve disorders and neuro-ophthalmological diseases in pediatric age group. She has authored nearly fifty publications in peer-reviewed journals of ophthalmology and neuro-ophthalmology.

Dr. Williams' primary research interest is visual recovery in afferent visual system disorders. She was the principal site investigator for the multinational trial for acute treatment of NAION (non-arteritic ischemic optic neuropathy) and for the surgical arm (SIGHT) of the IIHTT (Idiopathic Intracranial Hypertension Treatment Trial). She was also the principal site investigator for a multicenter study of the visual outcome of venous sinus thrombosis. She is involved in collaborative research with the Departments of Neurology and Brain and Cognitive Sciences on visual recovery after ischemic stroke, and with the Departments of Neurosurgery and Brain and Cognitive Sciences on visual recovery after pituitary tumor removal.

Learning Objectives

1. Perform a neuro-ophthalmic history and examination, focusing on examination techniques that are useful in a general neurologic practice (rather than emphasizing the use of ophthalmic equipment that is generally unavailable to neurologists).
2. Learn to differentiate optic nerve disease from other ophthalmic causes of visual loss based on the history and exam.
3. Become proficient in identifying normal optic nerve anatomy, optic disc edema, and optic atrophy.
4. Become familiar with ophthalmic terminology and documentation.
5. Gain exposure to the techniques and interpretation of manual and automated visual field testing.
6. Learn about common neuro-ophthalmic disorders including optic neuritis, idiopathic intracranial hypertension, internuclear ophthalmoplegia, nystagmus, ischemic optic neuropathy, visual field defects, pupillary abnormalities, and diplopia including cranial neuropathies.
7. Observe surgical procedures relevant to neuro-ophthalmology (e.g., optic nerve sheath decompression, trans-antral orbital decompression, strabismus, eyelid procedures and temporal artery biopsies)

Responsibilities of the Resident

1. Serve as the initial examiner for new and follow-up patients.
2. See in-patient hospital neuro-ophthalmology consultations initially, and discuss with the attending physician.
3. Attend neuro-ophthalmology conference (currently Wednesdays at 6:45-7:30 AM via Zoom- subject to change post COVID)
4. Attend other conferences in the ophthalmology department that are relevant to neuro-ophthalmology, if scheduled during the rotation (e.g., Grand Rounds).
5. Follow neuro-ophthalmology inpatients with neurology service, as appropriate.
6. In the last week of the rotation, the resident should plan to present an interesting patient seen on the rotation with an overview of their diagnosis and management for the resident neuro-ophthalmology conference.

General Guidelines

The rotation is 4 weeks in duration and primarily involves outpatient neuro-ophthalmology. The residents will see patients with Al Othman and Williams and attend neuro-ophthalmology conferences. Prior to scheduling the rotation, the resident should contact Dr. Williams to make sure that there is not a major conflict with faculty travel during that time block. It is expected that after a day or two of observation, the resident will start seeing patients as the initial examiner and will be able to perform most of the relevant ophthalmic examination.

The resident should plan to read one of the following recommended textbooks while on service:

1. Miller NR, Newman NJ, Biousse V, Kerrison JB. Walsh and Hoyt's Clinical Neuro-Ophthalmology : The Essentials. 2nd ed., Lippincott Williams & Wilkins, 2008.

2. Leigh J and Zee D, The Neurology of Eye Movements. 4th ed., Oxford University Press, New York, 2006.

3. Pane A, Burdon M, Miller NR. The Neuro-Ophthalmology Survival Guide, Mosby, 2006.

A Manual for the Beginning Ophthalmology Resident, published by the American Academy of Ophthalmology, is also helpful for understanding various ophthalmic procedures and examination techniques that will be encountered on service.

Other reading material, including journal articles, will be incorporated as relevant to patient exposure.

Evaluation

The evaluation will be completed on the standard form used by the department and will be heavily weighted on level of interest, quality of work-ups and presentations, ability to generate a neuro-ophthalmic diagnosis and treatment plan, motivation and effort, and patient rapport.

NEUROPATHOLOGY ELECTIVE
For 2nd and 3rd Year Neurology Residents

Director: 585-276-3087

Description

During this elective, the neurology resident will acquire a basic understanding of the reactions of the central nervous system and will formulate a diagnosis for the most common and classical neuropathologic lesions encountered at autopsy and in neurosurgical pathology with attention to the diagnosis of brain tumors, cerebrovascular diseases, neurodegenerative disease and common neuromuscular diseases. The neurology resident will gain insight into the prognostic information pathological analysis provided including new molecular tests.

Learning Objectives

Brain cutting conferences

1. To become familiar with the gross neuroanatomical landmarks and areas to be sampled.
2. To describe the gross abnormalities using pathologic terminology.
3. To understand the basic concept of tissue processing (i.e. what happens from the bench to the slide).
4. To review the slides upon their completion prior to the sign-out.
5. To recognize and articulate the microscopic abnormalities and formulate a clinical pathologic diagnosis on each case.

Neurosurgical Specimens

1. To understand the process of intraoperative evaluation of tissue samples.
2. To formulate a differential diagnosis based on the clinical history and CT/ MR imaging findings, and to correlate this with the gross and histologic specimens during intraoperative evaluation.
3. To participate in the evaluation of the cytologic and histologic preparations at the time of the examination of the specimen with the attending.
4. To formulate a diagnosis prior to the reviewing the slides with the attending.
5. To manage the cases from the medical and cost effective point of views; to learn which specialized techniques such as immunohistochemistry or electron microscopy should be used to help formulate/solidify a diagnosis.
6. To interpret the special studies which have been requested on specific neurosurgical or autopsy brain cases.

Responsibilities of the Resident

- Review neuropathologic autopsy and surgical slides and formulate diagnoses independently prior to meeting with the attending and then review with the attending.
- Review the next day's OR schedule and look up history on potential neurosurgical cases that may require intraoperative evaluation and then review the history/ imaging with the attending on call.
- Attend calls for intraoperative evaluation of neurosurgical cases during weekdays from 8 am-5 pm.
- Attend Brain-cutting Conference.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be weighted for your level of interest and involvement.

References

1. R. A. Prayson, Neuropathology: A Volume in the Foundations in Diagnostic Pathology Series (2005)
2. Ellison D, Love S, et al. Neuropathology: A Reference Text of CNS Pathology (hardcover) Mosby; 2 ed (2003)
3. Louis DN, Ohgaki H, et al. WHO Classification of Tumours of the Central Nervous System (paperback) (2007)
4. Love S, Louis DN, Ellision DW. Greenfield's Neuropathology, 8th Edition (2 Volume) (hardcover) Oxford University Press, USA (2008)

NEURORADIOLOGY ELECTIVE

Neuroradiology Faculty

- Jeevak Almast, M.D.
- Shehanaz Ellika, M.D.
- Ali Hussain, M.D.
- Alex Kessler M.D.
- Ed Lin, M.D.
- Anthony Portanova, M.D.
- Michael Potchen, M.D.
- Akm Rahman, D.O.
- Henry Z. Wang, M.D., Ph.D.

The administrator for the neurology elective in neuroradiology is the neuroradiology division secretary, Belinda De Libero (x5-1839).

Learning Objectives

1. Residents will gain familiarity with indications and contraindications for ordering CT and MR of the head, neck and spine.
2. Residents will gain familiarity with indications and contraindications for ordering angiography of the head, neck and spine as well as myelography.
3. Residents will understand the limitations of each neuroimaging study.
4. Residents will gain appreciation for the risks and consequences of invasive studies.
5. Residents will develop an ability to preliminarily interpret an imaging study on an emergency basis.
6. Residents will gain exposure to neuroimaging research and future neuroimaging techniques.

Neurology Resident Responsibilities

- Attend morning and afternoon read-out sessions.
- Attend weekly and monthly neuroradiology conferences
- Observe invasive procedures including myelography, and diagnostic and interventional angiography.
- Review one paper for presentation at neuroradiology journal club.

Daily Schedule

8:45 am - 12:00 noon	Morning read-out/observe procedures
1:00 pm – 5:00 pm	Afternoon read-out session

Weekly Conferences

Conferences and Meetings in Diagnostic and Interventional Neuroradiology

Monday	Tuesday	Wednesday	Thursday	Friday
12:00-12:45 *Radiology Resident Conference* *Neuroradiology* 1st, 3rd, 4th, (5th) Monday each month IS Conference Room G-3302	8:00-9:00 *Child Neurology Conference* 1st Tuesday each month Garvey Room 5-5220 Noon-1:00 *Pediatric Oncology Conference* Every other week Neurosurgery Conference Room 2-8130	9:00-10:00 *Interesting Case Conference* Neuroradiology Conference Room 1-4719	7:30-9:00 *Department QA Meeting* (4th Thursday of each month) Location varies 7:30-8:15 *Clinical Neuroscience Conference* IS Conference Room G-3302 8:30-9:15 *Multi-Disciplinary Neuro-Oncology Conference* IS Conference Room G-3302 5:30-6:30 *Multidisciplinary Head & Neck Tumor Board* Wilmot Cancer Center Room 2-0727	9:00-10:30 *Neurology Grand Rounds* Room K-307 (3-6408) 12:00-1:00 *Neuro-endovascular Conference* Neurosurgery Conference Room 2-8130

Evaluation of Residents

A written evaluation form from each attending will be completed for each neurology resident at the end of each neuroradiology elective.

Bibliography

http://www.amazon.com/Neuroradiology-Requisites-3e-Radiology/dp/0323045219/ref=sr_1_1?s=books&ie=UTF8&qid=1369163124&sr=1-1&keywords=neuroradiology+requisites

http://www.amazon.com/Pediatric-Neuroimaging-Barkovich/dp/1605477141/ref=sr_1_1?s=books&ie=UTF8&qid=1369163198&sr=1-1&keywords=barkovich+pediatric+neuroimaging

PAIN MANAGEMENT ELECTIVE
For 2nd and 3rd year Neurology Residents

Director:		**Faculty:**
Joseph Poli, MD	242-1300	Joel Kent, MD Rajbala Thakur, MD Annie Philip, MD Albert Koh, MD Sarah Kralovic, MD Mark Williams, MD Adam Carinci, MD Ehab Meselhy, MD

Description

The Pain Management elective is conducted in the Pain Treatment Center practice. This is a multidisciplinary practice that currently consists of anesthesiologists, physiatrists and psychologist.

The Pain Treatment Center is located at 180 Sawgrass Drive. Residents will gain exposure to a broad range of nociceptive and neuropathic pain conditions. The educational experience will focus on the clinical assessment of these patients and developing treatment plans tailored to address each patient's individual needs. Treatments provided to these patients include medication management, interventional therapies and behavioral therapy as is indicated based on the patient's presentation.

Learning Objectives

1. Understand diagnostic and treatment strategies for managing common chronic pain conditions.

2. Identify indications for interventional and surgical therapies for chronic pain conditions.

3. Develop familiarity with common fluoroscopy-based procedures including epidural interventions, radiofrequency ablation, spinal cord stimulation, and intrathecal drug delivery for the treatment of pain.

4. Recognize the varied psychosocial factors that play a role in initiating, maintaining, and exacerbating chronic pain from the perspective of providers with varied backgrounds.

Responsibilities of the Resident

The resident will initially participate as an observer in the outpatient clinic. Once familiar with the assessment approach, the resident will perform independent outpatient assessment of chronic pain patients and formulation of treatment plans with close faculty supervision.

The resident will be exposed to basic pain management procedures. The resident will assist in the performance of basic injection and ablation techniques.

General Guidelines

The rotation is intended to be four weeks in duration, and should include time with each of the faculty in order to ensure a sufficiently broad clinical exposure. Your reading should include a review of the pain center's manual and summary journal articles provided at the start of the rotation, selected review of a clinical text, and participation in the conferences offered at the center.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be heavily weighted upon your level of interest and involvement.

References

1. John D. Loeser; Stephen H. Butler; C. Richard Chapman; and Dennis C. Turk (eds.) Bonica's Management of Pain. Lippincott Williams & Wilkins; 2007.

2. Burchiel K. Surgical Management of Pain. Thieme; 2002.

3. Benzon HT (ed.). Essentials of Pain Medicine and Regional Anesthesia 3rd. Churchill Livingstone; 2011.

4. Fenton DS. Image Guided Spine Intervention. Saunders; 2003

Selected Journal Articles for Review

1. Ballantyne JC. Mao J. Opioid therapy for chronic pain. New England Journal of Medicine. 349(20):1943-53, 2003 Nov 13

2. Dreyfuss P. Halbrook B. Pauza K. Joshi A. McLarty J. Bogduk N. Efficacy and validity of radiofrequency neurotomy for chronic lumbar zygapophysial joint pain. Spine. 25(10):1270-7, 2000 May 15.

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PALLIATIVE CARE INPATIENT ELECTIVE
For 2nd and 3rd year Neurology Residents

Palliative Care Division, Department of Medicine
Room 1-6305, URMC (near Miner Library)
Phone: (585) 273-1154
Fax: (585) 275-7403
www.urmc.rochester.edu/palliative

URMC-Strong Memorial Hospital Inpatient Palliative Care Program Providers

Physicians
Rob Horowitz, MD, Chief
Tom Carroll, MD
Erin Denney-Koelsch, MD
Carly Dennis, MD
Rachel Diamond, MD
Ron Epstein, MD
Bob Holloway, MD
Anna Kenney, DO
Joel Kent, MD
Benzi Kluger, MD, MS (Adult Pal Care)
Andrew Huang, MD
Rajbala Thakur, MD
Paul Vermilion, MD (Peds Pal Care)
Aaron Lampkin, MD
Jefferson Svengsouk, MD

Advanced Practice Providers
Judy Brustein, NP
Christy Dillon, NP
Lorraine Kirchhoff, NP
Jess Luciano, NP
Ann Syrett, NP
Elaine Townsend, NP

ACGME Competencies for Palliative Care Rotation
Learning Objectives and Assessment Methodologies

Prior to completion of this rotation, the resident will:

Principle Educational Objective	Assessment Methods
Patient Care: • Apply opioid conversion principles to the care of specific patients • Complete the palliative care eRecord template on all new patients • Review medical evidence as needed when it applies to patients • See an outpatient with neurologic illness using the neuropalliative care checklist	- Demonstration of competence and case discussion on daily rounds - Review completion of eRecord template by PC attending - Demonstration of competence with elements of neuropalliative care checklist including advance care planning - End of rotation evaluation

Medical Knowledge: • Demonstrate knowledge about opioid conversions and the management of other common symptoms • Read the Palliative Care Primer and complete the associated workbook • Read about the cases seen on the consult and outpatient services • Read essential neuropalliative care articles	-Completion and review of pain calculations in weekly conference -Discussion on daily rounds and in clinic -End of rotation evaluation
Practice-Based Learning: • Work with the attending to identify gaps in palliative care knowledge as it applies to patients seen, and fill those gaps	-Discussion on rounds, clinic and in the weekly palliative care conference - End of rotation evaluation
Interpersonal Skills and Communication: • Demonstrate the ability to talk with and listen to severely ill patients about their physical, psychological, social and spiritual suffering • Demonstrate the ability to talk with patients about Goals of Care, DNR, prognosis, risks and benefits of aggressive treatment versus hospice • Demonstrate self-awareness about one's personal responses to working with severely ill patients and their families	-Observed behavior on rounds interacting with patients, family, staff -Discussions on daily rounds with the attending physician and nurse practitioners -Discussions on rounds and in the scheduled educational conferences -End of rotation evaluation
Professionalism: • Demonstrate sensitivity and responsiveness to the unique personal and cultural situation of each patient, and provide care respecting each patient's personal values and goals • Demonstrate respect, compassion, integrity and altruism in relationships with patients, families, and colleagues in all health professions • Develop plans to integrate palliative care principles into your ongoing care and future career	-Assessment of behavior at beside, during rounds and in multidisciplinary conferences by palliative care attendings, nurse practitioners and other professionals -Discussion of primary palliative care in neurology and potential neuropalliative care career paths -End of rotation evaluation
Systems-Based Practice: • Function as a member of the multidisciplinary palliative care and neuropalliative care teams • Utilize members of those teams to address particular needs of patients • Participate in case management activities including discharge planning	-Observation on rounds and in multidisciplinary team meetings -Feedback from members of the multidisciplinary team -End of rotation evaluation

Schedule

Team and Trainee Orientation: The Palliative Care Program will email you with instructions on when/where to arrive on your first day. In general you'll meet with a provider (NP, fellow, or faculty) on your first day at 8AM to review team assignments, responsibilities, contact information, rounding plans, schedules, documentation and other issues as needed. On your first day, you will receive the Primer of Palliative Care .

Dr. Kluger will email you information about neuropalliative care clinics and other activities (e.g. lectures) that will be occurring during your elective

Core Activities
4-1200 Daily team huddle: 9a in the 4-1200 nursing/secretary space
This is a brief interdisciplinary weekday review of each patient admitted to PC. It is directed by our Social Worker.

4-1200 patient rounds: follows the daily huddle.
The attending(s) and other provider(s) and trainee(s) see and discuss patients on whom PC attends, along with bedside nurse (or charge or nurse mgr), and SW as able. The discussion should include division of labor (who will write notes, who will communicate with family, etc).

Neuropalliative Care Clinics – Days and Times vary over the course of the month and may include general neuropalliative care clinic (Friday afternoons), or neuropalliative care embedded in neuro-oncology (2nd and 5th Tuesday morning), movement disorders (3rd Wednesday AM), neuromuscular (1st Tuesday AM), and neuroimmunology (4th Monday AM). Please check in with Dr. Kluger prior to clinic to make sure patients are scheduled and to be debriefed on which patients may be appropriate for seeing directly versus shadowing.

Wednesday Interdisciplinary Team Meeting: 8a-9a 4-1200 Conference Room and/or by Zoom meeting ID 490578685.
Our guideline is to discuss 4-1200 patients, other important off-tower patient challenges, reflect on those who have died in the last week (average ~12 per week), and protect 15-20 minutes to discuss complicated patients and/or share observations, questions, or reflections.

End of day discussion: Before leaving for the day (usually not before 5p).
Attending, fellows and NPs will ensure that all important items have been addressed. If any trainee patient is transferred to 412, please make the responsible fellow or NP aware, update orders as needed & write the handoff.

Sign-outs for Weekend, Holiday, and days-off: Before leaving on Friday or other pre-holiday/vacay/days-off, please email NP/fellow on your team a one sentence sign-out of your patients(s): location, age, gender, underlying dz, vital issues, as well as whether pt needs to be seen by covering provider in your absence). Keep it very brief; there is no need to repeat the eRecord note here. This sign-out will be consolidated into an email list of all PC patients on 4-1200 and elsewhere to guide the covering providers.

The required Palliative Care Primer review sessions will be: (either in person or by zoom, link sent separately). To prepare for these 2 sessions:

For session 1 please review the Primer chapters 1-4, with focus on chapters 1 and 2, and complete the chapter 2 questions (pp. 54-56) for discussion at the session.

For session 2 please review the Primer chapters 5-9, with focus on chapters 6 and 7, and bring for discussion an experience during the rotation that you'd like to share. This might be something that moved or challenged you, or left you curious, wondering, impressed, or unclear.

End of Rotation Review - Please meet with your attending supervisor sometime late in your rotation to receive and give feedback about the rotation (15-20 minutes).

Monthly "Noon Conference" Series (mostly by Zoom through CY '21):

1st Wednesday	Clinical Ethics Conference, K-207
2nd Friday	Medical Humanities Conference, K-307
3rd Wednesday	Schwartz Center Conference, Whipple Auditorium (2-6424)
4th Wednesday	Palliative Care Grand Rounds, K-207
5th Wednesday	Spiritual Care Conference, K-207 (2-3 times per year)

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SLEEP MEDICINE ELECTIVE
For 2nd and 3rd year Neurology Residents

Director: Michael Yurcheshen, MD 585-341-7575

Faculty:

Michael Yurcheshen, MD	341-7575
Donald W. Greenblatt, MD	341-7575
Jennifer Marsella, MD	341-7575
Joseph E. Modrak, MD	341-7575
Heidi Connolly, MD	341-7444
Jonathan Marcus, MD	341-7575
Laura Tomaselli, MD	341-7444

Locations

Strong Sleep Disorders Center
2337 Clinton Avenue South
Rochester, NY 14618

Pediatric Sleep Medicine Services
2180 Clinton Avenue South
Rochester, NY 14618

Description

The Sleep Medicine rotation is conducted in a multidisciplinary outpatient sleep clinic.

The UR Medicine Sleep Disorders Center is an outpatient clinic and a 14-bed diagnostic laboratory located at 2337 South Clinton Avenue, in the Westfall Park Medical Center Complex. The pediatric patients are evaluated at a separate facility as listed above. At these facilities, faculty members from the Departments of Internal Medicine, Neurology and Pediatrics assess pediatric and adult patients with potential sleep disorders. Dr. Jonathan Marcus and Dr. Michael Yurcheshen are the co-directors of the center.

Learning Objectives

1. Understand the clinical features of sleep disorders and the modalities used for their diagnosis and treatment. Become familiar with the diagnostic nomenclature of the International Classification of Sleep Disorders-3 (ICSD-3).

2. Understand the physiological substrates involved in normal and pathological sleep.

3. Develop sufficient familiarity with the Polysomnogram (PSG), Home Sleep Test (HST), and Multiple Sleep Latency Test (MSLT) to allow basic recognition of sleep stages and fundamental sleep disorders

Responsibilities of the Resident

1. Initial participation as an observer in the outpatient clinic. This should progress to independent outpatient assessment as deemed appropriate by the clinical faculty.

2. Directed review of polysomnographic studies, progressing to sleep scoring and interpretation as deemed appropriate by the clinic faculty.

General Guidelines

The rotation is intended to be two weeks in duration, and should include time with each of the faculty, in order to ensure a sufficiently broad clinical exposure. Your reading should include a review of summary journal articles provided at the start of the rotation, selected review of a clinical text, and review of the International Classification of Sleep Disorders, version 3.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology, and will be heavily weighted upon your level of interest and involvement. Your performance on the self-assessment exam will not be included in the final evaluation.

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Selected Journal Articles for Review

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Rural Neurology, Neuroimmunology, Infusion Center Elective
For 2nd, 3rd and 4th year residents

Location

Medical Office Building, Suite 116 (Last office, far end from St James Hospital)
7309 Seneca Road North, Hornell NY, 14843

Faculty

Carlos Sollero, MD

Description

To improve access to one of the most underserved areas in New York State, and in line with the AAN's 2024 advocacy priorities, the Department of Neurology opened a new practice location in Hornell, NY. Along with the clinic (where there is also a URMC Rheumatology practice) a new infusion center was built to serve the population in the Southern Tier. The practice of Neurology in rural settings presents different challenges from an urban center. Reduced access to medical services, particularly specialty clinics, and significant transportation barriers are challenges that most patients face. Most patients seen at the Hornell site are meeting a neurologist for the first time. To remain close to the practice's goal of increasing access to neurological care, we have a high number of new patient visits per day and count on active PCP participation for coordination and continuation of care once patients have a diagnosis and a stable plan of care.

Goals of the Rotation

The goal of the rotation is to introduce residents to a different patient population, with very broad range referral questions and a large volume of NPV per day. Residents will be encouraged to evaluate patients independently and formulate comprehensive care plans. Ultimately the goal is to increase interest in the practice of neurology in rural settings, attracting future neurologists to underserved areas. For residents with an interest in neuroimmunology, the Hornell site has an increased representation of multiple sclerosis and neuroimmunology patients, and interested residents can participate in the infusion center activities.

Learning Objectives

1. Understand practice differences intrinsic to rural location opposed to a large academic tertiary center.
2. Increase comfort in initial evaluation and management of neurological patients, including those often referred to subspecialty clinics in large institutions
3. Develop skills in shared patient management with local PCPs
4. Understand and apply diagnostic criteria for multiple sclerosis and related disorders
5. Understand basics of disease modifying therapies for multiple sclerosis and related disorders
6. Understand and apply principles of symptom management in CNS demyelinating diseases

7. Understand common complications of infusion reactions and their acute management

Resident responsibilities

Perform initial evaluation of new and follow up patients with a large variety of neurological conditions, with emphasis on neuroimmunology.

Evaluation

Your evaluation will be completed on the standard form provided by the Department of Neurology and will be heavily weighted upon your level of interest and involvement. We will also consider your level of knowledge and performance for your level of training based on the levels proposed by the ACGME.

Weekly Schedule

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Clinic	Clinic	Clinic	Clinic	Flex Time/Reading
PM	Clinic	Clinic	Academic Half-Day	Infusion Center	Flex Time/Reading

University of Rochester
Anti-Discrimination and Anti-Harassment Policy

The University prohibits discrimination and harassment on the basis of age, color, disability, domestic violence victim status, ethnicity, gender identity or expression including transgender and gender expansive identities, genetic information, marital status, familial status or an individual's reproductive health decision-making, military/veteran status, national origin, race (including hair style), religion/creed (including religious attire and facial hair), sex, sexual orientation, citizenship status, arrest or conviction record, or any other status protected by law (hereafter each of these will be referred to as a "Protected Class"). Discrimination or harassment based on a Protected Class will not be tolerated and is considered misconduct that will be subject to discipline. **The Department of Neurology fully supports this policy at all times for ALL faculty, trainees, students, and staff. If you see something, say something!**

Also see PADH: Policy Against Discrimination, Harassment and Discriminatory Employment/Service Practices at
https://www.rochester.edu/working/hr/policies/pdfpolicies/106.pdf

If you have questions regarding whether or not your concerns fall within PADH, please contact the Neurology PD and/or email PADH@rochester.edu.

Emergency Assistance:
If an incident presents a threat to the health or safety of you or anyone in the University community, please contact the Department of Public Safety ay 585-275-3333 immediately.

Please consult **PolicyStat (ID:10443636)** for helpful information regarding how to handle uncomfortable/offensive interactions in real-time, as well as reporting procedures and other resources. You may also contact **Patient and Family Relations at 585-275-5418** for assistance.

Department of Neurology Policy on Selection of Residents

Graduates of LCME-accredited US or Canadian medical schools applying for a Neurology residency at the University of Rochester are selected on the basis of the following:

- Performance in medical school, as evidenced by their official transcript
- Performance in the basic and clinical science years, as evidenced by the Medical Student Performance Evaluation (MSPE)
- Performance on the USMLE Step 1 and Step 2 examinations
- 3-4 letters of recommendation
- Personal and professional traits, based on interviews with the Program Director and several other faculty and residents in the Department of Neurology at the University of Rochester.

International Medical Graduates applying for a Neurology residency at the University of Rochester are selected on the basis of the same criteria as above. In addition, they must have the following:

- ECFMG certification <u>at the time of application</u> to the residency program
- Only J-1 visas are accepted for training

The Neurology Residency Selection Committee, consisting of the Residency Program Director, the Associate Residency Program Director, 1-2 Neurology Chief Residents and two ad-hoc faculty members, reviews all information on candidates and constructs the Match list, subject to approval by the Department Chair.

Department of Neurology
Policy on Resident Supervision

All patients admitted to the neurology inpatient services and seen on the consultation services are directly supervised by appropriately credentialed and privileged neurology faculty, who round daily with the residents on their patients. Supervising neurology faculty are readily available at all times in person, or via pager and/or phone to trainees outside of usual business hours. The supervising attending is identifiable using systems available to trainees, members of the healthcare team, and patients.

In the clinical learning environment, each patient has an identifiable, appropriately credentialed and privileged physician who is ultimately responsible and accountable for that patient's care. Residents and faculty members should inform patients of their respective roles in each patient's care.

In compliance with accreditation standards of the New York State Health Code, resident patient care activities are supervised by a senior resident or attending physician. These activities are appropriately covered by the "General" designation, which is defined as follows: The supervising physician needs to be physically present when a procedure is performed except when the resident:

- Has documented adequate training (i.e., has been credentialed) to do the procedure, and
- Has permission of the supervising physician to perform the procedure.

Supervision may be exercised through a variety of methods. Some activities require the physical presence of the supervising faculty member. For many aspects of patient care, the supervising physician may be a more advanced resident or fellow. Other portions of care provided by the resident can be adequately supervised by the immediate availability of the supervising faculty member or resident physician, either in the institution, or by means of telephonic and/or electronic modalities. In some circumstances, supervision may include post-hoc review of resident delivered care with feedback as to the appropriateness of that care.

Levels of Supervision

To ensure oversight of resident supervision and graded authority and responsibility, our residency program uses the following classification of supervision:

- Direct Supervision: the supervising physician is physically present with the resident and patient during the key portions of the patient interaction, or the supervising physician and/or patient is not physically present with the resident and the supervising physician is concurrently monitoring the patient care through appropriate telecommunication technology.

(Physically present: The supervising physician is located in the same room or partitioned area in a semi-private room as the patient and/or performs a face-to-face service)

- Indirect Supervision: The supervising physician is not providing physical or concurrent visual or audio supervision but is immediately available to the resident for guidance and is available to provide appropriate direct supervision.

- Oversight – The supervising physician is available to provide review of procedures / encounters with feedback provided after care is delivered.

The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident is assigned by the program director and faculty members, as follows:

- The program director evaluates each resident's abilities based on specific criteria. Evaluation is guided by national standards-based criteria including the ACGME Core Competencies and Neurology Milestones.

- Faculty members functioning as supervising physicians delegate portions of care to residents, based on the needs of the patient and the skills of the residents.

- Senior residents or fellows serve in a supervisory role of junior residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow.

Each resident must know the limits of his/her scope of authority, and the circumstances under which he/she is permitted to act with conditional independence.

Neurology-specific procedures and supervision requirements:

Thrombolysis, Critical Care, End-of life decisions, and Unanticipated discharges: Residents must communicate with appropriate supervising faculty when TNK is to be administered to a patient presenting with an acute ischemic stroke, when a patient significantly decompensates and/or is to be transferred to an intensive care unit or operating room, when end-of-life decisions are being contemplated or changed, or when a patient leaves against medical advice or dies unexpectedly.

Lumbar punctures: Residents can only perform lumbar punctures without direct supervision if they have been credentialed to do so. Credentialing to perform lumbar punctures without direct supervision requires the performance of five successful lumbar punctures supervised by a physician credentialed to perform this procedure.

Department of Neurology
Policy on Progressive Responsibility for Patient Management

Neurology residents assume progressive responsibility for patient care as they progress through the residency program due to the structure of the program:

- PGY-2 residents primarily work in a supervised inpatient setting.
- PGY-3 residents primarily work on the consultation services, where they have more autonomy.
- PGY-4 residents serve as chief residents, overseeing the inpatient teams and the more junior residents, and also coordinate medical student teaching.

Decision making is shared by the residents and attending physicians, with residents becoming more autonomous in their decision making as they proceed through the residency program. Ultimate determination of progressive authority and responsibility is guided by residents' clinical performance, procedure certification, and achievement of the Milestones, as monitored by the residency program director and the Clinical Competency Committee.

Department of Neurology
Policy on Hand-offs

Inpatient Teams:

All sign-outs in the EMR for neurology inpatients should include the following components:

1. Summary: A brief summary of the patient, including the reason for admission and important details of the PMH.
2. Baseline examination: Current neurological exam including any neurological deficits or pertinent negatives.
3. Active Issues: Active hospital issues undergoing treatment. Brief bullet points by problem and summary of work-up done. Please do not copy the plan from the progress notes.
4. To Do List: Follow-ups for the on-call residents should be designated as such
5. Anticipatory guidance: A bulleted list of anticipated events that the cross-cover APP or on-call resident may be notified about, including guidance about how to manage the problem (e.g. acute neurologic change in a stroke patient suggestive of hemorrhagic transformation, delirium including which medications to use and which to avoid, breakthrough seizure activity, pain issues, hypertension).
6. Code status: MOLST should be updated in the paper chart.

Change of Shift Procedures:

Inpatient Teams:

At the end of each day, the upper level resident and the intern on each inpatient team will "run the list" to finalize a plan for all patients on their team and to ensure that any outstanding issues (test results, patient or family questions, attending requests) have been addressed. Any items that need to be followed up by the APP cross-cover or the UCEF resident should also be noted. The hand-off tab needs to be updated daily in each patient's EMR for all patients on each team.

Any patients admitted during the day who are to be signed out to APP cross-cover should also have an updated sign-out in the EMR.

Any patients admitted to the neurology step-down unit should be signed out to the UCEF resident, both verbally and with an updated written hand-off in the EMR. The UCEF resident will be the covering provider for the patients in step down (4:30-8 pm). Overnight, the Night Float resident will be the covering provider for any step-down patients (8 pm-8 am).

Consult Teams:

At the end of each day, each consult resident is responsible for reviewing each patient on the list and assuring an appropriately updated electronic handoff with anticipatory guidance as appropriate. New neurology admissions from the day that are not yet covered by an inpatient Neurology team, must have a handoff updated in the *primary team tab and verbal sign out

should be given to the oncoming UCEF or evening float resident as they will be covering the patient. They should also make sure that any patient admitted during the day is on the admitted list.

Evening/Night Float:

Any patient seen by the EF or NF should be placed on the appropriate list at the end of each shift: Stroke, General, or Peds Consult list vs Admitted list. Each patient also needs a completed handoff in the EMR. This should be completed in the Neurology tab for patients on the consult lists and the *Primary team tab for patients on the admitted list. If the patient needs to be staffed with an attending, "NEW TO STAFF" should be written at the top of the to-do list. No patient should be left on the working list after the night float shift. If there is a patient with pending work-up that determines their ultimate disposition, this patient should be placed on the appropriate consult list in the morning and the plan/pending tests signed out to the oncoming day consult resident who can follow up the results and communicate/plan disposition.

Sign Out Rounds:

Verbal hand off must be completed between shifts. We have designated times for these sign outs, which are detailed below. At a minimum, these hand offs should include active patients, pending tasks/work-up, and anticipatory guidance for complicated patients.

Morning Sign-Out

- *Location*: Resident room
- *Time*: **6:30-7am**
- Floor teams expected to get verbal sign out from NF at 630am at the latest
- Consult teams expected to get verbal sign out from NF at 645am at the latest (if M-F, must also obtain pagers at this time)

Monday – Friday Evening

- *Location*: SEC conference room
- *Time*: **4:30pm**
- Consult, floor residents, evening float, UCEF
- Floor teams sign out to UCEF
- Consult teams sign out to Evening float
- Urgent consults that come during sign out should be taken by the EVENING FLOAT

Night Sign-Out

- *Location*: Pending location of on-call resident (communication is key)
- *Time*: **8pm**
- Evening float + UCEF (weekdays) vs day float + back-up (weekends) and the night float
- Urgent consults that come during sign out M-F will be taken by the UCEF resident

Any sign-outs completed by medical students should be reviewed and addended by the intern or resident.

Triaging consults prior to change to change of shift:

- Consult residents (general, stroke, peds) are expected to triage consults that come late in the day prior to change of shift, which generally refers to consults that come in between 4:00 pm and 4:30 pm.
- The consults should be called back by the day consult resident in order to triage acuity
- Consults that are urgent (ie stroke alert, status) need to be seen by the day consult resident
- Non-urgent consults can be passed off to evening shift residents along with information about how to contact the consultant, in general, this should not exceed more than 2 passed off consults total per shift
- Rarely there are very non-urgent consults that can be seen the following day by the consult team, but several criteria must ALL be met:
    - Needs to be approved to be seen tomorrow by consult attending/fellow
    - Patient added to appropriate list and hand off updated to say "will be seen by day consult team in AM" in to-do section
    - **Only appropriate if you are passing the consult off to yourself** -- ie: a Friday 4pm consult is not appropriate to pass off to the Saturday day float
- Evening and night residents should also be triaging at the end of their shift -- non-urgent consults should be passed off to day/night team though the goal should be to generally avoid passing consults to the night float resident unless there is an abnormally high volume of consults during the evening float shift. The UCEF resident will generally see any consults that come in between 7:30 pm and 8:00 pm. The general and stroke consult residents will generally start seeing any consults that come in after 6:45 am.

Special Considerations for Peds Consult Residents:

- The resident assigned for Peds M-F will receive pages from 7am to 4:30pm
- The Peds resident is expected to be in-house by 7am, and will take after-hours patient calls for established Child Neurology patients from 7-8am.
- IF there is an URGENT consult that comes in while the Peds resident is not in house, the Chief resident should be notified to help see the consult (this is really only applicable to Peds Stroke Alerts and possibly status epilepticus, but the Peds ED is well equipped to manage status)
- If you are not sure whether the consult is urgent, please call the Peds Fellow
- Peds consults that arrive between 4-4:30pm should be triaged as described above, all consults called prior to 4pm will be seen by the daytime Peds team

Covering Providers:

- All patients must be assigned a covering provider at all times.
- Admitted SEC patients: The UCEF and NF should assign themselves as the "covering provider" for the admitted SEC patients at the beginning of their shift.

- Floor patients: 51600 and 53600 floor patients are assigned to the neuroscience APP from 4:30 until 7:30 pm currently Monday-Saturday. There are plans to expand this to include Sundays as well. The neuroscience APP will then sign the patients out to the medicine APP who will continue to cover the patients overnight until am sign out.
- 51600 and 53600 step down patients are assigned to the UCEF resident and night float at the start of each shift
- Newly admitted patients: Assigned to on-call resident until arrival on 51600 and taken over by inpatient team

Department of Neurology
Policy on Resident Work Hours

The Department of Neurology is fully committed to maintaining high standards of patient care and resident education and realizes that monitoring and regulating work hours are key aspects of this standard of care. The Department also expects to be in full compliance with the New York State 405 Work Hours Regulations. The following policy on Resident Work Hours has therefore been established:

- A resident may not work more than 80 hours in a single week. Activities included in these 80 hours are all time spent in the hospital in the care of both inpatients and outpatients, all educational conferences and rounds, and all time on-call during which the resident is involved in the care of patients.
- Each resident will have a 24-hour period off each week.
- Each resident must have 10 hours off between shifts.
- No resident may work more than 24 consecutive hours involved in direct patient care.
- A 3-hour grace period is allowed post-call for residents to sign-out patients seen overnight. No new patient responsibilities can be assumed during this 3-hour grace period.

Residents MUST consistently submit duty hours in MedHub, as required by their GME contract.

If a resident is concerned that he/she/they may violate duty hours, he/she/they MUST notify the Chief Resident for assistance in redistributing work BEFORE a violation occurs.

Resident work hours are monitored weekly throughout the year by the Neurology Residency Program director and queried annually on the ACGME Resident Survey.

Extra shifts/moonlighting shifts MUST be counted toward duty hours restrictions and **cannot** interfere with required days off or time between shifts.

Department of Neurology
Policy on Evaluation and Promotion of Residents

The following is the Department of Neurology policy on Evaluation and Promotion of Residents:

- The evaluation system for neurology residents is designed to assess educational outcomes in all six of the ACGME core competencies: patient care; medical knowledge; practice-based learning and improvement; interpersonal and communication skills; professionalism; and systems-based practice.
- Specific Neurology Core Competencies have been developed by the ABPN and are included in this syllabus. All neurology residents are expected to achieve mastery of these competencies at the time of completion of the training program.
- The following evaluation instruments will be used to evaluate mastery of these six competencies: RITE; clinical skills examination; chart review; resident case log; attending global assessment; 360° assessment; and resident portfolio. These evaluation instruments are described elsewhere in this syllabus.
- Neurology residents receive regular formal and informal feedback that is both quantitative and qualitative. Written documentation of each individual feedback meeting is filed in each resident's performance folder.
- All neurology residents take the Residency In-service Training Examination (RITE) each year. The program director reviews each resident's performance on this examination at the June evaluation and feedback meeting.
- A clinical skills examination is administered yearly to all of the residents. The program director reviews each resident's performance on this examination at the June evaluation and feedback meeting.
- Written faculty global assessments are obtained on each resident following each rotation or elective and are keyed to the Milestones. Each resident is assessed as to his knowledge, skills and attitudes, and achievement of the six core competencies and the specific goals for each rotation. Written evaluations are also obtained on each resident in the outpatient firm and the faculty practice clinic experience (for PGY-4's). The faculty member meets with each resident following each rotation to discuss the evaluation with the resident. The completed evaluation is then sent to the program director for review.
- The Program Director meets semi-annually with each resident to review their progress and to discuss career planning. A written summary of this meeting is provided to each resident for his review and signature and is filed in the resident's evaluation folder.
- A clinical competency committee, consisting of the program director, associate program director and additional faculty members, meets in December and June of each year to review each resident's progress in the program and to assign ACGME neurology Milestones for each resident. In addition, at its June meeting, the committee determines if the resident is qualified to advance to the next year of training. Advancement is contingent upon progressing at an appropriate pace through the Milestones, meeting the specific objectives for each year of training, as well as the specific objectives for each individual rotation or elective.

- A resident who is deemed unqualified to advance to the next year of training, based upon not meeting the specific objectives noted above, will be given a program of remediation. If remediation is unsuccessful in the allotted period of time, the resident may be asked to repeat the year.
- The Department Chair meets with each resident at least annually to review progress and to provide career planning.

Department of Neurology
Policy on Evaluation of Faculty and the Residency Program

- Faculty members are regularly evaluated in writing by all residents following each rotation. The program director and chair then review these written evaluations. The chair meets at least yearly with each faculty member to discuss this feedback. Faculty members receiving poor feedback as to their teaching methods are given specific suggestions for improvement.

- The program director meets weekly with all residents to discuss program structure.

- Residents and faculty complete an on-line questionnaire regarding the residency program at the end of each academic year. This questionnaire is structured to provide feedback regarding clinical rotations, electives, teaching conferences, program administration and suggestions for change. The results are collated and summarized in a written report, and the report is distributed to all clinical faculty and residents and discussed at a meeting of the neurology program evaluation committee as well as at a general faculty meeting.

- The program evaluation committee, consisting of four clinical faculty, four residents, the program director, and the associate program director, meets quarterly to discuss the residency program. The neurology residents select the resident members on this committee. This committee reviews the structure of the residency program on a regular basis and suggests changes in program structure, based on feedback from the residents and faculty. Minutes from these meetings are distributed to all residents and faculty members.

Department of Neurology
Policy on Breastfeeding, Chestfeeding, and Pumping Milk at Work

- The Department of Neurology fully supports its trainees who are currently breastfeeding or chestfeeding. **We strictly adhere to NYS law and URMC GME policies regarding pumping milk at work at all times, on all rotations, at all clinical sites.**

- The program must provide a break of at least 20 minutes' duration at least once every 3 hours for pumping. This must be provided for up to three years following the birth of the resident's child.

- Residents are responsible for providing their own pump and supplies at work.

- Residents are welcome to use the Neurology on-call room to pump while at work. Additional pumping spaces are available throughout URMC and URSMD. Please see https://www.urmc.rochester.edu/childrens-hospital/breastfeeding-lactation-medicine/ur-employee-support.aspx for additional breast/chestfeeding resources

- The refrigerator in the Dr. J resident work room or the refrigerator in the mail room in the main administrative hallway may be used for storage of pumped milk and must be labeled with the resident's name.

- Residents who need to pump during work hours should speak with their team members to identify the best workflow to maintain patient care coverage to support the resident and meet at least minimum requirements for pumping breaks. The pumping resident must communicate clearly when they will be unavailable due to the need to pump during a shift.

- If pumping residents feel that the program is not following institutional/departmental policies or meeting NYS legal requirements, the resident must notify the Residency Program Director immediately.

Department of Neurology
Policy on
Moonlighting/EE Shifts

Professional activities outside the neurology training program are prohibited to the extent that they may interfere with training program responsibilities.

At times, there may be “extra shifts” offered by other services, or the Neurology department. In order to participate, the resident must read and sign the extra shift form provided by the department requesting coverage and have it approved and signed by the Neurology Residency Program Director on an annual basis. As long as these shifts do NOT engage the resident in any activities that would not be normally encountered during their training, an individual NYS license is not required, and the resident can use the institutional DEA as applicable. The resident MUST verify with the requesting department/unit that this is the case prior to signing up for any extra shifts. Any extra shifts in any department MUST be counted toward weekly duty hours/days off, which absolutely cannot be exceeded as a result.

Residents MUST complete at least one block as Red Senior and one block of Blue Senior in order to be eligible for extra effort shifts. Residents MUST complete their NIHSS Certification and ALL required IHI modules and provide record of completion to the program director to be eligible for extra effort or moonlighting shifts. Residents who are significantly delinquent in their completion of administrative tasks may be deemed ineligible for EE/moonlighting shifts, at the discretion of the Residency Program Director.

Prior to seeking moonlighting opportunities, Neurology residents who wish to engage in outside activities:

- Are required to have written approval from the Neurology Chair and Program Director.
- Should seek written assurance of malpractice and workers’ compensation coverage from any outside employer.
- Must have a valid New York State medical license and Federal DEA number.

Please keep the following points in mind when considering moonlighting/extra effort shifts:

- Moonlighting/extra effort shifts are not allowed for Adult Neurology PGY1 or Child Neurology PGY1 or PGY2 residents.

- Residents are not allowed to sign up for extra effort/moonlighting shifts when scheduled for the following clinical rotations: Red/Blue Acting Chief Resident, Neurology ED Consult, Red/Blue Senior Resident, Nightfloat, Buddy Nights, Evening Float, Neuromedicine ICU, Stroke Consult Resident, General Consult Resident.

- Residents may NOT do extra effort shifts during regular business hours, except if on vacation. Any hours worked while on vacation MUST be entered into MedHub.

- When residency responsibility and moonlighting activities are combined, the following conditions must be met:

  - Residents must spend at least 1 full day out of 7 away from clinical work.
  - Combined night-call may not occur more frequently than an average of every third night.
  - Total working hours per week may not exceed an average of 80 hours.
  - Each resident must have at least 10 hours off between shifts.
  - No resident may work more than 24 consecutive hours involved in direct patient care.

- Resident working hours are monitored by the GME Office. The number of hours devoted to moonlighting/EE activities must be added to the training program work hours and must be reported on the GME office work hours survey.

- Residents should be aware that University of Rochester malpractice insurance does <u>not</u> cover moonlighting activities.

- If a resident fails to show up for an assigned extra effort shift, they will <u>not</u> be allowed to sign up for shifts in the future.

- Continued participation/eligibility in extra effort and/or moonlighting activities will be monitored by the program director and may be revoked at any time.

Department of Neurology
Jeopardy Emergency Coverage System and Policies

In early 2020 at the beginning of the COVID-19 pandemic, the Neurology Residency Program instituted a Jeopardy coverage system to ensure that all critical services would remain covered in case of resident illness/emergency. The specific schedule is devised by the Neurology Administrative Chief residents on an annual basis and is listed in the Qgenda scheduling database.

Jeopardy coverage guidelines for Neurology:

- There are four residents listed for Jeopardy coverage each day, noted as first, second, third, and fourth pull which is the order in which they are called upon to provide emergency coverage. The Jeopardy pool is created primarily from residents on outpatient ambulatory blocks and electives.

- Residents pulled for Jeopardy coverage will assume the role of the resident(s) who are unable to report to work. Residents from all three years of Neurology residency are in the coverage pool and can cover most services, with the following caveats:

    - We try to limit placing PGY2s on first or second pull during the first three months of their Neurology training.
    - Residents in their first year of Neurology training will also not be pulled to cover night float until they have already completed their first block of nights (AKA "Buddy Nights").
    - Only PGY3 or PGY4 residents are allowed to fill in as acting chief on floor services, so some switching may be required depending on the level of training of the absent resident.

- The expectation is that residents scheduled as Jeopardy first and second pull must be available within **1 hour** of being contacted for coverage, third and fourth pull must be available **within 24 hours, ideally by next calendar day**. If the Jeopardy system is activated, all 4 pulls listed for the day will be notified to keep all "at risk" of being pulled aware. If a resident absence is expected to last several days, all Jeopardy residents for those days will be notified as far in advance as possible. If several days will need coverage, we will try to rotate coverage to preserve elective/ambulatory time as much as possible for each covering resident.

- All residents listed for Jeopardy (1st through 4th pull) must ensure that they are reachable via phone and/or pager at all times, and must maintain strict sobriety in case they are pulled.

- If a resident who is listed for Jeopardy becomes ill, he/she/they must notify the Administrative Chief residents as soon as possible, so that a swap can be arranged, even if that resident is on a rotation where coverage is not required. If a resident changes plans and will not be available when listed for Jeopardy, he/she/they are responsible for swapping with another resident as far in advance as possible (and swaps **cannot** result in duty hours violations for any resident involved). The Neurology Administrative Chiefs must be notified whenever Jeopardy swaps are made.

Department of Neurology
Policy on Resident Professional Expenses

- The Department of Neurology will provide $1000 annually for each Neurology Resident to cover professional expenses that include:
    - Examination and license fees: USMLE Step 3, medical license, board certification
    - Neurology related textbooks, e-books, journals.
    - Neurology educational meetings: registration fees and travel.
    - Medical equipment: ophthalmoscope, reflex hammer, tuning fork, stethoscope, etc.
    - IPads

- This stipend accrues from year to year ($4000 total for Adult Neurology residents)

- Attending at least one national/regional meeting during residency is an ACGME core program requirement. Therefore, Neurology chief residents will receive **up to $1000 in their final year of training, separate from their stipend, to offset the costs of licensure, board registration, and/or travel to national conferences.**

- Due to department policy, the resident expense account cannot be used to purchase smartphones/cell phone coverage plans.

- Due to University compliance with tax exempt purchases, all textbooks must be purchased through the UR Barnes & Noble Bookstore. Please check with the residency program coordinator PRIOR to purchasing items to ensure correct ordering, or else reimbursement may be delayed or declined.

- Due to University compliance with security and confidentiality, all computers and iPads must be ordered and approved through the Neuromedicine IT office.

- It is the resident's responsibility to arrange for resident coverage for any clinical responsibilities while he/she/they are away from the Medical Center for travel to a scientific meeting. Written documentation of such coverage must be approved by the Program Director.

- The Department of Neurology will reimburse registration, and travel costs **up to $1000 per meeting** to any regional/national/international conference where a resident has been selected to present an abstract or poster.

Department of Neurology
Program Evaluation Committee

- The Department of Neurology Program Evaluation Committee is an advisory committee of the Department that reviews the structure of the residency program on a regular basis and suggests changes in program structure, based on feedback from the residents and faculty.
- Committee membership:
  - Four (4) neurology residents, at least one from each year of training. The neurology residents select the resident members on this committee.
  - Four (4) clinical neurology faculty, selected by the faculty.
  - The Committee is chaired by the program director.
  - The Chair of Neurology is an ex officio members of the Committee.
- The residency program coordinator provides administrative support to the committee and takes minutes.
- Minutes from committee meetings are distributed to all residents and clinical faculty members.
- The Committee meets quarterly on Thursdays, from 12-1pm in the Garvey Room.

Department of Neurology
Clinical Competency Committee

The Department of Neurology Clinical Competency Committee is tasked with evaluating the clinical performance of each resident and assigning ACGME Milestones for each resident based on their review. The committee membership includes the Program Director, the Associate Program Directors, and additional faculty members who have significant clinical contact with the residents. The program coordinator is an ex officio member of the committee. The committee is chaired by an Associate Program Director. The committee meets semi-annually in December and in June.

Committee	Date
2025	
PEC	9/11
PEC	11/13
CCC	12/1
2026	
PEC	1/8
PEC	4/9
CCC	6/4

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NEUROLOGY RESIDENT
MASTER BLOCK SCHEDULES 2025-2026

Please consult Qgenda or Notion for the most up-to-date information on resident block schedules, call schedules, and Jeopardy emergency coverage schedules.

If you need to change your block, call, or Jeopardy schedule, you MUST first review with the Neurology Administrative Chief Residents. Any switches made CANNOT cause a duty hours/days off violation for any resident involved in a switch. Any switches that result in a resident FIRM conflict MUST first be approved by the faculty FIRM director.

If you note any non-urgent errors in the posted schedule in Momentum, please email the Neurology Administrative chiefs at neurologyresidentchiefs@URMC.Rochester.edu.

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Neuromuscular / EMG Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Neuromuscular clinic	Neuromuscular clinic	Neuromuscular clinic	Neuromuscular clinic	EMG Lecture/Conference
PM	NM clinic or EMG at SMH OR Flex time	EMG at SMH	Academic Half-Day	EMG at SMH	Reading curriculum/Flex time

Neuromuscular clinic is located at AC-1. EMGs are done either at AC-1 or at Clinton Crossings Building C 919 Westfall Road, Suite 200, Rochester.

Neuromuscular/EMG faculty: Eric Logigian, Johanna Hamel, Rabi Tawil, David Herrmann, Michael Stanton, Patrick Curry, Chad Heatwole, Emma Ciafaloni, Peter Creigh, Phil Mongiovi, Sam Mackenzie, Bo Lee.

- **Check the E-record department schedules**. While faculty schedules have some patterns, they are not always consistent week to week, making it difficult to reliably schedule clinics for residents to join. We encourage you to examine the E-record schedule tab under the specialty departments for your weeks to view the schedule, decide which clinics you would like to join, and reach out to the attendings and/or neuromuscular fellows > 24 hours before the clinic to confirm attendance.
    - Neuromuscular clinic is under [SMH NEUROMUSCULAR-AC1], with clinics Monday through Thursday. Monday and Wednesday tend to have the largest clinics.
    - EMGs occur at both AC-1 and Westfall but the NM/EMG rotator will be primarily at AC-1, and the EMG schedule is [SMH Neuro EMG]; the Westfall EMGs are under [CC C NEUROLOGY] under the [NEURO, EMG WF] selection.

- **Reading Curriculum**: all residents have access to the shared box folder [Neurology Resident Resources] → [Ambulatory Clinic and Elective Block Info] → Ambulatory educational block curriculum with review papers for each subspecialty

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Headache Clinic Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Headache clinic	Headache clinic	Headache clinic	Headache clinic	Flex Time/LP clinic
PM	Headache clinic	Headache clinic	Academic Half-Day	Headache clinic	Flex Time

Headache Building is located at Clinton Crossings- Building C, 919 Westfall Road- Suite 220

Headache faculty: Raissa Villanueva, Kathleen Sellick, Nathalia Figeureido, Patrick Asselin

- **Check the Erecord department schedules.** While faculty schedules have some patterns, they are not always consistent week to week, making it difficult to reliably schedule clinics for residents to join. We encourage you to examine the Erecord schedule tab under the specialty departments for your weeks to view the schedule, decide which clinics you would like to join, and reach out to the attendings > 24 hours before the clinic to confirm attendance.
    - Headache clinic is under [CC C HEADACHE CENTER], with clinics Tuesday Wednesday,Thursday,and Friday afternoons (also most Mondays).

- ***Reading Curriculum:*** *all residents have access to the shared box folder [Neurology Resident Resources] ➔ [Ambulatory Clinic and Elective Block Info] ➔ Ambulatory educational block curriculum with review papers for each subspecialty*

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Epilepsy Clinic / Sleep Medicine Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Sleep medicine	Epilepsy	Sleep Medicine	Epilepsy	Flex time/LP clinic
PM	Sleep medicine	Epilepsy	Academic Half-Day	Epilepsy	Reading curriculum

Epilepsy clinic is located at Clinton Crossings Building D. Sleep medicine clinic is located in South Clinton clinic at 2337 S. Clinton Ave, Rochester.

Epilepsy faculty: Deana Bonno, Trenton Tollefson, Thomas Wychowski, Patrick Rooney
Sleep Medicine (neuro) faculty: Michael Yurcheshen, Jonathan Marcus, Jennifer Marsella

- **Check the E-record department schedules**. While faculty schedules have some patterns, they are not always consistent week to week, making it difficult to reliably schedule clinics for residents to join. We encourage you to examine the E-record schedule tab under the specialty departments for your weeks to view the schedule, decide which clinics you would like to join, and reach out to the attendings > 24 hours before the clinic to confirm attendance.
    - Epilepsy Clinic is under [CC F NEURO EPILEPSY], with consistent clinics Monday, Tuesday, Thursday.
    - Sleep Medicine is under [SCLN SLEEP DISORDER], with consistent clinics Monday, Tuesday, Wednesday.

- **Reading Curriculum**: all residents have access to the shared box folder [Neurology Resident Resources] → [Ambulatory Clinic and Elective Block Info] → Ambulatory educational block curriculum with review papers for each subspecialty

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Neuro-Oncology Clinic/ Stroke Clinic Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Stroke Clinic (9am)	Neuro-Onc Clinic Suite A WCC (1st Floor)	7:30 AM Brain Mets/Tumor Board https://urmc.zoom.us/j/99973297028 Meeting ID: 999 7329 7028 Neuro-Onc Clinic Suite F WCC (2nd Floor)	8:00 AM Tumor Board https://urmc.zoom.us/j/98271863555 Meeting ID: 982 7186 3555 Stroke Clinic (9am)	Flex time/LP clinic
PM	Stroke Clinic (1pm)	Neuro-Onc Clinic Suite A WCC (1st Floor)	Neurology Grand Rounds Resident Didactics	Stroke Clinic (1pm)	Reading curriculum

Neuro-Oncology clinic is located at Wilmot Cancer Center
Stroke clinic is located at 4901 Lac de Ville Blvd, Building D

Neuro-Oncology faculty: Nimish Mohile, Lauryn Hemminger, Katie Eszes (fellow), Max Jean (fellow)
Stroke Faculty: Dimitrios Manou, Andew Thierman, Adam Kelly, Curtis Benesch, Todd Holmquist, Bogachan Sahin, Jorge Risco, Ania Busza, Igor Titoff, Jaclyn Burch

Check the E-record department schedules. While faculty schedules have some patterns, they are not always consistent week to week, making it difficult to reliably schedule clinics for residents to join. We encourage you to examine the Erecord schedule tab under the specialty departments for your weeks to view the schedule, decide which clinics you would like to join, and reach out to the attendings > 24 hours before the clinic to confirm attendance.

- Neuro-oncology is under [SMH CC NEURO ONCOLOGY], with consistent clinics Tuesday and Wednesday (sometimes Monday/Thursday).
- Stroke clinic is under [CC D NEURO STROKE], with variable clinics Monday through Thursday

Reading Curriculum: all residents have access to the shared box folder [Neurology Resident Resources]➔[Ambulatory Clinic and Elective Block Info]➔[Ambulatory educational block curriculum] with review papers for each subspecialty.

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Neuro-Immunology Clinic Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	NI Clinic	NI Clinic	Reading curriculum	NI Clinic	Flex time/LP clinic
PM	NI Clinic	NI Clinic	Academic Half-Day	NI Clinic	Reading curriculum

Neuro-Immunology clinic is located at AC-1 and Westfall Building C, 1st Floor, TBD (clinic move in process)

Neuro-Immunology faculty: Megan Hyland, Jessica Robb, Lauren Zoghlin, Andrew Goodman, Lawrence Samkoff, Matthew Bellizzi

- **Check the E-record department schedules.** While faculty schedules have some patterns, they are not always consistent week to week, making it difficult to reliably schedule clinics for residents to join. We encourage you to examine the E-record schedule tab under the specialty departments for your weeks to view the schedule, decide which clinics you would like to join, and reach out to the attendings > 24 hours before the clinic to confirm attendance.

  - Neuro-Immunology is under [SMH NEUROIMMUNOLOGY] for AC1 clinics, and [CC C NEUROIMMUNOLOGY-1] and [CC C NEUROIMMUNOLOGY-2] for the Westfall Building C clinics, with consistent clinics Mondays, Tuesdays, Thursdays.

- **Reading Curriculum**: all residents have access to the shared box folder [Neurology Resident Resources]➔ [Ambulatory Clinic and Elective Block Info]➔ Ambulatory educational block curriculum with review papers for each subspecialty

AMBULATORY BLOCK ROTATIONS FOR NEUROLOGY RESIDENTS 2025-2026

Movement Clinic / Memory Care Block

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
AM	Movement	Memory Care or Movement	Memory Care	Movement	FLEX/LP clinic/Memory Care (Batavia)
PM	Memory Care (SCIPK)	Movement	Academic Half-Day	Movement	Memory Care (Batavia)

Memory Care clinics are at Science Park, **315 Science Pkwy, Entrance B, Suite 200, Rochester, NY 14620** and **7995 Call Parkway, Batavia NY 14020**. Movement Clinics are at **Clinton Crossings Building C 919 Westfall Road, Suite 100**

Memory Care clinicians: Fred Marshall (memory care, movement), Angela Kristan (family medicine), Elizabeth Santos (psychiatry)
Movement disorders clinicians: Peter Morrison, Irene Richard, Blanca Valdovinos, Jamie Adams, Ruth Schneider, Richard Barbano, Karlo Lizarraga, Fred Marshall, Christopher Tarolli, Melanie Braun, Nami Shah, David Sell, Patrick Gilson, Will Barbosa

Residents will be emailed a final schedule one week prior to the start of the block, with more specific information.

- Movement disorders clinic is under [CC C NEURO MOVEMENT], with consistent clinics Tuesday and Thursdays.
- Memory Care clinic is under [SCIPK MEMORY CARE PRGM], with consistent clinic Monday PM and Wednesday AM (Dr. Marshall).
- Memory care clinic in Batavia is under [BATAVIA CP NEUROLOGY], wit consistent clinics on Friday AM/PM (Dr. Gill).

- **Reading Curriculum**: all residents have access to the shared box folder [Neurology Resident Resources] → [Ambulatory Clinic and Elective Block Info] → Ambulatory educational block curriculum with review papers for each subspecialty

Firm	Attendings	Residents	Year	Former PT Of
Monday	Mel Braun	Bryce Aidukaitis	PGY4	Natalia Chunga (A-M)
	Colleen Tomcik	Kyra Curtis	PGY4	Natalia Chunga (N-Z)
	Irene Richard	George Albert	PGY3	William Barbosa
	Patrick Rooney	Meg Barlet	PGY3	Patrick Curry
	Kathleen Sellick	Tameem Ahsan	PGY2	Shubhdeep Ahden
		Courtney Seigel	PGY2	Felicia Cooper Overmiller
		Jose Arriola Villafuerte	PGY1	Dawling Dionisio Santos
		Mara Bahri	PGY1	April Henry
Tuesday	Larry Samkoff	Tiffany Duong	PGY4	Jennifer Corcoran (A-M)
	Chris Tarolli	Allen Hoste	PGY4	Jennifer Corcoran (M-Z)
	Phil Mongiovi	Alex Gerhardstein	PGY3	Cara Doyle
	Ralph Jozefowicz	Tim McWilliams	PGY3	Kelsey Jensen
	Nami Shah	John Ciarletta	PGY2	Katie Eszes
		Rachel Siegel	PGY2	Max Jean
		Lindsey Dressler	PGY1	Chris Higginbotham
		Bhagee Ganesan	PGY1	Tom Johnson
Thursday	Andrew Goodman	Anna Gershteyn	PGY4	Matthew Dupree
	Tony Maroldo	Alexandra Kuhajda	PGY4	Andrew Huang
	Colleen Tomcik	Jonathan Spiegel	PGY3	Nami Shah
	Robert Holloway	Audra Supraski	PGY3	Neil Sielski
	Lauren Zoghlin	Andrew Duffy	PGY2	Christina (Perri) Aman
		Samantha Tidd	PGY2	Dave Sandness
		Kevin Kim	PGY1	Jonathan Nutt
		Jason Li	PGY1	Stephen Powell
Friday	Trent Tollefson	AJ Logosh	PGY4	Michael Ibarra
	Ralph Jozefowicz	Namita Patel	PGY4	Diana Li
	Patrick Rooney	Wade Whitt	PGY3	Jordan Carrier
	Colleen Tomcik	Ryan Wolfe	PGY3	Oskar Wielgus
	Andy Lin	Ben Fang	PGY2	Carlos Sollero
	Christina Aman	William Yakubik	PGY2	Andrew Thierman
		Katie Mancini	PGY1	Jen Purks
		Priya Swaminathan	PGY1	Liz Stackhouse

Department of Neurology Residency Program

Important Dates for 2025-2026

Department Welcome Picnic	July 19, 2025
RITE	February 11-12, 2026
Clinical Skills Examination	Friday, October 24, 2025 Friday, November 7, 2025
AAN Annual Meeting (Chicago, IL)	April 18-22, 2026
Schwid Research Symposium	Wednesday, June 17, 2026
Resident Graduation	Saturday, June 20, 2026

2025-2026 Neurology Chief Resident Responsibilities

Administrative Chief Residents	Bryce Aidukaitis and Kyra Curtis
Block schedules	Bryce Aidukaitis, Kyra Curtis, and Allen Hoste
On-call and Jeopardy schedules	Bryce Aidukaitis, Kyra Curtis, and Allen Hoste
Off-service rotator schedules	Allen Hoste
FIRM	Tiffany Duong
Ambulatory subspecialties/electives	Alex Kuhajda
LP clinic	Alex Kuhajda
Resident lunches and snacks	Allen Hoste
Academic half-day didactics	AJ Logosh, Namita Patel
Academic half-day clinical coverage	Allen Hoste
Grand Rounds	Namita Patel
Journal Club	Namita Patel
SIGN liaison	AJ Logosh
Recruitment and Retention	Ann Gershteyn

2025-2026 Neurology Resident Committee Assignments

Residency Selection Committee	Anna Gershteyn
Program Evaluation Committee	Kyra Curtis, Alex Kuhajda
Clerkship Grading Committee	AJ Logosh
GMEC representative	Namita Patel, Alex Kuhajda (alternate)
Acute Care Council	Allen Hoste, Acting Chief(s)
Neurology Outpatient UPP Committee	Tiffany Duong
Engagement and Enrichment Council	All residents welcome to attend