

## **DETAILED DESCRIPTION, GOALS, & OBJECTIVES OF CORE, SELECTIVE AND ELECTIVE ROTATIONS**

### **A) Core Block Rotations**

#### **1. Shands In-patient /ICU/ER Junior Core Block Rotations**

##### **Description**

You are expected to gain experience taking care of patients in the neurology inpatient service and neurology intensive care unit and to assist the neurology attending in overseeing medical students and rotating residents. You will make recommendations about diagnosis, treatment and disposition on patients undergoing evaluation in the Emergency Room. You will completely evaluate each patient before staffing with the attending neurologist. Based on this evaluation, you will comment on localization, differential diagnosis, plan and treatment. You will confer with the attending neurologist prior to make any important decisions regarding patient care. Socio-economic and educational aspects of patient care must be addressed and conferred with the social worker to create appropriate plans. Rehabilitation plans begins with the admission and you will be involved in planning and executing the rehabilitation plan for each patient under the care.

Your day as inpatient/ICU/ER junior resident starts with morning report from 8:00am to 8:45 am from Monday to Friday held at the Shands Neurology team Room. The post-call resident sign out all admission to the inpatient team. A comprehensive presentation is given to the team on each patient admitted. The differential diagnosis, initial management and plan of care are discussed and budgeted to the time allotted. Immediately after morning report, the inpatient Neurology attending rounds follow. Every single new and prior patients admitted to the neurology service and Neurology Intensive care unit are seen and the management is discussed and carried out. The daily neurology rounds should not last more than 3 hours. The rest of your day is spent admitting new patients, discharging patients and attending all conferences during the day. Attendance for all conferences is mandatory and monitored. You will sign out to the night call resident at 5:00pm during weekdays and at 8:00am on weekends. You will be responsible for signing out the patients under your care in a comprehensive but efficient manner at the end of the day (5:00pm). You will take short call several days of the week, in which case you will receive sign out from your resident colleagues on the Shands inpatient service and consult service starting at 5:00 pm and be responsible for all Shands neurology patients( inpatient, consult or ER) until sign them out to the night float team at 8:00pm. Therefore, you will be responsible for seeing new ER patients and new inpatient consults during this short call.

During weekends, there will be times when you will be call upon to cover the dayshift and will be responsible for all neurology patients on the Shands in patient service, ICU and ER. These shifts are from 8:00am to 8:00pm and you will sign out to the night float resident.

You may be assigned by the senior resident during this rotation to assess patients in the Emergency Room (ER). Also, the Shands inpatient team carries the stroke pager and is

responsible for assessing all consultations in the ER including possible administration of tPA for stroke patients that fall within the window.

You are responsible for log in each patient on the inpatient admissions sign out sheet in the Department of Neurology offices and making sure that inpatient and ER consultations are log in the sign out sheet and making sure that inpatient and ER consultations are log in the consults/ER sign out sheet.

As an educator, you are responsible for preparing medical students and residents rotating from other services in presenting the cases to the neurology attending. At the end of the rotation, each resident must complete their evaluation forms and return it to the neurology office.

### **Goals and objectives:**

1. Demonstrate proficiency in obtaining complete and reliable neurological history and perform a complete neurological examination. (PC)
2. Perform technical skills for neurological procedures such as lumbar tap, assessment of brain death, and operating long term EEG monitoring equipment. (PC)
3. Create appropriate and cost effective diagnostic and treatment plan including laboratory, neurophysiology and imaging studies of subjects admitted to the inpatient service. (PC)
4. Effectively carry out the plan of care for all the patients under your care in an organized and efficient manner. (PC)
5. Carry out the management plans of neurological emergencies under the supervision of a senior neurology resident and/or attending (PC)
6. Become aware of possible rehabilitation procedures for each patient and make plans to initiate rehabilitation procedures during the inpatient stay and after discharge. (PC)
7. Demonstrate knowledge of major neurological disorders requiring inpatient medical management (MK)
8. Identify acute neurological situations that require urgent response (MK)
9. Localize disease process in the neuroaxis (MK)
10. Formulate complete differential diagnosis (MK)
11. Demonstrate ability to use computerized and non-computerized information technology to facilitate patient care and the development of techniques for life-long learning (PBL)
12. Gain expertise to extract information and hallmark features from the history, examination, and organize such information to establish a differential diagnosis and treatment plan. (PBL)
13. Review your own practice to guide own learning objectives (PBL)
14. Communicate effectively with patients, caregivers and staff in the inpatient setting (ICS)
15. Present information to the senior resident, attending neurologist and other health care providers in an efficient and effective manner (ICS)
16. Participate in promoting the best care for the patients along with other health care professionals such as nurses, social workers, physical, occupational and speech therapists, (ICS)

17. Demonstrate behaviors that foster honesty, respect towards patients and peers, dedication to patient care and willingness to acknowledge mistakes (P)
18. Deal effectively with ethical issues that arise during patient care (P)
19. Be on time and prepared for morning report and daily work rounds (P)
20. Complete all admissions, progress and discharge notes in a timely manner.
21. Demonstrate consideration for health care cost and learn about resources available to cover such costs (SBP)
21. Be able to work with social services to plan for the care of patients after discharge and to learn about resources available in the patient's community to promote health.
22. To consider and discuss ways to improve the practice of neurology at your institution

### **Suggested textbooks and reading materials**

1. Neurology in Clinical Practice. 6 editions. Daroff, Fenichel, Jankovic, Mazziotta.
2. Localization in Clinical Neurology 6 edition. Brazis, Masdau, Biller
3. Neurological Differential Diagnosis. 2 edition. John Patten

## **2. Shands Consult Rotation Core Block Rotations**

### **Description**

As a junior resident, it is expected that you will gain experience in providing outstanding care and advice to patients admitted to the hospital to other services requiring neurological care. You will assist the attending physician in supervising students and rotating residents evaluating daily consultations. You are expected to evaluate each patient before staffing each case with your attending physician. You should be able to localize the lesion in the neuroaxis and comment on a differential diagnosis and plan for a comprehensive evaluation and treatment and communicate accordingly to the primary team taking care of the patient. You must staff the case with the faculty on-call for the consult service prior to making any important decisions, but should not expect that the attending do your thinking for you.

### **Goals and objectives:**

1. To demonstrate proficiency in obtaining complete and accurate neurological history and complete neurological examination. (Patient Care)
2. To perform technical skills for neurological procedures such as lumbar tap, assessment of brain death, proper use of long term monitoring, etc. (Patient Care)
3. Demonstrate knowledge in creating an appropriate and cost effective diagnostic and treatment plan, including appropriate use of laboratory, clinical neurophysiology and imaging studies. (Patient Care)
4. Demonstrate proficiency in the care and management of patients with neurological emergencies such as acute stroke, status epilepticus, brain herniation, spinal cord compression, neuroleptic malignant syndrome, and myasthenia gravis and Guillain-Barre syndrome. (Patient Care)

5. Demonstrate knowledge about neurological disease that affects medical, surgical, obstetrical, gynecological and pediatric patients admitted to the hospital. (Medical Knowledge)
6. Demonstrate ability to localize disease in the neuroaxis and formulate a complete differential diagnosis. (Medical Knowledge)
7. Demonstrate ability to use computerized and non-computerized information systems to facilitate patient care and development of techniques for long learning. (Practice-based Learning)
8. Demonstrate the ability to extract information and salient features from the History, examination, and caregiver and paramedical personnel interview, and organize them to base your differential diagnosis and management. (Practice-based Learning)
9. Be able to use the review of your own practice to guide learning. (Practice-based Learning)
10. Demonstrate the ability to communicate effectively with patients, families, the primary team caring for your patients and other allied health professionals. (Interpersonal and communication skills)
11. Demonstrate the ability to efficiently and effectively present information about your patients to fellow residents, attending physicians, and other health care professionals. (Interpersonal and communication skills)
12. Demonstrate the ability to participate with other members of the health care team (nurses, physical and occupational therapists, speech therapists, social workers and others) to promote the best care for your patients. (Interpersonal and communication skills)
13. Demonstrate attitudes that foster honesty, respectfulness towards patients and peers, dedication to patient care, and willingness to acknowledge mistakes. (Professionalism)
14. You should demonstrate the ability to recognize and deal effectively with ethical, medico-legal and best-practice/standard of care issues that arise in the management of patients cared for by other services. (Professionalism)
15. Be on time and prepared for Morning Report and daily work rounds. (Professionalism)
16. Ensure that all your dictations are complete, accurate and on time. (Professionalism)
17. Demonstrate consideration of medical care costs when providing expert neurological advice to other services. (Systems-based practice)
18. Demonstrate the ability to work with the primary care team, nurses, case managers and social workers to plan for the care of patients before signing off on a consultation. (Systems-based practice)
19. Demonstrate the ability to consider and discuss ways to improve communication between services and enhance the practice of neurology at your institution. (Systems-based practice)
20. Be familiar with the resources available in your patient's community to promote their health. (Systems-based practice)
21. Demonstrate how to use what you have learned to plan your own practice of neurology after residency. (Systems-based practice)

## **Suggested textbooks and reading materials**

1. Neurology in Clinical Practice. 6 edition. Daroff, Fenichel, Jankovic, Mazziotta.
2. Localization in Clinical Neurology 6 edition. Brazis, Masdau, Biller
3. Neurological Differential Diagnosis. 2 edition. John Patten

## **3. VA In-patient /Consult Junior Core Block Rotations**

### **Description**

The resident will be expected to gain experience in caring for patients in the neurology in-patient and consult service. As a junior resident, you will assist the attending physician in supervising students and rotating residents. You will evaluate, treat, and make dispositions of patients in the emergency room. You are expected to evaluate each patient before staffing with the attending neurologist. Based on your evaluation, you should be able to comment upon localization of the lesion, differential diagnosis and treatment plans, including disposition. You always must staff the case with the attending neurologist prior to making important management decisions for each case under your care. Any socioeconomic issues must be addressed and discussed with social worker if indicated. Also, rehabilitation plans should be initiated during the admission process and you must be involved on the planning and execution of such interventions.

Your day starts by doing your “pre rounds” from 8:00 to 9:00 am daily, prior to Morning Report. Daily Morning Report is held at the Neurology Team Room from 9:00 to 9:30 Am. The post-call resident presents all admissions and consults to the neurology team. A concise but comprehensive presentation is given to the team on each patient admitted. The case, including differentials, diagnosis and management are discussed within the time allotted. Immediately following Morning Report, the in-patient and consult work rounds follow. The management of all new and old inpatients and consultations patients is discussed. The daily work rounds should not last longer than 3 hours. The rest of your day should be spent admitting new patients, discharging old patients, and attending all conferences during the day. As the junior resident in this rotation, you may be assigned by your senior resident to assess patients in the Emergency Room (ER) as promptly as possible.

You are also responsible for preparing medical students and rotators from other disciplines in presenting their cases to the attending neurologist. At the end of the rotation, each resident must complete their respective evaluation form and return it to the Neurology Office.

You are responsible for signing out your patients in an efficient but effective manner at the end of your day, 5 pm. You will also take short call several times a week, in which case you will receive sign out from your colleagues on the VA inpatient/consult service starting at 5 pm, and be responsible for all VA neurology patients, whether ward, consult, or ED, until you sign them out to the night-float at 8 pm. When the workload is light, this short call may be taken from home if you can be back at the VAMC within 15-20 minutes of being called. You will be responsible for seeing new ED and inpatient consults during short call.

During the weekend, there will be times when you are called upon to cover the dayshift where you will be responsible for all neurology patients on the VA ward service and in the ED, as well as new Shands consults. These shifts are from 8 am to 8 pm, when you will be relieved by the overnight resident or night-float. When the workload is light, this short call may be taken from home if you can be back at the VAMC within 15-20 minutes of being called. Sign out responsibilities are the same as during short call.

### **Goals and objectives:**

1. Demonstrate proficiency in obtaining a complete and accurate neurological history and perform a complete neurological examination. (Patient Care)
2. Perform technical skills for neurological procedures such as lumbar puncture, assessment of brain death, operating EEG long term monitoring equipment. (Patient Care)
3. Demonstrate knowledge in creating an appropriate and cost-effective diagnostic and treatment plan, including appropriate use of laboratory, clinical neurophysiologic and imaging studies in the Veterans Affairs Medical Center inpatient setting. (Patient Care)
4. Carry out the management plans for all your patients in an organized and efficient manner. (Patient Care)
5. Carry out the management of neurological emergencies such as acute stroke, status epilepticus, spinal cord compression, brain herniation, respiratory decompensation, etc. under the supervision of your senior resident or attending neurologist. (Patient Care)
6. Demonstrate awareness in assessing the rehabilitation potential for each patient, and to make appropriate plans for rehabilitation, both during the hospital stay, and after discharge. (Patient Care)
7. Demonstrate knowledge about major neurological diseases affecting veterans that require inpatient care, including stroke, seizures, CNS infections, coma, dementia, common movement disorders, myelopathy, neuromuscular disorders, and specific neurological situations that require urgent or emergent responses. (Medical Knowledge)
8. Demonstrate ability to localize disease in the nervous system, and formulate a complete differential diagnosis. (Medical Knowledge)
9. Demonstrate knowledge about major neurological diseases that affect medical, surgical veteran patients. (Medical Knowledge)
10. Demonstrate ability to use computerized and non-computerized information systems available at the veteran's hospital to facilitate veterans care and to facilitate the development of techniques for life-long learning. (Practice-based Learning)
11. Demonstrate the ability to extract information and salient features from the history, examination, and caregiver and paramedical personnel interview, and organize them to base your differential diagnosis and management. (Practice-based Learning)
12. Be able to use the review of your own practice to guide learning. (Practice-based Learning)
13. Demonstrate the ability to communicate effectively with your veteran patients and their families in the inpatient setting. (Interpersonal and communication skills)
14. Demonstrate the ability to efficiently and effectively present information

- about your veteran patients to fellow residents, attending physicians, and other health care professionals. (Interpersonal and communication skills)
15. Demonstrate the ability to participate with other members of the veteran health care team (nurses, physical and occupational therapists, speech therapists, social workers and others) to promote the best care for your veteran patients. (Interpersonal and communication skills)
  16. Demonstrate attitudes that foster honesty, respectfulness towards patients and peers, dedication to patient care, and willingness to acknowledge mistakes. (Professionalism)
  17. Demonstrate the ability to recognize and deal effectively with ethical issues that arise in the management of your patients. (Professionalism)
  18. Make sure you are on time and prepared for Morning Report and daily work rounds. (Professionalism)
  19. Complete all dictations, including admission notes and discharges comprehensively and in a timely manner. (Professionalism)
  20. Demonstrate consideration the costs of medical care, and learn about resources available to all veterans to cover these costs. (Systems-based practice)
  21. Demonstrate the ability to work with social services, allied health professionals and the Veterans Health Care system to plan for the care of veterans after discharge; and know about the resources available in the community to promote the veteran's health. (Systems-based practice)
  22. Demonstrate the ability to consider and discuss ways to improve the practice of neurology at the Veterans Affairs Medical Center. (Systems-based practice)

### **Suggested textbooks and reading materials**

Neurology in Clinical Practice. 6 edition. Daroff, Fenichel, Jankovic, Mazziotta.  
Localization in Clinical Neurology 6 edition. Brazis, Masdau, Biller  
Neurological Differential Diagnosis. 2 edition. John Patten

## **4. Nightfloat Rotation Core Block Rotations**

### **Description**

You will be expected to gain experience in the solo practice of neurology during the night float rotation. As the sole overnight coverage for two hospitals, Shands and the VAMC, and all late calls from patients, you will develop your independence as a practicing neurologist, learn to assess and triage cases in the inpatient setting. You will evaluate, treat, and make dispositions on patients in the Emergency Department as well as inpatient consultations from other services. You will be able to localize neurological complaints, determine acuity of problem, derive appropriate differential diagnoses, establish an appropriate course of evaluation, again making decisions as to level of urgency for said evaluation. You will determine appropriate management and treatment for all levels of neurology care from urgent care, brief emergency visit, inpatient, and neuro-intensive care patients. You will be responsible for directing care overnight on neurology ward patients in the unit and on the floor.

Night-float is in two week blocks of six days (Sunday night to Friday night) on from 8 pm to 8 am, and time off between from Saturday morning until Sunday night. As night-

float, you are expected to take report from the Short Call residents covering Shands and the VA and answer all calls to neurology overnight. At 8 am you attend morning report where you are expected to present cases from overnight and give updates on patients being followed by neurology. You will start rotating through Night-float in the middle of your PGY3 year. At this stage in your training, you will be expected to gather an initial H&P, provide evaluation and management plans for common neurological complaints, and identify patients in neurological emergencies and initiate immediate treatment. You will always have the inpatient attending on Shands and the VA available via phone at any time to review your cases and give further education and advice. At need, attending may come into the hospital to assist in your work-up and management for particularly challenging cases.

You will continue to rotate through night-float in your PGY3 year. At this point in your training it is anticipated that you will be able to independently assess neurology complaints for acuity and urgency, localize the neurologic complaint, develop differential diagnoses, and order and prioritize evaluation and initial management. While some of the more esoteric or complex diagnoses may still require mentorship, you should be able to identify the categories of problem in even these cases. While the attending at Shands and the VA remain available overnight via telephone for mentorship and back-up, it is anticipated that at this level of training this will be more of a formality rather than a necessity in all but the most vexing of cases.

During this rotation, you should master localization, development of differential diagnosis, and evaluation and management of neurology patients. You should only need to call for attending assistance for multiple simultaneous emergencies requiring back-up. The rotation at this point should show that you are able to balance the many demands of independent solo neurological practice and can efficiently pass on information during transfer of care during Morning Report, when you should be leading the discussion of the academic points of the cases seen overnight.

### **Goals and Objectives:**

1. Demonstrate proficiency in obtaining a complete and accurate neurological history and perform a complete neurological examination. (Patient care)
2. Be able to perform technical skills for neurological procedures such as lumbar puncture, assessment of brain death, operating EEG long term monitoring equipment. (Patient care)
3. Begin to demonstrate knowledge in creating an appropriate and cost-effective diagnostic and treatment plan, including appropriate use of laboratory, clinical neurophysiologic, and imaging studies in the inpatient setting. (Patient care)
4. Effectively carry out the management plans for all your patients in an organized and efficient manner. (Patient care)
5. Be able to adequately carry out the management of neurological emergencies such as acute stroke, status epilepticus, spinal cord compression, brain herniation, respiratory decompensation, etc. under the supervision of your attending neurologist. (Patient care)
6. Demonstrate knowledge about major neurological diseases affecting veterans that require inpatient care, including stroke, seizures, CNS infections, coma, dementia,



- common movement disorders, myelopathy, neuromuscular disorders, and specific neurological situations that require urgent or emergent responses. (Medical Knowledge)
7. Demonstrate ability to localize disease in the nervous system, and formulate a complete differential diagnosis. (Medical Knowledge)
  8. Demonstrate knowledge about major neurological diseases that affect medical, surgical patients. (Medical Knowledge)
  9. Demonstrate ability to use computerized and non-computerized information systems available at the hospital to facilitate patient care and to facilitate the development of techniques for life-long learning. (Practice-based Learning)
  10. Demonstrate the ability to extract information and salient features from the history, examination, and caregiver and paramedical personnel interview, and organize them to base your differential diagnosis and management. (Practice-based Learning)
  11. Be able to use the review of your own practice to guide learning. (Practice-based Learning)
  12. Demonstrate the ability to communicate effectively with your patients and their families in the inpatient setting. (Interpersonal and communication skills)
  13. Demonstrate the ability to efficiently and effectively present information about your patients to fellow residents, attending physicians, and other health care professionals. (Interpersonal and communication skills)
  14. Demonstrate attitudes that foster honesty, respectfulness towards patients and peers, dedication to patient care, and willingness to acknowledge mistakes. (Professionalism)
  15. Demonstrate the ability to recognize and deal effectively with ethical issues that arise in the management of your patients. (Professionalism)
  16. Make sure you are on time and prepared for Sign Out rounds and at the end of your night-float shift, Morning Report. (Professionalism)
  17. Complete all admission notes and discharges comprehensively and in a timely manner. (Professionalism)
  18. Demonstrate consideration the costs of medical care, and learn about resources available to all patients to cover these costs. (Systems-based practice)
  19. Demonstrate the ability to consider and discuss ways to improve the practice of neurology overnight in the inpatient setting. (Systems-based practice)

### **Suggested Textbooks/Reading Materials:**

1. Technique of the Neurological Examination 2003 by William DeMyer
2. The Clinical Practice of Critical Care Neurology 2003 by Elco F. M. Widjicks
3. Bradley's Neurology in Clinical Practice 6 edition: Text with continuously updated online reference, 2-volume set, 2012 by Robert Daroff , Gerald M Fenichel, Joseph Jankovic and John C Mazziotta. 6 edition. April 2012.
4. AAN practice guidelines (<http://www.aan.com/go/practice/guidelines>)

## **5. Adult General Neurology Outpatient Clinics Block Rotation**

### **Description**

The Goals of the outpatient rotation are to learn the skills needed to care for adults with a wide range of neurological disorders.

### **Goals and objectives:**

1. Learn to elicit detailed developmental and neurological histories from the patient himself/herself and the patient's family. (Patient Care)
2. Recognize the advantages and limitation of the full array of diagnostic tests that could be used in any given case and in that way, learn to select the most appropriate studies for assessing the complete spectrum of neurological disorders seen in adults in different outpatient settings including general Neurology clinics, and Neurology subspecialty clinics such as neuro-muscular, epilepsy, movement disorders, behavioral, stroke, and other special needs. (Medical Knowledge)
3. Learn to develop a focused differential diagnosis with every patient. (Medical Knowledge)
4. Review and evaluate outside medical records relevant to the current clinical problem. (Practice-based Learning)
5. Develop skills in synthesizing all relevancy clinical data and presenting those data in a concise fashion to the supervising neurologist, outlining an investigative and treatment plan. (Practice-based Learning)
6. Commit to a relevant literature review with each new case to enhance greater understanding of the clinical problems. (Practice-based Learning)
7. Discern what is known about the disorder and what still needs to be learned. (Practice-based Learning)
8. Learn to conduct detailed general physical, neurological and developmental examinations on each patient including assessment of cognition, learning, attention, visuo-motor and emotional functioning in all cases where the latter assessments are relevant. (Interpersonal and communication skills)
9. Develop an optimal treatment plan for each case. (Professionalism)
10. Develop the best possible communication techniques with patients and their families, referring physicians and other health professionals, supervising physicians, fellow residents, nurses and nurse practitioners and medical students. (Professionalism)
10. Maintain regular follow-up (telephone, mail, return clinic visits) with the patients or significant others seen by the resident in all outpatient clinics. (System-based practice)

### **Suggested textbooks and reading materials**

1. Office Practice of Neurology 2003 by Martin Samuels and Steve Feske.
2. Differential Diagnosis in Neurology 2006 by Robert Schwartzman.
3. AAN practice guidelines (<http://www.aan.com/go/practice/guidelines>)

## **8. Child Neurology In-patient /ICU/ER/Consult rotation**

**Description:** The overarching goal of the child neurology In-patient/Intensive Care Unit/Emergency Room/Consult rotation are to learn the skills needed to care for children with a wide range of neurological disorders presenting acutely to the hospital for inpatient services.

### **Goals and objectives:**

1. Manage in-patients under the direct supervision of more senior residents and attending physicians, both on the general Pediatric Neurology services and on the specialized services (Intensive Care Unit or Emergency Room). (Patient care)
2. Learn to obtain a comprehensive history and perform an appropriate general physical and neurological examination, localizing the neurological problem, generating an appropriate differential diagnosis, and developing a cost-effective plan for the further evaluation and management of the patient. (Patient care)
3. Master communication skills and appropriate medical knowledge for your level of expertise. (Patient care)
4. To have opportunity each week, as part of the Grand Rounds experience, to witness a staff physician interview and examine a patient, and discuss the differential diagnosis, and management of the case (Patient Care)
5. During the first year, the child neurology resident will have a full course in neurosciences allocated to an academic/didactic instruction, focused on the full spectrum of neurological disorders, their management and the possibilities for related clinical research. In the 2nd and 3rd years, you will participate in didactic and clinical conferences, including Journal Club, research conferences, Neuroradiology conferences, Electrophysiology conferences, Clinical Case Conferences. One attending physician will present to the residents live cases seen over the previous weeks to assess and mold the trainees' thinking processes. (Medical Knowledge)
6. Meet with the attending physician to hold patient-based clinical teaching rounds each day. (Medical Knowledge)
7. Expected to communicate with referring physicians when their patients are admitted to hospital and again at discharge. Residents will be expected to give, in depth didactic conferences once a year at Grand Rounds in their second or third years. They will be expected to read in detail about the disorders in patients for whom they have cared. Each resident will also be expected to present a challenging neurological case at a monthly Friday Pediatric Neurology Conference (Brain hour conference). The live case-based rounds conducted each week, as part of the Neurology Grand Rounds, allows for vigorous group interaction in order to optimize patient care. At all times, even during the inpatient rotations, the child neurology residents will attend a weekly continuity clinic with direct one-on-one supervision by the child neurology attending physician (Practice-based Learning)
8. Have the opportunity to observe attending physicians obtain histories, perform examinations, and discuss impressions and plans with families, such as in the live patient part of weekly Neurology Grand Rounds. This permits role modeling. Conversely, the residents will be observed in their history taking and development of rapport with

children/patients and their families in at least four settings. They will be observed in the inpatient service, intensive care unit, emergency room, and consultation settings. Additionally, the 2nd and 3rd year child neurology residents twice a year will take the role usually relegated to the attending physician in leading the live patient interview and examination in Neurology Grand Rounds. The approach to patients also is emphasized to foster their sensitivity to young children. The importance of developing interpersonal skills and open communication is emphasized in an on-going, daily basis by all staff member (Interpersonal and communication skills)

5. To communicate with referring physicians when their patients are admitted to the hospital and again at discharge. Ethical issues and sensitivity to diverse patient populations are continually monitored by attending physicians, a point that cannot be overemphasized at a Center with as much patient population diversity as is seen at Shand's Hospital-University of Florida. Residents will be expected to obtain release of information forms from patients when medical records from other centers are required. The residents will also be expected to communicate in a sensitive manner with radiologists on the Neuroradiology service, EEG technologists on the EEG/Electrophysiology service, and therapists on the Rehabilitation service. They will also be expected to treat with sensitivity and respect all physician extenders (Register nurses, Advanced Register Nurse Practitioners), nurses, para-professional personnel, secretaries on all the in-patient services. (Professionalism)

6. To review practice guidelines, found in part on the Child Neurology Society website and the American Academy of Neurology website, with child neurology staff physicians. You are encouraged in your 2nd and 3rd years to attend the annual Child Neurology Society national meeting where many opportunities are provided to inform them about resources, including specific health-related organizations, such as the Tourette and Rett Syndrome Societies. Each year, individuals are singled out by the Child Neurology Society and recognized for their exceptional advocacy work and our residents will be encouraged to apply and participate of the many opportunities offered by the Child Neurology Society, the Child Neurology Foundation and Epilepsy Foundation to apply for such grants and distinctions. (System-based practice)

**Suggested textbooks and reading materials:**

1. Child Neurology: A Sign and Symptom approach. 6 Edition. Fenichel.
2. Neurology in Clinical Practice. 6 edition. Daroff, Fenichel, Jankovic, Mazziotta.
3. Localization in Clinical Neurology 6 edition. Brazis, Masdau, Biller
4. Neurological Differential Diagnosis. 2 edition. John Patten

## **9. Continuity Clinic Child Neurology Longitudinal rotation**

**Description:** The overarching goal of the child neurology longitudinal outpatient rotation is to learn the skills needed to care for children with a wide range of neurological disorders

### **Goals and objectives:**

1. Learn to elicit detailed developmental and neurological histories from the child's family and with older children from the child him/herself. (Patient Care)
2. Learn to develop a focused differential diagnosis with every patient. (Patient Care)
3. Learn the advantages and limitations of the full array of diagnostic tests that could be used in any given case and in that way, learn to select the most appropriate studies for assessing the complete spectrum of neurological disorders seen in children in different outpatient settings (general Pediatric Neurology clinics; Pediatric Neurology subspecialty clinics [e.g. pediatric movement disorder, neuro-oncology, muscular dystrophy; epilepsy; learning, attention, behavior and other special needs]. (Medical Knowledge)
4. Learn to conduct detailed general physical, neurological and developmental examinations on each child, including assessment of cognition, learning, attention, visuo-motor and emotional functioning in all cases where the latter assessments are relevant. (Practice Based Learning)
5. Review and evaluate outside medical records relevant to the current clinical problem. (Interpersonal Skills and Communication)
6. Commit to a relevant literature review with each new case to enhance greater understanding of the clinical problems seen, what is known about the disorder and what still needs to be learned. (Interpersonal Skills and Communication)
7. Develop facility in synthesizing all relevant clinical data and presenting those data in a concise fashion to the supervising staff physicians, outlining an investigative and treatment plan. (Professionalism)
8. Maintain regular follow-up (telephone, mail, return clinic visits) with the families of children seen by the resident in all outpatient settings. (Professionalism)
9. Learn to develop an optimal treatment plan for each case. (System-Based Practice)
10. Develop the best possible communication techniques with patients and their families, referring physicians and other health professionals, supervising physicians, fellows, residents, nurses and nurse practitioners and medical students. (System-Based Practice)

### **Suggested textbooks and reading materials**

1. Bradley's Neurology in Clinical Practice by Robert Daroff, Gerald M Fenichel, Joseph Jankovic and John C Mazziotta. 6 edition. April 2012.
2. Child Neurology by Menkes, Sarnat and Bernard Maria. 7 edition. 2005.
3. Pediatric Practice Neurology. By Paul Carney and James Geyer. First Edition. January 2010.
4. Clinical Pediatric Neurology: A sign and symptom approach by Gerald Fenichel. 6 edition. 2009.

## **B. Selective rotations**

### **1. Child Psychiatry rotation**

#### **Description**

The goals of the Child Psychiatry Rotation are to learn the skills needed to care for children with behavioral, attentional, emotional, and psychiatric disorders.

The Child Psychiatry rotation will involve observation and hands on experience with children who have behavioral, attentional, adjustment, mood, and other psychiatric disorders, including childhood psychoses, depression and schizo-affective disorders. The four week experience will be a mix of observation of initial evaluations, case conferences, and didactic instruction.

#### **Goals and objectives**

1. Learn to do a child psychiatry oriented mental status examination. (Patient Care)
2. Become familiar with child psychiatry axis-oriented diagnostic categorization. (Medical Knowledge)
3. Become familiar with how and when to co-manage cases with the child psychiatrist. (Medical Knowledge)
4. Become familiar with medications used by child psychiatrists (Medical Knowledge)
5. Learn major categories of medications, including Selective Serotonin Reuptake Inhibitor, Atypical antipsychotics, Typical antipsychotics, Anxiolytics, Antidepressants, Mood stabilizers, Attention enhancing and psycho-stimulant medications, Medications for management of aggression, rage, tic disorders and Obsessive compulsive disorder. (Medical Knowledge)
6. Learn the pharmacology of medications used by child psychiatrists, including clinical indications, contraindications, potential side effects, potential for abuse, drug-drug interactions, methods of monitoring drug efficacy and side effects, criteria for determining duration of treatment (Medical Knowledge)
7. Learn criteria for the diagnosis of Dementing, amnesic, dissociative and other cognitive disorders, Obsessive-compulsive disorders, attentional deficit hyperactivity disorders, Learning, attachment and developmental disorders, tic disorders, motor function and communication disorders, other psychiatric disorders of infancy, childhood or adolescence not included thus far, the psychological impact of medical disorders, substance abuse disorders, dissociative disorders, childhood depression and other mood disorders, behavioral, oppositional defiant, conduct, dysregulatory, and impulse-control disorders, post traumatic, anxiety and dissociative disorders, childhood psychosis and delusional disorders, somatoform disorders, sleep disorders ( Practice Based Learning)
8. Understand the overlaps between neurology and neuropsychiatry. (Interpersonal and Communication Skills)
9. Learn criteria by which to distinguish primarily psychiatric disorders from medical and neurological disorders. (Professionalism)
10. Appreciate that we collaborate in the study and treatment of behavioral disorders of the nervous system. (System-based practice)
11. Learn when to refer to the Child Psychiatrist. (System-Based Practice)

12. Become familiar with various management strategies of disorders seen by child psychiatrists, including: psychotherapy, behavior modification, and pharmacological management. (System-Based Practice)

### **Suggested textbooks and reading materials**

Kaplan and Sadock's Comprehensive Textbook of Psychiatry. 6 edition. By Benjamin Sadock, Virginia Alcott Sadock and Pedro Ruiz.

## **2. Electrophysiology: EEG-Epilepsy Monitoring Unit rotation**

### **Description**

The goals of the EEG/Epilepsy Monitoring Unit/Electrophysiology Rotation are to learn the skills needed to identify, classify and give appropriate care to children with a wide range of seizure types and epileptic disorders. The rotation in EEG/Epilepsy Monitoring Unit will include an introduction to interpretation of the EEG and the clinical indications for obtaining an EEG in newborns, infants, children, adolescents, and young adults. The rotation's structure will include a two-pronged approach: first, learning an orderly approach to the visual analysis and interpretation of the electroencephalogram record and second, gaining an understanding of the clinical implications of given EEG findings in different clinical settings

### **Goals and objectives:**

1. Learn the various aspects of EEG interpretation such as localization, identification of normal variants, appreciation of EEG artifacts, changes in EEG between waking and different stages of sleep and EEG activation techniques. (Patient Care)
2. Read quickly enough EEG to interpret up to 4 records per day. (Patient Care)
3. Prepare written reports of all of their EEG findings. (Patient Care)
4. Make a clinical interpretation of the EEG findings. (Patient Care)
5. Identify classic waking and sleep tracings. (Patient Care)
6. Learn the technology of electroencephalography, including montages, electrode position and application, use of filters, localization and artifacts. (Patient Care)
7. Identify abnormalities in the EEG, including epileptiform abnormalities, asymmetries and slow wave abnormalities. (Patient Care)
8. Learn normal variants in the EEG. (Patient Care)
9. Determine EEG findings according to different epilepsies, including neonatal seizures, infantile spasms, benign focal epilepsies, generalized epilepsies, focal epilepsies, epilepsy, epileptic encephalopathies such as Landau-Kleffner syndrome and continuous spike wave during slow wave sleep. (Patient Care, Practice-based Learning)
10. Learn the features of the EEG in Coma. (Patient Care)
11. Identify the EEG in brain death. (Patient Care)
12. Know the drug effects in the EEG. (Patient Care)
13. Feel comfortable evaluating patients for long term EEG monitoring. (Patient Care)
14. The residents will master the more sophisticated aspects of EEG interpretation, and will be instructed in the fundamentals and varied applications of different long term monitoring techniques. (Medical Knowledge, Practice-based Learning)

15. The residents will also be exposed to the in-depth evaluation and criteria required to consider Epilepsy surgery. (Medical Knowledge)
16. The residents will be exposed to cost and other factors considered in choosing appropriate anticonvulsant medications. (Medical Knowledge)
17. The residents will participate of the weekly Epilepsy Monitoring Conference. (Medical Knowledge, System-based practice)
18. The residents will communicate with referring physicians and other health care professionals about the final diagnosis and plan of care of patients admitted to the Epilepsy Monitoring Unit (Professionalism, Interpersonal and Communication Skills)

### **Suggested textbooks and reading materials**

Current Practice of Clinical Electroencephalography. Third edition. Ebersole and Pedley.

### **3. Electrophysiology: EMG/NCV studies rotation**

#### **Description**

A basic understanding of neurophysiology is essential to the good practice of neurology. Residents will spend at least two months during their training refining their understanding and skills in neurophysiology. This is a combined rotation in EEG and EMG. The resident will develop a basic understanding of the neurophysiology involved in EMG testing. The resident will learn how to apply EMG testing to the care of patients with various neuromuscular diseases in both the outpatient and inpatient setting.

#### **Goals and objectives:**

1. Identify appropriate indications for performing an EMG study. (Patient Care)
2. Perform and interpret EMG studies for a variety of neurological/neuromuscular diseases. (Patient Care)
3. Diagnose common neuromuscular diseases. (Patient Care)
4. Throughout this rotation, basic skills in the diagnosis, evaluation, and management of patients with neuromuscular disease are to be developed. Attending Neurologists will evaluate competence through oral presentations. (Patient Care)
5. Basic knowledge with regard to EMG, neurophysiology and neuromuscular diseases will be obtained through background reading as detailed below, with reading to occur in a case-by-case basis. (Medical Knowledge)
6. The resident will be responsible for tracking the number and diagnoses of neuromuscular cases seen in clinics and consultation, as well as logging each EMG procedure. Cases must also be entered into the web-based ACGME Case Log. These data will be used to ensure that an adequate educational experience is obtained in EMG and the neuromuscular diseases. These data can also be used by the resident in their 6-month self-evaluation and /or annual evaluation (in conjunction with in-service scores) to direct further study. (Practice-based learning)
7. Presenting patients to faculty and communicate clearly with patients, families, staff, and colleagues as necessary. Competence in communication will be assessed by



supervisory Neurologists as well as by the 360-degree evaluation. (Interpersonal and communication skills)

8. The resident must remember that they represent the University of Florida Department of Neurology and Department of Pediatrics-Division of neurology with all of their actions and communications while on this rotation. The highest standards of professionalism must be maintained at all times, especially in interactions with patients or with other physicians. The resident will be responsible for tracking duty hours and reporting them to the supervisory attending. Competence in professionalism will be assessed by supervisory Staff Neurologist, as well as by the 360-degree evaluation. (Professionalism)

9. The resident will learn the constraints of the health care system placed upon patients with the neuromuscular disease, and how to work within these constraints to provide evaluation and management. Competence will be evaluated by the 360-degree evaluation. (System-based practice)

### **Suggested textbooks and reading materials**

1. Electromyography and Neuromuscular disorders. Clinical-Electrophysiological correlations. Preston and Shapiro.
2. Clinical Neurophysiology, 2nd Edition
3. Localization in Clinical Neurology, 4th edition; Brazis, Masdeu, and Biller eds; (Chapters: 2, *Peripheral Nerves*; 3, *Cervical, Brachial, and Lumbosacral Plexuses*; and 4, *Spinal Nerve and Root*);
4. Diagnosis and Management of Peripheral Nerve Disorders, (Mendell, Kissel, and Cornblath).

## **4. Neuropathology**

### **Description**

The elective rotation for the child neurology residents in Neuropathology is designed to be a one month intensive exposure to all aspects of Neuropathology through, including weekly conferences held at Shands Hospital. During the rotation, residents are expected to participate in the daily Neuropathology service schedule at Shands Hospital, including Surgical and Autopsy cases involving Neuropathology. At the end of the rotation, residents will be evaluated by the chief of the Neuropathology division with input from Neuropathology faculty, staff and fellows.

### **Goals and objectives:**

1. Learn how to provide timely and accurate neuro-pathological diagnosis for patient care (Patient care)
2. Become familiar with handling typical surgical specimens seen in a tertiary care children's hospital setting by participating in the daily Neuropathology schedule. (Medical Knowledge)
3. The residents will participate in evaluating daily surgical operative specimens for four weeks, which includes frozen section evaluation, and relevant ancillary techniques, and microscopic evaluation for final diagnosis. (Medical Knowledge)

4. Residents are expected to be present at Neuropathology sign-out every day during their rotation. (Medical Knowledge)
5. To review the Neuropathology teaching set, in order for the resident to familiarize himself/herself with classic neuropathology cases. (Practice-based Learning)
6. During the month, as teaching set cases are reviewed, catalogue each teaching set specimen with the accession number and diagnosis and provide copy of the same to the chief of Neuropathology and the chief of pediatric neurology for filling in the resident's permanent teaching record. (Practice-based Learning)
7. Create a log for all neuropathology autopsies in which the resident has participated during the one month rotation, in which his/her name is included in the neuropathology autopsy report. (Practice-based Learning)
8. Provide one copy of the log to the Chief of Neuropathology and a second copy to the Child Neurology Residency Program Director, to include in the resident's permanent training file. (Practice-based Learning)
9. To attend additional sign-outs and conferences as resident's time and interest permit. (Interpersonal and communication skills)
10. To be present for all pediatric neuropathology teaching conferences in the Division during the one month rotation, in order to gain the broadest exposure to Pediatric Neuropathology cases. (Professionalism, System-based practice)

### **Suggested textbooks and reading materials**

Manual of Basic Neuropathology. 6 edition. Gray, De Girolami, Poirier.

### **C. Elective Rotations**

#### **1. Developmental Neuropsychology (autism) elective rotation**

##### **Description**

The goals of the Child Development and Autism clinic rotation are to learn normal and abnormal neurological development and to recognize and manage children with a wide range of developmental disorders and syndromes

##### **Goals and objectives:**

1. Learn to assess the needs of children with learning difficulties, behavioral and emotional problems, developmental delay, speech and language disorders, motor handicaps, learning disabilities, and attentional disorders as well as pervasive developmental disorders, including autistic spectrum disorders. (Patient Care)
2. Learn about Neuropsychological tests: tests of intelligence, memory, attention, visual-perceptual processing, emotional functioning, and adaptive behavior. (Medical Knowledge)
3. Learn about Principles of psychopharmacology. (Medical Knowledge)
4. Learn about the components of a neurodevelopmental evaluation. (Practice-based Learning)

5. Learn about the Impact of a developmental disability on the child and the family. (Practice-based Learning)
6. Learn about Speech and language disorders, evaluation tools, and therapeutic approaches (e.g., speech therapy, signing, picture exchange communication system, computer-assisted communication). (Interpersonal and communication skills)
7. Learn about Educational evaluations, recognizing learning disabilities, and planning strategies for intervention. (Professionalism)
8. Learn about Educational and Community Resources (state agencies, foundations, and specialized centers). (System-based practice)
9. Laws that govern child and parental rights for special education/developmental services. (System-based practice)

### **Suggested textbooks and reading materials**

Pediatric Neurology Principles and Practice. 5 edition. Swaiman, Ashwal.

## **2. Academic underachievement elective rotation**

### **Description**

The overarching goals of the academic underachievement rotation is to foster critical thought and provide each resident with a core of knowledge, skills, and experience that will enable her/him to offer children with academic difficulties and their families excellence in care. Additionally, we are committed to enhancing each resident's skills as a teacher, and providing each resident with the opportunity to conduct supervised bedside or bench research. The rotation will also improve preparation for the child neurology residents to sit successfully for examination by the American Board of Psychiatry and Neurology for Certification in Psychiatry and Neurology (with Special Qualification in Child Neurology)

### **Goals and objectives:**

1. Towards achieving the *goals* of fostering critical thought and provide each resident with a core of knowledge, skills, and experience that will enable her/him to offer children with academic underachievement and their families excellence in care. (Patient Care)

## **3. Neuroradiology elective rotation**

### **Description**

Substantial competence in interpreting neuro-radiological studies is essential to neurological diagnosis. Thus, is important for the child neurology resident to have a formal neuroradiology rotation to learn the basic s of how to read neuroradiology studies.

### **Goals and objectives:**

1. Learn the basic concepts of computed tomography (CT) scanning. (Patient Care)

2. Learn the concepts of magnetic resonance (MR) scanning. Review the various imaging sequences that can be obtained and the advantages of each of the sequences used. (Patient Care)
3. Recognize common traumatic and pathologic conditions that can be detected by spinal CT and MRI. (Patient Care)
4. Describe the precautions to be taken when performing radiologic examinations. (Medical Knowledge)
5. Identify the normal anatomical structures of the intracranial and intraspinal compartments on CT and MRI studies. (Medical Knowledge)
6. Recognize common traumatic injuries that can be detected by head CT including: intraventricular, skull fractures, intracranial hematomas, cerebral contusions, epidural, acute subdural, chronic subdural, intraparenchymal (Medical Knowledge)
7. Recognize common pathologic conditions that can be detected by head CT, including: ischemic/arterial infarction, venous infarction, hydrocephalus, cysts, tumors, cerebral edema, congenital abnormalities, disorders that cause cerebral calcifications, including congenital infections, tuberous sclerosis, tumors and vascular malformations, intracranial hemorrhages. (Medical Knowledge)
8. Recognize common pathologic conditions that can be detected by head MR, including: infections, congenital abnormalities, ischemic/arterial infarction, intracranial hemorrhages, venous infarction, hydrocephalus, cysts, tumors, cerebral edema, and vascular occlusions. (Medical Knowledge Practice-based Learning)
9. Communicate promptly with patients and caregivers about findings on physical exam and testing (Interpersonal and communication skills)
10. Review the potential complications that can occur with intravenous contrast agents and discuss their management. (Professionalism)
11. To be able to use own practice to mold future practice behaviors. (System-based practice)

### **Suggested textbooks and reading materials**

Diagnostic Neuroradiology. A text/Atlas. 1 edition. Osborn.

## **4. Neurosurgery elective rotation**

### **Description**

To learn the most important aspects of the differential diagnosis of patients with acute neurosurgical conditions.

### **Goals and objectives:**

1. Learn how to perform a complete neurological examination including a detailed mental status examination. (Patient Care)
2. Expose the resident to the full spectrum of neurosurgical disorders seen in children (Medical Knowledge)
3. Learn to identify acute neurosurgical emergencies. (Patient Care)

4. Train the resident to think about problems with consideration of lesion location paramount. The emphasis is on learning clinical neuroanatomy and learning to make functional\structural correlations by history, examination, neuroimaging, clinical neurophysiology, and neuropathology. (Medical Knowledge)
5. Learn how to synthesize clinical data and write up a case using the history and examination to develop a differential diagnosis and diagnostic and treatment plan. (Medical Knowledge, Interpersonal and communication skills, Practice based Learning, Professionalism, and System-based practice)
6. Learn to initiate first line manage and stabilization of acute neurological emergencies (Practice-based Learning)
7. Learn how to rapidly obtain a comprehensive neurological history and how to perform a complete neurological examination including a detailed mental status examination in the acute setting of a subject with a suspected neurosurgical emergency. (Patient Care, Interpersonal Skills and Communication, Professionalism)

### **Suggested textbooks and reading materials**

Textbook of Neurological Surgery. Principles and Practice. Batjer, Loftus.

## **Abbreviations**

1. PC: Patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
2. MK: Medical Knowledge about established and evolving medical, and cognate (epidemiology, social, behavioral) sciences and the application of this knowledge to patient care.
3. PBLI: Practice based learning and improvement that involves investigation and evaluation of the house-officer's patient care, appraisal and assimilation of scientific evidence and improvements in patient care.
4. ICS: Interpersonal and Communication Skills that result in effective information exchange between house officers, their patients' families and other related health care professionals.
5. P: Professionalism manifested through a commitment to carrying out professional responsibilities, adherence to clinical principles and sensitivity to a diverse population.
6. SBP: System-based practice manifested by actions that demonstrates awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide optimal care.