

DM Neurology program

Department of Neurology

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1. Aims and objectives of the training program

Program goals

The mission of the neurology residency-training program is to promote the graduation and success of professional, experienced, and knowledgeable neurologists who will excel in the practice of Neurology. Residents will acquire a thorough understanding of neurological conditions and will learn to provide excellent care, including the appropriate work up and treatment of patients with neurological conditions.

These goals are achieved through a mixture of high quality clinical exposure to the full spectrum of neurological conditions in a wide variety of patient populations balanced with a broad range of sessions provided by the faculty both from the Department of Neurology and also from related disciplines. In addition, the residents learn from interactions with other residents and medical students and are expected to take an active role in teaching. Evaluations of the residents will be based on the six competencies:

1. patient care,
2. medical knowledge,
3. practice-based learning and improvement,
4. interpersonal and communication skills,
5. professionalism, and
6. systems-based practice.

2. Competence expected at the end of the programme

At the end of this training, the resident shall be able to;

1. Demonstrate sufficient understanding of knowledge in the subject of Neurology
2. Develop the ability to take discerning history from the patient, perform relevant clinical examination, decide the appropriate investigations and derive the management plan.
3. Should be able to perform and interpret relevant investigations independently, and should have a firm grasp on many others.
4. Well versed and confident in performing the common procedures independently and other procedures under limited supervision at the end of three years.
5. Develop into an effective communicator to the patients, their family, colleagues and students.
6. Develop essential skills in conducting medical research, and to get them presented in scientific forums and published in peer-reviewed journals.

3. Theoretical/practical/laboratory experience to be imparted during the programme

The resident training programme should be aimed to achieve the following skills in different aspects of patient care,

Theoretical skills: knowledge based on texts/journals/ departmental academic activities.

Clinical skills: Include the ability to take discerning history, perform relevant clinical examination, decide the appropriate investigations and derive the management plan.

Technical skills: The candidate should be able to perform and interpret relevant neurological investigations independently, and should have a firm grasp on many others.

Components of the curriculum

To achieve and maintain high levels of standards in the training of these prospective Neurologists, the following factors have been identified as the key components of the programme:

1. Structured programme curriculum
2. Evaluation
 - 1) Comprehensive documentation of academic activities of residents
 - 2) Credit-based evaluation of residents
 - 3) Periodic review and appraisal
3. Resident's feedback

Key component 1: Structured programme curriculum

The aim of the programme curriculum is to provide a basic framework for the course of DM Neurology. The candidate is expected to learn to deliver “state of the art” clinical care in a scientific, cost effective, ethical and compassionate manner to an individual and patient, and also develop an attitude of committed learning, teaching, and research for the welfare of the society.

To achieve these objectives, 3-years' residency programme in accredited centers is currently employed. The training must include both theoretical and practical aspects of core knowledge and skills, and must be imparted in a manner that is conducive to learning. It should be supervised and objectively evaluated. The curriculum is to be periodically revised and updated at least 5 yearly.

In this document, the framework of the programme curriculum will be addressed under the following components:

- A. Subjects of ‘core knowledge’ (Syllabus)
- B. Academic schedule
- C. Minimum required skills
- D. Minimum requirements for research and other academic activities

- E. Frame of clinical postings during the tenure
- F. Texts and journals considered important in curriculum
- G. Methods of examination during and at the completion of the tenure

A. Subjects of core knowledge(Syllabus):

A vast accumulation of medical knowledge is required in order to provide optimal patient care, and acquisition and maintenance of that knowledge requires a vigorous and ongoing review of the medical literature.

Objective of the training is to

Explain the pathophysiology of major neurologic disorders and demonstrate familiarity with the scientific basis (including anatomy, neurophysiology, neurochemistry/pharmacology, neuroimmunology, and genetics) of neurologic diseases.

Demonstrate knowledge of patient evaluation and treatment including: . Nature of patients' history and physical findings and anatomical localization of neurological dysfunction. . Likely diagnoses and differential diagnoses based on localization.

Planning for evaluation and management.

Potential risks and benefits of available therapies, including both medical and surgical procedures.

Demonstrate knowledge of the major disorders, including considerations relating to age, gender, race, and ethnicity, based on the literature and standards of practice, including:

- The epidemiology of the disorder.
- The etiology of the disorder, including medical, genetic, and sociocultural factors.
- The phenomenology of the disorder.
- The experience, meaning, and explanation of the illness for the patient and family members, including the influence of cultural factors and culture-bound syndromes.
- Effective treatment strategies, course, and prognosis.

Syllabus

Part I to be completed by 18 months

Basic Sciences

Neuroanatomy-

Embryonic development and Structure of CNS,PNS,coverings of the nervous system,blood brain barrier.

Functions,Connections,applied anatomy including CT and MR anatomy,blood supply and their perturbations in health and disease.

Neurophysiology, Neurochemistry and genetics

1. Structure and Function of Neural Membranes, including cell membrane structure and function, membrane transport, various types of ion channels, electrical excitability of cell membrane, lipid biochemistry, structure and function of myelin, biochemistry of myelin. Applied aspects like pathogenesis of various diseases involving myelin, various channelopathies etc.
2. Synaptic Transmission, including structure and function of synapse, various types of receptors and signal transduction, G-Proteins and cyclic nucleotides, classes of neurotransmitters , individual neurotransmitters like acetyl choline, catecholamines, serotonin, histamine, opioids, neuropeptides, excitatory amino acids, GABA and glycine, purines, phosphoinositides and eicosanoids, protein phosphorylation and regulation of neuronal function. Applied aspects like neurochemistry of drug abuse, neurotransmitter disorders of basal ganglia, neurochemistry of degenerative diseases like Alzheimer's disease and Parkinson's disease, neurochemistry of epilepsy and anti-epileptic drugs. Biochemistry of vision, olfaction and taste sensations.
3. Muscle Fibre structure, various structural and functional proteins in the muscle fibres. Applied aspects like the genetics and pathogenesis of muscular dystrophies.
4. Axonal transport, neuronal cytoskeleton, development of nervous system, neural plasticity, biochemistry of aging, circulation and energy metabolism in the brain, neuronal hypoxia and ischemia, blood-brain barrier.

5. Disorders of carbohydrate, fatty acid and amino acid metabolism, mitochondrial disorders, urea cycle and its disorders, organic acid disorders, vitamin and other nutritional deficiencies, genetic disorders of lipid, glycoprotein and mucopolysaccharide metabolism, metabolic encephalopathies, biochemistry of psychiatric disorders, biochemistry of learning and memory, relation between endocrine system and nervous system.
6. Molecular basis of heredity, structure and function of DNA RNA, polypeptides and proteins, gene structure and organization, processing of RNA, imprinting and X-inactivation, cell cycle, chromosomal basis of heredity, organization of human genome, mitochondrial genome, genetic polymorphism, the human genome project, technology of cytogenetics and molecular genetics, methods of mutation detection / detecting specific sequence changes, DNA methylation analysis, abnormalities of chromosome number and structure, specific types of chromosome rearrangements, cytogenetic nomenclature, mutation and genetic disorders, types of mutations, effects of mutation on gene function, patterns of inheritance, genetic counselling, genetics of common neurological disorders.

Microbiology and Pathology

infectious agents responsible for nervous system diseases, pathogenesis, consequences and applied aspects including diagnostic tools, their applications and limitations. Pathology of various central and peripheral nervous system disorders-like demyelination, vasculitis, infections, their recognition on gross specimens, basis of tissue preparation, stains, Interpretation of brain, nerve and muscle biopsy specimens, including special studies like immunohistochemistry and EM.

Neuropharmacology-

- 1.1. Basic pharmacology of drugs used in various neurological disorders- epilepsy, parkinsonism, vascular diseases, myasthenia, migraine dementia, drugs used in critical care with special emphasis on pathophysiology of disease, mechanism of

action, interactions, adverse effects, features of poisoning/overdose. Newer drug delivery systems and recent advances.

Others

1. Fundamentals of Neuropsychology
2. Neuro-Ophthalmology: Ocular Motor System , Afferent Visual System
3. Neuro-Otology
4. Neurourology
5. Neuroepidemiology
6. Clinical Neurogenetics Neuroimmunology , Neuro virology , Neuroendocrinology

Part II

(To be acquired by 36 months)

Approach to Common Neurological Problems

Diagnosis of Neurological Disease-bed-side clinical evaluation:

Model history taking and comprehensive neurological examination- Focus on clinical demonstrations with ideal techniques and bed-side manners. General physical and systemic examination with focussed methodology to evaluate each part of the neuraxis so as to present his evaluation as Anatomical, Patho-physiological and Clinical diagnosis.

Syndromic approach

for diagnosis of neurological diseases.

Familiar with Approach to common and uncommon clinical problems like Episodic Impairment of Consciousness , Falls and Drop Attacks , Delirium, Stupor and Coma , Intellectual and Memory Impairments , Global Developmental Delay and Developmental Regression , Behavior and Personality Disturbances, Depression and Psychosis in Neurological Practice , Intentional Motor Disorders and the Apraxias, The Agnosias , Language and Speech Disorder-Aphasia, Dysarthria and Apraxia of Speech , Neurogenic Dysphagia , Vision Loss, Abnormalities of the Optic Nerve and Retina , Eye Movement Disorders: Diplopia, Nystagmus, and Other Ocular Oscillations , Pupillary and Eyelid Abnormalities , Dizziness and Vertigo , Hearing Loss and Tinnitus , Disturbances of Taste and Smell , Cranial and Facial Pain , Brainstem Syndromes, Ataxic Disorders, Movement Disorders: Diagnosis and

Assessment ,Gait Disorders Hemiplegia and Monoplegia ,Paraplegia and Spinal Cord Syndromes ,Proximal, Distal, and Generalized Weakness,Muscle Pain and Cramps ,The Floppy Infant, Sensory Abnormalities of the Limbs, Trunk, and Face ,Neurological Causes of Bladder, Bowel, and Sexual Dysfunction ,Arm and Neck Pain ,Lower Back and Lower Limb Pain

Neurological Investigations and Related Clinical Neurosciences

Laboratory Investigations in Diagnosis and Management of Neurological Disease
Clinical Neurophysiology-their performance and interpretation
Electroencephalography and Evoked Potentials ,Clinical Electroneuro myography
Neuroimaging-Structural Neuroimaging-Computed Tomographic and Magnetic Resonance ,Vascular Imaging,Neuroangiographic Anatomy and Common Cerebrovascular Diseases
Ultrasound Imaging of the Cerebral Vasculature Functional Neuroimaging

Management of Neurological Disease and recent advances

Principles of Neuropharmacology and Therapeutics ,Principles of Pain Management, Principles of Neuro intensive Care , Principles of Neurosurgery,Principles of Endovascular Surgery,Principles and Practices of Neurological Rehabilitation

Neurological Diseases,clinical features ,evaluation and management of

1. Neurological Complications of Systemic Disease in adults and children
2. Trauma of the Nervous System
3. Vascular Diseases of the Nervous System-ischemic cerebrovascular disease, Intracerebral Hemorrhage, Intracranial Aneurysms and Subarachnoid Hemorrhage, Arteriovenous Malformations, Stroke in Children, . Spinal Cord Vascular Disease

- and Central Nervous System Vasculitis and other rare disorders-
pathophysiology, features and management.
4. Cancer and the Nervous System
 5. Epidemiology of Primary Brain Tumors
 6. . Clinical Features and Complications , Neuroimaging , Management of Primary Nervous System Tumors in Adults and Infants and Children
 - i. Nervous System Metastases and Paraneoplastic Disorders of the Nervous System
 - ii. Infections of the Nervous System
 7. Bacterial Infections , Viral Infections , Fungal Infections, Parasitic Infections, Neurological Manifestations of Human Immunodeficiency Virus Infection in Adults and children, Prion Diseases
 8. Multiple Sclerosis and Other Inflammatory Demyelinating Diseases of the Central Nervous System
 9. Hypoxic/Anoxic and Ischemic Encephalopathies
 10. Toxic and Metabolic Encephalopathies
 11. Deficiency Diseases of the Nervous System
 12. Effects of Toxins and Physical Agents on the Nervous System
 13. Brain Edema and Disorders of Cerebrospinal Fluid Circulation
 14. Developmental Disorders of the Nervous System
 15. Developmental Disabilities
 16. Inborn Errors of Metabolism of the Nervous System , Mitochondrial Disorders and Channelopathics: Episodic and Electrical Disorders of the Nervous System
 17. Neurocutaneous Syndromes
 18. The Dementias
 19. The Epilepsies
 20. Sleep and Its Disorders
 21. Headache and Other Craniofacial Pain
 22. Cranial Neuropathies
 23. Movement Disorders
 24. Disorders of the Cerebellum, Including the Degenerative Ataxias

- 25. Disorders of Bones, Joints, Ligaments, and Meninges
- 26. Disorders of Upper and Lower Motor Neurons
- 27. Disorders of Nerve Roots and Plexuses
- 28. Disorders of Peripheral Nerves
- 29. Disorders of the Autonomic Nervous System
- 30. Disorders of Neuromuscular Transmission
 - i. Disorders of Skeletal Muscle
- 31. Neurological Problems of the Newborn
- 32. Neurological Problems of Pregnancy

B. Academic schedule

There would be one seminar (Monday), Journal clubs on alternate Tuesdays, EEG / EMG discussions (Alternate Tuesday), Bedside case discussions (Wednesdays and Fridays), Practice parameter discussion (Thursdays) and audit / mortality discussions. On Saturdays, there will be a neuroradiology conference and a neuropathology conference.

C. Minimum skills required

1. Patient Care

Providing high quality patient care remains the ultimate goal of the practice of neurology. The inpatient and outpatient service responsibilities involve patient care under the supervision of the neurology faculty. In order to assess patient care skills from different points of view, after each clinical rotation, all residents receive evaluations from faculty and others.

Practice-based learning and improvement

The competent practice of neurology requires a continuous effort to improve patient care skills and knowledge of the medical literature. Residents in our program are expected to learn from each patient they see, to review the medical literature, both printed and from Internet resources, when seeing new or unidentified conditions. We

expect improvement in quality of patient care and communication and in fund of knowledge throughout the training program.

Success at becoming informed about patients' conditions is evaluated monthly based on daily presentations.

Objectives

Be able to refine and standardize the neurologic examination to fit specific clinical settings. . Demonstrate the ability to reference and utilize electronic systems to access medical, scientific, and patient information. . Recognize limitations in one's own knowledge base and clinical skills, and understand and address the need for lifelong learning. . 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. . Evaluate caseload and practice experience in a systematic manner.

2. Interpersonal and Communication Skills

Interpersonal skills with patients as well as with colleagues are critical to the practice of clinical neurology. History taking skills initially learned in medical school are honed during residency under the supervision of the faculty. The faculty observes interaction with patients during inpatient and outpatient assignments, and residents receive informal feedback on these skills from day to day. Interaction with patients as well as colleagues and coworkers is assessed formally via the monthly evaluation process. And patient reports, both positive and negative, may be discussed with the residents when they are received as well as during annual evaluations with the residency director. The oral evaluations also provide an opportunity for observation and evaluation of communication skills.

The residents are required to make presentations during teaching rounds, while teaching medical students, in daily conferences, and during grand rounds. They receive .on the fly. Feedback from faculty as well as formal evaluations at the end of rotations. These assignments are intended to improve communication skills.

Objectives

Be able to present the history and physical exam findings of a case in an orderly and logical fashion. . Demonstrate the ability to obtain, interpret, and evaluate consultations from other medical specialties and provide consultants with a diagnostic and management plan. . Provide patients and their family members with explanations of neurologic disorders and treatment geared to their educational level, while respecting the patient's cultural, ethnic, religious, and economic backgrounds. . Convey information to patients in a clear and meaningful fashion and partner with patients to develop an agreed upon healthcare management plan. . Work collaboratively with the multidisciplinary team involved in the inpatient and outpatient care of neurology patients. . Develop and maintain a therapeutic alliance with patients by instilling feelings of trust, honesty, openness, rapport, and comfort in the relationship with the physician. . Effectively assist neurology faculty and senior residents in education of medical students assigned to neurology services.

Efficiently supervise medical house staff, medical students, and junior neurology residents rotating on the neurology services. Provide leadership, direction, and instruction to junior members of the team in a way that fosters their skills as physicians. . Demonstrate effective communication within the team with regard to patients' current or change in neurologic status, anticipated problems, therapeutic regimen, and diagnostic tests to be reviewed. . Listen to and understand patients and attend to nonverbal communication. Educate patients and professionals about medical, psychosocial, and behavioral issues. Partner with patients to develop an agreed upon healthcare management plan. . Recognize one's own feelings and behaviors in dealing with difficult situations so that they do not interfere with appropriate treatment.

Practice Based Learning and Improvement

Evaluate the clinical literature applying knowledge of epidemiology, biostatistics, and research study design. . Facilitate the learning of medical students. . Demonstrate the ability to: Review and critically assess scientific literature to determine how

quality of care can be improved in relation to one's own practice (e.g., reliable and valid assessment techniques, treatment)

3. Professionalism

We expect residents in our program to behave in a professional manner. They are given the primary responsibility of caring for their patients in the resident continuity clinic and are expected to respond to their patients' needs in a timely manner. Professionalism is evaluated based on attention to patients' needs and day-to-day interactions with patients and their family members, with colleagues, and with other hospital personnel through the monthly and semi-annual evaluation processes.

Objectives

.Interact responsibly with patients, family members, and coworkers, taking into consideration age, disability, culture, and gender issues. . Demonstrate appropriate use of the electronic medical record with regard to patient respect and confidentiality. . Review one's own professional conduct and remediate when appropriate. . 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. . Demonstrate understanding of and sensitivity to end of life care and issues regarding provision of care. . Participate in the review of the professional conduct of one's colleagues. Acknowledge and remediate medical errors, should they occur. . Demonstrate responsibility for one's patients' care, including:

Responding to communication from patients and health professionals in a timely manner.

Establishing and communicating backup arrangements, including how to seek emergent and urgent care when necessary.

Using medical records for appropriate documentation of the course of illness and its treatment.

Providing coverage if unavailable, e.g., out of town, on vacation.

Providing for continuity of care, including appropriate consultation, transfer, or referral if necessary.

Describe the differences among withdrawal of treatment, termination of treatment, and non-initiation of treatment; assist patients and their family members in choosing these options in the appropriate clinical setting. . Participate in the review of the professional conduct of one's colleagues. . Acknowledge and remediate medical errors, should they occur.

4. Systems-based practice

Quality, cost-effective care for patients is discussed during daily teaching rounds. Residents are expected to provide high quality care within the limitations of the health care system.

Objectives

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; be able to: Use practice guidelines. Access community, national, and allied health professional resources, which may enhance the quality of life of patients with chronic neurologic and psychiatric illnesses. Demonstrate the ability to lead and delegate authority to healthcare teams needed to provide comprehensive care for patients with neurologic and psychiatric diseases. Demonstrate skills for the practice of ambulatory medicine, including time management, clinic scheduling, and efficient communication with referring physicians. Utilize appropriate consultation and referral mechanisms for the optimal clinical management of patients with complicated medical illnesses.

Demonstrate awareness of the importance of adequate cross coverage; use accurate medical data in the communication with and management of patients. Demonstrate knowledge of and interact with managed health systems.

5.EEG/EPILEPSY ROTATION

The rotation includes not just interpretation of EEG but also a thorough exposure to the subspecialty.

Goals for the rotation: While on the EEG/Epilepsy rotation, residents will learn the basic principles behind interpretation of electroencephalograms as well as the outpatient and inpatient evaluation and treatment of epilepsy and seizure disorders. Residents on the EEG/Epilepsy rotation will learn to interpret EEGs from patients with a wide variety of neurological conditions, to maintain accurate records, and to interact in a professional manner with medical and surgical services who order the testing as well as with the technologists assisting with the studies. Residents will also follow in patients admitted to the Epilepsy Monitoring Unit (EMU) during their hospital stays and interpret the findings of their studies.

Expectations of the Neurology Residents on the EEG rotation: Residents on the EEG/Epilepsy rotation are expected to read EEGs and discuss findings with the attending electroencephalographer on a daily basis. Residents on the EEG/Epilepsy rotation are also expected to join the Epilepsy Monitoring Unit clinical work meetings. This focuses on the electrophysiologic and clinical diagnosis of epilepsy. The resident will participate in the Epilepsy Clinic during the EEG/Epilepsy rotation. And the resident on the EEG/Epilepsy rotation will be the primary resident caring for patients in the EMU. The resident is required to undergo and pass an observed patient workup on a patient referred for workup of seizures or epilepsy during the EEG/Epilepsy rotation. The resident is responsible for scheduling this evaluation at a mutually convenient time with the attending neurologist.

6.EMG / MOVEMENT DISORDER ROTATION

Goals for the rotation: While on the EMG rotation, residents will learn to evaluate outpatients and inpatients with a wide variety of common and uncommon neuromuscular conditions using electromyography, to maintain accurate records, and to interact in a professional manner with medical and surgical services who order the testing as well as with the technologists assisting with the studies.

Expectations of the Neurology Residents on the EMG rotation: The resident will learn the pertinent peripheral nervous system anatomy and the physiologic principles behind electrodiagnostic testing.

The resident will see patients, will review the history and do a focused examination on each patient before presenting a plan to the attending neurologist for the electrodiagnostic study. The resident will then assist in nerve conduction studies and needle electrode examination of the patients, learn the basic techniques of both of these aspects of electromyography, and become proficient in performing these tests independently. Residents will be expected to interpret the data gathered and begin writing concise reports.

The resident is required to undergo and pass an observed patient workup on a patient referred for workup of a neuromuscular condition during the assigned EMG rotation. The resident is responsible for scheduling this evaluation at a mutually convenient time with the attending neurologist.

Along with learning to perform and interpret ENMG, residents should also learn to perform and interpret other neurophysiological studies like Evoked potentials, Transcranial magnetic stimulation and also learn the basics of neurosonology.

During the EMG rotation the residents will also attend to the Movement Disorder program.

7. NEURODIAGNOSTIC ROTATION

Goals for the rotation: Residents will learn to evaluate MRI's, CT scans, CT myelograms, Angiograms and other radiographs used to examine outpatients and inpatients with a wide variety of common and uncommon neurological conditions, will learn the appropriate uses and limitations of such testing, and will interact in a professional manner with the radiologists as well as with the technologists assisting with the studies. Residents will learn the basics of interpreting carotid Doppler studies.

The resident will observe cases along with the neuroradiologist and also review teaching case files and become proficient in recognizing basic neuropathological abnormalities. The resident will learn the basic techniques of evaluating scans by reading them daily with supervision. Assignment to reading carotid ultrasound is based on the available schedule provided by the vascular lab.

8.Neuropathology rotation

The candidate is expected to familiarize with the neuropathology techniques, staining procedures and its application in clinical diagnostics.

9.Neurosurgery rotation

Resident is expected to familiarize with the common neurosurgical syndromes and disorders, surgical management of tumours, stroke, epilepsy and movement disorder.

10.Psychiatry rotation

Resident is expected to familiarize with the borderland between neurology and psychiatry, classical psychiatric disorders, approach to mental state examination, and neuropsychopharmacology.

To assure that the resident achieve the theoretical, clinical and technical skills mentioned above, a minimum numbers of procedures are made mandatory as given below.

a. EEG independent reading and interpretation	200
b. EMG independent performance and interpretation	100
c. EP	25
d. Nerve biopsy	10
e. Muscle biopsy	10
f. Neuroradiology presentation	25

D. Minimum requirements for research and other academic activities

Academic activities

There would be one seminar (Monday), Journal clubs on alternate Tuesdays, EEG / EMG discussions (Alternate Tuesday), Bedside case discussions (Wednesdays and Fridays), Practice parameter/Views and Reviews discussion (Thursdays) and audit / mortality discussions. On Saturdays, there will be a neuroradiology conference and a neuropathology conference.

RESEARCH CURRICULUM

Research is required of all residents in neurology. This requirement has been implemented with the vision of training neurologists who understand the processes and pitfalls of medical research and are therefore better able to evaluate critically the published research that guides clinical decision-making.

The research curriculum is designed to advance residents' knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care. The research curriculum includes introductory lectures in the summertime, monthly journal club conferences, a web-based human subjects training course, and at least one research project to be completed by each resident.

All residents are expected to attend the biostatistics course during their first year of training and also attend to the special program on biomedical engineering held at the BMT wing

All residents would have to carry out a thesis work during their training program.

Thesis work

All SR3 are mandatorily required to present their thesis work (either in part or full) at the IAN or the NSI national meetings. SR2 are encouraged to participate in the IAN, NSI or other important meets. They should inform about this in April (for IAN) and in August (for NSI). All SRs are encouraged to submit papers to international conferences. They need to discuss their papers with the respective consultants and seek the approval of the HOD Neurology before submitting any papers

All SR1 should, in consultation with their thesis guides, discuss the statistical aspects of their study with Dr. P Sankara Sarma, at AMC, before finalizing their study. All SR1 need to present the preliminary outline of their work in the department by April 30th of each year.

All SR3 need to submit the final version of their dissertation (thesis) to the Academic office, through the HOD Neurology by 30 September each year.

Papers and Publications

All SRs are required to participate in publications (original articles, case reports or review articles). It is recommended that they have 4 publications by the time they complete the course. Residents should consider writing their seminar presentations as review papers and part of their thesis work as original papers.

E. Frame of clinical postings during the tenure

In-patients wards(male)	5 months
In-patients wards(female+ pediatric)	5 months
New OPD	7 months
Speciality clinics-	
Epilepsy	10 months
Movement disorder	5 months
Neuromuscular	5 months
Cognitive neurology	5 months
Stroke	5 months
Neurology ICU	5 months
Stroke ICU	2 months
EEG/Epilepsy section	3 months
ENMG/EP lab/TMS/Neurosonology	3 months

Neuroradiology	1 month
Neurosurgery	1½ months
Neuropathology	1 month
Psychiatry	1 month

F. Texts and journals considered important in curriculum

Residents are expected to read standard text books of Neurology (Bradley, Adams and Victor) and related subspecialties. In addition, they are to remain familiar with the latest advances in Medicine via national and international journals like Brain, Annals of Neurology, Archives of Neurology, Neurology, JNNP etc. List of text books to be referred as a part of syllabus is given at the end of title-Curriculum.

Interdisciplinary Approach

Cohesive interdepartmental interaction has been identified as a key component for optimal clinical, academic and research excellence of the students. To facilitate this at personal and departmental levels, the residents should have

- Regular postings in biomedical technology and department of Neuroradiology and Neurosurgery,
- Short-term training in biostatistics & research methodology and neuro pathology, and
- Participation in Interdepartmental academic meetings involving departments of Neuro surgery and radiology-like Neuroradiology meetings on Saturdays, Epilepsy patient management conference and Stroke patient management conference.

G. Methods of examination during and at the completion of the tenure

Assessment and evaluation

From 2012, this Institute is introducing a continuous and comprehensive evaluation of the residents in terms of their performance. The residents will be assessed on

1. Their clinical skills of history taking, physical examination, ability to synthesize the clinical findings in to a tangible hypothesis, ability to plan out the investigations and carry them out effectively and in an economic manner.
2. The candidates capability to communicate the problems with the patients and their family, taking them in to confidence, providing all the requisite information, and being kind and empathetic to patients will be given due importance.
3. The candidates also should demonstrate their ability to work as a team interacting with faculty, colleagues, researchers, other staff and personnel in the department, wards and outpatient services will be given specific importance, as these are very important skills in practice.

The residents will have to get the evaluation forms completed by the supervising faculty in the wards, OPD, specialty clinics, EEG/EMG labs, external departments and other stations where they are posted on a monthly basis. These evaluation forms will have to be deposited with the Department Secretary, who will be compiling them and putting it for discussion every six months.

The resident's performance in the formal teaching programs also will be evaluated by the supervising consultant and forwarded to the department secretary for filing. These documents are very important and will be summed up in the final internal assessment.

The credit points for the various activities for the residents are as follows:

2. credit based evaluation of residents**Internal Evaluation Credits allowed for various educational / training programs**

	SR1	SR2	SR3	Total
Seminar	2	2	2	6
Journal Club	2	2	2	6
Case discussion	9	8	18	35
Outpatient services	8	0	8	16
In patient services	15	0	15	30
Specialty clinics & services	7		8	15
EEG		15		15
EMG		15		15
Neuroradiology		5	10	15
Neuropathology		2	2	4
Clinical examination	5	5	5	15
Theory examination	5	3	2	10
Publications				0
BMT	3			3
biostat	5			5
Papers & conferences		2	3	5
Outstanding performance		2	3	5
Total	61	61	78	200

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY

TRIVANDRUM, KERALA

EVALUATION FORM FOR
CLINICAL PRESENTATION/ CASE DISCUSSION

Name of the resident:

Name of the Faculty / Observer:

Date:

Sl. No.	Items of observation during Presentation	Poor 0	Below average 1	Average 2	Good 3	Very good 4
1	Completeness of history					
2	Accuracy of clinical signs					
3	Clarity of Presentation					
4	Assessment of problem and investigational plan					
5	Treatment plan					
6	Ability to defend diagnosis and plan					
7	Knowledge of the current and past literature					
	Grand Total (out of 10)					

EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Resident:

Name of the Faculty / Observer:

Date:

Sl. No.	Items of observation during Presentation	Poor 0	Below average 1	Average 2	Good 3	Very good 4
1	Extent of understanding of scope & objectives of the paper of the candidate					
2	To critically evaluate methods, analysis and interpretations of study					
3	Whether cross references have been consulted					
4	Whether other relevant publications consulted					
5	Ability to respond to questions on the paper / subject					
6	Ability to defend the paper					
7	Clarity of Presentation					
8	Audio – Visual aids used					
9	Ability to propose new research ideas based on study discussed					
	Total Score (out of 10)					

EVALUATION OF SEMINAR PRESENTATIONS

Name of the resident:

Name of the Faculty / Observer:

Date:

Sl. No.	Items of observation during Presentation	Poor 0	Below average 1	Average 2	Good 3	Very good 4
1	Whether all relevant publications consulted					
2	Understanding of the subject					
3	Completeness of the preparation					
4	Clarity of presentation					
5	Current concepts coverage					
6	Ability to answer the questions					
7	Time scheduling					
8	Appropriate use of Audio – Visual aids					
9	Overall performance					
10	Any other observation					
	Total Score (out of ten)					

EVALUATION OF CLINICAL WORK IN WARD / OPD/SPECIALTY

Name of the resident:

Name of the Faculty / Observer:

Assessment month and year

(This evaluation has to be completed on the last working day of each month)

Date:

Sl. No.	Items of observation during presentation	Poor 0	Below average 1	Average 2	Good 3	Very good 4
1	Regularity of attendance and punctuality					
2	Presentations of cases during rounds					
3	Maintenance of case records					
4	Investigations work up					
5	Interaction with colleagues and supporting staff					
6	Teaching and training junior colleagues					
7	Bedside Manners					
8	Rapport with patients and family					
9	Counseling Patient's relatives for blood donation or postmortem and case follow up					
10	Overall quality of clinical work					
	Total Score (out of ten)					

3. Periodic review and appraisal and Personal Development plan

Mid-term appraisal and appraisal report card will be introduced. The primary aim of this periodic (6-monthly) appraisal is to help the resident to identify their academic deficits if any, and to help the residents to improve on those aspects. A copy of the periodic appraisal card signed by the programme-in-charge and the resident will be handed over to the resident, and a copy will be kept in the departmental copy of the clinical dossier. The department will also try to identify and facilitate the specific academic interest of the residents during these periodic appraisals. The residents will be encouraged to communicate their special interest to the head of the department and every possible step will be done to facilitate special training and research in those areas.

External (Final) evaluation

Evaluation	Max	Pass		Grade	Mark equivalent
Internal examination including thesis	200			A	81 - 100
External theory 1	100			B	61 - 80
External theory 2	100			C	41 - 60
Clinical examination	0			D	21 - 40
case 1	200			E	0 - 20
case 2	150				
case 3	150				
Viva	100				
Total	1000				

The final evaluation would be internal and external with 40% coming from internal exam and 60% coming from external examination. The break up of the marks for each are given in the table. The grade equivalents are given in table. A candidate should score minimum of 500 marks or more to secure a pass. The grade equivalents would be there should not be any G or more than one F in the grades.

Key component 3: Resident's feedback

Residents' feedback about the academic curriculum is an integral component of the programme. The feedback form will be given to the resident during the periodic appraisal. This will be kept as a document in the clinical dossier and all possible steps will be taken to improve the academic programme based on the suggestions, if they are found appropriate by the department. The confidentiality of the resident's feedback will be maintained by the head, and only the anonymous suggestions will be presented before the department.

4. Departmental Post-graduate Program Committee

This academic committee is set up to ensure smooth functioning of the resident training, and evaluation. The committee will have a chair, coordinator and a core group for program implementation, monitoring, improvisation, interdisciplinary collaboration in teaching/ research.

Chair: Professor & Head of the Department

Coordinator: Additional Professor/Professor

Core Committee:

Program implementation : Professor (1), Additional Professor (2)

Monitoring: Associate Professor (1), Assistant Professor (1)

Improvisation: Additional professor (1), Resident representative (1)

Interdisciplinary collaboration: Professor (1), Assistant Professor (1)

PROPOSED SCHEDULE OF ACTIVITIES INVOLVING SRs.*

Date	Time	Activity	Participants	Remarks/ Issues
2/1/12	– 3 pm	Meeting	SR1	General, housekeeping and academic
7/01/12	3 – 4 pm	Meeting	SR2 and SR3	General, housekeeping and academic
18/2/12	3 – 4 pm	Meeting	1 st year SRs	Allocation of thesis topics
17/3/12	11.30 – 12.30pm	Departmental Presentation of the proposed thesis.#	1 st year SRs- two candidates	Brief background, objectives/ hypothesis, and methods. Presentation for 12 min. and discussion for 18 min.
31/3/12	11.30 – 12.30pm	Departmental Presentation of the proposed thesis.#	1 st year SRs- two candidates	Brief background, objectives/ hypothesis, and methods. Presentation for 12 min. and discussion for 18 min.
7/4/12	11.30 – 12.30pm	Departmental Presentation of the proposed thesis.#	1 st year SRs- two candidates	Brief background, objectives/ hypothesis, and methods. Presentation for 12 min. and discussion for 18 min.
3 rd and 17 th June 2012	9 – 1.30 pm	Bed side exam	Final year SRs	

07/07/12	3 – 4 pm	Meeting	2 nd and 3 rd year SRs	Academic, papers, thesis status, housekeeping
21/7/12	3 – 4 pm	Meeting	1 st year	Housekeeping and appraisal on thesis
29/9/12	11.30 – 12.30 pm	Departmental Presentation of work intended for IAN.	2 nd and 3 rd year SRs	8 min presentation is the usual time at IAN
1/9/12 and 15/9/12	9 – 1.30 pm	Bed side exam	2 nd year SRs	
20/10/12	3 – 4 pm	Meeting	1 st and 3 rd years	Academic, thesis, papers and housekeeping

* Since there will be no reminders given, residents are advised to plan their time as per this schedule and not miss out on any activity without prior intimation. Any change in this schedule will be intimated in advance.

#1st year residents making their proposed thesis presentation should ensure to invite Dr. Sankara Sarma, AMC (Please give him an intimation in advance and a reminder) and any other consultant from any other department who will be serving as a co-guide on their thesis.