Goals and Objectives

Electrodiagnostic (EDX) Medicine Rotation

(Revised: 6/2013)

This program’s EDX medicine experience is spread over all 3 years and EMG is integrated into most rotations.

There are 3 specific one-month rotations and another 3 months with incorporated EDXincluding Sparrow SPB, Sparrow Inpatient, MGL Outpatient and Consults, P&O, and Podiatry.

Year in training: PG 2, 3 and 4

Level of supervision by attending physician: Direct supervision

Supervision of junior residents: Indirect supervision of junior residents.

Location of rotation: McLaren Penn campus, SPB, Sparrow Inpatient, MGL Inpatient.

Responsible Faculty: Drs Andary, Sylvain, Schlinger, Storm, Prokop, O’Connor, MSU PM&R Faculty, On-call faculty.

Goals of rotation: This is a primarily out-patient based experience (and occasional hospital EMGs) with a graduated approach from basic to advanced concepts in neuroanatomy, neurophysiology, and electrodiagnostic medicine with a correspondingly increased complexity of skill performance.

1. **Patient Care**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2** | * Perform a complete, pertinent, and efficient clinical evaluation of a patient (by history and directed physical examination) and develop differential diagnoses pertaining to electrodiagnostic evaluation. * Develop and implement a basic plan for nerve conduction studies. * Successfully complete a practical exam covering nerve conduction studies including wave form recognition and analysis, latency and amplitude determination and calculation of conduction velocities, with emphasis on the median, ulnar, sural, radial, tibial, and peroneal nerves. |
| **Year 3** | * Successfully complete a practical electrodiagnostic medicine skills-proficiency examination concerning pertinent EMG-related anatomy, needle placement, muscle recruitment, and proper equipment usage. * Adequately perform nerve conduction studies required for common focal/peripheral neuropathies (e.g., median, ulnar, radial, peroneal, tibial, sural nerves, H reflex, F wave) and recognize abnormal values and common sources of operator error. * Adequately perform needle electromyography and identify normal and abnormal findings and their significance * Analyze data from EMG and NCS to formulate an EDXdiagnosis * Develop comprehensive differential diagnoses based on history and exam to guide the EDX study * Demonstrate the following in regard to needle electromyography: patient preparation, choice of electrode, insertional and spontaneous activity analysis and motor unit analysis |
| **Year 4** | * Use electrodiagnostic data to modify the study as it is being performed * Prepare a complete electrodiagnostic report with appropriate recommendations * Recognize and reconcile results that are not consistent with with the history and physical exam * Quickly and efficiently prioritize the electrodiagnostic study based on presenting symptomatologyDemonstrate performance of advanced electrodiagnostic procedures and complete an appropriate and concise EDX report |

1. **Medical Knowledge**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2** | * **In regard to nerve conduction studies:** * Explain methods of measuring compound and sensory nerve action potentials * List and explain at least three types of late responses * Describe the rationale, indications, and general procedures for conducting repetitive stimulation studies. * Describe basic anatomy of peripheral nerves and skeletal muscle * Demonstrate basic familiarity and proficiency with electrodiagnostic evaluation of the following disease states/diagnoses (including history, pertinent physical examination, planning and executing a complete electrodiagnostic study and generating a succinct and complete report according to AANEM standards):   + carpal tunnel syndrome   + radiculopathy   + plexopathy   + peripheral neuropathy   + myopathic disease   + nerve entrapment/compression   + **Neuromuscular diseases**: Amyotrophic Lateral Sclerosis, Myasthenia Gravis, Myasthenic Syndrome,   + **Inflammatory Diseases:** Polymyositis, Dermatomyositis, Inclusion Body Myositis, Acute Inflammatory Demyelinating Polyneuropathy (Guillain-Barré Syndrome) and cranial-facial disorders. |
| **Year 3 and 4** | * Demonstrate basic familiarity and proficiency with electrodiagnostic evaluation of the following disease states/diagnoses (including history, pertinent physical examination, planning and executing a complete electrodiagnostic study and generating a succinct and complete report according to AANEM standards):   + carpal tunnel syndrome   + radiculopathy   + plexopathy   + peripheral neuropathy   + myopathic disease   + nerve entrapment/compression   + **Neuromuscular diseases**: Amyotrophic Lateral Sclerosis, Myasthenia Gravis, Myasthenic Syndrome,   + **Inflammatory Diseases:** Polymyositis, Dermatomyositis, Inclusion Body Myositis, Acute Inflammatory Demyelinating Polyneuropathy (Guillain-Barré Syndrome) and cranial-facial disorders. * Identify EMG needle insertion sites in commonly studied muscles * Explain the basic concepts of electrodiagnostic instrumentation * **Explain the basic concepts of clinical electrophysiology pertaining to electrodiagnostic medicine including (but not limited to):** * Action potential initiation and propagation * Generation of wave form morphology * Characteristics of nerve, muscle, and end-plate potentials * Motor unit analysis * Characteristics and analysis of abnormal spontaneous potentials * Classification of peripheral nerve injuries. * Given data obtained in a real or simulated electrodiagnostic evaluation, demonstrate the ability to localize peripheral nerve lesions and to estimate a prognosis. |
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1. **Practice-Based Learning and Improvement**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2 and 3** | * Review current literature regarding medical information for diagnoses seen in EDX clinic |
| **Year 3 and 4** | * Effectively solicit and utilize constructive feedback from all team members, including attending physicians, patients and their families * Integrate newly acquired knowledge into the assessment of rehabilitation treatment and outcomes * Properly alter the EDX interpretation and treatment recommendations based on response to treatment * Self-analyze practice experiences and perform practice-based improvement activities using a systematic methodology |

1. **Interpersonal and Communication Skills**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2** | * Obtain verbal informed consent for the NCS portion of the EDX examination * Alter examination based on patient discomfort and perceived need. |
| **Year 3 and 4** | * Obtain verbal informed consent for the EMG portion of the EDX examination. * Demonstrate effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills * Demonstrate appropriate interactive and engaging communication skills in an effective information exchange with patients, patients families and professional colleagues * Demonstrate skill in communicating effectively with a patient at his or her socioeconomic level |
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1. **Professionalism**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2** | * Alter examination based on patient discomfort and perceived need. |
| **Year 3 and 4** | * Demonstrate the ability to teach basic EDX medicine techniques to colleagues, junior residents, visiting residents and medical students * Exemplify respect, dignity and compassion for patients and their families * Demonstrate initiative, integrity and respect for patient confidentiality * Demonstrate collegial and collaborative conduct with fellow residents, attending physicians, nursing staff and allied health staff * Demonstrate sensitivity and responsiveness to diversity as seen in cultural dynamics, gender, age, ethnicity, religion, disability or sexual orientation in both patients and co-workers * Develop professional relationships with referring physicians, therapists and ancillary health care providers to facilitate timely and effective medical and rehabilitation care |
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1. **System-Based Practice**

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| **Post Graduate Year** | **Competency Based Objectives** |
| **Year 2** | * Demonstrate the ability to make an effective EDX medicine referral * Recognize the indications to refer a patient for EDX medicine |
| **Year 3 and 4** | * Demonstrate the ability to integrate EDX medicine into a general PM&R practice * Advocate for quality patient care and help patients navigate system complexities * Demonstrate sensitivity and awareness of the variable cost of treatment options and develop treatment plans accordingly |
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**Specific Functions and Roles to Accomplish Rotation Goals**

* To accomplish the above mentioned inpatient objectives, the resident will provide EDX medicine serves for patients seen in McLaren Greater Lansing Hospital and Sparrow Hospital.
* The resident will participate in the didactic curriculum by teaching fellow residents on various topics, as assigned by their Attending Physician, Program Director or Chief Resident.
* The resident will participate in journal club, morbidity and mortality rounds, as well as root cause analysis, as assigned by their Attending Physician, Program Director or Chief Resident.
* The resident will develop and participate in quality improvement projects, as assigned by their Attending Physician, Program Director or Chief Resident.

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Resident Signature

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Program Director Signature