Novel Four-Year Longitudinal Electrodiagnostic Curriculum for Physical Medicine & Rehabilitation

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IDEA

To develop and implement a unified curriculum spanning four years in the Department of Physical Medicine and Rehabilitation of The Brody School of Medicine. Upon completion of this 4 year curriculum, learners will be competent to practice neuromuscular and electrodiagnostic medicine as independent practitioners. Learners will be prepared for the American Association of Electrodiagnostic and Neuromuscular Medicine Self-Assessment Examination (administered in late spring of the PGY3/PGY4 year) and the American Board of Electrodiagnostic Medicine Certification Examination (administered 2 years after the completion of residency training).

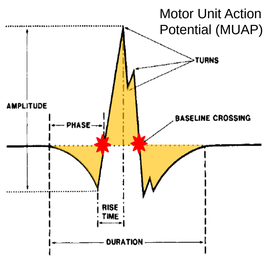
RATIONALE/NEED

Electrodiagnostic medicine is one of the most challenging fields in PM&R, and there was a lack of formal training in this area built into the PM&R residency. Prior to the initiation of the course, much of the didactic electrodiagnostic education was actually resident driven in large groups without concern for how the material might be too complicated for learners early in their training and too basic for learners further along. Much of the initial exposure to the anatomy for needle placement and performance of nerve conduction studies happened in the clinic setting with live patients which is less than ideal given that these procedures can be perceived as painful. Therefore, faculty created a bi-departmental curriculum that combined neuromuscular gross anatomy and EMG training to improve competency in this area and allow acquisition of crucial knowledge and skills prior to application in actual patient care settings.

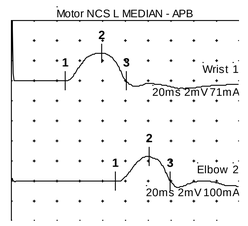
DESCRIPTION

This course consists of gross anatomy and EMG modules that are designed to match the experience level and knowledge base of two resident groups—PGY1/PGY2 and PGY3/PGY4. Both groups are given pre-reading assignments to prepare for specific modules. PGY1/PGY2 residents are divided into small didactic groups to promote active and engaged learning. The PGY1/PGY2 curriculum covers upper and lower limb peripheral nervous system anatomy and basic upper and lower limb nerve conduction and needle EMG studies in the normal subject. Prosected cadaveric specimens are used to demonstrate pertinent limb anatomy and to initiate the EMG needle placement in a low-risk environment. In addition to the knowledge gained during the clinical EMG rotation, the PGY3/PGY4 didactic curriculum covers history and physical examination in patients with peripheral nerve disorders, clinical approach to traumatic neuropathies, fundamentals of neurophysiology and instrumentation, approach to myopathies, recognition of common and uncommon electrodiagnostic waveforms, and common peripheral neuropathologies.

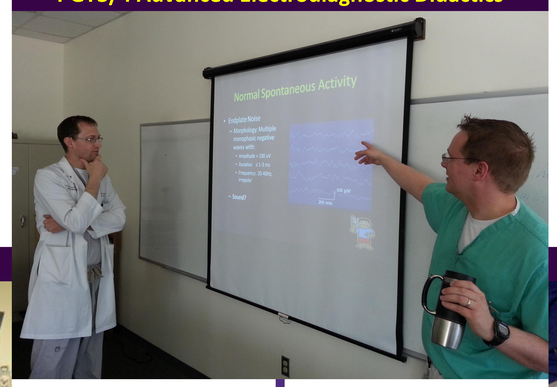
Needle Electromyography (EMG)



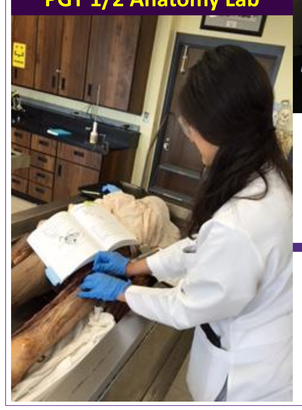
Nerve Conduction Studies (NCS)



PGY3/4 Advanced Electrodiagnostic Didactics



PGY 1/2 Anatomy Lab



PGY 1/2 NCS/EMG Lab

Residents become independent electrodiagnostic consultants at graduation

RESULTS/EVALUATION PLAN

A course-specific evaluation will be administered to gain learner feedback and make improvements for 2016 course.

IMPACT/LESSONS LEARNED

This longitudinal course should have the following effects on resident education:

•Allow residents to learn a complicated topic in training appropriate stages in a safe environment rather than as a “crash course” when they begin their electrodiagnostic rotation during the PGY3/PGY4 year.

- Help learners to apply the basic science of anatomy and nerve function to clinical practice.

- Increase resident comfort level when they arrive in the EMG clinic during the PGY3/PGY4 year.

- Improve patient care by allowing residents to draw on a deeper understanding of anatomy and the technical aspects of nerve conduction studies when they need it in clinical practice.

ACKNOWLEDGEMENTS

•Dr. William Doss for his assistance in teaching the EMG laboratory portion of the course as well as two advanced EMG didactic sessions
•Dr. Jason Curry, academic chief resident, for his assistance in scheduling teaching sessions and small groups
•Vidant Medical Center for allowing space for the didactics and extended resident protected time for sessions
•Donors who bequeathed their own bodies to medical education and research through the Anatomical Gift Program at BSOM.