

Table 1
Students interact with patients with different neurological disorders.

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| 1. Temporal lobe epilepsy |
| 2. Autoimmune epilepsy |
| 3. Stroke with aphasia |
| 4. Stroke s/p mechanical thrombectomy |
| 5. Primary lateral sclerosis (ALS variant) |
| 6. Myasthenia gravis |
| 7. Charcot Marie Tooth, |
| 8. Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIPD) |
| 9. Multiple sclerosis |
| 10. Multiple sclerosis |
| 11. Parkinson's disease |

Migraine headaches, post-concussion syndrome via traumatic brain injury

integrates basic neuroscience with clinical neurology, and highlighted specific learning objectives for each of the 6 competencies (Medical knowledge, Patient care, Interpersonal and Communication skills, Professionalism, Practice Based learning, and Systems Based Practice) to connect the normal neuroanatomy, neurophysiology, neuroembryology or biochemical functions with abnormal correlations.

Several new and old medical schools are now restructuring their curricula in line with the 6 core competencies. Despite this new development, there is a general variation in Neuroscience curriculum among medical schools in the United States.^{2,3} This is because some medical schools teach basic neuroanatomy, neuroembryo, neurohistology or neurophysiology in year 1 and abnormal correlations such as neuropathology, pathophysiology, and pharmacology in mind brain and behavior – a year 2 course.^{4–9} Other medical schools actually teach neuroscience topics in one combined preclinical course outside the neuroscience-designated coursework whereas, others still teach the basic sciences as independent disciplines without integration into a systems-based approach. Since neurologic diseases account for approximately 7% of outpatient office and over 5% of emergency room visits,^{10–12} the next generation of neurologist-scientists needs a strong basic neuroscience medical education to be able to advance the understanding of the fundamental pathophysiologic underpinnings of nervous system disorders. The Neuroscience curriculum in the University of South Carolina School of Medicine Greenville (USCOMG) is broad and structured with an integrated preclinical/clinical model, with a functional utility in medical education within diverse biomedical science courses. This approach integrates the basic normal functioning of the nervous with

clinical neurology to provide a core neuroscience curriculum with a strong foundation in clinical neuroscience and medical education.^{12–17} A major component of the USCOMG neuroscience module is the integration of patients with different neurological disorders into a year 1 neuroscience module. We describe the integration of student–patient interactions into a year one neuroscience medical curriculum to integrate basic neuroscience and neurology into year one core curriculum to provide students the additional exposure to neurology and neuroscience.

2. Methods

2.1. Organization of the neuroscience module

Neuroscience is a four week module that integrates the development, anatomy, biochemistry and physiology of the central and peripheral nervous system with clinical correlates. The principles that underlie the anatomical structures of each system are correlated with their physiology and relevant clinical applications. Students are expected to learn how to integrate the normal molecular, cellular, physiological, and anatomical aspects of the nervous system in order to understand the basis of disorders commonly encountered in clinical practice. Weekly topics are structured into themes that include an anatomical and functional organization of the nervous system (week 1), morphological and functional correlates of neuronal activity (week 2). Week 3 focuses on vascular supply of the nervous system, while motor and sensory systems were the focus of week. The students–patients interactive session is a 3 h session of activities in week 3 of the neuroscience module.

2.2. Patient selection criteria

Neurological patients of the Greenville Memorial Health System (GMH) volunteered to share their personal life experiences in various neurological conditions. The different neurological conditions are presented in Table 1. Each patient interacted with a small group of 10–12 first-year medical students. The focus on neurology patients is to provide clinical experiential learning to facilitate students' basic understanding of neurological disorders, and patient experience. Moreover, this will enhance the correlation between concepts and disease processes learned in class and clinical presentations. Fig. 1 presents the schematic representation of the experimental design used in the present study.

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