

**Physical Medicine and Rehabilitation  
University of Toronto  
Rotation Specific Goals and Objectives  
Neuromuscular Rehabilitation and Electrodiagnostics**

**For this rotation, please FOCUS the evaluation on the following CanMEDs roles: 1) Medical Expert; 2) Communicator; 3) Professional**

**General Requirements:**

- Demonstrate the diagnostic and therapeutic skills necessary in diagnosing and managing disorders of the peripheral nervous system and apply an ethical and holistic approach to the patient
- Demonstrate basic technical proficiency in the EMG laboratory, especially in the generation and interpretation of nerve conduction studies

**Medical Expert**

**Definition:**

**As Medical Experts, Psychiatrists integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. *Medical Expert* is the central physician Role in the CanMEDS framework. The Psychiatrist is a medical specialist, expert in the comprehensive diagnosis, management and rehabilitation of people of all ages with neuromusculoskeletal disorders and associated disabilities.**

**1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centered medical rehabilitative care**

- Demonstrate reliable and conscientious conduct in all aspects of patient care including empathic interaction with patients, respectful interactions with technologist, all allied health care providers and administrative staff and the attending physician preceptor
- Recognize the importance of an interdisciplinary team in the effective management of patients.
- Recognize the principles and effects of a balanced and healthy lifestyle on one's practice and ability to provide optimal care
- Demonstrate an appreciation of the bio-psycho-social model as it pertains to persons affected by peripheral nervous system disorders
- Demonstrate the necessary skills required to direct an Interdisciplinary Neuromuscular Rehabilitation Team
- Demonstrated knowledge of the social, economic and governmental/legislative aspects of HEALTH CARE PROVISION impacting persons suffering from disorders of muscle or nerve

**2. Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice**

- Demonstrate knowledge of the anatomy of the peripheral nervous system at the macro and micro levels including (but not necessarily limited to): root, plexus, peripheral nerve, neuromuscular junction and muscle, common anomalies and areas prone to entrapment, autonomic nervous system, nerve and muscle fiber types and histology, axon and nerve cell body structure, myocyte and satellite cell structure and muscle fiber organization
- Discuss the physiology of the action potential of nerve and muscle, neuromuscular junction neurotransmission, excitation-contraction coupling (muscle)
- Demonstrate knowledge of the pathophysiology of muscle and nerve damage and repair including electrophysiological correlates on NCS/EMG, included the following:
  - Seddon and Sunderland classifications
  - The concept of segmental demyelination
  - Wallerian degeneration and “dying back” phenomena of nerves
  - Segmental necrosis of muscle.
- Understand respiratory physiology and the consequences of neuromuscular disease on ventilation
- Demonstrate knowledge of the etiology/pathophysiology/demographics/common presentations/disease course and complications of inherited and acquired disorders of the peripheral nervous system including the following:
  - anterior horn cells
  - dorsal root ganglia
  - plexi
  - peripheral nerves (sensory, motor, autonomic, large fiber, small fiber and mixed)
  - neuromuscular junction
  - muscle
- Be able to discuss the neurologic complications of Diabetes including AIDP, CIDP, MMN with CB, ALS and other motor neuron disorders (i.e. Kennedy’s, SMA, Polio and Post-polio syndromes), Myasthenia Gravis, Lambert-Eaton, HSMN 1 and 2, Myotonic dystrophies, Periodic Paralysis, Radiculopathies and Entrapment neuropathies, Myopathies and Muscular Dystrophies
- Demonstrate an understanding of complex regional pain 1 and 2, myofascial pain and fibromyalgia (though not necessarily strictly peripheral nervous system problems)

### **3. Perform a complete and appropriate assessment of a patient**

- Obtain a relevant and organized neuromuscular history in order to effectively elicit symptoms and signs of diseases of muscle and nerve
- Perform a relevant and organized physical and functional examination of the peripheral nervous system. At times, a complete neurological examination +/- a focused musculoskeletal exam may be warranted and proficiency in these additional skills is expected
- Formulate a comprehensive problem list including medical, physical, functional, psychological and socio-economic issues
- Select and justify appropriate electrodiagnostic and non-electrodiagnostic investigations.
- Formulate a differential diagnosis based on the synthesis of the clinical, electrophysiologic and ancillary test data

### **4. Use preventive and therapeutic interventions effectively**

- Prescribe appropriate treatment (medical, physical, occupational, psycho-social) and adaptive devices (gait aids, orthoses, wheeled mobility devices, environmental modifications, etc) based on a sound knowledge of indications, contraindications and precautions
- Discuss Interventional/surgical procedures to decrease pain including nerve blocks, ablations, implantation of stimulators, etc.
- Recognize the limitations of various conservative management strategies in the treatment of diseases of nerve and muscle
- Discuss the available surgical management options for the treatment of entrapment neuropathies, radiculopathies, nerve subluxations and transections, contractures, joint instability and weakness

**5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic**

- Carry out and interpret basic electrodiagnostic tests including standard nerve conduction studies, mixed nerve studies, late responses, repetitive nerve stimulation, and needle EMG

**6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise**

- Recognize one's strengths and weaknesses and the importance of seeking appropriate assistance when needed in order to optimize both Resident and patient well-being

## **Communicator**

***Definition:***

***As Communicators, Physiatrists effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter.***

**1. Develop rapport, trust, and ethical therapeutic relationships with patients and families**

- Establish positive therapeutic relationships with patients and their care givers that are characterized by understanding, trust, respect, honesty and empathy
- Respect patient confidentiality, privacy and autonomy
- Listen actively
- Be aware of and responsive to nonverbal cues especially as they pertain to the most painful/uncomfortable portions of the electrodiagnostic testing.
- Gather information about a disease, but also about a patient's beliefs, concerns, expectations and illness experience
- Seek out and synthesize relevant information from other sources, such as a patient's family/caregivers and other professionals and review of relevant documentation
- Synthesize the information gathered for the diagnosis and management of a particular patient problem

## **2. Convey relevant information and explanations accurately to patients and care givers, colleagues and other professionals**

- Deliver information to a patient and their care givers, in a humane, respectful, clear, concise and accurate manner so that it is understandable and encourages discussion and participation in decision-making including a simple description of the testing about to take place.
- Deliver information to colleagues and other health professionals in a respectful, clear, concise and accurate manner to encourage and facilitate inter-professional person-centered collaborative practice
- Address challenging communication issues effectively, such as obtaining informed consent, delivering bad news, and addressing anger, confusion and misunderstanding

## **3. Develop a common understanding on issues, problems and plans with patients, care givers, and other professionals to develop a shared plan of care**

- Identify and explore problems to be addressed from a patient encounter effectively, including the patient's context, responses, concerns, and preferences
- Respect diversity and difference
- Encourage discussion, questions, and interaction in the encounter
- Engage patients, care givers, and relevant health professionals in shared decision- making to develop a plan of care and promote patient autonomy.

## **4. Convey effective oral and written information about a medical encounter**

- Prepare and maintain clear, complete, accurate, and appropriate records of clinical encounters and plans
- Present verbal reports of clinical encounters and plans effectively

## **Collaborator**

### ***Definition:***

**As Collaborators, Physiatrists effectively work within a health care team to achieve optimal patient care.**

## **1. Participate effectively and appropriately in an interprofessional health care team**

- Recognize and respect the diversity of roles, responsibilities and competencies of other professionals in relation to their own specifically the EMG technologist.
- Work with others to assess, plan and provide integrated care for individual patients (or groups of patients)

## **2. Work effectively with other health professionals to prevent, negotiate, and resolve interprofessional conflict**

- Demonstrate a respectful attitude towards other colleagues and members of an interprofessional team, specifically the EMG technologist
- Work with other professionals to prevent conflicts
- Employ collaborative negotiation to resolve conflicts

## Manager

### *Definition:*

**As Managers, Psychiatrists are integral participants in health care organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the health care system.**

### **1. Manage their practice and career effectively**

- Set priorities and manage time to balance patient care, practice requirements, outside activities and personal life
- Develop an understanding (in the senior rotation especially) of the costs incurred in running an EMG practice as well as some familiarity with respect to physician remuneration
- Employ information technology appropriately for patient care

## Health Advocate

### *Definition:*

**As Health Advocates, Psychiatrists responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations.**

### **1. Respond to individual patient health needs and issues as part of patient care as they may arise**

- Identify the health needs of an individual patient with a neuromuscular disease
  - Assist patients and families in accessing health and social resources in the community, including patient support groups
  - Demonstrate sensitivity to special issues of gender, ethnicity and social bias in dealing with patients, families and persons with disabilities
- Identify opportunities for advocacy, health promotion and disease prevention in individuals with neuromuscular diseases

## Scholar

### *Definition:*

**As Scholars, Psychiatrists demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge.**

### **1. Maintain and enhance professional activities through ongoing learning**

- Describe the principles of maintenance of competence
- Describe the principles and strategies for implementing a personal knowledge management system
- Recognize and reflect learning issues in practice

- Pose an appropriate learning question
- Access and interpret the relevant evidence
- Integrate new learning into practice
- Evaluate the impact of any change in practice
- Document the learning process

## **2. Evaluate medical information and its sources critically, and apply this appropriately to practice decisions**

- Describe the principles of critical appraisal as applied to Physical Medicine & Rehabilitation and related literature
- Critically appraise retrieved evidence in order to address a clinical question
- Integrate critical appraisal conclusions into clinical care thereby demonstrating a commitment to lifelong learning

## **3. Facilitate the learning of patients, families, students, residents, other health professionals, the public and others, as appropriate**

- Demonstrate the ability to facilitate learning using a variety of teaching methods (for example, presentation/lecture, bedside teaching and small group interactive teaching)
- Assess and reflect on a teaching encounter
- Receive and provide feedback effectively

## **Professional**

### ***Definition:***

***As Professionals, Physiatrists are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour.***

## **1. Demonstrate a commitment to their patients, profession, and society through ethical practice**

- Exhibit appropriate professional behaviors in practice, including honesty, integrity, commitment, compassion, respect and altruism
- Demonstrate a commitment to delivering the highest quality care and maintenance of competence
- Recognize and appropriately respond to ethical issues encountered in practice in such areas as truth-telling, consent, advanced directives, end-of-life issues and resource allocation
- Manage conflicts of interest appropriately
- Maintain appropriate relations with patients

## **2. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation**

- Demonstrate knowledge and an understanding of the professional, legal and ethical codes of practice to which physicians are bound
- Fulfill the regulatory and legal obligations required of current practice
- Demonstrate accountability to professional regulatory bodies
- Recognize and respond appropriately to others' unprofessional behaviours in practice
- Participate in peer review

## **3. Demonstrate a commitment to physician health and sustainable practice**

- Balance personal and professional priorities to ensure personal health, to ensure a sustainable practice and to optimize patient care
  - Evaluate one's abilities, knowledge and skills continually
  - Recognize the limitations of professional competence
- Recognize other professionals in need and respond appropriately