بسم الله الرحمن الرحيم

SAUDI BOARD OF PHYSICAL MEDICINE AND REHABILITATION

RESIDENT MANUAL

(CLINICAL SYLLABUS)

GOALS AND OBJECTIVES OF TRAINING:

GENERAL OBJECTIVES:

Upon completion of the educational program, the graduate physician will be competent to function as a consultant in Physical Medicine and Rehabilitation. Residents will be able to demonstrate the knowledge, skills and attitudes relating to gender, culture and ethnicity pertinent to Physical Medicine and Rehabilitation. In addition, all residents will be able to incorporate gender, cultural and ethnic perspective in research methodology, data presentation and analysis.

SPECIFIC OBJECTIVES:

The "CanMEDS Roles" framework for core competencies will be followed. CanMEDS is a derivative from "Canadian Medical Education Directives for Specialists". The core competencies for the "CanMEDS Roles" includes the Roles of Medical Expert (the central role), Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional.

At the completion of the training, the resident will have acquired the following competencies and will function effectively as a:

Medical Expert/Clinical Decision-Maker

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. Notably, the Medical Expert is the central physician Role in the CanMEDS framework. The Physiatrist is a medical specialist, expert in the comprehensive diagnosis, management and rehabilitation of people of all ages with neuromusculoskeletal disorders and associated disabilities.

Communicator

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

Collaborator

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

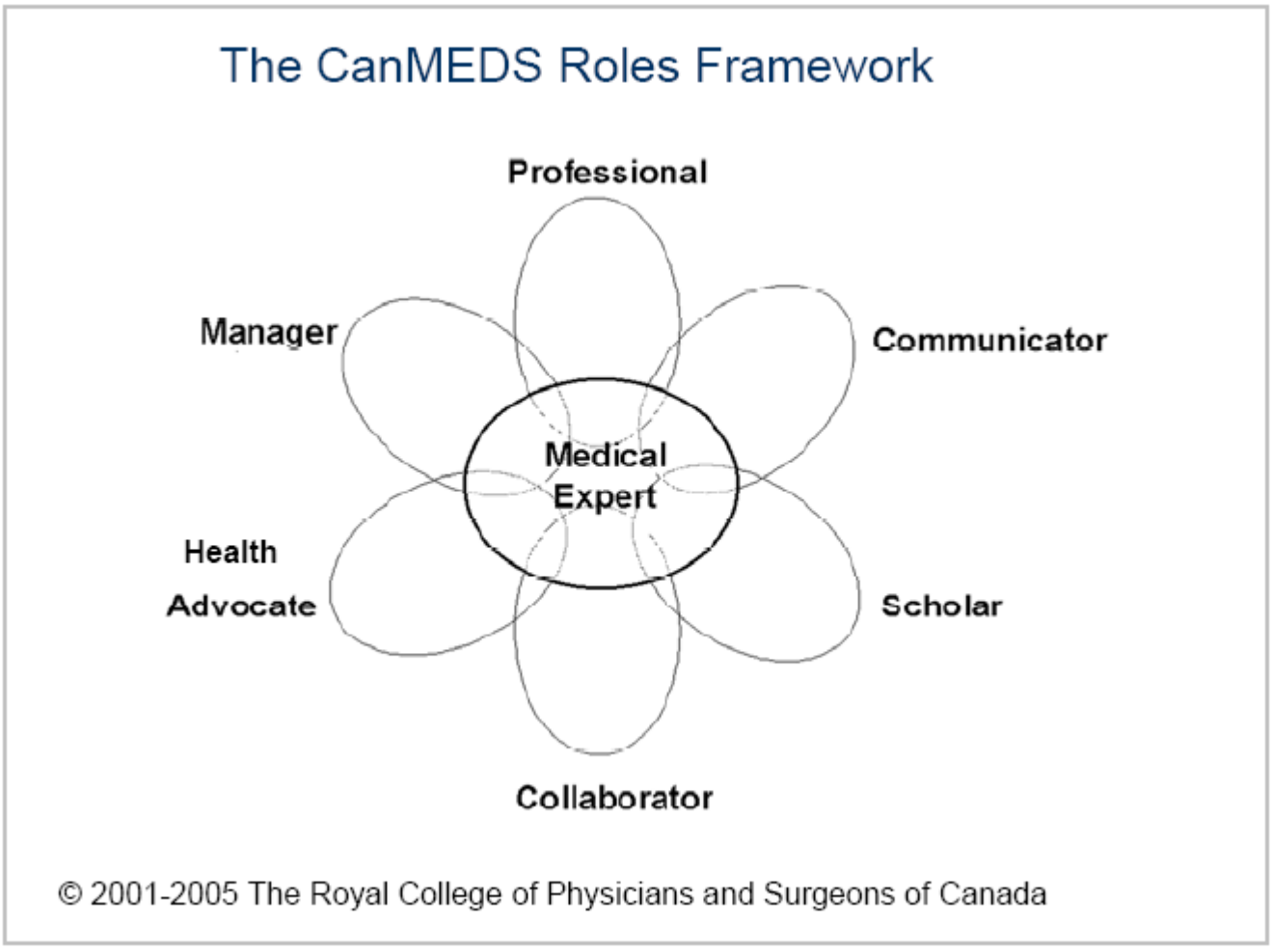
Manager

As Managers, Physiatrists 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.

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

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

Professional
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.



Rotation-Specific Goals and Objectives

ACQUIRED BRAIN INJURY REHABILITATION

GOAL
The resident will develop the necessary clinical skills and knowledge required in acquired brain injury (ABI) rehabilitation for proficient management of patients with ABI.

Note: The goals and objectives for cerebrovascular diseases are listed separately in the manual.

OBJECTIVES
By the end of the Physiatry Residency Training Program, the resident must achieve the following objectives in each of the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Demonstrate thorough knowledge of central nervous system neuroanatomy and neurophysiology, including the lobes of the brain, brainstem, cerebellum and CSF dynamics
- Demonstrate thorough knowledge of vascular supply to the brain
- Demonstrate knowledge of the pathophysiology of traumatic brain injury, including primary and secondary injury
- Demonstrate awareness of neuroprotective agents which may affect traumatic brain injury
- Demonstrate knowledge of the various medications used in treatment of acquired brain disorders, as well as their relative risks and benefits
- Describe the epidemiology and management of acquired brain disorders, including the role of the emergency response team, acute hospital, and regional rehabilitation centers in patient management as well as prevention strategies (such as role of alcohol)
- Understand the pathophysiology of anoxic brain injury and encephalitis, and the common locations with resulting deficits
- Exhibit knowledge of the classification of brain tumors
- Demonstrate knowledge of the diagnosis and management of primary and secondary complications associated with acquired brain disorders, including the following:
  - Post-traumatic seizures
    - Post-traumatic hydrocephalus
    - Post-concussion syndrome
    - Spasticity
    - Thromboembolism
    - Heterotopic ossification

- Post-injury agitation
- Dysphagia and aspiration
- Aphasia
- Neurogenic bowel / bladder
- Peripheral and central pain
- Pressure ulcers
- Metabolic complications
- Psychological complications (depression, attention deficits, sleep disturbances)

- Demonstrate knowledge of the components of cognitive rehabilitation
- Understand the various therapeutic modalities and orthotic devices that may be applied to the brain disordered patient in the rehab setting and the associated risks and benefits of such modalities and devices
- Demonstrate an approach to community integration including home modifications, adaptive devices, and family adjustment
- Evaluate variables that determine success of return to work and school
- Evaluate and manage sexual dysfunction in TBI patients
- Demonstrate knowledge of return to fitness activities
- Assess appropriateness to return to driving and understand the guidelines for driving ability
- Demonstrate knowledge of and medico-legal issues in persons with acquired brain disorders

II. Skills

- Perform a competent physical examination relevant to the assessment of the patient with an acquired brain disorder (including adequate examination of the patient's cognitive, perceptual and communication abilities).
- Assess and interpret scales and parameters used to describe severity of brain injury and functional outcomes:
    - Glasgow Coma Scale
    - Galveston Orientation Amnesia Test
    - Post-traumatic Amnesia
    - Ranchos Los Amigos scale
    - Functional Independence Measure (FIM)
    - Disability Rating Scale
- Demonstrate appropriate use and interpretation of common diagnostic studies, including: lumbar puncture, electroencephalography, skull X-rays, cerebral angiography, radio-isotope brain scan, brain CT, MRI, and somatosensory, brain stem auditory and visual evoked potentials.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history
- Explain the medical and rehabilitation issues to the ABI patient and family members in clear and non-medical/technical language
- Communicate effectively with other team members and physicians
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of ABI patients
- Identify need for specialist input and obtain the appropriate expertise
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences
- Participate actively in family conferences
- Promote patient autonomy and the involvement of their families in decision-making

Manager

- Describe the management and administrative structure of the ABI program
- Participate in quality assurance discussions
- Demonstrate judicious use of health care resources

Health Advocate

- Identify the important determinants of health that affect ABI patients
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with ABI patients and their families
- Assist patients and families in accessing health and social resources in the community, including patient support groups (community access programs, assistive devices programs, disability benefits program, and outreach programs) as they apply to acquired brain disorders.

Scholar

- Critically appraise the relevant medical literature on issues relevant to ABI
- Demonstrate effective teaching in weekly presentations to other physicians, fellow residents, and medical students
- Participate in the education of allied health professionals and patients
- Demonstrate effective self-evaluation and appropriate self-directed learning

Professional

- Apply bioethical principles to issues that may arise in the ABI population
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team
- Demonstrate effective time management

STROKE REHABILITATION

GOAL

The resident will develop the necessary clinical skills and knowledge required to manage a patient with stroke and be capable of managing the medical, psychosocial, and vocational aspects to the extend of the individual's ability.

OBJECTIVES

By the end of the Physiatry Residency Program, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Demonstrate thorough knowledge of central nervous system, neuroanatomy and neurophysiology, including the lobes of the brain, brainstem, cerebellum and vascular supply to the brain.
- Demonstrate knowledge of the pathophysiology of ischemic and hemorrhagic cerebral vascular accidents, including primary and secondary injury mechanisms.
- Describe the acute management of patients with stroke, including the criteria, benefits and risks of early thrombolytic therapy.
- Demonstrate knowledge of the various medications used in treatment of stroke, as well as their relative risks and benefits.
- Describe the epidemiology and common etiologies, including risk factors, of ischemic and hemorrhagic strokes.
- Describe the common stroke syndromes including cerebral, subcortical and brainstem stroke syndromes.
- Understand the relationship between stroke and other cardiovascular risk factors.
- Describe the common patterns of motor recovery.
- Describe the prognostic indicators for stroke recovery.
- Demonstrate knowledge of the diagnosis and management of primary and secondary complications associated with stroke, including the following:
    - Spasticity
    - Thromboembolism
    - Post-stroke depression
    - Fatigue
    - Dysphagia and aspiration
    - Aphasia
    - Apraxia
    - Neglect and perceptual impairments
    - Neurogenic bowel / bladder
    - Peripheral and central pain (including "shoulder-hand syndrome")
    - Hemiplegic shoulder

- Pressure ulcers
- Metabolic complications

- Demonstrate knowledge of the components of cognitive assessment and techniques of cognitive rehabilitation.
- Understand the various therapeutic modalities and orthotic devices that may be applied to the stroke patient in the rehab setting and the associated risks and benefits of such modalities and devices.
- Demonstrate an approach to community integration including home modifications, adaptive devices, and family adjustments.
- Evaluate and manage sexual dysfunction in stroke patients.
- Demonstrate knowledge of return to fitness activities.
- Assess appropriateness to return to driving and understand the guidelines for driving ability.

II. Skills

- Perform a competent physical examination relevant to the assessment of the patient with stroke (including adequate examination of the patient's cognitive, perceptual and communication abilities).
- Assess and interpret scales and parameters used to describe severity of stroke and functional outcomes:
  - Glasgow Coma Scale
  - Brunstrum stages of motor recovery
  - Functional Independence Measure (FIM)
  - Disability Rating Scale
- Demonstrate appropriate use and interpretation of common diagnostic studies, including cerebral angiography, radioisotope brain scan, brain CT, MRI, and somatosensory, brain stem auditory and visual evoked potentials.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the stroke patient and family members in a clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of stroke patients.
- Identify the need for a specialist input and obtain the appropriate expertise.
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences.
- Participate actively in family conferences.
- Promote patient autonomy and the involvement of their families in decision-making.

Manager

- Describe the management and administrative structure of the stroke program.

- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect stroke patients.
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with stroke patient and their families.
- Assist patients and families in accessing health and social resources in the community, including patient support groups (community access programs, assistive devices programs, disability benefits programs, and outreach programs) as they apply to stroke patients.

Scholar

- Critically appraise the relevant medical literature on issues relevant to stroke.
- Demonstrate effective teaching in weekly presentations to other physicians, fellow residents, and medical students.
- Participate in the education of allied health professionals and patients.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply bioethical principles to issues that may arise in the stroke population.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management .

SPINAL CORD INJURY REHABILITATION

GOAL

The resident will understand the principles behind the rehabilitation management of an individual with a spinal cord injury (SCI) and be capable of managing the medical, psychosocial, and vocational aspects of that individual's disability.

OBJECTIVES

By the end of the Physiatry Residency Program, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the anatomy, neurophysiology, and histology of the spinal cord.
- Describe the pathophysiology of traumatic and non-traumatic SCI.
- Describe the epidemiology of SCI and common mechanisms of injury.
- Identify the spinal cord syndromes and their clinical features.
- Describe acute management of SCI, including diagnosis and injury classification.
- Identify expected functional outcomes according to the level of SCI.
- Evaluate the use of medications in the treatment of SCI patients and select/prescribe appropriate drug therapy.
- Select, justify and interpret appropriate investigations including laboratory tests, radiological workup, urologic investigations, electrodiagnostic and psychometric tests.
- Identify and explain the prevention, recognition and management of common complications of SCI including:
  - *Neurological:* acute and chronic pain, post-traumatic syringomyelia, autonomic dysreflexia, spasticity, neurogenic bowel and bladder, sexual dysfunction, depression
  - *Pulmonary / Cardiovascular:* pneumonia, thromboembolism, respiratory impairment, orthostatic hypotension, edema
  - *Endocrine / metabolic:* temperature control, hypercalcemia, osteoporosis, fertility
  - *Musculoskeletal:* heterotopic ossification, kyphosis, scoliosis, fractures
  - *Skin:* pressure ulcers, ingrown toenails, wound infections
  - *Genitourinary:* neurogenic bladder, UTI, pyelonephritis, sexual dysfunction
  - *Gastrointestinal:* ileus, neurogenic bowel
  - *Comorbidities:* TBI, substance abuse, other medical comorbidities
- Identify the roles of rehab technologies and environmental modifications in SCI and assess the appropriate use of these technologies for an individual patient (e.g. Assistive technology, FES).
- Identify the roles of physical modalities in SCI and assess the appropriate use of these modalities for an individual patient.
- Identify, assess and select appropriate use of orthoses and mobility aids in SCI.

- Evaluate the need for surgical options that may improve function and quality of life in SCI (e.g. Tendon transfers, phrenic pacing, sphincterotomy).
- Identify and manage medico legal issues pertaining to SCI rehabilitation.

II. Skills

- Demonstrate a competent physical and functional examination of the neurological system based on the standards set by the American Spinal Injury Association (ASIA) assessment, Ashworth assessment of spasticity, and FIM evaluation.
- Demonstrate a competent regional musculoskeletal examination, with emphasis on inflammation, structure, alignment, range of motion, and stability in the context of a SCI patient.
- Formulate an appropriate rehabilitation plan based on realistic goals for the SCI patient.
- Perform diagnostic and therapeutic procedures as required including joint aspirations, joint injections, motor point injections, urinary catheterization, and superficial surgical debridement of ulcers.

Communicator

- Demonstrate the proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the SCI patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of SCI patients.
- Identify the need for specialist input and obtain the appropriate expertise.
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences.
- Promote patient autonomy and the involvement of their families in decision-making.

Manager

- Describe the management and administrative structure of the SCI program.
- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affects SCI patients.
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with SCI patients and their families.
- Assist patients and families in accessing health and social resources in the community, including patient support groups (community access programs, assistive devices programs,

disability benefits programs, outreach programs, BC Paraplegic Association, MS Society and volunteer programs) as they apply to spinal cord disorders.

Scholar

- Critically appraise the relevant medical literature on issues relevant to SCI.
- Demonstrate effective teaching in weekly presentations to other physicians, fellow residents, and medical students.
- Participate in the education of allied health professionals and patients.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the SCI population, including end-of-life issues, resource allocation, and conflict of interest.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

ORTHOTIC/PROSTHETIC ASSISTIVE DEVICES AND AMPUTEE REHABILITATION

GOAL

The resident will understand the principles of rehabilitation management for the individual with a need for an orthotic assistive device and/or and amputee individual. He/she will be capable of managing the medical, psychosocial, orthotic and prosthetic aspects of that individual's disability.

OBJECTIVES

By the end of the Physiatry Residency Program, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe and identify the determinant of normal gait including the phases of gait.
- Identify the characteristics and potential causes of abnormal types of gait including steppage, hemiparetic, ataxic, trendelenburg, antalgic, spastic and prosthetic gait.

Prosthetics

- Describe the principles of anatomy, physiology, and kinesiology relevant to the amputee.
- Describe principles of alignment and energy expenditure in prosthetic gait.
- Describe the etiologies of amputations.
- Describe the epidemiology of traumatic, vascular and other non-traumatic amputations.
- Describe the pathophysiology, clinical features, diagnosis and medical management of the vascular amputees with emphasis on diabetes mellitus, peripheral vascular disease, and atherosclerotic disease.
- Classify congenital limb deficiencies.
- Identify the functional consequences of amputation, including the expected functional outcome for an individual amputee.
- Identify and explain the prevention, recognition and management of common complication of amputations including:
  - Skin lesions/breakdown
  - Post-operative residual limb care
  - Phantom limb pain/sensation
  - Joint contractures
- Describe various types of upper and lower extremity prosthesis and various prosthetic components.
- Select/prescribe the appropriate prosthesis for an individual amputee.
- Identify the special needs of the growing child and elderly amputee.
- Identify the role of pre-prosthetic and prosthetic therapy programs, including the prosthetic fitting process.

Orthotics

- Discuss general principles of orthotics in terms of the biomechanics, purpose and function of a given orthosis.

- Describe various orthotic designs, components and materials and discuss their use in the clinical setting.
- Identify physical impairments which might benefit from an orthotic device (including impairments of the spine and upper and lower extremities).
- Select/prescribe appropriate orthotic device(s) for an individual patient.
- Describe the general process involved with construction of an orthosis.
- Describe the various parts of common footwear and identify their functional significance.
- Describe the principles of common shoe modifications for impairments in the foot and leg.
- Select/prescribe appropriate shoe modifications for impairment in the foot and leg.

Mobility Aids

- Describe various types and components of a wheelchair (manual and electric) and their functional purpose in the clinical setting.
- Describe how the set-up of a wheelchair such as dump, camber, and wheel alignment may affect its performance.
- Describe various seating systems and the principles of seating in both manual and electric wheelchairs.
- Describe what is considered an appropriate fit for a wheelchair.
- Describe basic building standards for wheelchair access.
- Describe the benefits and limitations of other mobility aids such as walkers, canes, crutches and scooters.
- Demonstrate how a mobility aid should be fitted to the patient.
- Select/prescribe appropriate mobility aid(s) for an individual patient based on the history and physical examination.

II. Skills

- Perform a competent physical and functional examination of the relevant aspects of the neurological, vascular and musculoskeletal systems with emphasis on gait, alignment and residual limb assessments.
- Demonstrate features on the residual or impaired limb that would impact its function.
- Instruct the patient on various adaptive gaits used with mobility aids.
- Understand how a patient's personality, motivation and attitude interact to make him/her a successful candidate for an assistive device or prosthesis.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history based on date gathered from the patient, family members and relevant documentation.
- Explain the benefits and limitations of an assistive device or prosthesis, including their appropriate use and maintenance, to the patient using clear and non-medical/technical language.
- Communicate clearly, concisely and effectively to other physicians and team members.
- Demonstrate awareness of the patient's reaction to his/her disability and how an assistive device, mobility aid or prosthesis may alter the patient's perception and attitude towards his/her disability.

Collaborator

- Apply understanding of the unique abilities of the orthotists, prosthetists, and therapists to optimize patient care while managing differences of opinion in a professional and sensitive manner.
- Identify the need for specialist input and obtain the appropriate expertise.
- Demonstrate respect for the patient's wishes while providing appropriate advice regarding the potential benefits and limitations of an assistive devices, mobility aid or prosthesis.

Manager

- Prepare and maintain complete and informative clinical records.
- Describe the role of private service providers (equipment dealers, orthotists and prosthetists) and how they may best work within the interdisciplinary environment.
- Describe the general process of funding (application, sources and limitations) for patients who require a mobility aid, prosthesis or orthosis.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect amputees and patients who require assistive devices.
- Counsel patients appropriately on issues of injury prevention when using their prosthesis or assistive devices.
- Assist patients and families in accessing health and social resources in the community, including patient support groups.

Scholar

- Examine and critically appraise the relevant medical literature on issues relevant to amputees and the use of assistive devices.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the amputee and assistive devices population including resource allocation, market driven forces for product selection, and potential conflict of interest.
- Demonstrate professional attitudes in dealings with patients, families and allied health professionals
- Demonstrate effective time management.

PEDIATRIC REHABILITATION

GOALS

The resident will understand the principles of rehabilitation management for a child or young adult with physical impairments and be capable of managing the medical, psychosocial, and vocational aspects of that individual's disability.

OBJECTIVES

By the end of the Physiatry Residency Program, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the normal parameters of growth and development and important development milestones.
- Describe the neurodevelopmental models of development, the important childhood reflexes and their use in neurodevelopmental approaches to therapy in a child with neurological illnesses.
- Describe the basic concepts of genetics and inheritance of genetically determined illness.
- Describe the etiology, pathophysiology, clinical features and classification of the following pediatric disorders:
  - Familial spinal muscular dystrophies
  - Hereditary polyneuropathies
  - Hereditary myopathies
  - Brachial plexus palsy in the neonate
  - Muscular dystrophies
  - Juvenile rheumatoid arthritis
  - Myelodysplasia
  - Cerebral palsy
  - Scoliosis
  - Congenital limb deficiencies
  - Childhood hip disorders (transient synovitis, slipped capital femoral epiphysis, Legg-Calve-Perthes disease, congenital dislocation, pyrogenic arthritis)
- Identify prognostic functional outcomes of the above disorders and how the clinical picture changes with growth and development.
- Identify and explain the prevention, recognition and management of common complications associated with the above disorders.
- Describe the non-pharmacological and surgical management of the above disorders.
- Appraise use of medications in the treatment of children and young adults with the above disorders and select/prescribe appropriate drug therapy.

- Select, justify and interpret appropriate investigations including laboratory tests, radiological workup, electrodiagnostic tests, tissue biopsies, urological studies and developmental tests.
- Identify the roles of rehabilitation technologies and environmental modifications for children and young adults with disabilities.
- Identify, assess and select appropriate use of orthoses and mobility aids for children and young adults with disabilities.
- Describe the common causes of a limp in childhood.

II. Skills

- Demonstrate a competent pediatric physical examination including a comprehensive neurological examination.
- Formulate appropriate rehabilitation plan based on realistic goals for children and young adults with disability.
- Perform diagnostic and therapeutic procedures as required including joint aspiration, joint injections, and botulinum toxin or phenol injections.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of children and young adults with disabilities.
- Identify the need for specialist input and obtain the appropriate expertise.
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences.
- Participate actively in family conferences.

Manager

- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect children and young adults with disabilities.
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with young patients and their families.
- Assist patients and families in accessing health and social resources in the community, including patients support.

Scholar

- Critically appraise the relevant medical literature on issues relevant to children and young adults with disabilities.
- Demonstrate effective teaching in presentations to other physicians, fellow residents, and medical students.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the pediatric population.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

NEUROMUSCULOSKELETAL REHABILITATION

GOAL

The resident will gain adequate exposure to the multitude of conditions seen and evaluated by psychiatrists. He/she will understand the principles of rehabilitation of patients with chronic and/or debilitating medical disorders.

OBJECTIVE

By the end of the Physiatry Residency Program the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the relevant etiology, pathophysiology and presentation of the following categories of diseases:
  - Neurological disorders including:
    a. Multiple sclerosis
    b. Parkinson's
    c. Guillian Barre (AIDP)
    d. Chronic inflammatory demyelinating polyneuropathy (CIDP)
    e. Peripheral neuropathies
  - Musculoskeletal disorders including:
    a. Arthridities
    b. Multiple traumas
  - Generalized conditions including:
    a. Deconditioning
    b. Burns
    c. Cancers
- Describe the classification and diagnosis of the above disorders.
- Describe the principles of management of the above disorders, both pharmacologically and non-pharmacologically.
- Appraise the use of medications in the treatment of the above disorders and select/prescribe appropriate drug therapy.
- Select, justify and interpret appropriate investigation including lab tests, radiological workup, electrodiagnostic and psychometric tests.
- Identify and prevent common complications such as depression, infections, venous thrombosis, contractures, and chronic pain.
- Identify the roles of physical modalities and assess their appropriate application to the individual patient.
- Identify, assess and select appropriate use of orthoses and mobility aids.
- Identify and manage relevant medicolegal issues.

II. Skills

- Perform a competent physical and functional examination of the patient with particular emphasis on the neuromusculoskeletal systems.
- Perform a Functional Independence Measure (FIM) assessment on the patient.

- Order relevant investigations and to be able to interpret the results of such tests including blood work, body fluid analysis, and imaging tests.
- Formulate an appropriate rehabilitation plan based on realistic goals for the individual patient.
- Perform diagnostic and therapeutic procedures as required including joint aspiration, joint injection, motor point injections, and Botox injections.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of patient with neuromusculoskeletal disorders.
- Identify the need for specialist input and obtain the appropriate expertise.
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences.
- Participate actively in family conference.
- Promote patient autonomy and the involvement of their families in decision-making.

Manager

- Describe the management and administrative structure of the NMS program
- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect NMS patients.
- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with NMS patients and their families.
- Assist patients and families in accessing health and social resources in the community, including patient support groups (community access programs, assistive devices programs, disability benefits programs, outreach programs, MS Society and volunteer programs) as they apply to the individual patient.

Scholar

- Critically appraise the relevant medical literature on issues relevant to NMS disorders.
- Demonstrate effective teaching to other physicians, fellow residents, and medical students when needed.
- Participate in the education of allied health professional and patients.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the NMS population including patient boundaries, resource allocation, and conflict of interest.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

INTERNAL MEDICINE

GOALS

The resident will gain competence in the diagnosis and management of patients with acute and chronic medical illnesses in the acute hospital setting.

OBJECTIVES

By the end of the Internal Medicine rotation(s), the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert/Clinical Decision Maker

I. Knowledge

- Describe the etiologies and pathophysiology of common medical conditions (including infections) affecting the following body organ systems such as CNS, cardiovascular system, endocrine system, metabolic system including acid-base balance, pulmonary system, gastrointestinal system, genitourinary system and the musculoskeletal system.
- Recognize and interpret clinical features of common medical conditions to arrive at a succinct list of differential diagnosis.
- Formulate a relevant and organized medical problem list for a given individual medical patient.
- Recognize when a patient is medically stable or unstable and manage emergent conditions appropriately.
- Select the appropriate investigations to assist with diagnosis and management of medical conditions.
- Select / prescribe appropriate treatments for common acute and chronic medical conditions.

II. SKILLS

- Demonstrate reasonable competence in the physical examination of the medical patient, including examination of the skin, cardiovascular, pulmonary, and gastrointestinal systems.
- Demonstrate the ability to gain intravenous access (including drawing blood, placement of peripheral venous and arterial lines), perform a lumbar puncture, and drainage of fluids from various cavities (pleural, peritoneal, joint, etc.).
- Interpret with reasonable competence radiological imaging of the chest and abdomen, ECG, and laboratory results.

Communicator

- Take a relevant and organized medical history
- Communicate effectively with patients, families, interdisciplinary team, and other physicians.

Collaborator

- Consult effectively with other physicians and health care professionals

Manager

- Participate in quality management activities.
- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to issue of gender, ethnicity and social bias in dealing with patients and families.
- Assist patients and families access health and social resources in the community.

Scholar

- Critically appraise medical literature and basic research methodology.
- Teach effectively to students, other residents, health care professionals and patients.
- Demonstrate application of evidence-based medicine.

Professional

- Demonstrate commitment and application of bioethical principles to clinical practice.
- Demonstrate professional attitudes in dealings with patients, families and other health professionals.
- Demonstrate effective time management.

CARDIAC REHABILITATION

GOALS

The resident will gain competence in the management and rehabilitation of patients with ischemic heart diseases, heart failure and common cardiac diseases in the post acute setting.

OBJECTIVES

By the end of the Cardiac Rehabilitation rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the etiologies and pathophysiology of common cardiac conditions including the following:
  - Ischemic heart disease
  - Heart failure
  - Hypertension
- Identify important cardiac risk factors for the above conditions and describe their role in the pathophysiology of disease.
- Describe the epidemiology and assessment of cardiac risk factors in patients with cardiac disease.
- Describe the principles of management in congestive heart failure, myocardial infarction and hypertension.
- Describe the principles of a cardiac rehabilitation program, beginning with the entrance of a patient into the cardiac care unit.
- Discuss the concept of METS.
- Discuss the role of cardiac stress testing and describe the common protocols used in stress testing.
- Describe how the use of various classes of medications in the treatment of common cardiac diseases may affect an individual patient's cardiac rehab program.

II. Skills

- Demonstrate competence in the physical examination of the cardiac patient.
- Prescribe an appropriate graduated exercise program for a cardiac rehab patient in the various phases of cardiac rehabilitation.
- Interpret with reasonable competence ECG, cardiac ultrasound, cardiac perfusion test and laboratory results.

Communicator

- Take a relevant and organized medical history.
- Communicate effectively with patients, families, interdisciplinary team and other physician
- Demonstrate a compassionate approach to patients and their families that includes concern for their psychosocial, cultural, and economic situation

Collaborator

- Consult effectively with other physicians and health care professionals.

- Promote autonomy and the involvement of patients and their families in decision making when dealing with disability.

Manager

- Recognize the interaction between hospital-based and community-based cardiac rehab programs.
- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to issues of gender, ethnicity and social bias in dealing with patients and families.
- Assist patients and families access health and social resources in the community.

Scholar

- Critically appraise medial literature and basic research methodology.
- Teach effectively to students, other residents, health care professionals and patients.
- Demonstrate the application of evidence based medicine.

Professional

- Demonstrate commitment and application of bioethical principles to clinical practice.
- Demonstrate professional attitudes in dealings with patients, families and other health professionals.
- Demonstrate effective time management.

RESPIRATORY REHABILITATION

GOALS

The resident will understand the principles of rehabilitation management for the individual with chronic respiratory impairments, including those dependent on mechanical ventilation, and be capable of managing the medical and functional aspects of that individual's disability.

OBJECTIVES

By the end of the Physiatry Residency Program, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe anatomy and physiology of a normal respiratory system.
- Describe pathophysiology of restrictive and chronic obstructive lung disease
- Identify expected functional outcomes of patients needing chronic mechanical ventilation and tracheostomy.
- Appraise use of medications in the treatment of patients with restrictive, obstructive, or infectious lung disease.
- Identify and explain the prevention, recognition and management of common complications of chronic respiratory diseases, including:
  - Management of respiratory secretions
  - Management of pneumonias
  - Management of tracheostomy tubes in the tracheostomized patient
  - Management of sleep apnea
  - Management of pulmonary embolism
- Identify the roles of chest physiotherapy in the hospital setting

II. Skills

- Demonstrate a competent physical and functional examination of the respiratory system.
- Identify the basic types of tracheostomy devices and their relative indications and contraindications for use in the clinical setting.
- Perform diagnostic and therapeutic procedures as required including pleural centesis, tracheostomy tube change, airway suctioning, and assisted cough.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Work effectively with other members of a multi-disciplinary team.
- Promote patient autonomy and the involvement of their families in decision-making.

Manager

- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect patients with chronic respiratory disease.
- Demonstrate sensitivity to special issues of gender, culture and social bias.

Scholar

- Critically appraise the relevant medical literature on issues relevant to respiratory rehabilitation.
- Participate in the education of colleagues, other health professionals and patients.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in patients with chronic respiratory disease, including end-of-life issues and resource allocation.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

NEUROLOGY

GOAL

The resident will gain adequate exposure to the multitude of conditions seen and evaluated by neurologists. The residents will understand the principles of management of patients with common neurological conditions.

OBJECTIVE

By the end of the neurology rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the relevant etiology, pathophysiology and presentation of common neurological disorders including stroke, demyelinating diseases, peripheral neuropathies, degenerative neurological conditions and seizure disorders.
- Describe the classification and diagnosis of the above disorders.
- Describe the principles of management of the above disorders, both acutely and for long term follow up.
- Appraise use of medications in the treatment of the above disorders and select/prescribe appropriate drug therapy.
- Describe the indications for TPA therapy in ischemic stroke and its potential benefits and risks.
- Select, justify and interpret appropriate investigations including lab tests, lumbar puncture, radiological workup, electrodiagnostic and psychometric tests.
- Describe the roles of other interdisciplinary team members in management of neurological patients.

II. Skills

- Perform a competent physical and functional examination of the patient with particular emphasis on the neurological system.
- Order relevant investigations and to be able to interpret the results of such tests, including blood work, body fluid analysis, and imaging tests.
- Perform diagnostic and therapeutic procedures as required, including lumbar puncture.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Manager

- Work effectively and efficiently in a health care organization.
- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with the neurological patient and their families.

Scholar

- Critically appraise the relevant medical literature on issues relevant to neurological disorders.
- Demonstrate effective teaching to other physicians, fellow residents, and medical students when needed.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Deliver higher quality of care with integrity, honesty and compassion.
- Demonstrate professional attitudes and sensitivity in dealing with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

ELECTRODIAGNOSIS

GOAL

The resident will gain adequate exposure to the multitude of conditions seen and evaluated by psychiatrists in electrodiagnosis. He/she will understand the principles of electrodiagnosis and be skilled at performing and interpreting electrodiagnostic tests.

OBJECTIVES

By the end of the Physiatry Residency Program the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the anatomical and physiological basis for electrophysiologic studies, including the following:
  - The production of the resting potential; the concept of nerve excitability and production of the action potential.
  - The physiology of muscle contraction and the concept of recruitment.
  - The physiology of neuromuscular transmission at the motor end plate.
  - The concept of the motor unit.
  - The concept of volume conduction.

- Describe the different types of electrodes used and the advantages and disadvantages of each.
- Describe common safety precautions, side effects and contraindications to electrodiagnosis.
- Describe the technique of conventional nerve conduction and needle studies including common motor and sensory conduction measurements.
- Describe the effects of age and temperature on nerve conduction measurements.
- Describe the common sources of error, including cross-over anomalies and electrode placement problems.
- Identify the configuration, amplitude and duration of the normal needle EMG.
- Identify the normal recruitment, recruitment frequency and interference patterns.
- Describe the role of special electrodiagnostic studies such as:
  - H-reflex
  - F waves
  - SEPs
- Describe the classification of nerve injuries, including the definitions of neurapraxia, axonotmesis and neurotmesis.
- Explain how electrodiagnostic studies can differentiate between myopathies vs neuropathies, acute vs chronic neuropathies, and axonal vs demyelinating neuropathies.
- Develop an approach to the investigation of a neuropathy.
- Describe and approach to the classification of neuropathies.
- Explain the process of nerve regeneration and factors important in prognosis following nerve injury

- Describe the etiology, clinical features and use of electrodiagnostic studies in common entrapment neuropathies, including:
  - Carpal tunnel syndrome
  - Pronator syndrome
  - Anterior interosseous syndrome
  - Saturday night palsy
  - Posterior interosseous syndrome
  - Thoracic outlet syndrome
  - Type I, II and III ulnar entrapments
  - Cubital tunnel ulnar entrapment
  - Sciatic nerve entrapment
  - Peroneal nerve entrapment
  - Femoral nerve entrapment
  - Meralgia paresthetic
  - Tarsal tunnel syndrome
  - Bell's palsy
- Describe the etiology, clinical features and use of electrodiagnostic studies in the following conditions:
  - Diabetic neuropathy
  - Hereditary sensory and motor neuropathies
  - Myopathies
  - Myotonic dystrophies
  - Neuropathies associated with systematic illness
  - Radiculopathies
  - Plexus injuries
  - Neuromuscular junction disorders
  - Motor neuron disorders
  - ALS

II. Skills

- Perform a competent examination of the patient with particular emphasis on the peripheral neuromuscular system.
- Perform a competent needle EMG study in including correct muscle localization and needle insertion techniques.
- Select relevant conduction studies and to be able to interpret their results.
- Formulate an appropriate differential diagnosis and management plan based on the electrodiagnostic findings.
- Perform diagnostic and therapeutic procedures as required, including Botox and phenol injections.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the procedures of electrodiagnosis to the patient and obtain appropriate consent in non-medical language.
- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports and progress notes.

Collaborator

- Recognize the important roles of other team members including neurologists and electrodiagnostic technicians.

Manager

- Describe the management and administrative structure of an electrodiagnostic clinic.
- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with patients and their families.
- Assist patients and families in accessing health and social resources in the community, including patient support groups.

Scholar

- Critically appraise the relevant medical literature on issues relevant to electrodiagnostic medicine.
- Demonstrate effective teaching to other physicians, fellow residents, and medical students when needed.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the electrodiagnostic clinic.
- Demonstrate professional attitudes in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

RHEUMATOLOGY

GOAL

The resident will gain adequate exposure to the multitude of conditions seen and evaluated by rheumatologists. He/she will understand the principles of management of patients with common rheumatological conditions.

OBJECTIVE

By the end of the rheumatology rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the relevant etiology, pathophysiology and presentation of common rheumatological disorders including inflammatory and degenerative arthritis, connective tissue diseases, fibromyalgia.
- Describe the classification and diagnosis of the above disorders.
- Describe the principles of management of the above disorders, both acutely and for long term follow up.
- Appraise use of medications in the treatment of the above disorders and select/prescribe appropriate drug therapy.
- Select, justify and interpret appropriate investigations including lab tests, biopsies, radiological workup, and joint fluid analysis.
- Describe the roles of other interdisciplinary team members in management of rheumatological patients.

II. Skills

- Perform a competent physical and functional examination of the patient with particular emphasis on the musculoskeletal system.
- Order relevant investigations and to be able to interpret the results of such tests, including blood work, body fluid analysis, and imaging tests.
- Perform diagnostic and therapeutic procedures as required, including joint aspirations/ injections.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Manager

- Work effectively and efficiently in a health care organization.
- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias in dealing with the rheumatological patient and their families.

Scholar

- Critically appraise the relevant medical literature on issues relevant to rheumatological disorders.
- Demonstrate effective teaching to other physicians, fellow residents, and medical student when needed.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Deliver highest quality of care with integrity, honesty and compassion.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

PSYCHIATRY

GOALS

The resident will understand the principles of neuropsychiatry and the management of common neuropsychiatry conditions. He/she will also will be familiar with the different neuropsychological changes related to congenital and acquired disability of various types.

OBJECTIVES

By the end of the rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / clinical Decision Maker

I. Knowledge

- Recognize the diagnosis and management of the most common problems encountered in neuropsychiatry and their interrelationship with other medical illnesses and disabilities.
- Acquire knowledge and experience in the appropriate application of psychotherapy and psychopharmacology in the management of common neuropsychiatric disorders.
- Become familiar with the diagnostic categories of DSM IV-R
- Demonstrate awareness of the medico-legal aspects of psychiatry relating to treatment and competence.
- Acquire a broad knowledge of the psychological stages of coping with disability

II. Skills

- Be able to conduct a thorough neuropsychiatric interview.
- Perform a detailed mental status examination, including a cognitive status examination.
- Perform a relevant physical examination.
- Prescribe appropriate medications for common neuropsychiatric disorders.

Communicator

- Establish therapeutic relationship with patients and families.
- Explain the medical issues to the patient and family members in clear and non-medical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Contribute effectively to other interdisciplinary team activities.

Manager

- Prepare and maintain complete and informative clinical records.
- Demonstrate judicious use of health care resources.

Health Advocate

- Develop awareness of resources available to persons with mental illnesses.
- Demonstrate sensitivity to special issues of gender, culture and social bias.

Scholar

- Critically appraise the relevant medical literature on issues relevant to neuropsychiatry.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Demonstrate commitment to appropriate bioethical standards of clinical practice including areas such as consent, confidentiality, and patient-doctor boundaries.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

CRITICAL CARE MEDICINE

GOAL

The resident will acquire expertise in clinical decision-making in the critically ill patient. He/she will become familiar with the concepts of critical care medicine and the needs of the patient as well as an understanding of the various stress the families are confronted with.

OBJECTIVES

By the end of the Critical Care Medicine rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Demonstrate understanding of physiology and pathophysiology of organ systems involved in critical illness.
- Describe the clinical features, complications, and approach to diagnosis of critical illness, including shock, respiratory failure, pulmonary edema, coma, renal failure, drug overdoses, seizures, acid-base disorders and gastrointestinal hemorrhages.
- Discuss the assessment and management of fluid volume in the intensive care patient.
- Describe principles of ventilation and management of the acutely ventilated patient.
- Select and interpret appropriate tests to assist in diagnosis and management of critical illness.
- Describe the role of parenteral nutrition in the intensive care setting.
- Describe the early rehabilitation needs of the critically ill patient.

II. Skills

- Formulate a comprehensive clinical problem list and appropriate management plan for the intensive care patient.
- Perform a competent physical examination of the intensive care patient.
- Select and interpret appropriate investigations that aid in the management of the ICU patient.

Communicator

- Obtain a clear and concise medical history from the patient/family/other health care professionals.
- Communicate effectively with the patient's family and the health care team.
- Demonstrate effective listening.
- Demonstrate compassion and empathy towards patients and their families, including concern for their psychosocial, cultural and economic situation.

Collaborator

- Consult effectively with other physicians and health care professionals.

Manager

- Demonstrate appropriate allocation of limited health care resources.
- Maintain complete and informative clinical records.

Health Advocate

- Demonstrate sensitivity to special issues of gender, ethnicity and social bias in dealing with patients and their families.

Scholar

- Examines and critically appraises the medical literature on issues concerning care of the ICU patient.
- When appropriate, teach effectively to other learners including medical students, fellow residents, and patient / families.
- Accurately assess personal strengths and weaknesses and make changes when necessary.

Professional

- Apply ethical principles in such areas as consent, advanced directives, end-of-life issues, and resource allocation.
- Demonstrate professional attitudes in dealings with patient, families and the health care team.
- Demonstrate effective time management.

ORTHOPEDIC SURGERY (GENERAL)

GOALS

The resident will be able to diagnose and initiate management of common general orthopedic conditions and associated impairments.

OBJECTIVES

By the end of the rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the pathophysiology, clinical presentation and principles of surgical and non-surgical management of common orthopedic conditions affecting the upper and lower extremities.
- Describe orthopedic injuries in a clear and concise manner.
- Describe the presentations and indication for surgical intervention in general orthopedic conditions, including the following:
  - Ligamentous injuries to the knee
  - Meniscal injuries
  - Shoulder instability
  - Shoulder impingement syndromes
  - Hip fractures
  - Joint arthroplasties
- Demonstrate competency in rehabilitation management and protocol of the post-operative patient..
- Select and justify appropriate investigations including laboratory tests, X-rays, CT scan, and MRI.
- Identify the roles of the interdisciplinary team members in the acute phase of orthopedic injury.

II. Skills

- Perform an appropriate orthopedic examination including relevant biomechanical and neurovascular assessment.
- Formulate a comprehensive clinical problem list and appropriate management plan for the orthopedic trauma patient.
- Interpret relevant investigations including laboratory tests, X-rays, CT scan, and MRI.
- Perform simple diagnostic and therapeutic procedures such as joint aspiration, casting and closed reduction of fractures when clinically indicated.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical issues to the patient and family members in clear and non-medical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Identify need for specialist input and obtain the appropriate expertise.
- Contribute effectively to the interdisciplinary team.

Manager

- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias

Scholar

- Critically appraise the relevant medical literature on issues relevant to orthopedic conditions.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Demonstrate commitment to appropriate bioethical standards of clinical practice.
- Demonstrate effective time management.

NEUROSURGERY

GOALS

The residents will be able to diagnose and initiate management of common neurosurgical conditions and associated impairments.

OBJECTIVES

By the end of the rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the pathophysiology, clinical presentation and principles of management of common neurosurgical conditions, including acute brain injury, intracranial hemorrhage, and brain tumors.
- Demonstrate competency in management of the post-operative neurosurgical patient, seizures, electrolyte imbalance and blood pressure.
- Select and justify appropriate investigations including laboratory tests, CT scan, MRI, angiograms, lumbar puncture, EEG and myelogram.
- Identify the roles of the interdisciplinary team members in the acute phase of brain injury.

II. Skills

- Perform an appropriate neurological examination.
- Formulate a comprehensive clinical problem list and appropriate management plan for the neurosurgical patient.
- Interpret relevant investigations including laboratory tests, CT scan, MRI, angiograms, lumbar puncture, EEG and myelogram.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical issues to the patient and family members in clear and non-medical/technical language.
- Communicate effectively with other team member and physicians.

Collaborator

- Identify need for specialist input and obtain the appropriate expertise.
- Contribute effectively to the interdisciplinary team.

Manager

- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias.

Scholar

- Critically appraise the relevant medical literature on issues relevant to neurosurgery.

- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Demonstrate commitment to appropriate bioethical standards of clinical practice.
- Demonstrate effective time management.

SPINAL SURGERY

GOALS

The resident will be able to diagnose and initiate management of spinal cord injured patients.

OBJECTIVES

By the end of the rotation, the resident must be able to attain the capacity to perform the following roles and possessing the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe anatomy, neurophysiology, and histology of the spinal cord.
- Describe pathophysiology of traumatic and non-traumatic SCI.
- Describe epidemiology of SCI and common mechanisms of injury.
- Identify spinal cord syndromes and their clinical features.
- Describe acute management of SCI, including diagnosis and injury classification.
- Demonstrate competency in management of the acute SCI patient, including management of unstable fractures, respiratory compromise, wound infections and neurogenic bowel and bladder.
- Select and justify appropriate investigations including laboratory tests, CT scan, MRI, angiograms, and myelogram.
- Assess and select appropriate spinal orthoses.
- identify the roles of the interdisciplinary team members in the acute phase of SCI.

II. Skills

- Perform a competent neurological examination with emphasis on ASIA classification.
- Formulate a comprehensive clinical problem list and appropriate management plan for the SCI patient.
- Interpret relevant investigations including laboratory tests, CT scan, MRI, angiograms, and myelogram.
- Demonstrate competence in management of spinal stabilization including use of traction, Halo-vest and other spinal orthoses.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical issues to the patient and family members in clear and non-medical language.
- Communicate effectively with other team members and physicians.

Collaborator

- Identify need for specialist input and obtain the appropriate expertise.
- Contribute effectively to the interdisciplinary team.

Manager

- Demonstrate judicious use of health care resources.

Health Advocate

- Demonstrate sensitivity to special issues of gender, culture and social bias

Scholar

- Critically appraise the relevant medical literature on issues relevant to acute SCI.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Demonstrate commitment to appropriate bioethical standards of clinical practice .
- Demonstrate effective time management.

RADIOLOGY

GOALS

The resident will be able to develop an approach to the interpretation of radiological findings related to internal medicine, neurology, neurosurgery, rheumatology and orthopedics.

OBJECTIVES

By the end of the rotation, the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the indications for various types of neuroimaging and their relative pros and cons.
- Be able to distinguish normal from abnormal (including artifactual) appearance of neurological structures on CT scan, MRI, and Angiograms (including MRA and CTA).
- Describe the role of contrast studies.
- Describe the principle sequences of MRI scanning and their indications.
- Identify the limitations of neuroimaging.

II. Skills

- Formulate a comprehensive approach to interpretation of neuroimaging.
- Be able to interpret major findings on neuroimaging.

Communicator

- Communicate effectively with the neuroradiologists and the medical team that ordered the imaging.
- Listen effectively.

Manager

- Demonstrate judicious use of health care resources.

Scholar

- Critically appraise the relevant medical literature on issues relevant to neuroradiology.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Exhibit appropriate personal and interpersonal professional behaviors.
- Demonstrate effective time management.

OUTPATIENT REHABILITATION

GOAL

The resident will gain adequate exposure to the multitude of conditions seen and evaluated by physiatrists in the outpatient setting and understanding the principles of rehabilitation for these conditions

OBJECTIVE

By the end of the Physiatry Residency Program the resident must be able to attain the capacity to perform the following roles and possess the requisite knowledge and skills:

Medical Expert / Clinical Decision Maker

I. Knowledge

- Describe the relevant anatomy, pathophysiology, classification, presentation, and management of the following common acquired disorders of the spine including:
  - Spondylosis and degenerative disc disease
  - Soft tissue injuries of the back
  - Spondylolysis and spondylolisthesis
  - Spinal stenosis
  - Sacroiliac joint dysfunction
  - Flexion-extension injuries of the neck (whiplash)
  - Acute disc prolapse
- Define mechanical back pain.
- Recognize the “red flags” in the diagnosis of low back pain.
- Describe “Waddel’s signs”.
- Describe the anatomy, pathophysiology, classification, presentation, and management of common acquired disorders of the knee including:
  - Patellofemoral syndrome
  - Meniscus tears
  - Fractures
  - Ligamentous injuries
  - Instability
  - Bursitis
- Describe the anatomy, pathophysiology, classification, presentation, and management of common acquired disorders of the shoulders including:
  - Impingement syndrome
  - Calcific tendinopathy
  - Adhesive capsulitis
  - Acromioclavicular joint dysfunction
  - Shoulder instability
- Describe the anatomy, pathophysiology, classification, presentation, and management of common acquired disorders of the elbow, wrist and hand including:
  - Medial and lateral epicondylitis
  - Olecranon bursitis
  - Contractures

- Rheumatoid deformities
- Dupuytren's contracture
- De Quervain's disease

- Describe the anatomy, pathophysiology, classification, presentation and management of common acquired disorders of the foot and ankle including:
  - Pes planus and cavus
  - Hallux valgus and rigidus
  - Stress fractures
  - Interdigital neuritis
  - Plantar fasciitis
  - Tendonitis and tendonopathies of the foot and ankle
  - Rheumatoid deformities
  - Inversion and eversion sprains of the ankle
  - Diabetic foot
- Describe the approach to management of osteoarthritis.
- Describe the treatment approach for chronic pain.
- Describe the treatment approach for myofascial pain.
- Describe the principles of rehabilitation for patients with chronic neurological and musculoskeletal disorders such as brain injury, spinal cord injury, central and peripheral neuropathies, and amputations.
- Describe the pathophysiology and management (pharmacological and non-pharmacological) of spasticity in the outpatient setting.
- Appraise use of medications in the treatment of the above disorders and select/prescribe appropriate drug therapy.
- Select, justify and interpret appropriate investigations including lab tests, electrodiagnostic and radiological workup.
- Identify the roles of physical modalities and assess their appropriate application.
- Identify, assess and select appropriate use of orthoses and mobility aids.
- Describe the role of physical activity in the above disorders.
- Identify and develop an approach to relevant medico legal issues.

II. Skills

- Perform a competent physical and functional examination of the patient with particular emphasis on the neuromusculoskeletal systems.
- Perform a Functional Independence Measure assessment on the patient.
- Order relevant investigations and to be able to interpret the results of such tests, including blood work, body fluid analysis, and imaging tests.
- Formulate an appropriate rehabilitation plan based on realistic goals for the individual patient.
- Perform diagnostic and therapeutic procedures as required, including joint aspirations, joint injections, motor point injections, and Botox injections.

Communicator

- Demonstrate proficiency in completing a relevant and organized medical history.
- Explain the medical and rehabilitation issues to the patient and family members in clear and non-medical language.

- Communicate effectively with other team members and physicians.
- Synthesize and document appropriately concise and informative consultation reports, progress notes, and discharge summaries.

Collaborator

- Describe the importance of a multi-disciplinary team in the effective management of rehabilitation out patients.
- Identify need for specialist input and obtain the appropriate expertise.
- Assume a leadership role on the interdisciplinary rehabilitation team and effectively lead team conferences when necessary.
- Promote patient autonomy and the involvement of their families in decision-making.

Manager

- Describe the management and administrative structure of the outpatient clinic.
- Describe the basic principles of office management, including billing, human resources management, record keeping, and patient scheduling.
- Participate in quality assurance discussions.
- Demonstrate judicious use of health care resources.

Health Advocate

- Identify the important determinants of health that affect patients,
- Demonstrate sensitivity to special issues of gender, culture and social bias,
- Assist patients and families in accessing health and social resources in the community,

Scholar

- Critically appraise the relevant medical literature on issues relevant to outpatient practice.
- Demonstrate effective teaching to other physicians, fellow residents and medical students when needed.
- Participate in the education of patients.
- Demonstrate effective self-evaluation and appropriate self-directed learning.

Professional

- Apply ethical principles to issues that may arise in the outpatient setting.
- Demonstrate professional attitudes and sensitivity in dealings with patients, families and the interdisciplinary team.
- Demonstrate effective time management.

RESIDENCY RESEARCH

Objectives

After completion of the residency training in Physical Medicine and Rehabilitation, the resident will be able to demonstrate the ability to:

1. Critically appraise sources of medical information.

2. Pose a research question relevant to the practice of physical medicine and rehabilitation (clinical, basic science, or population health).

3. Develop a proposal to solve the research question, based on the ability to:
    a. Conduct an appropriate literature search based on the research question.
    b. Identify, consult and collaborate with appropriate content experts to conduct the research.
    c. Propose a methodological approach to solve the question.

4. Complete the research outline in the proposal.

5. Defend and disseminate the results of the research.

6. Identify areas for further research that flow from the results.

Methodology

The resident will achieve the above stated objectives by:

1. Active participation and leadership in the critical appraisal in the Division's Journal Club .
2. Completion of one or more research projects.
3. Presentation of at least one research projects during the annual Department of Medicine Research Day .
4. Publication of one or more papers in peer reviewed journals.

Disabled Services, Rights and Benefits in Saudi Arabia

- Be familiar with the Service providers for the Medical and Rehabilitative Care for the disabled in the Kingdom.
- Acquire broad knowledge of the Disability Act approved in the Kingdom.
- Develop a knowledge of the various pensions and benefits for the people with Disability
- Know the guidelines of the percentage of impairment according to the Saudi Law and be able to determine the degree of acquired disability when requested by Authority.
- Identify the charitable organizations which are providing assistance to the people with disability.

Specialty Exam References:

Specialty related Journals:

- Archives of Physical Medicine and Rehabilitation.
- American Journal of Physical Medicine and Rehabilitation.
- Pain Medicine
- Pain Physician
- Neuro-Rehabilitation
- Brain
- Cerebrovascular Disease
- Stroke
- Journal of Head Trauma Rehabilitation
- Clinical Journal of Sport Medicine
- Journal of Sport Rehabilitation
- American Journal of Sports Medicine
- Disability Rehabilitation

Specialty related Books:

- Physical Medicine and Rehabilitation, (Braddom-3rd edition). http://www.braddomtext.com/default.cfm
- Physical Medicine and Rehabilitation: Principles and Practice. (DeLISA-4th Edition)
- Physical Medicine and Rehabilitation Board Review. (Sara J. Cuccurullo, 2004)
- Grants Atlas of Anatomy
- Illustrated Anatomy of the Head and Neck, (3rd edition, Fehrenbach and Herring)
- Neuroanatomy through Clinical Cases, Blumenfeld.
- Essentials of Clinical Neuroanatomy and Neurophysiology. (10th edition, F.A. Davis)
- Neurology and Neurosurgery Illustrated, (3rd edition, Kenneth W. Lindsay).
- Orthopedic Physical Assessment, (4th edition, Magee).
- Musculoskeletal Examination, 2nd edition, Jeffrey Gross and Joseph Fetto).
- Physical Examination of the Spine and Extremities. (Stanley Hoppenfeld).
- The Mental Status Examination in Neurology, (Strub-Black, 2000).
- Neurological Examination Made Easy, (2nd edition, Fuller).
- Muscles: Testing and Function with Posture and Pain. (4th edition, Kendall).
- Kinesioloyg of the Musculoskeletal System, Foundations for Physical Rehabilitation. (2002, Donald A. Neumann).
- Myofascial Pain and Dysfunction, The Trigger Point Manual. (TRAVELL & SIMONS).
- Clinical Anatomy of the Lumbar Spine and Sacrum, (Nikolai Bogduk, 4th edition).

- Practice Guidelines for Spinal Diagnostic and Treatment Procedures. (International Spine Interventions Society, Nikolai Bodgduck 2004).
- Physical Medicine and Rehabilitation (PM&R) Pearls.
- PM&R Secrets.
- Neurology Secrets
- Spine Secrets
- Orthopedic Secrets
- Sports Medicine Secrets
- Rheumatology Secrets
- EMG Secrets.
- Easy EMG
- EMG Pearls
- Electromyography in Clinical Practice, A Case Study Approach (Katirji 1998).
- The Rehab Pocket Survival Guide, (Scott Woska, 2001).
- Manual of Physical Medicine and Rehabilitation, (Brammer - Spires 2002).
- The Rehabilitation Specialist`s Handbook , (Rothstein- Roy- Wolf ,2005).
- Management of Brain Injured Children, (2nd edition, Appleton-Baldwin, 2006).
- Brain Injury Medicine, Principles and Practice. (Zasler-Katz-Zafonte, 2007).
- Spinal Cord Medicine: Principles and Practice, Edited by Vernon W. Lin, New York, Demos, 2003.
- Biostatistics: A Foundation for Analysis in the Health Sciences (W. Daniel, 2005).
- Basic & Clinical Biostatistics, (Beth Dawson & Robert G, 2004).

Bibliography

Saudi Commission for Health Specialties

Royal college of Physicians and Surgeons in Canada

Australasian Faculty of Rehabilitation Medicine

American Board of Physical Medicine and Rehabilitation

Jordanian Board of Physical Medicine and Rehabilitation