ISPRM EDUCATION COMMITTEE

CORE CURRICULUM & COMPETENCIES FOR THE PROFESSIONAL PRACTICE OF PHYSICAL AND REHABILITATION MEDICINE

Description:

1. The goal of this document is to provide a set of fundamental practical knowledge requirements and competencies expected in the professional practice of Physical & Rehabilitation Medicine (PRM). Given the variability in practice and resource availability in each geographic location, emphasis is placed on basic foundational concepts and principles of PRM, with the addition of some topics/conditions, with a goal of striving towards becoming the ideal or optimum core curriculum. It is not intended to be used as a mandatory curriculum, rather, to serve as a guide for training programs.

2. Content/Learning units are matched with suggested learning objectives focusing both on clinical knowledge and practical skills to be achieved by trainees. Practical skill competence is defined here as having the ability to apply clinical knowledge and appropriately manage conditions and/or perform procedures. The level of knowledge and skills expected at the end of training (e.g. basic versus advanced) on some clinical areas may be variable and shall be determined by each country, particularly in those where further subspecialty training exists or is required. For certain topics or conditions wherein practical skill and competence level may not be readily achieved by the trainee due to limitations in the current clinical practice setting, the provision of at least some amount of clinical rotation and experience is highly recommended.

3. Individual programs and training institutions may use this as a tool for curriculum implementation and will need to be customized.
    a. Didactic and Socratic teaching format may include but not limited to the following: classroom courses, conferences, journal clubs, case studies, webinars, assigned articles or independent research.
    b. Clinical curriculum such as clinical rotations, pre-planned observation, shadowing, mentoring

    ** An example is given below for Rehabilitation goal setting (in italics)*

Topic	Content /Learning Unit/ Syllabus	Learning objectives		Curriculum Implementation		Evaluation Method
		Clinical knowledge	Practical skill (Competence)	Didactic (e.g. classroom courses, conferences, journal clubs, case studies, webinars, assigned articles, independent research)	Clinical (e.g. pre-planned observation, rotations, shadowing, mentoring)	
GENERAL REHABILITATION PRINCIPLES	Definition of function & health	X				
	WHO Classification in detail: Body Structure and Functions, Activity and Participation, Environmental factors, Capacity and Performance concepts	X				
	Rehabilitation goal setting	X	X	*Coursework module, assigned book chapter reading, didactics/lecture.*	*outpatient clinics, Inpatient unit rotations with Prof. Y*	*Direct observation; quizzes/written or oral examinations*
	Evaluation and management of patients with physical and/or cognitive impairments, disabilities, and functional limitations	X	X			
	History and physical examination in PRM	X	X			
	Assessment of impairment, activity limitation, and participation restrictions	X	X			
	Review and interpretation of pertinent laboratory and imaging materials for the patient	X	X			
	Rehabilitation prescription writing 1 (exercise, orthotics, prosthetics, wheelchairs, assistive devices for ambulation, and other durable medical equipment or assistive devices)	X	X			
	Rehabilitation prescription writing	X				

	2 (evaluation and treatment by physical therapists, occupational therapists, speech/language pathologists, therapeutic recreational specialists, psychologists, and vocational counselors)		**X**			
	Recovery, plasticity, prognosis and delineation of disabilities	**X**	**X**			
HUMAN ANATOMY & PHYSIOLOGY	Neurological and Neurobehavioral system	**X**	**X**			
	Functional Anatomy	**X**	**X**			
	Child and Adolescent Development	**X**				
	Musculoskeletal system	**X**	**X**			
	Exercise & sports physiology	**X**	**X**			
	Biomechanics & kinesiology	**X**	**X**			
	Principles of cardiovascular fitness	**X**	**X**			
	Motor learning and control	**X**	**X**			
	Gait and locomotion	**X**	**X**			
	Posture and balance control systems	**X**	**X**			
	Physiology of aging	**X**	**X**			
DIAGNOSTICS (knowledge includes: indications, interpretation of major findings)	Imaging Studies (e.g. plain radiographs, CT, MRI, bone scan, Ultrasound)	**X**	**X (Interpretation)**			
	Electrodiagnostic Medicine (Electromyography, Nerve Conduction Studies, Evoked Potentials)	**X**	**X**			
	Bone Density Assessment	**X**	**X (Interpretation)**			
	Urodynamics	**X**	**X (Interpretation)**			
	Musculoskeletal Ultrasound	**X**	**X**			
FUNCTIONAL ASSESSMENT & OUTCOME MEASURES	Psychometric properties of clinical measures (accuracy, reliability, validity, feasibility, ceiling and floor effect, transcultural validation)	**X**				

	Range of motion	X	X			
	Muscle strength	X	X			
	Cranial Nerves	X	X			
	Sensory and proprioception	X	X			
	ADL measures	X	X			
	Consciousness level	X	X			
	Balance measures	X	X			
	Clinical Gait measures	X	X			
	Motor impairment measures	X	X			
	Hand dexterity measures	X	X			
	Speech and swallow abilities	X	X			
	Pain assessment	X	X			
	Spasticity	X	X			
	Special Neurological Exams (e.g. Glabella, Babinski, Corneal reflex, Muscle stretch reflex, etc.)	X	X			
	Assessment of disorders of consciousness	X	X			
	Cognition assessment: general (e.g. Mini Mental state exam, Frontal Assessment battery)	X	X			
	Cognition assessment: focal (e.g. Memory tests, Attention tests, Visuo-spatial ability tests, Aphasia Screening test)	X	X			
INTERVENTIONS (Indications, efficacy, side effects)	Principles of pharmacology (disease/condition specific)	X				
	Physical modalities (heat, cold, electrical stimulation, hydrotherapy, light)	X	X			
	Manual therapy (massage, manipulation, traction)	X	X			
	Therapeutic exercise	X	X			
	Orthotics and prosthetics	X	X			
	Locomotion aids/adaptive equipment	X	X			
	Assistive technology/ augmentative communication	X	X			
	Neurodevelopmental approaches	X	X			
	Education, psychological support, biofeedback techniques	X	X			

	Ergonomic considerations in the home, workplace	X	X			
	Sports therapy	X				
	Work hardening/ conditioning	X	X			
	Complementary/alternative medicine	X				
REHABILITATION APPROACH TO DISEASE –SPECIFIC DISABILITIES (Knowledge concerns: pathogenesis, clinical assessment, rehabilitation techniques, prognostic factors of recovery)	Stroke	X	X			
	Traumatic Brain Injury in adults	X	X			
	Traumatic Brain Injury in Children	X	X			
	Acquired brain injury in adults	X	X			
	Acquired brain injury in children	X	X			
	Spinal cord injury (traumatic and non-traumatic, children and adults)	X	X			
	Autoimmune & inflammatory neurological conditions (e.g. Multiple Sclerosis)	X	X			
	Movement Disorders (e.g. Parkinson disease, Huntington's disease, dystonia)	X	X			
	Acute and chronic musculoskeletal syndromes	X	X			
	Neuromuscular junction disease (e.g. myasthenia gravis) in children and adults	X	X			
	Neuromuscular disease in adults (including post-polio syndrome)	X	X			
	Neuromuscular disease in children (e.g. Spinal Muscular Atrophy)	X	X			
	Neuropathies	X	X			
	Congenital and acquired myopathy/dystrophy	X	X			
	Peripheral nerve disorder and injuries (as a composite clinical condition)	X	X			
	Disorders of Cognition and behavior	X	X			
	Cerebral Palsy	X	X			
	Congenital disorders of Nervous System (e.g. spinal dysraphism)	X	X			
	Burn injury	X				

	Swallowing disorders	X	X			
	Speech and language disorders	X	X			
	Neurogenic bladder	X	X			
	Neurogenic bowel	X	X			
	Spasticity management	X	X			
	Orthopedics & Musculoskeletal Disorders					
	Osteoarthritis, crystal-induced & degenerative musculoskeletal conditions	X	X			
	Post-fracture and post-operative joint arthroplasty	X	X			
	Rheumatologic Disorders (Inflammatory & autoimmune disorders)	X	X			
	Musculoskeletal Injuries	X	X			
	Hand injuries	X				
	Amputation (congenital and acquired Limb Loss)	X	X			
	Osteoporosis	X	X			
	Pain syndromes	X	X			
	Temporo-mandibular joint disorders	X	X			
	Spinal disorders (back pain, neck pain, scoliosis)	X	X			
	Sports medicine	X				
	Other specific disabling conditions					
	Pain management	X	X			
	Geriatric Rehabilitation	X	X			
	Pulmonary Rehabilitation	X	X			
	Cardiac Rehabilitation	X	X			
	Pediatric Rehabilitation	X	X			
	Peripheral Artery Disease /Vascular insufficiency	X	X			
	Cancer Rehabilitation	X	X			
	The frail patient (including the immobile patient)	X	X			
	Disability after medical debility (e.g. Diabetes, Heart Failure)	X	X			
	Postural Instability and recurrent falls	X	X			

	Wound care and management	X	X			
	Bladder and bowel disorders (perineal rehabilitation)	X	X			
	Sexual disorders (after spinal lesions)	X	X			
RESEARCH IN REHABILITATION	Principles of epidemiology, quantitative and qualitative research	X	X			
	Research study designs (experimental and observational studies, single-case studies, meta-analysis and reviews)	X	X			
	Fundamentals of inferential statistics (mean, SD, variance, confidence intervals, median, range, interquartile range; normal distribution)	X	X			
	Reporting results in graphics and tables, narrative assessment of outcome	X	X			
INTEGRATIVE AND CLINICAL REHABILITATION SCIENCES	Application of bioethical principles to decision making in the diagnosis and management of patients	X	X			
	Administration and management	X	X			
	Research on best care including guidelines, organization, coordination, and education	X	X			
	Standards and guidelines for the provision of best care (including Evidence Based Medicine) in PRM	X	X			
	PRM quality management	X	X			
	Scientific education and training of professionals in PRM	X	X			
	Development and evaluation of the PRM team and multidisciplinary care	X	X			
	Community-based rehabilitation issues	X	X			
	Networks and pathways in PRM	X				
	Interpersonal and communication	X	X			

	skills for effective exchange of information and collaboration with patients, their families, and other health professionals					
	Adherence to ethical principles and professional conduct, demonstrating compassion, integrity and respect for others, accountability to patients, society and the profession	X	X			

CORE COMPETENCIES:

The following key competencies should be integrated in the curriculum. These are outcomes or competencies that a resident/trainee is expected to have had achieved by the end of the training program in preparation for the independent practice of Physical & Rehabilitation Medicine (PRM). Competency descriptions may be applicable to more than one domain.

DOMAINS	COMPETENCIES TO BE ACHIEVED
Patient safety and quality Patient Care	➢ Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. ➢ Demonstrate competence in the evaluation and management of patients with physical and/or cognitive impairments, disabilities and functional limitations across different age groups. ➢ Understand and provide appropriate prescription/consultation for evaluation and management by other rehabilitation professionals (e.g. Physical therapy, occupational therapy, Speech/language pathologist, therapeutic/recreational specialist, psychologists and vocational counselors, rehabilitation nurse), while overseeing and monitoring the rehabilitation program. ➢ Work in inter-professional teams. ➢ Coordinate effectively and efficiently an interdisciplinary team of allied rehabilitation professionals for the maximum benefit of the patient through: ❖ An understanding of each allied health professional's role. ❖ The ability to determine precise rehabilitation goals and prescribe adequately detailed rehabilitation prescriptions, towards functional recovery/outcome, considering prognosis, physical, environmental and social factors. ❖ The development of management and leadership skills. ➢ Be able to assess the needs of a patient hospitalized in an acute care facility and suggest an

	adequate treatment/recommendation. ➢ Organize admission to a rehabilitation facility. ➢ Organize the discharge from a rehabilitation facility, relaying by ambulatory care, including the establishment and coordination of measures for disability compensation. ➢ Have experience in the continuing care of patients with long-term disabilities through appropriate follow-up care.
Medical Knowledge and Procedural Skills	➢ Demonstrate understanding of the pathophysiologic aspects, risk factors and functional prognosis of disorders in PRM, and describe the deficiencies, activity limitations and participation restrictions as consequences of such disorders. ➢ Utilize appropriate diagnostic and assessments, both clinical and technical means, to explore functions, with eventual development of a rehabilitation management plan using pharmacologic and non-pharmacologic, physical, cognitive and behavioral treatments, as well as means for disease prevention. ➢ Independently perform comprehensive and specific physiatric examinations, including diagnostic and treatment procedures common to the practice of PRM such as electrodiagnostic medicine, MSK ultrasonography, and peripheral and axial injections. ➢ Identify the different kinds of exercise prescribed by a PRM specialist.
Interpersonal Skills and Communication	➢ Demonstrate interpersonal and communication skills that result in effective exchange of information and collaboration with patients, their families, and other health professionals. ➢ Exhibit effective and appropriate communication with patients, families, and the public, across different socioeconomic and cultural backgrounds. ➢ Work effectively as a member or leader of a healthcare team or other professional group; and act as a consultative role to other physicians or health professionals. ➢ Maintain comprehensive, timely and legible medical records.
Practice and Systems-Based Learning	➢ Observe and gain fundamental understanding of the types of patients served, referral patterns and services available in the continuum of rehabilitation care provided in various settings. These may include critical, acute and sub-acute care units, skilled nursing facilities, sheltered workshops and other vocational facilities, schools for persons with multiple disabilities (including deafness and blindness), independent living facilities for individuals with physical impairments, day hospitals, home health care services, primary care setting, as well as community-based rehabilitation. Introduction to these options for care may be made by on-site visits to some of these facilities as well as didactic lectures. Residents should be encouraged to interact with health care consumer groups and organizations in supervised working environments. ➢ Identify the inclusion criteria for a physical/cognitive rehabilitation program for an older adult and criteria for discharge. ➢ Identify the main relevant patient groups for a disabled person.
Reintegration of people with disabilities into society	➢ Identify resources of education and training for a disabled person and participate in the orientation. ➢ Identify resources of professional rehabilitation and participate in the orientation for reintegration. ➢ Advocate for quality patient care and optimal patient care systems.

	➢ Identify the health, social and financial barriers and possible resources. ➢ Identify and establish the means allowing a disabled person to remain at home.
Medical Ethics and Public Health	➢ Identify individual and collective issues of public health and ethics related to disabled people. ➢ Identify clinical situations (during rehabilitation) of unreasonable obstinacy related to care. Conduct, within the rules and deontology (normative ethical position), multi-professional discussions aiming at care limitations with the patient and relatives/caregivers. ➢ Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate.
Quality Assurance	➢ Participate in identifying system errors and implementing potential systems solutions. ➢ Receive formal instruction regarding the principles, objectives and process of performance improvement and program evaluation, risk management and cost effectiveness in medicine
Policies of care and prevention for disabled people.	➢ Codify PRM clinical activities and practical procedures. ➢ Participate in public information about prevention and care for the main disabling diseases and the social integration of disabled people.
Professionalism	➢ Demonstrate a commitment to carry out professional responsibilities and an adherence to ethical principles. ➢ Demonstrate compassion, integrity and respect for others ➢ Respect for patient privacy and autonomy. ➢ Demonstrate responsiveness to patient needs that supersedes self-interest. ➢ Accountability to patients, society and the profession. ➢ Be sensitive and responsive to a diverse patient population, including, but not limited to diversity in gender, age, culture, race, religion, disabilities and sexual orientation.

References:
1. Phase 1 & 2 of PRM Core curriculum and competency by ISPRM Education committee
2. American Council for Graduate Medical Education (ACGME) Program Requirements for Physical Medicine and Rehabilitation. July 2013.
3. Texas Children's Hospital Sports Medicine residency curriculum.
4. PRM Curricula shared with the ISPRM Education committee by various training centers: France (2015), Austria (2016); Singapore, Philippines, United States (Carolinas Medical Center, 2015), Iran (2007).

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