The Role of the Physiatrist in Health Care

Tony T. Ton-That, M.D., F.A.B.P.M.&R.
Medical Director, Spine and Low Back Pain Program
Lancaster General Health

WHO ARE PHYSIATRISTS?

To identify a physiatrist in a single word is difficult, because Physiatry originated historically from two different fields, physical medicine and rehabilitation. In current practice physiatrists are medical doctors who have completed training in the medical specialty of Physical Medicine and Rehabilitation (PM&R). Some also receive fellowship training in a subspecialty such as traumatic brain injury medicine, hospice and palliative medicine, neuromuscular and electro diagnostic medicine, musculoskeletal pain medicine, sports medicine, pediatric rehabilitation medicine, or spinal cord injury medicine. Though the specific identity of physiatrists may be affected by their specialization, the main focus of any physiatrist is to evaluate and treat injuries, physical illness, and disability through comprehensive, patient centered treatment plans, utilizing cutting-edge as well as time-tested methodologies to maximize function, reduce pain, and enhance the quality of life.

HISTORY OF PHYSIATRY

The word physiatry is derived from the Greek words "physio," which means "nature," and "iatreia," which means "healing art, medical treatment." Physiatry originally involved treating and diagnosing diseases using light, heat, cold, and electricity. Around the late 1930s to early 1940s, doctors who treated arthritis using ultrasound or microwaves were called "physical therapy physicians," which is the origin of the term physiatrist.[1]

One of the specialty's true pioneers was Frank H. Krusen, MD. Having undergone treatment for tuberculosis himself, he later researched the uses of physical medicine and soon made it his career. After initiating a program in physical therapy at Temple University, Dr. Krusen moved to the Mayo Clinic in 1936 where he developed a Department of Physical Medicine. His training program there evolved into the first three-year residency in physical medicine in the United States. Dr. Krusen along with 14 other "physical therapy physicians" (as physiatrists were known at the time) found themselves with different interests and concerns than their colleagues, and began to promote physical medicine as a specialty. They asked the American Medical Association (AMA) for specialty status and an examining board for physical medicine. In 1938, Dr. Krusen proposed the term "physiatrist" to identify the physician specializing in physical medicine. To avoid confusion with psychiatry, he proposed a different pronunciation, with emphasis on the third syllable. However, it wasn't until 1946 that the AMA accepted the term.

In early 1947, Drs. Frank Krusen, Walter Zeiter, and John Coulter presented another plan for the organization and financing of an American Board of Physical Medicine and Rehabilitation to the American Board of Medical Specialties (ABMS). This time their recommendation was accepted, and on February 27, 1947, the American Board of Physical Medicine was incorporated. It was officially recognized by both the ABMS and the AMA, and Dr. Krusen was named the first chairman.[2]

From the 1950s to the 1980s, classical inpatient neurorehabilitation was the main focus of the specialty, but after this period, and until about 2000, the main focus changed to include outpatient musculoskeletal rehabilitation. In the past 10 years, however, more attention has been given to interventional pain management using fluoroscopic control.

CATEGORIES OF PHYSIATRISTS

1. NEUROREHABILITATION PHYSIATRIST

(Inpatient Acute Rehabilitation Physiatrist):

Specializes in treating patients with post-acute events and complex neurological deficits, including those occurring after strokes, spinal cord injuries, orthopedic or neurosurgical procedures, and traumatic brain injuries. These patients require intensive inpatient rehabilitation. The physiatrist will lead a medical professional team, which includes physical therapists, occupation therapists, speech pathologists, rehabilitation nurses, recreationalist and social workers to provide a comprehensive rehabilitation program and medical management during the patient's short-term hospitalization. The physiatrist continues to work with other physicians, which may include primary care physicians, neurologists, orthopedic surgeons, neurosurgeons and other specialists to care for all the patient's needs and problems to provide a speedy recovery and a safe return to the community, rather than focusing on specific organ injuries.

The NeuroRehabilitation Physiatrist continues to provide post-acute care needs to the patient after discharge from the inpatient rehab program, including further therapies to

improve functional outcome. Medical management for spinal cord injury patients includes treatments for spasticity, pain control, wound care, and bladder and bowel function. Evaluation of orthotics or prosthetics to improve the patient's quality of life are also part of the scope of ambulatory practice.

2. MUSCULOSKELETAL PAIN MEDICINE PHYSIATRIST (Outpatient Physical Medicine Physiatrist):

Treats any disability resulting from diseases or injuries that involve the musculoskeletal system, including diseases affecting ligaments, central or peripheral nerves, and joints. Evaluates and treats the patient with evidence based methodologies, up-to-date diagnostic tools and cutting edge technology involving less invasive procedures to accurately manage the source of pain. Designs a treatment plan that can be carried out by the patients themselves, or with the help of the professional medical team, to put the pieces of a person's life back together after injury or disease — without surgery. Collaborates closely with physical and occupational therapists to improve the patient's physical function, daily living activities, and quality of life

A Neuromuscular and Electrodiagnostic Physiatrist performs electromyography (EMG) and nerve conduction studies (NCS) to evaluate peripheral neuropathy, radiculopathy from spinal nerve compression in structural lesions found on MRI studies, neuromuscular and upper motor neuron diseases. These studies help to confirm the level of spinal nerves irritated or compressed, to identify the precise location for epidural steroid injections or surgical management. The EMG/NCS study can differentiate between spinal nerve and peripheral nerve lesions. For example, EMG/NCS helps to evaluate the etiology of foot drop, which may be caused by L5 nerve root impingement or peroneal nerve compression across the fibular head at the knee area. Also, these studies provided information about axonal loss versus re-innervation processes after surgical procedures, which will guide an appropriate plan of care.

The Spine Physiatrist evaluates patients with spine-related conditions causing neck pain or low back pain with or without nerve irritation. Collaborating with neurosurgeons and/or orthopedic surgeons, the physiatrist treats these patients aggressively using evidence-based, non-aggressive, less-invasive treatments including:

- trigger point injections, injection of the joints;
- ultrasound, fluoroscopy-guided interventional procedures such as epidural / facet steroid injections, medial branch block and radiofrequency ablation for facet-mediated pain;
- trials of a spinal cord stimulator for management of chronic pain, and discography for evaluating diskogenic pain.

With broad expertise in rehabilitation medicine and leadership skills, the musculoskeletal physiatrist works with the medical team including a neuropsychologist to provide cognitive behavioral therapy for patients with longstanding complex chronic pain and bio-psychosocial problems. The multidisciplinary pain program based on a bio-psychosocial model is an important tool in the treatment regimen for chronic noncancerous pain.[3]

And, finally, a *Musculoskeletal Physiatrist* also can provide complementary alternative medicine, including acupuncture and / or herbal medicines.

RESIDENCY TRAINING PROGRAMS FOR PHYSIATRISTS

A physiatry residency program requires one year of internship and three years of specialty training in physical medicine and rehabilitation. The training program varies from hospital to hospital, but generally includes inpatient care (stroke, spinal cord injury, traumatic brain injury, post orthopedic surgical procedures, post neurosurgical brain and spinal procedures, other complex upper motor neuron or neuromuscular diseases, etc.) and outpatient management (musculoskeletal pain). Also included in the training program are diagnostic tests, such as electromyography and nerve conduction studies (EMG/NCS), and video fluoroscopic studies and procedures, including trigger point and intra-articular injections. Recently, advances in ultrasound imaging, and the great interest of physiatrists in the musculoskeletal aspects, have caused residency training programs to focus more on ultrasound imaging techniques. Some hospitals have specialized programs, such as units for spinal cord injury, traumatic brain injuries, pediatric rehabilitation, and burn units, along with cardiac and pulmonary rehabilitation.

During three years of residency training, the physiatrists are trained and develop skills as team leaders attending all interdisciplinary medical and family conferences. Weinstein suggests that the five most important qualities that physiatrists must have are listening, translating, managing, innovating, plus a tolerance for uncertainty.[4] Listening is the ability to hear patients' complaints without any disturbance. Translating involves the delivery of medical knowledge to the patients. Managing encompasses teaching and enabling patients and their families to self-manage. Tolerance for uncertainty involves dealing with and adequately expressing uncertainty on the etiologies and prognoses of chronic diseases. Innovating is the ability to develop novel interventions. Many physiatric services use traditional and conventional methods that produce limited outcomes. Therefore, physiatrists must make efforts to develop innovative interventions such as rehabilitation robotics to overcome the limitation of previously administered therapies. The Rehabilitation Institute of Chicago (RIC) and its partners have developed an internationally acclaimed center designed to analyze and evaluate the utility of robotics for therapies that improve muscle weakness, range of motion, and quality of life after neural injury.[5]

CURRENT ISSUES:

a. Managing Chronic Health Problems

Historically, physiatrists have been accustomed to dealing with secondary functional disturbances caused by neurological, musculoskeletal, and cardiovascular diseases. As the population ages, and people devote more attention to exercise therapy that promotes health and well-being, these efforts benefit from physiatry. At the other end of the spectrum, obesity and lack of exercise cause acute and chronic problems that also benefit from intervention by a physiatrist. Obesity and lack of exercise increase the incidence of type 2 diabetes mellitus and osteoarthritis, which cost $147 billion in 2008, comprising 10% of total medical costs that year.[6] Fortunately, these alarming trends can be ameliorated by exercise and adequate treatment. The American Sports Medical Society recommends exercise to combat obesity, and initiated a campaign titled "Exercise is a Medicine." Musculoskeletal/Sports Medicine Physiatrists can serve as specialists managing these issues.

b. Value-Based Reimbursement

As the above-mentioned new markets in the field of rehabilitation medicine grow, the demand for physiatrists will increase. The number of disabled persons who live longer also contributes to the increasing demand for physiatrists. However, considering that not only physiatrists but orthopedic surgeons, anesthesiologists, and family medicine physicians also treat musculoskeletal problems, an increased number of physiatrists may not be reasonable. Therefore, physiatrists must develop innovative, evidence-based interventions, and provide leadership in cooperating with primary care providers and other specialists to manage complex acute and chronic conditions, and to optimize patient outcomes and satisfaction.

LGH SPINE REGISTRY, STANFORD-NIH CHOIR PROGRAM, EPIC

In Lancaster County there are groups of NeuroRehabilitation and Musculoskeletal Pain Physiatrists who provide care. In the Lancaster General Health Physician group, two NeuroRehabilitation Physiatrists practice at Lancaster Rehabilitation Hospital, and a Musculoskeletal Pain Physiatrist directs the Spine and Low Back Pain program at the Suburban Outpatient Pavilion. Currently at Lancaster General Hospital, a new Acute Low Back Pain program is being introduced to provide evidence-based, standardized guidelines to the practices in primary care, urgent care, emergency department/fast care, and occupational medicine. This Acute Low Back Pain program has been making significant progress in increasing awareness of the importance of early physical therapy treatments, and of the risk of prescription drug addictions and overdoses. Its goals include achieving significant reductions in the prescription of opioids and the use of unnecessary imaging studies with their attendant cost and risk of radiation exposure.

Additionally, the NeuroMusculoskeletal service program at LGH is developing a Spine Registry with specific metrics by using innovative technology to extract data from the EPIC system. Prospective, longitudinal, patient-reported outcomes registries are powerful tools, which allow measurement of cost, safety, effectiveness, and health care value of clinically meaningful episodes of care. Registries will be used to proactively suggest care patterns, and will examine appropriateness of care and disparities in delivery. Registry data will also be used to understand variations in treatment and outcomes, and to project the probability of successful or poor outcomes in select subgroups in the heterogeneous population with chronic low back pain.

The ultimate goal of health service registries is to *increase the value of care delivered* (i.e. outcome per unit cost). Moreover, it has been suggested that when doctors receive continuous feedback of outcomes from registries, it raises awareness and improves the quality of care. Notably, The National Institutes of Health collaborated with multiple academic university medical centers across the nation to create a Spine Registry at Stanford University Hospital Center within the Collaborative Health Outcomes Information Registry (CHOIR) to achieve these goals.[7] As more spine-focused registries emerge and are integrated into the U.S. health care delivery system, we can expect increasingly powerful evidence to empower value-based reform.

REFERENCES

1. Dillingham TR. Physiatry, physical medicine, and rehabilitation: historical development and military roles. Phys Med Rehabil Clin N Am. 2002; 13:1–16. [PubMed]
2. http://www.aapmr.org/about-physiatry/history-of-the-specialty
3. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3656892/
4. Weinstein SM. Defining physiatry: a tolerance for uncertainty. PM R. 2011; 3:1–2. [PubMed]
5. http://www.ric.org/research/research-centers–programs/mars3/
6. Laskowski ER. Action on obesity and fitness: the physiatrist's role. PM R. 2009; 1:795–797. [PubMed]
7. http://painconsortium.nih.gov/News_Other_Resources/painregistries_paininfo.html