

Authors:

Abna A. Ogle, MD
 Susan J. Garrison, MD
 Darryl L. Kaelin, MD
 James W. Atchison, DO
 Yong I. Park, MD
 Donald M. Currie, MD

Affiliations:

From the Department of Rehabilitation Medicine, University of Kansas Medical Center (AAO), Kansas City, Kansas; Baylor College of Medicine (SJG), Houston, Texas; University of Indiana Medical Center (DLK), Bloomington, Indiana; University of Florida (JWA), Gainesville, Florida; UMDNJ/New Jersey Medical School (YIP), Newark, New Jersey; and University of Texas/Health Science Center at San Antonio (DMC), San Antonio, Texas.

Reprints:

All correspondence and requests for reprints should be addressed to Abna A. Ogle, MD, Department of Rehabilitation Medicine, University of Kansas Medical Center, 3901 Rainbow Boulevard, Kansas City, KS 66160-7306.

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Education & Administration

Roadmap to Physical Medicine and Rehabilitation

Answers to Medical Students' Questions About the Field

ABSTRACT

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Medical specialty training has undergone dramatic changes in the last 5 yr. This article was prepared by the Undergraduate Education Committee of the Association of Academic Physiatrists in an attempt to help guide medical students who are considering a career in physical medicine and rehabilitation. This report is an update of two previous articles addressing medical students' questions to assist them in making educated decisions about residency training and medical practice.

Key Words: Specialty Training, Residency Training, Physiatrist, Physiatry, Graduate Medical Education, Career, Rehabilitation

Health care has undergone tremendous changes in recent years, with increasing market expansion by managed care organizations. Currently, greater numbers of medical school graduates are choosing "generalist" fields, specifically primary care training, rather than specialty areas. It is imperative that medical students have access to clear, factual, and concise information about the specialty of physical medicine and rehabilitation to assist them in their career choices. Answers to students' questions about the practice of physical medicine and rehabilitation, residency training, and its future are provided.

Practice of Physiatry

1. *What Is Physical Medicine and Rehabilitation? What Types of Patients Do You See? How Do You Pronounce "Physiatrist"? What Types of Procedures Do*

You Do? Physical medicine and rehabilitation (PM&R) was developed in the 1930s to address neurologic and musculoskeletal problems, with an emphasis on the use of physical agents, such as heat and cold, for treatment. Its growth and recognition were accelerated after World War II, primarily as a result of the treatment of disabled veterans. In 1947, the American Board of Medical Specialties recognized PM&R as a specialty.

Physiatrists (pronounced fizz-ee-at'-trists) treat patients of all age groups who have a variety of acquired or congenital neuromuscular/musculoskeletal illnesses or injuries. The goal of treatment is to prevent, minimize, and/or alleviate deficits in function, regardless of the underlying etiology. Typical neurologic problems include traumatic brain injury, cerebrovascular accidents, spinal cord injury, multiple sclerosis, and cerebral palsy. Primary muscle disorders requiring rehabilitation include, but are not limited to, muscular dystrophy, polymyositis, and limb girdle dystrophies. In addition, physiatrists are trained in the diagnosis and treatment of neuromusculoskeletal disorders such as peripheral neuropathies, radiculopathies, limb amputations, tendon strains and tears, sports injuries, and work-related injuries. Physiatrists often evaluate patients within hours of a major illness or injury; they have the satisfaction of coordinating not only their patients' acute rehabilitative care, but also, over time, their community reintegration and return to work.

Using a patient's medical history and physical examination findings, physiatrists determine the extent of the physical and/or cognitive deficits and also assess the functional implications of a patient's impairment. Radiographic imaging, laboratory studies, and/or electrodiagnostic evaluations may be used to evaluate the extent of the patient's dysfunction. Physiatrists often function as members of an in-

terdisciplinary team of allied health professionals to tailor a comprehensive rehabilitation program to a patient's specific needs. These team members include physical therapists, occupational therapists, speech-language pathologists, social workers, rehabilitation nurses, dietitians, and psychologists. Therapeutic recreation specialists, rehabilitation engineers, orthotists, prosthetists, and case coordinators are also important team members. Practitioners in this field are trained in the evaluation and prescription of prosthetic limbs and orthoses (braces), as well as in the prescription of physical agents such as superficial and deep heat, ice application, and massage. They are also extensively trained to manage medical complications resulting from disability such as spasticity, neurogenic bladder, and autonomic hyperreflexia. Physiatrists perform intramuscular and intra-articular injections and motor point and peripheral nerve blockade in addition to nerve conduction studies and electromyography.

2. Is Physiatry a Satisfying Career Choice? Do You Like Being a Physiatrist? Why Did You Go Into This Field? Is There Time for a Personal and Family Life? Physiatry is a rewarding area of practice for several reasons. There are a wide variety of clinical problems to be addressed. As practitioners in this field, it is possible to develop long-term relationships with patients and their families, facilitating a more holistic approach to their care. Because of the breadth of diagnostic categories, it is possible to focus on specific areas at varying times in their career. This flexibility makes the field a continuous intellectual challenge. Because of the increasing emphasis on ambulatory care and the relative medical stability of hospitalized rehabilitation patients, most practice settings allow for the pursuit of a satisfying family life. In a recent survey,¹ career satisfaction among physiatrists was rated

according to time demands, practice characteristics, and organizational support, among other factors. Physiatrists expressed high satisfaction related to autonomy in their practice and unique skills for patient management.

3. What Career Options Do I Have After Training? Do All Physiatrists Work in Hospitals? Where Is There the Most Need for Physiatrists? PM&R continues to offer a wide diversity of practice settings. Future demand and supply for the specialty were studied by a comprehensive task force in 1996² and conclusions updated in 1999.³ It seems that the demand for physiatric services will roughly approximate the number of practicing specialists from 1996 to 2017. The study found that the number of physiatrists will actually double over that period; however, demand is expected to match this growth, which is attributable to slower than anticipated managed care market expansion and physiatry's continued success in raising awareness of our unique contributions to patient care.

A 1988 survey⁴ revealed that 35.8% were exclusively hospital based and that 17.1% were exclusively office based. Since then, it seems that office-based patient care has grown dramatically and that hospital based care is declining.³

Significant administrative opportunities remain. In addition to private practice, academic and research positions are available. Since PM&R remains primarily a referral specialty, practice sites tend to be associated with population bases of at least 100,000.

4. Where Do Physiatrists Live and Work? What Is Their Geographic Distribution? Physiatrists are represented in every state in the nation. There has been an average increase of 43% in the "physiatrist to population" ratio between 1985 and 1994.² According to one comprehensive

study,² the Southern states seem to have the greatest potential for growth, although the Northeast and Great Lake states are predicted to be more likely to experience excess supply in the future.

5. What Is the Average Income of a Psychiatrist? How Does This Compare with That of Other Specialties? Starting salaries for specialists in this field range from \$80,000 to approximately \$175,000. This range of starting salaries compares well with the median income for all physicians which is \$164,000.⁵ Variations in psychiatrists' income reflect geographic norms and types of practice. In general, salaries on either coast tend to be higher; academic practices represent the lower end of the wage scale.

6. Is the Cost of Malpractice Insurance a Major Concern for This Specialty? PM&R malpractice costs are lower than the average nonsurgical specialty. One analysis⁶ of almost 200,000 claims found that the number of claims brought to court and resulting dollar losses were significantly lower than predicted by the size of the specialty. Psychiatry losses are similar to "very low-risk" fields such as pathology or psychiatry. However, individual practitioners' premiums will be determined by the characteristics of their own practice.

7. What Areas of Subspecialization Are Available in PM&R? Can I Practice Sports Medicine? The practice of PM&R covers a diverse patient population of all ages. Individual psychiatrists frequently choose specific areas in which to focus their practices. Some residency training programs offer eligibility for double board certifications in PM&R and pediatrics, neurology, or internal medicine. General psychiatric training provides opportunities for the development of excellent skills in nonoperative management of sports-related injuries. Post residency training fellowships

are offered in traumatic brain injury, geriatrics, electrodiagnostic medicine, pain management, sports medicine, and spinal cord injury. The American Board of Physical Medicine and Rehabilitation was given permission by the American Board of Medical Specialties to issue a subspecialty certificate in Spinal Cord Injury Medicine on March 16, 1995. The first certificates were issued on December 1, 1998. The Accreditation Council for Graduate Medical Education (ACGME) approved the special training requirements on February 12, 1996; the first training programs were approved in July 1997. In addition, subspecialty board certification is also available in Pain Management and Pediatric Rehabilitation Medicine.

8. What Are the Opportunities for Teaching in Psychiatry? In the United States, there are approximately 90 academic departments in PM&R. Formal psychiatric training is provided in only about half of the medical schools in the United States. The opportunities are great, particularly in view of the Liaison Committee for Medical Education mandate to provide rehabilitation training to medical students.⁷

9. What Are the Opportunities for Research in PM&R? PM&R is a relatively young field with a rapidly expanding scientific base. There is a great deal of interest in funding at the federal level; resources include the National Institute for Disability and Rehabilitation Research, National Center for Medical Rehabilitation Research, Veterans Administration, and Centers for Disease Control.

The present research topics of particular interest include objective measurements of function, outcome measurement, and evidence-based medical applications in psychiatry.

10. What Resources Are Available to Provide More Information About the Field? The handbook, *Physical Medicine and Rehabilitation: The Spec-*

trum of a Specialty, published by the Association of Academic Psychiatrists, provides an excellent overview of the specialty. Information can also be obtained from the American Academy of Physical Medicine and Rehabilitation, and the American Board of Physical Medicine and Rehabilitation. In addition, practicing psychiatrists, residents, and residency training program directors can provide valuable information.^{8, 9}

Residency Training

1. How Is the PM&R Residency Structured? What Kinds of Rotations Are Offered? How Much Medical Care Is Expected of the Resident? The structure of a psychiatric residency is determined by the Residency Review Committee, the accrediting agency for postgraduate medical training programs. Rehabilitation specialty training requires 1 yr (postgraduate year (PGY)1) of basic medical skills training in an ACGME-approved program, in addition to 3 yr of PM&R specialty training. This commonly takes the form of a first year of Internal Medicine or a "transitional" internship. Applicants are responsible for obtaining a PGY1 position. Some psychiatry residencies offer a combined PGY1 in addition to the 3-yr rehabilitation program. Successful completion of the PGY1 is a requirement for acceptance into 3-yr residency training programs.

PM&R residents are expected to gain experiences in the management of hospitalized patients such as those with spinal cord injuries, cerebrovascular accidents, amputations, burns, traumatic brain injury, and joint replacement. They are also expected to learn to manage ambulatory patients such as those with acute musculoskeletal injuries or who require cardiac rehabilitation. Residents are trained in a number of diagnostic skills such as electromyography and nerve conduction studies. There are specific Residency Review Committee requirements regarding the amount

TABLE 1

American Board of Physical Medicine and Rehabilitation—survey of PM&R residency training programs—August 1999

Statistics Regarding Residency Positions 1988–1999

Year	Positions Offered	Positions Filled (%)	First Year Int.	Second Year	Third Year	Fourth Year	Fifth Year	Sixth Year	No. in Combined Programs
1988–89	1005	984 (98)	86	365 ^a	297	236	0		
1989–90	1035	1032 (99.7)	77	407 ^a	300	233	5		
1990–91	1110	1073 (96.6)	91	344 ^a	322	263	1		
1991–92	1158	1125 (97)	82	370 ^a	341	311	3		
1992–93	1229	1196 (97)	83	349 ^a	338	314	6		69
1993–94	1270	1210 (95)	78	399 ^a	360	339	10		70 ^b
1994–95	1313	1277 (97)	117	402 ^a	392	353	13		85 ^b
1995–96	1356	1293 (96)	93	413 ^a	383	392	12		91 ^b
1996–97	1368	1305 (95)	96	409 ^a	402	379	18	1	81 ^b
1997–98	1302	1249 (96)	74	373 ^a	386	391	25		86
1998–99	1291	1239 (96)	82	393 ^a	353	395	16		77
1999–2000	1257	1211 (97)	86	390 ^a	366	351	18		48

Demographics of PM&R Residents (%)

	1999–2000	1998–99	1997–98	1996–97	1995–96	1994–95	1993–94	1992–93	1991–92	1990–91	1989–90	1988–89
American Med Grads	774 (64)	866 (70)	915 (73)	1010 (77)	1049 (81)	1076 (84)	1066 (88)	1083 (91)	1029 (91)	1004 (94)	970 (94)	895 (91)
IMG-Non-US Citizens	257 (21)	240 (20)	230 (18)	211 (16)	173 (13)	115 (9)	79 (7)	70 (5)	55 (5)	24 (2)	21 (2)	41 (4)
IMG-US Citizens	180 (15)	133 (10)	104 (8)	84 (7)	71 (6)	86 (7)	65 (5)	43 (4)	41 (4)	45 (4)	41 (4)	48 (5)
Male Residents	768 (63)	796 (65)	807 (65)	861 (66)	845 (65)	819 (64)	783 (65)	796 (67)	758 (67)	728 (68)	713 (69)	702 (71)
Female Residents	443 (37)	443 (35)	442 (35)	444 (34)	448 (35)	458 (36)	427 (35)	400 (33)	367 (33)	345 (32)	319 (31)	282 (29)

81 Accredited Residency Training Programs Responded

19 programs with 0–9 residents	145
49 programs with 10–19 residents	685
7 programs with 20–29 residents	175
6 programs with 30–39 residents	206

1,211 total residents

Faculties	Diplomates
Physiatrists at primary facilities	677
Physiatrists at affiliated facilities	774
Est. needed additional faculty (3 yr)	128
New diplomates 1999	335
Total Board-Certified Physiatrists	6,221
Certified 1989–1999	3,244

^a Includes beginning PM&R residents with nonintegrated year completed; ^b includes one clinical investigator pathway. PM&R, Physical Medicine and Rehabilitation; Est., estimated.

of inpatient and outpatient exposure that residents must have. Each program varies in the manner in which it meets Residency Review Committee requirements.

PM&R residents are not typically responsible for acute medical care. However, it is expected that residents will be able to diagnose and manage common medical problems, as well as initiate treatment of acute complications such as

deep-venous thrombosis, pulmonary embolism, and infections. Specific programs may emphasize primary care for more complex rehabilitation problems such as traumatic brain injury and spinal cord injury.

2. How Difficult Is It to Get Into a Good Training Program? Are Physiatry Residencies Very Competitive? Will My USMLE Scores Be Consid-

ered in My Application? Will My Medical School Grades Be Considered in My Application? Despite the trend for medical school graduates to enter primary care fields, acceptance into the best PM&R residency programs remains competitive and match rates are high. See Table 1 for residency position statistics and rehabilitation resident demographics. Although overall academic achievements (in-

cluding United States Medical Licensing Examination scores and medical school class rank) are considered, residency programs also look for candidates with a high level of interest and aptitude in the field. One study¹⁰ that surveyed selection criteria for resident applicants found that grades in PM&R clerkships, PM&R faculty letters of recommendation, and the Dean's letters were among the more heavily weighted factors. A 1996 study¹¹ confirmed the relationship between medical school achievement and performance during residency, as well as on written specialty board examinations.

3. How Do I Evaluate and Choose a Residency Program? How Do I Apply to a Residency Program? Several resources provide specific information about Residencies in the United States: (1) Association of Academic Physiatrists/PM&R Guide for Residency application in PM&R; (2) American Academy of Physical Medicine and Rehabilitation's web site: www.aapmr.org; (3) FRIEDA (an online data base of the AMA); (4) Directory of PM&R: Residency Training Programs, ed 11. Association of Academic Physiatrists, 1999; (5) Association of Academic Physiatrists's web site: www.physiatry.org; and (6) The Medical Student's Guide to PM&R, the Resident Physician Council of the American Academy of Physical Medicine and Rehabilitation.

Each program has its specific strengths and weaknesses. Students should consider their own learning style when choosing the environment that will best foster their development as physiatrists. Speaking with former and current PM&R residents in various programs can provide invaluable insight. An elective rotation gives students information regarding the field in general and that residency program in particular. Other measures of program quality include resident success on Board examinations and the Self-Assessment Examina-

tion. Residency Programs are licensed by the ACGME for a maximum of 5 yr. Programs are reviewed periodically by an independent, external Residency Review Committee which obtains information during a site visit. These data are submitted to the ACGME for accreditation rulings. The accreditation status of the residency is critical to assure that the residents are board eligible at the completion of their training.

Rehabilitation residency programs can be defined as "academic" vs. "nonacademic." Although all accredited programs must conform to Residency Review Committee guidelines, an academic program that emphasizes research skills, training, and experience may be advantageous for residents with an interest in an academic career. Residencies that offer primarily private practice experiences may better serve residents with such aspirations.

Residency Program Directors and their addresses are listed in the AAMC Residency Handbook (the green book). These programs can be contacted by phone or mail for application packets. The Electronic Residency Application Service is being increasingly used by PM&R training programs. This system uses the Internet for transmission of the application form, letters of recommendation, and transcripts. Applicants will be charged a fee, depending on the number of programs to which they apply. It is anticipated that this will significantly simplify the application process for medical students and residency programs because of its unified format.

Potential applicants are encouraged to contact residency program directors as well as current and former residents of programs in which they are interested.

4. To How Many Programs Should I Apply? The number of programs a student chooses for application will probably be limited by individual

time and budgetary constraints. It is best to determine the critical characteristics of desired programs initially. For instance, geographic location, Board pass rates, research support, ambulatory patient exposure, and resident/faculty ratio may be important preferences. Once these elements are clarified, medical students are generally advised to choose no more than seven to ten programs. It is more important to obtain an accurate, in-depth portrait of each site than superficial impressions of several programs.

5. Do All Residency Programs Participate in the National Residency Matching Program? Should I Accept a Program Outside of the Match or Wait and Go Through the National Residency Matching Program? At present, more than 95% of programs are in the match. This includes both the 4-yr combined and the 3-yr programs. Three-year programs in the match require that the student match at a separate PGY1 year. Accepting a position outside the match precludes application within the match. Conversely, if a student is awarded a position within the match, he or she is legally bound to that program and cannot choose to accept a position outside of the match. Because the vast majority of programs participate in the National Residency Matching Program, it is generally best to stay within the system.

6. When Should I Take an Elective in PM&R? Where Should I Take an Elective? An elective is a valuable means of gaining practical experience about the considered field and the student's aptitude for it. It is best to take an elective early in the fourth year, before the residency application process is well underway.

In a survey of PM&R residency program directors,¹⁰ good performance on an elective was considered favorably when hiring resident applicants. It is advisable to take the elective in an area of PM&R that is of the

most interest to the student. Taking an elective in a program that the student is considering can yield valuable information not always obtainable during the typical application process. Such an experience also gives the faculty at that program an opportunity to become more knowledgeable about the applicant.

7. What Curriculum Choices or Electives Will Better Prepare Me for a PM&R Residency? The medical student's primary obligation is to enhance and broaden his or her own clinical experience. However, electives in related fields will provide an understanding and appreciation of problems commonly found in rehabilitation patients. Electives in neurology, neurosurgery, rheumatology, urology, orthopedics, and geriatrics are very helpful.

8. What Is the Need for "Double Certifications" in Pediatrics, Internal Medicine, or Neurology? Should These Residencies Be Completed Before PM&R? The American Board of Physical Medicine and Rehabilitation has agreements with the Boards of Pediatrics, Internal Medicine, Neurology, and Psychiatry, in which a 5-yr combined training program leads to dual certifications in PM&R and one of the affiliated specialties. Not all training programs offer this option. If the medical student chooses to pursue separate residencies, the PM&R residency is usually second. Candidates should be aware that changes in reimbursement from the federal government to hospitals for residency training is making applicants for multiple residencies more costly to hospitals and their training programs. This is caused by salary increases over additional years of residency training. Therefore, such candidates may actually be less attractive to training programs.

Double board certifications in PM&R and a primary care field such as pediatrics or internal medicine

may make a candidate more desirable in a private practice setting as a result of the current emphasis toward primary care. Fellowship training is probably more valuable for an academic career than dual board certifications, depending on the research skills obtained during the fellowship program. A possible exception is double board certifications in pediatrics and PM&R. This is considered by many authorities to be a necessity for an academic career in pediatric rehabilitation.

Future of Physiatry

1. How Much Demand Is There or Will There Be for Physiatrists? To better predict the future of physiatry, a comprehensive study of the field was commissioned by the American Academy of Physical Medicine and Rehabilitation, American Board of Physical Medicine and Rehabilitation, Association of Academic Physiatrists, and American Physiatric Education Council.^{2, 3} Lewin-VHI, a healthcare research and consulting firm, was retained to examine the anticipated number of and demand for physiatrists in the next century. The study, published in 1995 and updated in 1998, contains predictions based on certain assumptions about the numbers of residents in training, managed care market expansion, and the level of awareness in the healthcare market of the physiatrist's role and their value in patient care. The study postulated that should the numbers of residents in training remain at or below 1994–1995 levels, should managed care achieve "moderate" market level expansion, and should the profession be successful in educating the healthcare market of their value, a significant excess is unlikely to emerge for another 20 yr from the date of study publication.

2. Will I Have Difficulty Finding a Job? Some areas of the country are more densely populated by physiatrists, particularly the northeast and

Great Lake states. Because PM&R remains largely a referral specialty, large population bases are better able to support this practice.

Since 1995, the numbers of applicants for specialty fields have declined. It seems likely that the numbers of residents in training will be lower than previously anticipated. In the meantime, the numbers of people with disabilities continue to increase secondary to the aging American population and the increased survival rates from previously fatal accidental injuries and illnesses.

Key among the Lewin-VHI study recommendations was the challenge to educate third-party payors, case managers, and referring physicians about the value and cost-effectiveness of the role of the physiatrist in patient care. One way to raise the profile of the specialty, an activity essential for the continued demand for rehabilitation expertise, is to attract excellent resident candidates who will enhance the future of the field through their practice of PM&R.

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CME Self-Assessment Exam

Answers

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CME Article Number 3:

M. Quittan, et al.

1. A
2. B
3. C
4. C
5. A