

Commentary

A call for action: Increasing the pediatric rehabilitation medicine workforce

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Received 29 July 2023

Accepted 17 August 2023

Abstract. Pediatric Rehabilitation Medicine (PRM) is a unique blend of traditional medical rehabilitation knowledge and skills primarily focused on temporary and/or permanent disability conditions of childhood onset throughout the age continuum, with an emphasis on promoting function and participation. Although there are two established pathways to enhance knowledge and skills in PRM, one a combined residency with Pediatrics and the other a PRM fellowship, there has been a relative decline in participants in this training, as has been seen across other subspecialties in Physical Medicine and Rehabilitation (PM&R) and other medical specialties. Based on pediatric rehabilitation physician surveys and the increasing prevalence of children with disabilities, there has been a call to consider opening PRM fellowships to physicians not trained in PM&R. This commentary proposes establishing a commission to lead a transparent and inclusive process to assure that all options to address issues related to optimizing PRM care are considered and provide a course of action to address the needs of children and adults with childhood onset disabilities.

Keywords: Pediatric rehabilitation medicine, training, subspecialization, childhood-onset disability

Over the past few years, concerns have been raised within the Pediatric Rehabilitation Medicine (PRM) community related to training of the workforce. They include the increasing prevalence of patients with pediatric onset disabilities, declining applications for PRM fellowships, few positions in combined programs, and the number of unfilled PRM practice positions nationwide. These concerns have stimulated proposals about how to increase the numbers of physiatrists interested in providing care to children

with disabilities and their families, as well as adults living with pediatric onset disabilities. In particular, it has been suggested that physicians not trained in Physical Medicine and Rehabilitation (PM&R), in particular board-certified or eligible pediatricians, should be made eligible for admission into PRM fellowship programs (with various views being put forward about the pros and cons). No other solutions have been explored or offered to increase the number of PRM-trained physicians.

PRM, within the field of PM&R, is a unique blend of traditional medical rehabilitation knowledge and skills primarily focused on temporary and/or permanent disability conditions of developmental,

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congenital, or childhood acquired onset throughout the age continuum, with an emphasis on promoting function and participation. PRM physicians work in collaboration with teams of other rehabilitation and medical specialists to promote the understanding and management of living with and aging with a disability, utilizing specialized therapeutic and rehabilitation treatment options and embracing attitudinal concepts of equity and respectful communication.

The American Board of Physical Medicine and Rehabilitation (ABPMR) recognized the training that is necessary to achieve the knowledge and skills required to engage in a dedicated PRM practice. The first pathway considered was a combined PM&R-Pediatrics Residency (completed in six years), approved through the ABPMR and with the American Board of Pediatrics (ABP) in 1987. At its peak (1997), twenty-one such programs were available [1]. The second pathway, PRM fellowships (two years for PM&R-trained physicians and one year for combined program physicians), was approved in 1999. Prior to approval, PRM practitioners participated in forums at national meetings to express their views related to establishing this pathway. PRM fellowship requirements were approved through the PM&R Review Committee by the Accreditation Council for Graduate Medical Education (ACGME) in 2002 [2].

To provide context, there are 23 extant PRM Fellowship training programs [3] and three combined PM&R-Pediatrics program opportunities [4]. In 2022, all fourteen applicants to PRM fellowships matched to a program of their choice.

ABPMR PRM certification examination admission has changed over the years. From 2003 to 2011, a minimum of three years of practice, combined program training, or ACGME or non-ACGME fellowship training were required; from 2012 to 2015, an ACGME accredited two-year fellowship for PM&R-trained physicians or a one-year fellowship for physicians completing combined PM&R-Pediatrics programs was needed; since 2015, two-year fellowships for PM&R-trained physicians, and no fellowship training requirement for those completing combined PM&R-Pediatrics training or sequential PM&R and Pediatrics residencies (with a minimum of six months of pediatric rehabilitation training), have been necessary. The 2015 change was not discussed at the national level prior to implementation. Related to certification, the number of first-time candidates taking the exam each year from 2011 to 2022 ranged from nine (2013 and 2014) to 29

(2021), with a mean of approximately seventeen candidates per year. Twenty or more candidates applied in 2011, 2015, 2019, 2021, and 2022. To date, 345 physiatrists have become PRM-certified (in an email from C. Kinney MD, Executive Director ABPMR in July 2023).

To explore the PRM workforce, three cross-sectional practice surveys have been conducted with published results. These were initiated through email invitations (with four follow-up reminders) and completed online in 2009 (August into October), 2014 (unreported timeframe), and 2017 (April into May). The study population for 2009 was invited through the American Academy of Physical Medicine and Rehabilitation (AAPM&R) Pediatric Rehabilitation/Developmental Disabilities Listserv [5]. Both the 2014 and 2017 samples were identified through the ABPMR list of all physiatrists with PRM certificates, program directors of combined PM&R/Pediatrics programs for graduates, and the AAPM&R Pediatric Rehabilitation Medicine Listserv; the 2017 survey also invited the Pediatric Rehabilitation Medicine Facebook group [7]. The published data from closed-ended survey items documented practice sites and service, clinical productivity, academic standing, scholarly productivity, and compensation [5–7]. There are obvious differences among practices, and progress in academics has been noted on many fronts. In 2017, respondents reported practicing mostly in large metropolitan areas (72%), with only 5% practicing in rural areas. Survey respondents also reported difficulty with recruitment into practices and compensation not comparable to the general PM&R field [6, 7]. It is this survey data and continued references to the increasing prevalence of children with disabilities and unmet needs [5, 7–9] that underly the proposal to open admission to PRM fellowships to physicians not trained in PM&R. This single option was queried through open-ended opinion items in the 2017 survey [8].

1. Comment on surveys and publications

The surveys require some discussion. Invitees to each survey differed from time to time, trying to identify physicians who were practicing PRM or had an interest in PRM; they represented varying types of training, certification, and practice, depending on the recruitment design, broadening the pool at each step (invitees ranged from 102 in 2009 [5] to 321 in 2017 [7]). For the 2014 and 2017 surveys, [6, 7]

the reported response rates are based on the number who opened the survey, not the number fully completing the survey; that level of detail is not provided for the 2009 survey [5]. The analyses included incomplete surveys (i.e., missing data) and were reported as acceptable through the Missing At Random method, with the exception of relative value units related to productivity, which could not be used for full analysis and interpretation [7]. Only the 2009 survey was shared in the article [5]. The 2014 and 2017 survey items were not shared with readers, so it is not possible to assess presence of bias in presentation, question placement, or listed options. In particular, the open-ended item used in 2017 offered only one possible solution, admission of pediatricians to PRM fellowships, which could influence responses [8]. The lack of opportunity to read the prompts to consider possible bias limits interpretation of the results. The concept of offering scenarios to respondents to reconsider a negative answer may be an inherent bias. Of note is that an ABPMR survey of PRM certificants has been conducted for another practice analysis, with a new limited exam outline developed from this survey to inform the future examination as the only available publication to date [10].

The reference to disability prevalence also requires some comment. Recent literature demonstrates a general increase in the prevalence of disability in the U.S. unrelated to time of onset, as well as difficulty with access to care and unmet needs for the majority of people with disabilities [11–13]. On closer review of the pediatric population, the largest contributors to this increase by developmental disability conditions are diagnoses in the neurobehavioral realm including Attention Deficit/Hyperactivity Disorders, learning disabilities, and Autism Spectrum Disorders [14]. These conditions are not central to a PRM practice. However, the prevalence for other developmental and/or congenital disabilities, such as cerebral palsy and spina bifida, has remained relatively stable [14, 15]. Children and adults with childhood onset acquired disabilities are included in PRM practices. The number of traumatic brain injury (TBI) related visits to U.S. Emergency Departments by children has increased, according to the most recent statistics from 2007 to 2013, and mortality rates have decreased [16]. Pediatric onset spinal cord injury is rare but is considered a major cause for long-term disability [17]. Over a seven-year period in the U.S., 38.5 per 100,000 children presented with limb loss/deficiency, with 13.5% traumatic and 83.8% congenital etiologies [18]. These acquired childhood onset disability

populations over the age continuum are not commonly acknowledged. And, in general, increasing numbers of adults with childhood onset disabilities have been reported [19, 20]. The need for psychiatric care for these individuals is within the PRM scope of practice.

Information about pediatric disability-related limitations in care access and unmet needs is typically focused on medical health care and community services, not necessarily on rehabilitation or psychiatric care. Access limitations to PRM are not well characterized for those with acquired or other early onset disabilities [21, 22]. While there is the belief that PRM care access across the age spectrum is a problem, it has not been systematically demonstrated. What has been documented is the geographic maldistribution of PRM physiatrists, which may limit access to care in less populated areas [7].

2. What is the problem?

The problem has not yet been clearly defined. Is it that there are too few PRM physiatrists to provide care to address the health care needs of children with disabilities? Is it that there is an increasing prevalence of disability? Or it may be that, in general, children and adults with childhood onset disabilities and their families are underserved. And are they underserved because of few physicians, geographic mismatches, or possibly changing access to medical rehabilitation health care needs associated with other health care system and financing shifts? Are there problems with the training program related to increasing the workforce? In considering the “few physicians” issue, it should be noted that the previous attempt to increase the number of physicians obtaining PRM certification (i.e., 2015 change to PRM examination admissibility) did not result in an overwhelming increase in certificants. The perception that more pediatric physiatrists are required to meet the needs of a growing population of children and adults with childhood onset disabilities is likely valid – but attempts to improve the situation require 1) a systematic assessment of the perceived problem which will provide comprehensive, reliable, and meaningful data to the field; 2) identifying the populations PRM physiatrists can best serve and the needs of those populations; 3) describing the knowledge, skills, and attitudes required by physicians to meet those needs; 4) outlining the best training options to increase the number of capable physicians; and 5) identifying and

eliminating economic, geographic, and other barriers for potential PRM physicians.

3. Developing a plan

As members of the PRM provider community with a long history of involvement in the training and certification of PRM physicians, as well as the development and accreditation of programs, the authors propose that a fully informed debate about how to train physicians to practice PRM should include input from all stakeholders, be informed by credible data, and take into consideration the realities of educating physicians, practicing medicine, and delivering health care in today's complicated regulatory and economic environment.

Our recommendation is that the ABPMR and ACGME establish a commission to gather or assign tasks to collect necessary information, assuring needed voices are heard through a consensus process, and propose one or more actionable solutions to this problem. A possible mechanism for this process would be through the American Board of Medical Specialties (ABMS) approved standards for continuing certification that require development of a quality agenda that includes eliminating health care disparities [23]. This standard requires participation with a variety of stakeholders and may support this commission.

The commission's process should incorporate several steps.

1. Define the problem(s) the commission will address

Statements of problems to consider could include whether a) access to PRM care is inadequate; b) PRM physiatrists are in short supply; c) training capacity for PRM physiatrists is inadequate and under-utilized; d) the focus of training is not where there is most need; e) subspecialty training has not been defined for non-physiatrists and is not available; and f) substitution of other caregivers for PRM physiatrists has not been considered and is not understood. The focus should be clear and based on available data.

2. Identify contributors to the process, either as members of the commission or providers of information

There are multiple groups that can contribute to defining the problems, creating responses or solutions, and implementing a plan. The stakeholders of this issue go beyond the PM&R organizations and their leadership. Representation should

include those whom we serve, PRM fellowship directors, directors of combined programs, PM&R residency directors, graduates of PRM training pathways (past and recent), practitioners of PRM (with or without certification), ACGME PM&R Review Committee members, ABPMR Board Members, and members of Association of Academic Physiatrists (AAP)/AAPM&R committees relevant to PRM training and care (e.g., AAP fellowship directors, AAPM&R councils).

Contributors can provide data-driven information, examples, and opinions. Related specifically to PM&R, the number of PM&R resident training positions has not kept up with projections of population need [24]. In addition, recent cross-sectional practice survey data notes that physiatric practices are largely focused on pain and musculoskeletal care, with disability/rehabilitation care in the minority [25]. Of note is that many medical specialties, including PM&R, are experiencing a decline in interest and participation in subspecialization [26]. Other professional organizations may already be tackling this issue. The commission could learn from other similar subspecialties. Behavioral Developmental Pediatrics fellowships and Neurodevelopmental Disabilities fellowships report a limited workforce to provide care for the increasing number of patients diagnosed with neurobehavioral conditions [27, 28], despite drawing fellowship candidates from a larger pool of physicians. Both are supported by the American Boards of Psychiatry and Neurology (ABPN) and Pediatrics (ABP) and the ACGME Review Committees from each specialty.

The commission may also want to consider engaging a large segment of the field through the Delphi or Group Concept Mapping techniques to articulate issues, collect opinions, and gain consensus.

Table 1 lists possible contributors and the perspectives they could offer.

3 Review and critically examine the available literature and determine what additional data should be acquired.

- Disability data: As noted, the existing disability data often cited is not necessarily specific to PRM practice. U.S. surveys now identify disability by functional abilities (unrelated to time of onset), which while providing a picture of social needs, does not provide a clear picture of medical, rehabilitation, and therapeutic needs, especially over an age continuum. Using International Classification of Diseases codes to explore the populations served also has limitations related to missing severity determination, lack

Table 1
List of contributors to development of a plan and their perspectives

Contributors	Perspective
Children with disabilities, adults with childhood onset disabilities, and/or their families and care givers	-Identify services that are appreciated or needed within PRM scope of practice – implications for training -Provide materials from advocacy organizations (representing congenital and acquired childhood onset disabilities), the repositories of information about barriers, difficulties, and questions from disabled people and their families
PRM Training Program Directors (combined programs, fellowships)	-Identify common elements and gaps among programs nationally; provide details of progression of competencies, especially related to the 2 nd year in fellowship -List perceived barriers for trainees choosing PRM
Graduates of Training Programs	-Suggest modifications to training based on practice experiences -List perceived barriers for trainees choosing PRM -Itemize ways to encourage PRM training
Current PM&R residents and PRM fellows	-List perceived barriers for trainees choosing PRM (e.g., emphasis on pain/musculoskeletal care, limited available PRM experiences in training, two years rather than one of fellowship training, limited number of combined programs, post-training opportunities/income) -Identify perceptions of PRM as a subspecialty
PM&R Department Chairpersons and Residency Program Directors	-Comment on training emphasis from disability-related care to pain/musculoskeletal, and adequacy of PRM experiences -Identify perceived barriers to choosing PRM -Pinpoint financial issues related to training
ABPMR and/or ACGME PM&R Review Committee	-Lead the national review to determine viable options to increase PRM trainees and certificants
PM&R professional organizations: AAPMR, AAP, ASCIP, BIAA, AACPD among others related to medical rehabilitation for people with acquired or congenital onset disabilities	-Share practice survey data collected over the years -Comment on changing practice environments -Share lobbying efforts' outcomes -Assist with access to councils and committees with practitioners whose interests are in PRM -Assist with recruitment if larger field involvement needed
Other non-PM&R professional organizations and certifying agencies	-ABP: comment on effect of admissibility change on the combined programs -ABP/ABPN: comment on effect of admissibility change on their two fellowships of longer duration -Share insights from ABP-led coalition reviewing limited workforce and increasing neurodevelopmental and behavioral needs

Legend: PRM = Pediatric Rehabilitation Medicine; PM&R-Physical Medicine & Rehabilitation; ABPMR = American Board of Physical Medicine & Rehabilitation; ACGME = Accreditation Council on Graduate Medical Education; AAPMR = American Academy of Physical Medicine & Rehabilitation; AAP = Association of Academic Physiatrists; ASCIP = American Spinal Cord Injury Professionals; BIAA = Brain Injury Association of America; AACPD = American Academy for Cerebral Palsy and Developmental Medicine; ABP = American Board of Pediatrics; ABPN = American Board of Psychiatry and Neurology.

of documentation about time of onset, and common miscoding. People with early onset disabilities are living longer; [19, 29] however, they still often have comparatively shorter lifespans [30–32]. Lifespans for those with acquired disabilities in childhood are not well documented, related to coding and other surveillance limitations. Because of these data limitations, an accurate prevalence of adults living with childhood onset disabilities in the U.S., or information about their likely substantial unmet health care needs, has also not been well documented. Analysis of location of populations of children and adults with early onset disabilities and geographic distribu-

tion of PRM practitioners would also be valuable. Additional sources of information are publications providing qualitative data and personal stories that could be of value, although these have not been collated and interpreted, considering restrictions to generalization. While there is data, the limitations must be acknowledged.

- Economic realities: Funding for residency and fellowship programs in PRM is a real-world factor to be considered. Program costs are generally born by hospitals and medical schools. Governmental support of these programs largely depends on the Medicare program, [33] and there is no special

consideration for PRM training. Institutions generally rely on health care revenues and philanthropy to support these training programs. There is high competition for these funds in these institutions, and they are vulnerable to shifting priorities. Salary disparities between PRM and other PM&R subspecialties may also play a role in a PM&R resident's fellowship choice.

4. *Develop clear statements of the problem(s)*

5. *Propose one or more solutions to the problem(s)*

6. *Propose methods to implement and evaluate the effectiveness of the proposed solutions*

Steps 4 through 6 will require planning by the commission. Transparency is important for the field to support new concepts and strategies. The commission may consider deliberating among themselves, but engaging the field and gaining consensus at some level through group processes as suggested earlier would assure support and promotion. The authors offer no preconceived results or solutions related to the commission's deliberations since this group of authors, while agreeing on a plan of action, did not reach unanimity for a preferred outcome.

4. Conclusion

PRM physicians offer needed services to children and adults with childhood onset disabilities, both acquired and congenital/developmental. Despite the likely increasing prevalence of this segment of the disability population with unmet needs, there are relatively few PRM trained physicians to provide that needed care. There may be many approaches to address this mismatch, but it will require an organized process. A transparent and inclusive process is important to assure that all options to address issues related to optimizing PRM care are considered, and all stakeholders should have an opportunity to examine the underpinnings of an eventual course of action. A commission would provide a process to engage stakeholders, collate data, or engage analyses (recognizing biases) about those whom we serve and their PRM needs and about those providing PRM services, and thereby provide an overarching report with solutions and an implementation plan that summarizes the information. Such a process may provide information not only for the subspecialty of PRM but may have applications to the field of PM&R and other subspecialties. Ultimately, it may help to address the disparities of all the disabled people whom we serve.

Acknowledgments

The authors have no acknowledgments.

Conflict of interest

Dr. Turk is funded through a cooperative agreement with the Centers for Disease Control and Prevention and National Center for Birth Defects and Developmental Disabilities (Disability Research and Dissemination Center); she is also Co-Editor-in-Chief for the Disability and Health Journal, published by Elsevier.

No other author declares a conflict of interest.

However, for transparency, the authors state their relationship to PRM, PRM training, and the PRM-related workforce.

Dr. Turk: practices PRM since 1978; participated in development of original PRM proposal, successfully shepherding the process through ABMS in 1999; served as a Director of ABPMR 1996-2008, serving as Chair 2005-2007; eligible for PRM certification through years of practice; previous PRM fellowship Program Director; active PRM-related researcher.

Dr. Gans: practiced PRM since 1976; served as a Director of the ABPM&R from 1988-2000; responsible for PM&R residency training at four different medical schools.

Dr. Kim: practices PRM since 1998; trained through combined PM&R/Pediatrics program; served as founding PRM fellowship program director 2015-2022; now serving as chairman of PM&R department since 2022.

Dr. Alter: practices PRM since 1989; trained through separate Pediatrics and PM&R programs; served as medical director for PRM 1998-2014 at a children's specialty hospital and tasked with training, recruitment, services organization, quality assurance; active PRM clinician and researcher.

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