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Promoting Professional Development for Physical Therapists in Early Intervention

Tricia A. Catalino

Touro University Nevada, tricia.catalino@tun.touro.edu

Lisa A. Chiarello

Toby Long

Priscilla Weaver

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Abstract

Early intervention (EI) service providers are expected to form cohesive teams to build the capacity of a family to promote their child's development. Given the differences in personnel preparation across disciplines of service providers, the Early Childhood Personnel Center (ECPC) is creating integrated and comprehensive professional development models for those who provide services for young children with disabilities and their families. To help guide this process it is important to identify inter-disciplinary competencies as well as the unique knowledge and skills that each discipline contributes to the development and implementation of effective intervention plans. This paper describes personnel preparation of pediatric physical therapists from entry-level to ongoing professional development. Topics include licensure requirements, specialist certification, and EI competencies. This paper explains the unique knowledge and skills that pediatric physical therapists offer to the team as movement specialists. It also highlights particular challenges to professional development faced by novice and experienced physical therapists who work in natural environments. Finally, recommendations for personnel development including structured mentorship, interdisciplinary and team based learning, and strategies for knowledge translation are suggested.

Key Words: Professional development, physical therapy, early intervention

Part C early intervention (EI) under the Individuals with Disabilities Education Act (IDEA, 2004) is federal legislation in the United States that provides funding to the states for the provision of services for infants and toddlers birth to 36 months who have or at risk for disabilities, and their families. Service delivery in EI under Part C of IDEA promotes collaboration among providers as an effective means of developing and implementing integrated and comprehensive service plans that build the capacity of families to promote the development of children (Bruder & Dunst, 2005). Professional training varies across disciplines which may limit the ability of providers to serve families as a cohesive team (Bruder, 2010). The mission of the Early Childhood Personnel Center (ECPC) "... is to facilitate the implementation of integrated and comprehensive early childhood systems of personnel development (CSPD) for all disciplines serving infants and young children with disabilities." (ECPC, 2014). The ECPC is funded from the Office of Special Education, U.S. Department of Education. Currently, to help guide professional development, the ECPC is identifying interdisciplinary competencies that will assist providers to develop and implement integrated, collaborative, holistic service plans. It is recognized, however, that each discipline brings to the team unique knowledge and skills that contribute to effective intervention plans. The purpose of this paper is to highlight the unique knowledge and skills that pediatric physical therapists bring to the early intervention team. We will do this by presenting the history of pediatric physical therapy, describing pediatric physical therapy education and the current status of physical therapy for young children, explaining the opportunities and challenges of ongoing professional development for physical therapists who provide services to young children with disabilities or delays under IDEA Part C, and providing recommendations for personnel development among physical therapists.

Background and History of Pediatric Physical Therapy

Physical therapy as a profession began in the early 20th century when soldiers from World War I returned home with injuries requiring restoration and rehabilitation. A polio epidemic in the 1920s expanded the role of physical therapy (Murphy, 1995). Recognizing that polio affected children as well as adults, physical therapists developed treatment strategies to meet the specific needs of children. Physical therapy serving children continued to grow, and by the mid-20th century physical therapists were primary service providers for children with a variety of developmental disabilities in a range of settings. Federal legislation spanning the last 50-60 years has expanded opportunities for physical therapists to serve children with disabilities (Effgen, 2012). IDEA, for example, has had arguably the most significant impact. Currently, pediatric physical therapists serve children in neonatal intensive care units, acute care settings, inpatient and outpatient rehabilitation centers, outpatient clinics, and natural environments and in the school system under Parts C and B of IDEA using family-centered, evidence-based interventions.

Physical Therapist Education

Entry level

Physical therapists receive entry-level, professional education at the graduate level. Currently all accredited physical therapist education programs award a Doctor of Physical Therapy (DPT) degree (Commission on the Accreditation of Physical Therapist Education [CAPTE], 2014). The introduction of the DPT degree was a part of the American Physical Therapy Association (APTA) vision for physical therapists to achieve autonomous practice, use evidence to inform their practice, and be the practitioners of choice for people with movement dysfunction (APTA, 2000). Physical therapists are expected to exhibit a high degree of

professionalism, adhere to the APTA code of ethics, and exhibit behaviors in accordance with the APTA core values (APTA, n.d.; 2009b).

CAPTE oversees accreditation of physical therapist education programs by assessing the quality of each program with evaluative criteria of knowledge and skills that graduates are expected to achieve to practice as generalist physical therapists. In addition to a base knowledge of foundational, behavioral, clinical, movement, and developmental sciences criteria for becoming a physical therapist also includes training in professional practices, patient/client management, and practice management. While CAPTE oversees accreditation of physical therapist education programs, curriculum content in each program is built to represent what the field believes are expected entry-level knowledge and skills as described in *A Normative Model of Physical Therapist Professional Education* (APTA, 2004). Physical therapist education programs prepare students to screen, examine, evaluate, diagnose, establish a prognosis, and implement a plan of care with appropriate interventions to meet the goals of individuals with conditions that affect the cardiopulmonary, integumentary, genitourinary, neuromuscular, and musculoskeletal systems and to promote health and wellness (APTA, 2004; 2014a). Table 1 describes the skills and knowledge expected of graduates of physical therapist education programs.

There were 25, 971 students enrolled in entry-level physical therapist education programs as of July 2014 (CAPTE). According to APTA (2014b) the demand for physical therapists will increase 36% over the next 10 years. Additionally, the National Coalition on Personnel Shortages in Special Education & Related Services (NCPSSERS, 2008) reports increasing personnel shortages in special education, EI, and related service provider positions, including physical therapists. The Center to Inform Preparation Policy and Practice in Early Intervention

and Early Childhood Special Education has described a decades-long shortage of various service providers, with 47% of states reporting shortages of physical therapists (Bruder, 2006; Center to Inform Personnel Preparation, 2007). Shortages are most acute in diverse and high-poverty areas.

Pediatric Physical Therapist Education

CAPTE requires all physical therapist education programs to include pediatric content that addresses typical development and pediatric onset of conditions that affect development and function across the lifespan. Physical therapist education programs must also include content that while not unique to serving children, prepares graduates for practice in early childhood intervention, such as cultural competence, communication, compassion and caring, evidence-based practice, and consultation. *Pediatric Curriculum Content in Professional Physical Therapist Education* (Section on Pediatrics, 2009) describes content specific to pediatric physical therapy cross-referenced to areas of the *Normative Model* to encourage and assist physical therapist education faculty to embed pediatric content throughout the curriculum. For example, graduates of physical therapist education programs should be familiar with pediatric tests and measures, pediatric procedural interventions, prenatal development, and both Parts B and C of IDEA.

The status of professional pediatric physical therapist education was examined by Cherry and Knutson in 1993 and re-examined by Schreiber et al. in 2011. Both surveys found that there was a great deal of variability in the delivery of pediatric content within entry-level programs. Schreiber et al. (2011) reported a range of pediatric contact hours across 91 programs surveyed from a low of 35 total hours to a high of 210 hours. Contact hours included the time devoted to pediatric lectures, laboratory experiences, and interactions with children. Only 7% of the

programs in the study required their students to complete a pediatric clinical education placement.

Given the individualization of pediatric content and number of contact hours in pediatric related information across programs it is unclear to what degree student physical therapists learn how to provide services to young children with disabilities and their families or how to function as an interdisciplinary colleague as required in EI. Because physical therapist education programs prepare graduates to be competent generalists, specific knowledge and skills needed to effectively serve young children with disabilities and their families under IDEA may be lacking in entry-level programs (McEwen, 2009). For example, physical therapists new to EI may find themselves challenged to provide services using a primary service provider approach, engage in family capacity building, or work in isolation and/or as a team member in the natural environment if not exposed to these practices in physical therapist education programs. While interdisciplinary teaming concepts may be taught throughout a physical therapist curriculum, students may not apply or translate the teaming concepts used in the rehabilitation setting to EI. Further, only a small percentage of physical therapists choose to work in pediatrics and even less work under IDEA so it is no surprise physical therapist education programs devote only a small portion of the curriculum to preparing students to serve children and families. According to APTA workforce data (APTA, 2013), only 3.8% of physical therapists work in a school setting. Data are not gathered about EI settings or pediatrics as a whole.

In response to recommendations by Schreiber et al. (2011), the APTA Section on Pediatrics convened an Education Summit in July 2012 to examine the inconsistencies in the delivery of pediatric content in physical therapist education programs. The result was a consensus on five Essential Core Competencies (Table 2), in addition to consensus on common

pediatric conditions and diagnoses that demonstrate a graduate's knowledge, skills, and abilities related to pediatric physical therapy (Rapport et al, 2014). By including family-centered care among the Core Competencies, along with legislation, policy, and systems, the Section acknowledged that to be competent and effective physical therapists must consider an entire family as the recipient of services and include the family in decision-making.

Post- Professional Physical Therapist Education

Licensing Requirements

Physical therapists are licensed health professionals regulated by policies and procedures of state boards of physical therapy (<http://www.fsbpt.org/>). After passing the National Physical Therapist Examination, the most common method used by the state boards to measure competence is by requiring physical therapists to complete a minimum number of hours or credits in continuing education. A majority of states require sponsors of continuing education to complete a rigorous approval process prior to their being approved to deliver valid continuing education (Federation of State Boards of Physical Therapy [FSBPT], 2014).

Specialty Areas

Recognizing that physical therapists develop unique specialized skills and/or interests, the APTA created a variety of specialty areas of practice. There are currently 18 specialty Sections within the Association including the Section on Pediatrics. There are over 5,000 members of the Section including physical therapists, physical therapist assistants, and student members. The Section has a variety of setting specific special interest groups including the EI Special Interest Group (<https://pediatricapta.org/special-interest-groups/sigs.cfm?SIG=EI>).

The APTA Section on Pediatrics strives to help pediatric physical therapists improve the lives of children with disabilities and their families. The Section and the special interest groups

provide a variety of professional development opportunities including evidence-based continuing education, conferences, mentoring, and mechanisms for networking such as face to face gatherings as well as social media. The Section has a quarterly peer-reviewed journal, *Pediatric Physical Therapy*, and publishes Fact Sheets for physical therapists and consumers about topics important to pediatric physical therapy (Table 3). A consistent theme across Section documents is that pediatric physical therapists are part of a team of providers who work in collaboration with each other and with the family and child.

Specialty Certification

The American Board of Physical Therapists Specialists (ABPTS) oversees the requirements of specialty certification in a broad range of physical therapy practice. There are currently eight specialist areas recognized by the ABPTS including pediatrics. In addition to passing a national examination, minimum eligibility requirements include licensure to practice physical therapy in the US and evidence of a minimum of 2,000 hours of clinical practice in the area of pediatrics or the successful completion of an APTA-accredited post-professional clinical residency in pediatrics (ABPTS, 2014). As of July 2014, there were 1,113 active board certified pediatric clinical specialists in the US. A pediatric clinical specialist (PCS) must show knowledge across pediatric practice with children and youth up to age 21. The PCS examination covers impairments and activity limitations under a wide range of conditions; interventions that are related to the full spectrum of orthopedic, cardiopulmonary, neuromuscular, integumentary conditions; and the regulatory and legal aspects of practice in a variety of settings, including under IDEA (Specialty Council on Pediatric Physical Therapy, 2011).

Residency & Fellowship

The American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE) is the accrediting body for post-professional physical therapist residency and fellowship education programs. Both residencies and fellowships are optional for licensed physical therapists. According to the ABPTRFE (2014b), clinical residency programs are designed to substantially advance a physical therapist's expertise in a specialty area of clinical practice. Typically, applicants to residency programs are new graduates from their physical therapist education program. Fellowship programs are designed to provide greater depth of knowledge and skills within a subspecialty area than that which is covered in a residency program. Applicants of clinical fellowship programs are experienced physical therapists who meet one or more of the following criteria: 1) specialist certification, 2) completion of a residency in a specialty area, or 3) demonstrable clinical skills within a particular specialty area (ABPTRFE, 2014b). There are currently 173 residency education programs, 14 of which are in pediatrics, and 33 fellowship programs, two of which are pediatric oriented (ABPTRFE, 2014a).

State EI Credentialing Requirements and Technical Assistance

Any licensed physical therapist can evaluate and provide intervention to children of any age. Approximately half the states, however, have created additional credentialing, certification or training requirements for EI providers who serve children and families under the State's Part C program (Early Childhood Technical Assistance Center [ECTA], 2014). Physical therapists who provide services to children birth to three years of age outside of the State's Part C program are required to follow the requirements as stipulated to maintain licensure.

Current Status of Physical Therapy in Early Intervention

Limited information is publically available on the national status of physical therapy in EI. According to the National Early Intervention Longitudinal Study (Hebbeler et al., 2007), the

third most common reason for receipt of EI services was motor impairment or delay. Thirty-seven percent of the 3,338 young children who were followed in the study received physical therapy under Part C of IDEA. These data represent children entering EI between September 1997 and November 1998 and may not reflect current provision of services. The most frequent inquiry that the APTA Section on Pediatrics EI Special Interest Group receives from physical therapists is a request for support and guidance on providing services using a primary service provider approach. Research is needed to understand how physical therapy services are utilized and provided in EI to inform efforts to support therapist competence through professional development activities.

Competencies for Physical Therapy in Early Intervention

Recognizing the need for standards in practice and to guide professional development, the APTA Section on Pediatrics adopted competencies for physical therapists in EI (Effgen, Bjornson, Chiarello, Sinzer, & Phillips, 1991). Chiarello and Effgen (2006) updated the original competencies through a rigorous process including validation from parents of young children with disabilities. Nine content areas (context of therapy in EI settings, wellness and prevention, coordinated care, evaluation and assessment, planning, intervention, documentation, administration, and research) with specific competencies were identified to represent the knowledge and skills recommended for physical therapists to practice effectively in EI. The primary change in content was the addition of providing services within natural occurring routines and environments. Weaver (2013) reported that the EI competencies were considered important by 288 physical therapists surveyed across the country and recommended their continued use for professional development activities. The EI competencies along with recent evidence and other available resources (APTA, 2014; Blauw-Hospers & Hadders-Algra, 2005; Campbell & Sawyer, 2007; Chiarello, 2012; Lobo et al., 2013; New York State, 2006; O'Regan

Kleinert & Effgen, 2012; Scales, McEwen, & Murray, 2007; Specialty Council on Pediatric Physical Therapy, 2011; Stuber & DeJong, 2007; Valvano & Rapport, 2006) provide insight into the shared and unique contribution expected of physical therapy practice in EI.

Service provider disciplines within the EI system share a service delivery philosophy that is family-centered, collaborative, coordinated, and provided within natural environments (Antonelli, McAllister, & Popp, 2009; Bruder, 2010; DEC Recommended Practices, 2014; IDEA, 2004; McSpadden, Therrien, & McEwen, 2012). Physical therapists, like members of other disciplines who provide services under Part C of IDEA, are expected to possess a variety of skills that promote a child's development, build family capacity to support a child's development, collaborate with team members to create a comprehensive and integrated program plan, and advocate for community-based services and supports for all children and families. These skills include the ability to screen children for possible developmental delays or disabilities; evaluate children to determine eligibility for EI services; assess children and interview families to develop outcome-based program plans; provide evidence-based interventions to support child and family outcomes; embed interventions in daily activities and routines; monitor progress toward outcomes; and partner with families to promote their child's development and participation in their family and community (Chiarello & Effgen, 2006).

Unique Contribution of Physical Therapy to Early Intervention

Physical therapist knowledge of the movement system, inclusive of the musculoskeletal, neuromuscular, cardiovascular, pulmonary, endocrine, and integumentary systems, enables them to provide a myriad of unique contributions to the EI team. The physical therapist scope of practice (APTA, 2014a) includes primary, secondary, and tertiary care; prevention and promotion of health, wellness, and fitness; and consultation, education, critical inquiry, and

administration. This scope qualifies them as a distinct EI service provider. Physical therapists are recognized as movement specialists by their expertise in the movement system (APTA, 2014a) and application of this knowledge to examination/evaluation, diagnosis, and intervention to support family and children outcomes.

A physical therapy evaluation incorporates a systems review to identify signs and symptoms that may indicate a referral to another health-care professional is necessary (Jette, Ardleigh, Chandler, & McShea, 2006). Physical therapists observe how a child uses movement to interact with objects and people and examine components of movement including the child's motor function, posture, sensory processing, mobility, balance, coordination, muscle performance, cardio/pulmonary endurance, joint integrity and mobility, and integumentary integrity (APTA, 2014). Physical therapists' expertise in movement analysis enables them to evaluate the children's safety and function when maintaining positions, moving in and out of positions, and moving from place to place. For instance, when evaluating a child with cerebral palsy, who is interested in standing but not yet taking steps independently and the family's priority is for their child to walk, the physical therapist considers the following:

- the minimum support needed to practice taking steps safely,
- the important child and family activities that afford opportunities to practice walking
- the components of balance needed to maintain upright posture
- the biomechanical alignment and muscle force needed to walk, and
- alternative methods to participate in activities and routines while learning to walk independently.

Framed by the International Classification of Functioning, Disability, and Health for Children and Youth (ICF-CY) (WHO, 2004), physical therapists measure and monitor the body functions

and structures, activities and participation, and personal and environmental characteristics hypothesized to influence children's activity limitations and participation restrictions specific to child and family outcomes (Carey & Long, 2012). Physical therapy diagnosis helps categorize the impact a delay or condition has on function of the movement system and on the child in their daily life to direct intervention (APTA, 2014a).

Physical therapists promote children's development and participation in family and community activities by enhancing musculoskeletal status, neurobehavioral organization, perceptual and motor development, cardiopulmonary status, and by suggesting effective environmental adaptations and assistive technology (Chiarello & Effgen, 2006). For example, interventions for a child with arthrogyrosis learning to walk may include modifying the environment to afford opportunities for safe, short-distance independent walking; recommending and monitoring the use of ankle-foot orthoses that provide stability; and/or providing activities that enable the child to problem-solve and find effective and efficient movement patterns. For children with significant motor impairments who are also medically fragile, physical therapists support families to optimize their child's health and function for participation in play and learning. This support may include providing assistive positioning and mobility devices, adaptive switches, airway clearance techniques, pain management, and family education for ease of caregiving. Physical therapists use clinical decision-making and collaborate with the family and team members to support current function, such as adaptive equipment for support in sitting to enable a child to play with both hands and self-feed, and to promote learning new skills, such as strategies for unsupported sitting to learn to sit independently.

The physical therapist's role in prevention and the promotion of health, wellness, and fitness is critical to support the well-being of children and their families. Physical therapists

provide anticipatory guidance in these areas and identify risk factors for secondary health conditions for children with specific conditions (Ganley et al., 2011). Competencies for physical therapists in EI include promoting child safety by educating families on accident prevention such as the appropriate use and fitting of car seats and helmets (Chiarello & Effgen, 2006). Physical therapists also educate family members on safe lifting and carrying of their children to prevent back injuries. Physical therapists provide recommendations for physical activity of young children through play and family activities to foster lifelong fitness and prevent the development of obesity and secondary health complications (Section on Pediatrics, 2012)

It is important for physical therapists to provide their unique contributions as movement specialists in a manner that is consistent with the shared philosophies and approaches of EI under IDEA Part C. Physical therapists promote motor function within cultural, environmental, and social contexts (Lobo, Harbourne, Dusing, & McCoy, 2013) fostering all areas of development including cognition, communication, and socialization. Physical therapists support children's perceptual- motor abilities to "maximize interactions with objects, people, and events" (p. 8). This integrated approach meets the current needs of young children and their families and prepares them for their future roles as students, friends, and group members in a variety of education, recreation, & leisure activities.

Professional Development of Physical Therapists in EI

The variable exposure to pediatrics during entry-level physical therapist education, requirements for state licensing and /or EI credentialing, and the need for life-long learning make it necessary that physical therapists pursue on-going professional development activities to progress along a continuum from novice to expert practitioner. Continuing competence is the ongoing acquisition and application of knowledge, skills, and abilities defined by the practice

setting (APTA, 2012). Because EI under Part C of IDEA is a team-based service delivery program it is critical that all providers participate in interdisciplinary professional development to ensure team competency in shared knowledge and skills as well as training to ensure providers maintain and further develop unique skills to contribute to the team process (Bruder, 2010).

EI providers across professions report limitations in confidence and competence in critical areas of EI practice. Bruder, Dunst and Mogro-Wilson (2011) found that a majority of practitioners, including physical therapists, judged themselves low overall, but as more confident than competent in family-centered practices, assessment and evaluation procedures, Individualized Family Service Plan (IFSP) practices, instructional practices, and natural environment practices. The only area that practitioners judged themselves as more competent than confident was in teaming. These findings are consistent with previous research that assessed the self-judgments of a wide variety of pediatric practitioners in key areas of practice (Campbell & Sawyer, 2009; Long & Perry, 2008; Long, Woolverton, Perry, & Thomas, 2007).

Challenges

The following challenges to professional development for physical therapists are presented to support our recommendations for personnel development in EI to foster professional self-efficacy, competent practices, and quality team-based service delivery approaches.

The first challenge that physical therapists face when practicing under Part C of IDEA is the lack of initial and ongoing mentorship to guide their competency in EI and across the spectrum of pediatric physical therapy. In many physical therapy practice settings, therapists often receive direct support and guidance during their first several months of practice and continue to work alongside colleagues allowing for further mentoring opportunities. Physical therapists who work in EI have fewer interactions with other colleagues outside of team meetings

and may deliver services on a contractual basis through an agency or as an independent provider limiting a mentorship structure that may be offered within other practice settings.

Ensuring that physical therapists maintain and further develop their competence in practice is also challenged by the variability in requirements for licensure renewal across states. Some states require 40 or more hours of continuing education while others require none (FSBPT, 2011). A study of 1,145 physical therapists reported an average of 33.8 continuing education hours per year in states with mandatory requirements and 28.3 hours per year in states without mandatory requirements demonstrating physical therapists as a group are motivated to pursue learning experiences (Landers, McWhorter, Krum, & Glovinsky, 2005). Some state licensing boards may not approve continuing education unless it is specifically related to physical therapy patient / client management; thus some interdisciplinary courses regardless of the relevance of the content to EI may not be used for maintaining a physical therapy license (Institute of Medicine [IOM], 2010). Variability also exists across states related to education requirements to provide services under IDEA Part C. Some states have no requirements, other states have initial requirements, and some states have ongoing annual requirements (ECTA, 2014). Regulations for continued competence are important but there is also a need to support the intrinsic motivation of physical therapists to gain evidence-based and relevant skills and knowledge related to best practice.

The financial cost for continuing education is inhibitive to state and local systems, employers, and individuals. State and local governments are challenged to meet the financial demands of workforce development and little direct financing for continuing education is available for health professions (Bruder, Mogro-Wilson, Stayton, & Dietrich, 2009; IOM, 2010). Some states have an EI training program available to providers but employer contribution to staff

development is variable and limited if the therapist is a contractor with the organization.

Financing of continuing education is generally the responsibility of the physical therapist, which may lead to decisions on courses based on cost and convenience over content and improved competence (IOM, 2010).

Another major challenge for professional development activities is a lack of accountability for new knowledge and skills that should be applied to serving young children and families. While the APTA has issued quality standards and guidelines for continuing education (APTA, 2009a), attending a course does not ensure competence nor application of new knowledge and skills in practice. Active learning approaches and organizational supports in the practice setting are needed to foster learning and a positive change in practice; yet physical therapists and other health professionals report a preference for more passive traditional courses (Campbell, & Sawyer, 2009, Landers, McWhorter, Krum, & Glovinsky, 2005).

Considering professional development only at the individual level can be a barrier for personnel development in EI. Many competencies for physical therapists, such as those related to family-centered care, collaboration, care coordination, and services in natural environments, reflect shared philosophies across all disciplines and stakeholders requiring partnerships to implement in practice.

Promising Directions and Recommendations

Professional development for physical therapists in EI is a shared responsibility, with many stakeholders to ensure competency of the workforce and quality service delivery to children and their families. Table 4 highlights our recommendations for physical therapist education programs, physical therapists, state licensing boards, professional organizations, EI national and state technical assistance training programs, and employers and agencies. We advocate for interdisciplinary professional development understanding that coordination of

financial resources across stakeholders is essential to implement effective strategies.

Interdisciplinary professional development is recognized as a key component to personnel development in EI (Bruder, 2010; Bruder & Dunst, 2005; Pecukonis, Doyle, & Bliss, 2008) and can be defined as two or more disciplines collaborating in the learning process to foster inter-professional interactions that enhance the practice of each discipline. The shared philosophies across disciplines in EI in addition to the mandate under Part C of IDEA for collaboration by a minimum of two separate disciplines on the IFSP team support the advancement of interdisciplinary professional learning methods.

The commitment to lifelong learning begins during entry-level physical therapist education. As mandated by CAPTE, educators are beginning to include interdisciplinary training and experiences during the didactic and clinical components of physical therapist education (Dubouloz, Savard, Burnett, & Guitarf, 2010; Hayhurst, 2010). Interdisciplinary learning opportunities need to be integrated throughout the curriculum to prepare students to assimilate these learned behaviors into their future practice. For example, Rapport et al. (2014) suggest a multidisciplinary panel discussion regarding roles in EI as an activity to expand understanding of how to address family priorities during IFSP development. We encourage pediatric faculty to use the resources developed by the APTA Section on Pediatrics and partner with other health professions and early childhood education programs to create innovative learning opportunities and prepare students for collaborative service delivery.

Physical therapists assume the overall responsibility for their competency. It is important for physical therapists to continuously reflect and assess their competency for practice in EI and establish a personal professional development plan that applies learned knowledge and skills to current practice. The plan can build on areas of strength and fulfill areas of needs based on

shared and discipline-specific competencies generalized to the context of EI. We recommend that therapists consider a range of activities to build their competency: focused reading of literature, viewing taped service-delivery sessions, reflection and journaling, discussions with families and colleagues, shadowing expert practitioners in the field, attending conferences, monitoring application of new knowledge and skills, and formal education experiences. We encourage therapists to partner with a team member to share expertise and learn skills together to meet the needs of the children and families being served. Case-based learning approaches are motivational and foster learning by having a direct application to current practice (Lindquist, Duncan, Shepstone, Watts, & Pearce, 2005). Physical therapists should be encouraged or incentivized to take advantage of such interdisciplinary training activities that build competence for participants and confidence in EI practices.

Post-professional education for licensure renewal is regulated by each state's board of physical therapy. The FSBPT supports a continuing competence model that is self-directed by physical therapists, utilizes evaluation and assessment of current competence to select appropriate activities, and considers a wide variety of activities to demonstrate competence. This model allows for a variety of methods, settings, and types of experiences to enhance the acquisition of new knowledge, skills, and abilities. For instance, in Illinois, 40 hours of continuing education are required per license renewal cycle and include activities such as teaching a course for an approved continuing education sponsor or accredited program, attaining the ABPTS Clinical Specialist Certification, completing an APTA-approved post-professional clinical residency or fellowship, involvement in publications of scientific papers, chapter, abstracts or review papers, presentation of posters or platform presentations at conferences, attendance at education programs at district meetings, volunteering for professional leadership

activities such as a committee member within the APTA, and being a clinical instructor to physical therapy students. We recommend all states accept a variety of professional development activities for continuing competence requirements. Physical therapists in states where regulations for renewal of licensing are restrictive should advocate for a continuing competence model inclusive of a variety of interdisciplinary professional development activities.

Discipline specific professional organizations serve a role to advance the education and quality of practice of practitioners within that profession. The APTA Section on Pediatrics serves as an example by fostering knowledge translation through the integration of research, education, and practice. The Section created a workgroup on knowledge translation to support each of these components. The Section also sponsors a mentoring program that matches mentees with mentors to support professional development specific to their current practice setting. APTA national conferences require presenters include a description in their proposals on strategies for the attendees to apply the information back to their practice. *Pediatric Physical Therapy*, the peer-reviewed journal of the Section, includes the ‘Clinical Bottom Line’ where a practitioner and researcher team up to synthesize and explain how to apply findings in a newly published journal article to current practice. These examples show that the APTA Section on Pediatrics embraces and advocates for evidence-based practice within the profession.

The professional organizations for early childhood, occupational therapy, physical therapy, and speech-language pathology have developed documents to describe the knowledge and skills needed for effective EI practices in their particular disciplines (American Occupational Therapy Association, 2009; American Speech - Language - Hearing Association, 2008; Chandler et al., 2012; Chiarello & Effgen, 2006). We recommend that professional organizations collaborate and expand development of resources and interdisciplinary opportunities supported

by the best available evidence and clinical expertise. These documents provide insight into the shared philosophies across disciplines in EI and extend an opportunity for the development of a set of shared competencies that lay the groundwork for advancement in interdisciplinary and team-based learning methods.

The EI national and state technical assistance centers, such as ECTA are charged to support the implementation of effective practices that result in good outcomes for children and their families. Table 5 lists examples of state, university, and other non-profit web-based resources for low or no cost innovative learning opportunities. We encourage professional development initiatives at the national, state, or local levels to include opportunities for practitioners, administrators, and policy makers to communicate and discuss facilitators and barriers to applying quality standards in EI practice.

We recommend that EI agencies and employers partner with physical therapists through the common goal of supporting young children and their families. The responsibility of the agencies and employers should include sufficient orientation and guidance when therapists begin to practice in EI. We recommend mentorship so physical therapists can initially observe EI visits and receive direct guidance and support during the first year of home visits. It is important for agencies and employers to provide dedicated time for team collaboration and co-visits to enable sharing of expertise and learning together. Policies and procedures requiring and supporting professional development plans are warranted not only for quality assurance but to maximize investment in personnel.

Conclusion

Physical therapists are critical members of the EI team. They offer a unique perspective on child development grounded in the movement system. This paper described personnel

preparation of pediatric physical therapists from students in entry-level education programs to ongoing professional development focusing on the unique knowledge and skills that pediatric physical therapists offer to the EI team as movement specialists. Based on a unique set of challenges, we offered a variety of recommendations and promising directions that affect stakeholders at all levels of professional development.

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