



Prescribing Physical, Occupational, and Speech Therapy Services for Children With Disabilities

Amy Houtrow, MD, PhD, MPH, FAAP, FAAPMR,^a Nancy Murphy, MD, FAAP, FAAPMR,^b COUNCIL ON CHILDREN WITH DISABILITIES

Pediatric health care providers are frequently responsible for prescribing physical, occupational, and speech therapies and monitoring therapeutic progress for children with temporary or permanent disabilities in their practices. This clinical report will provide pediatricians and other pediatric health care providers with information about how best to manage the therapeutic needs of their patients in the medical home by reviewing the International Classification of Functioning, Disability and Health; describing the general goals of habilitative and rehabilitative therapies; delineating the types, locations, and benefits of therapy services; and detailing how to write a therapy prescription and include therapists in the medical home neighborhood.

Pediatricians and other pediatric health care providers have a vitally important role of linking children and youth with disabilities in their family-centered primary care medical homes with appropriate community-based services.¹ Pediatric providers are often asked (frequently by families) or recognize the need to prescribe habilitative and rehabilitative therapies (physical, occupational, and speech and language) for infants, children, and youth with disabilities in their clinical practices. Many general pediatric providers describe inadequate training to appropriately prescribe therapy in the various settings in which they may be available to children with disabilities.^{2–5} This clinical report will review (1) the framework of the International Classification of Functioning, Disability and Health (ICF) for understanding the interaction between health conditions and personal and environmental factors that result in disability, (2) children with disabilities and the goals of habilitation and rehabilitation services, (3) the types of therapy services available with their general indications, (4) the locations in which children may receive therapy services and potential facilitators and barriers to securing therapy services, (5) the existing literature regarding the benefits of therapy and

abstract

^aDepartment of Physical Medicine and Rehabilitation and Pediatrics, University of Pittsburgh, Pittsburgh, Pennsylvania; and ^bDivision of Pediatric Physical Medicine and Rehabilitation, Department of Pediatrics, University of Utah, Salt Lake City, Utah

Drs Houtrow and Murphy were each responsible for all aspects of conceptualizing, writing, editing, and preparing the document for publication; and both authors approved the final manuscript as submitted.

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

Clinical reports from the American Academy of Pediatrics benefit from expertise and resources of liaisons and internal (AAP) and external reviewers. However, clinical reports from the American Academy of Pediatrics may not reflect the views of the liaisons or the organizations or government agencies that they represent.

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All clinical reports from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

DOI: <https://doi.org/10.1542/peds.2019-0285>

Address correspondence to Amy J. Houtrow, MD, PhD, MPH, FAAP, FAAPMR. E-mail: houtrow@upmc.edu

To cite: Houtrow A, Murphy N, AAP COUNCIL ON CHILDREN WITH DISABILITIES. Prescribing Physical, Occupational, and Speech Therapy Services for Children With Disabilities. *Pediatrics*. 2019;143(4):e20190285

how therapy may be dosed to optimize functional outcomes, and (6) recommendations for writing therapy prescriptions. Two case examples are provided to aid the pediatric health care provider in developing expertise in addressing the therapy needs of children with disabilities in their practices.

ICF

The World Health Organization (WHO) released the ICF in 2001 as an update to the International Classification of Impairments, Disabilities, and Handicaps.⁶ The WHO has developed 2 classification systems that can be used to describe an individual's health at a particular point in time. Physicians are more familiar with the WHO's International Classification of Diseases (ICD), currently in its 10th revision, which classifies diseases and other health problems. Because a diagnosis alone often does not provide a robust characterization of one's health, complementing the *International Classification of Diseases, 10th Revision*, is the ICF, a classification system with a biopsychosocial framework for describing functioning and disability associated with one's health conditions.⁷

The ICF describes the relationship between health conditions diagnosed and coded in the ICD and the personal and environmental factors that act as facilitators or barriers to functioning.⁸ Houtrow and Zima⁹ provided examples of the ICF and ICD together for common pediatric diagnoses in 2017. There are 3 identified levels of functioning: the body part or organ system, the person, and the person in social situations.⁷ These levels correspond to body functions, activities, and participation, respectively. Disability is the umbrella term for impairments at the body part or organ system level, activity restrictions at the person level, and participation restrictions at the

person-in-society level.⁷ The WHO defines impairments as "problems in body function or structure such as a significant deviation or loss," activity limitations as "difficulties an individual may have in executing a task," and participation restrictions as "problems an individual may experience in involvement in life situations" (Fig 1).⁷

The ICF also includes the concepts of capacity and performance. Capacity is the individual's intrinsic ability to perform a task or an action in a standardized environment, whereas performance is how well the individual is able to actually perform the task in his or her own real-life environment.¹⁰ These concepts are important in understanding the role of habilitative and rehabilitative therapies for children with disabilities, because achievement of skill requires extensive practice and must be integrated into the child's routine for the successful enhancement of participation in life events. In addition, the ICF framework highlights the importance of a child's environment on his or her functional outcomes.¹¹ The environment includes not just the

physical world, such as the town where the child lives or the topography of the community, but also includes the attitudes and values of the family, community, and society at large and the technologies, services, supports, laws, and policies where the child lives.¹² Access to health and therapeutic services, the physical environment, and social supports all affect how well a child with disabilities functions in his or her daily life.¹³

CHILDHOOD DISABILITY

A child with a disability has an environmentally contextualized health-related limitation in his or her existing or emerging capacity to perform developmentally appropriate activities and participate, as desired, in society.¹⁴ Childhood disability is on the rise, especially for children with neurodevelopmental conditions.^{14–16} A childhood disability may be related to congenital or acquired health conditions and may be temporary, permanent, or progressive in nature. Common examples of health conditions associated with childhood disabilities that most pediatric health care providers encounter are autism

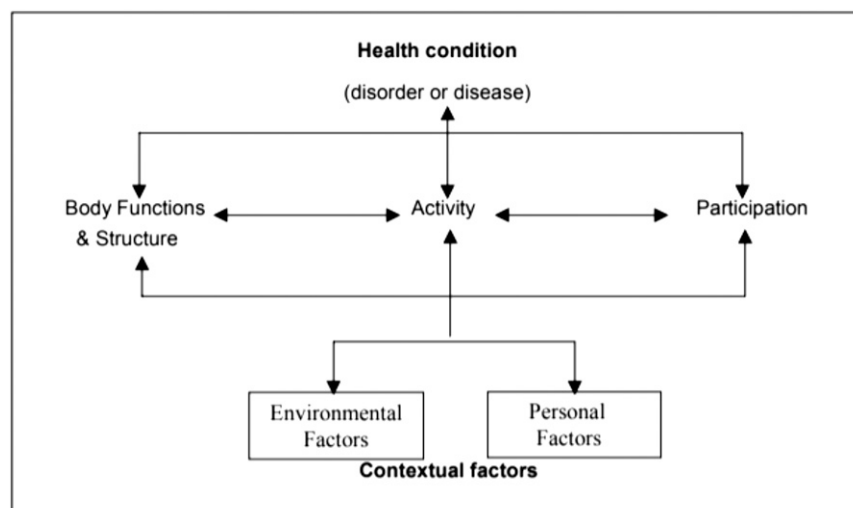


FIGURE 1

ICF. Reprinted with permission from World Health Organization. *International Classification of Functioning, Disability and Health: Toward a Common Language for Functioning, Disability and Health*. Geneva, Switzerland: World Health Organization; 2002:9.

spectrum disorder, cerebral palsy, intellectual disability, spina bifida, and acquired conditions such as traumatic brain injury or juvenile idiopathic arthritis. Temporary disability may be the result of a serious illness or injury, such as a femur fracture. Examples of progressively disabling conditions are Duchenne muscular dystrophy and cystic fibrosis. Disabilities may affect all aspects of daily life or may affect a child only in certain settings or situations, such as is sometimes the case for attention-deficit/hyperactivity disorder or when physically exerting oneself, as in the case of exercise-induced asthma and other pulmonary conditions. Some disabilities are clearly visible, and some may be less readily apparent.

THERAPEUTIC GOALS

The overarching habilitation and rehabilitation goals for children with disabilities are to help the child achieve developmentally appropriate functional skills, regardless of whether these skills existed previously for the child (rehabilitative) or are to be newly developed (habilitative); prevent maladaptive consequences; mitigate the impact of impairments of the body part or structure on the child's activities and participation; provide adaptive strategies to minimize the impacts of functional deficits; and ensure carryover into other settings through family training, support, and community integration strategies.¹⁷ Adaptive strategies can include making environmental modifications to accommodate the child, training the child to use assistive technologies and other durable medical equipment such as walkers and wheelchairs, and helping the child develop compensatory techniques. Greater access to the physical and social worlds through adaptations provides children with disabilities greater opportunities for participation and connectedness with others and can enhance their well-being.¹⁸

TYPES OF THERAPY SERVICES

Although children can be supported by a range of therapies to address challenges in daily life, the 3 types of therapies detailed in this report are physical therapy, occupational therapy, and speech and language therapy. Applied behavior analysis is a therapy used frequently in autism spectrum disorder and some other conditions and is discussed in great detail in the American Academy of Pediatrics (AAP) clinical report "Management of Children With Autism Spectrum Disorders."¹⁹ All types of therapists are valuable members of the health care team and may be involved in care delivery in multiple settings across the life course. They have important roles in direct treatment but also in family training and advocacy.²⁰

Physical therapists address gross motor skills, strength building, endurance, and fitness. They also focus on prevention or reduction of impairments to achieve optimal functional mobility and participation. They help children move, often with the use of strategies to prevent the progression of impairments and through the use of adaptive equipment such as orthotics (braces) and various mobility aids such as walkers, wheelchairs, and lifts. For a child with cerebral palsy, for example, the physical therapist addresses impairments related to spasticity, weakness, poor postural control, and lack of coordination. To minimize activity limitations, the physical therapist helps the child with walking skills (among others). To address participation restrictions, the physical therapist helps the child learn to navigate a public space such as the hallways at school.²¹

Pediatric occupational therapists address upper extremity function, fine motor skills, visual-motor function, sensory processing skills, and the occupations or tasks that are expected of the child.²² These tasks

are referred to as activities of daily living (daily tasks such as feeding, eating, dressing, or toileting) and instrumental activities of daily living (complex tasks such as cooking, shopping, or using a telephone). Occupational therapists are also involved in identifying the equipment needs a child might have to perform tasks. To address impairments in the child with cerebral palsy, for example, the occupational therapist works on grasping and hand coordination; to help with an activity such as dressing, the occupational therapist works with the child to practice the skill and use an assistive device; and to aid in participation, the occupational therapist provides strategies that the child can use in and out of the classroom such as self-regulation techniques or taking notes on a keyboard versus on paper.

Speech and language pathologists, also called speech therapists, address communication and cognition.²³ They work with children with disabilities to improve their expressive language skills verbally or with alternative communication techniques. To address speech-related impairments associated with cerebral palsy, for example, the speech therapist works on oral motor skills to improve enunciation or teaches the child to use an augmentative communication device to successfully communicate with others and participate in social interactions.²⁴ Speech therapists also evaluate and treat swallowing problems.²³ Dysphagia is a frequently occurring impairment for children with disabilities, because many disabling conditions are associated with oropharyngeal or esophageal dysfunction. The workup for dysphagia usually includes an evaluation by a speech therapist and may also include a video fluoroscopic barium study (often referred to as a cookie swallow) or a fiber-optic endoscopic evaluation of swallow.²⁵ Depending on the etiology and severity of swallowing dysfunction,

a multidisciplinary team that may include medical and surgical specialists such as pediatric gastroenterologists, otolaryngologists, pulmonologists, or pediatric rehabilitation medicine or complex care physicians, along with speech therapists and occupational therapists with expertise in disordered feeding, can create and execute an effective treatment plan.²⁵ Some tertiary care children's hospitals have dedicated feeding and swallowing clinics in which multidisciplinary assessments with recommendation can be provided. For children with complex swallowing and feeding problems, a referral to a specialized clinic may be considered.

The services provided by the 3 therapy disciplines described above often overlap with each other. Establishing coordinated goals can strengthen interdisciplinary treatment synergies.²⁶ For example, both physical and occupational therapists address durable medical equipment needs and help children gain skills in transitioning from 1 position to another. Speech and occupational therapists often collaborate in feeding therapy for children with poor oral motor and swallowing skills on the basis of the child's needs and the expertise of the providers involved. In addition, children who use augmentative communication or other assistive technologies often rely on the combined expertise of speech and occupational therapists to determine which devices will be most beneficial. There are numerous other examples of overlap and opportunities for synergies, but there is potential for duplication of services and payment refusal by insurance companies of which pediatric health care providers may take note. Children may also receive therapy in a group with other children with 1 or more therapy disciplines involved.²⁰ This approach, often called group therapy, usually

targets a specific set of skills that all of the members of the group are working to achieve. Children may also receive cotreatments in which more than 1 discipline is involved in the therapeutic session, but no other children are present.

THERAPY SETTINGS

There are 4 main settings in which a child with a disability might need a therapy prescription: in the hospital, in the outpatient and/or community setting, in the child's home, and in school. In the hospital setting, the pediatric health care provider directing care might order an evaluation and treatments by a therapist. Because the pediatric medical home provider is usually not the inpatient attending physician, communications to bridge inpatient to outpatient care plans are essential. In the outpatient setting, a provider's prescription is typically needed to initiate an evaluation and treatment plan by a therapist and for those services to be covered by insurance. All states have some amount of direct access (an individual can see a therapist without a prescription), most commonly for physical therapy.²⁷ Regardless of the prescriber of therapies, the child's primary and subspecialty providers may all be involved in evaluating the impact of therapy on the child and participate in shared decision-making that involves collaborating to develop goals and a care plan in a mutually respectful and trusting manner with the family.¹ In the outpatient sector, there is variable access to pediatric therapists. Children with disabilities or developmental delays often have unmet needs for therapy services, especially if they have inadequate health insurance.²⁸⁻³¹ Some insurance plans have limited coverage for therapy services and may have high copays, have high coinsurance rates, or cap the number of visits per year. Many families report a health plan problem

(inadequate coverage) as a reason for their children's unmet needs.³²⁻³⁴ When access to therapy is limited, the pediatric health care provider is encouraged to help coordinate services to the extent possible and to make referrals to advocacy organizations that can help families navigate the complex web of service providers.³⁵ In addition, practices may find it helpful to keep a list of agencies and organizations to which to refer families handy or available on their Web site for families to access as needed. In both the inpatient and outpatient settings, therapy services are based on goals for developing new skills, regaining lost skills (such as after an illness injury or intervention), maintaining current skills at risk for decrement, making adaptations for functional loss(es), and providing accommodations.

The third location for the provision of therapy services is in the child's home. In-home therapies are less common than outpatient or school-based therapies for older children and youth but are frequently provided when the child with disabilities is young, too medically fragile to participate in outpatient therapies, or otherwise homebound. Usually, the physician documents the medical fragility for insurance companies to authorize in-home therapy. One important exception is early intervention (EI) services. For children 0 to 3 years of age, the home is the setting for EI services. Infants and young children who have disabilities, have developmental delays, or are at risk because of their diagnosed health conditions may be referred to EI for evaluation and services under the Individuals with Disabilities Education Act (IDEA) Part C.³⁶ Although processes and eligibility vary by state, a developmental specialist conducts a global evaluation of the child and provides play interventions to promote development. On the basis of the assessment, the infant or young child

may also receive physical, occupational, speech, and/or vision therapy in the home. Providing services in the child's natural environment has been a part of IDEA Part C since its inception, with goals to enhance the development of infants and toddlers with special needs and to support families to interact and meet the needs of their children.³⁶ A key component of IDEA Part C EI services is an individualized family service plan.³⁷ Providing a medical diagnosis, documenting risk factors and findings on physical examination, and offering an informed clinical opinion, as components of the medical home, can be helpful when the child is referred or needs to be reevaluated.^{36,38} The value of intervening early in a child's life is well documented³⁹⁻⁴⁴; therefore, the pediatric provider is encouraged to routinely evaluate development in line with AAP recommendations, provide support to families, collaborate with Part C programs,^{45,46} and advocate on behalf of his or her patients for services. It is important to note that state-to-state variations exist because of eligibility criteria differences, including how developmental delay is defined.³⁶ Some infants and toddlers will also benefit from traditional outpatient therapies to supplement EI services.³⁶ These infants and toddlers frequently have complex medical conditions or need outpatient therapy services to achieve a specific short-term goal. Occasionally, this therapy may be provided to a child care center if a specialized arrangement is made. More information about EI services is available in the 2013 AAP clinical report "Early Intervention, IDEA Part C Services, and the Medical Home: Collaboration for Best Practice and Best Outcomes."³⁶

The fourth setting for a child with a disability to receive therapies is the school. IDEA,⁴⁷ passed in 1975, legislates federal funding to states for EI (through Part C) and special

education services (through Part B).^{36,37} If a child needs supports or services to participate in education in the least restrictive environment, such as speech, physical, or occupational therapy, these related services are covered by IDEA Part A and can be incorporated into the child's individualized education program (IEP).³⁷ The specific disabilities codified in IDEA are mental retardation (now called intellectual disability), hearing impairments (including deafness), visual impairments (including blindness), speech and language impairments, orthopedic impairments, serious emotional disturbance, autism, traumatic brain injury, other health impairments, specific learning disabilities, deaf-blindness, and multiple disabilities.⁴⁸ Because IDEA uses a categorical definition of disability for children, some disabilities are, instead, covered by Section 504 of the Rehabilitation Act of 1973, which mandates the provision of accommodations so that children can receive their education in the least restrictive environment.³⁷ Section 504 uses a functional descriptor, that of a limitation in a major life area such as walking or speaking, instead of the IDEA categories of disabilities.³⁷ A therapist may evaluate the school environment and the needs for accommodations for a child's 504 plan irrespective of whether the child is placed in a regular or special education classroom.⁴⁹ It is notable that the interpretation of what constitutes school-based therapy services to promote a child's ability to participate academically can vary among service providers, districts, and states.⁴⁹ School therapies are designed to promote attainment of a student's educational goals and are often more narrowly focused than outpatient, medically based therapies. For example, an occupational therapist in the school may work on handwriting, whereas an occupational therapist in the health

care system addresses many activities involving the hands, such as teeth brushing; they both address fine motor skills but with different functional tasks. Therefore, some children receiving school-based therapies also require outpatient therapy services. Nonetheless, the therapies provided in school frequently benefit the child outside of the school setting. Improved fine motor skills for handwriting can improve the child's ability to perform other fine motor tasks. Medical home providers are encouraged to help families stay abreast of school-based interventions and advocate for services when warranted. For families struggling with their school district regarding academically necessary therapy services, a referral to a medical legal partnership, their state's Disability Rights Center, or another advocacy organization may be warranted when other venues of advocacy have been exhausted.⁵⁰

The pediatric health care provider may provide a child with a specific diagnosis, but providing a diagnosis does not necessarily mean the child will qualify for services under IDEA. For a 504 plan, the pediatric health care provider also documents the medical diagnosis and, in addition, the associated functional limitation in a major life area. Although not an actual therapy prescription, pediatric medical providers may also be asked to provide a recommendation about adaptive physical education, a protected right under IDEA.⁵¹ For more information about IDEA and special education needs, please see the 2015 AAP clinical report "The Individuals with Disabilities Education Act (IDEA) for Children with Special Educational Needs."³⁷

Regardless of the type of therapy or the setting in which it is delivered, therapists are key members of the medical home neighborhood. Strategies for communication are required to optimize service coordination and ensure that children

are receiving all aspects of the medical home.⁵² This effort is especially challenging for children with disabilities who often require extensive care coordination for numerous specialty services and thus are less likely to receive care in a medical home.²⁸

THERAPEUTIC BENEFITS

The efficacy of therapy services to help children gain and/or maintain function and provide adaptations is well documented.^{53–58} Provision of a home program with caregiver training and support is generally indicated, because carryover of skills is enhanced by frequent repetition.^{59–61} To routinely perform newly achieved skills, children need practice in their own environment; having the capacity to perform a task in a structured environment can improve performance but is not enough to demonstrate achievement of a therapeutic goal.¹³ Children need to demonstrate that they can routinely perform the activity in the face of challenges that exist in their environments for successful transfer of skills.⁶² A home program can further enhance a child's participation in other structured activities that incorporate functional skills such as dance classes, karate, or school sports that are appropriately adapted for the child with disabilities. The time spent practicing activities with real-world carryover is part of the critical link between building capacity and performance.¹³ An important role of pediatric providers in optimizing the function of children with disabilities is advocating with families for inclusion in activities that best support participation in life events. The pediatric health care provider is an ideal advocate for early involvement because of the critical early childhood period for neuroplasticity.^{63,64}

Functional improvements are more likely to occur when the goals of

therapy are clearly delineated and measurable,^{65,66} and goal setting is a central feature of rehabilitation.⁶⁷ For sustained positive benefits from therapeutic interventions, activities can be practiced in the child's environment and reinforced by the parents or other caregivers.² Practice in one's natural environment is essential for success; therefore, parents and/or caregivers are encouraged to practice skill building outside of the therapeutic setting. When a therapeutic intervention is directed at 1 domain of functioning (body structures and function, activities, or participation) there can be a "ripple effect" of positive outcomes in other domains.^{13,53,68} For example, strengthening the legs can lead to improved walking, which can also be associated with improved ability to navigate and participate in the classroom. Taking a holistic approach has clear value and is associated with improved therapy outcomes.^{55,69–72}

Although the evidence base for the effectiveness of various therapies is increasing, not all therapeutic modalities and techniques have been shown to be efficacious, and some have harmful adverse effects and are therefore not promoted in lieu of standard or evidence-based therapies.^{73–79} For example, hyperbaric oxygen for the treatment of cerebral palsy has not been shown to be efficacious and is associated with harmful adverse effects and is therefore not recommended.^{78,80,81} Similarly, evidence for the benefits of patterning is lacking.⁸¹ Treatment success that is only supported by case reports or anecdotal data and not by carefully designed research studies warrants further investigation and discussion before prescribing. Families often seek complementary or alternative treatments and may ask their pediatric health provider to advocate for these treatments on behalf of the child. In these circumstances, it is important to

review the evidence and engage in a dialogue with families about the goals of treatment and how best to achieve them.⁸² Other treatments and techniques are a part of a standard of care not subject to randomized controlled trials, but newer treatments and techniques require more rigorous research before conclusions can be drawn about their efficacy.^{83–85} Referrals to specialists with expertise in the various therapeutic modalities and treatments may be considered by medical home providers to help determine which therapeutic interventions to prescribe. Pediatric rehabilitation medicine physicians (also known as pediatric physiatrists), neurodevelopmental pediatricians, and developmental and behavioral pediatricians are well versed in the therapeutic options that may not be standard but have evidence for efficacy.^{86–95} These specialists tend to be strong medical home neighbors because of their expertise in coordinating care for children with disabilities across settings. In some cases, they may be or may become the medical home provider if the family can easily access their services and other criteria of the medical home can be met by their practices. Various forms of shared management may be explored by the primary care physician and the specialists to ensure children with disabilities are receiving optimal care.

THERAPY DOSING

Determining the appropriate dose of therapy (how much therapy, how often, and for how long) remains elusive and largely subjective.^{13,22,57} Dose is determined by the minutes each therapy session is, how often it is provided, and for how long (weeks, months, years). Although much research is being conducted, there is not yet a strong evidence base to support any particular dosing strategy for specific disabilities or

conditions,²² except in unilateral hemiplegic cerebral palsy, for which high-intensity upper extremity therapy that is activity-based has been shown to improve outcomes to a greater degree than standard therapy administration (such as once a week).⁹⁶ Because of their attention spans, young children usually do well with shorter duration of therapy per session and, therefore, may need more total sessions or breaks within sessions. Children with temporary disabilities may need short-term therapy to make adaptations to their condition and recover from it. Children with new-onset disabilities, such as from traumatic injuries, frequently need intense therapy services shortly after injury often in an inpatient setting with coordinated medical and nursing care and then require ongoing therapy on a less intense schedule to optimize their outcomes.⁹⁷ Children with disabilities associated with chronic health conditions often need therapy on an ongoing basis with variable intensities on the basis of their individual functional goals.

Therapies can be dosed in an intense fashion, such as 45 to 60 minutes 2 or more times a week, especially when a short-term goal is identified and deemed quickly achievable.²¹ Similarly, after a medical event or a surgery, some children with disabilities need intense therapy to regain temporarily lost function and then can return to their regular therapy schedule. A commonly delivered dose of therapy is for 30 to 60 minutes per week for an episode of care, such as during the entire school year in the case of school-based therapies.⁹⁸ This schedule is often used when a child exhibits continued progress toward goals and is at risk for a lack of progress or regression if therapy services were halted.²¹ Children who are functionally stable and have attained their current functional goals may only need periodic or intermittent

therapy services.⁹⁹ This is especially true of older children who may have already met most of their developmental milestones. Children with disabilities who use adaptive equipment well may only need to be checked on periodically, and when new equipment is ordered, they may need a short course of more intense therapy for training with the new device.²¹ The process of therapeutic surveillance is especially important, because children with disabilities are at risk for skill regression or lack of progress because of changes in their health or changes in their environments. Reengaging therapy services quickly can help mitigate deterioration in participation and quality of life. Similarly, a child on a long-term therapeutic treatment therapy program may need to have services increased when a new problem occurs or a goal is identified on the basis of a change in functional status or developmental expectation.²¹ This sudden change in therapy needs is often referred to as a burst or an episode of therapy. For example, intense gait training may be prescribed when a child is just on the cusp of developing walking skills or to incorporate efficient gait skills when gait deviations are present. Strong collaboration between the family, the treating therapists, specialists, and the pediatric medical home provider helps identify the best dosing strategies that consider the child's health, current functional status, goals, readiness for therapy, response to intervention, and cessation of services, if warranted.^{21,22,100} Pediatric providers may receive requests from families for therapies that are not warranted. In these situations, family-centered, shared decision-making techniques may be used to establish goals, and then strategies to achieve these goals can be identified.^{1,101} One potential strategy is to make a referral to a specialist with expertise in the evidence base for therapeutic interventions

who can work with the family to develop a goal-directed plan of care that addresses concerns, such as lack of measurable progress but the need for prevention of further impairment, on which all members of the team (including family) agree.

THE THERAPY PRESCRIPTION

When a child with functional limitations needs therapy or when there is concern for developmental delay, before writing a therapy prescription, it is helpful to review past and current therapy reports (if any exist), family-identified concerns, and any findings on developmental screening or testing in addition to the goals of therapy and the expected outcomes. When prescribing initial or continuing therapy services, the provider is advised to identify the therapy discipline; the medical condition associated with the disability (or the constellation of symptoms and findings if the diagnosis is unknown), which indicates the medical necessity of the treatment; any precautions or restrictions; the goals of therapy; and the frequency and duration of treatment. Additionally, the prescription may include the specific type or modality of therapy, if 1 is desired (Fig 2). If the child recently had surgery and is in need of short-term therapy or is restricted from his or her usual therapy routine, the surgeon is often the provider who writes these prescriptions and manages restrictions such as weight-bearing precautions. After evaluation by the therapist, the provider may be asked to revise the therapy prescription on the basis of the recommendations of the therapist who participates in the development of goals and the treatment plan. See the cases in Text Boxes 1 and 2 for examples of therapy prescriptions and the elements of a therapy report.

Sample Therapy Prescription

- Patient Name: _____ DOB: _____
- Physician: _____ Date: _____
- Diagnosis: _____
- Precautions: _____
- Type of Therapy: _____
- Frequency: _____ Duration: _____
- Therapy Goals: _____
- Modalities: _____
- Signature & Date: _____

FIGURE 2

Sample therapy prescription. DOB, date of birth.

Providing a high level of detail in a therapy prescription may be beyond the expertise of many pediatric providers. Nonetheless, providing a clear prescription to help guide the therapy is important. Because there is a general lack of evidence for the dosing of therapy, providers are encouraged to consider the amount of functional improvement anticipated, the urgency of the need for the skill development, and how quickly the child is gaining skills. Information about the trajectory of disability associated with the condition, the evidence of the value of therapies to improve functioning, and how the individual child is expected to benefit from the interventions is also important when providing written medical justification. Providers who prefer not to write detailed therapy prescriptions can consult with pediatric rehabilitation medicine physicians, neurodevelopmental pediatricians, developmental and behavioral pediatricians, and other specialists, including physical, occupational, and speech therapists in their medical community. These types of providers can be valuable

members of the medical home neighborhood and can help advance the care goals set in the child's care plan with their medical home. Pediatric providers are encouraged, nonetheless, to initiate the process for such therapies, because access to a specialist may be challenging, and the value of early engagement with therapies is well documented. Major professional organizations, existing federal guidelines, and third-party payers all emphasize the important role of physicians in determining the medical necessity for and ordering of services.² The choice to refer may also be affected by the severity and complexity of the child's disabilities, the family's desires, the availability of qualified specialists in the community or region, and the local or regional variations of how therapies are delivered. Pediatric medical home providers remain the locus of communication and coordination of services.³⁵

Dealing With Insurance Denials

The pediatric health care provider is likely all too familiar with denials for

coverage of therapy services from insurance companies. When addressing a denial, either over the phone or in writing, it behooves the provider to have some key pieces of information available to explain why the prescribed service is medically necessary: the diagnosis or diagnoses for which the service is needed, what the service is expected to accomplish (ie, how the service is reasonably likely to address the disabling condition), that there is not an equally effective less costly option, and other pertinent medical history. Pediatric health care providers may also want to familiarize themselves with the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) standards, because a majority of children with long-term disabilities are covered by Medicaid.^{28,103,104} The EPSDT amendments to Medicaid direct coverage of "early and periodic" screening and diagnostic services to identify defects and chronic conditions in addition to providing coverage of health care and treatments to "correct or ameliorate" such conditions and defects.¹⁰⁴ This encompasses treatments that improve health outcomes as well as treatments that enable children with disabilities to achieve and maintain function.¹⁰⁴ Specifically, physical, occupational, and/or speech therapy are mandated pursuant to 42 US Code 1396d(a)(7) and/or 1396d(a)(11). As a result, coverage for therapy services is frequently better under Medicaid than under commercial insurance plans that limit treatments.¹⁰³ For additional reading on EPSDT, please see "EPSDT - A Guide for States: Coverage in the Medicaid Benefit for Children and Adolescents" (https://www.medicaid.gov/medicaid/benefits/downloads/epsdt_coverage_guide.pdf).

Beyond the Therapy Prescription

The primary care medical home engages in the coordination of services for children with disabilities in school, hospital, and community

BOX 1 CASE EXAMPLE OF A CHILD WITH CEREBRAL PALSY

Liam is an 11-year-old boy with spastic diplegia, a type of cerebral palsy that mainly affects the lower extremities, who has recently moved with his family from another state and is establishing care in your primary care practice. He wears braces on his lower legs and uses forearm crutches to walk, although he can walk short distances without his crutches at home. He is in the fifth grade and rides the bus with his older sister, who makes sure he gets on and off the bus safely, because he is a little impulsive and falls frequently. His mom performs his lower body dressing for him because they are often in a rush in the mornings before school. She reports that he could do all of his dressing except getting his shoes on over his braces if he had to. At school, he placed in the advanced reading group but struggles with visual perceptual tasks and has “terrible handwriting,” according to his mother. The IEP meeting is next week, and prescriptions are requested by the school. The mom also wants to get him involved in therapies outside of school. Before they moved, he received physical therapy once a week and occupational therapy twice a month.

Liam has several therapeutic needs. The most pressing issue is his IEP. On the prescription for therapies at school, you document his diagnosis (spastic diplegic cerebral palsy) and the types of therapies to be provided at school (physical and occupational), the reasons he needs these therapies (mobility, safety, fine motor skills, and visual perceptual skills), the duration of therapy (entire school year), and the frequency (1–2 times per week). You also write a prescription for adaptive physical education so that the school's physical therapist can work with the gym teacher to create a safe and inclusive program for him.

To address Liam's outpatient therapy needs, you prescribe the following:

1. Physical therapy: evaluation and treatment of spastic diplegia, duration 6 months, frequency 1 to 2 times per week to address strength training, ambulation longer distances with Lofstrand crutches and gross motor skills, safety awareness (especially for getting on and off the school bus), equipment needs, stretching for spasticity management, and family training for carryover in the home environment. No restrictions.
2. Occupational therapy: evaluation and treatment of spastic diplegia, duration 6 months, frequency 1 to 2 times per week to address fine motor skills, activities of daily living (especially dressing), safety awareness, visual perceptual skills, and family training for carryover in the home environment. No restrictions.

After Liam's evaluations by the physical and occupational therapists, you receive a letter from each of them with information about the evaluations, the goals that were set, and some changes that they request. Specifically, the physical therapist thinks that Liam's balance is really impairing his progress toward ambulation without crutches. She recommends doing once-a-week hippotherapy to strengthen his core and improve his balance and would like for you to write the prescription. The occupational therapists noted that like many children with spastic diplegia, Liam has poor fine motor skills, which have really impacted his handwriting. She recommends an intense handwriting group therapy program that meets 3 afternoons a week for 2 months. She needs a special prescription for this program. After discussing the recommendations with Liam's mother, you write the prescriptions and await feedback. A few weeks later, your nurse manager reports that the hippotherapy you prescribed has been denied by Liam's insurance. The nurse shares the draft of the letter of medical justification to which you add the evidence in support of the use of hippotherapy in children with cerebral palsy and reiterate the specific goals (core strengthening and balance) along with the intended outcome of improved ambulation without an assistive device.¹⁰² The denial is overturned. Three months later, you receive interim therapy reports from Liam's outpatient physical and occupational therapists. Each of these reports details the initial skill level Liam had when he started therapy, the specific goals they set with Liam and his mother, his achievements and his current status with a recommendation to continue the services to address existing and newly developed goals. The occupational therapist spoke to his physical therapist about shoes that would be easier for Liam to don over his orthotics because he had not been successful at achieving his lower body dressing goal with occupational therapy. The physical therapist sent a fax to your office requesting a prescription for orthotic-containing shoes. At Liam's follow-up visit, his mom indicates that she is so proud of him that he can stand without holding on to anything for nearly 1 minute and that he can get himself dressed in the morning if she makes sure he has enough time before the bus comes. She also reports that it seems easier for him to make friends because he can usually keep up with other kids if activities are modified. You agree that he seems to be making great progress, as also documented in summary reports from his therapists.

settings.³⁵ Regular communication between the child's care team (parents and/or caregivers, educators, therapists, subspecialists, and medical home providers) includes updates on the child's functional status, the achievement of therapy goals, identification of new goals, the planned cessation of therapy services when appropriate,

and family functioning and concerns. This is especially important when children receive services in multiple settings simultaneously from multiple providers or have other vulnerabilities such as being in foster care. In addition, when the child's medical or functional status changes or when other circumstances warrant a change in treatment, the prescribing

provider may need to alert the therapist(s) and delineate new precautions or goals. When a therapist notes a functional decline that is unanticipated, he or she can refer back to the pediatric health care provider who is able to evaluate the child and seek to determine the etiology for the decline and discuss findings with the family.

BOX 2 CASE EXAMPLE OF A CHILD WITH LANGUAGE DELAY

Sophia is a 2-year-old who was born at 32 weeks' gestation who has yet to say any words. At an ill visit for diarrhea, Sophia's mother shares her worries about her lack of expressive communication. You reviewed her history, which included a normal hearing screen in the NICU, no concerns on her 9-month well-child visit, and no 18-month developmental surveillance because the family had moved away and then returned to your practice. You conduct an examination that reveals that Sophia responds to her name and other noises, is happy and playful, seems to understand information and can follow commands, has normal gross motor and fine motor skills, and babbles, but mostly communicates by pointing and gesturing. After confirming normal hearing on audiology examination, you diagnose Sophia with an isolated speech delay. You refer the family to EI services and also to outpatient speech therapy. In your prescription for outpatient speech therapy, you write her diagnosis as developmental disorder of speech and language and request therapy 2 to 3 times per week, 30 minutes per session for 12 weeks to address her expressive communication skills. At reevaluation 3 months later, Sophia's expressive speech is much improved. EI services are once a week, and the outpatient speech therapist recommends decreasing the frequency of speech therapy to once a week, because most of her goals have been met. You write a new prescription for ongoing outpatient speech therapy on the basis of the recommendations of the speech therapist and your discussion with Sophia's mother.

At Sophia's 3-year well-child visit, Sophia's mother reports that EI services stopped a few months ago and that the outpatient speech therapist had tested Sophia and that her expressive language skills were in the low-normal range. Her mother reports that she speaks spontaneously with other children during play and is able to "get her point across" with adults using words. In reviewing the report from the speech therapist, you agree that services are no longer warranted, but Sophia's mother wants her to continue to get speech therapy until she tests into the midnormal range. You recognize that ongoing speech therapy services are not medically justified, so you engage in a shared decision-making process to implement a home program for continued skill development and practice, an approach to monitoring of Sophia's language skills and development closely, and a formal evaluation of her communication skills when entering school or sooner, should there be any concerns regarding her development.

Coordinating care that is organized around patient- and family-centered goals with clear communication between the health care team members is the goal to help optimize the health, function, and well-being of children with disabilities.

LEAD AUTHORS

Amy J. Houtrow, MD, PhD, MPH, FAAP
Nancy A. Murphy, MD, FAAP

COUNCIL ON CHILDREN WITH DISABILITIES EXECUTIVE COMMITTEE, 2017–2018

Dennis Z. Kuo, MD, MHS, FAAP, Chairperson
Susan Apkon, MD, FAAP
Timothy J. Brei, MD, FAAP
Lynn F. Davidson, MD, FAAP
Beth Ellen Davis, MD, MPH, FAAP
Kathryn A. Ellerbeck, MD, FAAP
Susan L. Hyman, MD, FAAP
Mary O'Connor Leppert, MD, FAAP

Garey H. Noritz, MD, FAAP
Christopher J. Stille, MD, MPH, FAAP
Larry Yin, MD, MSPH, FAAP

FORMER COUNCIL ON CHILDREN WITH DISABILITIES EXECUTIVE COMMITTEE MEMBERS

Amy J. Houtrow, MD, PhD, MPH, FAAP
Nancy Murphy, MD, FAAP
Kenneth W. Norwood, Jr, MD, FAAP,
Immediate Past Chairperson

LIAISONS

Peter J. Smith, MD, MA, FAAP – *Section on
Developmental and Behavioral Pediatrics*
Edwin Simpser, MD, FAAP – *Section on
Home Care*
Georgina Peacock, MD, MPH, FAAP – *Centers
for Disease Control and Prevention*
Marie Y. Mann, MD, MPH, FAAP – *Maternal
and Child Health Bureau*
Cara Coleman, JD, MPH – *Family Voices*

STAFF

Alex Kuznetsov, RD

ABBREVIATIONS

AAP: American Academy of
Pediatrics
EI: early intervention
EPSDT: Early and Periodic
Screening, Diagnosis, and
Treatment
ICD: International Classification of
Diseases
ICF: International Classification of
Functioning, Disability and
Health
IDEA: Individuals with Disabilities
Education Act
IEP: individualized education
program
WHO: World Health Organization

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2019 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

- Murphy NA, Carbone PS; Council on Children With Disabilities; American Academy of Pediatrics. Parent-provider-community partnerships: optimizing outcomes for children with disabilities. *Pediatrics*. 2011;128(4):795–802
- Sneed RC, May WL, Stencel C. Policy versus practice: comparison of prescribing therapy and durable medical equipment in medical and educational settings. *Pediatrics*. 2004;114(5). Available at: www.pediatrics.org/cgi/content/full/114/5/e612
- Shah RP, Kunnavakkam R, Msall ME. Pediatricians' knowledge, attitudes, and practice patterns regarding special education and individualized education programs. *Acad Pediatr*. 2013;13(5):430–435
- Sneed RC, May WL, Stencel CS. Training of pediatricians in care of physical disabilities in children with special health needs: results of a two-state survey of practicing pediatricians and national resident training programs. *Pediatrics*. 2000;105(3, pt 1):554–561
- Symons AB, McGuigan D, Akl EA. A curriculum to teach medical students to care for people with disabilities: development and initial implementation. *BMC Med Educ*. 2009;9:78
- Dahl TH. International classification of functioning, disability and health: an introduction and discussion of its potential impact on rehabilitation services and research. *J Rehabil Med*. 2002;34(5):201–204
- World Health Organization. *International Classification of Functioning, Disability and Health: Toward a Common Language for Functioning, Disability and Health*. Geneva, Switzerland: World Health Organization; 2002
- Cieza A, Brockow T, Ewert T, et al. Linking health-status measurements to the international classification of functioning, disability and health. *J Rehabil Med*. 2002;34(5):205–210
- Houtrow AJ, Zima BT. Framing childhood mental disorders within the context of disability. *Disabil Health J*. 2017;10(4):461–466
- Almansa J, Ayuso-Mateos JL, Garin O, et al; MHADIE Consortium. The International classification of functioning, disability and health: development of capacity and performance scales. *J Clin Epidemiol*. 2011;64(12):1400–1411
- Lollar DJ, Simeonsson RJ. Diagnosis to function: classification for children and youths. *J Dev Behav Pediatr*. 2005;26(4):323–330
- Schneidert M, Hurst R, Miller J, Ustün B. The role of environment in the International Classification of Functioning, Disability and Health (ICF). *Disabil Rehabil*. 2003;25(11–12):588–595
- Gannotti ME, Christy JB, Heathcock JC, Kolobe TH. A path model for evaluating dosing parameters for children with cerebral palsy. *Phys Ther*. 2014;94(3):411–421
- Halfon N, Houtrow A, Larson K, Newacheck PW. The changing landscape of disability in childhood. *Future Child*. 2012;22(1):13–42
- Houtrow AJ, Larson K, Olson LM, Newacheck PW, Halfon N. Changing trends of childhood disability, 2001–2011. *Pediatrics*. 2014;134(3):530–538
- Boyle CA, Boulet S, Schieve LA, et al. Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics*. 2011;127(6):1034–1042
- Palisano RJ, Chiarello LA, King GA, Novak I, Stoner T, Fiss A. Participation-based therapy for children with physical disabilities. *Disabil Rehabil*. 2012;34(12):1041–1052
- Stineman MG, Streim JE. The biopsychological paradigm: a foundational theory for medicine. *PM R*. 2010;2(11):1035–1045
- Myers SM, Johnson CP; American Academy of Pediatrics Council on Children With Disabilities. Management of children with autism spectrum disorders. *Pediatrics*. 2007;120(5):1162–1182
- Hong CS, Palmer K. Occupational therapy and physiotherapy for children with disabilities. *J Fam Health Care*. 2003;13(2):38–40
- Section on Pediatrics American Physical Therapy Association. *Dosing Considerations: Recommending School-Based Physical Therapy Interventions Under IDEA Resource Manual*. Alexandria, VA: Subcommittee on Dosing; 2014
- Gee BM, Lloyd K, Devine N, et al. Dosage parameters in pediatric outcome studies reported in 9 peer-reviewed occupational therapy journals from 2008 to 2014: a content analysis. *Rehabil Res Pract*. 2016;2016:3580789
- American Speech Language Hearing Association. ASHA practice policy: scope of practice in speech-language pathology. 2016. Available at: www.asha.org/policy/SP2016-00343/. Accessed September 6, 2016
- Desch LW, Gaebler-Spira D; Council on Children With Disabilities. Prescribing assistive-technology systems: focus on children with impaired communication. *Pediatrics*. 2008;121(6):1271–1280
- Mezoff EA. Focus on diagnosis: dysphagia. *Pediatr Rev*. 2012;33(11):518–520
- Palisano RJ, Begnoche DM, Chiarello LA, Bartlett DJ, McCoy SW, Chang HJ. Amount and focus of physical therapy and occupational therapy for young children with cerebral palsy. *Phys Occup Ther Pediatr*. 2012;32(4):368–382
- American Physical Therapy Association. Levels of patient access to physical therapist services in the states. 2016. Available at: http://www.apta.org/uploadedFiles/APTAorg/Advocacy/State/Issues/Direct_Access/DirectAccessbyState.pdf. Accessed September 6, 2016
- Houtrow AJ, Okumura MJ, Hilton JF, Rehm RS. Profiling health and health-related services for children with special health care needs with and without disabilities. *Acad Pediatr*. 2011;11(6):508–516
- Magnusson D, Palta M, McManus B, Benedict RE, Durkin MS. Capturing unmet therapy need among young children with developmental delay using national survey data. *Acad Pediatr*. 2016;16(2):145–153

30. McManus BM, Prosser LA, Gannotti ME. Which children are not getting their needs for therapy or mobility aids met? Data from the 2009-2010 National Survey of Children with Special Health Care Needs. *Phys Ther*. 2016;96(2): 222–231
31. Miller AR, Armstrong RW, Mässe LC, Klassen AF, Shen J, O'Donnell ME. Waiting for child developmental and rehabilitation services: an overview of issues and needs. *Dev Med Child Neurol*. 2008;50(11):815–821
32. Kogan MD, Newacheck PW, Honberg L, Strickland B. Association between underinsurance and access to care among children with special health care needs in the United States. *Pediatrics*. 2005;116(5):1162–1169
33. Kogan MD, Newacheck PW, Blumberg SJ, et al. Underinsurance among children in the United States. *N Engl J Med*. 2010;363(9):841–851
34. Huang ZJ, Kogan MD, Yu SM, Strickland B. Delayed or forgone care among children with special health care needs: an analysis of the 2001 National Survey of Children with Special Health Care Needs. *Ambul Pediatr*. 2005;5(1):60–67
35. Council on Children with Disabilities and Medical Home Implementation Project Advisory Committee. Patient- and family-centered care coordination: a framework for integrating care for children and youth across multiple systems. *Pediatrics*. 2014;133(5). Available at: www.pediatrics.org/cgi/content/full/133/5/e1451
36. Adams RC, Tapia C; Council on Children with Disabilities. Early intervention, IDEA Part C services, and the medical home: collaboration for best practice and best outcomes. *Pediatrics*. 2013; 132(4). Available at: www.pediatrics.org/cgi/content/full/132/4/e1073
37. Lipkin PH, Okamoto J; Council on Children with Disabilities; Council on School Health. The Individuals With Disabilities Education Act (IDEA) for children with special educational needs. *Pediatrics*. 2015;136(6). Available at: www.pediatrics.org/cgi/content/full/136/6/e1650
38. Lobo MA, Paul DA, Mackley A, Maher J, Galloway JC. Instability of delay classification and determination of early intervention eligibility in the first two years of life. *Res Dev Disabil*. 2014; 35(1):117–126
39. McCormick MC, Brooks-Gunn J, Buka SL, et al. Early intervention in low birth weight premature infants: results at 18 years of age for the Infant Health and Development Program. *Pediatrics*. 2006;117(3):771–780
40. Walker SP, Chang SM, Vera-Hernández M, Grantham-McGregor S. Early childhood stimulation benefits adult competence and reduces violent behavior. *Pediatrics*. 2011;127(5): 849–857
41. Reynolds AJ, Temple JA, Robertson DL, Mann EA. Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: a 15-year follow-up of low-income children in public schools. *JAMA*. 2001;285(18): 2339–2346
42. Park HY, Maitra K, Achon J, Loyola E, Rincón M. Effects of early intervention on mental or neuromusculoskeletal and movement-related functions in children born low birthweight or preterm: a meta-analysis. *Am J Occup Ther*. 2014; 68(3):268–276
43. Khetani M, Graham JE, Alvord C. Community participation patterns among preschool-aged children who have received Part C early intervention services. *Child Care Health Dev*. 2013; 39(4):490–499
44. Kingsley K, Mailloux Z. Evidence for the effectiveness of different service delivery models in early intervention services. *Am J Occup Ther*. 2013;67(4): 431–436
45. Council on Children With Disabilities; Section on Developmental Behavioral Pediatrics; Bright Futures Steering Committee; Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening [published correction appears in *Pediatrics*. 2006; 118(4):1808–1809]. *Pediatrics*. 2006; 118(1):405–420
46. Noritz GH, Murphy NA; Neuromotor Screening Expert Panel. Motor delays: early identification and evaluation [published correction appears in *Pediatrics*. 2017;140(3):e20172081]. *Pediatrics*. 2013;131(6). Available at: www.pediatrics.org/cgi/content/full/131/6/e2016
47. Individuals with Disabilities Education Act. Statute and regulations. Available at: <https://sites.ed.gov/idea/statuteregulations/>. Accessed January 7, 2018
48. Aron L, Loprest P. Disability and the education system. *Future Child*. 2012; 22(1):97–122
49. Cartwright JD; American Academy of Pediatrics Council on Children With Disabilities. Provision of educationally related services for children and adolescents with chronic diseases and disabling conditions. *Pediatrics*. 2007; 119(6):1218–1223
50. Zuckerman B, Sandel M, Smith L, Lawton E. Why pediatricians need lawyers to keep children healthy. *Pediatrics*. 2004;114(1):224–228
51. Murphy NA, Carbone PS; American Academy of Pediatrics Council on Children With Disabilities. Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*. 2008; 121(5):1057–1061
52. McAllister JW, Presler E, Cooley WC. Practice-based care coordination: a medical home essential. *Pediatrics*. 2007;120(3). Available at: www.pediatrics.org/cgi/content/full/120/3/e723
53. Park EY, Kim WH. Meta-analysis of the effect of strengthening interventions in individuals with cerebral palsy. *Res Dev Disabil*. 2014;35(2):239–249
54. Dewar R, Love S, Johnston LM. Exercise interventions improve postural control in children with cerebral palsy: a systematic review. *Dev Med Child Neurol*. 2015;57(6):504–520
55. Case-Smith J, Frolek Clark GJ, Schlabach TL. Systematic review of interventions used in occupational therapy to promote motor performance for children ages birth-5 years. *Am J Occup Ther*. 2013;67(4):413–424
56. Chen YN, Liao SF, Su LF, Huang HY, Lin CC, Wei TS. The effect of long-term conventional physical therapy and independent predictive factors analysis in children with cerebral palsy. *Dev Neurorehabil*. 2013;16(5):357–362

57. Franki I, Desloovere K, De Cat J, et al. The evidence-base for basic physical therapy techniques targeting lower limb function in children with cerebral palsy: a systematic review using the International Classification of Functioning, Disability and Health as a conceptual framework. *J Rehabil Med*. 2012;44(5):385–395
58. Law MC, Darrah J, Pollock N, et al. Focus on function: a cluster, randomized controlled trial comparing child- versus context-focused intervention for young children with cerebral palsy. *Dev Med Child Neurol*. 2011;53(7):621–629
59. Novak I, Cusick A, Lannin N. Occupational therapy home programs for cerebral palsy: double-blind, randomized, controlled trial. *Pediatrics*. 2009;124(4). Available at: www.pediatrics.org/cgi/content/full/124/4/e606
60. Novak I, McIntyre S, Morgan C, et al. A systematic review of interventions for children with cerebral palsy: state of the evidence. *Dev Med Child Neurol*. 2013;55(10):885–910
61. McIntyre LL. Parent training for young children with developmental disabilities: randomized controlled trial. *Am J Ment Retard*. 2008;113(5):356–368
62. Taub E, Uswatte G. Importance for CP rehabilitation of transfer of motor improvement to everyday life. *Pediatrics*. 2014;133(1). Available at: www.pediatrics.org/cgi/content/full/133/1/e215
63. Basu AP. Early intervention after perinatal stroke: opportunities and challenges. *Dev Med Child Neurol*. 2014; 56(6):516–521
64. Yang JF, Livingstone D, Brunton K, et al. Training to enhance walking in children with cerebral palsy: are we missing the window of opportunity? *Semin Pediatr Neurol*. 2013;20(2):106–115
65. Bower E, McLellan DL, Arney J, Campbell MJ. A randomised controlled trial of different intensities of physiotherapy and different goal-setting procedures in 44 children with cerebral palsy. *Dev Med Child Neurol*. 1996;38(3):226–237
66. Thornton A, Licari M, Reid S, Armstrong J, Fallows R, Elliott C. Cognitive Orientation to (Daily) Occupational Performance intervention leads to improvements in impairments, activity and participation in children with developmental coordination disorder. *Disabil Rehabil*. 2016;38(10):979–986
67. Wade DT. Goal setting in rehabilitation: an overview of what, why and how. *Clin Rehabil*. 2009;23(4):291–295
68. Sakzewski L, Carlon S, Shields N, Ziviani J, Ware RS, Boyd RN. Impact of intensive upper limb rehabilitation on quality of life: a randomized trial in children with unilateral cerebral palsy. *Dev Med Child Neurol*. 2012;54(5):415–423
69. Kreider CM, Bendixen RM, Huang YY, Lim Y. Review of occupational therapy intervention research in the practice area of children and youth 2009-2013. *Am J Occup Ther*. 2014;68(2):e61–e73
70. Case-Smith J. Systematic review of interventions to promote social-emotional development in young children with or at risk for disability. *Am J Occup Ther*. 2013;67(4):395–404
71. Morgan C, Novak I, Badawi N. Enriched environments and motor outcomes in cerebral palsy: systematic review and meta-analysis. *Pediatrics*. 2013;132(3). Available at: www.pediatrics.org/cgi/content/full/132/3/e735
72. Gillett J. The Pediatric Acquired Brain Injury Community Outreach Program (PABICOP) - an innovative comprehensive model of care for children and youth with an acquired brain injury. *NeuroRehabilitation*. 2004; 19(3):207–218
73. Ziring PR, Brazdziunas D, Cooley WC; American Academy of Pediatrics; Committee on Children with Disabilities. The treatment of neurologically impaired children using patterning. *Pediatrics*. 1999;104(5, pt 1):1149–1151. Reaffirmed May 2018
74. Zimmer M, Desch L; Section On Complementary And Integrative Medicine; Council on Children with Disabilities; American Academy of Pediatrics. Sensory integration therapies for children with developmental and behavioral disorders. *Pediatrics*. 2012;129(6): 1186–1189
75. Bailes AF, Greve K, Burch CK, Reder R, Lin L, Huth MM. The effect of suit wear during an intensive therapy program in children with cerebral palsy. *Pediatr Phys Ther*. 2011;23(2):136–142
76. Lacey DJ, Stolfi A, Pilati LE. Effects of hyperbaric oxygen on motor function in children with cerebral palsy. *Ann Neurol*. 2012;72(5):695–703
77. Novak I, Badawi N. Last breath: effectiveness of hyperbaric oxygen treatment for cerebral palsy. *Ann Neurol*. 2012;72(5):633–634
78. Goldfarb C, Genore L, Hunt C, et al. Hyperbaric oxygen therapy for the treatment of children and youth with autism spectrum disorders: an evidence-based systematic review. *Res Autism Spectr Disord*. 2016;29–30:1–7
79. Weitlauf AS, Sathe N, McPheeters ML, Warren ZE. Interventions targeting sensory challenges in autism spectrum disorder: a systematic review. *Pediatrics*. 2017;139(6):e20170347
80. McDonagh MS, Morgan D, Carson S, Russman BS. Systematic review of hyperbaric oxygen therapy for cerebral palsy: the state of the evidence. *Dev Med Child Neurol*. 2007;49(12):942–947
81. Collet JP, Vanasse M, Marois P, et al; HBO-CP Research Group. Hyperbaric oxygen for children with cerebral palsy: a randomised multicentre trial. *Lancet*. 2001;357(9256):582–586
82. McClafferty H, Vohra S, Bailey M, et al; Section on Integrative Medicine. Pediatric integrative medicine. *Pediatrics*. 2017;140(3):e20171961
83. Meyer-Heim A, van Hedel HJ. Robot-assisted and computer-enhanced therapies for children with cerebral palsy: current state and clinical implementation. *Semin Pediatr Neurol*. 2013;20(2):139–145
84. Case-Smith J, Weaver LL, Fristad MA. A systematic review of sensory processing interventions for children with autism spectrum disorders. *Autism*. 2015;19(2):133–148
85. Fasoli SE, Ladenheim B, Mast J, Krebs HI. New horizons for robot-assisted therapy in pediatrics. *Am J Phys Med Rehabil*. 2012;91(11, suppl 3):S280–S289
86. Chen YP, Pope S, Tyler D, Warren GL. Effectiveness of constraint-induced movement therapy on upper-extremity function in children with cerebral palsy: a systematic review and meta-analysis

- of randomized controlled trials. *Clin Rehabil*. 2014;28(10):939–953
87. Facchin P, Rosa-Rizzotto M, Visonà Dalla Pozza L, et al; GIPCI Study Group. Multisite trial comparing the efficacy of constraint-induced movement therapy with that of bimanual intensive training in children with hemiplegic cerebral palsy: postintervention results. *Am J Phys Med Rehabil*. 2011;90(7):539–553
 88. Huang HH, Fetters L, Hale J, McBride A. Bound for success: a systematic review of constraint-induced movement therapy in children with cerebral palsy supports improved arm and hand use. *Phys Ther*. 2009;89(11):1126–1141
 89. Sakzewski L, Ziviani J, Abbott DF, Macdonell RA, Jackson GD, Boyd RN. Equivalent retention of gains at 1 year after training with constraint-induced or bimanual therapy in children with unilateral cerebral palsy. *Neurorehabil Neural Repair*. 2011;25(7):664–671
 90. Snider L, Korner-Bitensky N, Kammann C, Warner S, Saleh M. Horseback riding as therapy for children with cerebral palsy: is there evidence of its effectiveness? *Phys Occup Ther Pediatr*. 2007;27(2):5–23
 91. Sterba JA. Does horseback riding therapy or therapist-directed hippotherapy rehabilitate children with cerebral palsy? *Dev Med Child Neurol*. 2007;49(1):68–73
 92. Sterba JA, Rogers BT, France AP, Vokes DA. Horseback riding in children with cerebral palsy: effect on gross motor function. *Dev Med Child Neurol*. 2002;44(5):301–308
 93. Whalen CN, Case-Smith J. Therapeutic effects of horseback riding therapy on gross motor function in children with cerebral palsy: a systematic review. *Phys Occup Ther Pediatr*. 2012;32(3):229–242
 94. Zadnikar M, Kastrin A. Effects of hippotherapy and therapeutic horseback riding on postural control or balance in children with cerebral palsy: a meta-analysis. *Dev Med Child Neurol*. 2011;53(8):684–691
 95. Lee J, Yun CK. Effects of hippotherapy on the thickness of deep abdominal muscles and activity of daily living in children with intellectual disabilities. *J Phys Ther Sci*. 2017;29(4):779–782
 96. Sakzewski L, Ziviani J, Boyd RN. Efficacy of upper limb therapies for unilateral cerebral palsy: a meta-analysis. *Pediatrics*. 2014;133(1). Available at: www.pediatrics.org/cgi/content/full/133/1/e175
 97. Tepas JJ III, Leaphart CL, Pieper P, et al. The effect of delay in rehabilitation on outcome of severe traumatic brain injury. *J Pediatr Surg*. 2009;44(2):368–372
 98. Majnemer A, Shikako-Thomas K, Lach L, et al; QUALA Group. Rehabilitation service utilization in children and youth with cerebral palsy. *Child Care Health Dev*. 2014;40(2):275–282
 99. Bailes AF, Reder R, Burch C. Development of guidelines for determining frequency of therapy services in a pediatric medical setting. *Pediatr Phys Ther*. 2008;20(2):194–198
 100. Palisano RJ, Murr S. Intensity of therapy services: what are the considerations? *Phys Occup Ther Pediatr*. 2009;29(2):107–112
 101. Adams RC, Levy SE; Council on Children With Disabilities. Shared decision-making and children with disabilities: pathways to consensus. *Pediatrics*. 2017;139(6):e20170956
 102. Kwon JY, Chang HJ, Yi SH, Lee JY, Shin HY, Kim YH. Effect of hippotherapy on gross motor function in children with cerebral palsy: a randomized controlled trial. *J Altern Complement Med*. 2015;21(1):15–21
 103. Rosenbaum S, Wise PH. Crossing the Medicaid-private insurance divide: the case of EPSDT. *Health Aff (Millwood)*. 2007;26(2):382–393
 104. Goldstein MM, Rosenbaum S. From EPSDT to EHBs: the future of pediatric coverage design under government financed health insurance. *Pediatrics*. 2013;131(suppl 2):S142–S148

Prescribing Physical, Occupational, and Speech Therapy Services for Children With Disabilities

Amy Houtrow, Nancy Murphy and COUNCIL ON CHILDREN WITH DISABILITIES

Pediatrics 2019;143;

DOI: 10.1542/peds.2019-0285 originally published online March 25, 2019;

Updated Information & Services

including high resolution figures, can be found at:
<http://pediatrics.aappublications.org/content/143/4/e20190285>

References

This article cites 99 articles, 34 of which you can access for free at:
<http://pediatrics.aappublications.org/content/143/4/e20190285#BIBL>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):

Current Policy

http://www.aappublications.org/cgi/collection/current_policy

Council on Children with Disabilities

http://www.aappublications.org/cgi/collection/council_on_children_with_disabilities

Children With Special Health Care Needs

http://www.aappublications.org/cgi/collection/disabilities_sub

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:

<http://www.aappublications.org/site/misc/Permissions.xhtml>

Reprints

Information about ordering reprints can be found online:

<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Prescribing Physical, Occupational, and Speech Therapy Services for Children With Disabilities

Amy Houtrow, Nancy Murphy and COUNCIL ON CHILDREN WITH
DISABILITIES

Pediatrics 2019;143;

DOI: 10.1542/peds.2019-0285 originally published online March 25, 2019;

The online version of this article, along with updated information and services, is
located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/143/4/e20190285>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2019 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

