SEIZURES AND AUTISM SPECTRUM DISORDER

Seizures occur more frequently in individuals on the autism spectrum than in other children. Many of the neurological syndromes and structural causes of epilepsy also lead to developmental challenges that fulfill criteria for autism spectrum disorder (ASD), and increasingly there is evidence of genetic abnormalities such as microdeletions and duplications that affect brain development and lead to both epilepsy and autism. Although doctors and researchers do not always understand why ASD and epilepsy co-occur, treatment aims to manage the overlapping cognitive, language, affective, social, and behavioral delays common to both disorders.

A seizure is an abnormal electrical discharge in the brain altering function or behavior. It is the most common neurological condition in children, with a prevalence of more than 4%. Epilepsy, defined as two or more unprovoked seizures, occurs in 2-3% of the general population. Remarkably, epilepsy is reported in 25-40% of individuals on the autism spectrum. Identified risk factors for epilepsy in those with on the spectrum include intellectual disability, an underlying neurologic disorder, a family history of epilepsy, and severe cognitive delay.

Most cases of epilepsy in children on the autism spectrum present after 10 years of age, and all seizure types have been reported. Seizures may be focal (partial), with only one side of the brain involved, or generalized in which both sides of the brain display abnormal activity. Focal seizures are further classified as either simple (no altered level of consciousness) or complex (altered level of consciousness). Generalized seizures may be either convulsive or non-convulsive. An electroencephalogram (EEG) is the diagnostic test that measures electrical activity in the brain and is used to confirm a clinical suspicion of seizure activity.

Symptoms of seizures are widely variable but include stiffening (tonic) or rhythmic twitching (clonic) of one or more extremities or the face, staring spells, lip smacking or other non-purposeful movements or distinct periods of changes in
behavior such as staring or sudden headache. In children on the autism spectrum, a sudden loss of language skills or behavioral regression may be caused by epileptic disruption of organized brain activity that may not always show up clinically. (This is called electrical status epilepticus of sleep.)

Seizure type, EEG findings, and clinical factors dictate treatment of epilepsy in those who are on the autism spectrum and those who are not. The goal of medication with anti-epileptic drugs is to eliminate all seizures without negatively impacting cognitive and behavioral functioning.

Related Articles:

- Eron Friedlaender, MD MPH

  Watch and listen to Dr. Eron Friedlaender discuss medical aspects of Autism Spectrum Disorder

- Co-Occurring Conditions or Co-Morbidities
- Going to the Dentist
- Intellectual Disability and ASD
- Will Medication Help?

WHO ARE ALL THESE PROFESSIONALS?

From MDs to PhDs to other less familiar professional credentials, it can be confusing to sort out who does what and what their experience may be. This article
outlines the professional training and job responsibilities of many of the medical providers and therapists your child may see.

**Physicians**

A *General Pediatrician* is a medical doctor trained to care for the health and well being of children (birth – about 21). Training:

- 4 years of medical school
- 3 years of residency training in pediatrics
- Board certification from the American Board of Pediatrics

A *Developmental Pediatrician* (also known as a developmental-behavioral pediatrician) is a pediatrician who has advanced training in developmental-behavioral medicine. Training:

- 4 years of medical school
- 3 years of residency training in pediatrics
- Board certification from the American Board of Pediatrics
- Additional sub-specialty training in developmental-behavioral pediatrics (1-2 years)

Developmental-behavioral pediatricians evaluate, counsel, and provide treatment for children, adolescents, and their families with a wide range of developmental and behavioral difficulties, including: learning disorders, attention issues, and behavioral disorders; these include attention deficit hyperactivity disorder (ADHD) and associated conditions like oppositional defiant disorder, conduct problems, depression, anxiety disorders, tics, Tourette syndrome, and other habit disorders.

They also address regulatory disorders, including sleep disorders, feeding problems, discipline difficulties, and complicated toilet-training issues, and developmental disabilities, including cerebral palsy, spina bifida, mental retardation, Autism Spectrum Disorder (ASD), and visual and hearing impairments, as well as delayed development in speech, language, motor skills, and thinking ability.

A *Pediatric Neurologist* is a pediatrician who has advanced training in pediatric neurology. Training:

- 4 years of medical school
- At least 1 to 2 years of pediatric residency
- 3 or more years of residency training in adult and child neurology
- Board certification from the American Board of Pediatrics and the American Board of Psychiatry and Neurology (with special competency in child neurology)

Child neurologists treat children from birth into young adulthood and often diagnose, treat, and manage the following conditions: seizure disorders, medical aspects of head injuries and brain tumors, nerve-muscle disorders, headaches (including migraines), hydrocephalus, behavioral disorders (including ADHD), school failure, ASD, and sleep problems. They also address developmental disorders, including delayed speech, motor milestones, coordination issues, and mental retardation.

A Child Psychiatrist is a medical doctor who has advanced training in pediatric psychiatry. Training:

- 4 year medical school program
- 4 year residency program in child psychiatry
- Board Certification in American Academy of Child and Adolescent Psychiatry

Child psychiatrists specialize in the diagnosis, treatment, and management of disorders of thinking, feeling and/or behavior affecting children, adolescents, and their families, including attention, behavioral, and developmental disorders.

Psychologists

Counseling Psychologists advise people on how to deal with problems of everyday living to help improve their quality of life; this includes problems in the home, place of work, or community.

School Psychologists work with students in schools. They collaborate with teachers, parents, and school personnel to create safe, healthy, and supportive learning environments for all students. School psychologists address students’ learning and behavioral problems, suggest improvements to classroom management strategies or parenting techniques, and evaluate students with disabilities and gifted/talented students to help determine the best way to educate them. They also may evaluate the effectiveness of academic programs, prevention programs, behavior
management procedures, and other services provided in the school setting.

Clinical Psychologists assess, diagnose, and treat emotional, and behavioral disorders (ADHD, learning disabilities, Autism Spectrum Disorder, anxiety, depression, etc.). They are trained to use a variety of approaches to help children, adolescents and/or adults, and often work with families over time to address specific issues that arise as a child grows and develops. Clinical psychologists may specialize in treating specific issues or work with certain age groups. They are often trained in behavioral approaches to teaching life skills, or in cognitive behavioral therapy approaches to help children and adolescents gain new problem solving skills. Clinical psychologists with a specialty in behavioral methods may oversee the intensive early intervention programs (Applied Behavioral Analysis or ABA) often recommended for children on the autism spectrum.

Neuropsychologists study the relation between the brain and behavior. Clinical neuropsychologists may further specialize in these fields by focusing their work in a number of niche areas including various medical conditions (for example, epilepsy, stroke, brain injury), mental health, learning disabilities, ASD, emotional disturbances, or substance abuse.

Training:

- Doctoral degree (PhD or PsyD) usually is required – approximately 5 years of full-time graduate study, including a dissertation based on original research
- Master’s degree in psychology – 2 years of full-time graduate study (for a school psychologist); requirements usually include practical experience in an applied setting and a master’s thesis based on an original research project
- Licensure – Licensing laws vary by state and by type of position
  - Certified psychologists limit their practice to areas in which they have developed professional competence through training and experience
  - Clinical and counseling psychologists usually need a doctorate in psychology, an approved internship, and 1-2 years of professional experience
- Most state licensing boards administer a standardized test; many supplement that with additional oral or essay questions and require
continuing education

**Nurses/Nurse Practitioner**

There are three typical educational paths to registered nursing (RN). Training:

- Bachelor’s of science degree in nursing (BSN) – 4 year degree
- Associate degree in nursing (ADN) with a diploma – 2-3 years in a community or junior college
- Diploma programs, administered in hospitals, last about 3 years
- **Advanced practice nurses/nurse practitioners** — clinical nurse specialists, nurse anesthetists, nurse-midwives, and nurse practitioners—need a master’s degree

**Registered Nurses (RNs),** regardless of specialty or work setting, treat patients, educate patients and the public about various medical conditions, and provide advice and emotional support to patients’ family members. RNs record patients’ medical histories and symptoms, help perform diagnostic tests and analyze results, operate medical machinery, administer treatment and medications, and help with patient follow-up and rehabilitation.

**Child Life Specialists**

Child life staff work in the hospital alongside the medical staff. They are trained in a number of disciplines, including child development, therapeutic recreation, art therapy, music therapy, and education. Child life specialists work with hospitalized children and their families and understand the unique stressors that can accompany a hospital experience. Training:

- Minimum of a 4 year Bachelor’s Degree
- Must be licensed as a Certified Child Life Specialist by the (National) Child Life Council

**Social Workers**

Social workers are trained specialists in the social, emotional, and financial needs of individuals and families. They may serve as a case manager, counselor/therapist, or advocate. Child, family, and school social workers provide social services to improve the social and psychological function of children and their families. This includes connecting individuals and families to the appropriate
resources, information, and services they may need and be eligible for and helping people cope with and solve issues in their everyday lives, such as family and personal problems and dealing with relationships. Many social workers specialize in serving a particular population or working in a specific setting. In all settings, these workers may also be called licensed clinical social workers, if they hold the appropriate state mandated license.

Training:

- Minimum 4 year bachelor’s degree
- Master’s degree is required for a clinical social work position
- Some go on to attain a doctoral degree
- States have licensure, certification, or registration requirements including 2 years or 3,000 hours of supervised clinical experience for licensure of clinical social workers
- Licensed social workers must have master’s degrees and maintain ongoing continuing education credits, which vary by state

**Speech-Language Pathologists**

A speech-language pathologist (SLP) assesses, diagnoses, treats, and helps to prevent disorders related to speech, language, communication, voice, swallowing, and fluency. Speech-language pathology courses cover anatomy, physiology, and the development of the areas of the body involved in speech, language, and swallowing; the nature of disorders; principles of acoustics; and psychological aspects of communication. Graduate students may also learn to evaluate and treat speech, language, and swallowing disorders as part of the curriculum in supervised clinical practicums. Training:

- Speech therapy positions require a master’s degree
- Licensure or certification requirements (Medicaid, Medicare, and private health insurers generally require a practitioner to be licensed to qualify for reimbursement)
  - Master’s degree from an accredited college or university
  - Passing score on the national examination on speech-language pathology, offered through the Praxis Series of the Educational Testing Service
  - 300 to 375 hours of supervised clinical experience and 9 months of
post-graduate professional clinical experience
  • Most states have continuing education requirements for licensure renewal

SLPs work with people who cannot produce speech sounds or cannot produce them clearly; those with speech rhythm and fluency problems (for example, stuttering); people with voice disorders (for example, inappropriate pitch or harsh voice); those with problems understanding and producing language; those who wish to improve their communication skills by modifying an accent; and those with cognitive communication impairments (for example, attention, memory, and problem-solving disorders). They also work with people who have feeding and/or swallowing difficulties, children on the autism spectrum, stroke patients, head trauma patients, children who were in neonatal intensive care units as babies, post trachea patients, individuals in rehab and post-rehab, and adopted children from foreign countries. A new area for some speech therapists is literacy learning.

**Occupational Therapists**

An occupational therapist (OT) helps patients improve their ability to perform tasks in living and working environments. They work with individuals who suffer from mentally, physically, developmentally, or emotionally disabling conditions.

**Training:**

  • Master’s degree or higher in occupational therapy is the minimum requirement
  • OTs must attend an academic program
  • Some OTs pursue a doctorate degree
  • All accredited programs require at least 24 weeks of supervised fieldwork as part of the academic curriculum
  • States regulate the practice of occupational therapy; to obtain a license, applicants must graduate from an accredited educational program and pass a national certification examination; those who pass the exam are awarded the title “Occupational Therapist Registered (OTR)”

An pediatric OT’s role is to assure a child’s mastery of his or her main occupations: play, exploration of environment, new learning, self-care completion, being a family member, being a student, etc. A pediatric OT focuses on child-centered intervention in an attempt to improve skills in any areas of weakness and build on
areas of strength. OTs use treatments to develop, recover, or maintain the daily living and work skills of their patients. The therapist helps clients not only to improve their basic motor functions and reasoning abilities, but to compensate for permanent loss of function. The goal is to help clients have independent, productive, and satisfying lives.

**Physical Therapists**

A physical therapist (PT) is a healthcare professional who diagnoses and treats individuals who have medical problems or other health-related conditions, illnesses, or injuries that limit their abilities to move and perform functional activities in their daily lives. Training:

- Graduate degree physical therapist programs are accredited; master’s degree programs typically are 2 to 2.5 years in length, while doctoral degree programs last 3 years
- Licensure or certification requirements
  - Eligibility requirements vary by state
  - Graduation from an accredited physical therapy education program
  - Passing the National Physical Therapy Examination
  - Continuing education as a condition of maintaining licensure

Physical therapy care and services are provided by PTs and PT assistants who work under the direction and supervision of a PT. PTs evaluate and diagnose movement dysfunction and use interventions to treat patients/clients. Interventions may include therapeutic exercise, functional training, manual therapy techniques, assistive and adaptive devices and equipment, physical agents, and electrotherapeutic modalities.

**Behavior Therapists**

A Board Certified Behavior Analyst® (BCBA) is an independent practitioner who also may work as an employee or independent contractor for an organization. The BCBA conducts descriptive and systematic behavioral assessments, including functional analyses and functional behavioral assessments, and provides structural and functional interpretations of the results. To do this, the BCBA must effectively assess the conditions under which the behavior is most likely to occur and then develop and implement effective interventions for use in home, school, and community environments. BCBAs supervise the work of Board Certified Assistant
Behavior Analysts® and others (for example, therapeutic support staff) who implement behavior analytic interventions in schools. Training:

- Master’s degree (or doctorate degree) in Behavior Analysis, psychology, special education, or a related field
- Specific coursework, essentially 6 courses, at the graduate level in Behavior Analysis
- Supervised experience under someone who is a BCBA and is approved by the Behavior Analysis Certification Board® (BACB)
- Approval by BACB (Behavior Analysis Certification Board)
- Passing a standardized examination

A *Board Certified Assistant Behavioral Analyst® (BCaBA)* conducts behavioral assessments and is able to interpret the results and use them, under the supervision of a BCBA, to design ethical and effective behavior interventions for clients. It is mandatory that each BCaBA practice under the supervision of a BCBA. Training:

- Bachelor’s degree, with specific coursework in behavioral change procedures, data, measurement, ethics, etc.

Related Articles:

- [Going to a Medical Appointment](#)
- [What is the Difference Between a General Pediatrician and a Developmental Pediatrician?](#)
- [Co-Occurring Conditions or Co-Morbidities](#)
- [Speech, Language, and Communication](#)
- [Occupational Therapy for Children with ASD](#)
- [The Role of the Pediatric Physical Therapist for Children with Autism Spectrum Disorder](#)
- [Functional Behavioral Assessment: What is It?](#)
- [Behavior Intervention Plan](#)