Autism Spectrum Disorders (ASDs) in Children

WWW.RN.ORG®
Reviewed February 2026, Expires February 2028
Provider Information and Specifics available on our Website
Unauthorized Distribution Prohibited
©2026 RN.ORG®, S.A., RN.ORG®, LLC
By Wanda Lockwood, RN, BA, MA

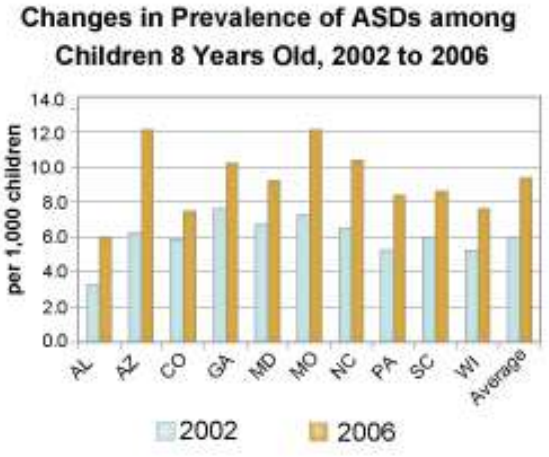
WWW.RN.ORG®

Purpose
The purpose of this course is to explain autism spectrum disorders, outline their symptoms, interventions, assessments, care strategies, and complementary therapies.

Goals
Upon completion of this course, the healthcare provider should be able to:

- List and explain the 5 disorders that comprise autism spectrum disorders (ASD).
- Discuss current knowledge about the causes of ASD.
- List and describe 5 types of symptoms.
- Describe interventions for different types of symptoms.
- List and describe at least 5 different assessment tools.
- Describe 2 commonly used complementary therapies.
- Describe methods to employ in caring for the hospitalized child with ASD.

Introduction



Pervasive developmental disorders (PDDs) include 5 different disorders that are referred to as autism spectrum disorders (ASDs). ASDs include:

- Autistic disorder (classical autism).
- Asperger's syndrome (high functioning).

- Rett's disorder.
- Childhood disintegrative disorder.
- PPD not otherwise specified.

The number of children diagnosed with ASD has increased markedly over the last couple of decades, and no one knows why. Part of the increase may be related to more awareness of the disorder and different criteria for diagnosis, but these are not sufficient to explain the increase. Currently approximately 3.4 children per 1000 have ASD with the rate in males 3 to 4 times higher than in females.

While some children exhibit signs of autism during early infancy, more commonly parents or caregivers become aware that their children are lagging behind others developmentally between ages 1 and 3. Some children who were previously verbal stop using language and appear to regress. Children with ASD often have co-morbidities that affect their behavior. These may include affective disorders, obsessive compulsive disorder, attention deficit, and hyperactivity disorder.

Cause

At one time, ASD was considered a psychodynamic disorder, influenced by "cold" and uncaring mothers, but there is no evidence to support this theory. In fact, ASD is now considered a neurobiological disorder resulting from brain abnormalities. While researchers have various theories about the causes of autism, identifying the actual cause remains elusive. In fact, there may be a number of different causes. Studies have shown that brain abnormalities are a common finding. Some children exhibit increased brain size and head circumference. Abnormalities may include:

- Non-specific signs of brain damage (abnormal EEG, CT, epilepsy).
- Hereditary disorders associated with autism, such as Fragile X and tuberous sclerosis.
- Specific syndromes resulting in brain damage, such as Moebius syndrome.
- Hereditary conditions (Asperger's syndrome).

Genetic transmission is considered likely because there is a high occurrence in identical twins, and siblings of a child with ASD also are at increased risk of having the disorder. Autism has been directly associated with some genetic abnormalities:

- **16p11.2 deletion syndrome:** Characterized by development delays and intellectual disability as well as symptoms associated with ASD, including impaired communication, socialization, and language skills.

©WWW.RN.ORG®

- **Fragile X syndrome:** The X-linked disorder results in physical abnormalities, intellectual disability, and autistic-like behavior. About a third of those with fragile X syndrome are co-diagnosed with ASD, accounting for 2 to 6% of all children with ASD.
- **Tuberous sclerosis:** This genetic disorder results in tumors forming in multiple organs and is characterized by developmental delay, intellectual disability, and autism.
- **Down syndrome (Trisomy 21):** This disorder results in cognitive and intellectual disability and impaired physical development as well as physical abnormalities. Autism is a common dual diagnosis.

One study evaluated the incidence of children with ASD in relation to the age of parents and concluded that spontaneous genetic mutations, which (according to the study) appear to account for about 50% or more of cases of ASD, may result from the trend toward delayed childbearing and older parents, but research is ongoing.

No link has been found between a history of childhood infections and ASD. Despite ongoing controversy, repeated studies have demonstrated absolutely no link between vaccinations and ASD.

RN.ORG®

Autism spectrum disorders		
ASD	**Clinical indications**	**Focus of therapy**
Autistic disorder	Symptoms usually evident in first year of life and include impaired social, communicative, and behavioral development.	Early intervention with behavioral therapy. Physical and occupational therapy. Structured play.
Asperger's syndrome	Symptoms may not be obvious during early childhood and diagnosis may be delayed until adolescence or adulthood. Social interaction is impaired. Language development is normal but tone and pitch may be abnormal. Verbal skills are good but comprehension and language flexibility may be impaired.	Social interaction.
Rett's	Symptoms not evident until 6 to	Early intervention

disorder	18 months. This is an X-linked disorder that only affects females resulting in progressive intellectual disability and autistic symptoms. Symptoms include ataxia, handwringing, episodes of hyperventilation, and increasing dementia and growth retardation.	aimed at primary symptoms.
Childhood disintegrative disorder	Symptoms not evident until 2 to 5 years as early development is normal but then regression in toileting or other functions occurs. At some point the behaviors stabilize without further regression.	Intervention related to areas of abnormal function.
PPD not otherwise specified	Severe social impairment but without other criteria for ASD.	Behavioral therapy related to social skills.

Symptoms of ASD

While some people are not diagnosed until adolescence or adulthood, as awareness increases, diagnosis is now more likely during early childhood. In order to determine where a child lies on the spectrum of autism, a thorough history and observations must be made to determine the type and degree of symptoms.

Impaired social interactions

Impairment in social interactions is often noticeable during infancy with an infant who seems to resist cuddling (sometimes by stiffening when held), smiles little, makes little eye contact, and does not respond to normal social stimuli. However, this is not true for all children, as some develop quite normally in the first year. As the child becomes a toddler, impairments become more noticeable as the child resists eye contact, resists turn taking, and does not point to items of desire or interest. The pre-school child becomes more socially withdrawn and has difficulty expressing and understanding emotions. The child may be unable to communicate nonverbally and may lack language ability needed for adequate communication to establish social relationships. Despite these problems, the child with ASD does develop attachment to caregivers, but the child's ability to express this attachment by the usual means of hugging, kissing, and saying "I love you" may be missing.

©WWRN

Children with ASD are often prone to tempter tantrums long past the age when other children have stopped having tantrums. As with other children, those with ASD throw tantrums if their needs or desires, for a toy or candy, for example, aren't met. Tantrums are expressions of anger and frustration. Children with autism have little ability to understand that other people may not understand or accept their needs, so they react furiously. Socially, the prolonged, screaming tantrums may make other parents and children leery of interacting with the child. One young mother, Elizabeth, tired of the "you're-such-a-bad-parent" looks she gets from strangers when her child repeatedly throws tempter tantrums in the grocery store if he can't have everything he decides he wants, has resorted to simply standing by quietly until the child stops and telling those who pass by and look at them, "He has autism."

Meltdowns are somewhat different from tantrums even though they may begin with tantrum, but the child totally loses control of behavior and is unable to stop. During a meltdown, children may be unaware of dangers to themselves or others and do such things as hitting, flailing, running away, or throwing things. Meltdowns typically involve screaming and fighting and may last for prolonged periods of time. Meltdowns may result from sensory overload or frustration, but they usually require intervention to calm the child.

Interpersonal relationships with peers are especially difficult because studies show that those with autism often function, socially, at a level about 4 years younger than their chronological age. Children with autism have difficulty understanding the concept that others have different knowledge and beliefs than they do. They don't understand turn taking and are resistant to sharing, so normal play activities can be frustrating for all involved. Children between ages 3 and 5 become increasingly isolated because of their lack of social interaction and sometimes because of delayed language development.

"Mind blindness" in autistic children refers to their inability to judge intention behind commands, so they may become extremely distraught at benign statements such as "Wash your hands before you eat" and ignore important ones, such as "Don't play with matches." In addition, those with autism are somewhat blind to faces, recognizing buildings and places more readily than faces, possibly because they avoid eye contact.

©WWW.RN.ORG®

Children usually show some improvement in socialization by age 5, but the inability to understand the mental status of others interferes with social behavior. While those with ASD often appear to prefer solitary play or activities, studies show that those who are high functioning frequently experience loneliness. They lack social skills needed to make friends even though they have a desire for friendship and benefit from inclusion.

Interventions Behavioral modification is the only therapy that has proven effective in teaching the child with autism new skills. It's a structured plan based on observations of the child and assessments of ability. A therapist typically arranges conditions to help the child predict how to behave, usually breaking tasks into small steps that can more easily be mastered. Behavioral modification involves teaching the child compensatory measures. When the child behaves or responds appropriately, the child is given a reward, such as a small treat or privileges.

A number of different programs have been developed to aid socialization including Relationship Development Intervention (RDI), the SCERTS® Model, Applied Behavioral Analysis (ABA), and Floortime. Common elements of these programs include:

- Focusing core curricula on improvement of communication, play, imitation, and social skills.
- Beginning with one-to-one structured teaching in a sheltered environment (such as an office) and then generalizing to natural settings (such as a playground).
- Providing visual cues for predictable routines to help children make transitions between activities.
- Preventing behavior problems through behavior management strategies that include child-choice and high-interest activities).
- Teaching the child alternative coping behaviors based on functional assessment.
- Encouraging family involvement.

Play therapy, such as Floortime, is commonly used to help children learn social interaction skills. The focus is on emotional development and focuses on adult (usually the parent or caregiver) and child interactions, guided by the child.

If a child has a temper tantrum or meltdown, the best action is often to remain calm, and if the child is in a safe environment, leave the child to thrash about and scream. However, in public places or areas

©WWW.RN.ORG®

where the child may be injured or if the meltdown is getting out of control, the caregiver should hold the child in a tight hug against his/her body, with the child facing away in order to avoid flailing limbs, speak softly to the child, and reassure the child that the caregiver will help when child calms down.

Communication problems

Infants begin learning to share attention with others when they are able to look where a parent is pointing or point at things themselves, usually by about 10 months. If the child points at a dog and the parent responds, "That's a nice doggy," meaningful communication has occurred. The infant's goal is to share attention rather than to obtain the dog. This helps infants become more aware of the mental states of others, but children with autism often miss this stage of development. A child with autism may point to indicate "wanting" something but is much less likely to point to share an experience.

Most people can look at someone's face, especially the eyes, and judge that person's mental status with a fair degree of accuracy, but those with autism often cannot. Unfortunately, this type of unspoken communication is important. Children with autism use fewer gestures than others, and their gestures are often instrumental, indicating that they want something rather than expressive gestures that communicate ideas or feelings, such as hiding the face with embarrassment. Those with autism often don't understand gestures of others, so they also miss the communication cues related to nonverbal communication.

Sharing of emotional experiences is central to communication. Children with autism experience and show basic emotions, such as anger, fear, and happiness, but they have much difficulty interpreting or expressing more subtle emotions, such as pride, guilt, embarrassment, modesty, glee, or curiosity, and this interferes with their ability to communicate. For example, a child with autism may say to another child, "You did that wrong" without understanding that the other child is embarrassed or ashamed or upset. While the autistic child may understand hunger or pain and feel empathy for those suffering, the child may not be able to pick up the clues that the other person actually is hungry or in pain so does not react appropriately.

Communication for a child with autism is often a means to give and receive information without considering the emotional effects of the words. A child with autism may want to share his or her particular interests—at length—without understanding that he is monopolizing

©WWW.RN.ORG®

the conversation or boring others. The give and take of normal conversation is often missing. For example, if someone asks, "Do you have hobbies?" the answer is likely to be "Yes" or "No" rather than "Yes, I like to ride horses." The child attends to the immediate question and doesn't elaborate. The child may also abruptly end a conversation without such niceties as "I have to go study now" as an explanation.

Another problem those with ASD have in communication is impaired voice modulation. They make speak in a monotone, for example, or in a wooden and precise manner. Some tend to speak quite loudly.

Interventions

The child with autism often requires speech and language therapists to help them improve their ability to communicate. When communicating with a child with limited language ability, using simple straightforward sentences is important. Therapists often use flashcards or other devices to help teach the child vocabulary and may teach the child how to respond in various circumstances. For example, a child may be taught to say "Thank you" when receiving something from another person through repetitions and reward, but those with autism often overgeneralize, so the child may say thank you for good things (cookies) as well as bad (broken glass).

Computers are useful adjuncts as some children who did not use verbal language have been able to communicate through using the computer. Even those with language may be more free with expression when typing. Some children who do not use verbal language may respond to the use of a communication boards to indicate "yes" or "no" and may be able to point to pictures of things they want. Picture exchange communication systems (PECS) help those with ASD to communicate using pictures that represent ideas, activities, or items. The child can express needs by choosing an appropriate picture (such as a picture of a glass of water) and giving it to the caregiver.

Children may be better able to understand how to communicate though social stories. For example, a story about going to a restaurant and ordering food and expected behavior may help to prepare the child to respond appropriately.

A number of different programs have been developed specifically to assist the child with language development, including Pivotal Response Treatment (PRT). Facilitated communication in which a facilitator

©WWW.RNJ.ORG®

"interprets" what a non-verbal person wants to say has been the subject of considerable controversy. Typically, the facilitator holds the person's hand or arm and guides while the person points to letters or pictures or types to communicate. However, 40 studies of over 300 people with ASD asked them to respond to information (such as a picture) that the facilitators could not see or hear, and the results showed that only 1% of the communication came independently from the person with ASD. This is the modern version of the Ouija board.

Repetitive behaviors

Stereotypy (rigid, obsessive behavior) is common among those with ASDs, especially those with autistic disorder and Rett's disorder. Activities are usually non-functional. Stereotypy may be motor or vocal:

- Motor behaviors may include rhythmic rocking back and forth, flapping of hands or arms, and twirling in circles. Self-injurious behaviors are less common but do occur, especially in those with intellectual disability . Self-injurious behaviors may include head banging, hand biting, scratching, punching or hitting the face or other body parts, eye gouging, rectal digging, pulling hair and/or nails, and body-to-object banging. Additionally, some children engage in self-stimulatory behaviors, such as masturbation.
- Vocal stereotypy may include echolalia, using unrecognizable words, repeating non-contextual words or phrases, making repetitive noises, and giggling inappropriately.

While some children engage in masturbation or self-injurious behaviors, most stereotypies do not cause injury. Some children may develop persistent preoccupation with parts of objects—like the wheels on a toy car—with attention that is abnormal in intensity.

Children with ASD typically to not adjust well to change and their rigidity is expressed in play as well as other social interactions. They may, for example, insist on playing with the same toy over and over and may line up their toys, sometimes according to color. They may develop rituals, such as doing things in a particular sequence of steps or eating in a particular pattern.

Interventions Children show few stereotypies at age 2, but incidence increases markedly by age 4, so early intervention with psychological and behavioral therapy may be effective in reducing this behavior. Except for public masturbation and self-injurious behaviors, parents and caregivers may need counselling to accept some stereotypies without intervention,

©WWW.RN.ORG®

especially when the child feels stressed. The first step in dealing with stereotypies is to determine if there is a trigger, such as discomfort or fear, which is initiating the behavior. Removing the trigger may decrease the behavior.

Most behavioral modification programs include positive reinforcement of appropriate behavior, but this must be very consistent and applied in all environments (home, school, playground). Behavioral modification is more successful with young children than with older children and adults, another reason for early intervention. Children who are higher functioning may respond to rewards (candy, money, toys) for appropriate behavior. The child may be required to relinquish rewards if self-injury occurs. The child should be prepared for change and change brought about in incremental steps.

Psychodynamic therapy in which the child is provided comfort and reassurance during episodes of self-injury has not proven effective in reducing the behavior and often results in increased self-injury. In some cases, if the behavior poses a threat to the individual, medications may be considered.

Aversion therapy has sometimes been used to treat stereotypies, especially self-injurious behavior, but this is controversial and illegal in some states. Aversive techniques include the use of electrical shock, loud bursts of noise, or sprays of water. This treatment may effectively reduce self-injurious behaviors if other treatments are ineffective, but healthcare providers must follow state laws. Aversion therapy has the potential for abuse and some types, such as the use of electric shock, may be considered torture.

In some cases, physical restraints may be needed to prevent serious self-injury, but rules and regulations regarding the use of restraints must be followed carefully and other methods tried because the use of restraints may increase the child's stress, triggering even further self-injurious behavior. If used, restraints should be left in place for the shortest time possible and the child supervised continuously. Restraints should not be used with stereotypies that are not self-injurious.

©WWW.RN.ORG®

Sensory processing disorders

Sensory processing disorders are common with children with ASD and may result in hypersensitivity or hyposensitivity to sound, lights, and touch/textures. Deficits may occur in any of the senses: sight, hearing, smell, taste, and touch. Some children may react to loud noises, for

example, by throwing screaming tantrums or experiencing meltdown. Common signs of sensory processing disorders include:

- Avoidance of touch or certain textures (such as coarse fabrics or labels on clothes: Children may insist on wearing the same clothes every day.
- Lack of response to sound or light: Children may appear almost deaf at times.
- Easily distracted by sensory input: Children may become so focused on sensory input, such as a beam of light, that they act mesmerized.
- Clumsiness, physical awkwardness: Children may experience balance problems or have poor sense proprioception (body position in space). Gait may be awkward.
- Impulsive behavior.
- Inability to self-calm.

Some of the physical behavior associated with ASD, such as hand flapping and toe walking, may be associated with a sensory processing disorder.

Taste and texture of food is an issue with some children. Some may avoid many foods and insist on eating only a very few items—usually foods that are very bland and smooth-textured. Others may stuff their mouths with food and not appear to notice food on the face, hands, or clothes.

Interventions

Occupational therapists can often help children with ASD cope with sensory input. Therapists may have the child feel or play with different textures or rub different material or textures (sand, shaving cream, lotion, beans) against the skin so that the child is able to build a tolerance so that he or she is less likely to pull away. The Wilbarger brushing technique uses a soft surgical brush to apply firm strokes on the back and extremities, combined with compression of joints.

Some children who react to touch are comforted by wearing snug-fitting clothes, which prevent material from rubbing against the skin, or weighted compression vests.

©WWW.RN.ORG®

The technique of creating a "kid burrito" is sometimes used to comfort children. This includes rolling the child tightly in a blanket, hugging the child tightly, or essentially compressing the child between cushions. While this type of restriction may be stressful to other children, those with ASD often find it relieves anxiety. Other soothing activities include those with slow rhythmic motions, such as Tai Chi and rocking.

Therapists may have children spin or roll to experience movement and changes in perception. Swinging and jumping on a trampoline are helpful for children with proprioceptive impairment. Those with balance problems may benefit form balancing on a balance ball or walking on a balance beam. Dancing, horseback riding, and exercises may also be helpful. Sometimes wearing a weighted compression vest helps children maintain their balance. Stair walking can help improve balance and gait.

Sensitivity to sound may be resolved by wearing headphones or special "hearing" aids to block out sound. The therapist may help the child to cope with sounds by beginning with low-pitched sounds and gradually increasing the level of sound so the child can learn to adjust to sounds the child perceives as unpleasant.

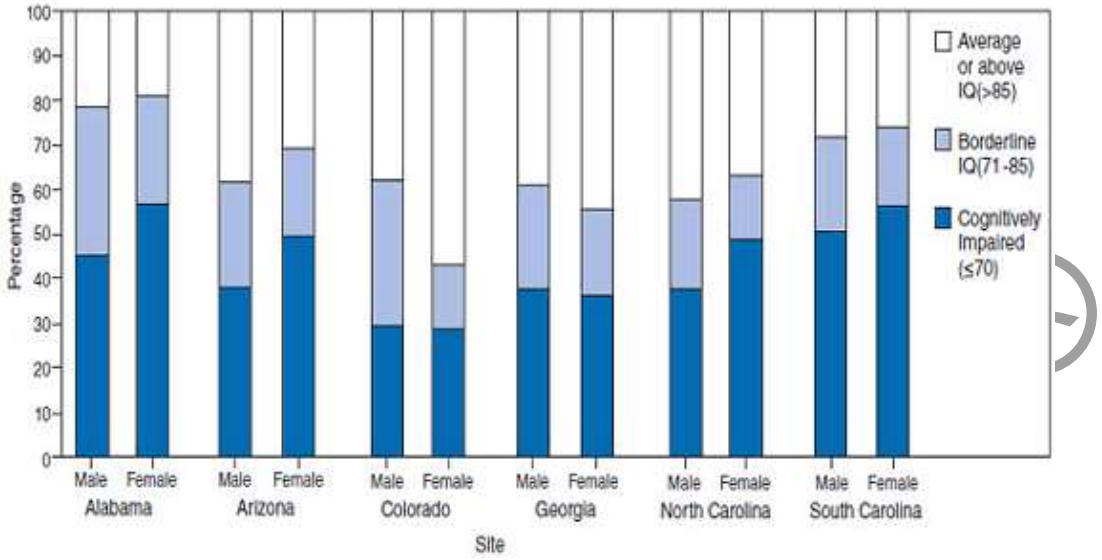
Some children react strongly to bright lights, so dimming the lights or allowing the child to wear sunglasses may be helpful. Some children respond to the use of colored filters over glass lenses.

Children who are sensitive to different tastes and textures of food may be offered small amounts of different types of food to build tolerance and desensitize nerves.

Cognitive impairment

©WWW.RN.ORG®

Intelligence quotient (IQ) of children aged 8 years with an autism spectrum disorder (ASD), 11 sites, United States, 2006



*Sites with psychometric test data on ≥75% of identified cases of ASD were included.

CDC

A report published by CDC in 2009, shows that 30-51% (41% on average) of the children who had an ASD also had an intellectual disability (intelligence quotient ≤70). Studies have consistently shown that a high percentage of autistic children have significant cognitive disability based on standardized IQ tests; however, tests based on language or social interactive skills are not appropriate for testing children with ASD, so there is some controversy about labeling children with ASD as cognitively impaired. Children with a cognitive disability (intellectual disability) usually show even development in skills while children with ASD may have very uneven skills. That is, they may be essentially non-functional in some ways and highly functional in others.

The *DSM-IV TR* requires 3 criteria for intellectual disability :

- IQ measured to be two standard deviations or more below the mean.
- Significant adaptive living skill deficits.
- Onset before age 18 (in other words, before development is considered to be completed).

While it's clear that may children with ASD meet these criteria, it's not always clear if this is because of actual cognitive disability or social, communicative, or behavioral problems that interfere with testing.

The Test of Nonverbal Intelligence (TONI) provides a more accurate assessment of cognitive ability because it assesses the knowledge the

©WWW.RN.C

child has rather than the child's ability to communicate that knowledge. The test measures skills in 4 areas:

- Object permanence.
- Tool use.
- Cause and effect.
- Problem solving.
- Adaptive skills.

Interventions

Because a child's true intellectual ability may not be evident, caregivers should try various methods to reach and teach the child and remain persistent. Children who lack verbal language skills and appear severely intellectually disabled at 4 years old may present a different picture a few years later.

RN.ORG®

ASD Screening Tests

A wide variety of screening tests are available. Some are intended only for clinicians while others are used by parents/caregivers or others in the community (such as social workers) involved in care or supervision of children. Because early intervention is so critical, many tests focus on younger ages.

Checklist for Autism in Toddlers (CHAT)	Screening by clinicians at 18 months. Based on 5 elements of observations: • Eye contact. • Following pointing finger. • Pretend play. • Pointing in response to "where is X?" • Ability to build tower with blocks. CHAT includes 9 questions to parents about: • Swinging, bouncing on knee. • Showing interest in other children. • Playing peek-a-boo or hide-and-seek. • Climbing. • Pretend play. • Pointing to ask for item. • Pointing to indicate interest. • Playing with small objects. • Bringing objects to show.
Modified CHAT (M-CHAT)	Screening by parents/caregivers at 18 months. M-CHAT includes 18 questions about child's activities and behaviors. This may be completed

	prior to visit with clinician and used for basis of follow-up interview. Content is similar to CHAT.
Childhood Autism Rating Scale (CARS)	Screening by clinician of children >2 to help distinguish children with autism from those who are developmentally handicapped but not autistic. It may also be used to monitor and assess response to intervention. CARS includes a 15-i53m behavior rating scale.
Autism Behavior Checklist (ABC) from ASIEP-3	ABC is part of ASIEP-3 but is sometimes used independently by caregivers, teachers, or clinicians with a child older than age 3. It measures target behaviors for intervention and can clarify the impact of treatment interventions. ABC consists of 57 questions divided into 5 categories of behavior: • Sensory. • Relating. • Body and object use. • Language. • Social and self-help.
Autism Behavior Checklist (ABC) for abuse	This ABC (developed by Modell) is used by social workers to help determine if a person with ASD may be the victim of abuse. The checklist contains 16 different observations regarding defensive behavior, encopresis, enuresis, increased sensitivity to stimuli, and other indications of stress.
Screening Tool for Autism in Toddlers and Young Children (STAT)	Screening by clinicians and community service providers for 24 to 36-month-old children. Twelve activities, such as imitation, play, requesting, and directing attention, are assessed. Assessment includes use of a special kit with a variety of toys.
Autism Diagnostic Observation Schedule—Generic (ADOS)	Screening by clinicians (primarily for research) for children >2 to detect social and communicative behavior related to autism. The screen is based on the child's use of language (non-verbal and preverbal), so it is not used with non-verbal adolescents or adults. Four areas are rated: • Reciprocal social interaction. • Communication/language. • Stereotyped/restricted behaviors. • Mood and non-specific abnormal behaviors.

Detection of Autism by Infant Sociability Interview (DAISI)	Screening by clinicians in a semi-structured parental interview, for children <2 years. DAISI measures the presence of social engagement behaviors. Items assess early dyadic (eg, turn taking) and triadic (eg, referential eye contact) interactions.
Autism Screening Instrument for Educational Planning (ASIEP-3)	Used to screen individuals from 18 months of age through adulthood. ASIEP-3 examines five areas of behavior to determine verbal behavior, social interaction, education level, and learn characteristics: • Sensory, relating, body concept, language, and social self-help. • Vocal behavior. • Interaction. • Communication. • Learning rate.

Complementary therapies

In an attempt to treat or cure ASD, parents and caregivers have turned to a number of complementary therapies. Some are essentially harmless, such as nutritional supplements, while other, such as chelation therapy, pose some risks. There have been no major studies of most of these alternative treatments and little evidence to support their efficacy.

Gluten-free , casein-free diet

Some people believe that gluten and casein are not absorbed properly in those with ASD and affect the brain. While this is not supported by research, studies are ongoing. Anecdotal evidence suggests that the diet has helped to regulate bowel habits and has improved overall functioning. Because casein is found in milk, families should work with a nutritionist to ensure that the child gets enough calcium and vitamin D.

Hyperbaric therapy

Hyperbaric therapy has become increasingly popular as an alternative therapy despite high costs and continued controversy. Hyperbaric therapy is not the same as hyperbaric oxygen therapy, which delivers 100% oxygen under increased atmospheric pressure. Hyperbaric therapy delivers ambient room air (21% oxygen) under increased pressure, making it safer to use. Advocates claim that treatment in a

©WWRI

hyperbaric chamber increases oxygen to the brain and reduces inflammation, which they believe has a role in autism. Chambers are advertised for "home use" even though they cannot legally be advertised for treatment of ASD. Portable chambers, such as the one pictured, cannot legally be used with oxygen in the United States although people sometimes place oxygen tanks in the chambers so the child can be administered oxygen during treatment.

©WWW.R...ORG®

Some treatment centers now offer hyperbaric therapy for autism, but each treatment usually costs around $75 to $200 or more and usually about 40 treatments are recommended. Many families have bought chambers to use at home for prices that range form $4000 to $13000. While no large-scale studies have been done to support the use of hyperbaric therapy, there is anecdotal evidence that children have exhibited improvement in abilities after treatment.

A randomized controlled double-blind study of 62 children at 6 centers showed that 30% of those who received actual hyperbaric therapy with increased atmospheric pressure (as opposed to room area under only slight pressure) showed significant improvement compared to the control group in a number of areas, including functioning, language (receptive), social interactions, eye contact, and sensory and cognitive awareness. About 8% of those in the control group also showed improvement, apparently the placebo affect. While this is not a magic bullet, the therapy does show some promise, and other researchers are engaged in studies to attempt to replicate these findings.

The hospitalized child with ASD

Children with ASD who require hospitalization or out-patient procedures are often extremely stressed and may throw tantrums,

experience meltdowns, or jeopardize their own or others' safety, so an understanding of ASD is extremely important for healthcare providers. If at all possible, prior to hospitalization the needs of the child should be assessed through a parental interview and observation by a child life specialist or other healthcare provider knowledgeable about ASD so that individualized plans can be developed. With children with ASD, avoiding complications or problems is much easier than dealing with them. Healthcare providers should strive toward normalization in all activities.

Room	The child should be placed in a quiet private room to reduce distractions. Rooms at the end of a corridor are better than those near the nursing desk or an elevator because the child may react negatively to sounds. The child should be oriented to the room and the area so they are less alien and frightening. The parents/caregivers should bring along favorite toys, nightclothes, or night light, as appropriate for age and abilities.
Procedures	Whenever possible, the child should receive a liquid sedative in a favorite juice or liquid before procedures, early enough so the sedative can take effect before the need to move the child or begin the procedure.
Anesthesia	Parents should be present when children awaken. Children should routinely be given anti-nausea medications after surgery because the child may find nausea and vomiting extremely upsetting.
Routine care	Care should be scheduled to correspond as closely as possible to home routines, including meal times, naptime bedtime, and bathing time. The dietician should be apprised of the child's food preferences and, condition permitting, the child allowed to eat preferred foods.
Supervision	Unless the child is high functioning (Asperger's) and can safely be left unattended for some periods of time, a parent or caregiver should remain constantly with the child. For long-term care, it's especially important for healthcare providers to establish a relationship of trust with the child because parents may not always be available.
Communication	Healthcare providers should speak directly to the child in short clear sentences and use any visual cues, such as picture cards, that the child normally uses for communication.

Safety	Children should be supervised at all times, including during bathing and at bedtime to ensure they do not harm themselves or engage in dangerous behaviors. Helmets may be used for children who engage in head banging. Hand mitts may be necessary to prevent the child from pulling out IVs or picking at wounds.

Conclusion

The spectrum of autism ranges from those who are profoundly mentally impaired to those who are high functioning or even genius, such as Bill Gates, widely believed to have Asperger's syndrome. According to the National Institute of Mental Health (NIMH), regardless of where individuals lie on the spectrum, they tend to have some common deficits: 1) social interaction, 2) verbal and nonverbal communication, and 3) repetitive behaviors or interests. These findings correspond to the diagnostic criteria established in the *DSM-IV-TR.* Additionally, many have exaggerated responses to sensory stimulation, such as sounds, light, and textures. Despite many methods to help control and reduce the symptoms associated with ASD, there is no cure. Early intervention is critically important.

References

- Alternative treatments. (2020). *Autism Speaks.* Retrieved February 5, 2020, from http://www.autismspeaks.org/whattodo/treatments_non_standard.php
- Anderson, P. (2009, April 2). Hyperbaric therapy may improve autism symptoms. *Medscape Nurses.* Retrieved May 25, 2009, from http://www.medscape.com/viewarticle/590537
- Asperger syndrome. (2007, May 14). *National Institute of Child Health and Human Development.* Retrieved February 5, 2020, from http://www.nichd.nih.gov/health/topics/asperger_syndrome.cfm
- Autism and communication. (2009, July). *NIDCD.* Retrieved February 5, 2020, from http://www.nidcd.nih.gov/health/voice/autism.asp
- Autism and genes. (2005, May). *NICHD.* Retrieved February 5, 2020, from http://www.nichd.nih.gov/publications/pubs/upload/autism_genes_2005.pdf

©WWW.RN.ORG

- Autism fact sheet. (2010, December 20). *NINDS.* Retrieved February 5, 2020, from http://www.ninds.nih.gov/disorders/autism/detail_autism.htm
- Autism spectrum disorders. (2010, February 1). *American Academy of Pediatrics.* Retrieved February 5, 2020, from http://www.healthychildren.org/English/news/pages/Autism-Spectrum-Disorders-Affect-About-One-Percent-of-US-Children.aspx
- Autism spectrum disorders (ASDs). (2010, July 28). *National Institute of Child Health and Human Development.* Retrieved February 5, 2020, from http://www.nichd.nih.gov/health/topics/asd.cfm
- Autism spectrum disorders (ASDs). (2010, June 24). *CDC.* Retrieved February 5, 2020, from http://www.cdc.gov/ncbddd/autism/index.html
- Autism spectrum disorders (Pervasive developmental disorders). (2020, February 4). *NIMH.* Retrieved February 5, 2020, from http://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-pervasive-developmental-disorders/index.shtml
- BMC Pediatrics (2009, March 16). Hyperbaric treatment for autism reports significant clinical improvements. *ScienceDaily*. Retrieved May 23, 2009, from http://www.sciencedaily.com-/releases/2009/03/090312205226.htm
- Living with autism. (2008, January 21). *Autism Society.* Retrieved February 5, 2020, from http://www.autism-society.org/living-with-autism/
- Mayo Clinic staff. (2010, May 27). *MayoClinic.com.* Retrieved February 5, 2020, from http://www.mayoclinic.com/print/autism/DS00348/DSECTION=all&METHOD=print
- Norton, A. (2020, January 5). Shaky evidence behind massage therapy for autism. *HealthDay.* Retrieved February 5, 2020, from http://www.nlm.nih.gov/medlineplus/news/fullstory_107363.html
- Pittman, G. (2020, January 5). Sibling spacing may be tied to autism risk.*HealthDay.* Retrieved February 5, 2020, from http://www.nlm.nih.gov/medlineplus/news/fullstory_107527.html
- Preference for moving shapes vs people linked to autism in babies. (2010, September 24). *NIMH.* Retrieved February 5, 2020, from http://www.nimh.nih.gov/science-news/2010/preference-for-moving-shapes-vs-people-linked-to-autism-in-babies.shtml

©WWW.RN.ORG®

- Toddlers with autism show improved social skills following targeted intervention, finds NIH-supported study. (2010, December 8). Retrieved February 5, 2020, from http://www.nih.gov/news/health/dec2010/nimh-08.htm
- Volkmar, F.R., Ed. (2007). *Autism and Pervasive Developmental Disorders.* 2nd ed. Cambridge University Press.
- What is autism? (2020). *Autism Speaks.* Retrieved February 5, 2020, from http://www.autismspeaks.org/whatisit/index.php

©WWW.RN.ORG®