



Technical Aid Packet

Autism Spectrum Disorders and Schools

(Updated 2016)



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Preface

This Technical Assistance packet is designed to provide those working in schools with a brief set of resources for understanding *Autism Spectrum Disorders* and what is done to treat them – with a special emphasis on the role of the school. There is a particular interest in this topic at this time because of the increasing number of youngsters being labeled, revived speculation about cause, and ongoing controversy about best practices and what the mental health focus should be.

One major concern has been the implications for special education. With increased diagnoses comes enhanced competition for sparse resources and concerns about the ability of schools to be in compliance with special education mandates.

This packet provides introductory information, highlights controversies and concerns, and outlines best practices and available resources.

I. Introductory Perspectives	1	
A. 10 things to know about new autism data	1	
B. Increasing prevalence of autism is due, in part, to changing diagnoses	3	
C. Autism spectrum disorder defined	4	
D. New data on autism: Five important facts to know	6	
E. What really causes autism	9	
F. Learn the signs and ask for help if you're concerned	10	
G. Screening and diagnosis	12	
>Screening and diagnosis for healthcare providers	14	
>DSM-5 diagnostic criteria	18	
II. Treatment	20	
A. About treatment options	21	
B. If autism is suspected, what's next?	22	
C. Words of support for parents of a child with autism	24	
D. Types of treatment	25	
III. The School's Role	31	
A. Teaching students with autism - Guide for educators	32	
B. What supports can general education provide for the organizational difficulties of students with ASD?	33	
C. Inclusion strategies	35	
>Inclusion strategies for students with autism spectrum disorders	35	35
>Strategies to promote successful inclusion experiences	42	
IV. Additional Resources		
A. Web resources	47	
B. Agencies	48	
C. Our center's quick find	50	
D. Additional references	51	
Afterword		
What are Parents told about Autism on the Internet?	53	

I. Introductory Perspectives

A. 10 Things to Know About New Autism Data

<http://www.cdc.gov/features/dsautismdata/>

1 in 68 children were identified with autism spectrum disorder. Read more about CDC's new data on autism spectrum disorder and learn what you can do to help.

New Data on Autism Spectrum Disorder

[New data](#)

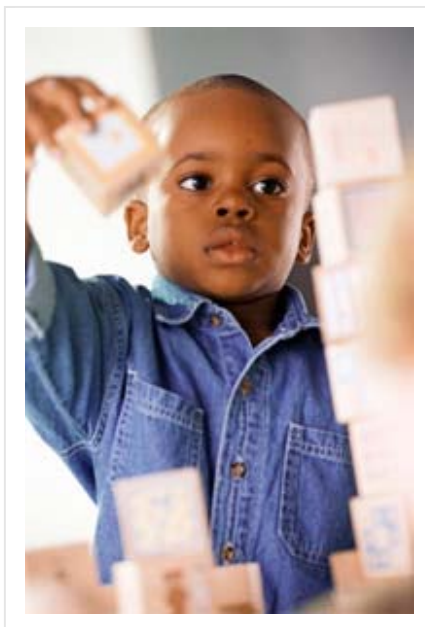


(http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm?s_cid=ss6302a1_w) from CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network (<http://www.cdc.gov/addm>) show that the estimated number of children identified with autism spectrum disorder (ASD) continues to rise, and the picture of ASD in communities has changed. These new data can be used to promote early identification, plan for training and service needs, guide research, and inform policy so that children with ASD and their families get the help they need. CDC will continue tracking the changing number and characteristics of children with ASD, researching what puts children at risk for ASD, and promoting early identification, the most powerful tool we have now for making a difference in the lives of children. Learn the 10 things you need to know about CDC's latest ADDM Network report. [You can also read the full report here](#) (http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm?s_cid=ss6302a1_w).

10 Things You Need To Know About CDC's Latest Report from the Autism and Developmental Disabilities Monitoring Network

The following estimates are based on information collected from the health and special education (if available*) records of children who were 8 years old and lived in areas of Alabama, Arizona, Arkansas, Colorado, Georgia, Maryland, Missouri, New Jersey, North Carolina, Utah, and Wisconsin in 2010:

1. About 1 in 68 children (or 14.7 per 1,000 8 year olds) were identified with ASD. It is important to remember that this estimate is based on 8-year-old children living in 11 communities. It does not represent the entire population of children in the United States.
2. This new estimate is roughly 30% higher than the estimate for 2008 (1 in 88), roughly 60% higher than the estimate for 2006 (1 in 110), and roughly 120% higher than the estimates for 2002 and 2000 (1 in 150). We don't know what is causing this increase. Some of it may be due to the way children are identified, diagnosed, and served in their local communities, but exactly how much is unknown.
3. The number of children identified with ASD varied widely by community, from 1 in 175 children in areas of Alabama to 1 in 45 children in areas of New Jersey.
4. Almost half (46%) of children identified with ASD had average or above average intellectual ability (IQ greater than 85).
5. Boys were almost 5 times more likely to be identified with ASD than girls. About 1 in 42 boys and 1 in 189 girls were identified with ASD.
6. White children were more likely to be identified with ASD than black or Hispanic children. About 1 in 63 white children, 1 in 81 black children, and 1 in 93 Hispanic children were identified with ASD.
7. Less than half (44%) of children identified with ASD were evaluated for developmental concerns by the time they were 3 years old.
8. Most children identified with ASD were not diagnosed until after age 4, even though children can be diagnosed as early as age 2.
9. Black and Hispanic children identified with ASD were more likely than white children to have intellectual disability. [A previous study \(http://www.ncbi.nlm.nih.gov/pubmed/23582871\)](http://www.ncbi.nlm.nih.gov/pubmed/23582871) has shown that children identified with ASD and intellectual disability have a greater number of ASD symptoms and a younger age at first diagnosis. Despite the greater burden of co-occurring intellectual disability among black and Hispanic children with ASD, these new data show that there was no difference among racial and ethnic groups in the age at which children were first diagnosed.
10. About 80% of children identified with ASD either received special education services for autism at school or had an ASD diagnosis from a clinician. This means that the remaining 20% of children identified with ASD had symptoms of ASD documented in their records, but had not yet been classified as having ASD by a community professional in a school or clinic.



I. Introductory Perspectives

B. Increasing prevalence of autism is due, in part, to changing diagnoses

<http://science.psu.edu/news-and-events/2015-news/Girirajan7-2015>

22 July 2015



Go to URL and click on the image for a high-resolution version. This graph shows the number of students (per 10,000) diagnosed with autism (blue) and intellectual disability (red) in special-education programs in the United States from 2000 to 2010. The increase in autism diagnoses during this period was offset by decreases in the diagnosis of intellectual disability, suggesting that shifting patterns of diagnosis may be responsible for increases in autism diagnosis. Credit: Penn State University

The greater than three-fold increase in autism diagnoses among students in special education programs in the United States between 2000 and 2010 may be due in large part to the reclassification of individuals who previously would have been diagnosed with other intellectual disability disorders, according to new research. In a paper to be published online in the *American Journal of Medical Genetics* on July 22, 2015, scientists at Penn State University report their analysis of 11 years of special-education enrollment data on an average of 6.2 million children per year. The researchers found no overall increase in the number of students enrolled in special education. They also found that the increase in students diagnosed with autism was offset by a nearly equal decrease in students diagnosed with other intellectual disabilities that often co-occur with autism. The researchers conclude that the large increase in the prevalence of autism is likely the result of shifting patterns of diagnosis that are complicated by the variability of autism and its overlap with other related disorders.

I. Introductory Perspectives

The National Institute of Mental Health:

C. Autism Spectrum Disorder Defined

www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml

Autism spectrum disorder (ASD) is the name for a group of developmental disorders. ASD includes a wide range, “a spectrum,” of symptoms, skills, and levels of disability.

People with ASD often have these characteristics:

- Ongoing social problems that include difficulty communicating and interacting with others
- Repetitive behaviors as well as limited interests or activities
- Symptoms that typically are recognized in the first two years of life
- Symptoms that hurt the individual’s ability to function socially, at school or work, or other areas of life

Some people are mildly impaired by their symptoms, while others are severely disabled. Treatments and services can improve a person’s symptoms and ability to function. Families with concerns should talk to their pediatrician about what they’ve observed and the possibility of ASD screening. According to the Centers for Disease Control and Prevention (CDC), around 1 in 68 children has been identified with some form of ASD.

What is the difference between Asperger’s syndrome and ASD?

In the past, Asperger’s syndrome and Autistic Disorder were separate disorders. They were listed as subcategories within the diagnosis of “Pervasive Developmental Disorders.” However, this separation has changed. The latest edition of the manual from the American Psychiatric Association, the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, does not highlight subcategories of a larger disorder. The manual includes the range of characteristics and severity within one category. People whose symptoms were previously diagnosed as Asperger’s syndrome or Autistic Disorder are now included as part of the category called Autism Spectrum Disorder (ASD).

Signs and Symptoms

Parents or doctors may first identify ASD behaviors in infants and toddlers. School staff may recognize these behaviors in older children. Not all people with ASD will show all of these behaviors, but most will show several. There are two main types of behaviors: “restricted / repetitive behaviors” and “social communication / interaction behaviors.”

Restrictive / repetitive behaviors may include:

- Repeating certain behaviors or having unusual behaviors
- Having overly focused interests, such as with moving objects or parts of objects
- Having a lasting, intense interest in certain topics, such as numbers, details, or facts.

Social communication / interaction behaviors may include:

- Getting upset by a slight change in a routine or being placed in a new or overly stimulating setting
- Making little or inconsistent eye contact
- Having a tendency to look at and listen to other people less often
- Rarely sharing enjoyment of objects or activities by pointing or showing things to others
- Responding in an unusual way when others show anger, distress, or affection

Failing to, or being slow to, respond to someone calling their name or other verbal attempts to gain attention
Having difficulties with the back and forth of conversations
Often talking at length about a favorite subject without noticing that others are not interested or without giving others a chance to respond
Repeating words or phrases that they hear, a behavior called *echolalia*
Using words that seem odd, out of place, or have a special meaning known only to those familiar with that person's way of communicating
Having facial expressions, movements, and gestures that do not match what is being said
Having an unusual tone of voice that may sound sing-song or flat and robot-like
Having trouble understanding another person's point of view or being unable to predict or understand other people's actions.

People with ASD may have other difficulties, such as being very sensitive to light, noise, clothing, or temperature. They may also experience sleep problems, digestion problems, and irritability.

ASD is unique in that it is common for people with ASD to have many strengths and abilities in addition to challenges.

Strengths and abilities may include:

Having above-average intelligence – the CDC reports 46% of ASD children have above average intelligence
Being able to learn things in detail and remember information for long periods of time
Being strong visual and auditory learners
Exceling in math, science, music, or art.



I. Introductory Perspectives

D. New Data on Autism: Five Important Facts to Know

<http://www.cdc.gov/features/new-autism-data/index.html>



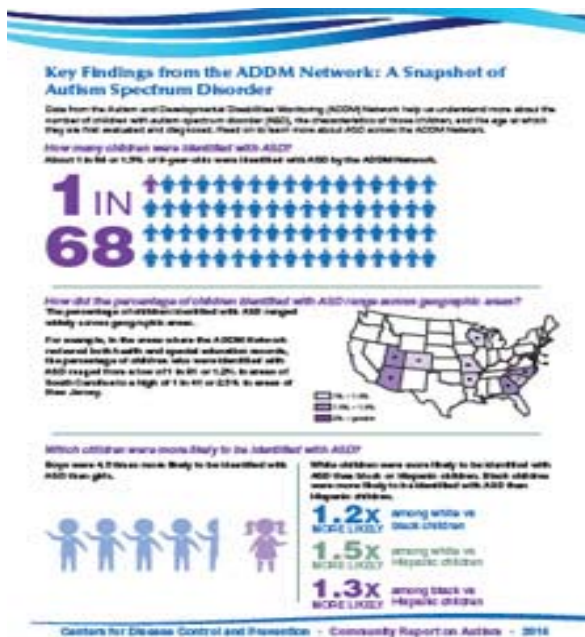
Many children are living with autism spectrum disorder (ASD), and they need services and support, now and as they grow into adolescence and adulthood. More can be done to ensure that children with ASD are evaluated as soon as possible after developmental concerns are recognized. Read on to learn more about CDC's new data on ASD.



Findings from CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network help us understand more about the number of children with autism spectrum disorder (ASD), the characteristics of those children, and the age at which these children are first evaluated and diagnosed. These findings are critical for

- Promoting early identification of children with ASD;
- Planning for services for children and families affected by ASD, and trainings for the professionals who provide those services;
- Guiding future ASD research; and
- Informing policies that promote improved outcomes in health care and education for individuals with ASD.

The highlights below are pulled from the most recent ADDM Network report, and are based on information collected from the health and special education (if available) records of 8-year-old children who lived in communities in Arizona, Arkansas, Colorado, Georgia, Maryland, Missouri, New Jersey, North Carolina, South Carolina, Utah, and Wisconsin in 2012.



To learn more about the latest findings on ASD, download the [ADDM Key Findings PDF](#)

Five Important Facts to Know

1. The estimated percentage of children with ASD remains high.

About 1 in 68 or 1.5% of children were identified with ASD based on tracking in 11 communities across the United States in 2012.

- According to *previous reports*, the percentage of children identified with ASD increased between 2002 and 2010.
- The *new report* shows no change between 2010 and 2012 in the percentage of children identified with ASD.

2. It is too soon to tell if the percentage of children identified with ASD is still increasing or has stabilized.

Here are two reasons why it is too soon to tell:

- While the average percentage of children identified with ASD in all 11 communities stayed the same, in 2 communities, the percentage of children identified with ASD increased significantly between 2010 and 2012.
- The percentage of children identified with ASD ranged widely by community— in communities where both health and special education records were reviewed, estimates ranged from a low of 1.2% in parts of South Carolina to a high of 2.4% in parts of New Jersey.

CDC will continue to track ASD over time so as to better understand if the percentage of children identified with ASD is staying the same or continuing to increase.

3. Children identified with ASD are not receiving comprehensive developmental evaluations¹ as early as they could be.

Most children identified with ASD had concerns about their development noted in their health and/or special education records by age 3 years. Yet, less than half of children with ASD received a comprehensive developmental evaluation by this same age. A lag between first concern and first comprehensive developmental evaluation may affect when children are being diagnosed and connected to the services they need.

4. Black and Hispanic children are less likely to be identified with ASD. Those that *are* identified with ASD receive comprehensive developmental evaluations later than white children who are identified with ASD.

Previous research has not shown that black or Hispanic children have a lower risk than white children to develop ASD. However, since ADDM data showed that black and Hispanic children were less likely to be identified with ASD, it is possible that these children face socioeconomic or other barriers resulting in a lack of or delayed access to evaluation, diagnosis, and services.

5. Schools play a vital role in evaluating and serving children with ASD.

The percentage of children identified with ASD was highest in all communities combined where both health and special education records were reviewed compared to all communities combined where only health records were reviewed.

What Can Concerned Parents Do?

Parents should take two important steps if they suspect their child might have ASD:

1. Talk to their child's healthcare provider about their concerns.
2. Call their local early intervention program or school system for a free evaluation of their child.

Parents should remember, it is never too late to get help for their child, and an ASD diagnosis from a doctor is not necessary for a child to begin receiving some types of services. For more tips about what parents and others can do when there is a concern, visit the [If You're Concerned website](http://www.cdc.gov/ncbddd/actearly/concerned.html) (<http://www.cdc.gov/ncbddd/actearly/concerned.html>).

References

1. A comprehensive, developmental evaluation is a thorough review of how a child plays, learns, communicates, acts, and moves, and whether those characteristics have changed over time. A range of professionals, including teachers, social workers, nurses, psychologists, doctors, and speech-language pathologists, can conduct developmental evaluations. The results of a developmental evaluation are often used by specialists, such as developmental pediatricians, to determine if a child has ASD.

More Information

Read the full scientific report "[*Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and Developmental Disabilities Monitoring Network, eleven sites, United States, 2012*](http://dx.doi.org/10.15585/mmwr.ss6503a1)"

- Learn more about ASD (<http://www.cdc.gov/ncbddd/autism/index.html>)
- Access free resources (<http://www.cdc.gov/ncbddd/actearly/freematerials.html>) for parents, health professionals, childcare providers, and educators who work with children.
- Learn more about CDC's ongoing ASD tracking system, the Autism and Developmental Disabilities Monitoring (ADDM) Network.

I. Introductory Perspectives

E. What Really Causes Autism

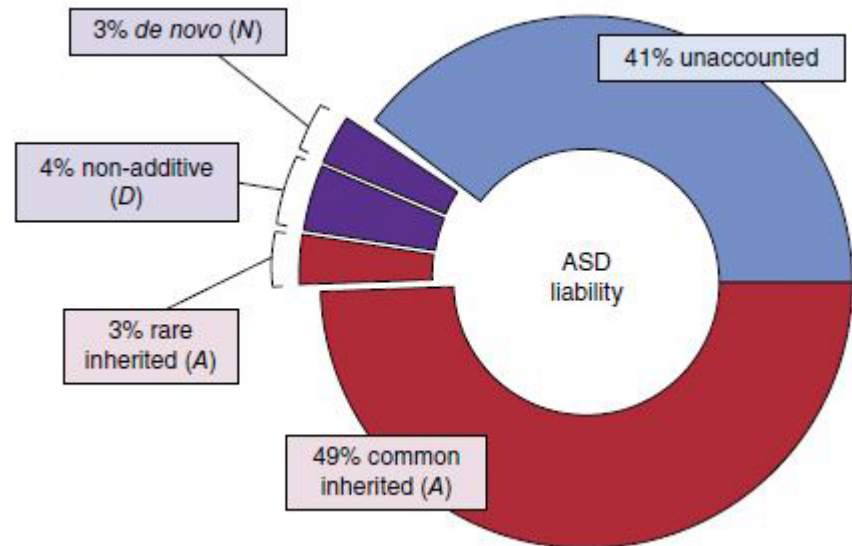
Simon Makin

Scientific American Mind (November/December 2015), **26**, 56-63

Published online: 15 October 2015 | doi:10.1038/scientificamericanmind1115-56

<http://www.nature.com/scientificamericanmind/journal/v26/n6/full/scientificamericanmind1115-56.html>

The bulk of risk, or liability, for autism spectrum disorders (ASD) was traced to inherited variations in the genetic code shared by many people. These and other (unaccounted) factors dwarfed contributions from rare inherited, non-additive and spontaneous (de novo) genetic factors.
Source: Population-Based Autism Genetics and Environment Study



Figuring the Odds

- Thanks to recent advances in DNA-sequencing techniques and large-scale collaborations among laboratories worldwide, scientists have now identified scores of genes strongly linked to autism spectrum disorder (ASD).
- Identifying specific causes is difficult because an individual's risk often comes from some combination of common and rare variants, many of which are inherited but some of which can be spontaneous.
- The identification of ASD-linked genes is helping scientists to understand the biological processes involved in causing autism, which could lead to novel, more targeted treatment options.

Autism spectrum disorders (ASDs) are a heterogeneous group of neurodevelopmental disorders with shared symptoms in the area of communication and language, restricted interests, and stereotyped and social behaviors. Causes lie in perturbations of brain development, which can be manifold, but genetic factors are prominent among these. Genetic studies have pointed to hundreds of causative or susceptibility genes in ASD, making it difficult to find common underlying pathogenic mechanisms. Careful dissection of molecular and cellular mechanisms are needed to define the molecular targets that can translate into therapeutic strategies. On page 1199 of this issue, Bidinosti et al. (1) uncover defects in a molecular machinery of a genetic ASD mouse model. This allowed the authors to design specific chemical interventions that relieve cellular and behavioral autistic-like features. In addition, Yi et al. (2) report a channelopathy in neurons that may predispose to autism. The discoveries raise hope for developing new drugs that help patients with ASD.

“Unraveling a pathway to autism” J. Peter H. Burbach (2016). *Science*, 351, 1153-1154.
<http://science.sciencemag.org/content/351/6278/1153>

I. Introductory Perspectives

The National Institute of Mental Health

F. Learn the signs and ask for help if you're concerned

Download PDF (http://www.nimh.nih.gov/health/publications/autism-spectrum-disorder-qf-15-5511/qf-15-5511_152236.pdf)

Download ePub (<http://www.nimh.nih.gov/ebooks/152237.epub>)



What is autism spectrum disorder?

Autism spectrum disorder (ASD) is a term for a group of developmental disorders described by:

- Lasting problems with social communication and social interaction in different settings
- Repetitive behaviors and/or not wanting any change in daily routines
- Symptoms that begin in early childhood, usually in the first 2 years of life
- Symptoms that cause the person to need help in his or her daily life

The term “spectrum” refers to the wide range of symptoms, strengths, and levels of impairment that people with ASD can have. The diagnosis of ASD now includes these other conditions:

- Autistic disorder
- Asperger’s syndrome
- Pervasive developmental disorder not otherwise specified

Although ASD begins in early development, it can last throughout a person’s lifetime.

What are the signs and symptoms of ASD?

Not all people with ASD will show all of these behaviors, but most will show several.

People with ASD may:

- Repeat certain behaviors or have unusual behaviors
- Have overly focused interests, such as with moving objects or parts of objects
- Have a lasting, intense interest in certain topics, such as numbers, details, or facts
- Be upset by a slight change in a routine or being placed in a new or overstimulating setting
- Make little or inconsistent eye contact
- Tend to look and listen less to people in their environment
- Rarely seek to share their enjoyment of objects or activities by pointing or showing things to others
- Respond unusually when others show anger, distress, or affection
- Fail or be slow to respond to their name or other verbal attempts to gain their attention
- Have difficulties with the back and forth of conversations
- Often talk at length about a favorite subject but won’t allow anyone else a chance to respond or notice when others react indifferently
- Repeat words or phrases that they hear, a behavior called echolalia

Use words that seem odd, out of place, or have a special meaning known only to those familiar with that person's way of communicating

Have facial expressions, movements, and gestures that do not match what they are saying

Have an unusual tone of voice that may sound sing-song or flat and robot-like

Have trouble understanding another person's point of view, leaving him or her unable to predict or understand other people's actions

People with ASD may have other difficulties, such as sensory sensitivity (being sensitive to light, noise, textures of clothing, or temperature), sleep problems, digestion problems, and irritability.

People with ASD can also have many strengths and abilities. For instance, people with ASD may:

Have above-average intelligence

Be able to learn things in detail and remember information for long periods of time

Be strong visual and auditory learners

Excel in math, science, music, and art

From the Individuals with Disabilities Education Act (IDEA):

<http://idea.ed.gov/explore/home>

Sec. 300.8(c)(1)(i) Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.

Sec. 300.8(c)(1)(ii) Autism does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (c)(4) of this section.

Sec. 300.8(c)(1)(iii) A child who manifests the characteristics of autism after age three could be identified as having autism if the criteria in paragraph (c)(1)(i) of this section are satisfied.

The broad range of children who now are included on the autism spectrum - from nonverbal to hyper-verbal - makes diagnosing the disorder very challenging. It's especially tricky because social communication issues are often what push parents to seek out an evaluation, but those symptoms are notorious for being misinterpreted. For instance, there are lots of reasons a child might not make eye contact - including anxiety, shame, distraction and depression - that can be confused with autism if a clinician doesn't have experience and expertise in evaluating autism. And that can lead to misdiagnosis.

Caroline Miller
Child Mind Institute

I. Introductory Perspectives

G. Screening and Diagnosis



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

<http://www.cdc.gov/ncbddd/autism/screening.html>

Diagnosing autism spectrum disorder (ASD) can be difficult, since there is no medical test, like a blood test, to diagnose the disorders. Doctors look at the child's behavior and development to make a diagnosis.

ASD can sometimes be detected at 18 months or younger. By age 2, a diagnosis by an experienced professional can be considered very reliable.^[1] However, many children do not receive a final diagnosis until much older. This delay means that children with an ASD might not get the help they need.



Diagnosing an ASD takes two steps:

- Developmental Screening
- Comprehensive Diagnostic Evaluation

Developmental Screening

Developmental screening is a short test to tell if children are learning basic skills when they should, or if they might have delays. During developmental screening the doctor might ask the parent some questions or talk and play with the child during an exam to see how she learns, speaks, behaves, and moves. A delay in any of these areas could be a sign of a problem.

All children should be screened for developmental delays and disabilities during regular well-child doctor visits at:

- 9 months
- 18 months
- 24 or 30 months
- Additional screening might be needed if a child is at high risk for developmental problems due to preterm birth, low birth weight or other reasons.

In addition, all children should be screened specifically for ASD during regular well-child doctor visits at:

- 18 months
- 24 months
- Additional screening might be needed if a child is at high risk for ASD (e.g., having a sister, brother or other family member with an ASD) or if behaviors sometimes associated with ASD are present

It is important for doctors to screen all children for developmental delays, but especially to monitor those who are at a higher risk for developmental problems due to preterm birth, low birth weight, or having a brother or sister with an ASD.

If your child's doctor does not routinely check your child with this type of developmental screening test, ask that it be done.

If the doctor sees any signs of a problem, a comprehensive diagnostic evaluation is needed.

Comprehensive Diagnostic Evaluation

The second step of diagnosis is a comprehensive evaluation. This thorough review may include looking at the child's behavior and development and interviewing the parents. It may also include a hearing and vision screening, genetic testing, neurological testing, and other medical testing.

In some cases, the primary care doctor might choose to refer the child and family to a specialist for further assessment and diagnosis. Specialists who can do this type of evaluation include:

- Developmental Pediatricians (doctors who have special training in child development and children with special needs)
- Child Neurologists (doctors who work on the brain, spine, and nerves)
- Child Psychologists or Psychiatrists (doctors who know about the human mind)

[Learn about developmental screening and diagnostic tools »](#)

References

1. [Lord C, Risi S, DiLavore PS, Shulman C, Thurm A, Pickles A. \(http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=16754843&query hl=4&itool=pubmed_docsum\)](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=16754843&query hl=4&itool=pubmed_docsum)
Autism from 2 to 9 years of age. Arch Gen Psychiatry. 2006 Jun;63(6):694-701.



Excerpts from: *Screening and Diagnosis for Healthcare Providers*



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

<http://www.cdc.gov/ncbddd/autism/hcp-screening.html>

Developmental screening can be done by a number of professionals in health care, community, and school settings. However, primary health care providers are in a unique position to promote children's developmental health.

Primary care providers have regular contact with children before they reach school age and are able to provide family-centered, comprehensive, coordinated care, including a more complete medical assessment when a screening indicates a child is at risk for a developmental problem.

Screening Recommendations

Research has found that ASD can sometimes be detected at 18 months or younger. By age 2, a diagnosis by an experienced professional can be considered very reliable.^[1] However, many children do not receive a final diagnosis until they are much older. This delay means that children with an ASD might not get the help they need. The earlier an ASD is diagnosed, the sooner treatment services can begin.

The American Academy of Pediatrics (AAP) recommends that all children be screened for developmental delays and disabilities during regular well-child doctor visits at:

- 9 months
- 18 months
- 24 or 30 months

Additional screening might be needed if a child is at high risk for developmental problems because of preterm birth or low birth weight.

In addition, all children should be screened specifically for ASD during regular well-child doctor visits at:

- 18 months
- 24 months

Additional screening might be needed if a child is at high risk for ASD (e.g., having a sibling with an ASD) or if symptoms are present.

It is important for doctors to screen all children for developmental delays, but especially to monitor those who are at a higher risk for developmental problems due to preterm birth, low birth weight, or having a sibling or parent with an ASD.

[Read more about the recommendations for screening »](#)

In February 2016, the United States Preventive Services Task Force released a recommendation regarding universal screening for ASD among young children. This final recommendation statement applies to children ages 3 and younger who have no obvious signs or symptoms of ASD or developmental delay and whose parents, caregivers, or doctors have no concerns about the child's development. The Task Force reviewed research studies on the potential benefits and harms of ASD screening in young children who do not have obvious signs or symptoms of ASD. They looked at whether screening all children for ASD helps with their development or quality of life. The final recommendation statement summarizes what the Task Force learned: There is not enough evidence available on the potential benefits and harms of ASD screening in all young children to recommend for or against this screening. **This recommendation statement is not a recommendation against screening; it is a call for more research.** For more information, please visit www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/autism-spectrum-disorder-in-young-children-screening (<http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/autism-spectrum-disorder-in-young-children-screening>) .

On this Page

- Screening Recommendations
- Developmental Screening Tools
- Diagnostic Tools
- Myths About Developmental Screening
- Related Pages

Involving Families in Screening

Research indicates that parents are reliable sources of information about their children's development. Evidence-based screening tools that incorporate parent reports (e.g., Ages and Stages Questionnaire, the Parents' Evaluation of Developmental Status, and Child Development Inventories) can facilitate structured communication between parents and providers to discover parent concerns, increase parent and provider observations of the child's development, and increase parent awareness. Such tools can also be time- and cost-efficient in clinical practice settings.^{2,3,4} A 1998 analysis found that, depending on the instrument, the time for administering a screening tool ranged from about 2 to 15 minutes, and the cost of materials and administration (using an average salary of \$50/hour) ranged from \$1.19 to \$4.60 per visit.⁵

Screening children and providing parents with anticipatory guidance—that is, educating families about what to expect in their child's development, how they can promote development, and the benefits of monitoring development—can also improve the relationship between the provider and parent.⁶ By establishing relationship-based practices, providers promote positive parent-child relationships, while building the strongest possible relationship between the parent and provider. Such practices are fundamental to quality services.

Developmental Screening Tools

Screening tools are designed to help identify children who might have developmental delays. Screening tools can be specific to a disorder (for example, autism) or an area (for example, cognitive development, language, or gross motor skills), or they may be general, encompassing multiple areas of concern. Some screening tools are used primarily in pediatric practices, while others are used by school systems or in other community settings.

Screening tools **do not** provide conclusive evidence of developmental delays and do not result in diagnoses. A positive screening result should be followed by a thorough assessment. Screening tools do not provide in-depth information about an area of development.

Selecting a Screening Tool

When selecting a developmental screening tool, take the following into consideration:

- Domain(s) the Screening Tool Covers
 - What are the questions that need to be answered?
 - What types of delays or conditions do you want to detect?
- Psychometric Properties
 - These affect the overall ability of the test to do what it is meant to do.
 - The sensitivity of a screening tool is the probability that it will correctly identify children who exhibit developmental delays or disorders.
 - The specificity of a screening tool is the probability that it will correctly identify children who are developing normally.
- Characteristics of the Child
 - For example, age and presence of risk factors.
- Setting in which the Screening Tool will be Administered
 - Will the tool be used in a physician's office, daycare setting, or community setting? Screening can be performed by professionals, such as nurses or teachers, or by trained paraprofessionals.



Types of Screening Tools

There are many different developmental screening tools. CDC does not approve or endorse any specific tools for screening purposes. This list is not exhaustive, and other tests may be available.

Selected examples of screening tools for general development and ASD:

- [Ages and Stages Questionnaires \(ASQ\)](http://agesandstages.com/) (<http://agesandstages.com/>)
This is a general developmental screening tool. Parent-completed questionnaire; series of 19 age-specific questionnaires screening communication, gross motor, fine motor, problem-solving, and personal adaptive skills; results in a pass/fail score for domains.
- [Communication and Symbolic Behavior Scales \(CSBS\)](http://firstwords.fsu.edu/pdf/checklist.pdf) (<http://firstwords.fsu.edu/pdf/checklist.pdf>)
Standardized tool for screening of communication and symbolic abilities up to the 24-month level; the Infant Toddler Checklist is a 1-page, parent-completed screening tool.
- [Parents' Evaluation of Developmental Status \(PEDS\)](http://www.pedstest.com) (<http://www.pedstest.com>)
This is a general developmental screening tool. Parent-interview form; screens for developmental and behavioral problems needing further evaluation; single response form used for all ages; may be useful as a surveillance tool.
- [Modified Checklist for Autism in Toddlers \(MCHAT\)](http://www2.gsu.edu/~psydlr/Diana_L_Robins_Ph.D..html) ([http://www2.gsu.edu/~psydlr/Diana L. Robins, Ph.D..html](http://www2.gsu.edu/~psydlr/Diana_L_Robins_Ph.D..html))
Parent-completed questionnaire designed to identify children at risk for autism in the general population.
- [Screening Tool for Autism in Toddlers and Young Children \(STAT\)](http://vk.mc.vanderbilt.edu/vk/triad/training/stat/) (<http://vk.mc.vanderbilt.edu/vk/triad/training/stat/>)
This is an interactive screening tool designed for children when developmental concerns are suspected. It consists of 12 activities assessing play, communication, and imitation skills and takes 20 minutes to administer.

A more comprehensive list of [developmental screening tools](http://www.medicalhomeinfo.org/downloads/pdfs/DPIPScreeningToolGrid.pdf)

(<http://www.medicalhomeinfo.org/downloads/pdfs/DPIPScreeningToolGrid.pdf>) is available from the American Academy of Pediatrics (AAP), including descriptions of the tools, sensitivity and specificity. The list includes general screening tools, as well as those for ASD.

Diagnostic Tools

There are many tools to assess ASD in young children, but no single tool should be used as the basis for diagnosis. Diagnostic tools usually rely on two main sources of information—parents' or caregivers' descriptions of their child's development and a professional's observation of the child's behavior.



In some cases, the primary care provider might choose to refer the child and family to a specialist for further assessment and diagnosis. Such specialists include neurodevelopmental pediatricians, developmental-behavioral pediatricians, child neurologists, geneticists, and early intervention programs that provide assessment services.

Selected examples of diagnostic tools:

- [Autism Diagnosis Interview – Revised \(ADI-R\)](http://www.ncbi.nlm.nih.gov/pubmed/7814313) (<http://www.ncbi.nlm.nih.gov/pubmed/7814313>) ^[7]
A clinical diagnostic instrument for assessing autism in children and adults. The instrument focuses on behavior in three main areas: reciprocal social interaction; communication and language; and restricted and repetitive, stereotyped interests and behaviors. The ADI-R is appropriate for children and adults with mental ages about 18 months and above.
- [Autism Diagnostic Observation Schedule – Generic](http://www.ncbi.nlm.nih.gov/pubmed/11055457) (<http://www.ncbi.nlm.nih.gov/pubmed/11055457>) (ADOS-G)^[8]
A semi-structured, standardized assessment of social interaction, communication, play, and imaginative use of materials for individuals suspected of having ASD. The observational schedule consists of four 30-minute modules, each designed to be administered to different individuals according to their level of expressive language.
- [Childhood Autism Rating Scale \(CARS\)](#)^[9]
Brief assessment suitable for use with any child over 2 years of age. CARS includes items drawn from five prominent systems for diagnosing autism; each item covers a particular characteristic, ability, or behavior.
- [Gilliam Autism Rating Scale – Second Edition \(GARS-2\)](http://www.pearsonclinical.co.uk/Psychology/ChildMentalHealth/ChildAutisticSpectrumDisorders/GilliamAutismRatingScale-SecondEdition(GARS-2)/GilliamAutismRatingScale-SecondEdition(GARS-2).aspx) ([http://www.pearsonclinical.co.uk/Psychology/ChildMentalHealth/ChildAutisticSpectrumDisorders/GilliamAutismRatingScale-SecondEdition\(GARS-2\)/GilliamAutismRatingScale-SecondEdition\(GARS-2\).aspx](http://www.pearsonclinical.co.uk/Psychology/ChildMentalHealth/ChildAutisticSpectrumDisorders/GilliamAutismRatingScale-SecondEdition(GARS-2)/GilliamAutismRatingScale-SecondEdition(GARS-2).aspx)) ^[10]
Assists teachers, parents, and clinicians in identifying and diagnosing autism in individuals ages 3 through 22. It also helps estimate the severity of the child's disorder.

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DSM-5 Diagnostic Criteria

Autism Speaks provides the full-text of the diagnostic criteria for autism spectrum disorder (ASD) and the related diagnosis of social communication disorder (SCD), as they appear in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Online at:

<https://www.autismspeaks.org/what-autism/diagnosis/dsm-5-diagnostic-criteria>

Social (Pragmatic) Communication Disorder 315.39 (F80.89)

Diagnostic Criteria

- A. Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:
1. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
 2. Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on the playground, talking differently to a child than to an adult, and avoiding use of overly formal language.
 3. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.
 4. Difficulties understanding what is not explicitly stated (e.g., making inferences) and nonliteral or ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).
- B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.
- C. The onset of the symptoms is in the early developmental period (but deficits may not become fully manifest until social communication demands exceed limited capacities).
- D. The symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by autism spectrum disorder, intellectual disability (intellectual developmental disorder), global developmental delay, or another mental disorder.

Autism Spectrum Disorder 299.00 (F84.0)

Diagnostic Criteria

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive, see text):
1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
 2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
 3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Specify current severity:

Severity is based on social communication impairments and restricted repetitive patterns of behavior (see Table 2).

- B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat food every day).
3. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interest).
4. Hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

Specify current severity:

Severity is based on social communication impairments and restricted, repetitive patterns of behavior (see Table 2).

- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

With or without accompanying intellectual impairment

With or without accompanying language impairment

Associated with a known medical or genetic condition or environmental factor

(**Coding note:** Use additional code to identify the associated medical or genetic condition.)

Associated with another neurodevelopmental, mental, or behavioral disorder

(**Coding note:** Use additional code[s] to identify the associated neurodevelopmental, mental, or behavioral disorder[s].)

With catatonia (refer to the criteria for catatonia associated with another mental disorder, pp. 119-120, for definition) (**Coding note:** Use additional code 293.89 [F06.1] catatonia associated with autism spectrum disorder to indicate the presence of the comorbid catatonia.)

Table 2 Severity levels for autism spectrum disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to- and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Explore more: [autism diagnosis \(/site-wide/autism-diagnosis\)](#), [autism spectrum disorder \(/site-wide/autism-spectrum-disorder\)](#), [Diagnosis \(/site-wide/diagnosis\)](#), [DSM-5 \(/site-wide/dsm-5\)](#), [DSM-V \(/site-wide/dsm-v\)](#), [Social Communication Disorder \(/site-wide/social-communication-disorder\)](#)

II. Treatment

A. About treatment options

B. If autism is suspected, what's next?

C. Words of support for parents of a child with autism

D. Types of treatment

II. Treatment

A. About Treatment Options

<http://www.autism-society.org/living-with-autism/treatment-options/>

Just decades ago, many people with autism were placed in institutions. Professionals were less educated about autism than they are today, and specific services and supports were largely non-existent. **The picture is much clearer now.** With appropriate services and supports, training and information, children on the autism spectrum will grow, learn and flourish, even if at a different developmental rate than others.



While there is no known cure for autism, there are treatment and education approaches that can address some of the challenges associated with the condition. Intervention can help to lessen disruptive behaviors, and education can teach self-help skills for greater independence. **But just as there is no one symptom or behavior that identifies people with autism, there is no single treatment that will be effective for everyone on the spectrum.** Individuals can use the positive aspects of their condition to their benefit, but treatment must begin as early as possible and focus on the individual's unique strengths, weaknesses and needs.



Throughout the history of the Autism Society, parents and professionals have been confounded by conflicting messages regarding which treatment options are appropriate for children and adults on the autism spectrum. As each person responds to treatment differently, we cannot endorse any one treatment or program. Families should educate themselves about all options and choose what they feel is in the best interest of their child and family, based on their experience and what resources are available.

This section provides an overview of many available approaches, not specific treatment recommendations. Keep in mind that the word “treatment” is used in a very limited sense. While typically used for children under age three, the approaches described here can be included in an educational program for older children as well.

It is important to match a child's potential and specific needs with treatments or strategies that are likely to help him/her reach established goals and greatest potential. The Autism Society does not want to give the impression that parents or professionals will select just one treatment from a list. A search for appropriate treatment must be paired with the knowledge that all treatment approaches are not equal – what works for one will not work for all. **The basis a treatment plan should come from a thorough evaluation of the child's strengths and weaknesses.**

II. Treatment

B. If Autism is Suspected, What's Next?

<https://www.healthychildren.org/English/health-issues/conditions/Autism/Pages/If-Autism-is-Suspected-Whats-Next.aspx>

When autism spectrum disorder (ASD) (<http://www.healthychildren.org/English/health-issues/conditions/developmental-disabilities/Pages/Autism-Spectrum-Disorders.aspx>) is suspected, your child will need a full assessment or evaluation and should be referred for early intervention (EI) services (<http://www.healthychildren.org/English/health-issues/conditions/developmental-disabilities/Pages/Early-Intervention.aspx>). This assessment includes asking parents and caregivers a number of questions, observing the child, performing a physical examination, and administering any tests that may assist in arriving at a specific diagnosis. Ideally, this is done by a team of professionals.



Assessing Language and Social Delays

Typically, an evaluation to assess language and social delays can include:

- **Careful observation** of play and child-caregiver interactions.
- **Detailed history and physical examination.**
- **Review of records** of previous early intervention services, school, or other evaluations.
- **Developmental assessment** (</English/ages-stages/toddler/Pages/Assessing-Developmental-Delays.aspx>) of all skills (motor, language, social, self-help, cognitive). ASD is suspected when the child's social and language functioning are significantly more impaired than the overall level of motor, adaptive, and cognitive skills.
- **Hearing test** (</English/health-issues/conditions/ear-nose-throat/Pages/Hearing-Loss.aspx>). All children with any speech delays (</English/ages-stages/toddler/Pages/Language-Delay.aspx>) or those suspected of having ASD should have their hearing formally tested.
- **Language evaluation** that provides standardized scores of expressive language (including speech) and receptive language, as well as an evaluation of pragmatic language (social use of language) and articulation (pronunciation).

Medical Tests

Autism may be associated with a known syndrome or medical condition. Laboratory tests may be indicated to rule out other possible medical conditions that could cause ASD symptoms based on the child's history and physical examination. If needed, the child may be referred to other specialists, such as a geneticist (</English/family-life/health-management/pediatric-specialists/Pages/What-is-a-Pediatric-Geneticist.aspx>) or a pediatric neurologist (</English/family-life/health-management/pediatric-specialists/Pages/What-is-a-Pediatric-Neurosurgeon.aspx>), to help diagnose medical conditions that might cause or be associated with symptoms of ASD.

Medical tests may include:

- **Genetic tests.** It is recommended that families be offered genetic testing, such as cytogenetic microarray testing. At present, up to 10% to 20% of children with ASD have abnormalities of their chromosomes identified using cytogenetic microarray testing. Genetic testing should be strongly considered if a child has unusual physical features or developmental delays or if there is a family history of fragile X syndrome, intellectual disability (</English/health-issues/conditions/developmental-disabilities/Pages/Intellectual-Disability.aspx>) of unknown cause, or other genetic disorders. Other genetic tests may be needed in certain cases. Recommendations for genetic testing may change as new tests are developed. See *Ethical and Policy Issues in Genetic Testing and Screening of Children* (<http://pediatrics.aappublications.org/content/early/2013/02/17/peds.2012-3680>) (AAP Policy Statement).

- **Lead test.** Lead screening (</English/safety-prevention/all-around/Pages/Lead-Screening-for-Children.aspx>) is an important component of primary care. A lead level should be performed when a child lives in a high-risk environment, such as older buildings, or continues to put things in his mouth.
- **Other tests.** Based on the child's medical history and physical examination, an electroencephalogram (EEG), a magnetic resonance imaging (MRI) scan, or tests for metabolic disorders may be ordered. Children with ASD may be picky eaters (</English/ages-stages/toddler/nutrition/Pages/Picky-Eaters.aspx>), so your child's pediatrician may recommend looking for evidence of iron or vitamin deficiencies (</English/ages-stages/baby/feeding-nutrition/Pages/Vitamin-Iron-Supplements.aspx>) (especially vitamin D).

Medical tests **not** recommended:

There is not enough clinical evidence to recommend any of the following tests specifically for ASD:

- Hair analysis
- Routine measurement of multiple vitamin or nutrient levels
- Intestinal permeability studies
- Stool analysis
- Urinary peptides
- Measurement of mercury or other heavy metals

Diagnosis of ASD

Diagnosis of ASD is made by using all the information collected by history, observation, and testing. *See How is Autism Diagnosed?* (</English/health-issues/conditions/developmental-disabilities/Pages/Diagnosing-Autism.aspx>)

If you have concerns about your child's behavior or development, talk to your pediatrician.

Additional Information

- What is Early Intervention? (</English/health-issues/conditions/developmental-disabilities/Pages/Early-Intervention.aspx>)
- Individualized Education Program (IEP) (</English/health-issues/conditions/developmental-disabilities/Pages/Individualized-Education-Program.aspx>)
- Words of Support for Parents of a Child with Autism (</English/health-issues/conditions/developmental-disabilities/Pages/Words-of-Support-for-Parents-of-a-Child-with-Autism.aspx>)
- Where We Stand: Autism (</English/health-issues/conditions/developmental-disabilities/Pages/Where-We-Stand-Autism.aspx>)

II. Treatment

C. Words of Support for Parents of a Child with Autism

<https://healthychildren.org/English/health-issues/conditions/Autism/Pages/Words-of-Support-for-Parents-of-a-Child-with-Autism.aspx>

Children with autism are affected by many factors that will shape their future. Overall, the long-term outcomes of children with autism spectrum disorder (ASD) (<http://www.healthychildren.org/English/health-issues/conditions/developmental-disabilities/Pages/Autism-Spectrum-Disorders.aspx>) have been improving. In general, the sooner ASD is identified (<http://www.healthychildren.org/English/health-issues/conditions/developmental-disabilities/Pages/Early-Signs-of-Autism-Spectrum-Disorders.aspx>), the sooner appropriate intervention programs can begin.



While some children make significant developmental gains with early and intense intervention (<http://www.healthychildren.org/English/health-issues/conditions/developmental-disabilities/Pages/Early-Intervention.aspx>), some children may make slow progress depending on their intelligence, the severity of their ASD symptoms, and whether they have associated medical problems such as seizures (<http://www.healthychildren.org/English/health-issues/conditions/head-neck-nervous-system/Pages/Seizures-Convulsions-and-Epilepsy.aspx>) or significant behavioral disorders (<http://www.healthychildren.org/English/health-issues/conditions/emotional-problems/Pages/Disruptive-Behavior-Disorders.aspx>).

The goal of all parents is to help their child reach his full potential with the help of all available resources.

"Learning your child has autism can certainly change your perception of what you thought your life might be. You may have to restructure your priorities and develop new coping skills. And you may have to change some of your plans for the future. But in their place will be new dreams, new goals, and new priorities. The key is finding ways to adapt and adjust that suit your family, your needs, and your circumstances. It likely won't be easy. But people often find strength from within and from those around them to succeed. By loving your child dearly, you will be inspired to do what you can to learn as much as possible about ASD so that you too will be rewarded as you discover what works for your family."

— Autism Spectrum Disorders: What Every Parent Needs to Know
(<http://shop.aap.org/Autism-Spectrum-Disorders-What-Every-Parent-Needs-to-Know-Paperback/>); Alan I. Rosenblatt, MD, FAAP, and Paul S. Carbone, MD, FAAP, editors

Source

Autism Spectrum Disorders: What Every Parent Needs to Know (Copyright © American Academy of Pediatrics 2012)

The information contained on this Web site should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

Last Updated
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II. Treatment

D. Types of Treatment



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

Treatment

<http://www.cdc.gov/ncbddd/autism/treatment.html>

There are no medications that can cure ASD or treat the core symptoms. However, there are medications that can help some people with ASD function better. For example, medication might help manage high energy levels, inability to focus, depression, or seizures.

Medications might not affect all children in the same way. It is important to work with a health care professional who has experience in treating children with ASD. Parents and health care professionals must closely monitor a child's progress and reactions while he or she is taking a medication to be sure that any negative side effects of the treatment do not outweigh the benefits.

It is also important to remember that children with ASD can get sick or injured just like children without ASD. Regular medical and dental exams should be part of a child's treatment plan. Often it is hard to tell if a child's behavior is related to the ASD or is caused by a separate health condition. For instance, head banging could be a symptom of the ASD, or it could be a sign that the child is having headaches. In those cases, a thorough physical exam is needed. Monitoring healthy development means not only paying attention to symptoms related to ASD, but also to the child's physical and mental health, as well.

On this Page

- Early Intervention Services
- Types of Treatments
- Behavior and Communication Approaches
- Dietary Approaches
- Medication
- Complementary and Alternative Treatments
- Additional Treatment Resources
- Related Pages

Early Intervention Services

Research shows that early intervention treatment services can greatly improve a child's development.^{[1][2]} Early intervention services help children from birth to 3 years old (36 months) learn important skills. Services include therapy to help the child talk, walk, and interact with others. Therefore, it is important to talk to your child's doctor as soon as possible if you think your child has an ASD or other developmental problem.



Even if your child has not been diagnosed with an ASD, he or she may be eligible for early intervention treatment services. The Individuals with Disabilities Education Act (IDEA) (<http://idea.ed.gov/>) says that children under the age of 3 years (36 months) who are at risk of having developmental delays may be eligible for services. These services are provided through an early intervention system in your state. Through this system, you can ask for an evaluation.

In addition, treatment for particular symptoms, such as speech therapy for language delays, often does not need to wait for a formal ASD diagnosis. While early intervention is extremely important, intervention at any age can be helpful.

[Learn more about early intervention » \(http://www.parentcenterhub.org/repository/ei-overview/\)](http://www.parentcenterhub.org/repository/ei-overview/)

Types of Treatments

There are many different types of treatments available. For example, auditory training, discrete trial training, vitamin therapy, anti-yeast therapy, facilitated communication, music therapy, occupational therapy, physical therapy, and sensory integration.

The different types of treatments can generally be broken down into the following categories:

- Behavior and Communication Approaches
- Dietary Approaches
- Medication
- Complementary and Alternative Medicine

Behavior and Communication Approaches

According to reports by the American Academy of Pediatrics and the National Research Council, behavior and communication approaches that help children with ASD are those that provide structure, direction, and organization for the child in addition to family participation.

Applied Behavior Analysis (ABA)

A notable treatment approach for people with an ASD is called applied behavior analysis (ABA). ABA has become widely accepted among health care professionals and used in many schools and treatment clinics. ABA encourages positive behaviors and discourages negative behaviors in order to improve a variety of skills. The child's progress is tracked and measured.



There are different types of ABA. Following are some examples:

- Discrete Trial Training (DTT)
DTT is a style of teaching that uses a series of trials to teach each step of a desired behavior or response. Lessons are broken down into their simplest parts and positive reinforcement is used to reward correct answers and behaviors. Incorrect answers are ignored.
- Early Intensive Behavioral Intervention (EIBI)
This is a type of ABA for very young children with an ASD, usually younger than five, and often younger than three.
- Pivotal Response Training (PRT)
PRT aims to increase a child's motivation to learn, monitor his own behavior, and initiate communication with others. Positive changes in these behaviors should have widespread effects on other behaviors.
- Verbal Behavior Intervention (VBI)
VBI is a type of ABA that focuses on teaching verbal skills.

Other therapies that can be part of a complete treatment program for a child with an ASD include:

Developmental, Individual Differences, Relationship-Based Approach (DIR; also called "Floortime")

Floortime focuses on emotional and relational development (feelings, relationships with caregivers). It also focuses on how the child deals with sights, sounds, and smells.

Treatment and Education of Autistic and related Communication-handicapped Children (TEACCH)

(<http://www.teacch.com>)

TEACCH uses visual cues to teach skills. For example, picture cards can help teach a child how to get dressed by breaking information down into small steps.

Occupational Therapy

Occupational therapy teaches skills that help the person live as independently as possible. Skills might include dressing, eating, bathing, and relating to people.

Sensory Integration Therapy

Sensory integration therapy helps the person deal with sensory information, like sights, sounds, and smells. Sensory integration therapy could help a child who is bothered by certain sounds or does not like to be touched.

Speech Therapy

Speech therapy helps to improve the person's communication skills. Some people are able to learn verbal communication skills. For others, using gestures or picture boards is more realistic.



The Picture Exchange Communication System (PECS)

PECS uses picture symbols to teach communication skills. The person is taught to use picture symbols to ask and answer questions and have a conversation.

Visit the [Autism Speaks \(http://www.autismspeaks.org/whattodo/index.php\)](http://www.autismspeaks.org/whattodo/index.php) or [Autism Society \(http://www.autism-society.org/living-with-autism/treatment-options/\)](http://www.autism-society.org/living-with-autism/treatment-options/) website to read more about these therapies.

Dietary Approaches

Some dietary treatments have been developed by reliable therapists. But many of these treatments do not have the scientific support needed for widespread recommendation. An unproven treatment might help one child, but may not help another.

Many biomedical interventions call for changes in diet. Such changes include removing certain types of foods from a child's diet and using vitamin or mineral supplements. Dietary treatments are based on the idea that food allergies or lack of vitamins and minerals cause symptoms of ASD. Some parents feel that dietary changes make a difference in how their child acts or feels.

If you are thinking about changing your child's diet, talk to the doctor first. Or talk with a nutritionist to be sure your child is getting important vitamins and minerals.

Medication

There are no medications that can cure ASD or even treat the main symptoms. But there are medications that can help some people with related symptoms. For example, medication might help manage high energy levels, inability to focus, depression, or seizures.

To learn more about medication and ASD, please visit the National Institute of Child Health and Human Development's website (<http://www.nichd.nih.gov/health/topics/autism/conditioninfo/Pages/medication-treatment.aspx>) .

Complementary and Alternative Treatments

To relieve the symptoms of ASD, some parents and health care professionals use treatments that are outside of what is typically recommended by the pediatrician. These types of treatments are known as complementary and alternative treatments (CAM). They might include special diets, chelation (a treatment to remove heavy metals like lead from the body), biologicals (e.g., secretin), or body-based systems (like deep pressure).^{[3](ref)}

These types of treatments are very controversial. Current research shows that as many as one third of parents of children with an ASD may have tried complementary or alternative medicine treatments, and up to 10% may be using a potentially dangerous treatment.^[4] Before starting such a treatment, check it out carefully, and talk to your child's doctor.

To learn more about CAM therapies, go to the National Center for Complementary and Alternative Medicine Get the Facts (<http://nccam.nih.gov/health/whatisacam/#1>) webpage.

Additional Treatment Resources

The National Institute on Deafness and Other Communication Disorders (<http://www.nidcd.nih.gov/health/voice/Pages/Communication-Problems-in-Children-with-Autism-Spectrum-Disorder.aspx>) has a website to help individuals with an ASD who have communication challenges.

The National Institute of Dental and Craniofacial Research (<http://www.nidcr.nih.gov/OralHealth/Topics/DevelopmentalDisabilities/PracticalOralCarePeopleAutism.htm>) has a website to help health professionals with the oral health care needs of patients with an ASD.

Clinical Trials.Gov (<http://clinicaltrials.gov>) lists federally funded clinical trials that are looking for participants. If you or someone you know would like to take part in an autism study, go to the website and search "autism."

The Autism Treatment Network (<http://www.autismspeaks.org/science/programs/atn>) (ATN) seeks to create standards of medical treatment that will be made broadly available to physicians, researchers, parents, policy makers, and others who want to improve the care of individuals with autism. ATN is also developing a shared national medical database to record the results of treatments and studies at any of their five established regional treatment centers.

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Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorder: A Comprehensive Review. C. Wong, S.L. Odom, K.A. Hume, et al., (2015). *Journal of Autism and Developmental Disorders*, 45, 1951-1966. <http://link.springer.com/content/pdf/10.1007%2Fs10803-014-2351-z.pdf>

Abstract. The purpose of this study was to identify evidenced-based, focused intervention practices for children and youth with autism spectrum disorder. This study was an extension and elaboration of a previous evidence-based practice review reported by Odom et al. (*Prev Sch Fail* 54:275–282, 2010b, doi:10.1080/1045988100378550?6). In the current study, a computer search initially yielded 29,105 articles, and the subsequent screening and evaluation process found 456 studies to meet inclusion and methodological criteria. From this set of research studies, the authors found 27 focused intervention practices that met the criteria for evidence-based practice (EBP). Six new EBPs were identified in this review, and one EBP from the previous review was removed. The authors discuss implications for current practices and future research.

Toward the Implementation of Evidence-Based Interventions for Youth With Autism Spectrum Disorders in Schools and Community Agencies. J.J. Wood, B.D. McLeod, S. Klebanoff, & L. Brookman-Frazee (2015). *Behavior Therapy*, 46, 83–95. <http://www.sciencedirect.com/science/article/pii/S0005789414001038>

Abstract. Evidence-based interventions (EBIs) for youth with autism spectrum disorders (ASD) are rarely found in community settings where most youth with ASD receive services. Implementation research designed to help bridge this gap is needed. However, efforts to implement EBIs in community settings face a number of barriers. The main purpose of this article is to illustrate how making EBIs more flexible and integrative may help improve their utility and may increase their uptake by stakeholders in community mental health and school settings. We conclude with an example of a modular, stepped-care program that might help bridge the science-practice gap in the ASD field by combining elements of a number of existing EBIs into a single, flexible intervention.

III. The School's Role

A. Educating Children with Autism

B. About the School's Role

**C. Strategies for Classroom Inclusion of
Autistic Individuals**

III. The School's Role

Interventions in schools for children with autism spectrum disorder: Methods and recommendations. C. Kasari, & T. Smith (2013). Autism, 17, 254-67. <http://aut.sagepub.com/content/17/3/254.long> .

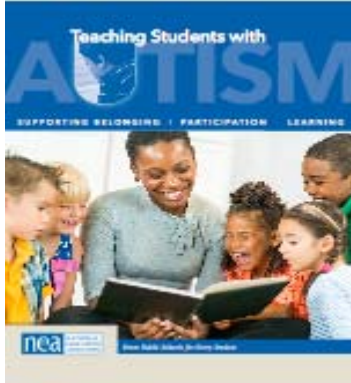
Abstract. Although researchers have identified many promising teaching strategies and intervention programs for children with autism spectrum disorder, research on implementation of these interventions in school settings has lagged. Barriers to implementation include incompletely developed interventions, limited evidence of their utility in promoting long-term and meaningful change, and poor fit with school environments. To overcome these barriers, interventions need to be detailed in manuals that identify key components yet allow for flexibility, and studies need to evaluate long-term, real-life outcomes. Innovative research strategies also may be important, particularly carrying out research on new interventions in school settings from the outset, conducting partial effectiveness trials in which study personnel administer interventions in school settings, using community-partnered participatory research approaches, and redesigning interventions in a modular format.

How Schools Learn to Collaborate and Change Their Cultures by Implementing an Autism Model Program in Inclusive Classrooms. M.A. Gephart & V. J. Marsick with Suzanne Kucharczyk (2015). Chapter (pp. 95-115) in their book *Strategic Organizational Learning*. http://link.springer.com/chapter/10.1007/978-3-662-48642-9_7

Abstract. This chapter describes how four schools – that participated in an Autism Model Program – learned to implement an innovative research-based educational model for children who have Autism Spectrum Disorders, a growing challenge for schools. Coordinated action was needed within and across classrooms and grade levels to reach school level visions and goals. The chapter sheds light on the critical role of leadership and collaboration in these programs. Participating schools developed the capacity to learn and share knowledge as systems – within schools, across schools involved in the program, and between the schools and a support network. Participation moved the culture of the schools away from isolation and towards collaboration.

III. The School's Role

A. Teaching Students with Autism - Guide for Educators



Across the country, the number of children diagnosed as having autism has increased substantially and many of these students are in general education classrooms. How can general education teachers and other education professionals address their complex communication, social and learning needs?

Teaching Students with Autism provides a brief summary of how K-12 educators might think differently about students with autism, capitalize on their strengths, provide supports to address their challenges, and facilitate positive social relationships among students with and without autism.

Download a copy of **Teaching Students with Autism** (96 pg).  http://www.nea.org/assets/img/template/docicon_pdf.png

Introduction

Chapter 1: New Views of Students with Autism

Chapter 2: Welcome to Room 23: Creating an Inviting Classroom

Chapter 3: Promoting Self-Determination

Chapter 4: It Takes a Village: Working as a Collaborative Team

Chapter 5: The Story of the Stick: Universal Design to Accommodate Student Diversity

Chapter 6: Planning Individualized Supports

Chapter 8: Bringing It All Together

Resources and References

Appendixes

A: Sample Instructional Planning Meeting Agenda

B: Sample Adapted Text

C: UDL Planning Template

Part I: Unit Plan

Part II: Routines-Based Support Plan (sample)

Part III: Individualized Unit Plan

D: Aided Language Board

B. What supports can general education provide for the organizational difficulties of students with ASD?

Students with ASD often have significant organizational deficits that must be considered when establishing classroom routines and procedures as well as during unit planning and preparation. Initial instruction of organizational skills must begin when the student with ASD starts school. In reality, all students benefit from instruction in the use of daily schedules, and planners, as well as the use and organization of subject folders or notebooks. Additional activities to promote the development of organization skills include the following:

- Establish a routine and procedure for recording homework, long-term assignments, and tests in a day planner. Teachers need to establish when and how assignments should be recorded. This can be done as a group, especially with long-term projects that need interim due dates to facilitate on-time completion. With an established time and procedure, students should be able to complete this task independently. An Alpha Smart, Neo, or Dana file could serve as the day planner.
- Have daily schedule(s) laminated and placed on the student's desk or in the front panel of a binder. When daily schedules change, water-soluble markers can be used to insert the changes directly into the schedule. Sticky notes can be used for unintended changes, such as weather-related dismissals.
- List tasks to be accomplished during the day. Picture or written task lists can be a helpful organizational tool. Students can check off items as they finish them. A quick perusal of the list provides teachers with an assessment of the student's progress and identifies problem areas. Job Things I could say Recorder Could you say that again for me please? Keeps a record of what the group does Let me see if I have this right. Writes important ideas down Which one should I write down?
- Use a color coding system for each subject area. Use pocket folders or binders for subject areas. If multiple subject assignments need to be written on the homework board, write each assignment with markers or chalk corresponding to the color coding system. Color coding enables students to identify their assignments.
- Require all students to keep their school supplies in a pencil bag. Have students monitor the status of their supplies and write reminders to replenish them in daily planner.
- Divide the binder or folder into sections. Clearly identify where homework, completed assignments, and handouts need to be placed.
- Use sticky notes to prepare or calm students in expected stress situations, such as tests, or when unexpected things arise during the day. Preparing notes ahead of time for these situations can be helpful. Notes can be a brief reminder, such as "deep breathing" or a relaxation strategy, "Before I take a test... I need to deep breathe 5 times, count to 10, get a drink, read through the test, do items I know first."

- Establish consistent written rules for each classroom. Students with ASD need to have separate rule sheets for each teacher they have. They will not anticipate or understand that different teachers have different behavioral and academic expectations. Laminate the rules and keep these rules in the student's notebook for easy reference. A color coding system can help students regulate their level of participation—especially in classes that involve their special interests or knowledge. For example: A green card can be used to signal that the student is behaving appropriately, yellow signals the student that his/her behavior has become disruptive, and, should it continue, a red card will be issued that will signal that the student should leave the room. Chronically disruptive behaviors should be addressed through a functional behavior assessment (FBA) and/or behavior plan (BIP). Special education teachers, school social workers, and school psychologists can complete behavior assessments and help general education teachers in developing behavior plans.
- Provide examples of finished products and writing assignments that meet all project or composition requirements. Examples of correct products are helpful for all students.

II. The School's Role

C. Inclusion Strategies

LEARN NC

Inclusion strategies for students with autism spectrum disorders

BY SUSAN FLYNN

<http://aut.sagepub.com/content/17/3/254.long>



In this brief video, autism teacher Maureen Ostrander talks about some of the measures in place at her school to support students with autism, including providing a mini-lesson about autism to all the students in the school. . [About the video \(http://www.learnnc.org/lp/multimedia/18905\)](http://www.learnnc.org/lp/multimedia/18905)
[Download video \(http://www.learnnc.org/lp/media/video/DifferentiatedLearning/Autism/Autism-SupportingAutisticStudentsInInclusionSettings.flv\)](http://www.learnnc.org/lp/media/video/DifferentiatedLearning/Autism/Autism-SupportingAutisticStudentsInInclusionSettings.flv) (Right-click or option)

Legislative mandates such as No Child Left Behind¹ and the Individuals with Disabilities Education Act² require that students with disabilities not only be exposed to the general education curriculum, but demonstrate progress in it as well. This includes students with autism spectrum disorders (ASD). The Centers for Disease Control and Prevention estimate that one in 110 children are diagnosed with ASD.³ As a result, more students with ASD are being included in the general education setting, and teachers are faced with the task of determining strategies that will help students with ASD succeed in the classroom. Although the task may seem daunting to teachers, students with ASD can and do learn.⁴ The first critical step in this process is to understand the unique characteristics of ASD.

Characteristics

Symptoms of ASD range in severity, which is why it is referred to as a “spectrum.” ASD is an umbrella term for students diagnosed with any of a variety of disorders, including:

Autism

A neurological disorder that typically appears before the age of three which impacts development in social and communication skills. Pervasive Developmental Disorder, not otherwise specified (PDD-NOS)

Also called “atypical autism,” PDD-NOS is very similar to autism. The difference is that only some (but not all) of the criteria associated with autism are present. Asperger Syndrome

The highest functioning sub-category; children with Asperger Syndrome usually do not have language delays, but struggle with social interactions and obsessions. Rett Disorder

Similar to autism, but appears at an earlier age with a more dramatic loss of skills and a greater chance of having intellectual disabilities.

Found only in girls; children begin developing on target but later lose communication skills.

Childhood Disintegrative Disorder

Intelligence quotients range from having a severe intellectual disability to being gifted. Although the range encompasses a wide spectrum of abilities, all five sub-categories cause impairments in social, communication, and behavioral skills. Below is a list of impairments for each domain.

SOCIAL

- **Social cues:** Children may have difficulty understanding social cues and reading others' nonverbal gestures.
- **Sharing:** Children may display problems with sharing or waiting for a turn during a game.
- **Eye contact:** When having a conversation, children may not look directly into the eyes of the person speaking; this is thought to be a self-regulating strategy to compensate for visual input difficulties.
- **Social interactions:** Children may lack the skills, ability, or understanding to make friends, initiate contact, and maintain social interactions.
- **Responsiveness:** Children may be more interested in “things” than in people, and may lack interest in responding to other children.

COMMUNICATION

- **Functional language:** Children with ASD are often echolalic — repeating what others say.
- **Verbal language:** Forty to forty-five percent of students with ASD are nonverbal.
- **Reciprocal conversation:** Children may have difficulty in the natural “give and take” in a conversation and may talk only of their obsessions.
- **Imitation and comprehension of language:** Children may demonstrate *hyperlexia* — an above-average ability to read with a below-average ability to understand spoken or written language.

BEHAVIORAL

- **Unusual obsessions and compulsions:** Children may become preoccupied with a single television program or with arranging objects in lines or stacks.
- **Unusual sensory experiences:** Children with ASD may be hypersensitive to touch.
- **Repetitive use of objects:** Stacking or lining up objects, for example, may become a fixation.
- **Self-injury:** This is common in more severe forms of autism. Children may, for example, bite themselves.
- **Splinter skills:** Children may be highly skilled in one area, such as painting.

To round out this brief summary of autism spectrum disorders: About a quarter of children with ASD also have epilepsy; four out of five children with ASD are boys; and girls usually have more severe symptoms. Some children with ASD may have poor motor skills.

General teaching strategies

Although knowing the general characteristics of ASD is helpful, teaching strategies for students with ASD still need to be individualized, and it is important for teachers to realize their expectations of their students.

Children with ASD often have visual-spatial strengths.⁵ Knowing this, teachers can modify their instructional strategies in a number of ways. First, teachers should demonstrate and model expected skills. For example, if the teacher wants a student with ASD to place his book bag in his cubby when he gets to class in the morning, the teacher should demonstrate exactly how to do this.

Next, teachers should provide visual schedules of the day's events in a location easily seen by the student. (Wisconsin's Cooperative Educational Service Agency offers a useful [page on visual schedules](http://www.specialed.us/autism/structure/stru.htm) (<http://www.specialed.us/autism/structure/stru.htm>).) A visual schedule can be written out and paired with picture symbols to increase understanding. A teacher can also provide individual student schedules attached to the student's desk for accessibility. Both types of schedules can be created using Boardmaker, a program that pairs text with picture symbols, which can often be acquired from the school's speech pathologist.

[Slideshow: Visual Communication Supports for Students With Autism](http://www.learnnc.org/lp/editions/picture-symbols) (<http://www.learnnc.org/lp/editions/picture-symbols>)

This slideshow shares examples of picture symbols and discusses how they might be used to facilitate communication with students with autism.

Additionally, teachers should work to make eye contact with the student and expect to acquire the student's attention. This can be challenging because students with ASD may have difficulty maintaining eye contact due to difficulties with modulating visual input. Close proximity with a verbal reminder — a gentle, “Josh, look at me” — can work well. However, even if the student is not looking directly at the teacher, the teacher should know that he or she may still be listening. Checking frequently for understanding can give the teacher assurance that the student is, in fact, paying attention.

Teachers can adopt other strategies to increase motivation in students with ASD, such as allowing short breaks between teaching sessions and providing time for the student to be alone if needed.

REINFORCEMENT

Reinforcement is another crucial strategy in developing and maintaining motivation in a student with ASD. A reinforcer is an object or activity that the student likes, which can be presented after a behavior to increase the frequency of that behavior in the future.⁶ Teachers may reinforce a non-preferred activity with a preferred activity, contingent upon task completion. For example, if a student has difficulty maintaining focus on a math assignment (non-preferred activity), she can spend five minutes using the computer (preferred activity) after completing her math work.

In order for reinforcement to work, a teacher must know a student's preferred reinforcers. As a result, conducting a preferred reinforcer assessment prior to teaching the student with ASD is very important. If the student is unable to verbalize his preferred reinforcers, the child's parent or other caregiver could provide this information. Alternatively, the teacher can determine preferred reinforcers for the student by presenting one or more objects or activities contingent on the desired behavior (such as the student's completion of a math assignment) and examining their effectiveness on increasing that behavior in the future.⁷ In other words, does giving the student time to work on the computer after completing the math assignment increase the student's motivation to complete another math assignment in the future? If not, then the computer is not a reinforcer.

The quicker the reinforcement is given after a student with ASD has completed a teacher-requested activity, the more powerful the reinforcer will be. If a teacher waits for two hours before delivering reinforcement for a completed activity, the student with ASD might not make the connection.

Academic modifications for the inclusive classroom

Students with ASD will more than likely need to have some form of academic modification while in their general education class, regardless of intellectual ability.⁸ Issues with fine-motor deficits (e.g., grasping a pencil to write) and motivation (e.g., attending to heavy workloads in some subjects) are among some of the areas that may require modifications.⁹

There are numerous ways for teachers to modify activities and materials to meet the needs of students with ASD. In many cases, modifications that are appropriate for students with learning disabilities can also be useful for students with ASD. For example, adjusting the number of items that the student must complete can be helpful, such as requiring the student to complete only the even numbers on a math activity. This helps maintain the student's attention without overwhelming her, while giving the teacher enough data to determine if the student has mastered the skill.

The time allowed for completing assignments can also be adjusted, giving extra time if needed to accommodate fine-motor deficits. Teachers can also increase the level of support that the student with ASD receives during a lesson, such as peer or paraprofessional support during math instruction. Another useful modification is varying the response modes for the student. For example, a student who struggles with writing may be allowed to type responses or verbally answer questions.

Modifying the student's environment so that he or she can learn successfully is another consideration. The location of the student's desk and materials is important. The desk should be as close to the teacher as possible and should face the front of the room. A quiet zone in the classroom is helpful when the student becomes "overloaded" with stimuli. Sensory materials, like a bean bag or stress ball, and sensory-blocking materials, like earplugs or earphones, can increase the student's level of engagement by occupying or isolating a particular sense. Some students with ASD do not tolerate noise very well, so having the option for the student to request using the quiet zone with earplugs may calm the student if he's feeling overloaded.

Socialization strategies

Teaching social skills to students with ASD is extremely important, and is beneficial not only for the student but for classmates as well. Classmates have been known to "benefit from their experiences with students with ASD, developing a compassion for and an understanding of children with special needs. Their self-esteem is boosted by the positive role they take in helping a friend with autism learn."¹⁰

Teachers should always supervise social interactions, and can offer valuable support by providing specific social rules and reinforcing positive social interactions. This

can be done by posting specific social rules easily visible and understandable by all students, and reviewed periodically with the class. Teachers should recognize that a student with ASD may want to interact, but may not know how. Helping the student change topics of the conversation when necessary, rehearsing strategies for social interactions, and using classmates as peer models (e.g., video modeling of a desired social skill) are notable strategies, as well as providing “scripts” of what the student should do in particular social situations.

Social stories are short stories, written from a child’s perspective, that describe appropriate behavior in particular social situations. Social stories can be used to teach social skills to students with ASD who may have difficulty understanding how to behave in certain circumstances. Examples of social stories can be seen in the following documents.

Social story: Everybody needs help



Document by [Carrie Elam](#)

(<http://www.learnnc.org/lp/people/1411>)

Open as

(<http://www.learnnc.org/lp/media/uploads/2010/12/everybodyneedshelp.pdf>) PDF

(<http://www.learnnc.org/lp/media/uploads/2010/12/everybodyneedshelp.pdf>)

Social story: Sitting on the carpet



Document by [Carrie Elam](#)

(<http://www.learnnc.org/lp/people/1411>)

Open as

(http://www.learnnc.org/lp/media/uploads/2010/12/sitting_on_the_carpet.pdf) PDF

Social story: Showing interest in my friends



Document by [Carrie Elam](#)

(<http://www.learnnc.org/lp/people/1411>)

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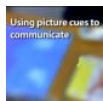
(http://www.learnnc.org/lp/media/uploads/2010/12/showing_interest.pdf) PDF

(http://www.learnnc.org/lp/media/uploads/2010/12/showing_interest.pdf)

It is also important to consider the preparation of classmates in understanding the student with ASD. Reading a book to the class is a great way to help students learn more about ASD and their classmate. (One recommendation for younger students is *Since We’re Friends: An Autism Picture Book*.¹¹) Some regional organizations, such as the Autism Society of North Carolina, provide speakers to visit classrooms to talk about ASD.

Communication strategies

The first and most critical element of developing strategies to support communication in a student with ASD is teacher knowledge. Teachers must begin with an awareness of the student’s communication abilities. It may be helpful to remember that every behavior is an attempt at communication. If the student has no functional language or is nonverbal, it is imperative that teachers use nonverbal communication — such as pairing gestures with speech, or pointing to the science textbook in the student’s desk while asking students to get out their science textbooks.



Video: [Using Picture Cues to Communicate](http://www.learnnc.org/lp/multimedia/i8906) (<http://www.learnnc.org/lp/multimedia/i8906>)

In this brief video, speech-language pathologist Carrie Elam uses picture symbols to communicate with a student with autism during a painting project in art class.

Teachers should try to determine communicative attempts displayed by the student's behavior. For example, if a nonverbal student with ASD screams halfway through literacy instruction and the teacher allows the student to stop the activity, that student has successfully “escaped” the undesired activity by screaming. An alternative scenario might involve the teacher instructing the student to communicate needing a break by handing the teacher a picture symbol for “break” — however, the teacher should always have the student return to the activity after taking a break to ensure that the student does not use “break” to escape the activity. Reinforcing the correct behavior (asking for “break” appropriately) and ignoring inappropriate behavior (screaming) can be a successful strategy.

When it's difficult to determine the function of a student's behavior, a teacher may benefit from using a behavior plan that indicates the use of an A-B-C form. An A-B-C form provides a format for teachers to write down the **Antecedent** — what happened directly before the behavior, the **Behavior** — what the student specifically did, and the **Consequence** — what happened directly after the behavior that maintained the behavior. The following document is an example of an A-B-C form:

Sample A-B-C form



Open as

http://www.learnnc.org/lp/media/uploads/2010/06/sample_abc_form.pdf PDF

http://www.learnnc.org/lp/media/uploads/2010/06/sample_abc_form.pdf

Additionally, teachers should use concrete language to eliminate abstract concepts. Many individuals with ASD are quite literal and may misunderstand abstract sayings. For example, if a teacher comments on the weather by saying, “It is raining cats and dogs out there,” the student with ASD may be very confused as to whether that is possible!

Strategies for managing obsessions and compulsions

Consistency and routines are extremely important to most individuals with ASD; anxiety issues play a big role in this need.¹² As a result, teachers should prepare and explain any changes to the daily routine. For example, an assembly at school one day would prompt the teacher to put either a picture symbol or text on the schedule to reflect the change in routine. A few minutes before the transition, the teacher would give a verbal (and/or visual) reminder of the upcoming event. These approaches would lower the potential for anxiety for the student with ASD.

Students with ASD often have unusual — and frequently narrow — interests, which they pursue obsessively.¹³ This can be addressed by teaching choice- making skills using repeated short intervals of time when introducing new activities, and reinforcing any correct displays of behavior.¹⁴ Building on learning experiences in small reasonable steps, progressing at the rate of the student's response to new activities, and incorporating reinforcement will increase the likelihood of success, because these strategies enable change in a student's habits without overwhelming him or her. Consequently, the entire learning experience can become a conditioned reinforcer, which will increase the student's motivation.¹⁵

Finally, when planning activities, it is imperative that the teacher use age-appropriate materials with students with ASD, just as with all students. Even if the student loves Elmo, the teacher should not incorporate materials or reinforcers involving Elmo if the student is in seventh grade. This would only single out the student in a negative way.

Paraprofessional support

The paraprofessional is vital for the student's success in the general education classroom. Often, the paraprofessional is the school staff member who best knows the student with ASD. However, he or she should not be expected to have the same amount of responsibility as the teacher. The paraprofessional can work with the student in a one-to-one format if feasible, in small-group instruction, and in large-group instruction. He or she should follow and implement all academic

can work with the student in a one-to-one format if feasible, in small-group instruction, and in large-group instruction. He or she should follow and implement all academic modifications made by the teacher, and should promote the daily social interactions of the student with ASD and classmates. Even more importantly, the paraprofessional should be very familiar with the student's behavior plan and implement it consistently; otherwise, the plan will not work. Finally, the paraprofessional (and the teacher) should refrain from using negatives ("No," "Stop that") and instead tell the student directly what he or she wants the student to do. This will ensure that the student is learning the expected behavior.

A note on collaboration

Establishing a strong partnership between home and school is essential to making the inclusion of students with ASD successful. Students with ASD often have difficulty with generalizing a newly learned skill to another environment, so if skills taught at school are not reinforced at home (and vice-versa), the student may be unable to generalize the skills he or she acquires in the classroom. Offering parents a chance to observe a portion of the class can help them visualize strategies explained by the teacher. Teachers, in turn, can consider the home setting before developing behavior plans, and can then train the parents on how to implement the plan to ensure its consistency. The special education teacher and the speech pathologist are both good resources in this collaboration. Finally, knowing parents' goals for their child and including those in the IEP is important. Parents obviously know their child better than anyone, so their input is critical.

Because of the tremendous diversity among students with ASD, there is no "one-size-fits-all" strategy. The attitudes of the teacher and paraprofessional can determine the success — or failure — of the student with ASD in the general education classroom. Teachers who provide appropriate environments, employ proven behavior-management strategies, and welcome students with reasonable but challenging expectations will see that students with ASD can make great gains in socialization, communication, and academic achievement. If educators enthusiastically approach the idea of teaching a student with ASD in their classrooms and are willing to try new methods and use them consistently, the rewards will be worth the hard work.

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II. The School's Role

C. Inclusion Strategies (cont.)

Strategies to Promote Successful Inclusion Experiences

From: Child-Autism-Parent-Cafe.com

<http://www.child-autism-parent-cafe.com/autism-students-in-inclusive-classrooms.html>

The following suggestions may help teachers provide better learning experiences in an inclusive classroom:

- Use consistent classroom routines. For example, asking for help, frequent breaks, putting away homework, getting assignments, bathroom breaks). Consistent routines lower all students' anxiety and increase their ability to function independently in the classroom.
- Give visual instructions, rules and use [visual classroom schedules](#). Use their visual strengths along with visual reminders to increase their ability to function independently both academically and socially. Picture icons and social stories can encourage appropriate behavior and keep their attention to tasks. For example, when jokes are appropriate, free time activities allowed after completed tasks, and social stories about classroom rules. Picture icons like Boardmaker or Writing with Symbols help to increase student understanding. Use a picture or words system for independent work listing the procedures and tasks to be completed.
 - 1) Listen or read teacher directions,
 - 2) Work on page 6, problem 1-4,
 - 3) Put finished work in All Done folder,
 - 4) Read car magazine when all done.
- Watch for signs of high anxiety or difficulties a student may be having with sensory and emotional overload, and other signs of stress. Students experiencing stress may put their hands over ears, plugging their ears, squeezing a body part, or repetitive behaviors, like rocking. Show students to a pre-selected self-calm area, such as a chosen chair in a quiet area or a 'sensory area' (place within the room providing stress release activities or items, i.e. brushing, koosh balls and squeeze toys, weighted blankets, headphones, and music).
- Give students a visual menu of appropriate behaviors to use when they become agitated or overwhelmed. Show students their 'menu' when their stress levels rise. Frequent breaks will allow them to self-regulate sensory input and improve their attention and performance.

- Understand the need for transition time and plan for it. Set up and practice transition activities for students to do when finished with their assigned tasks. Visual reminders of transition times and activities can help guide the child through the process easier.
- Structure the layout of the room. When students know where their work areas are, and expected classroom behavior, with visual schedules to remind them when they need to move and the length of each work period, lowers the students' anxiety. Mark the area where students can get extra supplies. Mark the area where transition tasks or an activity can be done after their assigned work is completed.
- Structure the presentation of worksheets. Highlight directions, number the steps to complete harder tasks, and give an example of the completed task to help students transition to and from a work assignment.
- Explain clearly the purpose of all work assignments, presentations, multimedia materials, or other learning tasks. Students with ASD have difficulty reasoning and making conclusions, and may not see the importance of the content material unless a teacher plainly states the purpose for an activity.
- Provide written rubrics or explanatory comments and rules with due dates clearly marked for each part of a multi-step or multi-part project or writing assignment. Help students design a color-coding system to keep track of due dates in their daily planner. Students with ASD need clear written expectations for their work assignments, procedures for completing the task, and a rubric or written guidelines to evaluate their finished product to ensure success.
- Encourage students to use one or two sentence knowledge summaries. In summarizing, students can easier identify key concepts and information from a book, chapter, or unit on tests and assessments.
- Make the most of special interests to introduce new and difficult tasks. Use special interests as motivators to help students engage in new and/or difficult material. For example, a student who loves trains may learn more quickly or engage well in an assignment if a train sticker appears at the top of the worksheet or the task uses train-related information in the task scenario or directions.

Assign individual roles for group work. Provide a list of expectations or tasks for each role lowers the possibility of misunderstanding and makes working within a group easier. For example, a written job description and scripted cues for introducing items, new ideas, asking questions, making further suggestions, and expressing disputes appropriately encourages responsible participation of all group members.

The following chart shows how to represent roles in a group:

Job	Recorder	Keep a record of what the group does	Writes important ideas down
Things I could say	Could you say that again for me please?	Let me see if I have this right.	Which one should I write down?

- Assign a peer buddy. Give peer buddies information about ASD and ideas to use with students. Modeling strategies can be helpful. Use several peer buddies within a class to avoid burnout. In higher grades, peer buddies could be students who need community service hours or students enrolled in an elective peer tutoring or peer assistant class.

Additional Resources

Teaching Autism Students in Inclusive Classrooms

[A Case Study On Autism: School Accommodations And Inclusive Settings](http://www.child-autism-parent-cafe.com/school-accommodations-and-inclusive-settings.html)

<http://www.child-autism-parent-cafe.com/school-accommodations-and-inclusive-settings.html>

Teaching Autism Students in Inclusive Classrooms

[Supporting Students With Autism: 10 Ideas for Inclusive Classrooms](http://www.child-autism-parent-cafe.com/supporting-students-with-autism.html)

<http://www.child-autism-parent-cafe.com/supporting-students-with-autism.html>

These tips and simple ideas are designed for the teacher of any grade level or subject area to plan lessons, and prepare a safe and comfortable classroom for students with autism.

[Considerations in Teaching More Advanced Students with Autism,](http://www.child-autism-parent-cafe.com/teaching-students-with-autism.html)

[Asperger Syndrome and Other Pervasive Developmental Disorders](http://www.child-autism-parent-cafe.com/teaching-students-with-autism.html)

<http://www.child-autism-parent-cafe.com/teaching-students-with-autism.html>

A Meta-analysis of Peer-Mediated Instructional Arrangements and Autism

K. Bene, D. R. Banda, & D. Brown (2014). *Review Journal of Autism and Developmental Disorders*, 1, 135-142.

http://download.springer.com/static/pdf/428/art%253A10.1007%252Fs40489-014-0014-9.pdf?originUrl=http%3A%2F%2Flink.springer.com%2Farticle%2F10.1007%2Fs40489-014-0014-9&token2=exp=1461818347~acl=%2Fstatic%2Fpdf%2F428%2Fart%25253A10.1007%25252Fs40489-014-0014-9.pdf%3ForiginUrl%3Dhttp%253A%252F%252Flink.springer.com%252Farticle%252F10.1007%252Fs40489-014-0014-9*~hmac=c48dc589889815752c5dd2518074e611ed0d2e7a66be62ecdf25e18e71d295b7

Abstract. We conducted a meta-analysis of 13 instructional arrangement studies that were conducted with children with autism spectrum disorders to improve academic and social communication skills and behavior. Results across the studies indicate that peer-mediated instructional arrangement is a robust method for teaching and improving various academic and other related skills – communication and social. Peermediated instructional arrangement strategies also facilitated maintenance and generalization of learned skills in half of the reviewed studies. We discuss the results and make suggestions for future researchers and practitioners.

Use of iPad/iPods with Individuals with Autism and other Developmental Disabilities: A Meta-analysis of Communication Interventions.

N. Alzayer, D.R. Banda, & R.K. Koul (2014). *Review Journal of Autism and Developmental Disorders*, 1, 179-191

<http://dx.doi.org/10.1007/s40489-014-0018-5>

Abstract. We conducted a meta-analysis to determine the impact of using tablet-based devices on the communication skills of individuals with autism and developmental disabilities. A total of 15 studies were reviewed to determine the effectiveness of the intervention on communication skills. The results showed that tablet-based devices, especially iOS devices (i.e., iPad and iPod Touch) were highly effective in increasing the communication skills of individuals with autism and developmental disabilities. Also, the results provided evidence that several participants were able to continue communicating using the devices and to use them in novel contexts. Furthermore, caregivers have positive perceptions of using iOS-based speech-generating devices for communication skills. Results are discussed and implications for practice and future research are provided.

Successful Transitions into Mainstreamed High Schools for Students on the Autism Spectrum: A Child and Youth Care Approach.

N. Marshall & P. Tragni (2015).

Relational Child & Youth Care Practice, 28, 53-61.

<http://cyc-net.org/Journals/rcycp/rcycp-28-1.html>

Abstract. Over the past 20 years, the prevalence of students diagnosed with Autism Spectrum Disorder (ASD) and their inclusion into main-stream high school settings has steadily increased. Subsequently, research suggests that these students are at risk of experiencing depression, anxiety and failure throughout their high school years. As a result, school boards are revising their practices to ensure transitions into and out of high schools are more successful. Child and Youth Care Practitioners (CYCPs) are integral to the implementation of these transitional programs. Using relational, strength-based and developmental practice methods, CYCPs can collaborate with teachers and staff to support students during this challenging time. This paper discusses the benefits of a Child and Youth Care approach to assist transitioning students on the autism spectrum. This insight is useful to CYCPs developing transition plans across all school boards and to promoting the importance of the CYCP approach to youth on the spectrum.

IV. Additional Resources

A. Web Resources

B. Agencies

C. Our Center's Quick Find

D. References

IV. Additional Resources

A. Web Resources

In developing this packet, many of the following web resources were used, as well as the others cited in the body of the work

Autism.com -- <http://www.autism.com> -- has compiled a large list of links to resources about Autism, education, advocacy, placement, and general information links are made easily accessible.

Autismteachingtools.com -- <http://www.autismteachingtools.com> -- provides “practical information and teaching tips for working with your special learners”.

AutismWeb -- <http://www.autismweb.com/education.htm> -- provides resources and descriptions of education techniques to parent, educators, and professionals.

Autism and Abuse -- <http://www.scn.org/autistics/> -- Information and cautionary advice about abuses that can occur within relationships. Focuses on the reasons for abuse, the contexts that it is most likely to occur, and what to do when abuse occurs.

Autism Resources -- <http://www.autism-resources.com> -- offers information, links, book information, and advice.

Autism Today -- <http://www.autismtoday.com> -- offers information about the disorder, expert advice, products, health information, and the latest news on treatments.

Early Learning Site -- <http://aba.insightcommerce.net> -- provides digitized flash cards for educators of special needs children, primarily those with autism spectrum disorders.

Resources in Autism Education (RAE) -- <http://www.autismed.com/> -- "committed to providing the highest quality behavioral intervention services to children diagnosed with Autism and related Pervasive Developmental Disorders.”

The National Academies Press

Educating Children with Autism (2001) - http://www.nap.edu/catalog.php?record_id=10017

Autism and the Environment: Challenge and Opportunities for Research, Workshop Proceedings - http://www.nap.edu/catalog.php?record_id=11946

Wrightslaw -- <http://www.wrightslaw.com/info/autism.index.htm> -- a general information site that offers descriptions of various treatments, tips from experience, links to published online documents about autism, advocacy information, legal issues of disabilities, and more.

IV. Additional Resources

B. Agencies

Americans with Disabilities Act -- <http://www.ada.gov> -- Provides information about the rights of Americans with disabilities, laws against discrimination, and contact for those that have been discriminated against.

Autism Research Institute -- <http://www.autism.com/ari> -- primarily devoted to conducting research, and to disseminating the results of research, on the causes of autism and on methods of preventing, diagnosing and treating autism and other severe behavioral disorders of childhood.

Autism Society of America -- <http://www.autism-society.org> -- "dedicated to increasing public awareness about autism and the day-to-day issues faced by individuals with autism, their families and the professionals with whom they interact. The Society and its chapters share a common mission of providing information and education, supporting research and advocating for programs and services for the autism population."

Autism Speaks -- <http://www.autismspeaks.org/> -- dedicated to increasing awareness of autism spectrum disorders, to funding research into the causes, prevention and treatments for autism, and to advocating for the needs of individuals with autism and their families.

Center for the Study of Autism -- <http://autism.org> -- provides information about autism to parents and professionals, and conducts research on the efficacy of various therapeutic interventions. The site also incorporates anecdotes about successful treatments.

Division Teacch: Treatment and Education of Autism and Related Communication Handicapped Children -- <http://www.teacch.com> -- run through the University of North Carolina: Chapel Hill, provides information on autism, suggestions on educational approaches, and training opportunities.

Doug Flutie, Jr. Foundation -- <http://www.flutiefoundation.org/Grants-Appling-For-Grants.asp> -- a grant making program with three priorities: "(1) assist financially disadvantaged families who need assistance in caring for their children with autism (through nonprofit autism, organizations), (2) fund research into the causes and consequences of childhood autism, and (3) serve as a clearing house and communication center for new programs and services developed for individuals with autism.

NIMH- the National Institute of Mental Health -- <http://www.nimh.nih.gov/> -- offers comprehensive information about the disorder and includes in-depth technical accounts about the causes, symptomology, and treatment. It also makes available information about local agencies that can help families and individuals with autism. As NIMH is a research institution, the site provides list of ongoing and government funded research into various aspects of autism.

U.S. Department of Health & Human Services
The Interagency Autism Coordinating Committee (IACC)

<https://iacc.hhs.gov/about-iacc/>

Overview

The Interagency Autism Coordinating Committee (IACC) is a Federal advisory committee that coordinates all efforts within the Department of Health and Human Services (HHS) concerning autism spectrum disorder (ASD). Through its inclusion of both Federal and public members, the IACC helps to ensure that a wide range of ideas and perspectives are represented and discussed in a public forum. The committee reconvened in November 2015 to begin a new session under the [Autism CARES Act](#).

The IACC mission is to:

- Provide advice to the Secretary of Health and Human Services regarding Federal activities related to autism spectrum disorder.
- Facilitate the exchange of information on and coordination of ASD activities among the member agencies and organizations.
- Increase public understanding of the member agencies' activities, programs, policies, and research by providing a public forum for discussions related to ASD research and services.

IACC Charter

Authority

Authorized by 42 U.S.C. 280i-2, section 399CC of the Public Health Service Act, as amended. The Interagency Autism Coordinating Committee (Committee) is governed by the provisions of the Federal Advisory Committee Act, as amended (5 U.S.C. app.), which sets forth standards for the formation and use of advisory committees.

Objectives and Scope of Activities

The Committee will (1) monitor autism spectrum disorder research, and to the extent practicable, services and support activities, across all relevant Federal departments and agencies, including coordination of Federal activities with respect to autism spectrum disorder; (2) develop a summary of advances in autism spectrum disorder research related to causes, prevention, treatment, early screening, diagnosis or ruling out a diagnosis; interventions, including school and community-based interventions, and access to services and supports for individuals with autism spectrum disorder; (3) make recommendations to the Secretary of Health and Human Services (Secretary) regarding any appropriate changes to such activities, including with respect to the strategic plan; (4) make recommendations to the Secretary regarding public participation in decisions relating to autism spectrum disorder, and the process by which public feedback can be better integrated into such decisions; (5) develop a strategic plan for the conduct of, and support for, autism spectrum disorder research, including, as practicable, for services and supports, for individuals with an autism spectrum disorder and the families of such individuals, which shall include (A) proposed budgetary requirements; and (B) recommendations to ensure that autism spectrum disorder research, and services and support activities, to the extent practicable, of the Department of Health and Human Services and of other Federal departments and agencies are not unnecessarily duplicative; and (6) submit to the Congress and the President: (A) an annual update on the summary of advances described in paragraph (2); and (B) an annual update to the strategic plan described in paragraph (5), including any progress made in achieving the goals outlined in such strategic plan.

IV. Additional Resources

C. Our Center's Quick Find

Quick Find On-line Clearinghouse

<http://smhp.psych.ucla.edu/qf/autism.htm>

TOPIC: Educating Children with Autism

The Center's Online Clearinghouse Quick Finds provide direct links to additional documents, resources, and references.

IV. Additional Resources

D. Additional References

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Afterword

What are Parents told about Autism on the Internet?*

Melina Yaraghchi, a volunteer at the Center, was interested in learning more about autism. In discussing the matter, we all wondered what general information about the topic was being provided parents on internet websites, especially with respect to treatment recommendations. So as a special project, she did a websearch; the following is what she found.

How is Autism Described?

With respect to autism, the abundance of information available on websites is likely to be overwhelming and at times confusing for most parents. Desperate parents are confronted with a variety of “facts” and treatment recommendations, many of which are not supported by sound research. At the same time, considerable agreement is found about the following:

According to the organization Autism Speaks, *Autism Spectrum Disorder (ASD)* is a neurodevelopment condition characterized by difficulties in social interactions, communication, and engaging in restricted and stereotyped behaviors. In the U.S.A., autism is diagnosed 4-5 times more frequently among males (i.e., 1 in every 42 boys; 1 in every 189 girls are diagnosed).

Autism appears to have its roots in early brain development. Noticeable symptoms tend to emerge around two years of age. The Center for Disease Control and Prevention (CDC) indicates that 1 in every 68 American children are diagnosed with ASD. This represents a significant increase in diagnoses over the last 40 years. Part of this increase is attributed to increased awareness and improved diagnosis. However, controversies are widespread about both the cause of autism and the nature of the diagnoses themselves (e.g., whether autism is primarily genetically or developmentally caused; the degree of coincidence between autism and intellectual disability). Despite years of etiological research, the specific primary instigating causes remain undetermined.

What are Parents Told to Look for?

Autism Speaks lists the following as “red flags” that could indicate risk of ASD:

- No big smiles or other warm, joyful expressions by six months of after.
- No back and forth sharing of sounds, smiles or other facial expressions by nine months
- No babbling by 12 months
- No back and forth gestures such as pointing, showing, waving, or reaching by twelve month
- No words by 16 months
- No meaningful, two- word phrases (not including imitating or repeating) by 24 months
- Any loss of speech, babbling, or social skills at any age.

The material in this document was culled from various websites and links to literature mentioned (see the attached reference list) by Melina Yaraghchi as part of her work with the national Center for Mental Health in Schools at UCLA.

*The center is co-directed by Howard Adelman and Linda Taylor and operates under the auspices of the School Mental Health Project, Dept. of Psychology, UCLA. Phone: (310) 825-3634 Email: smhp@ucla.edu Website: <http://smhp.psych.ucla.edu>. Send comments to ltaylor@ucla.edu

Children with Autism Spectrum Disorder may exhibit a wide variety of difficulties with communication, social skills, flexible behaviors, and language. Two people diagnosed as autistic may have different abilities and perform differently on similar tasks.

What Does the Diagnostic and Statistical Manual (DSM) Indicate as Criteria for Autism Spectrum Disorder?

According to the DSM 5, individuals must meet the criteria A, B, C, and D below to qualify for diagnosis of ASD.

- A.** Persistent deficit in social communication and social interaction across contexts, not accounted for by general developmental delays and manifests by all 3 of the following:
 - 1) Deficits in social, emotion reciprocity
 - 2) Deficits in non-verbal communicative behaviors for social interactions
 - 3) Deficits in developing and maintaining relationships
- B.** Restricted, repetitive patterns of behavior, interests, or activities as manifested by at least two of the followings:
 - 1) Stereotyped or repetitive speech, motor movements, or use of objects.
 - 2) Excessive adherence to routines, ritualized patterns of verbal or non-verbal, or excessive resistance to change
 - 3) Highly restricted, fixated interests, that are abnormal in intensity and focus
 - 4) Hyper or hypo reactivity to sensory input or unusual interest in sensory aspects on environment
- C.** Symptoms must be present in early childhood (but may not become fully manifest until social demands exceed limited capabilities.
- D.** Symptoms together limit and impair everyday functioning.

What is Said about Cultural Differences?

In responding to disabilities, cultural background and beliefs regarding cause play a significant role. For instance, in Puerto Rico, it apparently is still common to believe a child's disabilities are the result of the mothers' sins. Similarly, in some parts of India, there is a belief that disability is a punishment due to sins committed in the past life by the child or his/her parents. When a child's disability is perceived to be caused by negative forces, there might be less willingness in the society to seek treatment and expend resources on the problem. Similarly, when an individual's disability is perceived to be God's will, parents are more likely to see the condition as unchangeable and not seek out treatment.

Children diagnosed as having ASD in the United States are likely to be diagnosed in South Korea, as having reactive attachment disorder (RAD). This disorder is commonly referred to as lack of secure attachment and love, which embodies the idea of a refrigerator mother. Despite the fact that RAD directly blames the mother for the condition, many prefer this diagnosis to autism, because RAD, unlike autism is seen as having a "cure" (i.e., providing love). Also, the diagnoses of RAD stigmatizes only the mother, while autism stigmatizes the whole family and influences the marriage prospects of an autistic person and their relatives.

Even in cultures that have a positive outlook and attitude toward disabilities, families may opt not to pursue treatment. For example, Navajo tribes perceive a person with disability as a teacher bringing special lessons and gifts. Treatment is seen as potentially preventing the child from delivering special messages to the community. Researchers also report that, compared to whites, African Americans and Asian/Pacific Islander were found to less likely view many unusual behaviors as symptoms of an underlying disorder. In general, some folks are more likely to perceive delays in communication and language as a temporary developmental phenomenon that will be outgrown and/or to differences in motivation.

Cultural factors also influence help-seeking in collectivistic societies. Among such groups, rather than going to professionals, many seek help from relatives, friends, religious leaders, faith and natural healers.

What's Offered to those Seeking Treatment?

The variety of symptoms and variations in responses make it impossible for professionals to create an agreed upon standard care for autism. Thus, there are numerous treatments touted. Some have a degree of empirical evidence; some are controversial. The process of selecting a treatment usually is described as overwhelming by parents.

With no specific treatment identified as sufficient to address autism, many children receive multiple therapies at a given time. Often in desperation, parents try anything and everything in hopes of effecting desirable changes, especially early-age interventions since they don't want miss a critical developmental period.

Decisions usually are made on the basis of recommendations from others (e.g., other parents, medical doctors, psychologists, behavior analysts, educators). The recommendations often include treatments that are controversial.

While parents obviously prefer treatments with few or no negative effects, the more severe the symptoms, the greater the tendency to seek out controversial treatments, especially when media presentations portray the treatment positively (even as a potential cure). Moreover, parents are more likely to use such treatments when they become dissatisfied with a current one. Children with ASD often are involved in multiple treatments. This fact, and placebo effects, have made it difficult to determine treatment effects.

A Controversial Treatment

“Complementary and Alternative Medicine (CAM)” is used with many children diagnosed with ASD (estimates range from 33-92%). Parents report that such interventions were recommended by other parents, the internet, and medical doctors. As categorized by the National Center for Complementary and Alternative Medicine (NCCAM), CAM stresses techniques such as whole medical systems, mind-body medicine, biologically based practices, manipulative and body-based practices, and energy medicine. It is emphasized that the distinctions between therapies aren't always clear-cut, and some practitioners use techniques from more than one category. Studies indicate that families use unconventional approaches such as mind-body medicine (e.g. meditation or prayer), homeopathic remedies, probiotics, alternative diets or more invasive therapies such as vitamin B-12 injections, intravenous immunoglobulin or chelation therapy. Researchers suggest that some of these carry significant risks.

What Educational Interventions are Stressed?

Families seek information about educational interventions to address communication, social skills, daily-living skills, academic achievement and maladaptive behaviors. These interventions generally are described as developing knowledge and skills with the hope of enhancing independence and responsibility. As highlighted by Myers (2007), the major approaches are:

Applied Behavior Analysis (ABA) implements interventions based on learning principles derived from psychology research. ABA methods are used to increase desirable behaviors, reduce maladaptive patterns, and teach skills that would generalize across contexts. Functional behavior analysis is significant in ABA treatments. Behaviors tend to serve three functions: (1) attention, (2) access to specific object, activity, or sensation, and (3) escape from demands or situations. Functional assessments include detailed description of a behavior, identifying an antecedent of a behavior, consequence of actions, environmental factors that maintain a behavior, and developing hypothesis for function of a behavior.

Structured Teaching derives its name from its emphasis on structure. Important elements of this treatment include structured organization of physical environment, predictable sequences and activities, schedules, and routines. The emphasis is on teaching individuals necessary skills and modifying environments in order to accommodate for deficits.

Speech and Language Therapy – To develop functional communication, interventions may include teaching gestures, sign language, and the Picture Exchange Program (PECS). PECS is widely used and often incorporated with ABA therapy. Through this program, the child is taught to make requests with pictures and persist until receiving a response. Proper speech is viewed as more likely in a child who has first learned to communicate symbolically.

Social Skills curriculum aims at enhancing responses to social approaches from other children and adults, initiating interactions, and minimizing stereotyped behaviors. Social skills groups, social games, video modeling, scripts, peer-mediated learning are used.

Programs for Older Children and Adolescents – While the majority of services target young children, educational interventions for older ones are typically based on ABA principles. Such treatments are designed to reduce maladaptive behaviors, maintain desirable behaviors, teach skills, and generalize behaviors and skills across contexts and situations.

What Questions May Parents Expect Clinicians to Ask?

Internet sites offer recommendations for clinicians in working with parents. They stress being aware of parents' cultural background and beliefs. Here are examples of questions that have been suggested as guidance in interviewing families in order to better understand what might affect their treatment decisions:

- 1) What did you call your child's problem before it was diagnosed?
- 2) What do you think caused the problem?
- 3) Why do you think it started when it did?
- 4) What do you think autism does? How does it work?
- 5) How severe is it? Will it have a short or long course?
- 6) What are the chief problems your child's autism has caused?

- 7) What do you fear most about it?
- 8) What kind of treatment do you think your child should receive?
- 9) What do you expect from this treatment?

Concluding Comments

In a recent interview Dr. Robert Hendren who is on the Autism Speaks Treatment Advisory Board stated: “We know that many parents do research on their own, and this includes comparing notes with other parents or individuals. It’s important to remember that another person’s experience is not the same as evidence from a carefully designed and conducted study. Also, because autism encompasses a complex group of disorders, some treatments may work for one person but not another.” Furthermore, he stresses that, given the relative lack of information on the effectiveness of alternative treatments, families should carefully consider time, effort and finances. He concludes: “A costly intervention that lacks clinical evidence of effectiveness is an expensive shot in the dark.”

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A Few Websites:

- Centers for Disease Control and Prevention (CDC) -- <http://www.cdc.gov/ncbddd/autism/index.html>
- Autism Speaks -- <https://www.autismspeaks.org/>
- Autism Society of America (ASA) -- <http://www.autism-society.org/>
- Autism Treatment Network -- <https://www.autismspeaks.org/science/resources-programs/autism-treatment-network>
- Center for Parent Information and Resources (CPIR) -- <http://www.parentcenterhub.org/>