

TDMHSAS BEST PRACTICE GUIDELINES

Children and Adolescents with Autism Spectrum Disorders

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The Centers for Disease Control and Prevention (CDC, 2012) reports that one in 88 children have been identified with an autism spectrum disorder (ASD), a neurodevelopmental disorder, by eight years of age. There is continuing research into the apparent increase in prevalence rates of ASD. Much current research focuses on the possible biologic, genetic, and/or environmental factors that may lead to manifestation of the symptoms.

Although there is no current known cause or cure for ASD to date, accurate early diagnosis is crucial in obtaining early intensive behavioral treatments which are associated with improved outcomes for individuals with ASD (Harris & Handleman, 2000). This document is a general overview of ASD, assessment and screening for ASD, and evidence-based treatments. References and additional resources are also provided.

DSM-IV-TR Criteria for Pervasive Developmental Disorders

The following are the diagnostic criteria for the three most commonly diagnosed ASD - Autistic Disorder, Asperger's Disorder, and Pervasive Developmental Disorders Not Otherwise Specified. Rett's Disorder and Childhood Disintegrative Disorder are also currently diagnosed as ASD. However, these less commonly diagnosed disorders possess unique characteristics and, as such, have not been included in this document.

Autistic Disorder (DSM-IV-TR, 2000, p. 70)

A. A total of six (or more) items from (1), (2) and (3) with at least two from (1), and one each from (2) and (3):

1. *Qualitative impairment in social interaction, as manifested by at least two of the following:*

- Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures and gestures to regulate social interaction
- Failure to develop peer relationships appropriate to developmental level
- A lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. by a lack of showing, bringing or pointing out objects of interest)
- Lack of social or emotional reciprocity

2. *Qualitative impairments in communication as manifested by at least one of the following:*

- Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
- In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
- Stereotyped and repetitive use of language or idiosyncratic language
- Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

3. *Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:*

- Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
- Apparently inflexible adherence to specific, non-functional routines or rituals
- Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements)
- Persistent preoccupation with parts of objects

B. *Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:*

- (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play

C. *The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.*

Asperger's Disorder (DSM-IV-TR, 2000, p. 80)

Qualitative impairment in social interaction, as manifested by at least two of the following:

A. *Qualitative impairment in social interaction, as manifested by at least two of the following:*

- Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures and gestures to regular social interaction
- Failure to develop peer relationships appropriate to developmental level
- A lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. by a lack of showing, bringing or pointing out objects of interest to other people)
- Lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:

- Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
- Apparently inflexible adherence to specific, non-functional routines or rituals
- Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole-body movements)
- Persistent preoccupation with parts of objects

C. The disturbance causes clinically significant impairment in social, occupational or other important areas of functioning.

- There is no clinically significant general delay in language (e.g. single words used by age 2 years, communicative phrases used by age 3 years)
- There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood
- Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia

Pervasive Development Disorder Not Otherwise Specified (PDD-NOS)
(DSM-IV-TR, 2000, p. 84)

This category should be used when there is a severe and pervasive impairment in the development of reciprocal social interaction or verbal and nonverbal communication skills, or when stereotyped behavior, interests and activities are present, but the criteria are not met for a specific Pervasive Developmental Disorder, Schizotypal Personality Disorder or Avoidant Personality Disorder. For example, this category includes 'atypical autism' presentations that do not meet the criteria for Autistic Disorder because of late age of onset, atypical symptomatology, or sub-threshold symptomatology, or all of these.

Proposed Changes to Diagnostic Criteria in DSM-5

With the upcoming 2013 revision of the diagnostic coding system of the American Psychiatric Association (ApA), it appears that autism diagnoses will undergo significant changes in how patients are labeled. The class of disorders currently categorized as pervasive developmental

disorder (not otherwise specified), Asperger's disorder, autistic disorder, and childhood disintegrative disorder will be classified as autism spectrum disorder (ASD) in the new DSM-5. Thus, children who have symptoms of Asperger's, for example, will no longer be told that they have Asperger's but instead ASD. The changes were recommended to help diagnose children in these categories in a more consistent way (Falco, 2012).

Some clinicians, such as Dr. Bryan King, director of the Seattle Children's Autism Center, believe the new diagnostic criteria will be more inclusive and result in more youth being diagnosed with ASD, thanks to the following three changes that have the potential to expand the diagnostic door:

- The new criteria will allow for children older than age three to meet diagnostic criteria for autism.
- Clinicians will be given actual examples of how children display the various diagnostic criteria in addition to having the criteria to reference.
- The patient's history can be considered in making a diagnosis of ASD. For instance, a teen exhibits sensory sensitivities and social impairments but at the time of evaluation is no longer preoccupied with spinning wheels or lining up toys. Nevertheless, the teen's history of repetitive behavior could be considered to make the ASD diagnosis (Falco, 2012).

Screening and Evaluation

Red Flags

Although ASD is a lifespan condition and may not be diagnosed in some individuals until later childhood, adolescence, or adulthood, symptoms suggestive of ASD are likely to be present in early childhood, often prior to 24 months. Among the most common early deficits are atypical nonverbal social communication, lack of or atypical social/emotional reciprocity, and speech/language delays (Stone, Lee, Ashford, Brissie, et al., 1999). Early deficits may also include delay or absence of relational play, decreased joint attention, and motor imitation delays (McConnell, 2002; Woods & Wetherby, 2003).

“Red flags” are frequently observed or unobserved behaviors that may warrant further professional assessment. The following are some of the red flags for ASD (Stone, Ousley, Yoder, Hogan, & Hepburn, 1997; Wetherby & Woods, 2002; CDC, 2012).

Qualitative impairments in social interaction

- Individual rarely shows things of interest to others or direct others' attention to things.
- Individual seems less likely to share enjoyment with others, or follow the attention of others.
- Individual exhibits decreased or inconsistent eye contact.
- Individual may imitate the actions of caregivers and peers less frequently than same aged peers.
- Individual may be socially withdrawn or have challenges navigating social situations.

- Individual frequently seems isolated from peers or unable to share in common interests or conversational topics.
- Individual may appear disinterested in others or may exhibit difficulty understanding or expressing shared emotions.

Qualitative impairments in communication

- Individual has very few spontaneous words or overall speech and language is delayed.
- Individual has lost some words or language skills that were previously gained.
- Individual may have reached speech and language developmental milestones on time, but has difficulty with specific areas of receptive, expressive, and pragmatic communication
- The quality of the individual's voice is unique, including all or some of the following: tone, intonation, volume, etc.
- Individual does not or infrequently points, especially at distant things or to express interest in something.
- Individual uses a decreased number of age-appropriate gestures to communicate.
- People have wondered if the individual has difficulty hearing based on his/her reaction to things in his/her environment and a decreased response to his/her name.

Restricted repetitive and stereotyped patterns of behavior, interests and activities

- When playing with objects, individual often engages in more repetitive actions (e.g., lining up objects, putting things in order, inspecting objects) rather than using the objects as they were intended.
- When playing, individual infrequently pretends with variation in play activities.
- Individual shows attachment or extreme interest in select objects.
- Individual has a highly developed special interest or knowledge of some preferred topics.
- Individual seems upset during transitions or when the routine is changed.
- Individual frequently displays stereotyped movement patterns (e.g., hand flapping, rocking, pacing).
- Individual often uses the same phrase or engages in the same action or behavior repeatedly.

It is important to note that no individual with ASD will express all of the characteristics listed. The characteristics that are expressed within an individual may vary greatly throughout his/her lifespan based on changes in factors such as age, environment, psychosocial stressors, and neurodevelopmental and physiological changes (e.g., puberty/adolescence) (McBride et al., 1998; Mayes & Calhoun, 2003).

Furthermore, just as there are significant differences among individuals who are typically developing, there are significant differences among individuals with ASD and the dimensions in which the symptoms of their diagnosis are expressed. Several factors contribute to these spectrum-wide differences, including proficiency in particular skill areas such as cognitive abilities and communication skills (Mayes & Calhoun, 2003). There are also associated challenges that often impact individuals with ASD; these include anxiety, emotional lability/mood concerns, self-regulation/executive functioning abilities, inconsistencies between

expressive and receptive language skills, and motor planning difficulties (Ozonoff, 1996; Kim, J., et al., 2000; Hughes, 2006).

Screening

The “well-child” checkup by the pediatrician should include developmental screening as early as possible (NIMH, 2007). The American Academy of Pediatrics (AAP) and CDC recommend that all children be screened by their pediatrician or other primary care clinician with a standardized general developmental tool at specific intervals (i.e., at the 9, 18, and 24 or 40-month visits), regardless of whether a concern has been raised or a risk has been identified during the surveillance process. The AAP and CDC also recommend administering a standardized autism-specific screening tool on all children at the 18-month preventative care visit with a repeat screening performed at 24-month of age.

Multiple validated screening tools are available for clinical use (Johnson, 2007). Select screening instruments appropriate for young children may include the Modified Checklist for Autism in Toddlers (M-CHAT), the Screening Tool for Autism in Two-Year-Olds (STAT), the Autism Spectrum Screening Questionnaire (ASSQ) and the Social Communication Questionnaire (SCQ) among others (Johnson, 2007). A diagnosis of ASD should not be provided based upon screening results alone. If a screening suggests possible ASD, the individual should be referred for a comprehensive diagnostic evaluation (described below) to adequately assess symptoms of ASD.

Comprehensive Evaluation

A comprehensive diagnostic evaluation should be conducted to further evaluate for ASD or other developmental disorders regardless of the individual’s age. It may be helpful for the evaluation to be performed by a multidisciplinary team that includes an appropriate medical doctor (i.e., a Psychiatrist, Neurologist, Developmental Pediatrician, or Pediatrician), Psychologist, Speech Language Pathologist, and/or other professionals who are qualified to diagnose individuals with ASD. The evaluation may entail extensive developmental, cognitive and language testing, as well as neurological and genetic assessment. This comprehensive evaluation should include evidence-based assessment techniques to evaluate for symptoms of ASD.

Evidence-based assessments are preferable to assessments based on tradition or convention because they take into account the research supporting the utilization of each assessment tool. Specific assessment tools that are appropriate for the evaluation of symptoms of ASD and have been shown to have adequate psychometric properties can be found in several review articles and book chapters (e.g., Ozonoff, Goodlin-Jones, & Solomon, 2005; Klin, Saulnier, Tsatsanis, & Volkmar, 2005; Campbell, 2006). Examples of measures specifically developed for evaluating symptoms of ASD include the Autism Diagnosis Interview-Revised (ADI-R); Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2); and Childhood Autism Rating Scale, 2nd Edition (CARS-2) (NIMH, 2007). In addition to utilizing a multidisciplinary assessment team and evidence-based assessment tools, a comprehensive evaluation should be conducted by professionals with knowledge of the symptoms, etiologies, and developmental course of ASD.

A comprehensive evaluation of any individual with atypical language development, including those suspected of having ASD, should also include formal audiological tests. A variety of other medical tests, including vision screens and metabolic testing, as well as assessments for specific medical findings, may also be conducted as indicated (Filipek, 2000). For example, if significant neurologic deficits are present or there are concerns that seizures may be present, further neurologic evaluation, possibly including neuroimaging, electroencephalography (EEG), or other tests, may be necessary. Genetic testing may provide information regarding etiology, particularly if there is a personal or family history of particular physical features or other developmental disabilities. The need for additional medical testing should be tailored to the individual child suspected of having ASD (Filipek, 2000). At the conclusion of the comprehensive evaluation, diagnostic recommendations need to be developed for the individual based upon their specific current and long-term needs.

Treatment

Early Intervention

Early screening and detection of ASD is important in identifying a child's treatment needs as early as possible. Research has indicated that beginning intervention at a young age may result in significant developmental improvements (Harris & Handleman, 2000), perhaps due to the neurological plasticity in younger children. Various forms of behavioral and educational interventions have been proven very effective for young children with ASD (Smith & Groen, 2000; Cohen, Amerine-Dickens, & Smith, 2006; Remington, Hastings, & Kovshoff, et al., 2007; Dawson, Rogers, & Munson, et. al, 2010). However, since each child with ASD demonstrates different areas of strength and areas of need, further research is necessary to determine which formats of treatment result in the greatest gains for particular profiles of children (Warren et. al, 2011).

Regardless of an individual's age when they are diagnosed with ASD, progress can be made through pursuing intervention and these gains can continue throughout the life span. Further, there will likely be a continued need for current or additional services targeting regressed skills, new skills, and/or maintenance of skills throughout the individual's lifespan due to developmental, physiological, neurological, and/or contextual factors.

Psychosocial Treatment

To date, behavioral and educational interventions are the most well-researched approaches to target symptoms related to ASD. Individuals with ASD will likely require behavioral and educational services to address impairments in social skills, communication, safety awareness, self-advocacy skills, self-regulation, and long-term independence skills such as transitional, vocational, and avocational skills.

In 2009, the National Autism Center (NAC) created the National Standards Report to address the need for evidence-based practice guidelines for ASD. Utilizing a Scientific Merit Rating Scale,

studies focusing on intervention strategies for individuals with ASD were reviewed based on research design, measurement of the independent and dependent variables, participant ascertainment, treatment effects, and generalization of treatment effects. They were also reviewed based on the age of participant, diagnosis within the autism spectrum of the participant, and skills/behaviors targeted for each intervention strategy.

Based on these analyses, all reviewed intervention strategies were placed into 1 of 3 categories: *Established, Emerging, or Unestablished*. A fourth category, *Ineffective/Harmful*, was also developed, although no treatments were placed into that category. The National Standards Report indicates that research regarding treatment effectiveness should be considered in conjunction with professional judgment, family values and preferences, and the capacity of service providers. Listed below are the intervention strategies currently categorized as *Established Treatments* (NAC, 2009).

- Antecedent Package
- Behavioral Package
- Comprehensive Behavioral Treatment for Young Children
- Joint Attention Intervention
- Modeling
- Naturalistic Teaching Strategies
- Peer Training Package
- Pivotal Response Treatment
- Schedules
- Self-management
- Story-based Intervention Package

While the intervention strategies within these treatment categories have been established by research for implementation with individuals with ASD, it is important to note that they are only effective when the goals of the treatment interventions are integrated and individualized. No single treatment is likely to effectively or efficiently address all the core deficit areas of ASD expressed by an individual. As such, an integrated therapeutic approach is considered best-practice, i.e., multiple evidence-based treatments are implemented and adjusted or discontinued as appropriate to address the specific needs of each individual (NAC, 2009).

Applied Behavior Analysis

The majority of intervention strategies categorized as *Established Treatments* are based in the principles of Applied Behavior Analysis (ABA). As indicated by the variety of intervention strategies in this report, ABA is not a single intervention. Rather, it is the science of systematically applying interventions based on learning theory in order to improve socially significant behaviors and demonstrate that the interventions employed are responsible for the improvement in behavior (Sulzer-Azaroff & Mayer, 1991).

Pharmacological Treatment

There are no medications that cure ASD, though certain medications may be useful in treating specific medical conditions (e.g., seizures or disturbed sleep) or associated behavioral symptoms (e.g., overactivity, aggression, or irritability) (CDC, 2012). Many medications prescribed for individuals with ASD are prescribed “off-label,” or provided for symptoms other than those for which the medication is typically prescribed or approved. Evidence for efficacy and safety of some of these medications is often limited or research is conflicting. (McPheeters, 2011; Carasco, 2012).

However, two antipsychotic medications (risperidone and aripiprazole) have been approved by the Food and Drug Administration (FDA) for the treatment of irritability associated with ASD in children of certain ages. Irritable behaviors may include severe tantrums, aggression, self-injury, or quickly changing moods (FDA, 2012). If medications are utilized, they should be part of a comprehensive treatment plan that includes educational and behavioral interventions. All medications carry the risk of side effects (NIMH, 2012). Careful attention to potential adverse effects of medication should be maintained with the understanding that the risks as well as benefits of medication therapy must be considered for each individual.

For more information regarding the symptoms, course, assessment, and treatment for individuals with ASD, please see the resources listed below.

Resources for Families

American Academy of Child and Adolescent Psychiatry Autism Resource Center. (2012 November). Retrieved from <http://www.aacap.org/cs/autism.ResourceCenter>.

American Academy of Pediatrics (AAP). (n.d.). Healthy children. Retrieved from <http://www.healthychildren.org/>.

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Autism Society of America. (n.d.). For individuals on the spectrum. Retrieved from <http://www.autism-society.org/on-the-spectrum.html>.

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National Autism Center. (2011). A parent's guide to evidence-based practice and autism: providing information and resources for families of children with autism spectrum disorders. Randolph, MA: National Autism Center.

National Institute of Mental Health (NIMH). (2011 November). A parent's guide to autism spectrum disorder. Retrieved from <http://www.nimh.nih.gov/health/publications/a-parents-guide-to-autism-spectrum-disorder/parent-guide-to-autism.pdf>.

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Resources for Professionals

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Autism Society of America. (n.d.). For professionals. Retrieved from <http://www.autism-society.org/a-professional.html>.

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