

BEST PRACTICES IN AUTISM IDENTIFICATION

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Objectives

- Identify current prevalence rates of ASD
- Review of current research
- Examine past and current medical and educational definitions of ASD
- Understand typical social and communication development
- Understand atypical development indicative of ASD
- Identify appropriate evaluation/assessment procedures for diagnostic decision making

AUTISM PREVALENCE

Increasing Prevalence

- Early epidemiological studies in the 1960s
 - 4-5 in 10,000 or 1 in 2000
- In the 1990s following introduction as an educational category
 - Between 1 in 500 and 1 in 1000
- In 2007 when Autism was becoming more well known
 - 1 in 150
- 2010 CDC estimates
 - 1 in 110 overall, 1 in 70 for boys
- 2012 CDC estimates
 - 1 in 88 overall, 1 in 54 for boys

(Lotter, 1966; Filipek et al., 1999, 2000; Frombonne, 2005; Layne, 2007; Baio, 2012)

Current Prevalence Rates

- 2013- Blumberg et al. estimated ASD rates to be 1 in 50, or 2% of the school-age population
 - Based on survey and parent reports
- CDC has since updated their statistics to reflect the rate of
 - 1 in 68
 - Boys- 1 in 42
 - Girls- 1 in 189

(Blumberg et al., 2013; CDC, 2014)

Arguments against the rise of autism

- As a newer label, rates are likely to increase
- As autism rises, other categories (learning disabilities & mental retardation) decrease
- Special education trends cannot be used to determine the prevalence of autism

(Monastersky, 2007)

Arguments for the rise of autism

- Examined data from 1975-2001
- Highest increases from 1987-1992
- After 1992, prevalence percentages increased at a steady rate
- No concomitant decreases to other educational categories were found

(Newschaffer, Falb, & Gurney, 2005)

Explanations for Rise in Prevalence

- Increased public awareness of autism
 - Along with increased vigilance from professionals
- Diagnostic substitution of autism for intellectual disability
- Professionals giving a label of autism rather than other labels to enable families to access more services
- Better diagnostic tools to identify Autism
- Increased detection of high functioning autism and Asperger's Disorder
- Broader views of ASD

(Layne, 2007)

Explanations for Rise in Prevalence

- Danish study following children for 30 years (n=677,915)
- 33% of the increase in prevalence was explained by the change in diagnostic criteria alone
- 60% of the increase was explained by a combination of change in diagnostic criteria and the change in outpatient diagnosis and reporting requirements

(Hansen, Schendel, & Parner, 2015)

- The majority of the increase is explained by this study, but this still leaves approximately 40% of the prevalence increase unexplained

CURRENT RESEARCH IN AUTISM

Genetics

- Scientists now believe that between 90 to 100% of all autism cases are genetically based
 - (Constantino, 2007; Devlin, 2007; Cai, Edelmann, Goldsmith, Cohen, Nakamine, Reichert, et al., in press).
- There are possibly hundreds to thousands of different genes associated with Autism
- A small number have been identified so far
- Many different genetic combinations could result in Autism
- Genetic mutations predispose children to Autism, but not everyone with affected genes will develop Autism

Genetics

- | | |
|---|--|
| <ul style="list-style-type: none">• Familial Autism• Family history of autism or social difficulties• Multiple family members may be affected• Range from mild to severe | <ul style="list-style-type: none">• Sporadic Autism• Single genetic mutation within one generation• Tends to be severe |
|---|--|

(Constantino, 2007)

Genetics Theories

- Genetic Risk + Environmental Trigger = Autism
 - Combination of genetic variations, inciting events, environment, and experience
- Studies focusing on finding a global cause for Autism do not yield significant results
- Autism is a heterogeneous disorder with limitless possible genetic combinations that elevate risk
 - There could also be a limitless number of environmental triggers
 - Potentially, there are actually multiple discrete disorders that fall under the autism spectrum

(Constantino, 2007; State, 2010)

Research-Based Theories

- Age of Fathers

- A study examining Israeli men and women with autism demonstrated that fathers aged 40 to 49 were 5.75 times more likely to have children with autism than men under 30
(Reichenberg, 2006)
- A Japanese study indicates that children "whose fathers were over 33 were 1.8 times more likely to have autism than those fathers who were under 29. Men who fathered children between the age of 29 and 32 were 30 per cent more likely to have an autistic child"
(Smith, 2008)

- Synaptic Pruning

- Connections between neurons (synapses) grow at a rapid rate during infancy and early childhood
- Pruning occurs as they child matures
- Higher number of synaptic connections in brains with ASD, suggesting a glitch in this pruning process
- May explain over-sensitivity to sensory input (Tang et al., 2014)

Non Research-Based Theories

- Vaccinations

- Danish children have been thimerosal free since 1999, and autism rates continue to rise commensurate with the US. Thimerosal use is decreasing in the US- rates continue to rise here as well (Laidler, 2005)
- MMR study (n=95,000) examining vaccinated and unvaccinated children (including those at-risk for ASD)
 - "No association between MMR vaccination and increased ASD risk" in either the control group or children at-risk for ASD
 - ASD rates were lower in the vaccinated group (Jain, Marshall, Buikema, Bancroft, Kelly, & Newschaffer, 2015)

- GMOs

- Gluten sensitivities

- Heavy metals exposure (lead poisoning)

CHANGES FROM THE DSM-IV TO DSM-5

DSM-IV

- Prior to 2013:
- Pervasive Developmental Disorders or Autism Spectrum Disorders (ASD) were umbrella terms that encompassed
 - Autistic disorder
 - Asperger's disorder
 - Rett's disorder
 - Childhood disintegrative disorder
 - Pervasive developmental disorder, NOS

Changes in the DSM-5

- DSM-5
 - One category: Autism spectrum disorder
 - Change from 3 core areas of deficit to 2
 - Social/Communication deficits
 - Fixed interests and repetitive or stereotyped behaviors
 - Asperger's, PDD-NOS, and Childhood disintegrative disorder are no longer used
 - No more separate diagnoses- all inclusive ASD diagnosis
 - Rett's disorder was removed- medical diagnosis only
- Autism Spectrum Disorder is now the only diagnosis available
- Child receive a rating of 1, 2, or 3 depending on the level of support needed/symptom severity
- ICD-10 has not yet changed so some medical diagnoses do not yet reflect the new definition

Autism Spectrum Disorder, DSM-5

- 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 duration of social interactions, 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 initiating or maintaining a back-and-forth exchange, to absence of interest in peers.
 4. 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 of sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same 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, excessive circumscribed or perseverative interests).
 4. Hyper- or hyporesponsivity to sensory input or unusual interest in sensory aspects of environment (e.g., apparent indifference to pain/hunger, extreme response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
 - 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. If a child has 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 (APA, 2013, pp. 50-51).

Educational Definition of Autism

- Autism is the only category available
- The term is loosely defined enough to encompass all autism spectrum disorders
- Schools do not have to differentiate or use medical diagnoses when evaluating children

Autism, IDEIA

- Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, 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 changes in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (b)(4) of this section. (ii) A child who manifests the characteristics of "Autism" after age 3 could be diagnosed as having "Autism" if the criteria in paragraph (C)(1)(i) of this section are satisfied.

• Source: Individuals with Disabilities Education Act (IDEA) Federal Regulations Part 300

What this Means...

- Currently Educational and Medical definitions of Autism are very closely aligned
- All children on the autism spectrum will fall under one diagnostic category
 - Autism spectrum disorder- Medical
 - Autism- Educational
- Children will be differentiated based on their level of functioning and what supports they need

Medical Model:
ASD/PDD

Educational Model:



- Autistic disorder
- PDD-NOS
- Asperger's Disorder
- Rett's disorder
- Childhood disintegrative disorder

- Autism

Medical Model:

Educational Model:



- Autism Spectrum Disorder
- "Diagnosis"
 - Access to community services

- Autism
- "Identification"
 - Access to educational services

IMPORTANCE OF ASD IDENTIFICATION

Concerns for Schools

- Growing number of due process cases regarding school districts' failure to accurately and promptly identify students with autism
- Appropriate evaluation and identification are necessary to ensure access to special education services
- Review of 45 due process related to ASD, school districts lost when they:
 - Did not evaluate all areas of need
 - Conducted evaluations that did not use autism specific tests
 - Developed inadequate IEPs
 - Did not involve parents in the IEP process
 - Did not have school personnel trained in autism

(Ikeda, 2002; Noland & Gabriels, 2004; IDEIA, 2004)

Necessity of Identification

- School psychologists are increasingly called upon to identify students with autism and recommend appropriate services in the schools (Wilkinson, 2010, 2011)
- Majority of children with ASD are first identified by schools, not other agencies (Glascoe, 2000; Palfrey, Singer, Walker, & Butler, 1987; Yeargin-Allsopp et al., 2003)
 - 80% identified in schools, vs. 20% other diagnoses
- Early identification is vital, as research has shown that when interventions are provided at an early age outcomes for children can be improved (Crane & Winsler, 2008; Levy et al., 2007; National Research Council, 2001; Robins & Dumont-Mathieu, 2006)

Necessity of Identification

- 12-year study examining post-secondary outcomes for students with ASD
- Looked at graduates with ASD and their involvement in daily activities
 - Adult day centers, sheltered workshop, supported employment, competitive employment, college, volunteering, or a combination
- Intellectual disability was the main predictor of having a daily activity
- However, students **with** an intellectual disability had **better** outcomes than those without
 - Students who were lower functioning had extensive involvement in adult day centers and supported jobs
- 25% of high functioning students did not have any post-secondary activities

(Taylor & Seltzer, 2010)

DEVELOPMENT AND AUTISM

Language Development, 2-5 years

- Increase from 50 to 500+ words, 2-3 years
- Develop adjectives and pronouns, 2-3 years
- Increase from 2-word phrases to complex sentences, up to age 4
- Answer simple questions, 3-4 years
- Engage in reciprocal conversations
- Verbally describe experiences
- Incorporate nonverbal gestures into communication

(Mayo Clinic, 2012; PDE, 2009)

Social Development, 2-5 years

- Functional play increasing to symbolic or pretend play, age 2
- Imitation of play prior to age 3
- Turn taking, age 3
- Expressing appropriate affection, age 3
- Concept of a “best friend”, age 4
- Cooperation during play, 4-5 years
- Label feelings accurately
- Ask for help when needed
- Begin to resolve conflicts with peers

(Mayo Clinic, 2012; Carter, Davis, Klin, & Volkmar, 2005; PDE, 2009)

The Classic Triad

Communication	Socialization	Behavioral Differences
Limited language	Isolation from peers	Rocking or hand flapping/movements
Delayed language development	Difficulty making friends	Insistence on rules and routines
Difficulty having a conversation	Difficulty understanding social rules such as turn-taking	Exploring toys in a repetitive manner
Unusual use of language such as echoing others, repeating phrases, or repeating lines from television shows or movies	Difficulty reading others' emotions	Lining up toys
Language that is overly focused on topics of interest	Limited or unusual eye contact	Focus on wheels, lights, or other small parts of toys
Odd or unusual tone of voice	Difficulty using and interpreting facial expressions	Intense and narrow interests in certain activities/topics
Limited use of gestures	Difficulty with empathy or understanding others' perspectives	Over or under sensitivity to sensory input including smells, sounds, lights, textures, and touch
	Seems to be in his/her own world	

Recognizing ASD

- Negative Signs
 - Lack of appropriately developing communication and social skills
 - Easy to detect, but not always clearly attributable to ASD
 - Observable as early as 6-12 months
- Positive Signs
 - Behaviors typically associated with ASD
 - Stereotyped motor behaviors, unusual interests
 - Observable as early as 18-24 months
- Presence of both positive and negative signs help differentiate ASD from other developmental delays

(Filipek et al., 1999; Coonrod & Stone, 2005; Carter et al., 2005; Kanner, 1943)

Negative Signs

- Not showing anticipation of being picked up or held
- Lack of appropriate eye gaze or eye contact
- Not responding to name
- Lack of interest in social speech
- Lack of pointing to reference objects
- Lack of joint attention
- Lack of imitation
- Lack of functional and/or symbolic play
- Limited peer interactions
- Not meeting language and social milestones described previously

Carter et al., 2005; Kanner, 1943; Crane & Winsler 2008

Positive Signs

- Hand flapping
- Lining up toys/objects
- Restricted areas of interest
- Repetitive play
- Excessive mouthing of objects
- Over/under reaction to sounds and other sensory input
- Excessive sensory exploration of toys/objects

(Crane & Winsler 2008)

High vs. Low Functioning ASD

- Students who are nonverbal, have cognitive impairments, or are otherwise lower functioning tend to be identified sooner and more easily.
 - Characteristics of delayed/atypical language, social difficulties, and repetitive/stereotyped behaviors are easily observed.
 - Students are more likely to have been identified through Early Intervention.
- Students who are moderate or high functioning may be more difficult to identify and are identified at later ages.
 - Characteristics may be more subtle or may present in a variety of ways.
 - As school-age psychologists, you are more likely to be doing these evaluations.

Classic signs of Autism

- Toe walking
- Hand flapping
- Visual examination of toys
- Echolalia, scripted speech, or absent speech
- Repetitive play
- Difficulty with transitions or new environments
- Lack of interest in peers
- Limited or unusual eye contact
- Sensory sensitivities

Key Characteristics of HFA

- Impairments in communication
 - Impairments in social interactions
 - Restricted areas of interest/repetitive behaviors
 - Unusual responses to sensory experiences
 - Average or above cognitive skills and language ability
- Because they are higher functioning, the delays in communication and social interactions may look very different from children with 'classic' autism

Communication

- Difficulty understanding abstract language
- Difficulty understanding gestures, body language, and nonverbal cues
- Literal interpretation of language
 - Sarcasm, jokes, metaphors, idioms
- Language skills decrease in novel situations
- Lack of understanding- rules for language use in social situations
 - Initiation, shifting, repairing, ending conversations

(PaTTAN, 2002)

Communication

- Proximity issues and lack of body awareness/orientation when talking to others
- Difficulties with word retrieval
- Restricted patterns of word combinations
 - Certain phrases frequently inserted
 - Memorized social jargon
- Conversation focuses on specific topics
- Difficulty telling a narrative story
- Volume, pitch, tempo, voice modulation difficulties

(PaTTAN, 2002)

Social Interaction

- Deficits are different from one child to another
 - Socially isolated
 - Overly interested in peers
- Difficulty making friends
- One-sided conversations
- Unable to take turns or not be “first”
- Arguing with teachers/peers
- Difficulty understanding others’ perspectives
- May appear naïve
- May be aware they are “different”

Social Interaction

- Impaired Theory of Mind
 - Difficulty understanding the thoughts, feelings, and beliefs of others
 - Difficulty predicting the actions of others
 - Difficulty using words to describe one’s own feelings
 - Difficulty understanding non-literal language
- Weak Central Coherence
 - Tendency to focus on details and miss the big picture
 - Difficulty understanding social situations

(Aspy & Grossman, 2008)

Restricted areas of interest

- Intense interests in circumscribed topics
- Restricted patterns of behavior
 - Topics are learned by rote, sometimes without comprehension
- Insistence on following rules and routines
- Insistence that **others** follow rules and routines

(PaTTAN, 2002)

Restricted areas of interest

- Dependence on routine and sameness
- Obsessions about certain topics
- Converses well when on these topics
- Converses poorly on other topics
- Continually reverts conversations back to areas of interest

Other Characteristics

- Motor delays
 - Posture delays
 - May appear uncoordinated
 - Awkward gait when walking
 - Fine motor delays
- Sensory regulation difficulties
- Difficulty **generalizing** skills to new environments
- May not perform well under pressure

(PaTTAN, 2002)

Other Characteristics

- Problem Solving
 - Literal, stuck thinking, only one solution to a problem
- Difficulty regulating emotions
 - Extreme responses to changes or unexpected difficulties
- Comorbid with other psychiatric disorders:
 - Depression
 - Anxiety
 - Specific phobias
 - Obsessive Compulsive Disorder
 - ADHD

(Aspy & Grossman, 2008)

High Functioning Autism

Strengths

- Honesty
- Rule-following
- Rote memory
- Specific knowledge
- Verbal skills
- Visual skills

Challenges

- Perspective taking
- Social skills
- Comprehension
- Figurative language
- Organization/planning
- Problem-solving
- Emotional regulation

Girls with HFA

- Currently 1 in 42 boys, but only 1 in 189 girls
 - Girls' brain development may be more resilient
 - Genetic mutations are more severe and higher in number in girls than in boys with the same level of impairment
 - Female brains require more genetic alterations than male brains to produce symptoms (Jacquemont et al., 2014)
- HFA in girls is often more difficult to detect
 - In a study of 493 HFA boys and 100 HFA girls, girls showed different symptoms, and fewer signs of symptoms, traditionally associated with autism (BBC News)
 - Girls are socialized with a "desire to please" which can result in more compliance in the classroom
 - Fewer tantrums, meltdowns, acting out, etc.
 - Restricted interests may be more subtle
 - Relational obsessions, where focus is on peers rather than objects
 - Can appear very appropriate to teachers and parents and so is not reported

AUTISM IDENTIFICATION IN SCHOOLS

Initial Stages

- Any evaluation for a child suspected of having autism should include a comprehensive evaluation in all areas of development
- Team of Professionals, including but not limited to:
 - School Psychologist
 - Speech Therapist
 - Occupational Therapist
 - Teachers
 - Parents
 - Other qualified professionals, as needed

Current Functioning

1. Language & communication assessment
2. Adaptive skills assessment
3. Cognitive assessment
4. Achievement assessment
5. Other assessments as per the individual child's needs

What to Look For on Referrals

- Social difficulties
- Good language
 - Has good language, but _____
- Highly developed pre-academic skills
 - Early readers and word callers
- Overwhelmed in large groups, crowds
- Picky eater
- Very interested in _____
- Obsessive tendencies

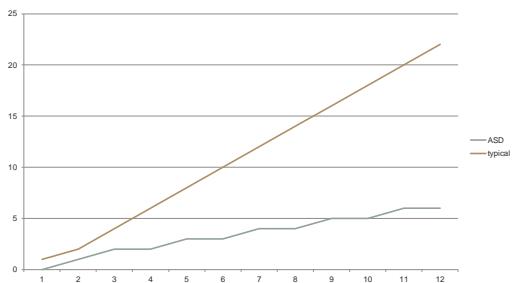
Unclear Referrals

- Behavior problems
 - Hitting peers
 - Yelling at/arguing with peers
 - Throwing items at peers
 - Arguing with teachers
- Bossiness
- Difficulty following directions
- Low frustration tolerance
- Difficulty focusing
- May or **may not** fail screeners
 - Not as sensitive for higher functioning students

Keep in Mind

- Delays and differences at younger ages **may be slight**
- This does not mean further evaluations are not needed or that the child does not need intervention
- Wording from the DSM-5 revisions:
 - "Symptoms must be present in early childhood (but may not become fully manifest until social demands exceed limited capacities)"

Social Skills



Language & Communication

- Observationally- look for atypical language patterns:
 - Echolalia, jargon, scripted language, difficulty with reciprocal conversation, focus on limited topics
 - Odd intonation patterns, abnormal volume, flat or exaggerated expressions
 - General strengths/weaknesses in communication
- A speech therapist may conduct:
 - Assessments of receptive & expressive language
 - Pragmatic language assessments

Adaptive Skills

- Adaptive Skills
 - Vineland Adaptive Behavior Scales (VABS)
 - Vineland SEECS, early childhood scale of social skills and adaptive behavior
 - Adaptive Behavior Assessment System- Second Edition (ABAS-II)
- If sensory concerns were noted, an Occupational Therapist may conduct:
 - Sensory Profiles, rating scales, functional assessments, etc.

Cognitive Measures

- Tests should be dependent on the child's communication level
- Always consider the validity of findings
 - Children may respond in unique ways and/or misunderstand wording on standardized questions
 - Be aware of scattered skills
- For nonverbal or severely language delayed children consider:
 - Comprehensive Test of Nonverbal Intelligence (CTONI)
 - Pictorial Test of Intelligence- Second Edition (PTI-II)
 - Universal Nonverbal Intelligence Measure (UNIT)

Achievement

- High functioning students may be tested with traditional measures
 - Again, consider the validity- whether they understood the tasks & language used during the assessment
 - Look for particular areas of strength/scattered skills
- For students who are nonverbal or more significantly impaired consider:
 - Functional observations of skills
 - Curriculum-based measures

The Evaluation

- During testing you may see...
 - Able to answer concrete questions such as "what?"
 - Difficulty with abstract questions such as "why?"
 - Extensive sharing about topics of interest
 - Unwilling to guess when unsure
 - Perfectionist tendencies
 - Non-distal pointing
 - [Video](#)

Difficulties in Evaluation

- Refusal to participate
- Following their own agenda with test items
 - [Video](#)
- Difficulty answering questions
- Delays in responses
- Focusing on the numbers in the corner of the test book
- Focusing on small pieces of a picture rather than the whole
 - Pointing out tires, car wheels, stones, etc.

Strengths in Evaluation

- What appears to be average or above-average performance
 - Cooperative, enjoying tasks, asking for more
 - Excelling in a structured 1:1 situation with adults only
 - [Video](#)
- For a student who excels with clear cut tasks you may see few red flags in a traditional evaluation
- Some children with HFA do very well with *adult* interaction, but struggle with *peer* interaction
- Do not discount **parent or teacher report** because a child looked good during an eval
- **Observations** are key!

The Evaluation- Conversations

- Difficulty with topic maintenance
 - Answers semi-related to topic
 - [Video](#)
- Directing questions to an area of interest
 - Not necessarily an atypical interest
- Unable to tell a story
 - Ask about what they did last night, what they do in preschool, who their friends are, etc.
 - Look for disorganized responses
- Difficulty with conversations during testing
 - Be careful of prompt level
 - We often ask questions and work very hard to keep a 1 sided conversation going that the student could not sustain on their own

The Evaluation- Conversations

- Consideration for the child's expressive language and cognitive levels should be given when looking at conversational skills
 - If a child is able to put together 3-5 word sentences, he/she should be able to
 - Respond to adult speech
 - Provide additional information to continue an exchange
 - Allow an opening for the adult to continue the conversation
 - Maintain at least 4 exchanges on topic

The Evaluation- Conversations

- Conversation ability can look very good when the child is conversing about their interests or controls the conversation
- [Child in control](#)
- Conversational ability can look very different depending on how much support **you** give
- [Direct questions](#)
- [Questions and prompts](#)
- [Open-ended statements](#)

Autism Identification

- Screening
- Observations
- Developmental history
- Behavior & social skills assessments
- Rating scales
- Diagnostic evaluation measures

Sensitivity & Specificity

- Sensitivity: If a child has ASD, how often will they test positively for ASD? (True positive)
- Specificity: If a child does not have ASD, how often will they test negatively for ASD? (True negative)

	Has ASD	Not ASD
Tested positive (failed test)	True Positive	False Positive Type I Error
Tested negative (passed test)	False Negative Type II Error	True Negative



Screening, Level I

- School wide screening would be ideal, but there is a lack of universal screening measures for children past early preschool age
- Modified Checklist for Autism in Toddlers, Revised (M-CHAT-R)
 - Recommended by the AAP and Best Practices, but not suitable for children over 3
 - High false positive rate
- Awareness
 - Creating an environment rich with autism knowledge
- Referrals may not be autism-specific
 - May be for problem behaviors, tantrums, difficulty participating or not following teacher directions.

Screening, Level II

- Screening at the student level
- Social Responsiveness Scale (SRS)
- Social Communication Questionnaire (SCQ)
 - Sensitivity is poor for children under age 7 (Corsello et al., 2007)
- Autism Spectrum Rating Scales (ASRS)
 - Short form
- Social Skills Improvement System (SSIS)
 - Includes autism-specific information and subscales

Observations

- Unstructured
 - Observe characteristics during standardized testing, in the classroom, and during social times
 - Requires familiarity with core features of ASD
- Structured
- Childhood Autism Rating Scale (CARS-2)
 - Can be used to structure your observation and provide a scoring system to quantify characteristics noted
 - Standard form
 - High Functioning form

(Levy et al., 2007; Schopler et al., 2010)

Observations

- HFA in school may not always be easy to spot
- You may see other behaviors:
 - Sadness/Crying- [Video](#)
 - Inattentive Behavior- [Video](#)
 - Withdrawn Behavior
 - Shyness
 - Acting out
 - Bossiness
 - Acting as the teacher

Observations

- Peer interactions
 - May be isolated by preference
 - May be isolated because of peer rejection
 - May be inappropriate in their initiations
 - May stay very close to peers in an attempt to join in
 - Play may be imitative
 - They may be overly excited when around peers
 - May try to control play of other peers
 - May play very well when related to interests
 - Is play parallel or interactive?
 - If interactive, does child understand the unspoken rules of the interaction?

Observations

Strengths

- May thrive on the routine
- May enjoy learning
- [Video](#)
- May participate in songs and choral responding that is well known
- May enjoy adult attention and interaction

Challenges

- May have difficulty with transitions
- May be overwhelmed by sensory input
- May be upset when not called on
- [Video](#)
- May argue with adults about rules & routine

Observations

- Traditional red flags also may be present
 - Hand flapping or finger movements
 - [Video](#)
 - Visual examination of toys
 - [Video](#)
 - Interest in toys/activities with numbers/letters/shapes
 - Interest in toys/play schemes at a lower age level
 - Repetitive language
 - Scripted language
 - Overly formal language
 - Odd intonation, pitch, or modulation when talking
 - Tantrums or acting out over 'little' things

Developmental History

- Autism Diagnostic Interview, Revised (ADI-R)
 - Extended interview designed to elicit a full range of information needed to produce a diagnosis of ASD
 - Interview questions address a child's background, early development, behavior, language acquisition, social development, repetitive and stereotypical behaviors, and current functioning
 - Done with a parent or care-taker
 - Time-intensive (90-150 minutes)
 - Can be cost prohibitive
- Due to the time required to administer the ADI-R, many practitioners choose to use pieces of the interview, or to simply construct their own developmental interview, addressing the presence or absence of autism characteristics.
- Childhood Autism Rating Scale (CARS-2)
 - Now has a parent questionnaire that can give added information

Behavior & Social Skills

- Behavior
 - Functional Behavior Assessment (FBA)
 - Observations, teacher report
 - BASC-2
 - Connors Rating Scales
 - Can help differentiate ED students
- Social Skills
 - Social Skills Improvement System (SSIS)
 - Includes autism-specific information and subscales
 - Document social difficulties
 - Social Responsiveness Scale (SRS)

Autism Rating Scales

- Parent and teacher completed rating scales
- Gilliam Autism Rating Scale, Second Edition (GARS-2)
- Asperger Syndrome Diagnostic Scale (ASDS)
- Gilliam Asperger's Disorder Scale (GADS)
- Follow up studies of the GARS-2 and the ASDS:
 - Questionable validity
 - Low sensitivity rates
 - Generally not recommended for diagnostic purposes
- Problematic to use tests designed to assess Asperger's disorder when this is no longer a stand-alone diagnosis

(Norris & Lecavalier, 2010; South et al., 2002)

Autism Rating Scales

- Autism Spectrum Rating Scale (ASRS)
 - Parent and teacher completed rating scales
 - Improved validity and reliability over older measures
 - Increased sensitivity
 - Normed against typically developing children as well as children with ASD
 - Aligned with DSM-5 definition of ASD
 - Follows two-factor model of ASD
 - Social Affect
 - Restricted/Unusual Behaviors

(Goldstein & Naglieri, 2010; 2011)

When to identify...

- A student could be identified as having autism at this point if all data converges on autism and the evaluation team is in agreement
- If there are still questions or conflicting data, a diagnostic evaluation should occur
- Diagnostic evaluations are generally best practice, even if all data is indicative of Autism

(Levy et al., 2007)

Diagnostic Testing

- Autism Diagnostic Observation Schedule, Second Edition (ADOS-2)
 - Direct observation of essential deficits of autism
 - Interaction with student
 - Operationalized criteria
 - Standardized Modules, based on level of language
 - Scoring algorithm follows 2-factor criteria (DSM-5)
 - Social affect
 - Restricted and repetitive behaviors
 - Time 30-45 minutes
- The ADI-R is also considered diagnostic

(Akshoomoff, Corsello, & Schmidt, 2007; Ikeda, 2002; Levy et al., 2007; Lord et al., 1999; 2000; 2012; Oosterling et al., 2010)

Autism Diagnostic Observation Schedule

- ADOS-2
- A semi-structured, standardized assessment of communication, social interaction, play, and restricted and repetitive behaviors
- Considered the gold standard in research and identification
- Requires a 2-day intensive workshop in order to be certified
 - Or the purchase of a DVD training set
- Requires extensive practice to establish inter-rater reliability

WPS Publishing

Administration requirements

- Toddler Module
 - Provides ranges of concern reflecting behaviors associated with ASD
 - 12-30 months, without consistent phrase speech
- Module 1
 - 31+ months, without consistent phrase speech
- Module 2
 - Children of any age, with phrase speech but not verbally fluent
- Module 3
 - Children and adolescents who are verbally fluent
- Module 4
 - Verbally fluent older adolescents and adults
- Modules 1-4 provide a cut score and a comparison score

Module 1 Activities

- Free play
- Response to name
- Response to joint attention
- Bubble play
- Anticipation of a routine with objects
- Responsive social smile
- Anticipation of social routine
- Birthday party
- Snack

Module 2 Activities

- Construction task
- Response to name
- Make-believe play
- Joint interactive play
- Conversation
- Response to joint attention
- Demonstration task
- Description of a picture
- Telling a story from a book
- Free play
- Birthday party
- Snack
- Anticipation of a routine with objects
- Bubble play

Module 3 Activities

- Construction Task
- Make-Believe Play
- Joint Interactive Play
- Demonstration Task
- Description of a Picture
- Telling a Story from a Book
- Cartoons
- Conversation and Reporting
- Emotions
- Social Difficulties and Annoyance
- Break
- Friends and Marriage
- Loneliness
- Creating a Story

Free Play (Modules 1 & 2)

Focus of Observation:

- The child's use of toys
 - Examples: functional play, symbolic play, length of time with activities
- Spontaneous interactions with his/her parent or the examiner
 - Examples: joint referencing, giving, showing, seeking attention, getting help
- Repetitive behaviors

Birthday Party (Modules 1 & 2)

• With materials, the examiner leads a birthday party sequence including:

- Making a cake
- Putting on and lighting candles
- Singing happy birthday and blowing out candles
- Feeding the cake to the baby
- Basic pretend play

• Note: This sequence is scripted for standardization purposes.



Birthday Party (Modules 1 & 2)

Focus of Observation:

- Symbolic and functional play
- The child's ability to join in activities
- Restricted interests, adherence to routines
- Pretend play
 - Does the child act as if the doll is a real baby?
 - Does the child contribute to the party?
 - Will the child imitate actions or follow prompts to participate?

Make-Believe Play (Modules 2 & 3)

- The examiner:
 - Gives the child toys and asks them to play.
 - Asks questions as the child plays.



Make-Believe Play (Modules 2 & 3)

Focus of Observation:

- Does the child:
 - produce sequences of action?
 - use toys beyond the most obvious intention?
 - pretend that dolls interact with each other?
 - produce imaginative sequences of actions?
 - display any repetitive or sensory interests in the materials?
 - make social overtures or use spontaneous language, facial expressions or gestures while interacting with the examiner?

Conversation (Module 2)

- During Make-believe and Joint Interactive Play, the examiner offers simple comments about materials and offers the child opportunities/time to respond.
- If appropriate, topics outside of evaluation materials such as pets, trips, favorites, etc. are introduced.
- Wait time is provided to see if child maintains interaction or follows up on comments.
- The examiner avoids question and answer style interactions.

Conversation (Module 2)

Focus of Observation:

- The extent to which the child builds on the examiner's statements and makes leading statements to facilitate back and forth conversation
- Is the child capable of carrying on a conversation for 3-4 exchanges while remaining on topic, allowing the examiner to respond, etc.?

Conversation and Reporting (Module 3)

- Provide leads, guides, and prompts on a topic. Make use of child's interests by incorporating early comments (but **do not** focus on strongest or restricted interests!)
- Provide an opportunity to describe a nonroutine event that actually occurred in the child's life
- Avoid question-answer style, and attempt to build conversation through statements about activities, interests, or feelings

Conversation and Reporting (Module 3)

Focus of Observation:

- The extent to which the child builds on the examiner's statements, elaborate on his or her own statements to provide leads for you, and take a full role in back-and-forth conversation, particularly about a topic outside of the immediate context.
- Whether the child reports routine and nonroutine events, and how they describe relationships and emotions.
- Observe features of the child's communication, including his or her use of gaze, facial expression, intonation, and gesture.

Emotions, Social Difficulties and Annoyance, & Friends, Relationships, and Marriage (Module 3)

- Standardized interview questions to assess the child's insight into and understanding of typical social relationships, feelings, behaviors, and friendship
- Sample questions:
 - Have you ever had problems getting along with people at school?
 - Have you ever been teased or bullied? Why, do you think?
 - What does being a friend mean to you? How do you know someone is your friend?
 - How is a friend different from someone whom you just go to school with?
 - Why do you think some people get married or live with a girlfriend or boyfriend when they grow up?

Emotions, Social Difficulties and Annoyance, & Friends, Relationships, and Marriage (Module 3)

- Focus of observation
- Whether the events or objects that elicit emotions are social in nature or not
- Facial expressions or creative use of language when describing emotional responses
- The level of insight the child possesses regarding their social difficulties
- The appropriateness and implications of the child's feelings and behaviors
- Understanding of and desire to engage in various social relationships

Considerations

- The most important piece of autism identification is an evaluation team that understands and is familiar with ASD.
- Consider developing a team who is highly trained and familiar with ASD who conduct these evaluations as needed.
- If you are considering being trained in the ADOS-2, take frequent opportunities to practice on typically developing children, children with learning disabilities/delays, and children with varying levels of ASD.
- This will increase your diagnostic accuracy and provide a better understanding of how different children perform on this measure.

(Levy et al., 2007; Lord & Corsello, 2005; Schwartz & Davis, 2008)

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