

AUTISM SCREENING



Overview

- What is autism
- What are the early signs of autism
- Why should we screen all children for developmental disorders, including autism
- When should we screen
- How do we screen
- What do we do with a positive screen
- Additional resources

What is Autism?

- Autism is a complex neurological disorder that negatively impacts the way in which a child interacts with his or her environment
- Typically occurs before 3 years of age
- Can be associated with language and social regression (20-40%)
- Three core features:
 - Impairment in social interactions
 - Impairment in communication
 - Repetitive and/or restricted interests and behaviors



Autism in the USA

- Autism is the fastest growing developmental disorder in the country
- Occurs 1 in 110 births (all ASDs) CDC - MMWR 2009
- Parents of children with ASDs generally identify concerns by the age of 12 to 18 months
- Average age at which children are diagnosed with an ASD is 4 1/2 years
- M:F 3-5:1

Current ASDs or Pervasive Developmental Disorders (DSM-IV-TR; APA 2000)


- Autistic Disorder
- Asperger's Disorder
- Pervasive Developmental Disorder – Not Otherwise Specified
- Childhood Disintegrative Disorder
- Rett's Disorder

Autistic Disorder

- Diagnostic Criteria:
 - Differences in development begin before the age of 3
 - Differences are not caused by some other known disorder or illness
 - The person meets at least 6 criteria in three areas:
 - Impairment in social interaction
 - Impairment in communication
 - Restricted, repetitive, stereotyped patterns of interests and activities

Autistic Disorder (cont.)

- **Qualitative Social Impairment:**
(a person must show at least 2 of these)
 - ▣ Impaired nonverbal communication (eye contact, gestures, facial expressions)
 - ▣ Failure to develop peer relationships
 - ▣ Lack of spontaneous seeking to share enjoyment and interests with others
 - ▣ Lack of social or emotional reciprocity (understanding of another)




Autistic Disorder (cont.)

- **Qualitative Communication Impairment** (a person must have at least 1 of these):
 - ▣ Impaired development of spoken language (without gestures)
 - ▣ Impairment in ability to have a conversation
 - ▣ Stereotyped, repetitive use of language
 - ▣ Lack of imaginative, social or imitative play

Autistic Disorder (cont.)

- **Restricted, Repetitive Behaviors, Interests and Activities** (a person must have at least 1 of these):
 - ▣ Abnormal preoccupations
 - ▣ Inflexible adherence to specific, nonfunctional routines or rituals
 - ▣ Stereotyped repetitive motor movements
 - ▣ Persistent preoccupation with parts of objects (rather than the whole object)



Early Signs of ASDs


- **Retrospective Studies**
 - ▣ Parents' retrospective reports
 - ▣ Analysis of early home videos
- **Prospective Studies**
 - ▣ Infant siblings research
 - Studies of infants with an older sibling with ASD
 - These infants have an increased risk of developing ASDs (5 to 10%)

Early Signs of ASDs – Parent Reports

- Delayed speech and language development
- Lack of responsiveness
 - ▣ When the child's name is being called
- Concerns about a possible hearing problems

Early Signs of ASDs – 1st Birthday Party Videotapes

- **4 behaviors identified children with Autism**
 - ▣ Pointing
 - ▣ Showing objects
 - ▣ Looking at others
 - ▣ Orienting to name



(Osterling & Dawson, 1994)

Early Signs of ASDs – Prospective Studies

(Zwaigenbaum, et al Pediatrics 2009)

- Social-communication (lack of or atypicalities in)
 - Eye gaze and shared/joint attention
 - Affect and its regulation (less positive and more negative affect)
 - Social/reciprocal smiling
 - Social interest and shared enjoyment (in absence of physical contact such as tickling)
 - Orienting to name called
 - Development of gestures (eg, pointing)
 - Coordination of different modes of communication (eg, eye gaze, facial expression, gesture, vocalization)



Early Signs of ASDs – Prospective Studies

(Zwaigenbaum, et al Pediatrics 2009)

- Play
 - Reduced imitation of actions with objects
 - Excessive manipulation/visual exploration of toys and other objects
 - Repetitive actions with toys and other objects



Early Signs of ASDs – Prospective Studies

(Zwaigenbaum, et al Pediatrics 2009)

- Language and cognition (lack of or atypicalities in)
 - Cognitive development
 - Babbling, particularly back and forth social babbling
 - Language comprehension and production (eg, odd first words or unusually repetitive)
 - Unusual prosody/tone of voice
- Regression/loss of early words and/or social-emotional engagement/connectedness

Early Signs of ASDs – Prospective Studies

(Zwaigenbaum, et al Pediatrics 2009)

- Visual/other sensory and motor
 - Atypical visual tracking, visual fixation (eg, on lights) and unusual inspection of objects
 - Underreactive and/or overreactive to sounds or other forms of sensory stimulation
 - Decreased activity levels and delayed fine and gross motor skills
 - Repetitive motor behaviors and atypical posturing/motor mannerisms
- Atypicalities in regulatory functions related to sleep, eating, and attention

Why Should We Screen

- Diagnosing developmental disorders is critical to children and their families
- Screening for and diagnosing developmental disorders is an integral function of the primary care medical home and an appropriate responsibility of all pediatric health care professionals
- Early identification should lead to further evaluation, diagnosis, and treatment
- Federal law (IDEA) mandates early identification of and intervention for developmental disabilities

AAP Policy Statement, Pediatrics, Vol 118, July 2006, 405-420

Why Screen Specifically for Autism

- Research tells us that early identification and treatment of autism brings dramatic improvement for most individuals
- Every dollar spent on a child before the age of five will save \$35-50 dollars over the course of that child's lifetime

Early Intervention Is Important for Children with Autism

- Early intervention provided to children with ASD/PDD before 3.5 years of age is more effective than after 5 years (Fensk, et al 1985 Harris and Handleman, 2000)
- Intervention provided before 3 years may be even more effective (McGee, 1999)
- Early Social Interaction Project (Woods & Wetherby, 2006)
 - 17 children who entered in 2nd year vs 18 who entered services in the 3rd year
 - 2nd year group had significantly better performance on verbal and nonverbal development but similar in play
- Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model (Dawson, et al Pediatrics 2010)
 - Improved cognitive and adaptive behavior and reduced severity of ASD diagnosis

When Should We Screen

- Developmental surveillance should be performed at every well-child visit
- Standardized developmental screening tests should be administered regularly at the 9, 18, and 30* month visits (*If there is not a 30 month visit, this should be done at the 24 month visit)
- At the 18-month visit, an autism specific tool should also be administered (earlier if there are risk factors present or whenever a concern about autism is raised)
- Repeat screening at the 24 or 30-month visit

AAP Policy Statement, Pediatrics, Vol 118, July 2006, 405-420 and Vol 120, Nov 2007, 1183-1215

How Should We Screen

- Suggested Assessment Tools
 - General Behavior and Development Surveillance
 - Watching children
 - Listening to parents concerns
 - Asking non-standardized questions
 - General Behavior and Development Screens
 - Ages and Stages Questionnaire (ASQ)
 - Parents Evaluation of Developmental Status (PEDS)

Ages & Stages Questionnaire

- Parent completed questionnaire
- Series of 19 age-specific questionnaires screening
 - Communication, gross motor, fine motor, problem-solving, and personal adaptive skills
- Results in pass/fail score for domains
- Ages 4 – 60 months
- Administration time: 10-15 minutes for parent, 2-5 minutes for provider
- Cost-\$4.60 for materials and administration time

Parents Evaluation of Developmental Status (PEDS)

- Parent completed questionnaire
- 10 questions about parent concerns about behavior, development, and academic progress
- Scores high, moderate, low risk for problems
- Ages birth-8 years
- Administration time 2 minutes if parents complete independently
- Cost-\$1.19 material and administration time

Autism Specific Screening Tools

- ❖ CHAT Baron-Cohen et al 1992
 - ❖ Parent completed questionnaire and provider administered items (5 minutes)
- ❖ Modified Check List for Autism in Toddlers(M-CHAT) Robins et al 2001
 - ❖ Parent completed questionnaire (5-10 minutes)
- ❖ PDD Screening test – Siegel 1996
 - ❖ Parent completed questionnaire (10-15 minutes to complete, 5 minutes to score)
- ❖ Screening Tool for Autism – Stone et al 2000
 - ❖ Directly administered tool (20 minutes)

Autism Specific Screening Tools (cont.)

- The Infant/Toddler Checklist from the Communication and Symbolic Behavior Scales Developmental Profile

Modified Checklist for Autism in Toddlers (M-CHAT)

- parent report checklist
- children ages 16 months to 30 months old
- 23 items (yes/no)
- Six critical items were identified
- Positive screen: any 3 of the total items or any 2 of the 6 critical items failed

M-CHAT

- Please fill out the following about how your child **usually** is. Please try to answer every question. If the behavior is rare (e.g., you've seen it once or twice), please answer as if the child does not do it.
- 1. Does your child enjoy being swung, bounced on your knee, etc.?
- 2. Does your child take an interest in other children?**
- 3. Does your child like climbing on things, such as up stairs?
- 4. Does your child enjoy playing peek-a-boo/hide-and-seek?
- 5. Does your child ever pretend, for example, to talk on the phone or take care of dolls, or pretend other things?

M-CHAT (cont.)

- 6. Does your child ever use his/her index finger to point, to ask for something?
- 7. Does your child ever use his/her index finger to point, to indicate interest in something?**
- 8. Can your child play properly with small toys (e.g. cars or bricks) without just mouthing, fiddling, or dropping them?
- 9. Does your child ever bring objects over to you (parent) to show you something?**
- 10. Does your child look you in the eye for more than a second or two?
- 11. Does your child ever seem oversensitive to noise? (e.g., plugging ears)

M-CHAT (cont.)

- 12. Does your child smile in response to your face or your smile?
- 13. Does your child imitate you? (e.g., you make a face-will your child imitate it?)**
- 14. Does your child respond to his/her name when you call?**
- 15. If you point at a toy across the room, does your child look at it?**
- 16. Does your child walk?
- 17. Does your child look at things you are looking at?

M-CHAT (cont.)

- 18. Does your child make unusual finger movements near his/her face?
- 19. Does your child try to attract your attention to his/her own activity?
- 20. Have you ever wondered if your child is deaf?
- 21. Does your child understand what people say?
- 21. Does your child sometimes stare at nothing or wander with no purpose?
- 23. Does your child look at your face to check your reaction when faced with something unfamiliar?

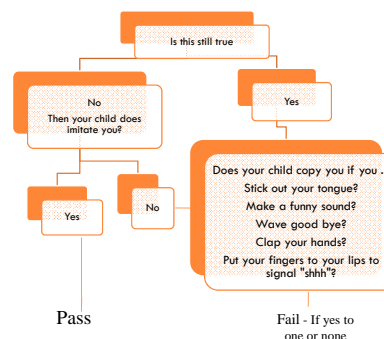


M-CHAT Follow Up Interview

- Increases the specificity of the M-CHAT
- Administer only those items for which the parent indicated behavior that demonstrates risk for ASDs
- Score interview items in the same manner as the M-CHAT
- Failure of 2 critical items or any 3 total items warrants a referral to a specialist

Follow Up Interview – question 13

(You reported that ___ does not usually imitate you)



Checklist for Autism in Toddlers (CHAT)

- Combination of parent report checklist and provider administered items
- Section A: completed by parent
 - ▣ 9 items
- Section B: physician or healthcare provider
 - ▣ 5 direct-observation items

Checklist for Autism in Toddlers (CHAT)

- Section A: To be completed by parent
 1. Does your child enjoy being swung, bounced on your knee, etc?
 2. Does your child take an interest in other children?
 3. Does your child like climbing on things, such as up stairs?
 4. Does your child enjoy playing peek-a-boo/hide-and-seek?
 5. **Does your child ever pretend, for example, to make a cup of tea using a toy cup and teapot, or pretend other things?**
 6. Does your child ever use his/her index finger to point, to ask for something?

CHAT (cont.)

- Section A (cont.)
 7. **Does your child ever use his/her index finger to point, to indicate interest in something?**
 8. Can your child play properly with small toys (e.g cars or bricks) without just mouthing, fiddling or dropping them?
 9. Does your child ever bring objects over to you (parent) to show you something?



CHAT (cont.)

- Section B: Physician or healthcare provider
 1. During the appointment, has the child made eye contact with you?
 2. **Get the child's attention, then point across the room at an interesting object and say "Oh Look! There's a (name of toy)!" Watch child's face. Does the child look across to see what you are pointing at?**
 3. **Get the child's attention, then give child a miniature toy cup and teapot and say "Can you make me a cup of tea?" Does the child pretend to pour out tea, drink it, etc.?**

CHAT (cont.)

- Section B (cont.)
 4. Say to the child "Where's the light?", or "Show me the light". Does the child point with his/her index finger at the light?
 5. Can the child build a tower of bricks? (If so, how many_____)

CHAT scoring

- Key items
 - Section A
 - A5: Pretend play
 - A7: Protodeclarative pointing
 - Section B
 - B2: Following a point
 - B3: Pretending
 - B4: Producing a point



CHAT scoring

- High risk for autism: fail (no answer) A5,A7, B2, B3, B4
- Medium risk for autism: fail A7, B4 (but not in high risk group)
- Low risk for autism: Not in other two risk groups

Red Flags

- RED FLAGS that should always prompt an evaluation regardless of screening tool
 - No babbling, pointing, or gestures by 12 months
 - No single words by 16 months
 - No 2 word phrases by 24 months
 - ANY loss of language or social skills

What To Do With a Positive Screen or When Multiple Risk Factors or Red Flags are Present

- Refer for diagnostic evaluation and concurrently to Early Intervention/Early Childhood Education Services
- Provide parental education
- Detailed history and physical
 - Are there clues to the diagnosis
 - Are there co-morbid medical problems, e.g. Seizures, Sleep disturbances, GI
- Hearing screen
- Consider lead screening (always get if PICA is present)
- Consider alternative diagnosis



What To Do With a Positive Screen (cont.)

- Medical Team Diagnostic Evaluation
 - Suggested for all children with possible ASD
- Major Centers in Oregon
 - CDRC-Portland, Eugene, Medford
 - Emanuel Children's Hospital
 - The Artz Center (Portland Hearing and Speech Institute)
 - Providence Neurodevelopmental Center for Children
 - Kaiser Permanente Developmental Pediatrics (KP patients only)

What To Do (cont.)

- **While waiting for a formal evaluation, give families local referrals and resources**
 - Consider local consultants (e.g. primary care providers who have an interest in child development)
 - Early intervention
 - Cacoon nurse
 - County Developmental Disability
 - Swindells Resource Center
(503-215-2429)



Additional Resources To Give To Families

- Autism society of Oregon
www.oregonautism.com
- Autism Society of America
www.autism-society.org
- Help Autism Now Society, HANS
www.helpautismnow.com
- First Signs
www.firstsigns.org
- Autism Speaks
www.autismspeaks.org
- Northwest Autism Foundation
www.autismnwaf.org

Summary

- Developmental surveillance and screening is important
- Autism specific screening should be done at all 18 month visits and again at 24 or 30 month visits
- Screening should include a validated instrument
- **Anyone with a positive screen should be referred for a formal medical evaluation and diagnosis and EI evaluation**
- Anyone with a positive screen should be given information on local resources
- Early identification and treatment of autism brings dramatic improvement for most individuals

Additional Resources

- Coding for developmental screening
 - 96110
- CHAT
 - www.autismresearchcentre.com/tests/chat_test.asp
- M-CHAT and follow up interview
 - http://www2.gsu.edu/~psydlr/Diana_L_Robins_PhD.html
 - www.firstsigns.org/downloads/m-chat.pdf
- The Infant/Toddler Checklist
 - www.brookespublishing.com/store/books/wetherby-csbsdp/CSBDP_Checklist.pdf