

## Screening for Autism Spectrum Disorders (ASD) Using the M-CHAT

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## Learning Objectives

- Understand the AAP practice guidelines for surveillance and screening for ASD
- Know how to do an ASD-specific screening using the M-CHAT
- Understand what referrals to make if there is a concerning result

## Epidemiology of ASD

- All racial and socioeconomic groups
- Prevalence: 1 in 150
- M:F ranges from 2.1:1 to 6.5:1



Pediatrics 2007;120(5):1183-1215

## Prevalence of ASD in WI

- Prevalence 5.2/1000 (1/190)
- 3.5:1 Male : Female ratio
- Median age of diagnosis in WI is 54 months



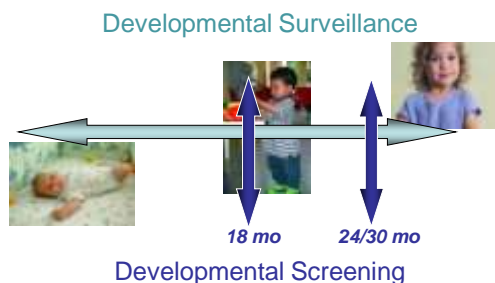
MMWR 2007

## Why Screen in Primary Care

- 44% of PCPs care for >10 children with ASD
- But only 8% routinely screen for it
- Allows for early intervention
- Allows for counseling about recurrence risk

Pediatrics 2007;120(5):1183-1215

## Surveillance and Screening for ASD



Adapted from AAP "Implementing Developmental Screening in the Medical Home" Webinar, April 20, 2009

## Pervasive Developmental Disorder (PDD)



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## Three Developmental Domains Affected

### Autistic Disorder

Communication  
 Social Behavior  
*6 or more DSM-IV-TR criteria met*

### PDD-NOS

Communication  
 Social Behavior  
*< than 6 DSM-IV-TR criteria met (sub-threshold)*

### Asperger Syndrome

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 Social Behavior

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## Social Development What to look for

- Less or no use of non-verbal behaviors
- Less or no relating to peers
- Less or no trying to share experiences and play with others
- Less or no social or emotional reciprocity

**Compared to most kids of same age**

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## Communication Development What to look for

- Less or no development of speech
- Less or no trying to join conversation
- Less or no social imitative or spontaneous make-believe play
- Repetitive, stereotyped, or idiosyncratic language

**Compared to most kids of same age**

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## Behavioral Development What to look for

- Very focused, restricted play
- Repetitive non-functional behaviors
- Stereotyped, repetitive motor mannerisms
- Persistent preoccupation with parts of objects

**Compared to most kids of same age**

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## Autistic Disorder

- Total of 6 characteristics
  - 2 social
  - 1 communication
  - 1 behavior
  - plus 2 from any domain

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## Asperger Syndrome

- Total of 6 characteristics
  - 2 social
  - 1 behavior
  - plus 3 from any domain
  - **and** no “clinically significant” impairment in communication or cognitive level

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## PDD-NOS

- Same set of characteristics
- But <6, or sub-threshold
- May still experience significant delay or functional impairment in one area

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## Expect Variation

Spectrum of characteristics

Spectrum of severity

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## Early Identification in Primary Care

- Routine general developmental surveillance and screening
- Routine ASD surveillance and screening

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Pediatrics 2007;120(5):1183-1215

## Surveillance for ASD

- Occurs **with** general developmental surveillance

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Pediatrics 2007;120(5):1195

## On History

- When eliciting parent concerns ask about
  - *Behavior*
  - *Social* developmental milestones
  - *Emotional* developmental milestones
- Assess family history of ASD
  - Risk 10x higher in younger siblings of individual with ASD

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Pediatrics 2007;120(5):1195

## On Exam

- Responds to name (12 mo.)
- Follows a point (12,18, 24 mo.)

19  
Pediatrics 2007;120(5) 1195

## RED FLAGS



### 6 months

- No big smiles
- No other warm, joyful expressions

### 9 months

- No back-and-forth sharing of sounds
- No back-and-forth sharing of facial expressions

20  
Pediatrics 2007;120(5) 1183-1215, CDC "Autism: Learning the Signs and Acting Early"

## RED FLAGS



### 12 months

- No babbling
- No pointing or other gestures

### 16 months

- No single words

21  
Pediatrics 2007;120(5) 1183-1215, CDC "Autism: Learning the Signs and Acting Early"

## RED FLAGS



### 24 months

- No 2-word spontaneous phrases

### Loss of language at any age

### Loss of social skills at any age

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Pediatrics 2007;120(5) 1183-1215, CDC "Autism: Learning the Signs and Acting Early"

## RED FLAGS



...reason for immediate referral to  
Early Intervention  
or Early Childhood Program

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CDC "Autism: Learning the Signs and Acting Early"

## Screening for ASD

- With ASD-specific tool
  - 18 months
  - 24 months
  - And anytime there is a concern

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Pediatrics 2007;120(5) 1183-1215

## Screening Tools for ASD

- >18 months – Several validated tools
  - Including M-CHAT
- <18 months – *Tools in development*
  - e.g., Infant/Toddler Checklist from CSBC-DP

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## Modified Checklist for Autism in Toddlers (M-CHAT)

- Designed for early detection of ASD
- Can be used in primary care setting
- 16-30 mos. validated
- 30-48 mos. being validated
- Free, easy to obtain, easy to use:  
[www2.gsu.edu/~psydlr](http://www2.gsu.edu/~psydlr)

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## M-CHAT

- Goal is to maximize sensitivity
- AAP reported Sensitivity = 85%-87%, Specificity = 93%-99%
- Positive predictive power is greater at 24mo than at 18mo<sup>1</sup>

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<sup>1</sup>Pandey et al., 2008

## M-CHAT

- Sensitivity
  - the probability of a positive test result among individuals with the disorder
- Specificity
  - the probability of a negative test result among children without the disorder

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## M-CHAT Questionnaire Excerpt

**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 knees, etc.?	Yes No
2. Does your child take an interest in other children?	Yes No
3. Does your child like climbing on things, such as up stairs?	Yes No
4. Does your child enjoy playing peek-a-boo/hide-and-seek?	Yes No
5. Does your child ever pretend, for example, to talk on the care of a doll or pretend other things?	Yes No
6. Does your child ever use his/her index finger to point,	Yes No

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## M-CHAT Scoring

1. No	6. No	11. Yes	16. No	21. No
<b>2. NO</b>	<b>7. NO</b>	12. No	17. No	22. Yes
3. No	8. No	<b>13. NO</b>	18. Yes	23. No
4. No	<b>9. NO</b>	<b>14. NO</b>	19. No	
5. No	10. No	<b>15. NO</b>	20. Yes	

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## M-CHAT Follow-up Interview

- M-CHAT designed for sensitivity
- Concerning result: use follow-up interview
- Structured follow-up interview
  - Clarifies responses
  - Reduces the rate of false positives
  - Ensures appropriate referrals are made

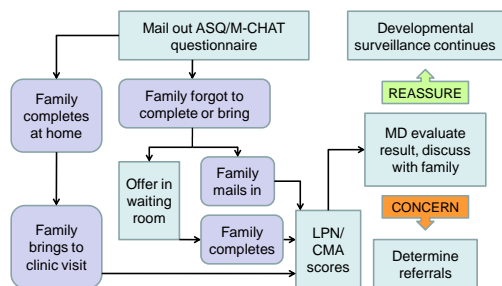
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## Implementing M-CHAT with ASQ

- 9 month** ASQ
- 18 month** ASQ and M-CHAT
- 24 months** ASQ and M-CHAT

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## Example Workflow



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## AAP Recommends

- Provide parent education
- Refer for audiology evaluation
- Refer to Early Intervention(EI) (0-3) **OR** Early Childhood Education Services (3-6)
- Refer for diagnostic evaluation
- Schedule follow up visit

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Pediatrics 2007;120(5) 1183-1215

## When to Refer to EI or Early Childhood Program

- Parental concern
- Physician concern
- Or concerning screen

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Pediatrics 2007;120(5) 1183-1215

## When to Refer for Diagnostic Evaluation

- When the concerning result is supported by one of the following:
  - Structured follow-up interview
  - A standardized, validated level two ASD-specific screening tool

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Pediatrics 2007;120(5) 1183-1215

## Refer for Diagnostic Evaluation

- Team of specialists with expertise in ASD
- Developmental Pediatrician
- Child Psychologist
- Child Neurologist
- Child Psychiatrist

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## Identifying Diagnosticians

- How diagnosis made and by whom may impact coverage and eligibility
- Insurance coverage may impact choice of diagnostician(s)
- Local Regional Center for CYSHCN can help you with insurance coverage and program eligibility questions

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## WI Regional Centers

for Children and Youth with Special Health Care Needs



<http://dhs.wisconsin.gov/health/children/resourcecenters>

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## Ask a Question



### Viewing online?

- Click on the envelope above
- Question emailed to Training Team
- Questions answered by expert on topic
- Response within 2-3 weeks



### Viewing at a live training?

- Organizer shares questions with Training Team

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## Acknowledgements

- Combating Autism Act Initiative State Demonstration Grant, MCHB
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Children and Youth with  
Special Health Care Needs

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