

Autism Spectrum Disorders (Part 1): Case Finding and Screening

Stephen E. Brock, Ph.D., NCSP
California State University, Sacramento



Michael Slone, M.S., NCSP
Irvine Unified School District



Presentation Outline

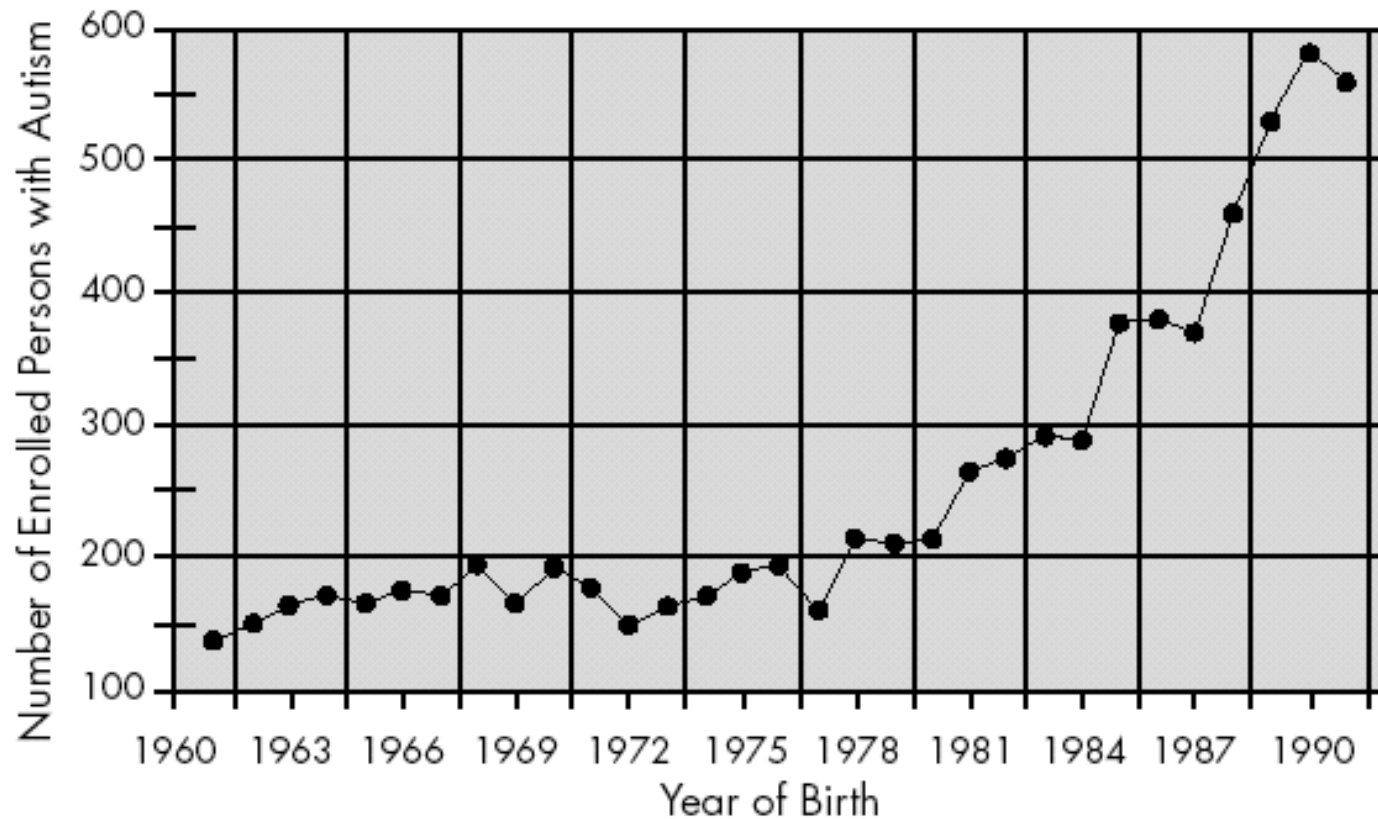
- # Introduction: Reasons for Increased Vigilance
- # Diagnostic Classifications and Special Education Eligibility
- # School Psychologist Roles, Responsibilities, and Limitations
- # Case Finding
- # Screening and Referral

Introduction: Reasons for Increased Vigilance

- # Autistic spectrum disorders are much more common than previously suggested.
 - 60 (vs. 4 to 6) per 10,000 in the general population (Chakrabarti & Fombonne, 2001).
 - 600% increase in the numbers served under the autism *IDEA* eligibility classification (U.S. Department of Education, 2003).
 - 95% of school psychologists report an increase in the number of students with ASD being referred for assessment (Kohrt, 2004).

Increased Prevalence in California

Figure 1. *Distribution of birth dates of regional center eligible persons with autism*



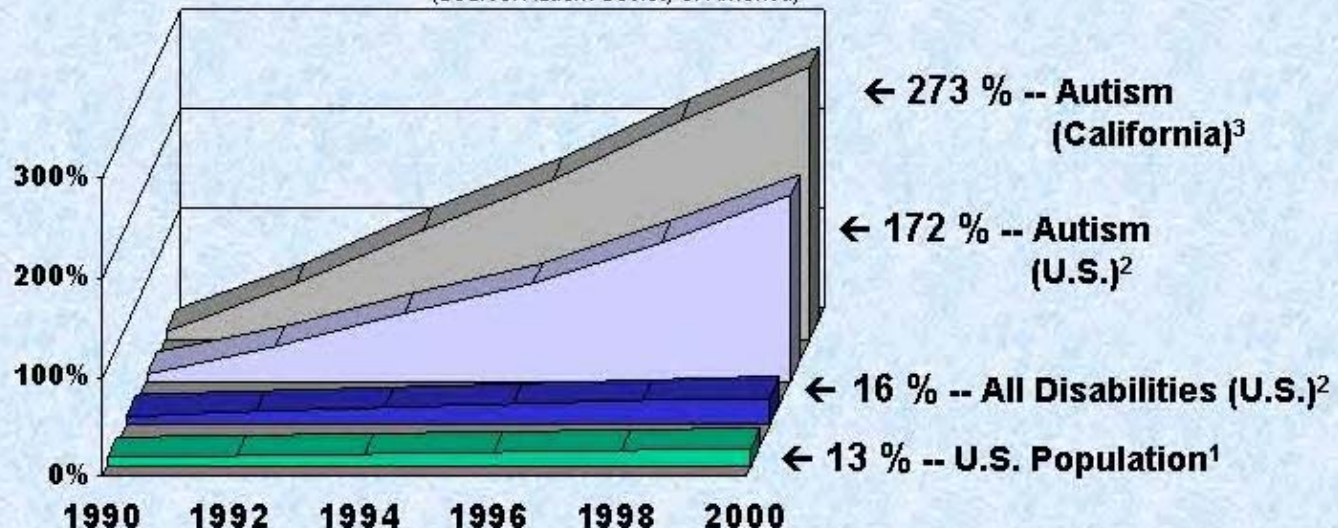
Report to the Legislature on the Principal Findings from The Epidemiology of Autism in California: A Comprehensive Pilot Study. M.I.N.D. Institute, University of California, Davis.
October 17, 2002

Increased Prevalence (CA and U.S.)



Autism Growth Comparison Chart

(Source: Autism Society of America)



¹ U.S. Census Bureau 1999-2000 ; ² U.S. Dept. of Educ. Report to Congress 1999 ³ Calif. Dept. of Devel. Svcs. Report 1999



Autism Society of America
7910 Woodmont Ave., Suite 300
Bethesda, MD 20814-3067

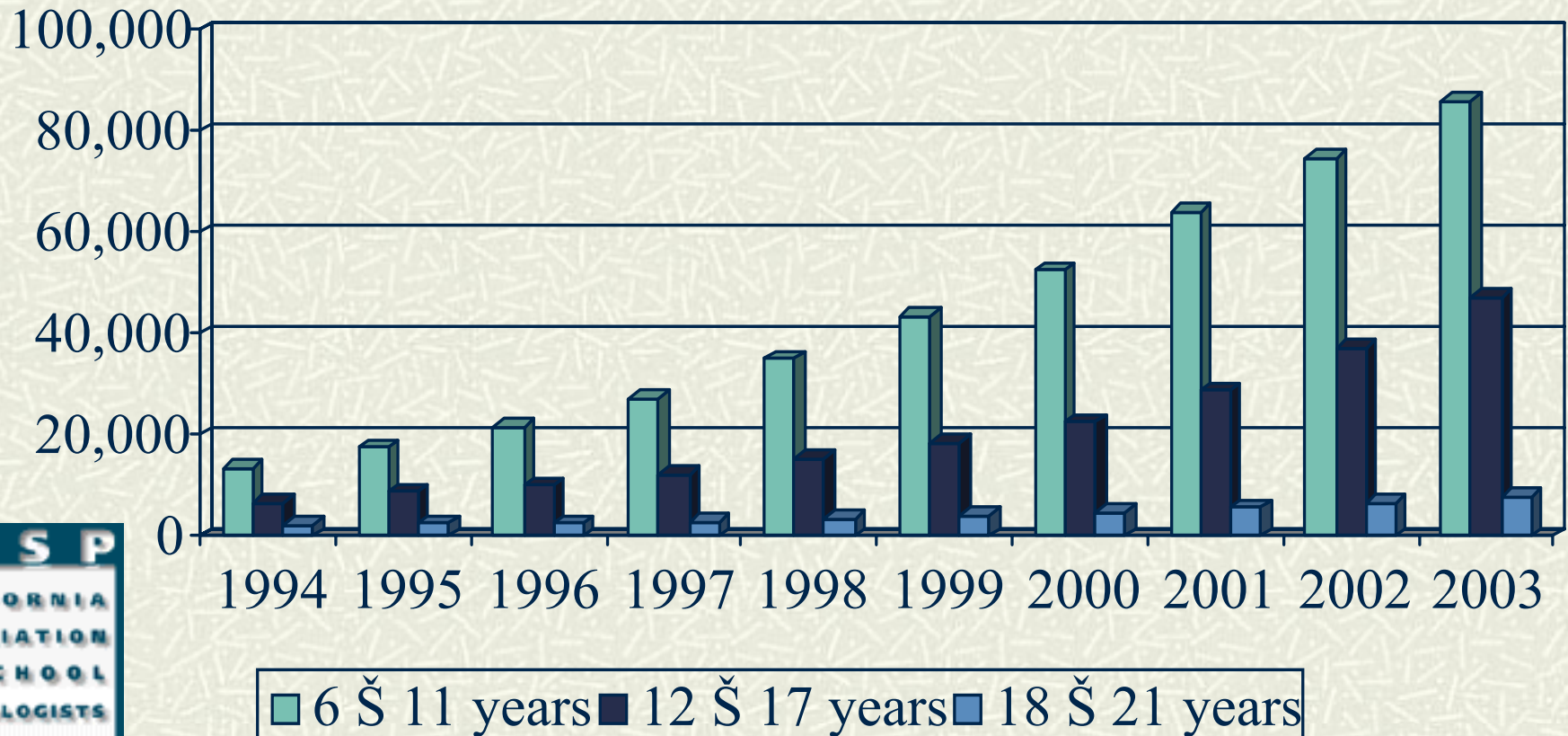
Copyright 2003 by the Autism Society of America. All Rights Reserved.

Explanations for Changing ASD Rates in the General Population

- # Changes in diagnostic criteria.
- # Heightened public awareness of autism.
- # Increased willingness and ability to diagnose autism.
- # Availability of resources for children with autism.
- # Yet to be identified environmental factors.

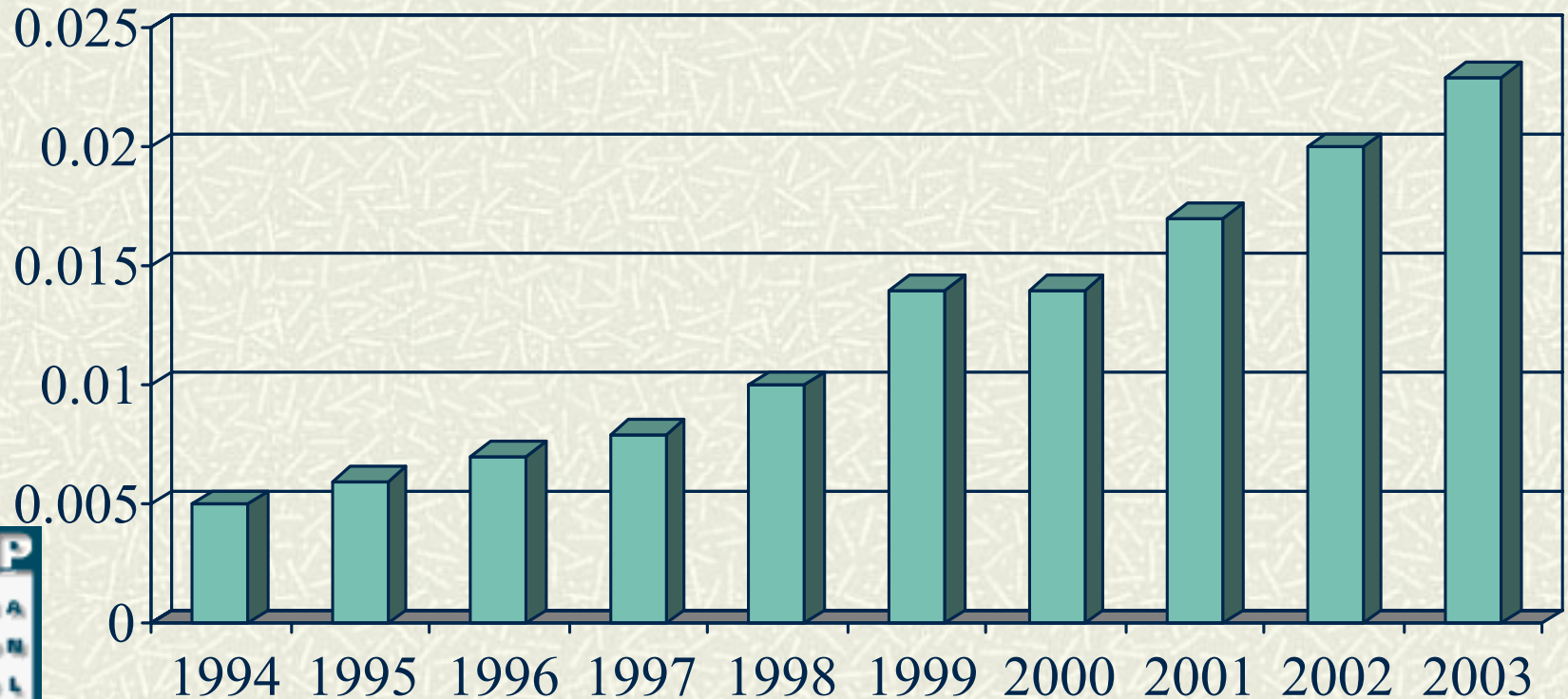
Increased Prevalence in Special Education (U.S. Department of Education, 2003)

Total Number of Student Classified as Autistic and Eligible Special Education Under IDEA by Age Group



Increased Prevalence in Special Education (U.S. Department of Education, 2003)

Student Classified as Autistic Under IDEA as a Percentage of Students with Disabilities: 1994 to 2003



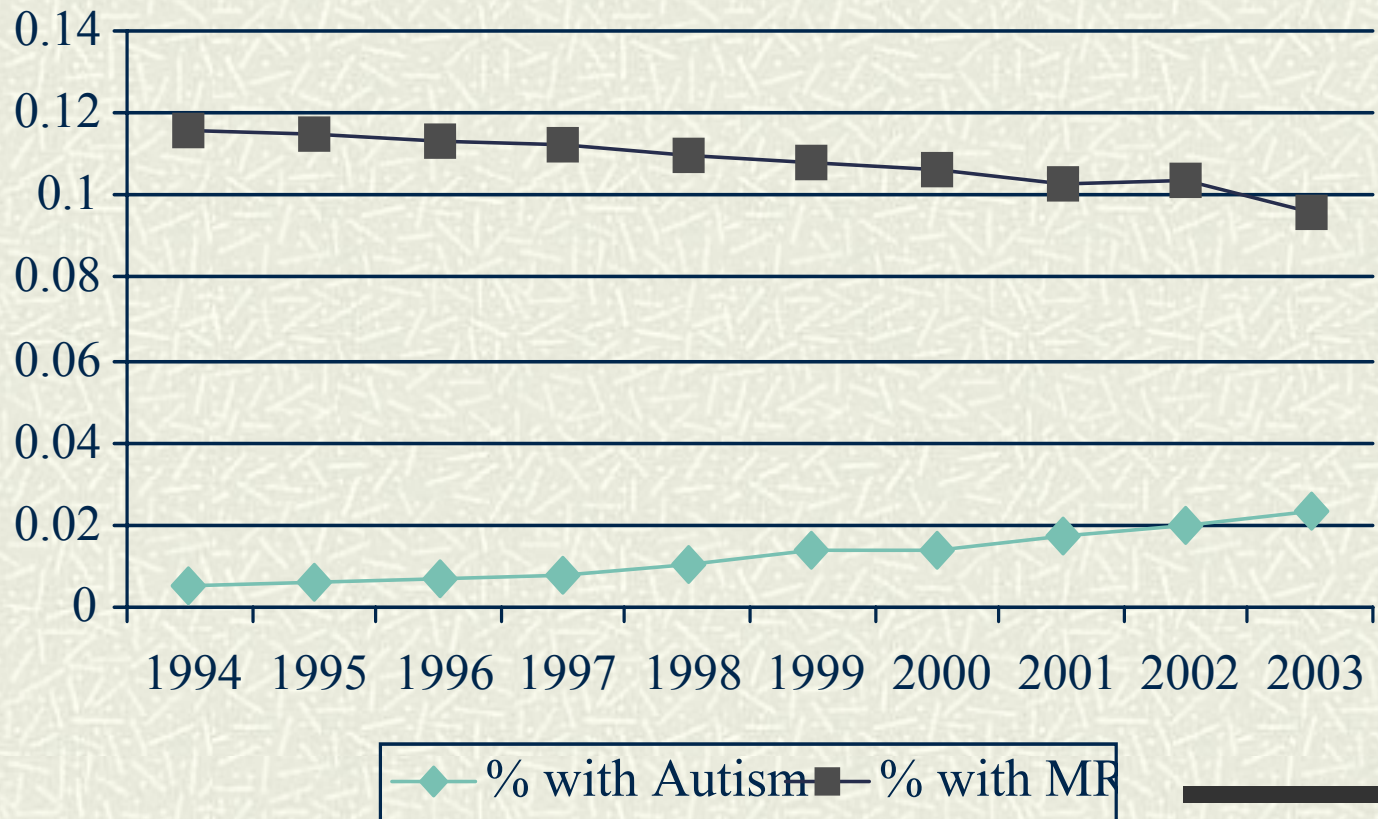
Explanations for Changing ASD Rates in Special Education

Classification substitution

- IEP teams have become better able to identify students with autism.
- Autism is more acceptable in today's schools than is the diagnosis of mental retardation.
- The intensive early intervention services often made available to students with autism are not always offered to the child whose primary eligibility classification is mental retardation.

Increased Prevalence in Special Education (U.S. Department of Education, 2003)

Percentage of Students Classified as Autistic Mentally Retarded Under IDEA as a Percent of all Students with Disabilities: 1994 to 2003



Reasons for Increased Vigilance

- Autism can be identified early in development, and...
- Early intervention is an important determinant of the course of autism.

Reasons for Increased Vigilance

- # Not all cases of autism will be identified before school entry.
 - Average Age of Autistic Disorder identification is 5 1/2 years of age.
 - Average Age of Asperger's Disorder identification is 11 years of age.

Reasons for Increased Vigilance

- # Most children with autism are identified by school resources.
 - Only three percent of children with ASD are identified solely by non-school resources.
 - All other children are identified by a combination of school and non-school resources (57 %), or by school resources alone (40 %) Yeargin-Allsopp et al. (2003).

Reasons for Increased Vigilance

- # Full inclusion of children with ASD in general education classrooms.
 - Students with disabilities are increasingly placed in full-inclusion settings.
 - In addition, the results of recent studies suggesting a declining incidence of mental retardation among the ASD population further increases the likelihood that these children will be mainstreamed (Chakrabarti & Fombonne, 2001).
 - Consequently, today's educators are more likely to encounter children with autism during their careers.

Presentation Outline

- # Introduction: Reasons for Increased Vigilance
- # Diagnostic Classifications and Special Education Eligibility
- # School Psychologist Roles, Responsibilities, and Limitations
- # Case Finding
- # Screening and Referral

Diagnostic Classifications

- Autism Spectrum Disorders (ASD)
 - A diagnostic category found in DSM IV-TR.
 - Placed within the subclass of *Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence* know as *Pervasive Developmental Disorders* (PDD).
 - *PDD* includes *Autistic Disorder, Asperger's Disorder, Rett's Disorder, Childhood Disintegrative Disorder*, and *PDD Not Otherwise Specified* (PDD-NOS).

Diagnostic Classifications

Pervasive Developmental Disorders

Autistic Disorder

Asperger's Disorder

PDD-NOS

Rett's Disorder

Childhood Disintegrative Disorder

In this workshop the terms “Autism,” or “Autistic Spectrum Disorders (ASD)” will be used to indicate these PDDs.

Diagnostic Classifications

Autistic Disorder

- Markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests.

Asperger's Disorder

- Markedly abnormal or impaired development in social interaction and a markedly restricted repertoire of activities and interests (language abilities and cognitive functioning is not affected).

PDD-NOS

- Experience difficulty in at least two of the three autistic disorder symptom clusters, but do not meet diagnostic criteria for any other PDD.

Diagnostic Classifications

Rett's Disorder

- Occurs primarily among females and involves a pattern of head growth deceleration, a loss of fine motor skill, and the presence of awkward gait and trunk movement.

Childhood Disintegrative Disorder

- Very rare. A distinct pattern of regression following at least two years of normal development.

Diagnostic Classifications

Video clip from ...

- *On the Spectrum: Children and Autism*

- © 2003, First Signs, Inc.

- www.firstsigns.org

- www.SpecialNeeds.com

- \$49.95

- Video # 13048

DSM IV Criteria

Special Education Eligibility

IDEA Autism Classification

- P.L. 105-17, Individuals with Disabilities Education Act [IDEA], 1997:
 - *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 education performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotypical movements, resistance to environmental change or change 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. (sec. 300.7)*

Special Education Eligibility

CA Autism Classification

- Title 5, CCR 3030(g):
 - *A pupil exhibits **any combination** of the following autistic-like behaviors, **to include but not limited to**: (1) an inability to use oral language for appropriate communication; (2) a history of extreme withdrawal or relating to people inappropriately and continued impairment in social interaction from infancy through early childhood; (3) an obsession to maintain sameness; (4) extreme preoccupation with objects or inappropriate use of objects or both; (5) extreme resistance to controls; (6) displays peculiar motoric mannerisms and motility patterns; (7) self-stimulating, ritualistic behavior.*

Special Education Eligibility

- # For special education eligibility purposes distinctions among PDDs may not be relevant.
- # While the diagnosis of Autistic Disorder requires differentiating its symptoms from other PDDs, Shriver et al. (1999) suggest that for special education eligibility purposes “the federal definition of ‘autism’ was written sufficiently broad to encompass children who exhibit a range of characteristics” (p. 539) including other PDDs.

Special Education Eligibility

- However, it is less clear if students with milder forms of ASD are eligible for special education.
- Adjudicative decision makers almost never use the *DSM IV-TR* criteria exclusively or primarily for determining whether the child is eligible as autistic” (Fogt et al.,2003).
- While *DSM IV-TR* criteria are often considered in hearing/court decisions, *IDEA* is typically acknowledged as the “controlling authority.”
- When it comes to special education, it is state and federal education codes and regulations (not *DSM IV-TR*) that drive eligibility decisions.

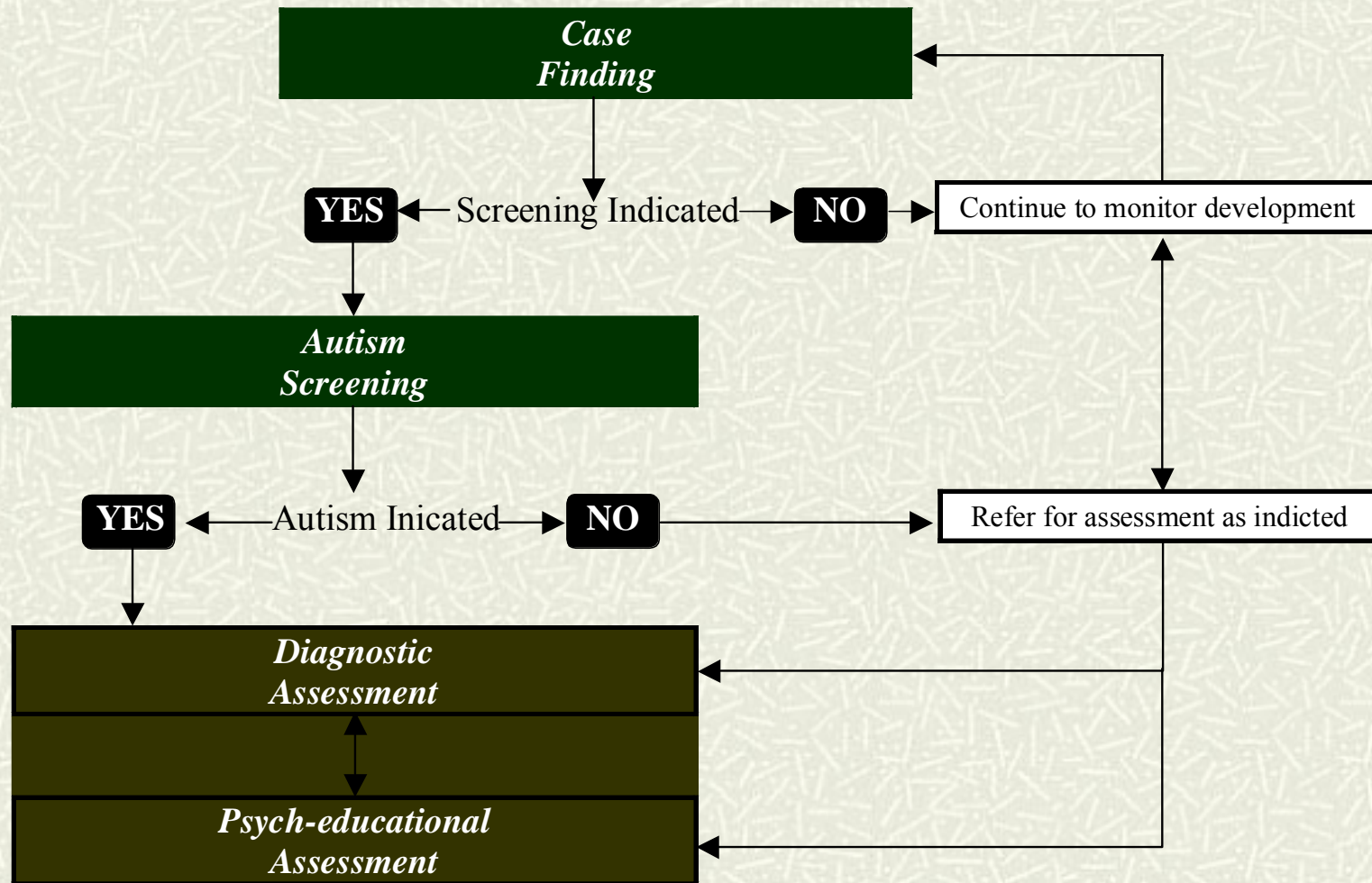
Presentation Outline

- # Introduction: Reasons for Increased Vigilance
- # Diagnostic Classifications and Special Education Eligibility
- # School Psychologist Roles, Responsibilities, and Limitations
- # Case Finding
- # Screening and Referral

School Psychologist Roles, Responsibilities, and Limitations

- # School psychologists need to be more vigilant for symptoms of autism among the students that they serve, and better prepared to assist in the process of identifying these disorders.

Adaptation of Filpek et al.'s (1999) Algorithm for the Process of Diagnosing Autism



School Psychologist Roles, Responsibilities, and Limitations

Case Finding

- *All school psychologists should be expected to participate in case finding* (i.e., routine developmental surveillance of children in the general population to recognize risk factors and identify warning signs of autism).
 - This would include training general educators to identify the risk factors and warning signs of autism.

School Psychologist Roles, Responsibilities, and Limitations

■ Screening

- *All school psychologists should be prepared to participate in the behavioral screening of the student who has risk factors and/or displays warning signs of autism (i.e., able to conduct screenings to determine the need for diagnostic assessments).*
- *All school psychologists should be able to distinguish between screening and diagnosis.*

School Psychologist Roles, Responsibilities, and Limitations

- ✦ Only those school psychologists with appropriate training and supervision should diagnose a specific autism spectrum disorder.*
- ✦ All school psychologists should be expected to conduct the psycho-educational evaluation that is a part of the diagnostic process and that determines educational needs.*

Presentation Outline

- # Introduction: Reasons for Increased Vigilance
- # Diagnostic Classifications and Special Education Eligibility
- # School Psychologist Roles, Responsibilities, and Limitations
- # Case Finding
- # Screening and Referral

Case Finding

Looking

- for risk factors and warning signs of atypical development.

Listening

- REALLY LISTENING to parental concerns about atypical development.

Questioning

- caregivers about the child's development.

Case Finding: Looking for Risk Factors

Known Risk Factors

- High Risk
 - Having an older sibling with autism.
- Moderate Risk
 - The diagnosis of tuberous sclerosis, fragile X, or epilepsy.
 - A family history of autism or autistic-like behaviors.

Case Finding: Looking for Risk Factors

- Currently there is no substantive evidence supporting any one non-genetic risk factor for ASD.
- However, given that there are likely different causes of ASD, it is possible that yet to be identified non-heritable risk factors may prove to be important in certain subgroups of individuals with this disorder.
 - There may be an interaction between the presence of specific genetic defects and specific environmental factors.
 - Individuals with a particular genetic predisposition for ASD may have a greater risk of developing this disorder subsequent to exposure to certain non-genetic risk factors.
 - In particular, it has been suggested that prenatal factors such as maternal infection and drug exposure deserve further examination.

Case Finding: Looking for Warning Signs

■ Infants and Preschoolers

■ Absolute indications for an autism screening

- No big smiles or other joyful expressions by 6 months.^b
- No back-and-forth sharing of sounds, smiles, or facial expressions by 9 months.^b
- No back-and-forth gestures, such as pointing, showing, reaching or waving bye-bye by 12 months.^{a,b}
- No babbling at 12 months.^{a, b}
- No single words at 16 months.^{a, b}



Sources:

^aFilipek et al., 1999; ^bGreenspan, 1999; and ^cOzonoff, 2003.

Case Finding: Looking for Warning Signs

Infants and Preschoolers

■ Absolute indications for an autism screening

- No 2-word spontaneous (nonecholalic) phrases by 24 months.^{a, b}
- Failure to attend to human voice by 24 months.^c
- Failure to look at face and eyes of others by 24 months.^c
- Failure to orient to name by 24 months.^c
- Failure to demonstrate interest in other children by 24 months.^c
- Failure to imitate by 24 months.^c
- Any loss of any language or social skill at any age.^{a, b}



Sources:

^aFilipek et al., 1999; ^bGreenspan, 1999; and ^cOzonoff, 2003.

Case Finding: Looking for Warning Signs

School-Age Children (preschool through upper grades)

■ Social/Emotional Concerns

- Poor at initiating and/or sustaining activities and friendships with peers
- Play/free-time is more isolated, rigid and/or repetitive, less interactive
- Atypical interests and behaviors compared to peers
- Unaware of social conventions or codes of conduct (e.g., seems unaware of how comments or actions could offend others)
- Excessive anxiety, fears or depression
- Atypical emotional expression (emotion, such as distress or affection, is significantly more or less than appears appropriate for the situation)



Citations: Adapted from *Asperger's Syndrome A Guide for Parents and Professionals* (Attwood, 1998), *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* (APA, 1994), and *The Asperger Syndrome Diagnostic Scale* (Myles, Bock and Simpson, 2000)

Case Finding: Looking for Warning Signs

School-Age Children (preschool through upper grades)

■ **Communication Concerns**

- Unusual tone of voice or speech (seems to have an accent or monotone, speech is overly formal)
- Overly literal interpretation of comments (confused by sarcasm or phrases such as “pull up your socks” or “looks can kill”)
- Atypical conversations (one-sided, on their focus of interest or on repetitive/unusual topics)
- Poor nonverbal communication skills (eye contact, gestures, etc.)



Citations: Adapted from *Asperger's Syndrome A Guide for Parents and Professionals* (Attwood, 1998), *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* (APA, 1994), and *The Asperger Syndrome Diagnostic Scale* (Myles, Bock and Simpson, 2000)

Case Finding: Looking for Warning Signs

School-Age Children (preschool through upper grades)

■ **Behavioral Concerns**

- Excessive fascination/perseveration with a particular topic, interest or object
- Unduly upset by changes in routines or expectations
- Tendency to flap or rock when excited or distressed
- Unusual sensory responses (reactions to sound, touch, textures, pain tolerance, etc.)
- History of behavioral concerns (inattention, hyperactivity, aggression, anxiety, selective mute)
- Poor fine and/or gross motor skills or coordination



Citations: Adapted from *Asperger's Syndrome A Guide for Parents and Professionals* (Attwood, 1998), *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* (APA, 1994), and *The Asperger Syndrome Diagnostic Scale* (Myles, Bock and Simpson, 2000)

Case Finding: Looking for atypical development

#Developmental Screening

- Ages and Stages Questionnaire
 - Paul H. Brookes, Publishers
- Child Development Inventories
 - Behavior Science Systems
- Parents' Evaluations of Developmental Status
 - Ellsworth & Vandermeer Press, Ltd.

Case Finding: **Looking for** atypical development

Staff Development

- School psychologist efforts to educate teachers about the risk factors and warning signs of ASD would also be consistent with Child Find regulations [see 17 CCR 52040(b)(7)]. Giving teachers the information they need to look for ASD (such as is presented in this workshop) will facilitate case finding efforts.

Case Finding: **Listening** to caregivers

■ Referring Concerns That Signal the Need for Autism Screening

■ Communication Concerns

- Does not respond to his/her name
- Cannot tell me what s/he wants
- Does not follow directions
- Appears deaf at times
- Seems to hear sometimes but not others
- Does not point or wave bye-bye



Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Case Finding: **Listening** to caregivers

■ Referring Concerns That Signal the Need for Autism Screening

■ Social Concerns

- Does not smile socially
- Seems to prefer to play alone
- Is very independent
- Has poor eye contact
- Is in his/her own world
- Tunes us out
- Is not interested in other children

Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.



Case Finding: **Listening** to caregivers

■ Referring Concerns That Signal the Need for Autism Screening

■ Behavioral concerns

- Tantrums
- Is hyperactive or uncooperative/oppositional
- Doesn't know how to play with toys
- Does the same thing over and over
- Toe walks



Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Case Finding: **Listening** to caregivers

■ Referring Concerns That Signal the Need for Autism Screening

■ Behavioral concerns (continued)

- Has unusual attachments to toys (e.g., always is holding a certain object)
- Lines things up
- Is oversensitive to certain textures or sounds
- Has odd finger and/or body movement patterns



Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Case Finding: Questioning caregivers

- # Asking about socialization that probe for issues that would signal the need for an autism screening.
 - “Does s/he ...” or “Is there ...”
 - cuddle like other children?
 - look at you when you are talking or playing?
 - smile in response to a smile from others?
 - engage in reciprocal, back-and-forth play?
 - play simple imitation games, such as pat-a-cake or peek-a-boo?
 - show interest in other children?



Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Case Finding: Questioning caregivers

- # Asking about communication that probe for issues that would signal the need for an autism screening.
 - “Does s/he ...” or “Is there ...”
 - point with his/hr finger?
 - gesture? Nod yes and no?
 - direct your attention by holding up objects for you to see?
 - anything odd about his/her speech?
 - show things to people?
 - lead an adult by the hand?
 - give inconsistent response to his/her name? ... to commands?
 - use rote, repetitive, or echolalic speech?
 - memorize strings of words or scripts?

Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.



Case Finding: Questioning caregivers

- Asking about behavior that probe for issues that would signal the need for an autism screening.
 - “Does s/he ...” or “Is there ...”
 - have repetitive, stereotyped, or odd motor behavior?
 - have preoccupations or a narrow range of interests?
 - attend more to parts of objects (e.g., the wheels of a toy car)?
 - have limited or absent pretend play?
 - imitate other people’s actions?
 - play with toys in the same exact way each time?
 - strongly attached to a specific unusual object(s)?



Source:

Filipek, P. A. et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Case Finding

Video clip from ...

■ *On the Spectrum: Children and Autism*

■ © 2003, First Signs, Inc.

■ www.firstsigns.org

■ www.SpecialNeeds.com

■ \$49.95

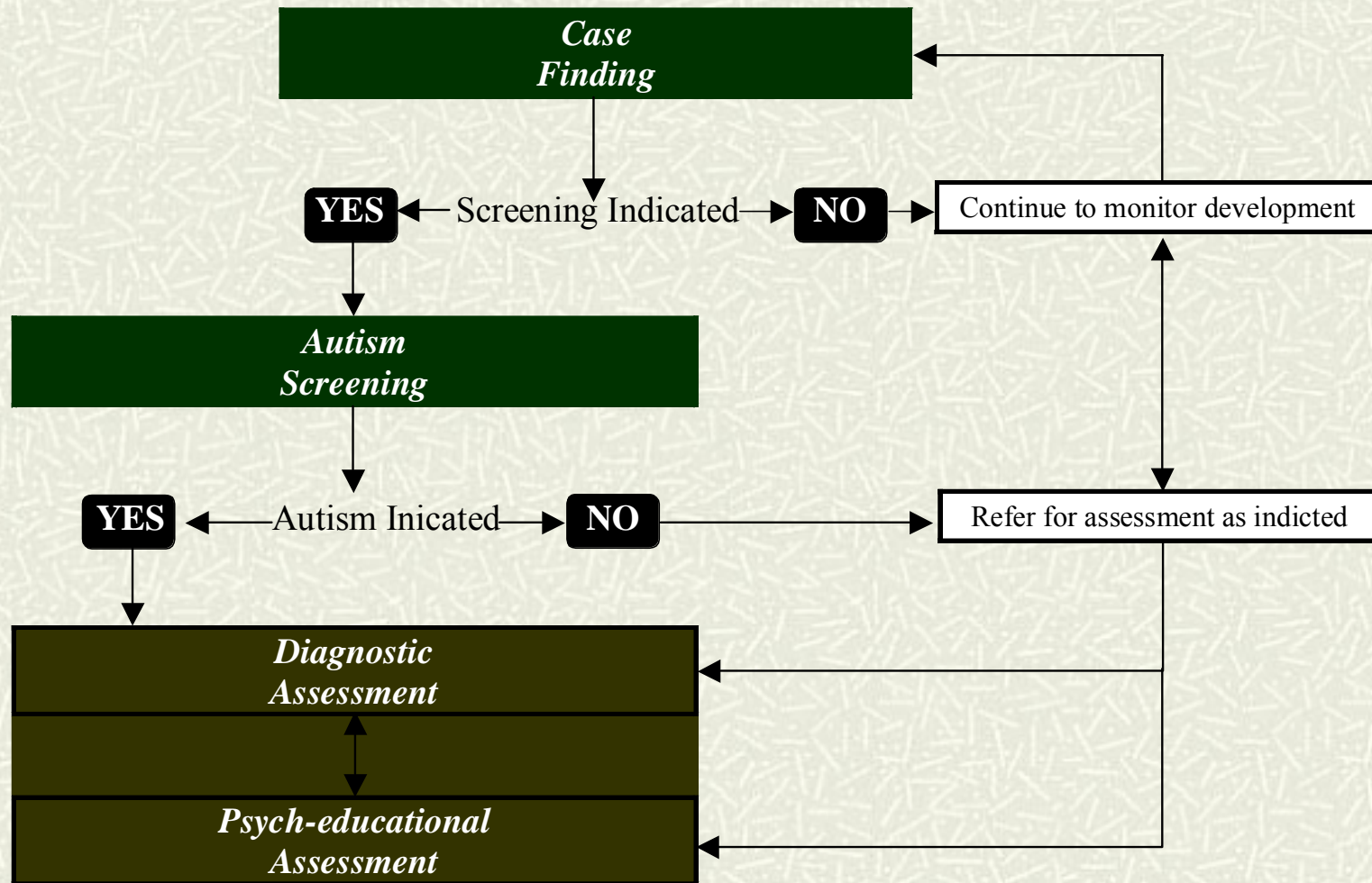
■ Video # 13048

Age Specific Milestones

Presentation Outline

- # Introduction: Reasons for Increased Vigilance
- # Diagnostic Classifications and Special Education Eligibility
- # School Psychologist Roles, Responsibilities, and Limitations
- # Case Finding
- # Screening and Referral

Adaptation of Filpek et al.'s (1999) Algorithm for the Process of Diagnosing Autism



Screening and Referral

- # Screening is designed to help determine the need for additional diagnostic assessments.
- # Screening should include medical testing, audiological evaluation, and behavioral assessment.

Medical (Lead Screening)

- # From research suggesting that individuals with ASD have higher blood lead concentrations, and the hypothesis that lead poisoning may contribute to the onset or acceleration of the development of autistic symptoms, lead screening is recommended for all children referred for an autism screening.
- # Such would be especially critical if there are reports of the student displaying pica and/or those who live in environments with an increased risk for lead exposure.
- # School psychologists are not expected to conduct this type of testing, however, it is important for them to know about the lead screening's role in ASD screening.



Source:

Filipek, P. A., et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.

Audiological

- # To the extent that hearing loss explains autistic-like behaviors, referrals should be made.
- # To the extent that there are other warning signs of an ASD that are not explained by a hearing loss (i.e., social and behavioral concerns), additional evaluation should take place.
- # It is important to keep in mind that autism can co-occur with hearing loss.
- # While a hearing loss would argue against the need for additional ASD evaluations, educators working with the student should continue to be vigilant for indicators of autism and make additional diagnostic referrals as indicated.
- # School psychologists are not expected to conduct this type of testing, however, it is important for them to know about the audiological assessment's role in ASD screening.

Source:

Filipek, P. A., et al. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental disorders*, 29, 439-484.



Behavioral Screening for ASD

- School psychologists are exceptionally well qualified to conduct the behavioral screening of students suspected to have an ASD.
- Several screening tools are available
- Initially, most of these tools focused on the identification of ASD among infants and preschoolers.
- Recently screening tools useful for the identification of school aged children who have high functioning autism or Asperger's Disorder have been developed.

Behavioral Screening of Infants and Preschoolers

■ *Checklist for Autism in Toddlers (CHAT)*

- Baron-Cohen, S., Allen, J., & Gillberg, C. (1992). Can autism be detected at 18 months? The needle, the haystack, and the CHAT. *British Journal of Psychiatry, 161*, 839-43.
- Baron-Cohen, S., Cox, A., Baird, G., Swettenham, J., Nightingale, N., Morgan, K., Drew, A., & Charman, T. (1996). Psychological markers in the detection of autism in infancy in a large population. *British Journal of Psychiatry, 168*, 158-163.

Behavioral Screening of Infants and Preschoolers

■ *CHecklist for Autism in Toddlers (CHAT)*

- Baird, G., Charman, T., Baron-Cohen, S., Cox, A., Swettenham, J., Wheelwright, S., & Drew, A. (2000). A screening instrument for autism at 18 months of age: A 6-year follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*, 694-702.
- Baron-Cohen, S., Wheelwright, S., Cox, A., Baird, G., Charman, T., Swettenham, J., Drew, A., Coehring, P. (2000). Early identification of autism by the CHecklist for Autism in Toddlers (CHAT). *Journal of the Royal Society of Medicine, 93*, 521-525.

Behavioral Screening of Infants and Preschoolers

*C*hecklist for Autism in Toddlers (CHAT)

- Designed to identify risk of autism among 18-month-olds
- Takes 5 to 10 minutes to administer,
- Consists of 9 questions asked of the parent and 5 items that are completed by the screener's direct observation of the child.
- 5 items are considered to be "key items." These key items, assess joint attention and pretend play.
- If a child fails all five of these items they are considered to be at high risk for developing autism.

Checklist for Autism in Toddlers

CHAT SECTION A: History: Ask parent...		
1. Does your child enjoy being swung, bounced on your knee, 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-seak?	YES	NO
5. Does your child ever PRETEND, for example to make a cup of tea using a toy cup and teapot, or pretend other things?	YES	NO
6. Does your child ever use his/her index finger to point to ASK for something?	YES	NO
7. Does your child ever use his/her index finger to point to indicate INTEREST in something?	YES	NO
8. Can your child play properly with small toys (e.g., cars or bricks) without just mouthing, fiddling or dropping them?	YES	NO
9. Does your child ever bring objects over to you (parent) to SHOW your something?	YES	NO

From Baron-Cohen et al (1996, p. 159).

Checklist for Autism in Toddlers

CHAT Section B: general practitioner or health visitor observation		
i. During the appointment, has the child made eye contact with your?	YES	NO
ii. Get 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 point at?	YES	NO*
iii. Get the child's attention, then give child a miniature toy cup and teapot and say 'Can you make a cup of tea?' Does the child pretend to pour out tea, drink it, etc.?	YES	NO†
iv. Say to the child 'Where is the light?', or 'Show me the light'. Does the child POINT with his/her index finger at the light?	YES	NO‡
v. Can the child build a tower of bricks? (if so how many?) (No. of bricks:.....)	YES	NO
<p>* To record Yes on this item, ensure the child has not simply looked at your hand, but has actually looked at the object you are point at.</p> <p>† If you can elicit an example of pretending in some other game, score a Yes on this item.</p> <p>‡ Repeat this with 'Where's the teddy?' or some other unreachable object, if child does not understand the word light. To record Yes on this item, the child must have looked up at your face around the time of pointing.</p>		
<p>Scoring: <input type="checkbox"/> High risk for Autism: Fails A5, A7, Bii, Biii, and Biv <input type="checkbox"/> Medium risk for autism group: Fails A7, Biv (but not in maximum risk group) <input type="checkbox"/> Low risk for autism group (not in other two risk groups)</p>		



Checklist for Autism in Toddlers

6-year follow-up of a community sample screened with the 2 stage *CHAT* reveals extremely low false positive rate. However, higher functioning (high IQ) children are missed by this screening (Baird et al., 2000, p. 697).

Total Sample
16,235

High Risk
12

Medium Risk
22

No Risk Group
16,201

Autism	PDD	Other DX	Normal
9	1	1	1

Autism	PDD	Other Dx	Normal
1	9	10	2

Autism	PDD
40	34

Checklist for Autism in Toddlers

<http://www.autisticsociety.org/article136.html>

http://www.autismresearchcentre.com/instruments/research_instruments.asp



Behavioral Screening of Infants and Preschoolers

- # *Modified Checklist for Autism in Toddlers (M-CHAT)*
 - Robins, D. L., Fein, D., Barton, M. L., & Green, J. A. (2001). The modified checklist for autism in toddlers: An initial study investigating the early detection of autism and pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 31*, 131-144.

Behavioral Screening of Infants and Preschoolers

■ *Modified Checklist for Autism in Toddlers (M-CHAT)*

- Designed to screen for autism at 24 months of age.
- More sensitive to the broader autism spectrum.
- Uses the 9 items from the original CHAT as its basis.
- Adds 14 additional items (23-item total).
- Unlike the *CHAT*, however, the *M-CHAT* does not require the screener to directly observe the child.
- Makes use of a Yes/No format questionnaire.
- Yes/No answers are converted to pass/fail responses by the screener.
- A child fails the checklist when 2 or more of 6 critical items are failed **or** when any three items are failed.

Behavioral Screening of Infants and Preschoolers

■ *Modified Checklist for Autism in Toddlers (M-CHAT)*

- The *M-CHAT* was used to screen 1,293 18- to 30-month-old children. 58 were referred for a diagnostic/developmental evaluation. 39 were diagnosed with an autism spectrum disorder (Robins et al., 2001).
- Will result in false positives.
- Data regarding false negative is not currently available, but follow-up research to obtain such is currently underway.

Modified Checklist for Autism in Toddlers

Modified Checklist for Autism in Toddlers (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.?	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 phone or take care of		No
6.	Does your child ever use his/her index finger to point, to ask for something?		No
7.	Does your child ever use his/her index finger to point, to indicate interest in		No
8.	Can your child play properly with small toys (e.g. cars or bricks) without just		No
9.	Does your child ever bring objects over to you (parent) to show you something?		No
10.	Does your child look you in the eye for more than a second or two?	Yes	No
11.	Does your child ever seem oversensitive to noise? (e.g., plugging ears)	Yes	No

Modified Checklist for Autism in Toddlers

Modified Checklist for Autism in Toddlers (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.

13.	Does your child imitate you? (e.g., you make a face-will your child imitate it?)		No
14.	Does your child respond to his/her name when you call?	Yes	No
15.	If you point at a toy across the room, does your child look at it?	Yes	No
16.	Does your child walk?	Yes	No
17.	Does your child look at things you are looking at?	Yes	No
18.	Does your child make unusual finger movements near his/her face?	Yes	No
19.	Does your child try to attract your attention to his/her own activity?	Yes	No
20.	Have you ever wondered if your child is deaf?	Yes	No
21.	Does your child understand what people say?	Yes	No
22.	Does your child sometimes stare at nothing or wander with no purpose?		No
23.	Does your child look at your face to check your reaction when faced with		No

Modified Checklist for Autism in Toddlers

M-CHAT Scoring Instructions

A child fails the checklist when 2 or more critical items are failed OR when any three items are failed. Yes/no answers convert to pass/fail responses. Below are listed the failed responses for each item on the M-CHAT. Bold capitalized items are CRITICAL items.

Not all children who fail the checklist will meet criteria for a diagnosis on the autism spectrum. However, children who fail the checklist should be evaluated in more depth by the physician or referred for a developmental evaluation with a specialist.

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

Modified Checklist for Autism in Toddlers

<http://www.firstsigns.org/downloads/m-chat.PDF>



Behavioral Screening of Infants and Preschoolers

Checklist of Autism in Toddlers (CHAT-23)

- Wong, V., Hui, L. S., Lee, W. C., Leung, L. J., Ho, P. P., Lau, W. C., Fung, C. W., & Chung, B. (2004). A modified screening tool for autism (Checklist of Autism in Toddlers [CHAT-23]) for Chinese children. *Pediatrics*, *114*, 166-176.

CHAT-23

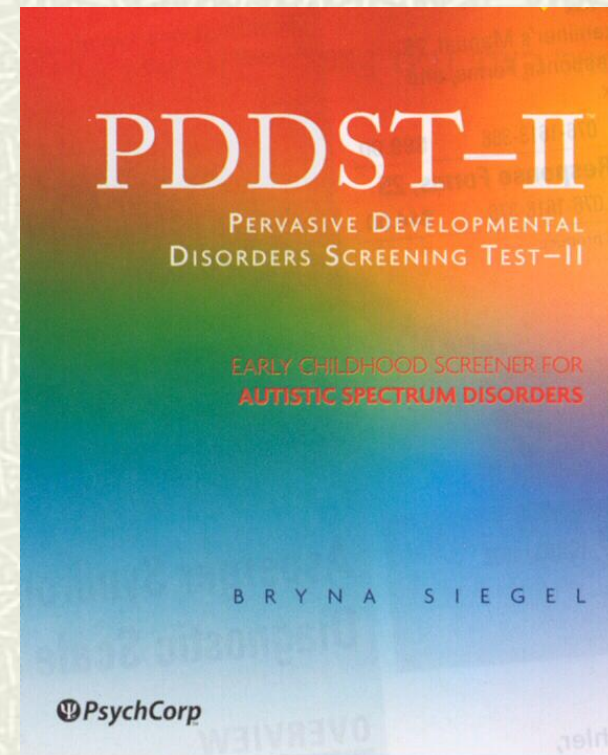
- Combines elements of the *M-CHAT* (the 23 items) and the *CHAT* (Part B's direct observations) to form a two stage evaluation.
 - Children who's caregiver ratings on the 23 item questionnaire (Stage 1) are positive for ASD are then screened with the CHAT's Part B (Stage 2)
- In the *CHAT-23* the “Yes/No” format of the *M-CHAT* is replaced with a graded response format.
- Answering “seldom” or “never” to any two of seven key questions (Items 2, 5, 7, 9, 13, 15, and 23) or any six of all 23 questions was defined as positive for ASD on Part A.
- For Part B, failure (or positive for ASD) was defined as not passing at least two of the first four items (1, 2, 3, and 4).

CHAT-23

- To study the CHAT-23, 87 children with autism or PDD (group 1), and 68 normally developing children and 80 children with developmental delays other than autism (group 2) were studied.
- Results revealed that failing two or more of the seven key items correctly identified 93 percent of the children with autism (group 1), and failing any 6 of all 23 identified 84% of the children in this group.
- On Part B failing any two of the first four items correctly identified 74 percent of the children with ASD.

Behavioral Screening of Infants and Preschoolers

- *Pervasive Developmental Disorders Screening Test - II (PDDST-II)*
 - Siegel, B. (2001). *Pervasive Developmental Disorder Screening Test II*. (Available from Bryna Siegel, Pervasive Developmental Disorders Clinic and Laboratory, Langley Porter Psychiatric Institute, Box CAS, University of California, San Francisco, San Francisco, CA 94143-0984).
 - W-19, Early Screening for Autism: The PDDST-II (Saturday, 9:00 to noon)



Behavioral Screening of Infants and Preschoolers

■ *Pervasive Developmental Disorders Screening Test - II (PDDST-II)*

- Has three stages
 - The *PDDST-II: Stage I* designed to help determine if a given child should be evaluated for an ASD.
- Designed to be completed by parents
- Should take no more than 5 minutes.
- Odd numbered items are the critical questions used for autism screening.
- If three or more of the odd numbered items are checked as being “YES, Usually True,” then the result is considered a positive finding for possible ASD and a diagnostic evaluation indicated.

Behavioral Screening of Infants and Preschoolers

■ *Pervasive Developmental Disorders Screening Test - II (PDDST-II)*

- The odd numbered critical questions are ordered by age in order from highest predictive validity.
 - This means the more odd numbered items scored positive, and the more odd numbered items scored positive on the upper half of each section, the more strongly positive the screen.
- Even numbered items significantly differentiate ASD-referred children from those with mild developmental disorders.
 - These items are also ordered by age in order from highest to lowest predictive validity.

Behavioral Screening of Infants and Preschoolers

Measure	Sensitivity	Specificity
CHAT: Stage 1	.35	.98
CHAT: Stage 2	.21	.99
M-CHAT: 2/6	.95	.99
M-CHAT: 3/23	.97	.95
CHAT-23: Part A, 2/7	.93	.77
CHAT-23: Part A, 6/23	.84	.85
CHAT-23, Part B	.74	.92
PDD-II: Stage 1	.89	.84

Behavioral Screening of School Age Children

Autism Spectrum Screening Questionnaire (ASSQ)

- Ehlers, S., Gillberg, G., & Wing, L. (1999). A screening questionnaire for Asperger syndrome and other high functioning autism spectrum disorders in school age children. *Journal of Autism and Developmental Disorders*, 29, 129-141.

Behavioral Screening of School Age Children

■ *Autism Spectrum Screening Questionnaire (ASSQ)*

- The 27 items rated on a 3-point scale.
- Total score range from 0 to 54.
- Items address social interaction, communication, restricted/repetitive behavior, and motor clumsiness and other associated symptoms.
- The initial *ASSQ* study included 1,401 7- to 16-year-olds.
 - Sample mean was 0.7 (*SD* 2.6).
 - Asperger mean was 26.2 (*SD* 10.3).
- A validation study with a clinical group ($n = 110$) suggests the *ASSQ* to be “a reliable and valid parent and teacher screening instrument of high-functioning autism spectrum disorders in a clinical setting” (Ehlers, Gillber, & Wing, 1999, p. 139).

Behavioral Screening of School Age Children

■ *Autism Spectrum Screening Questionnaire (ASSQ)*

- Two separate sets of cutoff scores are suggested.
 - Parents, **13**; Teachers, **11**: = socially impaired children
 - Low risk of false negatives (especially for milder cases of ASD).
 - High rate of false positives (23% for parents and 42% for teachers).
 - Not unusual for children with other disorders (e.g., disruptive behavior disorders) to obtain *ASSQ* scores at this level.
 - Used to suggest that a referral for an ASD diagnostic assessment, while not immediately indicated, should not be ruled out.
 - Parents, **19**; Teachers, **22**: = immediate ASD diagnostic referral.
 - False positive rate for parents and teachers of 10% and 9 % respectively.
 - The chances are low that the student who attains this level of *ASSQ* cutoff scores will not have an ASD.
 - Increases the risk of false negatives.

Autism Spectrum Screening Questionnaire

The High-Functioning Autism Spectrum Screening Questionnaire

Name of Child _____

Date of Birth _____

Name of Rater _____

Date of Rating _____

This child stands out as different from other children of his/her age in the following way:

	No	Somewhat	Yes
1. is old-fashioned or precocious	[]	[]	[]
2. is regarded as an "eccentric professor" by the other children	[]	[]	[]
3. lives somewhat in a world of his/her own with restricted idiosyncratic intellectual interests	[]	[]	[]
4. accumulates facts on certain subjects (good rote memory), but does not really understand the meaning	[]	[]	[]
5. has a literal understanding of ambiguous and metaphorical language	[]	[]	[]
6. has a deviant style of communication with a formal, fussy, old-fashioned or "robotlike" language	[]	[]	[]
7. invents idiosyncratic words and expressions	[]	[]	[]
8. has a different voice or speech	[]	[]	[]
9. expresses sounds involuntarily; clears throat, grunts, smacks, cries or screams	[]	[]	[]
10. is surprisingly good at some thing and surprisingly poor at others	[]	[]	[]
11. uses language freely but fails to make adjustment to fit social contexts or the needs of different listeners	[]	[]	[]
12. lacks empathy	[]	[]	[]



Autism Spectrum Screening Questionnaire

- | | | | |
|--|-----|-----|-----|
| 13. makes naïve and embarrassing remarks | [] | [] | [] |
| 14. has a deviant style of gaze | [] | [] | [] |
| 15. wishes to be sociable but fails to make relationships with peers | [] | [] | [] |
| 16. can be with other children but only on his/her terms | [] | [] | [] |
| 17. lacks best friend | [] | [] | [] |
| 18. lacks commons sense | [] | [] | [] |
| 19. is poor at games: no idea of cooperating in a team, scores "own goals" | [] | [] | [] |
| 20. has clumsy, ill coordinated, ungainly, awkward movements or gestures | [] | [] | [] |
| 21. has involuntary face or body movements | [] | [] | [] |
| 22. has difficulties in completing simple daily activities because of compulsory repetition of certain actions or thoughts | [] | [] | [] |
| 23. has special routines: insists on no change | [] | [] | [] |
| 24. shows idiosyncratic attachment to objects | [] | [] | [] |
| 25. is bullied by other children | [] | [] | [] |
| 26. has markedly unusual facial expression | [] | [] | [] |
| 27. has markedly unusual posture | [] | [] | [] |

Autism Spectrum Screening Questionnaire

Different parent and teacher ASSQ cutoff scores with true positive rate (% of children with an ASD who were rated at a given score), false positive rate (% of children without an ASD who were rated at a given score), and the likelihood ratio a given score predicting an ASD.

Cutoff Score	True Positive Rate (%)	False Positive Rate (%)	Likelihood Ratio
Parent			
7	95	44	2.2
13	91	23	3.8
15	76	19	3.9
16	71	16	4.5
17	67	13	5.3
19	62	10	5.5
20	48	8	6.1
22	42	3	12.6
Teacher			
9	95	45	2.1
11	90	42	2.2
12	85	37	2.3
15	75	27	2.8
22	70	9	7.5
24	65	7	9.3

Behavioral Screening of School Age Children

■ *Childhood Asperger Syndrome Test (CAST)*

- Scott, F. A., Baron-Cohen, S., Bolton, P., & Brayne, C. (2002). The CAST (Childhood Asperger Syndrome Test). *Autism, 6*, 9-31.
 - A screening for mainstream primary grade (ages 4 through 11 years) children.
 - Has 37 items, with 31 key items contributing to the child's total score.
 - The 6 control items assess general development.
 - With a total possible score of 31, a cut off score of 15 "NO" responses was found to correctly identify 87.5 (7 out of 8) of the cases of autistic spectrum disorders.
 - Rate of false positives is 36.4%.
 - Rate of false negatives is not available

Childhood Asperger Syndrome Test

Childhood Asperger Syndrome Test (CAST)

1. Does s/he join in playing games with other children easily?	YES	NO
2. Does s/he come up to you spontaneously for a chat?	YES	NO
3. Was s/he speaking by 2 years old?	YES	NO
4. Does s/he enjoy sports?	YES	NO
5. Is it important to him/her to fit in with the peer group?	YES	NO
6. Does s/he appear to notice unusual details that others miss?	YES	NO
7. Does s/he tend to take things literally?	YES	NO
8. When s/he was 3 years old, did s/her spend a lot of time pretending (e.g. play-acting begin a superhero, or holding a teddy@ tea parties)?	YES	NO
9. Does s/he like to do things over and over again, in the same way all the time?	YES	NO
10. Does s/he find it easy to interact with other children?	YES	NO
11. Can s/he keep a two-way conversation going?	YES	NO
12. Can s/he read appropriately for his/her age?	YES	NO
13. Does s/he mostly have the same interest as his/her peers?	YES	NO
14. Does s/he have an interest, which takes up so much time that s/he does little else?	YES	NO
15. Does s/he have friends, rather than just acquaintances?	YES	NO
16. Does s/he often bring you things s/he is interested in to show you?	YES	NO



Childhood Asperger Syndrome Test

17. Does s/he enjoy joking around?	YES	NO
18. Does s/he have difficulty understanding the rules for polite behavior?	YES	NO
19. Does s/he appear to have an unusual memory for details?	YES	NO
20. Is his/her voice unusual (e.g., overly adult, flat, or very monotonous)?	YES	NO
21. Are people important to him/her?	YES	NO
22. Can s/he dress him/herself?	YES	NO
23. Is s/he good at turn-taking in conversation?	YES	NO
24. Does s/he play imaginatively with other children, and engage in role-play?	YES	NO
25. Does s/he often do or say things that are tactless or socially inappropriate?	YES	NO
26. Can s/he count to 50 without leaving out any numbers?	YES	NO
27. Does s/he make normal eye-contact?	YES	NO
28. Does s/he have any unusual and repetitive movements?	YES	NO
29. Is his/her social behaviour very one-sided and always on his/her own terms?	YES	NO
30. Does s/he sometimes say "no" when s/he means "yes"?	YES	NO
31. Does s/he prefer imaginative activities such as play-acting or story-telling, rather than numbers or lists of facts?	YES	NO
32. Does s/he sometimes lose the listener because of not explaining what s/he is talking about?	YES	NO
33. Can s/he ride a bicycle (even if with stabilizers)?	YES	NO
34. Does s/he try to impose routines on him/herself, or on others, in such a way that it causes problems?	YES	NO
35. Does s/he care how s/he is perceived by the rest of the group?	YES	NO
36. Does s/he often turn the conversations to his/her favorite subject rather than following what the other person wants to talk about?	YES	NO
37. Does s/he have odd or unusual phrases?	YES	NO

From Scott et al. (2002, pp. 27-28)



Childhood Asperger Syndrome Test

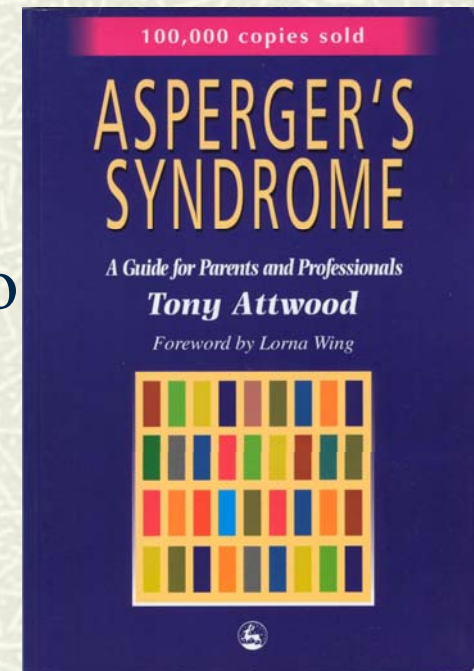
[http://www.autismresearchcentre.com
/instruments/research_instruments.asp](http://www.autismresearchcentre.com/instruments/research_instruments.asp)



Behavioral Screening of School Age Children

■ *Australian Scale for Asperger's Syndrome (A.S.A.S.)*

- Garnett & Attwood (1998)
- Parent/Teacher rating scale
- 24 questions, 1-6 scale
- 10 behavioral characteristics, yes/no
 - If most questions are 2 to 6
 - If a majority of questions are yes
 - Then diagnostic referral is indicated



Australian Scale for Asperger's Syndrome(ASAS)

http://www.asaoakland.org/australian_scale_for_asperger.htm



Behavioral Screening of School Age Children

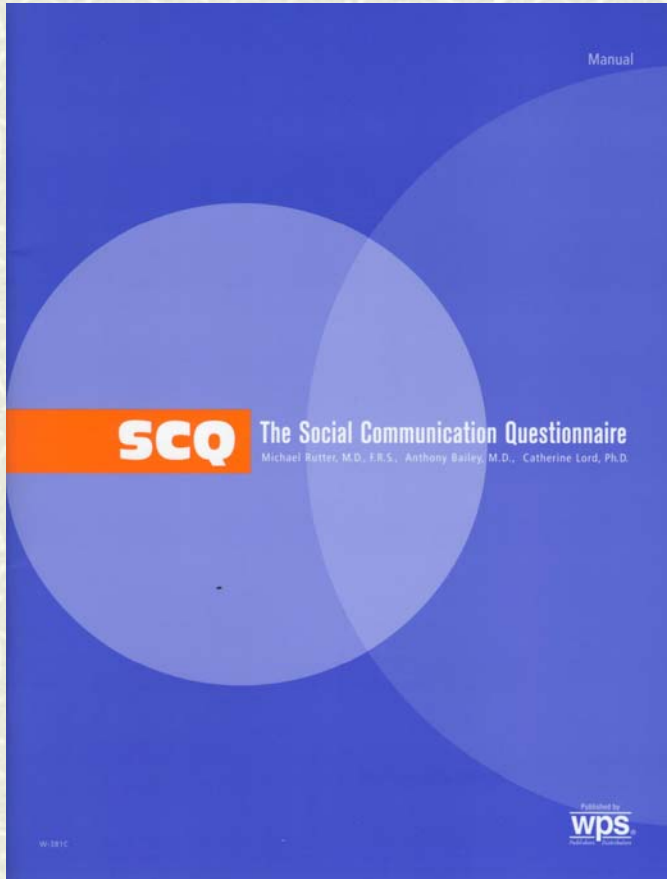
Social Communication Questionnaire (SCQ)

- Berument, S. K., Rutter, M., Lord, C., Pickles, A., & Bailey, A. (1999). Autism screening questionnaire: Diagnostic Validity. *British Journal of Psychiatry, 175*, 444-451.
- Rutter, M., LeCouteur, A., & Lord, C. (2003). *Social Communication Questionnaire*. Los Angeles, CA: Western Psychological Services.

Behavioral Screening of School Age Children

Social Communication Questionnaire (SCQ)

Manual



SCQ The Social Communication Questionnaire
 Michael Rutter, M.D., F.R.S., Anthony Bailey, M.D., Catherine Lord, Ph.D.

Published by
wps.
 WESTERN PSYCHOLOGICAL SERVICES

W-1811

LIFETIME	
Social Communication Questionnaire (SCQ)	
AutoScore™ Form	
<small>Michael Rutter, M.D., F.R.S., Anthony Bailey, M.D., Sir Alec Richman, Ph.D., Catherine Lord, Ph.D., and Andrew Pickles, Ph.D.</small>	
<small>Published by WESTERN PSYCHOLOGICAL SERVICES 1201 Wilshire Boulevard Los Angeles, CA 90017-1111 www.wps.com and www.wps.com</small>	
Sample	
1. Is she/he now able to talk using short phrases or sentences? If no, skip to question 8.	yes <input type="radio"/> no <input type="radio"/>
2. Can you have a to and fro "conversation" with her/him that involves taking turns or building on what you have said?	yes <input type="radio"/> no <input type="radio"/>
3. Has she/he ever used odd phrases or said the same thing over and over in almost exactly the same way (either phrases that she/he has heard other people use or ones that she/he has made up)?	yes <input type="radio"/> no <input type="radio"/>
4. Has she/he ever used socially inappropriate questions or statements? For example, has she/he ever regularly asked personal questions or made personal comments at awkward times?	yes <input type="radio"/> no <input type="radio"/>
5. Has she/he ever got her/his pronouns mixed up (in e.g., saying you or she/he for I)?	yes <input type="radio"/> no <input type="radio"/>
6. Has she/he ever used words that she/he seemed to have invented or made up her/himself; put things in odd, indirect ways; or used metaphorical ways of saying things (e.g., saying hot rain for steam)?	yes <input type="radio"/> no <input type="radio"/>
7. Has she/he ever said the same thing over and over in exactly the same way or insisted that you say the same thing over and over again?	yes <input type="radio"/> no <input type="radio"/>
8. Has she/he ever had things that she/he seemed to have to do in a very particular way or order or rituals that she/he insisted that you go through?	yes <input type="radio"/> no <input type="radio"/>
9. Has her/his facial expression usually seemed appropriate to the particular situation, as far as you could tell?	yes <input type="radio"/> no <input type="radio"/>
10. Has she/he ever used your hand like a tool or as if it were part of her/his own body (e.g., pointing with your finger, putting your hand on a doorknob to get you to open the door)?	yes <input type="radio"/> no <input type="radio"/>
11. Has she/he ever had any interests that preoccupy her/him to the extent that she/he might seem odd to other people (e.g., traffic lights, draughts, or timetables)?	yes <input type="radio"/> no <input type="radio"/>
12. Has she/he ever seemed to be more interested in parts of a toy or an object (e.g., spinning the wheels of a car), rather than using the object as it was intended?	yes <input type="radio"/> no <input type="radio"/>
13. Has she/he ever had any special interests that were unusual in their intensity or others or appropriate for her/his age and peer group (e.g., trains, dinosaurs)?	yes <input type="radio"/> no <input type="radio"/>
14. Has she/he ever seemed to be unusually interested in the sight, feel, sound, taste, or smell of things or people?	yes <input type="radio"/> no <input type="radio"/>
15. Has she/he ever had any mannerisms or odd ways of moving her/his hands or fingers, such as flapping or moving her/his fingers in front of her/his eyes?	yes <input type="radio"/> no <input type="radio"/>
16. Has she/he ever had any complicated movements of her/his whole body, such as spinning or repeatedly bouncing up and down?	yes <input type="radio"/> no <input type="radio"/>
17. Has she/he ever injured her/himself deliberately, such as by biting her/his arm or banging her/his head?	yes <input type="radio"/> no <input type="radio"/>
18. Has she/he ever had any objects (other than a soft toy or comfort blanket) that she/he had to carry around?	yes <input type="radio"/> no <input type="radio"/>
19. Does she/he have any particular friends or a best friend?	yes <input type="radio"/> no <input type="radio"/>

Directions

Thank you for taking the time to complete this questionnaire. Please answer each question by circling yes or no. A few questions ask about several related types of behavior; please circle yes if any of these behaviors have ever been present. Although you may be uncertain about whether some behaviors were ever present or not, please answer yes or no to every question on the basis of what you think.

Copyright © 2003 by WESTERN PSYCHOLOGICAL SERVICES
 Not to be reproduced in whole or in part without written permission of Western Psychological Services.
 All rights reserved. 1 2 3 4 5 6 7 8 9 Printed in U.S.A.



Behavioral Screening of School Age Children

■ *Social Communication Questionnaire (SCQ)*

- Two forms of the *SCQ*: a *Lifetime* and a *Current* form.
 - *Current* ask questions about the child's behavior in the past 3-months, and is suggested to provide data helpful in understanding a child's "everyday living experiences and evaluating treatment and educational plans"
 - *Lifetime* ask questions about the child's entire developmental history and provides data useful in determining if there is need for a diagnostic assessment.
- Consists of 40 Yes/No questions asked of the parent.
- The first item of this questionnaire documents the child's ability to speak and is used to determine which items will be used in calculating the total score.

Behavioral Screening of School Age Children

Social Communication Questionnaire (SCQ)

- An “AutoScore” protocol converts the parents’ Yes/No responses to scores of 1 or 0.
- The mean *SCQ* score of children with autism was 24.2, whereas the general population mean was 5.2.
- The threshold reflecting the need for diagnostic assessment is 15.
- A slightly lower threshold might be appropriate if other risk factors (e.g., the child being screened is the sibling of a person with ASD) are present.

Behavioral Screening of School Age Children

Social Communication Questionnaire (SCQ)

- While it is not particularly effective at distinguishing among the various ASDs, it has been found to have good discriminative validity between autism and other disorders including non-autistic mild or moderate mental retardation.
- The *SCQ* authors acknowledge that more data is needed to determine the frequency of false negatives (Rutter et al., 2003).
- This *SCQ* is available from Western Psychological Services.

Concluding Comments/Questions

Stephen E. Brock, Ph.D., NCSP

- California State University, Sacramento
- brock@csus.edu

Michael Slone, M.S., NCSP

- Irvine Unified School District
- mstone@iusd.org

Part 2: Tomorrow at 2:00

Contact Dr. Brock for additional resources:

- Prevalence and Associated Conditions
- Causes
- Case Finding and Screening
- Diagnostic Assessment
- Psycho-Educational Assessment

