

# Screening for Autism Spectrum Disorders and Neurodevelopmental Disorders

Kathleen Lehman, Ph.D.  
CHDD  
February 2, 2009

---

---

---

---

---

---

---

---

## Overview

- CAA and need for screening
- Overview of a number of screening measures
- Research available on sensitivity and specificity of measures

---

---

---

---

---

---

---

---

## Need for screening

Average age of diagnosis is 4.6 years old

- Despite evidence that autism can be identified in very young children
- Diagnosis may be delayed until school age
- Late in terms of early intervention
- Often 2 years after parents express concern
- Interim seen by at least 3 professionals
- Leaves parents feeling they have lost precious time
- Increasing distress and frustration for parents

---

---

---

---

---

---

---

---



## Possible reasons for delay

- Mandell, Ittenbach, Levy, & Pinto-Martin (2007)
  - Inadequate screening practices
  - Pediatricians' slow response to parental concerns
  - Low sensitivity of autism screening instruments
  - General lack of awareness of symptoms
  - Similarities to other disorders-
    - ADHD
    - language impairment
    - OCD in older children (repetitive behaviors)

---

---

---

---

---

---

---

---



## Possible cultural factors for delay

- Asian Indian parents notice social difficulties vs. language delays (Daley, 2004)
- U.S. parents-general delays or regression in language (Coonrod & Stone, 2004)
- Published findings on timely diagnosis of ASD related to ethnicity or class have been inconsistent (Liptak et al., 2008)
  - White 6.3 years vs. African American 7.9 (Mandell et al., 2002)
  - Near-poor later than those above and below poverty (Mandell, Novak, Zubritsky, 2005)
  - Survey study of 5 countries (Goin-Kochel et al., 2006) found higher parental ed and income associated with earlier diagnosis, no difference for racial groups
  - Wiggins, Baio, & Rice (2006) found no difference for racial groups
  - Thomas et al (2007) ethnic minority families less likely to have a case manager and use a psychologist and developmental pediatrician

---

---

---

---

---

---

---

---



## Psychometric requirements

- **Reliability:** inter-rater, test-retest, or internal consistency
- **Validity:** construct, content, or criterion-related
- **Sensitivity:** proportion of cases correctly identified (true positives)
- **Specificity:** proportion of non-cases correctly identified (true negatives)
- Autism-specific screening after 18-24 months better sensitivity and specificity

---

---

---

---

---

---

---

---



## Early screeners

- CHAT (Baron-Cohen et al., 2000)
- M-CHAT (Robins, Fein, Barton, & Green, 2001)
- STAT (Stone & Ousley, 1997)
- PDDRS-II (Siegel, 2004)
- CHAT-23 (Wong et al., 2004)
- ESAT (Swinkels et al., 2006)

---

---

---

---

---

---

---

---



## Screening for young children

- Differentiating ASD from other DDs
- Many DDs show similar features
- Many diagnoses do not differentiate in very young children
  - Global delay and developmental language delay
- Behavioral presentation changes as develop

---

---

---

---

---

---

---

---



## Screening for young children

- **Behaviors:** pointing to objects, giving or showing objects, and following another person's gaze (joint attention) develop between 9-18 months in normal development
  - Delay is only apparent when past age majority of children master the skill
- Challenge of detection prior to 18 months
- Subtle social skills and language abnormalities-may be hard for parents to recognize
- Key behaviors prior to 18 months that distinguish ASD for parents (Swinkels et al., 2006)
  - Lack of variability in play and abnormal perceptual responses
  - Easy to observe and recognize

---

---

---

---

---

---

---

---



## Screening for young children

- Study of toddlers with ASD vs. DD/DLD (Ventola et al., 2007)
- Control for language level, ASD differentiate on
  - social interaction (eye contact, shared enjoyment, showing, initiation of joint attention, response to joint attention, and quality of social overtures)
  - one communication behavior (pointing)

---

---

---

---

---

---

---

---



## Screening measures

- ABC
- SCQ
- SRS
- GARS-2
- ASIEP-3
- GADS

---

---

---

---

---

---

---

---



## Autism Behavior Checklist

- Kruk, Arick, Almond (1980, 1993): ABC
- most commonly used screening measure
  - 18 months
  - Cut-off score
  - Parent/caregiver questionnaire
  - High specificity and lower sensitivity
    - Under-inclusive compared to other measures

---

---

---

---

---

---

---

---



## Social Communication Questionnaire

- Rutter, Bailey, & Lord (2003) SCQ previously ASQ
- Companion screening measure for the ADI-R
- Ages 4 years old and above (mental age above 2 years)
- Single cut-off score: 15
- Validation for single Total Score from Lifetime form
- Manual recommends screening those just below cut-off
- 2 forms: Lifetime (10 questions time btw 4<sup>th</sup> & 5<sup>th</sup> birthday) and Current (previous 3 months)
- Strong validity, reliability, sensitivity, and specificity

---

---

---

---

---

---

---

---



## Social Communication Questionnaire

- Wiggins et al (2007) SCQ screening of young children
  - Current cut-off score of 15 not sensitive
  - Sensitivity increased at reduced cut-off score (11) without compromising specificity.
  - SCQ may target behaviors more noticeable in older children (friends, restricted interests, repetitive behaviors)
- Young children with ASD may be distinguished by the absence of typically developing behaviors rather than presence of subtle atypical behaviors (Stone et al., 1999)

---

---

---

---

---

---

---

---



## Social Communication Questionnaire

- Goin-Kochel & Cohen (2008)
- Compare SCQ to DSM-Q for screening for statewide registry
- Some children below cut-off (13 and 14) met ASD
- SCQ had parent-friendly questions vs. clinical ones
  - "Has your child ever shown a preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal in intensity or focus (obsessions)?"
  - "Has she/he ever had things that she/he seemed to do in a very particular way or order or rituals that she/he insisted that you go through?"
  - Has she/her ever had any interests that preoccupy her/him and might seem odd to other people (e.g., traffic lights, drainpipes, or timetables)?"

---

---

---

---

---

---

---

---



## Social Responsiveness Scale

- Constantino & Gruber (2005) SRS
- Ages 4-18 years old
- 15-20 minutes to complete and 5-10 minutes to score
- Manual reports use as screener and to aid in diagnosis
- Scoring considers spectrum of ASD-PDD NOS missed by other scales (ABC)
- Parent and Teacher forms
- Good reliability and validity

---

---

---

---

---

---

---

---



## Gilliam Autism Rating Scale, 2nd Ed.

- Gilliam (2006) GARS-2
- Ages 3-22 years old
- 42-items plus parent interview (completed by parent)
- 5-10 minutes to complete
- Parents, teachers, and others can complete it
- Standard scores
- Can pro-rate for nonverbal children (eliminate communication domain)
- Reliability and validity good (correlates with ABC)
- Instructional objectives guide used for IEPS

---

---

---

---

---

---

---

---



## Autism Screening Instrument for Educational Planning, Third Ed.

- Krug, Arick, & Almond (2008) ASIEP-3  
Ages 2 years to 13 year, 11 months
- ABC included
  - Sample of Vocal Behavior-spontaneous as possible
  - Interaction Assessment-observation of interaction
  - Educational assessment-probe of child's functioning:
    - In-seat behavior, receptive language, expressive language, body concept, and speech imitation
  - Prognosis of Learning Rate-evaluates learning acquisition rate for sequencing task.

---

---

---

---

---

---

---

---



## Gilliam Asperger's Disorder Scale

Gilliam (2001) GADS

- Created standardized instrument to identify Asperger's Disorder
- 32-items with 4 subscales with parent interview (completed by parent)-documents no delays per DSM-IV-TR
- Ages 3-22 years old
- 5-10 minutes to complete
- Good reliability and validity

---

---

---

---

---

---

---

---



## Summary

Evidence supports early intervention, thus the need for early screening.

Screening measures need to be simple and quick to administer to increase use.

More research is needed on screening tools, esp. young children.

In the schools, GARS-2 and ASIEP-3 may be used to begin services prior to diagnosis, according to WA State eligibility for Autism.

Parent may wish to seek diagnosis outside school.

Positive screen should lead to referral for comprehensive diagnostic evaluation.

Gold Standard for diagnosis: ADI-R (parent interview) and ADOS (semi-structured activities allowing for observation of social, communication, play, and behaviors)---coming in March 2009!

---

---

---

---

---

---

---

---