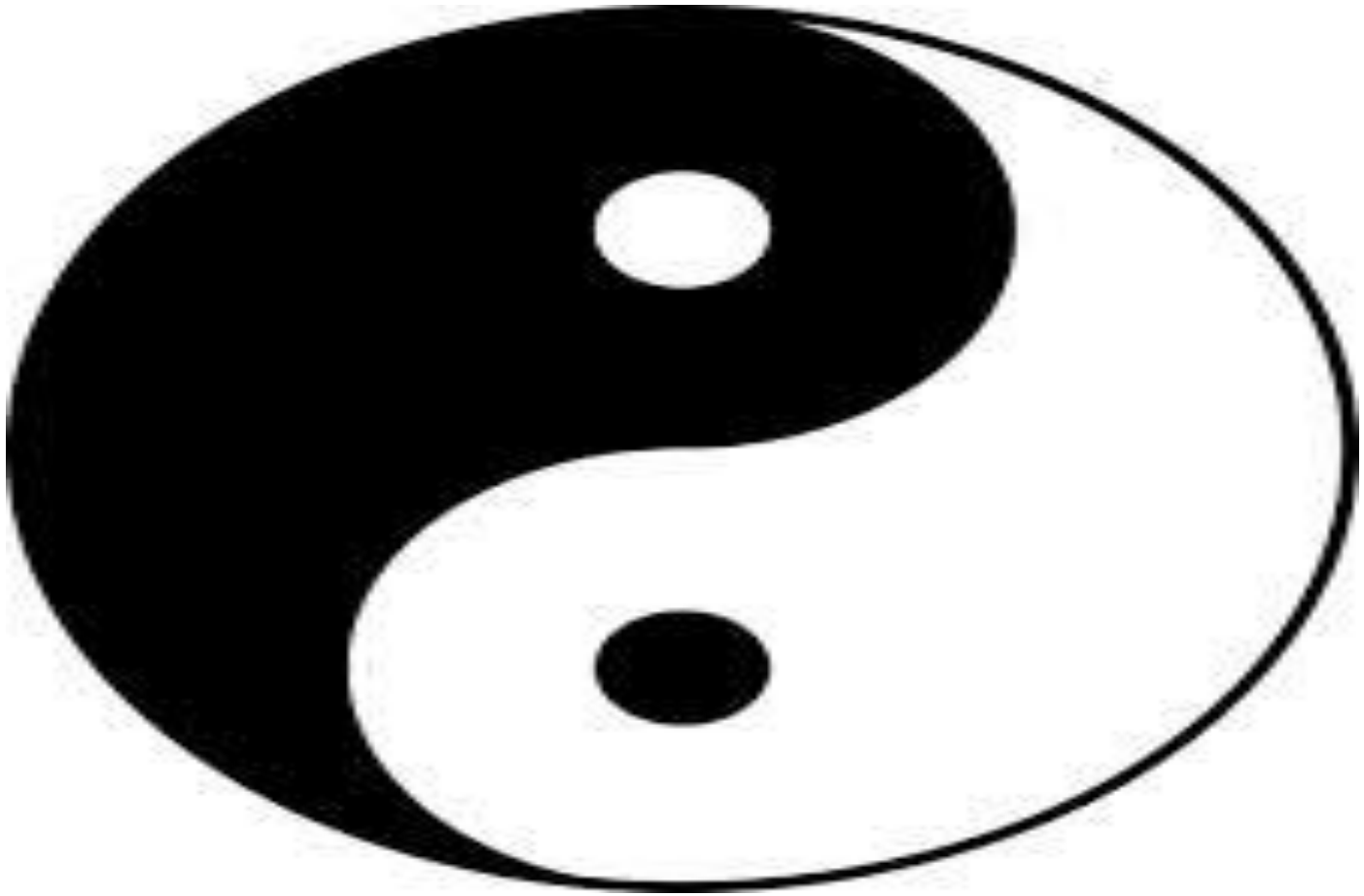
Didactics

- **Developmental Screening**
- **Autism Screening**
- **Early Signs of Autism Spectrum Disorders**
- **Discussion of screening results with parents**
- **Screening and cultural factors**
- **Special Education**
- **ADHD**

Quiet Adam

- Adam is an 18 months old boy you are seeing for the first time.
- When you ask his mother how is Adam doing, she answers that she has concerns that he is deaf as he does not answer when she calls his name.
- Adam has no words yet.
- You observe that Adam seems to be content to be by himself and that he does not really seek his mother’s attention.
- You proceed to do regular developmental screening and because he is 18 months old an autism screening, the MCHAT R/F.

Principles of Screening Tests



Definitions

• Sensitivity

- Refers to the ability of the test to correctly identify those patients with the disorder

$$\text{Sensitivity} = \frac{\text{True positives}}{\text{True positives} + \text{False negatives}}$$

• Specificity

- Refers to the ability of the test to correctly identify those patients without the disorder

$$\text{Specificity} = \frac{\text{True negatives}}{\text{True negatives} + \text{False positives}}$$

Definitions

• Positive Predictive value (PPV)

- Answers the question: ‘How likely is it that this patient has the disorder given that the test result is positive?’

$$\text{Positive predictive value} = \frac{\text{True positives}}{\text{True positives} + \text{False positives}}$$

• Negative Predictive value (NPV)

- Answers the question: ‘How likely is it that this patient does not have the d

$$\text{Negative predictive value} = \frac{\text{True negatives}}{\text{True negatives} + \text{False negatives}}$$

Screening state

Several programs to increase awareness:

- CDC campaign: Learn the signs Act Early http://www.cdc.gov/ncbddd/autism/screening.htm
- www.MAActearly.org

AAP (November 2013):

- Universal Screening for ASD at 18m and 24 m if no concerns before- Autism Clinician Kit

Massachusetts:

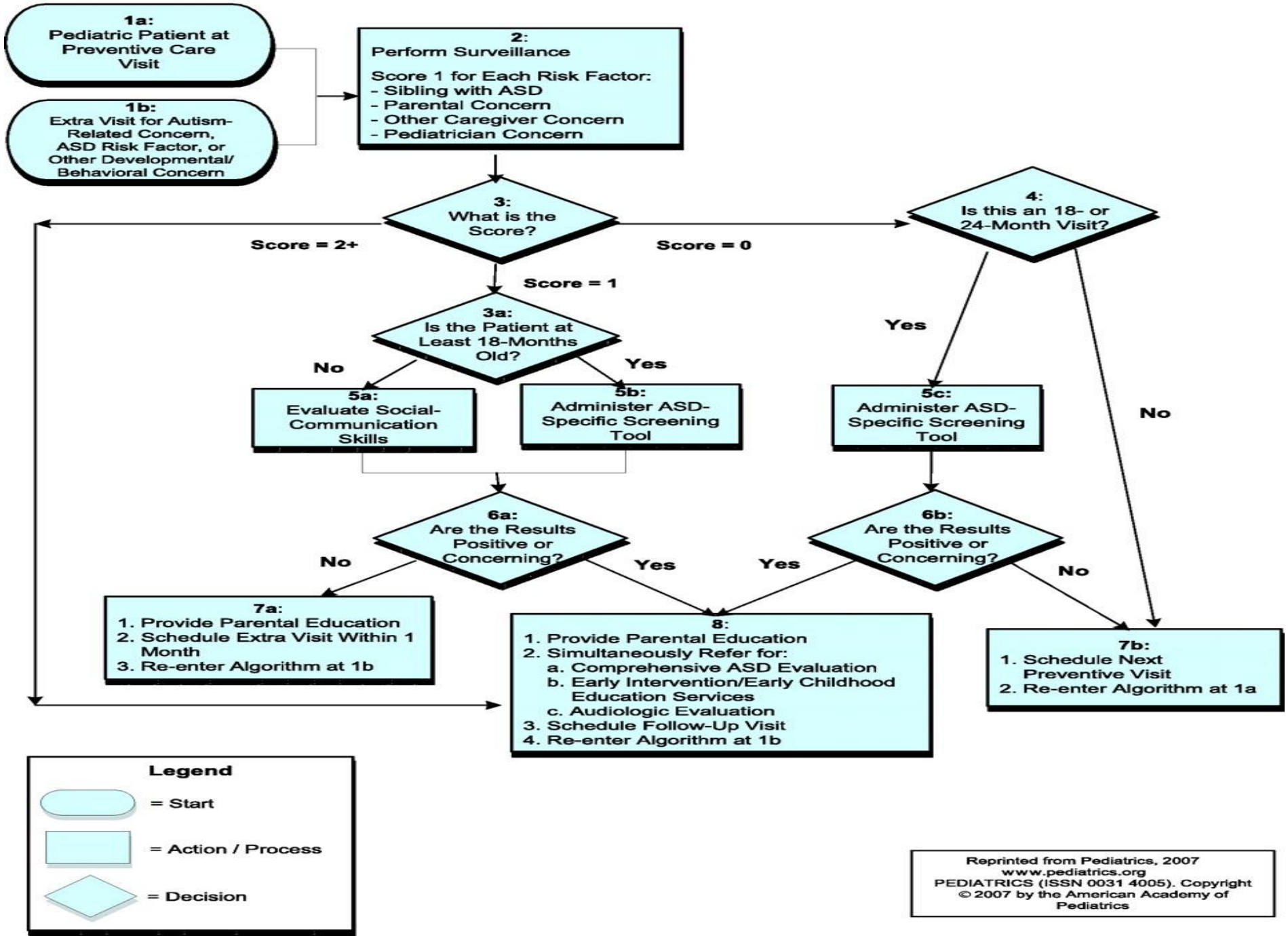
- Access to intensive services: final diagnosis ASD needed (January 2009)
- Mandatory developmental and autism screening (January 2008)

Pediatrician's role in autism Guidelines - AAP

1. **General observation and milestones**
2. **Ongoing developmental screening and surveillance**
3. **Autism screen at 18 and 24 mo**
4. **Refer to Early Intervention and specialist for formal diagnostic evaluation**
5. **Case management**

American Academy of Pediatrics, Council on Children With Disabilities. *Pediatrics*. 2007;

Surveillance and Screening Algorithm: Autism Spectrum Disorders (ASDs)



Surveillance

- **History is primary. Ask about REGRESSION and lack of progress**
- **Open Ended questions**
- **OBSERVATION of Behavior: Does the child...**
  - **Make eye contact with you?**
  - **Engage in back and fro babbling**
  - **Have extremes of temperament**
  - **Answer to his/her name**
  - **Look across to see what you point at? "Look" while pointing**
  - **Play pretend play**
  - **Point with his index when asked to?**
  - **Interact nicely with his/her mother/parent?**

Screening for ASD

Screening tools for ASD

ASD Screening tools not yet validated for < 18 months

For children > 18 months

Most frequently used is the Modified Checklist for Autism in Toddlers (MCHAT R/F)

Free & translated into several languages :
www.mchatscreen.com

MCHAT-R (January 2014)

- 20 Questions simplified, examples added for each one:
  - Does your child understand when you tell him or her to do something? Yes No
  - (**FOR EXAMPLE**, if you don't point, can your child understand "put the book)
- All answers matter (no critical items anymore)
- Scoring system simplified
- Can download from www.mchatscreen.com
- Already translated in several languages
- Improved PPV though still high number of false positives
  - PPV for ASD: 54%
  - PPV for developmental concerns/delays: 89-98%

MCHAT-R scoring

- **LOW-RISK: Total Score is 0-2;**
  - If child is younger than 24 months, screen again after 2y
  - No further action required unless surveillance indicates risk for ASD.

- **MEDIUM-RISK: Total Score is 3-7;**
  - Administer the Follow-Up (second stage of M-CHAT-R/F)

- **HIGH-RISK: Total Score is 8-20;**
  - It is acceptable to bypass the Follow-Up
  - Refer immediately for diagnostic evaluation and eligibility evaluation for early intervention.

The CSBS-ITC
Communication & Symbolic Behavior Scales: Infant Toddler Checklist

- **For those <18 months**
- **Free download http://brookespublishing.com/wp-content/uploads/2012/06/csbs-dp-itc.pdf**
- **Between 6 to 24 months**
- **Evaluates gestures, eye contact, facial expressions, vocalizations**
- **Scorable by anyone but requires clinical interpretation**

Quiet Adam

- Adam's mother answers questions on the PEDS (developmental screening) and on the MCHAT R/F (autism screening)

- Adam's scores are concerning for language delay on the PEDS and on the MCHAT he has a score of 8

Quiet Adam

- Because the MCHAT R/F score is 8, you skip the follow up interview

- You discuss with the family that those tests are only screening tests however you do have concerns for developmental delay (language) and for an Autism Spectrum Disorder.

Overview of ASD

Epidemiology

- Prevalence 1 in 68 [CDC 2014]
- Symptoms visible as early as 12 months in some
- Average age of initial diagnosis still around 4 y
- Variation linked to SES and culture




Average age of diagnosis

- Most still diagnosed after 4 years of age
- Almost five times more common among boys than girls

Special populations

- White children are more likely to be identified as having ASD than are black or Hispanic children.

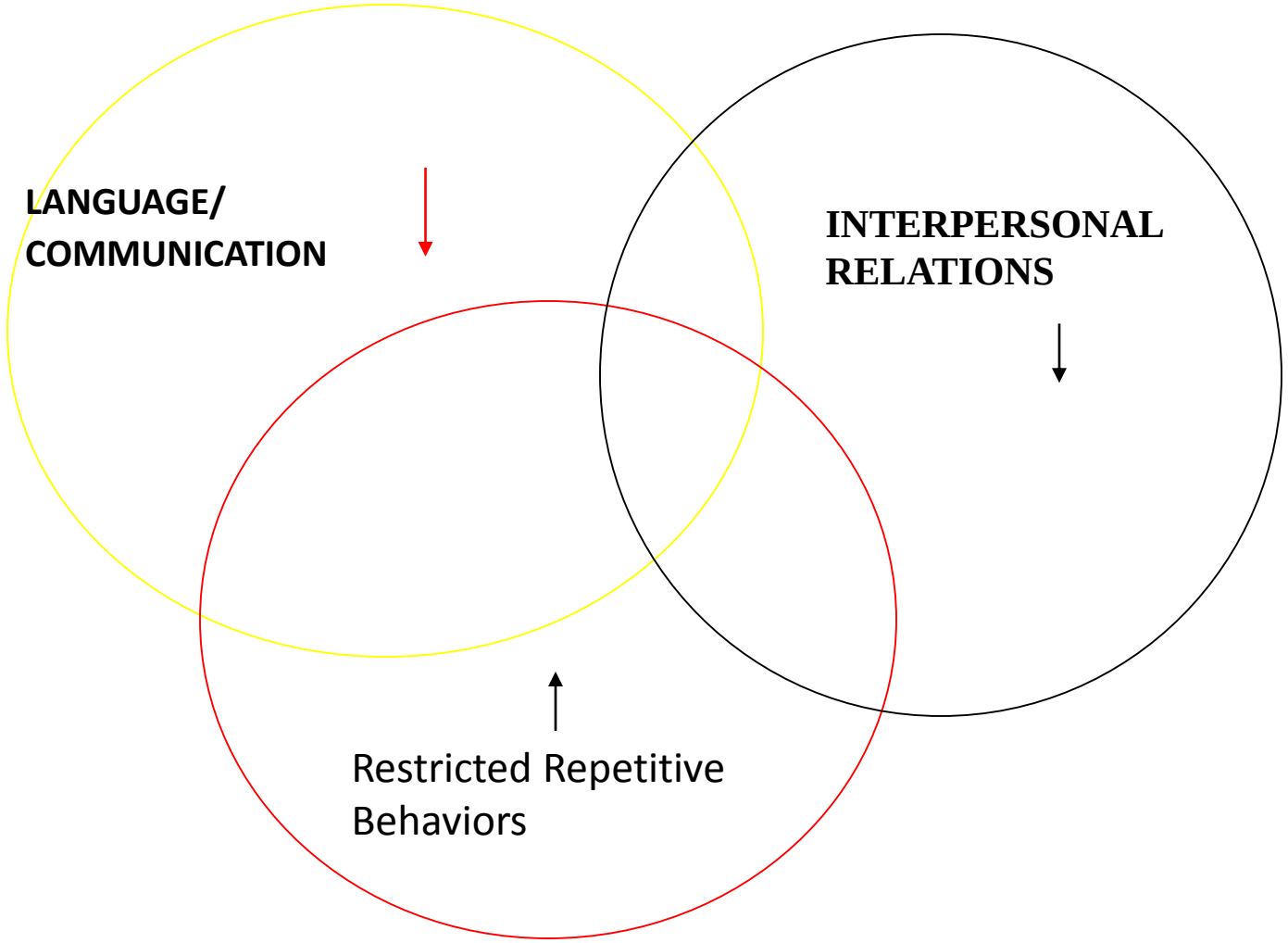
Definitions

- Autism Spectrum Disorders (ASD):

- Neurodevelopmental disorder affecting language development, social interactions and certain repetitive behaviors.

- Thought to start prenatally but can be clinically observed - in *some* cases - starting 6 months of age

AUTISM SPECTRUM DISORDERS



Diagnostic Criteria of ASD

DSM-IV

Multiple ASD categories, e.g., **Asperger's, PDD-NOS, Autism**

Three core symptom domains:

I. Qualitative abnormalities in Reciprocal Social Interaction

II. Qualitative abnormalities in Communication

III. Restricted, Repetitive and Stereotyped Patterns of Behavior (RRB)

AND Onset at/before 36 months of age

DSM-5

Single category with levels of severity, i.e., **ASD**

Two core symptom domains:

I. *Qualitative abnormalities in Social Communication, *marked by deficits in social-emotional reciprocity, *deficits in nonverbal communicative behaviors, & deficits in developing relationships.

II. RRBs, inclusive of repetitive speech, hyper/hypo-reactivity to sensory input

AND symptoms limit & impair everyday functioning

DSM-5 ASD Criteria for Social Communication (all must be met)

- Deficits in socio-emotional reciprocity
- Deficits in nonverbal communication behaviors used for social interaction
- Deficits in developing and maintaining relationships appropriate to developmental level

DSM-5 Criteria for Restricted/Repetitive Interests and Behaviors (RRB) (in AT LEAST 2 of 4)

A. Stereotyped or repetitive speech, motor movements or use of objects

B. Excessive adherence to routines, ritualized patterns of verbal or nonverbal behavior or excessive resistance to change

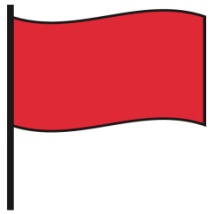
C. Highly restricted, fixated interests that are abnormal in intensity or focus

D. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of environment

Severity Levels

Severity Level	Social Communication	RRBs
I (mild)	Inclusion support with peers; child shows age level speech	Cues & reminders for transitions to manage reluctance, organization and planning
II (moderate)	Inclusion support/partial separate class depending on variability in behaviors; inability to engage with peers; immature and diminished talk, and talk topics limited to interests	Step plans for transitions to manage inflexibility; distress around change, visible to casual observer
III (severe)	Separate class due to limited & minimal initiations, responses, little intelligible speech & shows responses limited to self needs	Need to reduce demands due to limited coping, level of RRBs interfere with function, & frequent distress reactions with change

2- Early Development of ASD



RED FLAGS for ASD

- **No babbling by 12 months**
- **No gesturing by 12 months (pointing, waving bye bye)**
- **No single words by 16 months**
- **No 2-word spontaneous by 24months**
- **LOSS of ANY LANGUAGE or SOCIAL skills at ANY age**

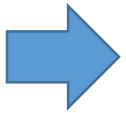
- Filipek & al: Practice parameter: Screening and diagnosis of autism. Neurology: 2000

Joint Attention/Sustained Social Engagement

Social development: Joint Attention

- **Sharing attention with others: pointing, showing and coordinating looks between objects and people**

- **Ability to engage others non-verbally**



mutually sustained **joint engagement with others**

- **Impairment of joint attention/sustained joint engagement**

One of the earliest signs of ASD

Joint Attention

Child follows a point

Child initiates to show

Social Development

Orientation to Social stimuli:

- **Response to name by 8-10 months**

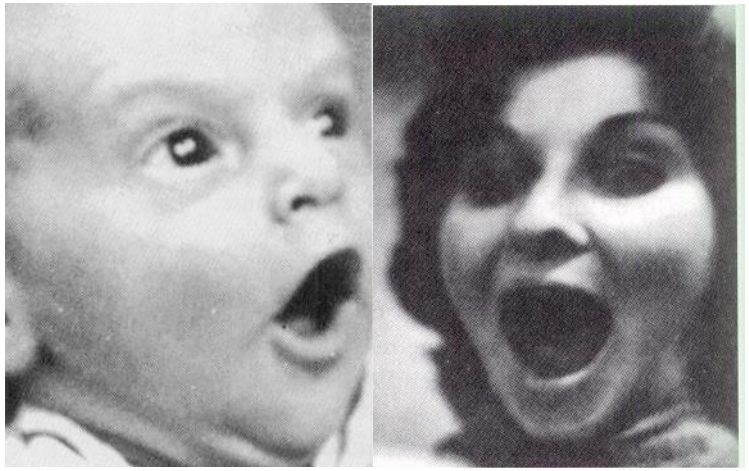
Development in JA :

- **Starting at 8m (following gaze)**
- **Following a point: 10-12 months**
- **12-14 months: points to request an object**
- **14-16m: points to share an interest**

- Mastery of JA: essential for functional language

Early Development

- **Babies start communicating and relating to other people at birth**



3 months

- **Begin to develop a social smile**
- **Imitate some movements and facial expressions**
- **Enjoys and seeks interaction**

Earliest known signs: 6-9 months

- **Delay to Lack of warm, joyful interaction with parent**
- **Delay to Lack of the alternating to-and-fro vocalizations infant/parent**
- **Delay to Lack of recognition of mother's voice**
- **Disregard for vocalizations but awareness for environmental Sounds**

Not found yet to be consistent markers o

9-12 months

Delayed onset of babbling

Decreased or absent use of gestures (waving, pointing, showing)

Lack of expressions such as "oh oh" or "huh"

Lack of interest or response of any kind to neutral states

Start to see impairments in JA

12 months

- **No back-and-forth gestures, such as pointing, showing, reaching, or waving bye**
- **IMPAIRED JOINT ATTENTION**
- **Not answering to one's name when called**
- **No babbling – mama, dada, baba**

18 months

- **No single words by 18 months**
- **No simple pretend play**
- **No response to name**
- **Impaired joint attention**

24 months

- No two-word combinations (e.g., “mommy car”, “daddy bye-bye”)
- No socio-dramatic play with objects (e.g., dolls)
- No positive reaction to other children
- No showing or initiation of JA

36 months

- No phrase speech
  - Language limited to requests
- No keen interest in other children
- Weak joint-attention skills
- No complex socio-dramatic play
- Stereotypic behaviors and interests greater than interest in people

SUMMARY: Early Signs of ASD in toddlers

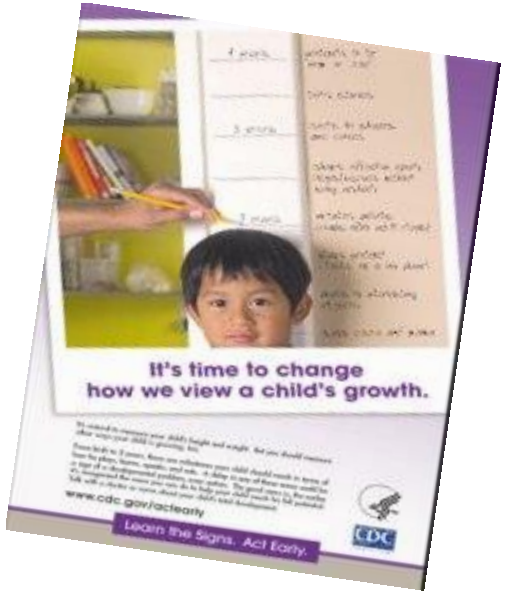
Signs seen as early as 6 months

Evidence that diagnosis can be made at 12 months

- Delay/inconsistency in *Joint Attention*
- Delay in *non verbal communication*: eye contact, pointing
- Delay in *Social Awareness* and *Reaction to other's emotions*
- Delay of pretend play
- Decreased *Response to Name*
- Not All criteria of DSM met

Culture and Autism

“Considering Culture in Autism Screening” Kit



Considering Culture in Autism Screening

Massachusetts Act Early

www.MAActEarly.org
www.cdc.gov/actearly
1-800-CDC-INFO




Visit our Web site online at www.MAActEarly.org

Discuss Screening Results

Discuss Screening Results

- **Emphasize this is a screening**
- **What are the parents' concerns**
- **What do they think is causing the delays or concerns?**
- **Do they suspect an Autism Spectrum Disorder?**
- **What do they know about Autism Spectrum Disorders?**

Quiet Adam

- **You refer Adam <u>at the same time</u>:**
  - **For a hearing test**
  - **For Early Intervention and ask that your office coordinate this**
  - **For a developmental evaluation**

  - **You schedule a follow up within 2 months to follow up with Adam's family and follow up on services and referrals.**

After Screening is positive

- **<u>EI/Early Childhood Services</u>:**
  - **Immediate referral**
- **<u>SLP, OT</u>: can start intervention even without a diagnosis**
- **At the same time : Referral for diagnostic evaluation**

Early Intervention Referrals

- http://massfamilyties.org/

- Family TIES can be reached at 1-800-905-TIES (8437)

Implications for referral

Enlist collaboration of interpreters, cultural liaisons, nurses, community agencies, social workers, or others, in supporting the family through the referral process.

Identify a person in your practice or community with cultural and linguistic knowledge, as well as professional experience in ASD, to be available to families

Have printed audio/audio-visual materials available in the families' dominant language

Connect parents to a network of other parents with similar issues.

TYPICAL DEVELOPMENT

- http://www.cdc.gov/ncbddd/actearly/milestones/index.html

- 3 Months to 5 Years
- Domains: Language, Socio-emotional; Gross Motor; Fine Motor; Cognitive; Speech & Hearing

IMPORTANT WEBSITES:

- www.Autismspeaks.org (video clips)
- http://www.cdc.gov/features/autismtraining/
- http://www.cdc.gov/ncbddd/actearly
- www.Firstsigns.org
- www.mchatscreen.com
- www.MAActearly.org
- www.aap.org
- http://nccc.georgetown.edu/
- www.fcsn.org
- www.dbpeds.org
- www.difflearn.com (Different roads to learning)
- www.autism-society.org

SPECIAL EDUCATION

CASE

- Parents of your 6 yo patient report that their son just got diagnosed with mild autism spectrum disorder in DBP clinic. They are concerned that he has been struggling in first grade.

- How would you advise them?

History

- In 1975, Congress passed the Education for All Handicapped Children Act, better known as Public Law 94-142

- Landmark legislation requiring public schools to educate students with disabilities

- Reauthorized in 1990, 1997, and 2004 and renamed the Individuals with Disabilities Education Act (IDEA)

History

- IDEA is divided into four parts
  - Part A - General Provisions
  - Part B - Assistance for Education of All Children with Disabilities
  - Part C - Infants and Toddlers with Disabilities
  - Part D - National Activities to Improve Education of Children with Disabilities

6 Principles of SPED

1. Parent and Student Participation
2. Appropriate Evaluation
3. Individualized Education Program (IEP)
4. Free and Appropriate Public Education (FAPE)
5. Least Restrictive Environment (LRE)
6. Procedural Safeguards

FAPE

- Modifications
- Accommodations
- Support services under their IEPs- allow them to have access to and benefit from instruction to meet standards of the State Education Authority
- Complies with procedural requirements of IDEA
- Addresses the child's unique needs as identified by evaluations, observation, and educational team
- Coordinated to ensure the child makes adequate progress in the educational setting

Disability Types in Massachusetts

- Autism
- Developmental Delay
- Intellectual Impairment
- Sensory Impairment
  Hearing/Vision/Deaf-Blind
- Neurological Impairment
- Emotional Impairment
- Communication Impairment
- Physical Impairment
- Health Impairment
- Specific Learning Disability

Eligibility for SPED

1. Does the child have a disability? What type?

2. Does the disability cause the child to be unable to progress effectively in regular education?

3. Does the child require specially designed instruction to make progress or does the child require services in order to access the general curriculum?

- Answer to each should be "yes" in order to determine child is eligible for special education services

Consent for SPED Evaluation

CONSENT

CONSENT

CONSENT

- **Parent or guardian must provide written consent in order for evaluation to begin**

Evaluation Timeline

- Evaluations must be completed within 30 school days of the parent's written permission for evaluation
- Does not include weekends or school holidays
- Can refer at 2 ½ prior to 3rd birthday

Components of Evaluation

- **All special education evaluations must include:**
  - Assessment in **all areas related to suspected disability**
    - **Educational Assessment:** Educational history and progress, including current performance in key curriculum areas. Includes information on attention , participation, communication , memory, and social relations. Includes description of student's educational and developmental potential.
- **Following assessments included if school or parent asks:**
    - **Health Assessment:** Identify medical problems affecting learning. May be done by school-referred or family physician. Reviewed by school nurse.
    - **Psychological Assessment:** Consider student's learning abilities and style in relationship to social/emotional development.
    - **Home Assessment:** Family history that may affect learning or behavior; May include a home visit.

Meeting Timeline

- Within 45 school days of written consent, Team meeting must be held to talk about evaluations , determine eligibility, and complete IEP

OUTNUMBERED?

IEP

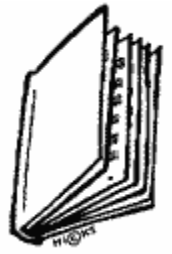
- Individualized Education Program (IEP) is developed at Team meeting
- Formal agreement about services school will provide for child's special education needs
- IEP is contract between family and school
- As with any contract, make sure to fully understand the terms you are agreeing to and that everything agreed to verbally is written in contract

Accepting IEP

- Within 30 days of receiving IEP from school, parent must sign and return to school

- **The signature of the parent or adult student must appear on the IEP before services can begin**

Keep a Binder



- Specialist Evaluations
- Medical Records
- Correspondence and Communication with School
- Examples of Child’s Work
- Previous IEPs
- School Evaluations, Annual Testing

ADHD: CASE

- “Hyper Harry” is a 8 yo boy who is noted by his teachers and parents to be easily distractible, often forgets homework and books, cannot finish tasks, is becoming oppositional, and doesn’t listen. He is doing poorly in school, and has said “no one likes him.” The parents are asking for your help.

ADHD Prevalence

- Prevalence ranges from 4-12% in recent review articles in the school aged population [1]
- Boys are more commonly identified then girls: 3:1 [2]

ADHD Inattentive Symptoms

6/9 required for DSM 5 diagnosis

- Often fails to give close attention to details, or makes careless mistakes in schoolwork
- Often has difficulty in sustaining attention in activities
- Does not seem to listen when spoken to directly
- Does not follow through on instructions
- Has difficulty organizing tasks
- Avoids engaging in tasks that require sustained mental effort
- Often loses things necessary for activities
- Is easily distracted by extraneous stimuli
- Is forgetful in daily activities

ADHD H/I Symptoms

6/9 required for DSM 5 diagnosis

- Hyperactivity:
  - Is fidgety
  - Leaves seat when expected to remain seated
  - Runs about in situations which are inappropriate
  - Has difficulty playing quietly
  - Acts as if “driven by a motor”
  - Talks excessively
- Impulsivity:
  - Blurts out answers before questions have been completed
  - Has difficulty waiting in turn
  - Often intrudes on others (butts into conversation or games)

DSM 5 Diagnostic Criteria

- ADHD Predominantly inattentive presentation
- ADHD Predominantly hyperactive-impulsive presentation
- ADHD Predominantly combined presentation
- 6/9 symptoms in each category specified is required for DSM 5 criteria diagnosis

Diagnosis of ADHD

- History obtained from multiple sources (e.g. parent and teacher)
- Onset of symptoms prior to 12 years of age
- Symptoms persist > 6 months
- Symptoms interfere with social, academic, or occupational functioning
- Symptoms cannot be accounted for by another disorder *(ASD, schizophrenia, psychotic disorder, mood disorder, anxiety disorder, dissociative disorder, or personality disorder, substance use)*

Differential Diagnosis and Comorbid Conditions of ADHD

DIFFERENTIAL DX

- Mood Disorder
- Learning Disability
- Anxiety Disorder
- Substance Abuse
- Schizophrenia/psychosis
- Generalized resistance to thyroid hormone/ Hyperthyroidism
- Obstructive Sleep Apnea

COMORBID CONDITION

- Mood Disorder
- Conduct Disorder
- Learning Disability
- ODD
- Tourette's Disorder
- Speech or Language Delay

Evaluation for ADHD

- Complete medical history with physical exam
- Check hearing and vision
- Ask about symptoms of sleep apnea/snoring
- Family History: Inquire about a family history of ADHD, and history of LD
- No laboratory testing required unless history suggests concern for thyroid disease
- Obtain behavioral information from multiple sources

Treatment of ADHD

MULTIMODAL TREATMENT PLAN

- Medical intervention
- Behavioral intervention
  - Parent education
  - Educational accommodations
  - Behavior modification techniques
  - Social skills training
  - Individual counseling

Medications

- Multiple medications available for the treatment of ADHD
- Stimulants (methylphenidate, dextroamphetamine)
- Alpha-adrenergic agonists (clonidine, guanfacine)
- Atomoxetine (Straterra)

Effects of Medication

What should improve

- Overactivity
- Attention span
- Impulsivity and self control
- Physical and verbal aggression
- Academic productivity

What will not necessarily improve

- Reading skills
- Social skills
- Academic achievement
- Antisocial behavior
- Learning disability

Zametkin, AJ et al NEJM 340(1) 7 January 1999 40-47

Side Effects of Medication

- STIMULANTS: appetite suppression, weight loss, delay in sleep onset, HA, dizziness, minor increase in pulse, BP, rebound hyperactivity, dysphoria, tics, agitation
- CLONIDINE: Sedation, rebound HTN if stopped abruptly; monitor BP
- ATOMOXETINE: nausea, dyspepsia, decreased appetite, mood swings, headache

Medication “Pearls”

- “Start low, go slow” : need for frequent contact with parents and schools while starting medication
- Monitor symptoms on medication with the CAPS form (www.dbpeds.org/handout)
- Advise parents that in children with a tic disorder, tics may become exacerbated while on medication

Starting Medication: Step by Step

- Have teacher complete a ADHD rating before meds start
- Start medications on a Saturday
- If no side effects, give on Monday AM
- Have teacher complete short rating after 1-2 weeks on medications and FAX to MD
- Talk to parent after you receive updated rating form, titrate from there on regular basis until target symptoms improved

Other Non-medical Interventions

- Behavior-modification techniques: daily report cards, positive reinforcement, sticker charts
- Social skills training: designed to improve interactions with peers
- Individual counseling: helpful for symptoms of low self esteem, oppositional behavior, and conduct problems

Educational Interventions

- 504 Plan
- Preferential seating placement
- In class behavior modification programs & positive behavior supports
- Help for LD if present