



Autism Spectrum Disorders 2018

Elise Leonard, MD
Phoenix Area Indian Health Service

Objectives

- ▶ be alert for early signs of autism
- ▶ be able to use a well-validated autism screening tool
- ▶ know how to help parents access the important early interventions available for children with Autism Spectrum Disorders

ASD diagnostic criteria

- ▶ persistent deficits in social communication and social interaction (*all* of the following)
 - ▶ abnormal social approach, back-and-forth conversation
 - ▶ reduced sharing of interests, emotions, affect
 - ▶ failure to initiate or respond to social interactions

ASD diagnostic criteria

- ▶ persistent deficits in social communication and social interaction (*all* of the following)
 - ▶ poorly integrated verbal and non-verbal communication, abnormalities in eye contact and body language, use of gestures
 - ▶ difficulty adjusting behavior to suit context, sharing imaginative play, making friends

ASD diagnostic criteria

- ▶ restricted, repetitive patterns of behavior, interests, or activities (at least *two*)
 - ▶ stereotyped or repetitive movements, use of objects, or speech
 - ▶ insistence on sameness, inflexible adherence to routines, verbal or non-verbal rituals
 - ▶ highly restricted, fixated interests that are abnormal in intensity or focus
 - ▶ hyper- (or hypo-) reactivity to sensory input

Reported prevalence of ASD

- ▶ 1980's- (most studies) 3-4: 10,000
 - ▶ 2007- CDC surveillance study 1: 150
 - ▶ 2012- CDC 1: 88
 - ▶ 2014- CDC 1: 68
-
- ▶ overall, 1 in 42 boys and 1 in 189 girls had ASD's
 - ▶ boys' relative risk (RR) = 4.5
 - ▶ 2014- looking at 8-year olds using DSM-V, 1: 59

Why is reported prevalence increasing?

- ▶ is the reported rise in prevalence real?
 - ▶ if so, why?
- ▶ are we just 'casting a wider net' ?
 - ▶ lower threshold for diagnosis
 - ▶ more public awareness
 - ▶ eligibility for services (school therapies, state developmental disabilities benefits) requires the diagnosis

Evidence against steep rise

- ▶ in a large 2007 survey of psychiatric morbidity across England, with use of standard criteria for all ages, prevalence of autism did not vary with respondent age
- ▶ this study suggests that true 'increase' is likely much smaller than CDC figures reflect

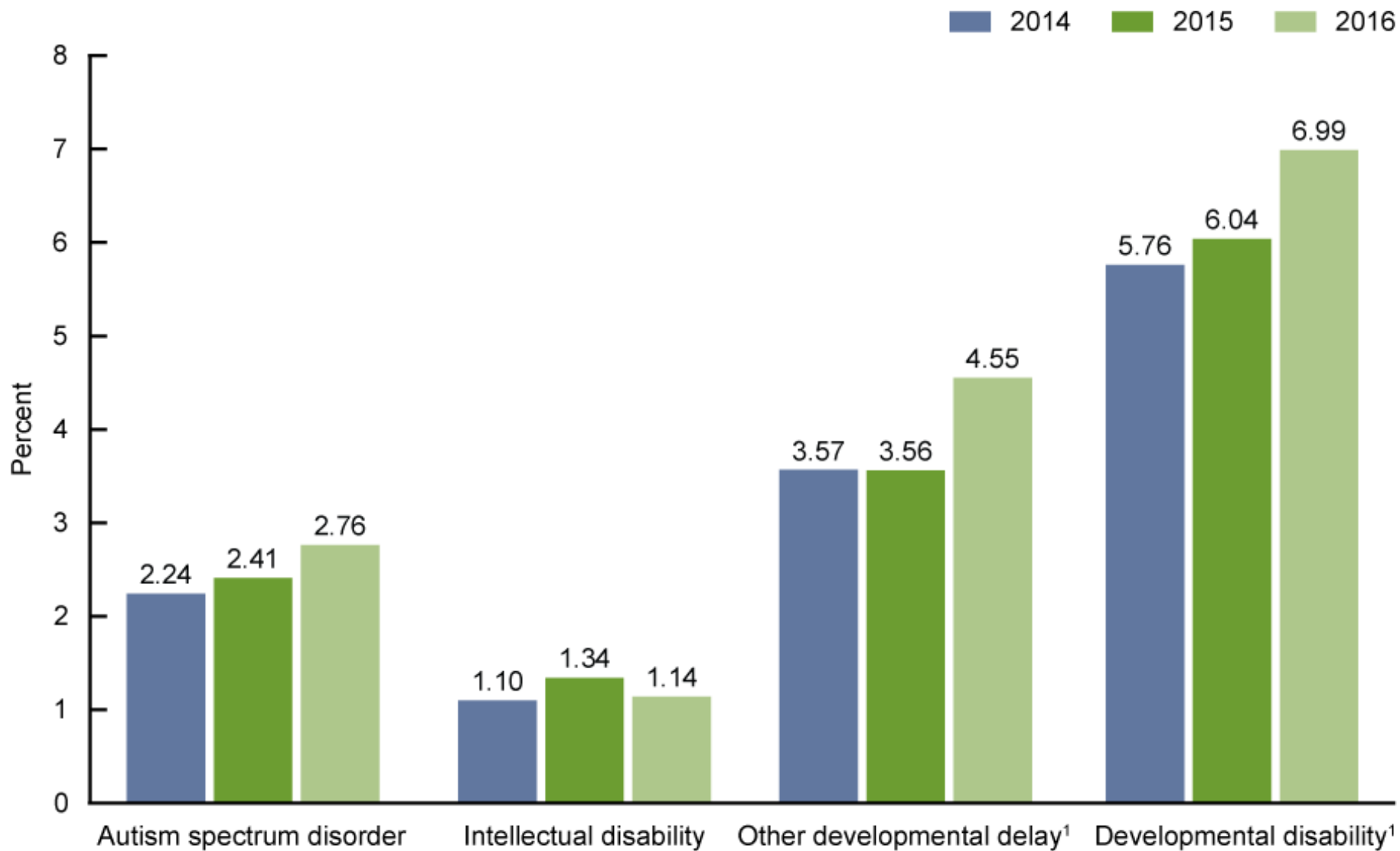
Evidence for some increase

- ▶ a study of children born in Denmark looked at the prevalence of autism before and after the 1994 diagnostic changes (from ICD-8 to ICD-10)
- ▶ they also began to include diagnoses of outpatients in 1995 (previously only inpatient data were used)
- ▶ **at least 60%** of increased prevalence was accounted for by these two factors

Vaccines and ASD

- ▶ meta-analysis of 10 studies on a total of 1,256,407 children
- ▶ *no evidence for link between vaccinations and autism*, nor any evidence separately for:
 - ▶ MMR (measles, mumps, rubella vaccine)
 - ▶ cumulative Hg dosage
 - ▶ thimerosal exposure

Taylor LE, et al. Vaccines are not associated with autism: An evidence-based meta-analysis of case-control and cohort studies. *Vaccine* April 2014.



Prevalence of children aged 3-17 years ever diagnosed with selected developmental disabilities, US 2014-2016. CDC.

Autism and Intellectual Disability

- ▶ just over half of children with ASD also have Intellectual Disability
 - ▶ until recently it was thought to be 75%
- ▶ ASD and Intellectual Disability are NOT the same
 - ▶ children with ASD can have any level of intelligence

Autism in Native America

- ▶ reports of lower ASD incidence in AI/AN's
- ▶ not clear how much of this is due to availability of screening/identification
- ▶ evidence for a racial bias in identifying children's developmental disorders
 - ▶ non-white children (*African-American and Latino*) are more likely to be diagnosed with Intellectual Disability and less likely to be diagnosed with ASD

Screening and diagnosis

- ▶ a diagnosis of autism can be **reliable, valid,** and **stable** by age 2
- ▶ parents of children with ASD notice developmental concerns earlier than other parents
 - ▶ by 6 months: social/communication concerns
 - ▶ by 12 months: hearing, vision concerns

Age at diagnosis

- ▶ though parents of autistic children start to have concerns earlier than for other developmental issues,
- ▶ median age at first diagnosis is 52 months
 - ▶ same for boys and girls, and across races

Why is early diagnosis important?

- ▶ “critical period” has been demonstrated for acquiring a second language (skill drops off sharply after 7 years)
- ▶ syntactic learning peaks from 18 to 36 months (syntax = set of rules)
- ▶ speech learning is “gated” by social factors
- ▶ mapping between words and objects via reading other’s intentions

Video



https://www.youtube.com/watch?v=1VA6Q3vTC_o

One tool for ASD screening

- ▶ M-CHAT-R/f (Modified Checklist for Autism in Toddlers, Revised with Follow-up)
 - ▶ parent questionnaire
 - ▶ 20 yes/no questions
 - ▶ valid for children from 16 to 30 months

M-CHAT-R™

Please answer these questions about your child. Keep in mind how your child usually behaves. If you have seen your child do the behavior a few times, but he or she does not usually do it, then please answer **no**. Please circle **yes** or **no** for every question. Thank you very much.

1. If you point at something across the room, does your child look at it? (FOR EXAMPLE, if you point at a toy or an animal, does your child look at the toy or animal?)	Yes	No
2. Have you ever wondered if your child might be deaf?	Yes	No
3. Does your child play pretend or make-believe? (FOR EXAMPLE, pretend to drink from an empty cup, pretend to talk on a phone, or pretend to feed a doll or stuffed animal?)	Yes	No
4. Does your child like climbing on things? (FOR EXAMPLE, furniture, playground equipment, or stairs)	Yes	No
5. Does your child make <u>unusual</u> finger movements near his or her eyes? (FOR EXAMPLE, does your child wiggle his or her fingers close to his or her eyes?)	Yes	No
6. Does your child point with one finger to ask for something or to get help? (FOR EXAMPLE, pointing to a snack or toy that is out of reach)	Yes	No
7. Does your child point with one finger to show you something interesting? (FOR EXAMPLE, pointing to an airplane in the sky or a big truck in the road)	Yes	No
8. Is your child interested in other children? (FOR EXAMPLE, does your child watch other children, smile at them, or go to them?)	Yes	No
9. Does your child show you things by bringing them to you or holding them up for you to see – not to get help, but just to share? (FOR EXAMPLE, showing you a flower, a stuffed animal, or a toy truck)	Yes	No
10. Does your child respond when you call his or her name? (FOR EXAMPLE, does he or she look up, talk or babble, or stop what he or she is doing when you call his or her name?)	Yes	No
11. When you smile at your child, does he or she smile back at you?	Yes	No
12. Does your child get upset by everyday noises? (FOR EXAMPLE, does your child scream or cry to noise such as a vacuum cleaner or loud music?)	Yes	No
13. Does your child walk?	Yes	No
14. Does your child look you in the eye when you are talking to him or her, playing with him or her, or dressing him or her?	Yes	No
15. Does your child try to copy what you do? (FOR EXAMPLE, wave bye-bye, clap, or make a funny noise when you do)	Yes	No
16. If you turn your head to look at something, does your child look around to see what you are looking at?	Yes	No
17. Does your child try to get you to watch him or her? (FOR EXAMPLE, does your child look at you for praise, or say “look” or “watch me”?)	Yes	No
18. Does your child understand when you tell him or her to do something? (FOR EXAMPLE, if you don’t point, can your child understand “put the book on the chair” or “bring me the blanket”?)	Yes	No
19. If something new happens, does your child look at your face to see how you feel about it? (FOR EXAMPLE, if he or she hears a strange or funny noise, or sees a new toy, will he or she look at your face?)	Yes	No
20. Does your child like movement activities? (FOR EXAMPLE, being swung or bounced on your knee)	Yes	No

Typical response is yes for all questions except items # 2, 5, and 12

M-CHAT-R

- ▶ M-CHAT-R/f shown to lead to identification of ASD an average of two years earlier
 - ▶ scores fall into 3 'zones'
 - ▶ score 0-2: no intervention
 - ▶ score 3-7: follow up questions
 - ▶ score 8-20: referral for specialist evaluation

Sensory perception in ASD

- ▶ incoming sensory data is processed differently by people with ASD's
 - ▶ exquisite sensitivity
 - ▶ synesthesia
 - ▶ lack of habituation
 - ▶ pain may not be perceived as negative

Sensory behaviors often reported by parents

- ▶ panic at loud noises (vacuum, fire drill)
- ▶ rejecting clothing by 'feel' (tags, sock seams, tight waistlines)
- ▶ aversion to being touched, having hair brushed, showering, cutting hair/nails
- ▶ narrow food preferences (texture, flavor, color)
- ▶ refusing busy/crowded places, bright lighting
- ▶ (less often) seeking noxious stimuli: very hot shower, very spicy foods, soothing by self-injury

How do kids manage sensory overload?

- ▶ avoidance
 - ▶ hiding under desk with hands over ears during fire drill, screaming when vacuum cleaner is on
- ▶ undressing inappropriately
- ▶ refusing grooming
 - ▶ haircuts, nail-clipping, washing
- ▶ picky food intake
 - ▶ this can be extreme

How do kids manage sensory overload?

- ▶ aggression
 - ▶ unregulated emotion (screaming, yelling)
 - ▶ hitting, kicking, biting self or others
 - ▶ head banging

How do kids manage sensory overload?

- ▶ **anxiety**, "shutting down"
 - ▶ rocking, spinning, pacing
 - ▶ hand-flapping, wiggling fingers in front of eyes
 - ▶ stereotypic vocalizations
 - ▶ exclusive focus on narrow interest

Navigating the sensory domain

- ▶ when it is directed by the person with autism sensory input can be very relaxing
 - ▶ rocking, pacing, swinging (vestibular stimulation)
 - ▶ swimming
 - ▶ horseback riding
 - ▶ a weighted vest or blanket, a firm hold

Navigating the sensory domain

- ▶ parents, teachers, and occupational therapists can help children identify when they are headed for a sensory overload or “meltdown”
- ▶ time in a quiet spot can preclude meltdowns and aggressive behavior

Therapies for ASD

- ▶ speech/language therapy
 - ▶ regardless of level of impairment
- ▶ occupational therapy
 - ▶ self care skills
 - ▶ sensory integration

Classroom approaches

- ▶ reduce sensory load
 - ▶ smaller classroom, predictable and structured schedule
- ▶ teach social skills
 - ▶ what to say and do in common situations
 - ▶ interpreting feelings: both in others and in the person with ASD

Help with social skills



Scared



Happy



Angry



Happy

Free



Sad



Silly



Surprised



Disappointed

Help with social skills

- ▶ for 'high-functioning' children with ASD (formerly known as Asperger's Syndrome), small-group structured activities can be great opportunities to rehearse social skills if support is adequate
 - ▶ karate lessons
 - ▶ scouting
 - ▶ social skills groups (at some schools)

Medications in ASD

- ▶ risperidone and aripiprazole are approved for irritability in children with ASD
- ▶ fluoxetine and sertraline have been approved for OCD
- ▶ some children have ADHD along with ASD
 - ▶ make sure the ADHD symptoms are present across domains, and not just reflective of anxiety
 - ▶ use stimulants cautiously

AZ services for children with ASD

- ▶ up to 36 months: AZ Early Intervention Program (AZEIP), AZ Department of Economic Security
 - ▶ case management, speech therapy, occupational therapy, physical therapy
- ▶ public school system for children 3 and older
 - ▶ case management, preschool, speech therapy, occupational therapy, physical therapy, other individualized services

AZ services for children with ASD

- ▶ Department of Developmental Disability (DDD) referral can be made **on line**, at time of visit
- ▶ lifetime case management and services through the Division of Developmental Disabilities for children with autism who experience “substantial functional limitation” in 3 of 7 major life areas
- ▶ additional therapies, respite care, adult supervised living and vocational services

Utah, Nevada, California links

- ▶ <https://dspd.utah.gov/>
- ▶ <http://adsd.nv.gov/Programs/Autism/ATAP/ATAP/>
- ▶ <https://www.dds.ca.gov/General/Eligibility.cfm>

Life for adults with ASD

- ▶ help teens and young adults consider jobs that match an interest
 - ▶ cars, animals, etc.
 - ▶ counting, lining things up, putting things away
- ▶ **daily self-care skills** are more important as a predictor of adult employment than intelligence or symptom severity
 - ▶ bathing, grooming, dressing, preparing food

Life for adults with ASD

- ▶ people with ASD can make great employees
 - ▶ excellent attendance, eye for detail, toleration of repetitive work
 - ▶ some companies like Staples, Microsoft have partnered with autism advocacy groups to hire people with ASD

Summary

- ▶ parents are aware of developmental issues early
- ▶ with screening ASD may be diagnosed before 2 years of age
- ▶ early intervention is associated with better language skills
 - ▶ referral for eligibility determination is easy

Summary

- ▶ scientific evidence is overwhelmingly against vaccines as a cause of ASD
- ▶ independent functioning in adulthood is dependent on self-care skills and specific pre-interview coaching

Video 2



<https://www.youtube.com/watch?v=oMN2PeFama0>

