

Early Identification of Autism: What Have We Learned From Baby Siblings?



Learning objectives



- Describe the literature on infants with a family history of autism spectrum disorder (ASD)
- Assess the early emergence of autism in relation to typical developmental expectations
- Explain the ASD evaluation process for very young children

How to study the early emergence of ASD?



- Many parents concerned at 6 months-2 years
- Average age at diagnosis remains 3-6 years
- Infant siblings of children with ASD have allowed for prospective study of ASD as it first emerges
 - Baby Siblings Research Consortium (BSRC)



What have we learned?

Recurrence rates

- Overall: 18.7 % rate of ASD at age 3
 - 3x higher if male
 - Older sibling characteristics, demographics did not predict ASD
- **Take home:** Familial-risk infants should be monitored closely and referred for early intervention at first sign of concern

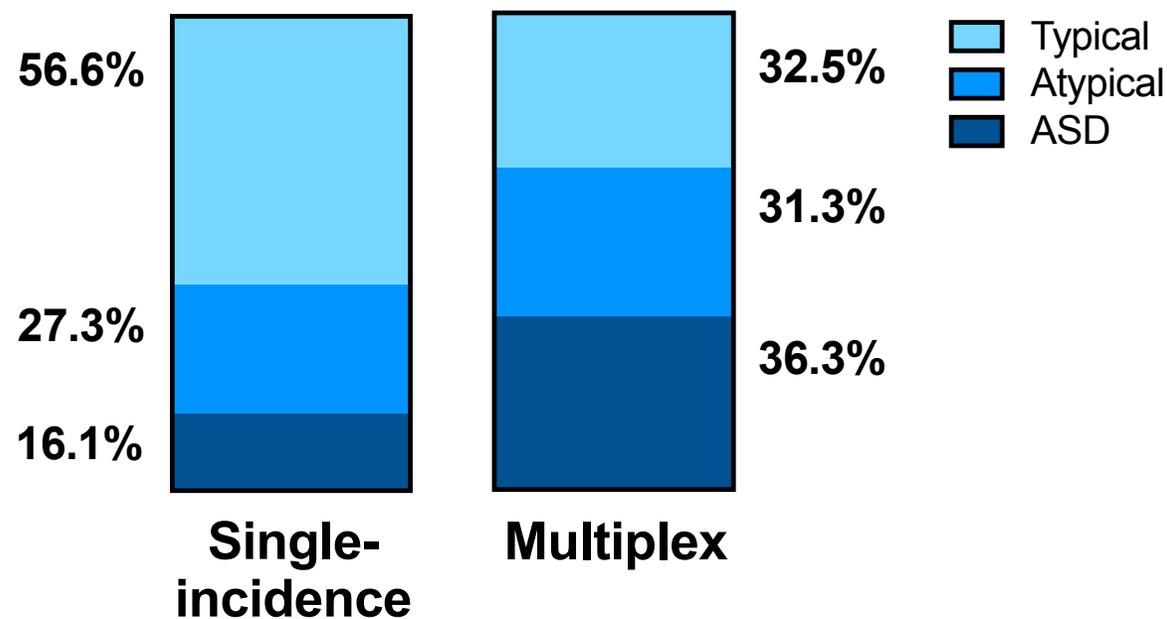


What have we learned?

Multiplex family history



Take home: Infants with a multiplex family history of ASD should be monitored *early* and *often* and referred for early intervention services at the first sign of concern

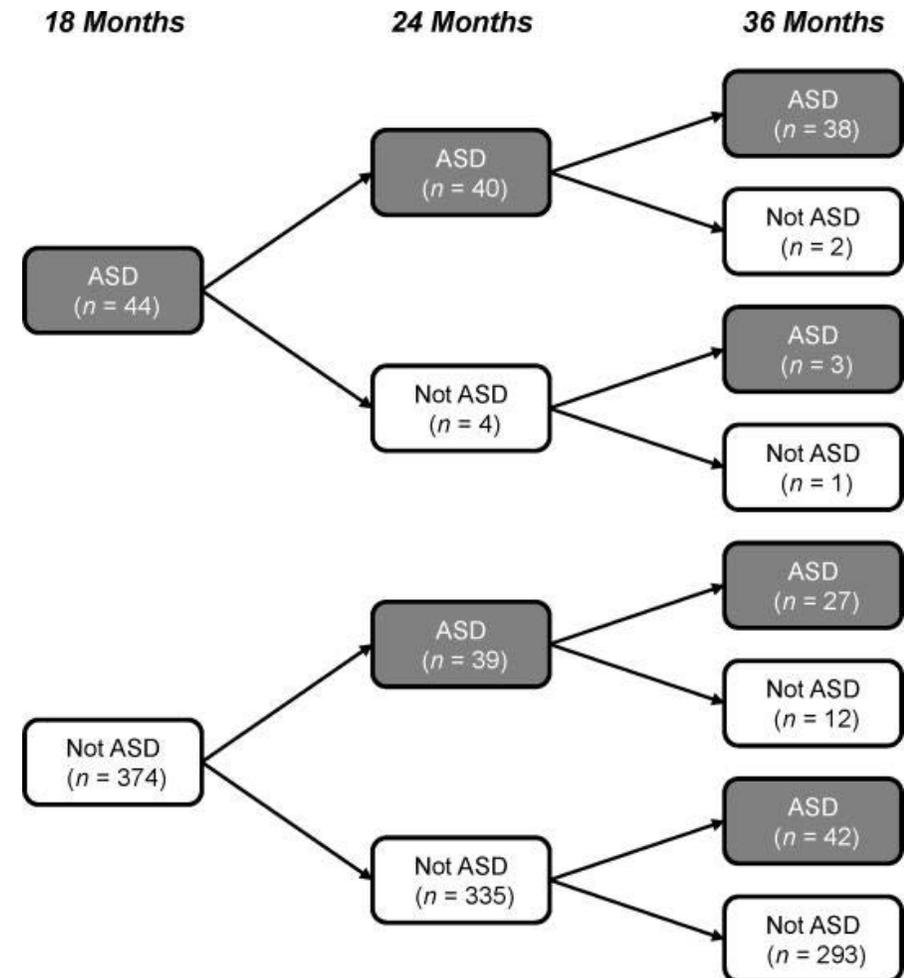


What have we learned?

Diagnostic stability

Take homes:

- Early diagnosis accurate, but missed less affected children
- Early false positives often had later developmental concerns
- Screen early *and* screen later



What have we learned?

Broader autism phenotype



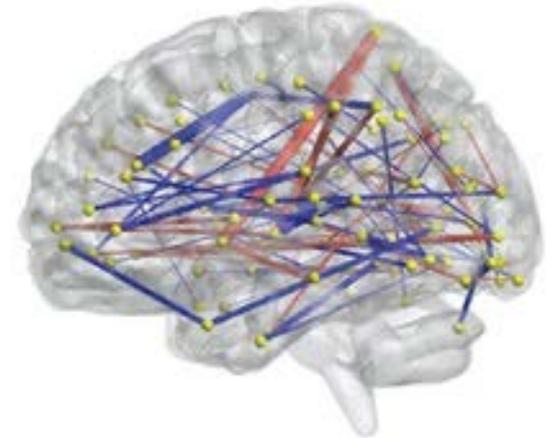
- Outcomes for non-ASD infant siblings
 - ~20% fell into groups with lower developmental or higher ADOS scores
 - Developmental delay=11%, Language delay=7%, ASD sx's=29%
 - ADHD & anxiety symptoms elevated at school age (Shephard et al., 2017)
- **Take home:** Non-ASD siblings may have developmental differences, which may require intervention and can complicate diagnosis.



What have we learned?

Brain before behavior

- Autism symptoms typically emerge between ages 1 & 2
- Infant Brain Imaging Study (IBIS)
- Some differences in brain development precede symptom onset
 - Using MRI, differences in structural and functional connectivity at 6 months in infants with ASD outcomes
 - Using EEG, 3-month connectivity patterns predict ASD symptoms at 18 months



Open questions

- Do these findings extend beyond baby siblings?
- Is pre-symptomatic identification possible?
- What about pre-emptive intervention?
 - Recent study (Whitehouse et al. 2021)
 - Appropriate treatment targets?



Clinical applications

What is typical?

- **Social development**

- Clear shared enjoyment & social smiles by ~6 months
- Social reciprocity/back-and-forth play by 9-12 months
- Joint attention emerges 9-12 months, clear by 18 months

- **Language/communication**

- Babbling/consonant sounds by ~5-8 months
- Several gestures by 12 months (e.g., point, wave)
- At least 10 meaningful words by 18 months

- **Play**

- Beginning functional play ~12 months
- Simple pretend play ~18 months
- Interest & beginning interactive play w/ peers by 24 months



Examples of typical development

Turn taking



Joint attention



Response to distress



Peer play example



How to assess toddlers?

- *Expert* diagnosis beginning ~18 months
- **Developmental/medical history**
 - Risk factors
 - Early social experiences
- **ASD symptoms**
 - Parent interview (e.g., ADI-R)
 - Direct assessment (e.g., ADOS-2, CARS-2, BOSA)
- **Other skills**
 - General development/early cognition (e.g., Mullen, Bayley-4)
 - Adaptive skills (e.g., Vineland-3, ABAS-3)
- Maybe collateral report (e.g., teacher; if applicable)



Special considerations for testing

- **Challenges**
 - Noncompliance
 - Short attention span
 - Separation/stranger anxiety
 - Nap time!
- **Ways to maximize success**
 - Comfort with population & tests (pacing)
 - Thoughtful scheduling of testing
 - Thoughtful ordering of tests & room setup
 - Parent involvement
 - Behavioral strategies
 - Flexibility!



Toddler testing during COVID

- Modifications
 - PPE
 - Air flow
 - More parent involvement
- Cannot do valid ADOS-2
 - Structured vs. unstructured
 - Challenge of milder cases
- Limited social experiences
- Access to early intervention
 - Improving, but still a challenge



Differential diagnosis

- Language delay
- Global developmental delay
- Behaviorally inhibited/emerging anxiety
- Behavioral dysregulation/emerging ADHD
- Broader autism phenotype/subclinical ASD
- Typical development/normal variability



Providing feedback

- Ideally, not a huge surprise (communication during testing)
 - But, be prepared for emotion
 - Start with diagnosis
- Goals for first diagnosis (therapeutic process)
 - Psychoeducation about ASD
 - Detailed information about their child
 - Inspire hope, begin process of acceptance
- Plenty of time for questions
- Prognosis – Where are they on the spectrum?
 - Balancing optimism/empathy & directness/honesty
 - Importance of early intervention

Common recommendations

- Early intervention = better outcomes (Landa, 2018; Zwaigenbaum et al., 2015)
 - Comprehensive treatment program, ≥ 25 hours/wk (National Research Council, 2000)
- But can be overwhelming, help parents to prioritize
- Regional Center (if not a client yet)
- Behavioral treatment (e.g., ABA)
- Other therapies
 - Speech/language therapy
 - Occupational therapy
 - Social skills treatment (ages 3-5; e.g., PEERS for Preschoolers)
- Special education support
 - Guidance about IEP process

UCLA resources



- Clinical resources:
 - CAN Clinic & CAN REACH (<https://www.uclacanreach.com>)
 - KidsConnect (formerly ECPHP)-intensive early intervention program
 - PEERS for Preschoolers program with Dr. Elizabeth Laugeson's group
- Center for Autism Research and Treatment (CART):
 - List of studies: <https://www.semel.ucla.edu/autism/open-research-studies>
 - Clinically relevant studies
 - **Baby BIBS** (Dapretto, McDonald)-High-risk infants, developmental monitoring
 - **Baby Bears, SPROUT, BLOOM** (Kasari, Gulsrud, Lord)-Free intervention, young & MV
 - **NESTING Study** (PI: Nicole McDonald, PhD)-NICU grads, developmental monitoring

Internet-based resources (free)

- **Early screeners**

- M-CHAT (18-24 months): <https://mchatscreen.com>
- CSBS DP (6-24 months): <https://brookespublishing.com/wp-content/uploads/2012/06/csbs-dp-itc.pdf>

- **First Words Project**

- Social Communication Growth Charts: <https://scgc.firstwordsproject.com/>
- 16 by 16 Lookbooks: <https://firstwordsproject.com/16-by-16-lookbooks/>
- Autism Navigator: <http://www.autismnavigator.com/> (ASD video glossary, online courses)

- **Autism Speaks**

- 100 Day Kit: <https://www.autismspeaks.org/tool-kit/100-day-kit-young-children>

Thank you!
Questions?

