

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



# Learning objectives

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- 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?

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- 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

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- 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

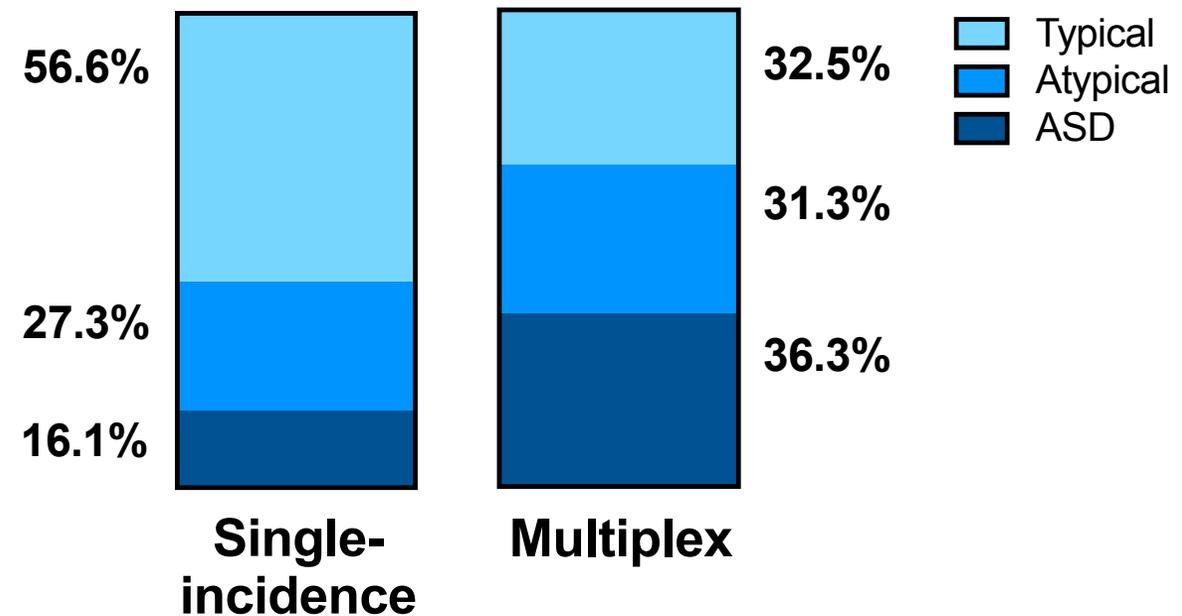


# What have we learned?

## 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

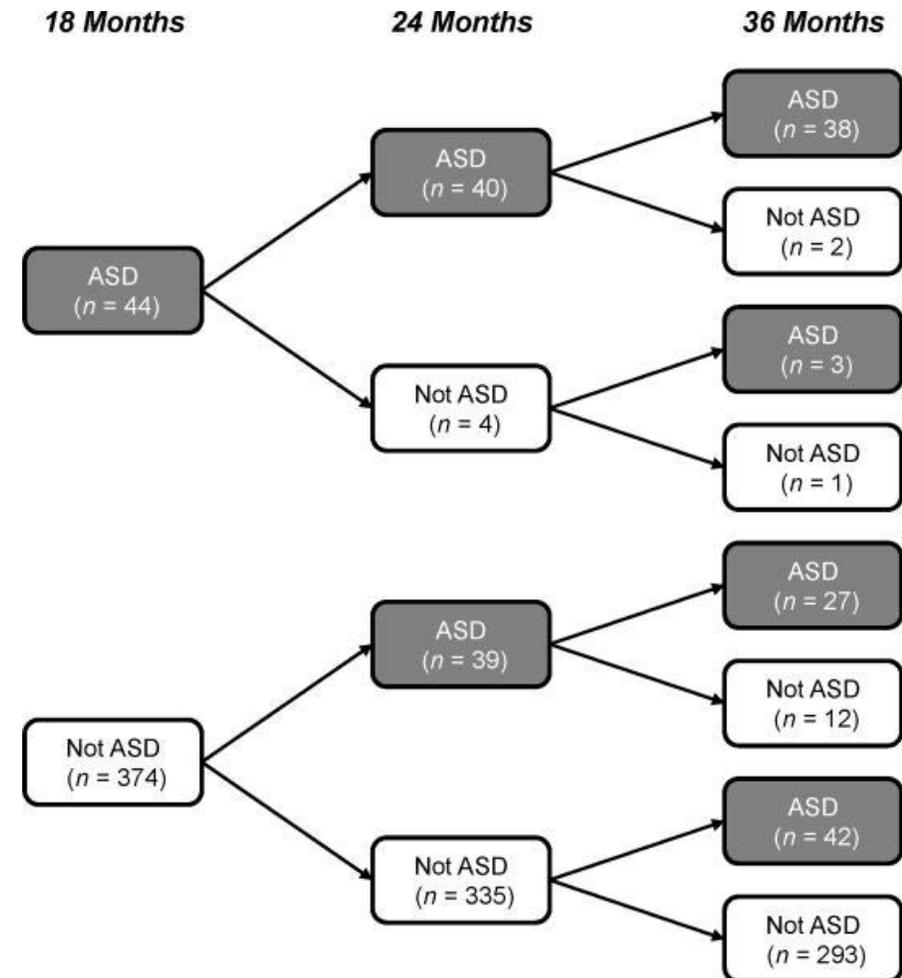


# What have we learned?

## 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

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- 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.

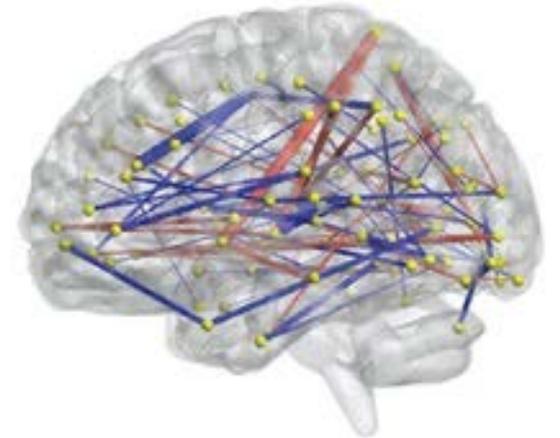


# What have we learned?

## Brain before behavior

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- 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

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- 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?



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## Clinical applications

# What is typical?

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- **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



# Early signs of ASD

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- **Social interaction**
  - Lack of consistent, appropriate eye contact
  - Limited shared positive affect
  - Lack of sharing interest (joint attention)
  - No/inconsistent response to name (by 12 months)
- **Language/communication**
  - Lack of gesture use
  - Not coordinating communication
  - Unusual speech prosody/intonation
  - Delayed language (less specific)
- **Repetitive play or motor behaviors** (caution)
- **Developmental regression**



# Examples of typical development

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Turn taking



Joint attention



Response to distress



# Peer play example

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# How to assess toddlers?

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- *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

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- **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

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- 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

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



# Providing feedback

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- 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

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- Early intervention = better outcomes (Landa, 2018; Zwaigenbaum et al., 2015)
  - Comprehensive treatment program,  $\geq 25$  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

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- 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)

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- **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?**

