State of the Research:
Marcus Autism Center &
Emory University Department of Pediatrics

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Research Opportunities at Marcus

www.marcus.org/research

• Infant Longitudinal Studies: birth through 36 months
  – Eye Tracking
  – Vocal Development
  – Early Intervention
  – Prenatal Ultrasound
  – Infant Neuroimaging
  – Head/Growth Development

• Toddler Studies: 12 – 30 months
  – Eye Tracking
  – Measures of Social Reward
  – Obesity & Feeding Issues in ASD
  – Community-based Screening

• School-Age Studies: 3 – 21 years
  – Genetic Study on African American Families with ASD
  – Eye Tracking
  – Neuroimaging

• Clinical Trials (Randomized Controlled Treatment Studies):
  – Elopement Study
  – Anxiety in ASD
  – Telehealth for Severe Behavior
  – Parent Training via Telemedicine
  – Parent Training via Group
  – Encopresis Study
Autism Center of Excellence: Center Grant

Social visual engagement: infants (0 to 36 months)

Social vocal engagement: infants (0 to 36 months)

Treatment: infants & toddlers (12 to 21 months)

Behavioral Neuroscience: Infant rhesus monkeys
Patterns of Eye Gaze at monthly intervals

Birth through 36 months – data collected over 11 visits (2, 3, 4, 5, 6, 9, 12, 15, 18, 24, 36m)

Creating Growth Charts of Social Visual Engagement
FDA CLINICAL TRIAL FOR UNIVERSAL SCREENING:
Eye tracking device to detect autism in children under age 2

2014
FDA Submission
Clinical trials approval
Reimbursement advocacy

2015
Large-scale Clinical Trials
Distribution planning

2016?
FDA Approval
Go to Market

Community Distribution

[Diagram of eye tracking device]
Early Social Interaction (ESI) Project
Wetherby & Woods, 2006; Wetherby et al., 2014

- A parent-coaching model to target active engagement skills & use of transactional supports within everyday activities
- Study on 18-24 months published in Pediatrics (Wetherby, Lord, et al., 2014)
- Study on 12-month-old infants at high risk for ASD as part of Emory ACE grant
R01: Mobilizing Community Systems to Engage Families in Early ASD Detection & Services

Emory, Florida State University, Drexel University, Weil Cornell Medical School

5-year NIH-funded collaborative project to develop a service system that coordinates ASD identification, evaluation, and linkage to treatment and services in the first 2 years of life.

Approach

- Recruit and train 300 Community Service Providers (CSPs) at 4 sites using the Autism Navigator for training and Smart ESAC for screenings and follow-up.
- CSPs = Physicians, National Black Church Initiative volunteers, & Federal Agency Personnel (WIC or Early Head Start).
- 4 Sites will collectively screen 30,000 children at 18 months.
- Random assignment of CSPs to 1 of 2 study arms:
  - Family Engagement (including Motivational Interviewing training); or
  - 9m Follow-up for children who screen + to ensure referral to early intervention.
- Referral to EI by 21 months. EI Providers trained with Autism Navigator.
- No cost diagnostic evaluations offered to families at 27 & 36 months.

Expected Outcomes

- Impacting family engagement in community screening, diagnosis, and EI.
- Identification of underserved populations through multiple community systems.
- Potentially lowering the age of identification of ASD to 18 months.
Studies of speech production and perception up to 36 months

We are always interested in enrolling pregnant moms in our studies:

• Prenatal ultrasound
• Vocal recordings
• Face & voice perception
• Motor development
• 3D head growth

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NIH AUTISM CENTER OF EXCELLENCE NETWORK:
Increasing Representation of Human Diversity

UCLA
Emory University
Albert Einstein
Washington University, St. Louis
University of California, San Francisco

• $10 million 5-year grant
• Investigating genetic variants in African American children with ASD ages 3–21 years
• Investigating disparities in diagnosis & access to care
Largest Randomized-Controlled Psychosocial Treatment Trial
6 sites; 23 therapists; 180 children with ASD ages 3-7 years
(Bearss, Johnson, Smith, et al., JAMA, 2015)

<table>
<thead>
<tr>
<th>Parent Training (n=89)</th>
<th>Parent Psychoeducation (n=91)</th>
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<tbody>
<tr>
<td>97% therapist fidelity to tx</td>
<td>97% therapist fidelity to treatment</td>
</tr>
<tr>
<td>92% of core sessions attended</td>
<td>93% of core sessions attended</td>
</tr>
<tr>
<td>95% of parents would recommend tx</td>
<td>86% of parents would recommend</td>
</tr>
<tr>
<td>89% retained all 24 weeks</td>
<td>91% retained in 24 week program</td>
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<tr>
<td>48%-55% decline in behavior problems</td>
<td>32-34% decline in behavior problems</td>
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<tr>
<td>69% rated much/very much improved</td>
<td>40% rated much/very much improved</td>
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<tr>
<td>Improvement sustained thru Week 48</td>
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R01: Comparing Behavioral Assessments Using Telehealth for Children with ASD *(Nate Call, Larry Scahill)*

- **Participants**
  - 18 months-6 years 11 months
  - ASD Dx
  - Problem behavior (measured by the Aberrant Behavior Checklist)

- **Compare two ABA-based treatment approaches (both using telehealth)**
  - **Gold standard**
    - Extensive assessment (functional analysis)
    - Rigorous data collection & analysis
  - **Pragmatic**
    - Abbreviated assessment (functional assessment)
    - Less rigorous data collection & analysis

- **Outcome Measures**
  - Reduction in problem behavior
  - Time/cost savings