Early Social Interaction Project:

Improving Developmental Trajectories of Toddlers with Autism Spectrum Disorder

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Outline

1. What does the research tell us about early intervention for toddlers with ASD?

2. Can we change developmental trajectories of toddlers with ASD?
   - Findings from the Early Social Interaction Project

3. How do we bridge the research-to-practice gap?
   - Lessons from Implementation Science—Strategic Planning for Sustained Fidelity of Implementation
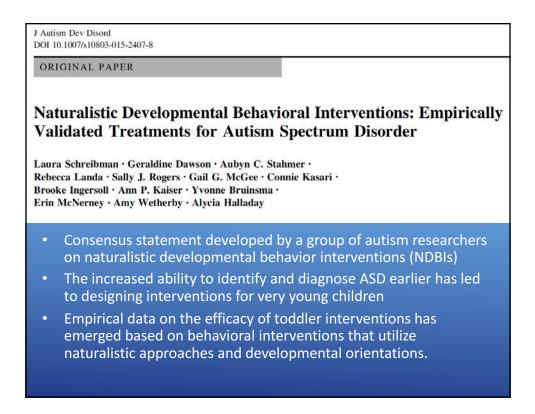   - Rolling out Autism Navigator in Pennsylvania
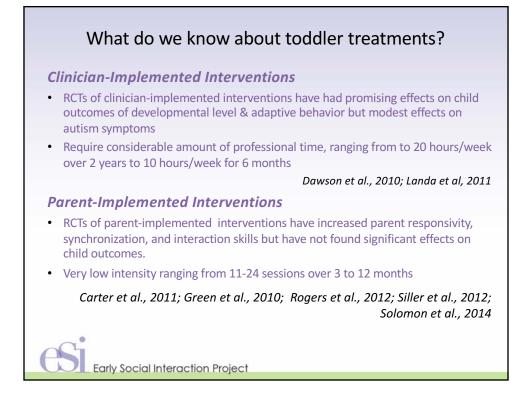
Financial & Nonfinancial Disclosures

- Amy Wetherby is employed by FSU and has received grant funding to support research on early detection and early intervention from NIH, USDOE, & the CDC.

- Amy Wetherby is author of the *Communication and Symbolic Behavior Scales* (CSBS) and the *SCERTS Model* published by Brookes Publishing and receives royalties

- Amy Wetherby is an owner of Autism Navigator, LLC. No salary is earned and 100% of the profits are donated to a nonprofit to support the courses & tools.

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ORIGINAL PAPER

Naturalistic Developmental Behavioral Interventions: Empirically Validated Treatments for Autism Spectrum Disorder

Laura Schreibman · Geraldine Dawson · Aubyn C. Stahmer ·
Rebecca Landa · Sally J. Rogers · Gail G. McGee · Connie Kasari ·
Brooke Ingersoll · Ann P. Kaiser · Yvonne Bruinsma ·
Erin McNerney · Amy Wetherby · Alycia Halladay

- Consensus statement developed by a group of autism researchers on naturalistic developmental behavior interventions (NDBIs)
- The increased ability to identify and diagnose ASD earlier has led to designing interventions for very young children
- Empirical data on the efficacy of toddler interventions has emerged based on behavioral interventions that utilize naturalistic approaches and developmental orientations.

Common Features of Evidence-Based NDBIs

Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, Kasari, Ingersoll, Kaiser, Bruinsma, McNerney, Wetherby, & Halladay, 2014

- Three Part Contingency
- Manualized Practice
- Fidelity of Implementation
- Individualized Treatment Goals
- Ongoing Measurement of Progress
- Child-Initiated Teaching Episodes
- Environmental Arrangement
- Natural Reinforcement to Enhance Motivation
- Use of Prompting and Prompt Fading
- Balanced Turns within Play Routines
- Modeling
- Adult Imitation of Child's Behavior
- Broadening Attentional Focus of the Child

What do we know about toddler treatments?

Clinician-Implemented Interventions

- RCTs of clinician-implemented interventions have had promising effects on child outcomes of developmental level & adaptive behavior but modest effects on autism symptoms
- Require considerable amount of professional time, ranging from to 20 hours/week over 2 years to 10 hours/week for 6 months

Dawson et al., 2010; Landa et al, 2011

Parent-Implemented Interventions

- RCTs of parent-implemented interventions have increased parent responsivity, synchronization, and interaction skills but have not found significant effects on child outcomes.
- Very low intensity ranging from 11-24 sessions over 3 to 12 months

Carter et al., 2011; Green et al., 2010; Rogers et al., 2012; Siller et al., 2012; Solomon et al., 2014

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Background: *Parent Implemented RCTs*

	N	Age (months)	Duration	Intensity	Proximal Effects	Distal Effects
Carter et al., 2010	62	20	3.5 months	8 group / 3 ind sessions	X	
Green et al., 2010	152	24-59	12 months	18 sessions	X	
Kasari et al., 2010	42	30	2 months	3 X week	X	NA
Rogers et al., 2012	98	21	3 months	1 X week		
Solomon et al., 2014	128	30-71	12 months	1 X month	X	ADOS % Δ in ASD/Autism

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Intensity matters...

...so how do we achieve 25 hours per week in which the child is engaged *actively* and *productively* in meaningful activities?

(National Research Council, 2001)

Recommendations of the
American Academy of Pediatrics (2007)

- Developmental surveillance at every well-child visit from 9 to 30 months
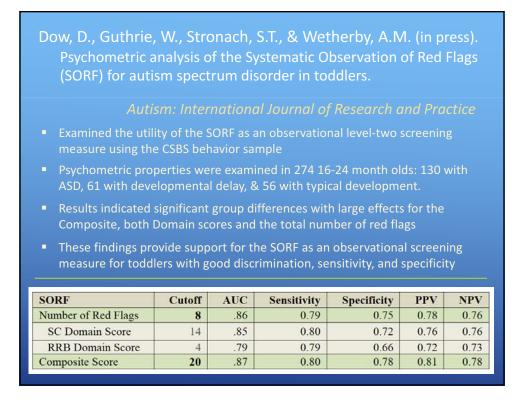- Screen all children for ASD at 18 and 24 months

✔ Autism can be diagnosed by 18-24 months, yet the median age of diagnosis of is 4-5 years

✔ Children of minority, low income, and rural families are diagnosed a year and a half later.

FIRST WORDS® PROJECT

Funded by NICHD, CDC, & NIDCD

www.FirstWordsProject.com

PI: Amy M. Wetherby, Ph.D.
Florida State University

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Resources   16 by 16   Growth Charts   About   Get Involved   Contact

What does it take to learn to talk?
It takes gestures, sounds, play... and much more.

Watch, Learn, and Spread the Word
Because the development of infants and toddlers is important to everybody.

www.FirstWordsProject.com

Dow, D., Guthrie, W., Stronach, S.T., & Wetherby, A.M. (in press). Psychometric analysis of the Systematic Observation of Red Flags (SORF) for autism spectrum disorder in toddlers.

Autism: International Journal of Research and Practice

- Examined the utility of the SORF as an observational level-two screening measure using the CSBS behavior sample

- Psychometric properties were examined in 274 16-24 month olds: 130 with ASD, 61 with developmental delay, & 56 with typical development.

- Results indicated significant group differences with large effects for the Composite, both Domain scores and the total number of red flags

- These findings provide support for the SORF as an observational screening measure for toddlers with good discrimination, sensitivity, and specificity

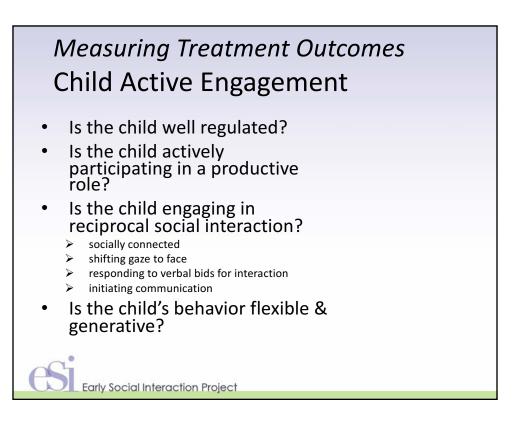| SORF	Cutoff	AUC	Sensitivity	Specificity	PPV	NPV
Number of Red Flags	8	.86	0.79	0.75	0.78	0.76
SC Domain Score	14	.85	0.80	0.72	0.76	0.76
RRB Domain Score	4	.79	0.79	0.66	0.72	0.73
Composite Score	20	.87	0.80	0.78	0.81	0.78

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Community-viable intervention model
for toddlers with ASD & their families

esi.fsu.edu

Funded by
NIMH

Teach parents how to use supports
and strategies in everyday activities
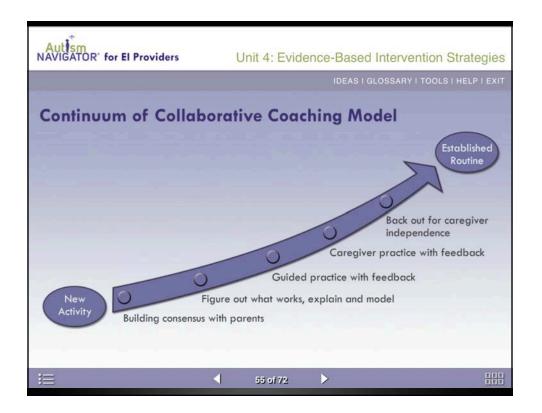at home and in the community
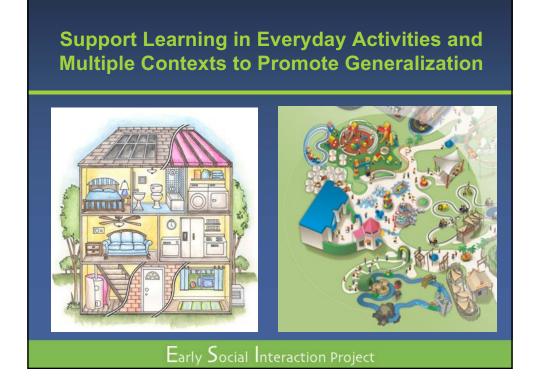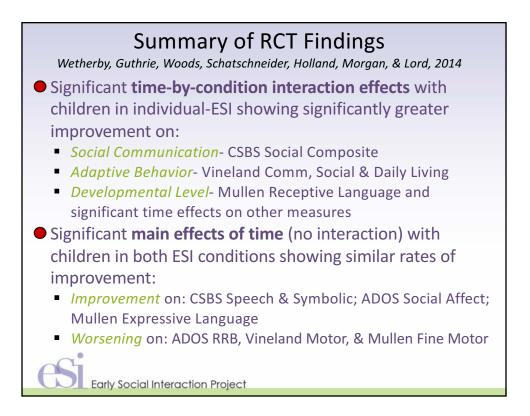
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ESI Theoretical Principles

1. A **family-centered** approach to meet the family's needs, concerns, and priorities throughout the assessment and intervention process

2. Embedded intervention in **natural environments** to enhance generalization for the child and family

3. **Parent-implemented**, activity-based intervention

4. Intensity of programming for at least **25 hours of active engagement** per week

5. Systematic instruction using individualized and **evidence-based strategies** with monitoring

6. Developmental approach targeting core deficits of autism—social interaction, communication, play, and emotional regulation using the **SCERTS** curriculum

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SCERTS Intervention Curriculum

Barry Prizant, Amy Wetherby, Emily Rubin, & Amy Laurent

S-   SOCIAL
C-   COMMUNICATION
E-   EMOTIONAL
R-   REGULATION
T-   TRANSACTIONAL
S-   SUPPORT

www.scerts.com   *Brookes Publishing © 2006*

RCT of Early Social Interaction (ESI) Project

Wetherby, Guthrie, Woods, Schatschneider, Holland, Morgan, & Lord, 2014

82 children entered study at 18 months with diagnosis of ASD

Compared effects of 2 parent-implemented intervention conditions (9 months)

● **Individual ESI**
  ✘ High Intensity
  ✘ 3 individual sessions per week (2 at home and 1 in clinic playroom); reduced to 2 sessions per week in last 3 months

● **Group ESI**
  ✘ Low Intensity
  ✘ 1 group session per week (1 education meeting and 3 playgroup sessions per month)

Employed a crossover design so that all families received both treatments.

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Measuring Treatment Outcomes
Child Active Engagement

- Is the child well regulated?
- Is the child actively participating in a productive role?
- Is the child engaging in reciprocal social interaction?
  - ➢ socially connected
  - ➢ shifting gaze to face
  - ➢ responding to verbal bids for interaction
  - ➢ initiating communication
- Is the child's behavior flexible & generative?

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The 3 Layer Cake:
Teaching strategies & supports to parents to promote child active engagement in everyday activities

Supports for better skills
- ◆Model and build language, play & interaction
- ◆Extend activity, child's roles, & transitions
- ◆Adjust expectations & supports
- ◆Balance of interaction and independence

Supports for social reciprocity
- ◆Promoting initiation ◆Balance of turns ◆Natural reinforcers
- ◆Clear message to ensure comprehension

Supports for a common agenda
- ◆Motivating activity ◆Productive roles ◆Predictability
- ◆Positioning ◆Follow child's attentional focus

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Autism NAVIGATOR® for EI Providers — Unit 4: Evidence-Based Intervention Strategies

IDEAS | GLOSSARY | TOOLS | HELP | EXIT

Continuum of Collaborative Coaching Model

Established Routine

Back out for caregiver independence

Caregiver practice with feedback

Guided practice with feedback

Figure out what works, explain and model

New Activity

Building consensus with parents

55 of 72

"Everyday Activity Categories" to promote learning in the natural environment

Play with People	Play with Toys
Social Games like Peek-a-boo, Rough and Tumble, Songs & Rhymes	Blocks, Puzzles, Sand box, Playdough, Cars and Trucks, Ball Games, Baby Dolls
Meals and Snacks Preparation, Eating, Cleanup	**Caregiving** Dressing, Diaper Change, Bath, Washing Hands, Brushing Teeth
Book Sharing	**Family Chores** Mailbox, Laundry, Care for Pets, Plants

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Support Learning in Everyday Activities and Multiple Contexts to Promote Generalization

Early Social Interaction Project

Summary of RCT Findings

Wetherby, Guthrie, Woods, Schatschneider, Holland, Morgan, & Lord, 2014

⬤ Significant **time-by-condition interaction effects** with children in individual-ESI showing significantly greater improvement on:

- *Social Communication*- CSBS Social Composite
- *Adaptive Behavior*- Vineland Comm, Social & Daily Living
- *Developmental Level*- Mullen Receptive Language and significant time effects on other measures

⬤ Significant **main effects of time** (no interaction) with children in both ESI conditions showing similar rates of improvement:

- *Improvement* on: CSBS Speech & Symbolic; ADOS Social Affect; Mullen Expressive Language
- *Worsening* on: ADOS RRB, Vineland Motor, & Mullen Fine Motor

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THE FLORIDA STATE UNIVERSITY
COLLEGE OF MEDICINE

AUTISM INSTITUTE

Early Social Interaction Project

About ESI
Theoretical Framework
ESI Team
Video clips Illustrating ESI

Video Clips Illustrating ESI with 3 Families

esi.fsu.edu

Jalen, 20 months

This clip takes place during a home assessment before beginning ESI treatment. As Mom offers a snack to Jalen, she takes turns talking to him, but he gets frustrated when he is not sure how to communicate that he wants more cereal. This activity does not establish a clear and predictable routine. Then, Jalen entertains himself by wobbling a plate. He squeals when the plate is out of reach and shows his interest and persistence in wobbling. Jalen gets excited, jumping and flapping his arms, a behavior common in young children with ASD. Next, the interventionist coaches Mom while including Jalen in doing laundry. Mom moves clothes from dryer to basket and then encourages Jalen to take a turn. When he does not understand his

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Measure of Active Engagement and Transactional Support (MAETS)

Parent Transactional Supports

1. Promote Participation & Productive Role

2. Make Activity Predictable

3. Follow Child's Focus of Attention

4. Promote Child Initiations

5. Provide Balance of Turns

6. Support Child Comprehension

7. Provide Verbal and Nonverbal Models

8. Adjust Expectations & Demands

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**EARLIER INTERVENTION IS BETTER FOR TODDLERS WITH ASD:
EVIDENCE FROM A RANDOMIZED CONTROLLED TRIAL OF THE EARLY SOCIAL INTERACTION PROJECT**

Whitney Guthrie[1,2], Amy M. Wetherby[1], Juliann Woods[1], Christopher Schatschneider[2], Renee D. Holland[1], Lindee Morgan[1], & Catherine E. Lord[3]
[1]Florida State University Autism Institute, [2]Florida State University Department of Psychology, [3]Center for Autism and the Developing Brain, Weill-Cornell Medical College

(IMFAR, 2016)

- Evaluated the effects of timing of intervention and is the first study of its kind to truly test whether 'earlier is better'
- 82 children with ASD were enrolled at 16-20 months of age
- Randomized to start with ESI Individual or Group then crossover
- ESI Individual led to better gains when started at 18 vs 27 months for Receptive Language (MSEL), Expressive Language (VABS), Social Composite of CSBS and VABS Daily Living Skills
- Earlier was better, regardless of condition for Expressive Language (MSEL) and Symbolic skills (CSBS)
- Findings highlight the importance of early screening and referral to autism-specific interventions by 18 months and counter the USPSTF recommendation

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Next Steps

- Sorting out active ingredients of treatment and treatment responders
- Collaborating with Dr. Ami Klin, PI of the Emory ACE, to study the effects of ESI with younger sibs starting at 12 months
- Comparing mobile coaching with face-to-face coaching and combinations of the two.
- Developing treatments that are feasible for families of diverse cultures and communities of modest resources
- Studying community implementation strategies to bridge gap between research and common practice in both early detection and early intervention

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Keeping an Eye Toward Community Uptake

- ● Embedded intervention in natural environment to minimize clinician time and maximize parent role, consistent with Part C EI services

- ● Feasible for families of diverse cultures and communities of modest resources

- ● Developing web-based professional courses and family tools to support community implementation strategies to bridge gap between research and practice
  - ✖ Early detection
  - ✖ Early intervention

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Language Learning
16 Gestures by 16 Months

Imagination
16 Actions with Objects by 16 Months

Social Connectedness
16 Ideas to Communicate by 16 Months

Cooperation
16 Ways to Manage Emotions by 16 Months

Critical Thinking
16 Messages to Understand by 16 Months

Social Communication Development in Infants and Toddlers (SC•DIT)

FIRST WORDS PROJECT

Knowledge and Skills Level

➤ Explore Function
- 5 Developmental Domains
- Hundreds of Videos clips illustrating 80 SC milestones

➤ Study-Guide Function
- 15 Self-Guided Lessons
- 5 Learning Assessments

Mastery Level

➤ Home Visitors Guide to support families in the SC Growth Charts

SOCIAL COMMUNICATION GROWTH CHARTS

EXPLORE
Learn the milestones.
Support your child's development.

Start Exploring

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Home   What Is Autism?   About   Resources & Tools   Courses   Contact Us

About Autism in Toddlers
Now Available

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Autism Navigator is a unique collection of web-based tools and courses that uses extensive video footage to bridge the gap between science and community practice.

www.AutismNavigator.com

Autism NAVIGATOR® for Early Intervention Providers

Knowledge and Skills

Course Introduction

1. Improving Early Detection

2. Collaborating with Families

3. Developmental Perspectives

4. Evidence-based Intervention Strategies

5. Addressing Challenging Behavior

The 3 Layer Cake:
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Supports for a common agenda
◆Motivating activity   ◆Productive roles   ◆Predictability
◆Positioning   ◆Follow child's attentional focus

Lessons from Implementation Science for Early Intervention Providers

Successful implementation requires purposeful matching of "STAGES OF IMPLEMENTATION":

1. *Exploration*: identify need and determine innovation
2. *Installation*: acquire resources/ prepare implementation
3. *Initial Implementation*: put new practices in place at selected sites with feedback loops and improvement cycles
4. *Full Implementation*: assure practices are used with high fidelity and achieving expected outcomes at all initial sites and begin scale up and sustainability activities
5. *Expansion and Scale-Up*: increase number of sites

ECTA Center: Smith, Hurth, Pletcher, Shaw, Whaley, Peters, & Dunlap, 2014

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NAVIGATOR®   *Lessons from Implementation Science*
for Early Intervention Providers

Strategies for Sustainable System Change

1. Regional Team Supports and Strategies to Engage Users
   - Establish peer partners in your region
   - Encourage intentional discussion groups
   - Identify "Autism Navigator Specialists" to complete Mastery level
   - Support feeling successful

2. Autism Navigator Learner Community
   - Webinars on 1st & 3rd Tuesday of each month to focus on topics identified by users and application of content
   - Annual face-to-face meetings to engage users

3. E-Coaching to Support Fidelity of Implementation
   - Autism Navigator LLC will offer e-coaching to provide feedback and support to teams of Autism Navigator Specialists
   - Video review and feedback on SORF, MAETS, fidelity of implementation, and problem solving on specific cases

Aut!sm
NAVIGATOR® for Early Intervention Providers   **Mastery**

Tiered Structure for Professional Development of Autism Navigator Specialists

Tier 1: Complete K&S Course & Join Learner Community

Tier 2: Local Team Leadership Roles in Mastery Course

Tier 3: Certification to Document Implementation Fidelity

Tier 4: Certification as an AN Regional Specialist

Tier 5: Certification as a Master Coach / Global Trainer

www.AutismNavigator.com

Rolling out Autism Navigator in Pennsylvania

Are you providing early intervention services in Pennsylvania? Do you need an outstanding, no-cost, online, video-rich, and practical professional development opportunity for supporting young children with autism? If so, Autism Navigator might be for you!

The *Autism Navigator for Early Intervention Providers: Knowledge and Skills* is a 30 hour, online course developed by the Florida State University Autism Institute with a commercial value of $625. It integrates the most current research on early identification and early intervention of Autism Spectrum Disorder (ASD) and provides practice based guidance and resources for intervention. It is geared to Infant-Toddler Early Intervention providers, but has relevance for Preschool Early Intervention.

To find out if you are eligible for free PA enrollment through EITA and how to enroll, read the "*FAQs AN Enrollment PA*" and "*About the Course*" documents available on the **EITA Portal page**. Go to http://www.eita-pa.org/autism/, scroll to the Professional Development section on this page, and then click the "Autism Navigator" button to download these documents.

Don't miss this outstanding professional development opportunity.