

Evidence-Based Practices for Improving Early Communication in Young Children with ASD

Presented By: Rhea Paul, Ph.D., CCC-SLP

Moderated By: Amy Natho, M.S.,CCC-SLP, CEU Administrator, SpeechPathology.com

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Yale Child Study Center

by

Communication is a primary deficit in ASD

LDCD

LDCD

- Of the triad of symptoms, communication is directly involved in two
- Communication deficits are a primary means of identifying and diagnosing autism
- SLPs are primary intervention specialists for children with autism
- Communication in autism involves both **delay** and **deviance**.
- Primary area of difficulty is in **pragmatics**
- Additional difficulties in paralinguistics and **presody**



In addition to lack of speech, young children with ASD show:

- Little use of conventional gestures,
- Poor motor and vocal imitation,
- Reduced attention to others' faces and voices,
- Reduced integration of gaze, gesture, and vocalization,
- Difficulty in sharing focus with others (joint attention).

(Chawarska & Volkmar, 2005)



Prelinguistic Communication in ASD

- Early communication delays are often the first signs of difficulties noticed by parents.
 - Often report child seems "deaf."
 - Often report first concern is failure to start talking
- Although speech is almost always delayed in toddlers with ASD, deficits in early communication go beyond speech to include:
 - Use of gaze, smiles.
 - Use of gestures.
 - Attempts to share interests and activities preverbally.
 - Unusual play with objects.
 - Failure to attend to name and language.



The Questions

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• WHY do some children w/ A\$D fail to talk? - Low cognitive ability?

- More specific failure of symbolic capacity?
- Failure to develop affective bonds that lead to desire to communicate with significant others?
- Failure to understand the function/value of communication (in any form)?
- Apraxic deficit in motor planning?













- JA predicts later language and response to language treatment in ASD (e.g., Mundy et al., 1990; Paul et al., 2008; Watt et al., 2007)
- Single case reports suggest JA Rx improves vocabulary development (Siller & Sigman, 2002)
- Parent-implemented JA instruction resulted in marginal language improvements (Drew et al., 2002)
- Group studies:
 - Children taught JA improved, but gains not maintained (Whalen & Shreibman, 2003);
 - Some improvement in speech (Whalen & Ingersoll, 2006) RCT (Kasari et al., 2008) found gains with JA training. For children with the lowest
 - language levels, JA intervention improved language more than control interventions.

Symbolic Play

- Level of symbolic play skills predict later social relatedness (Sigman & Ruskin, 1999) and response to language treatment (Voder & Stone, 2006)
- Kasari et al., (2008) RCT: Play behaviors taught – Using discrete trial imitation, physical guidance modeling and practice
 - For using objects representationally, referring to absent objects, attributing properties to objects (hot!)
- Both symbolic play and expressive language gains were greater compared with the controls
- Lang et al. (2009) meta-analysis
 - modeling, prompting with contingent reinforcement, and child directed or "naturalistic" instruction found successful in improving functional and symbolic play
 - No report on language outcomes



Imitation



- Several studies (Ingersoll, 2010; Ingersoll & Gergans, 2007; Ingersoll, Lewis, & Kroman, 2007; Whelan, Schreibman, & Ingersoll, 2006;) showed naturalistic imitation training increased spontaneous imitation.
 - Some of these report concomitant increases in language and JA.











LDCD	Milieu Communication Training (MCT) Research	
	 Associated with increased ability to initiate communication, increases in the frequency, spontaneity, and elaboration of language 	
	 Yoder & McDuffie (2002) showed MCT better than PECS for children who communicated frequently at intake 	
	 Some nonverbal children developed speech w/ MCT (Yoder & Stone, 2006) 	
	 Found it works best for children w/ little play, but some communicative acts and gaze to face. 	
	Mancil (2009) meta-analysis showed MCT	
	 Increases communication in ASD 	
LE UNIVERSITY	 Generalizes across people and settings 	
R I	 Did not analyze shift from prelinguistic to speech. 	
SCHOOL OF		



- ASD (Yoder & Stone, 2006) • Parents can be trained to increase
 - responsivity (McConachie et al., 2005)

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More Than Words (Sussman, 2001)

- HoreThan Wore
- Based on Hanen parent training
 Designed to be taught to par
- Designed to be taught to parents by SLPs
- Parent training involves
 - Direct instruction
 - Review of video examples
 - -Homework
 - -Video sampling in the home
 - Review and critique of home samples





MTW Research McConachie et al. (2005) in a group study found some increases in vocabulary for treated subjects (all were already talking), but few other effects. Girolametto et al. (2007) case study, 3 participants reported Mothers increased their responsive comments during play interactions and were rated as being more responsive on a rating scale Children evidenced positive outcomes in vocabulary and the number of engagements in social interaction All were already talking at beginning of study

Floortime

(Greenspan & Weider, 2006)



- Based on theory that affect drives development.
- Goal is to foster intimacy, interaction.
- Follow child's lead, open circle of communication.
- Goal is not to teach skills, but to develop pleasure in relating to others.
- Parents encouraged to be primary intervention agents; exclusive.

	Floortime Research (Greenspan & Weider, 2006)
andrey of Bandyanetter Constanting Restore	Anectodal reports of excellent long-term outcomes (Greenspan & Weider, 2003).
	– (Bartels, 2004)
	• Bartels (2004) found no statistically significant changes from time one to time two for 10 preschoolers, as a group
	 individual children did demonstrate improvements in emotional abilities, decreased autistic symptomatology
	 Olszyk (2005) reported increases in social behavior and decreases in autistic symptomatology, stereotypic behavior, sensory seeking behaviors, and adaptive behavior for 13 preschoolers
	Solomon (2007) reported on parent training study including
	 – 15 hours per week of 1:1 interaction for 8-12 mos.
LE UNIVERSITY	 showed significant increases in child emotional responses.
3	 45.5 percent of children made functional developmental progress.
SCHOOL OF	All uncontrolled studies



Relationship Development Intervention (Gutstein & Sheely, 2002)

 Goal is to engage the child in a social relationship, not achieve a specific behavioral objective



- Speech is NOT a focus
- Provides sequenced curriculum of activities to achieve this first in dyadic relations, then groups
- Parents taught to perceive and scaffold child participation in flexible ways to respond to novel, challenging and increasingly unpredictable situations.

Gutstein, Burgess & Montfort (2007)

- 16 children participated in RDI, compared prior to treatment and at 30 month follow-up period.
- All children met ADOS/ADI-R criteria for autism prior to treatment
- Meaured pre/post changes in ADOS and ADI-R, flexibility, and school placement
- NO child met criteria for autism at follow up (40% met ASD).
 - Similar positive results were found in relation to flexibility (parent report) and educational placement.
- Uncontrolled, unblinded, IQ limited.
- No later research.





PROMPT– Prompts for Restructuring Oral Muscular Phonetic Targets (Square-Storer, & Hayden, 1989)

- Description: Uses touch pressure, kinesthetic, and proprioceptive cues; provides structured tactile stimulation of articulators to induce appropriate articulatory postures and movements for speech.
- Research:

- Square et al. (2000) conference report on effectiveness with children with motor speech disorders.
- Rogers et al. (2006) NSD between PROMPT treatment and other community intervention.







Sign Language

- R
- Several studies show nonverbal children fail to use any signs functionally (Layton & Watson, 1995).
- Grove & Dockrell (2000) showed that children with MR taught signs did not progress past Brown's stage I.
- Yoder & Layton (1988) in only direct comparison of speech and sign instruction in ASD found no advantage for Sign.
- Mirenda reports no advantage for Sign vs. graphic symbols.
- Toth (2009) suggests Signs may form a bridge to speech communication.









Discrete Trial Instruction

- Smith (2001) reviewed Discrete Trial instruction and argued:
 - It is useful for teaching new forms of behavior and new discriminations
 It can also be used to teach more advanced skills
 - and manage disruptive behavior.
 - Cautions are needed:
 - <u>Must</u> be combined with other interventions to enable children to initiate the use of their skills and display these skills across settings.
 - early in treatment, children with autism may require many hours of DTI per week, although controversy exists over precisely how much is appropriate.
 - To implement it effectively, teachers must have specialized training.

Discrete Trial Instruction

- Lovaas treated preschoolers with discrete trial training 40 hrs./week between 1970 - 1984.
- Sheinkopf & Siegel showed similar results obtained w/ 20 and 40 hours/week.
- Research by Smith (2001), Smith et al. (2007), Partington & Sundberg (1998) supports efficacy.
- Reichow & Wolery meta-analysis (2008) found general support for effectiveness of DTI treatment for speech in young children with ASD.
- Disadvantages of DTI approaches generally include generalization and maintenance.

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Rapid Motor Imitation Training (Tsouris & Greer, 2003)

- Based on concept of Behavioral Momentum
 - Child imitates rapid motor imitation sequences of actions the child can already do, then a simple word for a preferred item is added to the end of the sequence to be used as a request
- Later, a new word for a nonpreferred item is required as a label, then the preferred item is given as a reward
- Tsiouri and Greer showed that nonspeaking preschoolers with ASD acquired first spoken vocabulary with this method.



LDCD Subjects

- 3-6 years of age
- Dx of ASD
- Fewer than 10 *spontaneous* words on CDI
- NV MA above 12 mo. on Mullen
- Motor imitation present

Procedures Intake assessment MacArthur CDI (vocabulary comprehension and use) Mullen (NV MA) ADOS (ASD symptoms) CSBS (communication, spontaneous sounds and words, play, comprehension) Vineland (adaptive communication) Parent interactive style (responsive vs. directive) Motor Training (if necessary): 10 sessions

- Randomized to treatment
- RMIA or PMT for 12 weeks, 3x/week
- Concomitant parent training in adapted MTW
- Post-treatment assessment imm. after last session
- Maintenance assessment 6 mo. post-treatment



























Conclusions

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- 50-60% of children in BOTH treatments showed significant progress in use of expressive language by parent report.
- 50% of children in BOTH treatments showed significant improvement in expressive language scores on a standardized test.
- 30-40% in BOTH treatment groups produced more than five spontaneous words in a 20 min. free speech interaction with a blind clinician.
- These findings indicate that at least 40% of children in BOTH treatment groups met Tager-Flusberg et al. (2009) criteria for achieving functional spoken language.

Summary

- There is a range of evidence-based treatments to improve communication for children with ASD in the first stages of communicative development.
- More RCTs are needed to determine which approach is best for which child.
- ABA and discrete trial approaches are useful for inducing new behaviors (e.g., speech in nonspeaking children).
- BUT they should be combined with more naturalistic methods, including parent training, to maximize generalization.
- Speech should be a goal for all preschoolers with ASD, although not all will achieve it.
- AAC approaches can be provided at the same time as specific speech training, but cannot fully substitute for it.
- Although AAC does not prevent speech, it does not necessarily induce it.



Preparation of this Presentation was supported by:

Autism Speaks Foundation
Research Grant P01-03008 funded by the National Institute of Mental Health (NIMH)
Research Grant P50 MH81756 funded by the National Institute of Child Health and Development (NICHD)
MidCareer Development K24 HD045576

funded by National Institute of Deafness and Other Communication Disorders

• Autism Science Foundation

Conference Schedule

<u>Monday</u> :	12:00pm EST Temple Grandin, Ph.D; Linda Schreiber, M.S., CCC-SLP; Kristine Retherford, Ph.D., CCC-SLP
Tuesday:	12:00pm EST Carol Westby, Ph.D., CCC-SLP
	3:00pm EST Michelle Garcia Winner, M.A., CCC-SLP
Wednesday:	12:00pm EST Sylvia Diehl, Ph.D., CCC-SLP
	3:00pm EST Rhea Paul, Ph.D., CCC-SLP
Thursday:	12:00pm EST Emily Rubin, M.S., CCC-SLP
	3:00pm EST Elisabeth Wiig, Ph.D., CCC-SLP
<u>Friday</u> :	12:00pm EST Round Table with Sylvia Diehl, Emily Rubin, Carol Westby, and Elisabeth Wiig

