Evidence-Based Communication Approaches for Children With Autism

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What does ‘evidence-based’ mean?

The National Professional Development Center on Autism Spectrum Disorders

A multi-university center to promote the use of evidence-based practice for children and adolescents with ASD

Definition of Evidence-Based Practice:

• To be considered an evidence-based practice for individuals with ASD, efficacy must be established through peer-reviewed research in scientific journals using:
  • Randomized or quasi-experimental design studies.
What does ‘evidence-based’ mean?

The National Professional Development Center on Autism Spectrum Disorders:

• Two high quality experimental or quasi-experimental group design studies, single-subject design studies.
• Three different investigators or research groups must have conducted five high quality single subject design studies, or combination of evidence.
  – One high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies).
List of EBP for NPDC

• Antecedent-Based Interventions (ABI)
• Computer-Aided Instruction
• Differential Reinforcement
• Discrete Trial Training
• Extinction
• Functional Behavior Assessment
• Functional Communication Training
• Naturalistic Intervention
• Parent-Implemented Intervention
• Peer-Mediated Instruction and Intervention
• Picture Exchange Communication System (PECS)

• Pivotal Response Training
• Prompting
• Reinforcement
• Response Interruption/Redirection
• Self-Management
• Social Narratives
• Social Skills Groups
• Speech Generating Devices/VOCA
• Structured Work Systems
• Task Analysis
• Time Delay
• Video Modeling
• Visual Supports

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National Standards Project

11 “Established” Treatments: treatments that produce beneficial outcomes and are known to be effective for individuals on the autism spectrum. The overwhelming majority of these interventions were developed in the behavioral literature (e.g., applied behavior analysis, behavioral psychology, and positive behavior support).

22 “Emerging” Treatments: treatments that have some evidence of effectiveness, but not enough for us to be confident that they are truly effective.

5 “Unestablished” Treatments: treatments for which there is no sound evidence of effectiveness. There is no way to rule out the possibility these treatments are ineffective or harmful.
NSP Established Treatments:

1. Antecedent Package
2. Behavioral Package
3. Comprehensive Behavioral Treatment for Young Children
4. Joint Attention Intervention
5. Modeling
6. Naturalistic Teaching Strategies
7. Peer Training Package
8. Pivotal Response Treatment
9. Schedules
10. Self-management
11. Story-based Intervention Package
NSP Emerging level of evidence:

1. Augmentative and Alternative Communication Device {14 studies}
2. Cognitive Behavioral Intervention Package {3 studies}
3. Developmental Relationship-based Treatment {7 studies}
4. Exercise {4 studies}
5. Exposure Package {4 studies}
6. Imitation-based Interaction {6 studies}
7. Initiation Training {7 studies}
8. Language Training (Production) {13 studies}
9. Language Training (Production & Understanding) {7 studies}
10. Massage/Touch Therapy {2 studies}
11. Multi-component Package {10 studies}
NSP Emerging level of evidence:

12. Music Therapy {6 studies}
13. Peer-mediated Instructional Arrangement {11 studies}
14. Picture Exchange Communication System {13 studies}
15. Reductive Package {33 studies}
16. Scripting {6 studies}
17. Sign Instruction {11 studies}
18. Social Communication Intervention {5 studies}
19. Social Skills Package {16 studies}
20. Structured Teaching {4 studies}
21. Technology-based Treatment {19 studies}
22. Theory of Mind Training {4 studies}
Does everyone agree on what is EVP?

Keenan & Dillenburger (2010). When all you have is a hammer . . . RCTs and hegemony in science. *Research in Autism Spectrum Disorders*

**Abstract:**

Over the past 40 years Applied Behaviour Analysis (ABA) has utilised inductive, natural science methods to investigate techniques for the analysis and augmentation of socially significant behaviours. Unfortunately, many individuals with ASD in the UK cannot avail of these techniques because of an obdurate reliance on randomised controlled trials (RCTs) as the single most respectable measure of effectiveness of interventions. In this paper we focus on how the debate about RCTs is played out in the ‘autism wars’.
How does the world view ‘communication’ and its assessment?

Ask a speech-language pathologist!
Someone like
Lori Frost, M.S., CCC/SLP
Milestones 0-12 Months

0-2 months
Three-day olds infants recognize mom over other voices.
Attracted to and prefer to look at faces.
Make eye contact with parents

2-4 months
Differentiated response to tone of voice
Smile and laugh in response to speech

4-8 months
Begin using vocal play to respond to or initiate interaction ("proto-conversations")

6-12 months
Use vocalization to gain **attention** or **objects** (protodeclaratives and protoimperatives)
Use “vocables” – reliable productions that are not real words
Joint Attention:
• Follow parents' gaze or gesture to attend to an object
• Direct parents' attention by looking at objects
What are typical language assessment instruments?

Here are several commonly used assessment protocols familiar to SLPs
# Autism Diagnostic Observation Scale (ADOS)

## Communication
- Frequency of Vocalization directed to others
- Stereotyped/Idiosyncratic Use of Words or Phrases
- Use of Other's Body to Communicate
- Pointing
- Gestures

## Reciprocal Social Interaction
- Unusual Eye Contact
- Facial Expressions Directed to Others
- Shared Enjoyment in Interaction
- Showing
- Spontaneous Initiation of Joint Attention
- Response to Joint Attention
- Quality of Social Overtures
## Overall Language Assessment

<table>
<thead>
<tr>
<th>Tool</th>
<th>Ages</th>
<th>What it tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication and Symbolic Behavior Scales</td>
<td>0;6 - 6;0</td>
<td>Frequency, Means, &amp; range of communicative intents, many of the subtle nuances specific to children with ASD</td>
</tr>
<tr>
<td>Evaluating Acquired Skills in Communication (EASIC)</td>
<td>0;3 - 8;0</td>
<td>Semantics, syntax, morphology, and pragmatics</td>
</tr>
<tr>
<td>McArthur Communication Development Inventory - Infant Scale</td>
<td>0-16 months</td>
<td>Comprehension, word production and aspects of symbolic and communicative gesture</td>
</tr>
<tr>
<td>McArthur Communication Development Inventory - Toddler Scale</td>
<td>Up to 30 months</td>
<td>Word production and the early phases of grammar.</td>
</tr>
<tr>
<td>Communication Matrix</td>
<td>0-24 months</td>
<td>Expressive communication skills of children who have severe or multiple disabilities,</td>
</tr>
<tr>
<td>Rossetti Infant-Toddler Language Scale</td>
<td>0-3 years</td>
<td>Interaction-attachment, pragmatics, gesture, play, language comprehension and language expression.</td>
</tr>
<tr>
<td>Tool</td>
<td>Ages</td>
<td>What it tests</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Communication and Symbolic Behavior Scales-Developmental Profile</td>
<td>0.6 -6.0</td>
<td>Many of the subtle nuances specific to children with ASD</td>
</tr>
<tr>
<td>Language Use Inventory</td>
<td>18-47 months</td>
<td>Gestures, words and sentences. ...Directing attention, sharing something of interest, teasing, adapting communication to listener</td>
</tr>
<tr>
<td>Social Responsiveness Scale</td>
<td>4-18</td>
<td>...Social awareness, social information processing, capacity for reciprocal social communication</td>
</tr>
<tr>
<td>Child Behavior Checklist</td>
<td>4-18</td>
<td>Competencies and behavioral/emotional problems</td>
</tr>
<tr>
<td>Test of Pragmatic Language</td>
<td>5-13;11</td>
<td>Use of pragmatic language to socially achieve goals</td>
</tr>
</tbody>
</table>
What does ABA mean?

“The process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree and to demonstrate that the interventions employed are responsible for the improvement in behavior.”

(Baer, Wolf and Risley, 1968; Sulzer-Azaroff & Mayer, 1991)
Another description of ABA

“ABA is not something we ‘do’ to students, it’s a description of how the world works. It is the science of how the world affects the person, how the person affects the world, how the person affects other people, and how the person’s behavior affects the person’s ‘other’ behavior. Much like biology describes the biological world, Behavior Analysis describes the world of behavior. If we have a notion of how these relationships work, it can help us design environments that are conducive to learning. This, in part, is what ABA is.”

(Castrogiovanni, 2009)
Why do we behave?  
A Contingency Analysis

- **We study ‘Behavior under what conditions’**
- Three Primary Functional relationships
  - Gain some type of R+
    - Concrete, activity, social, internal
  - Avoidance/Escape
    - Demand, activities, settings, painful stimuli
  - Elicited
    - Pleasant surprises or major reinforcer
    - Loss/delay of R+, schedule induced, pain
    - Biomedical factors
What’s a behavioral view of communication and language?
Should be guided by Skinner’s 1957 analysis provided in the book, *Verbal Behavior*.

- There is NO ‘how-to’ section.
- There is no research on the analysis.
- Analysis of the *speaker’s* behavior only.
Antecedent Conditions

1. State of deprivation or aversive stimulation
2. Some aspect of the environment
3. Other verbal behavior
4. Own verbal behavior
Consequence Conditions

1. Related to the Motivating Operations
   - Related to the state of deprivation
   - Aversive stimulation

2. Educational (social)
John will **learn** the word “truck”
VB-MAPP
Developed by Mark Sundberg

Developmentally based criterion referenced assessment tool, curriculum guide, tracking system

- Three specific developmental levels (0-18mo, 18-30mo, 30-48mo)
- Includes an articulation assessment developed by Barb Esch, CCC, BCBA
- **The Skills Assessment** - Assesses 170 language and social milestones across 3 developmental levels.
- **The Barriers Assessment** - An assessment of 24 language and learning barriers that may prevent a child from making progress.
ABLLS-R
Developed by Jim Partington

Comprehensive review of 544 skills from 25 skill areas that most typically developing children acquire prior to entering kindergarten

– Receptive Language, Imitation, Vocal Imitation, Requests, Labeling, Intraverbals, Spontaneous Verbalizations, Syntax and Grammar, Group Instruction...
Comprehensive Treatment Models

• Odom, Boyd, Hall & Hume (2009)
  – Evaluation of Comprehensive Treatment Models for Individuals with Autism Spectrum Disorders, JADD

“Thirty CTMs were identified, with the majority based on an applied behavior analysis framework, although a substantial minority followed a developmental or relationship-based model. As a group, CTMs were strongest in the operationalization of their models, although relatively weaker in measurement of implementation, and with notable exceptions, weak in evidence of efficacy.”
Relationship Development Intervention (RDI)

• A treatment program proposed for autistic spectrum disorders developed and trademarked by Gutstein, PhD and Sheely, PhD, clinical psychologists. The focus of RDI is to teach parents and others how to motivate and enable those with autism to experience dynamic social relationships through "social and emotional development activities”

Source- ASAT (Association for Science in Autism Treatment) 2011
RDI

- **Research Summary:** Preliminary data that may support this intervention are cited on the developers’ website and in one published but *uncontrolled* study (Gutstein, Burgess, & Montfort, 2007). However, *the intervention has not been evaluated in peer-reviewed studies with strong experimental designs.*

Source: ASAT (Association for Science in Autism Treatment) 2011
**Developmentally-based Individual-difference Relationship-based Intervention (DIR)/Floor Time**

- Also called Greenspan Method. In Floor Time, the adult aims to engage the child with autism spectrum disorder (ASD) by following his/her lead during play activities that capture the child’s interest. The adult seeks to extend or elaborate on the child’s activities. Floor Time is usually provided by parents under the direction of psychologists. However, it may be an intervention strategy used by professionals in other disciplines such as speech therapy or special education.

Source ASAT 2011
(DIR)/Floor Time

• Research Summary:
  
  - DIR is widely considered to be a plausible intervention approach (i.e., one that could be effective), but it has not been evaluated in peer-reviewed studies with strong experimental designs (National Research Council, 2001). An uncontrolled study reported favorable outcomes (Solomon et al., 2007).

Source ASAT 2011
Auditory Integration Training (AIT)

- AIT is an intervention in which the service provider identifies sounds to which the participant is believed to be over- or under-sensitive. Then music with selected high and low frequencies is presented via headphones to the participant.
  - Certain frequencies, such as those to which the participant is over- or under-sensitive, may be completely or partially filtered from the music. In Auditory Processing Training, speech sounds are dilated or expanded (i.e., presented more slowly than in typical speech), and then compressed as the student progresses.
- Examples: Tomatis method, Bernard Method, Earobics, FastForward, Binaural Beat Technology

Source ASAT 2011
Auditory Integration Training (AIT)

• **Research Summary:** Several small studies of AIT have obtained mixed results, with some studies showing benefits and others failing to do so (Sinha, Silove, Wheeler, & Williams, 2005). Additional studies are needed to evaluate AIT more conclusively.

• The 2002 American Speech and Hearing Association (ASHA) Work Group on AIT, after reviewing empirical research in the area to date, **concludes that AIT has not met scientific standards for efficacy that would justify its practice by audiologists and speech-language pathologists.**

Source: ASAT 2011
Rapid Prompting Method (RPM)

• Practitioners attempt to compensate for the assumed sensory overload and apraxia in children with ASD by continually speaking and requesting responses so that the children stay attentive. They may attach writing implements to children’s wrists and prompt the children to type out messages.

• Examples: Rapid Prompting Method, Soma, Alphabet Therapy

• **Research Summary:** There have been no scientific studies of rapid prompting for individuals with autism spectrum disorders.

• From one published ‘report’: “We defer, for the moment, the crucial question of whether the communications produced during RPM therapy are genuine.”

Source- ASAT 2011
Son-Rise (Options)

• The Son-Rise Program was developed and trademarked by and Kaufmans. The program offers training sessions to parents and others on how to implement home-based programs for children with a wide range of disabilities. The program is based upon the Kaufmans' own personal theories of learning and development. A central principle of the Son Rise program is that parents must convey an attitude of “total acceptance” of their child including all of his/her behaviors.

• **Research Summary:** There have been no scientific studies of Son Rise for individuals with autism spectrum disorders.

Source ASAT 2011
Project TEACCH
(Treatment and Education of Autistic and related Communication-handicapped Children)

• Individual classroom instruction designed to accommodate learning styles characteristic of autism spectrum disorders. Instructions may be presented in pictures rather than words, and tasks may have visual prompts (e.g., grooves to indicate where to place items, pictures of each step of the task, etc.). Students often work at their own workstations rather than with classmates, though small group instruction also occurs. Students may have a highly structured schedule placed at their workstations.

Source- ASAT 2011
Project TEACCH

• **Research Summary:** TEACCH is widely considered to be a plausible intervention approach (i.e., one that could be effective; National Research Council, 2001). One small but well-designed study indicated that parent training provided by TEACCH may accelerate the development of cognitive and self-help skills (Ozonoff & Cathcart, 1998).

• Another small study indicated that TEACCH workstations may increase on-task behavior and completion of assignments (Hume & Odom, 2007). Other aspects of TEACCH such as classroom instruction have support from preliminary studies (e.g., Lord & Schopler, 1989) but have not been evaluated in peer-reviewed studies with strong experimental designs.

Source- ASAT 2011
Facilitated Communication

• An intervention in which the service provider holds the participant's hands, wrists, or arms to help him or her spell messages on a keyboard or a board with printed letters. Because it involves assistance from a facilitator, Facilitated Communication differs from independently typing or using a computerized device to assist communication.

• Research Summary: Research evidence, replicated across several hundred children with autism spectrum disorders, shows that the facilitators rather than the individuals with autism spectrum disorders control the communication and that FC does not improve language skills (Mostert, 2001). Therefore, FC is an inappropriate intervention for individuals with autism spectrum disorders.

Source ASAT 2011
Facilitated Communication: Warning!

Position statements by professional organizations to the effect that FC is not effective (and can be harmful):


The *More Than Words* Program focuses on natural, day-to-day life with a child. Parents learn how to tweak the activities that they are already doing and turn them into productive and enjoyable learning opportunities.

- Use everyday activities like meal time, story time and bath time to help the child improve
  - Social skills
  - His ability to engage in back-and-forth interactions
  - His understanding of language
Hanen® More Than Words®

- Research?
- “A randomized controlled trial of Hanen’s ‘More Than Words’ in toddlers with early autism symptoms” 2011 JCPP

“In the current study, there were no main effects of treatment on child outcomes immediately after the parent-implemented treatment or 5 months after treatment.”
SCERTS®

• “SC” - Social Communication – spontaneous, functional communication, emotional expression, and secure and trusting relationships with children and adults;
• “ER” – Emotional Regulation - the ability to maintain a well-regulated emotional state
• “TS” – Transactional Support - to help partners respond to the child’s needs and interests, modify and adapt the environment, and provide tools to enhance learning

• EBP? Developers claim each of the three components is EB so the assumption is the package must be....
  – (Prizant, Wetherby, Rubin & Laurent, 2007)
Denver Model

- Developed by Sally Rogers
- Developmental, individualized curriculum
  - Self-described as ‘combining ABA practices and a developmental approach’
- Communication is part of the curriculum
- Massed trials and affective dyadic exchanges
  - Didactic teaching
  - “Sensory social routines”
- Gesture-based
- Speech oriented
Denver Model

• In an important, well-designed study, Dawson et al. (2010) evaluated the Denver Model, which mixes developmental approaches with applied behavior analytic interventions (especially Pivotal Response Treatment).
  
  – Twenty-four children who were 18-30 months old when they entered the study and who received two years of services based on the Denver Model were compared to a control group of 24 similar children who received services in their communities. Following intervention, children in the Denver Model obtained significantly higher scores on tests of IQ and adaptive behavior, and displayed significantly fewer autistic behaviors, than children who received community services.

Source ASAT 2011
Overview of Denver and general CTMs


  RE: Denver Study:
  - “Data from this study suggest that very young children with ASD may achieve higher cognitive scores, higher adaptive scores, and better autism diagnoses through a comprehensive intervention that includes developmental strategies and family involvement. “

- Overall conclusion:
  “Although we have made much progress in intervention research during the review period, we still have a distance to go. We have only begun to address the multiple priorities in the autism research matrix including randomized controlled trials of intervention, isolation of active ingredients, identification of mediators and moderators, and treatment of core deficits. Additionally, we are still in need of more studies with high methodological rigor.”
Just a few ‘ABA’ packages...

- TARGET: TEXAS GUIDE FOR EFFECTIVE TEACHING APPLIED BEHAVIOR ANALYSIS (Dec. 2010): Programs that are commonly referred to as having ABA-based interventions include

- Young Autism Project or Lovaas Model (Lovaas, 1987)
- Princeton Child Development Institute (Fenske, Zalenski, Krantz, & McClannahan, 1985)
- Douglass Developmental Disabilities Center at Rutgers University (Handleman, Harris, Gordon, Kristoff, & Fuentest, 1991)
- The River Street Autism Program (Dyer, Martino, & Parvenski, 2006)
- Therapeutic Pathways (Howard, Sparkman, Howard, Green, & Stanislaw, 2005), Walden Program (McGee, Morrier, & Daly, 1999)
- Institute for Child Development at State University of New York (Romanczyk, Lockshin, Gillis, & Matey, 2006)
- Autism Partnerships (Leaf, McEachin, & Harsh, 1999)
- May Institute (Luce & Christian, 1989)
More from Texas...

- Pivotal Response Treatment (Koegel, Koegel, Shoshan, & McNerney, 1999),
- Pyramid Approach (Bondy & Battaglini, 2006)
- Verbal Behavior (Partington, 2005)
- Eden Model (Holmes, 1998)
- STAR Program (Arick, Krug, Loos, & Falco, 2005)
- Learning Experiences and Alternative Program for Preschoolers and Their Parents (LEAP; Strain & Hoyson, 2000)
- Project Data (Schwartz, Sandall, McBride, & Boulware, 2004)
- Gentle Teaching (McGee, Menolascino, Hobbs, & Menousek, 1987)
- Comprehensive Approach to Behavior Analysis in Schooling (CABAS) (Greer, 1994)
Pivotal Response Training (PRT) was previously referred to as the Natural Language Paradigm and is viewed by many as an application of incidental teaching procedures. PRT aims to increase a child’s motivation to learn, monitoring of his/her own behavior, and initiations of communication with others. These changes are described as *pivotal* because they are viewed as helping the child learn a wide range of other skills. For example, if a child is motivated to get access to colorful toys, he or she may quickly learn color names in order to use them when requesting the toys.

Source ASAT 2011
Delprato (2007) Comparisons of Discrete-Trial and Normalized Behavioral Language Intervention for Young Children with Autism, JADD

Abstract:

This critical review examined a series of 10 controlled studies in which traditional operant behavioral procedures were compared with more recently developed normalized interventions for teaching language to young children with autism. The main conclusion was that in all eight studies with language criterion responses, normalized language training was more effective than discrete-trial training. Furthermore, in both studies that assessed parental affect, normalized treatment yielded more positive affect than discrete-trial training.
The Applied Verbal Behavior Approach

From Kates-McElrath & Axelrod, 2006

• Curriculum relies upon ABBLS (and VB-MAPP)
• Positive (not negative) reinforcement
• “Natural” environment
  – Fast pace (though not true ‘fluency’)
• Prompting and error correction (emphasis on ‘errorless learning’)
  – ‘Rapid stimulus control transfer procedures’
• Focus on Verbal Operants
  – Refrain from PECS...Sign is better...
• Data collection issues

How many of these relate to Verbal Behavior?
Have found no empirical studies of this package- case, group or outcome
Early Intensive Behavioral Intervention or Treatment (EIBI or EIBT) consists of 20-40 hours per week of individualized instruction for children with autism who begin treatment at the age of four years or younger and who usually continue for 2-3 years. The UCLA [Lovaas] Model is one EIBI model and emphasizes instruction at home with discrete trial training. Other models provide instruction in classrooms; some emphasize teaching methods other than discrete trial training, such as incidental teaching.

Source ASAT 2011
Early Intensive Behavioral Intervention/Treatment

- **Research Summary:** A number of scientific studies indicate that EIBI may produce large gains in development and reductions in the need for special services. However, because studies have involved small numbers of participants and have had other design limitations, there is a need for large studies of this intervention with strong experimental designs.

- **Recommendations:** Overall, EIBI is a highly promising intervention with considerable scientific support. Additional research is needed with larger samples to examine variables such as intensity and duration. Professionals and families may wish to obtain additional information about it.

Source ASAT 2011
Health Insurance review...

**Special Report:** Early Intensive Behavioral Intervention Based on Applied Behavior Analysis among Children with Autism Spectrum Disorders 2009

(Notice of Purpose: Technology Evaluation Center (TEC) Assessments are scientific opinions, provided solely for informational purposes. TEC Assessments should not be construed to suggest that the Blue Cross Blue Shield Association, Kaiser Permanente Medical Care Program or the TEC Program recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service; any particular course of treatment, procedure, or service; or the payment or non-payment of the technology or technologies evaluated.)

“The evidence is insufficient to determine whether or not EIBI is more effective than alternative approaches for children with ASDs.”
Pediatric review


Conclusions:

“Studies of Lovaas-based approaches and early intensive behavioral intervention variants and the Early Start Denver Model resulted in some improvements in cognitive performance, language skills, and adaptive behavior skills in some young children with ASDs, although the literature is limited by methodologic concerns.”
Is Modality the Key?

“In defining verbal behavior as behavior reinforced through the mediation of other persons, we do not, and cannot, specify any one form, mode, or medium. Any [emphasis added] movement capable of affecting another organism may be verbal.” (p. 14)

Skinner, Verbal Behavior, 1957
Stimulus selection vs. Topographical selection

- Behavior analysts not the first to discuss this issue
  - Aided vs. unaided systems
  - Similar to “recall” vs. “recognition” memory-
  - Should we ask “Which is better?”
- The mediator (listener) determines whether verbal behavior has occurred
  - See Bondy (in press) Myths and misconceptions associated with PECS, The Psychological Record
Keyboard- stimulus or topographical selections?

Was Shakespeare a better writer than Hemingway because he used a pen, not a typewriter?
Speech Generating Devices (SGD)  
*formerly VOCAs*

- Lancioni et al. (2007). Reviewed literature for VOCA and PECS...
  - Neither interfere with vocal development
  - Few direct comparisons
    - Used PECS protocol to teach device use
  - Issues related to activating device
  - Issues related to categorical discrimination
  - Issues related to vocabulary size
  - Use of SDG not correlated with higher rate of speech acquisition than with PECS
    - So let’s give everyone an iPad!?
What do the data reveal about sign language in autism?

Is sign effective in autism?


- Considering the overall quality of the available research we would suggest that there are insufficient data to advocate for the use of sign language either alone or in combination with oral language as a method for substantially improving communication in children with autism.

- Layton and Watson (1995) conclude that “even after intensive training with signs, a significant number of nonverbal children continue to be mute and acquire only a few useful signs” (p. 81).
Sign and Autism

• Mirenda review (2003)
  – Very few studies targeting ‘pragmatic functions’
    • Like spontaneous requesting
• Very few learners with autism learn a substantial number of signs
  – Bonvillian & Blackburn (1991) review
    • 3 of 22 learned 450+
    • Mean for the other 19 was less than 10
The PECS™ protocol

• Why review it?
  – Based on Skinner’s analysis of verbal operants and their controlling conditions
  – Has now been used by those teaching
    • Sign
    • SGDs
    • Other ‘picture exchange’ systems
Empirical reviews regarding PECS

• The National Professional Development Center on Autism Spectrum Disorders  
  – PECS noted as EBP  

• Centers for Medicare and Medicaid Services (CMS) contracted with IMPAQ International LLC. (2010): Level 1 Evidence-based Interventions for Children

• Hart & Banda (2010), “In summary, PECS may increase manding, social communicative behavior, and speech and decrease problem behaviors” (p. 486)

• Tien (2008), “Taken as a whole, therefore, results of the studies reviewed provide evidence for the effectiveness of PECS; specifically, PECS is effective in enhancing functional communication skills of individuals with ASD. Therefore, PECS is recommended as an evidence-based intervention for this purpose” (p. 74)

• Tincani & Devis (2010), “The findings of this meta-analysis support the PECS as an effective intervention to promote functional communication for individuals with ASD and other disabilities” (p. 9)

• Flippin, Reszka, & Watson, 2010,) “…the body of evidence for the PECS approach demonstrates that PECS is a promising, although not yet established, evidence-based practice for promoting communication in children with autism.” p. 189

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Modality Transitioning

PECS ➔ speech or PECS ➔ SGD, etc.

Children tell us when they are ready!

Criteria:

2. Rate of initiation is equal
3. Length of utterance is equal
4. Speech is 80% intelligible to untrained listener
5. Speed/complexity of sentence construction

Do NOT take away skills!!

Strategies for Transitioning From PECS to SGD. Part I: Overview and Device Selection
Lori Frost and Joy Silverman McGowan; Perspectives on Augmentative and Alternative Communication December 2011 20:114-118; doi:10.1044/aac20.4.114
PECS and Speech
Which would produce the fastest rate of speech acquisition in very young children with autism having 10 or fewer spoken words?

- Direct Speech vs. Sign
- Sign vs. PECS
- Direct Speech vs. PECS
Comparison of PRT and PECS
Schreibman, Koegel, Stahmer & Koegel (in preparation)

• Comparison of two commonly-used early communication interventions
  ▪ PRT is vocally based & PECS is visually based
  ▪ Is one better for very young children with autism?
• What are the pretreatment characteristics associated with responsivity to each of the two interventions?
• 39 children with autism ≤ 10 functional words
  ▪ Mean age = 29.21 months, SD = 5.67
• Stratified randomization (n=19 or 20) with children matched on: Early word use/Developmental Level/Age
Individual Participant Response Patterns in PRT and PECS

Overall mean change score = 72.7
Conclusions

• Definitions of EBP vary
  – We are in the minority- get used to it

• Communication goals vary
  – Make friends with the SLP (perhaps marry one...)

• Language intervention packages vary
  – Be familiar with current research
Conclusions

• Behaviorally oriented packages vary
  – Be familiar with several
  – Distinguish theory from outcome
    • Is it a good bar-conversation or does it impact on a learner’s behavior?

• Comprehensive Treatment Models vary
  – Be familiar with many
  – Consider all components- including non-behavioral ones
Conclusions

• Be vigilant and ethical at all times
  – Are you building repertoires or eliminating/reducing them?
  – Have you built in community standards?
  – Are you arguing theory or practice?
    • You cannot be the child’s advocate and simultaneously advocate for a particular intervention
    • Be aware and share all relevant studies...not just the one’s the fit your position