Autism Spectrum Disorders

EVIDENCE BASED PRACTICES IN THE SCHOOLS

COSA Conference
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Joel Arick PhD
ASD=Autism Spectrum Disorder

- Impairments in communication
- Impairments in social interaction
- Restricted, repetitive patterns of behavior and/or interests
- Unusual responses to sensory experiences
- Difficulties with change of routine, schedule

U. S. Federal Education Definition: Section 300.8
Critical Life Long Goals
(Oregon Regional Programs Autism Working Group)

To tolerate people and value interactions
To communicate intentionally and effectively
To organize information and learn meanings/purposes
To tolerate change and accept new experiences
To be independent of constant verbal directions
To self-monitor and manage stress
National Research

Historical Perspective
1987- Lovaas Study-UCLA
Research-19 children with autism
(under 4 yrs of age)

1993- McEachin and colleagues
Follow-up research from the 1987
Lovaas study

2000- Smith and colleagues
Intensive Behavioral Treatment
History of Autism Research and Behavioral Strategies

Research since the 70’s has shown that students with ASD can learn to communicate using behavioral principles.

Parents, school districts and the literature have consistently called for more intensive programs for students with ASD.

Current experts in the field consistently document the need for a behaviorally-based educational program for students with autism.
The authors were chosen by the National Research Council for their special competency related to the education of children with autism.

Recommendations:

- Students with autism need to be taught communication skills, social skills, academic skills and to learn to be independent throughout their day.

- Early intervention, intensive instructional programming and sufficient amounts of one-to-one or very small group instruction is needed.

- Students need to receive a comprehensive intervention program throughout the day.
Autism Spectrum Disorders
(Richard Simpson, 2005)

Purpose:
• What meets the criteria for a research-based approach according to NCLB and IDEA?

Findings:
• Applied Behavior Analysis
• Discrete Trial Training
• Pivotal Response Training
• LEAP-Preschool (Behavioral Instruction with peer facilitation)
National Standards Project 2009

- Evidence-Based Practice and Autism in the Schools (National Autism Center, 2009).
- Comprehensive analysis of available evidence about educational treatments for children with autism.
- Reviewed and analyzed hundreds of research articles.
# National Standards Report:
## 11 Established Treatments

- **Comprehensive Behavioral Treatment for Young Children** (22 studies)
- **Antecedent Package** (99 studies)
- **Behavioral Package** (231 studies)
- **Pivotal Response Treatment** (14 studies)
- **Schedules** (12 studies)
- **Self-management** (21 studies)
- **Peer Training Package** (33 studies)
- **Joint Attention Intervention** (6 studies)
- **Modeling** (50 studies)
- **Naturalistic Teaching Strategies** (32 studies)
- **Story-based Intervention Package** (21 studies)
National Standards Report: 
Emerging Treatments

- Augmentative and Alternate Communication Devices
- Cognitive Behavioral Interventions
- Developmental Relationship-based Treatments
- Exercise
- Exposure Package
- Imitation-based Instruction
- Initiation Training
- Language Training
- Massage/Touch Therapy
- Multi-component Package
National Standards Report: Emerging Treatments continued

- Music Therapy
- Peer Mediated Instructional Arrangement
- Picture Exchange Communication System
- Reductive Package
- Scripting
- Sign Instruction
- Social Communication
- Social Skills Package
- Structured Teaching
- Technology-based Treatment
- Theory of Mind Training
National Standards Report
Unestablished Treatments

✧ Academic Interventions

✧ Auditory Integration Training

✧ Facilitated Communication

✧ Gluten- and Casein-Free Diet

✧ Sensory Integrative Package
National Standards Report: Findings

Approximately 91% of all established treatments for children with autism were developed from the behavioral literature.

Pattern of findings suggests that treatments from the behavioral literature have the strongest research support at this time.

Comprehensive behavioral packages have the most evidence.

www.nationalautismcenter.org
What is Applied Behavior Analysis (ABA)?

✨ Refers to methods that change behavior in systematic and measurable ways

✨ Common Themes of applied behavior analysis interventions:
  - Baseline data is collected and analyzed
  - Assessment through observation of behavior, antecedents and consequence
  - Instruction guided by changing antecedents and consequences
  - Structured learning opportunities in 1:1, small group and natural environment settings
  - Data collection is used to determine progress and address program modifications

✨ An effective program uses ABA to teach new skills (within a developmental curriculum) and to address challenging behaviors.
Comprehensive Behavioral Treatment

0-9 age range
- Applied Behavior Analysis
- Young Children (under 8)
- Early Intensive Behavioral Intervention

Examples:
- Discrete Trial Training
- Incidental Teaching
National Standards Report
Established Treatment

Antecedent Package

3-18 age range

ABA
Behavioral Psychology
Positive Behavior Supports

Examples:
Cueing and prompting
Errorless learning
Environmental modifications
National Standards Report
Established Treatment

Behavioral Package

- 0-21 age range
- Applied Behavior Analysis
- Behavioral Psychology
- Positive Behavior Supports

Examples:
- Discrete Trial Training
- Functional Communication Training
- Token Economy
National Standards Report
Established Treatment

Comprehensive Behavioral Treatment
Antecedent Package
Behavioral Package

Video Examples
National Standards Report
Established Treatment

Pivotal Response Training

- 0-9 age range
  - Focus on pivotal behaviors that impact a wide range of functioning
  - Self-management
- Motivation
- Self-initiations
- Responsivity to multiple cues
National Standards Report
Established Treatment

Pivotal Response Training

Video Examples
Schedules

3-14 age range

Presentation of task list that communicates a series of activities

Examples:
- Written words
- Pictures/Photos
- Work Stations
- Reinforcement Strategies
National Standards Report
Established Treatment

Schedules

Video Examples
Established Treatment

Self-management

3-18 age range

Promotes independence
Teaches students with ASD to regulate their own behavior
Self-reinforce

Examples:
Checklists
Wrist counters
Visual Prompts
Self-Management

Ready to Learn =

- Hands in lap
- Eyes on teacher
- Feet on floor

Yes/No Checklist

YES | NO
Established Treatment

Peer Training Packages

- 3-24 age range
  - Teaching students without disabilities strategies for facilitating play and social interactions
  - Examples:
    - Peer Networks
    - Circle of friends
    - Peer-mediated social interactions
Established Treatment

Joint Attention

0-5 age range

- Respond or initiate joint attention
- Builds foundational skills for learning

Examples:
- Pointing to objects
- Showing items to others
- Following eye gaze
National Standards Report
Established Treatment

Modeling

3-18 age range

Demonstration of target behavior that results in an imitation of the target behavior

Live modeling
Video modeling
National Standards Report
Established Treatment

Peer Packages
Joint Attention
Self-Management
Modeling

Video Examples
Naturalistic Teaching Strategies

- 0-9 age range
- Child directed interactions
- Within natural environment
- Examples:
  - Incidental teaching
  - Mileu teaching
  - Embedded teaching
Naturalistic Teaching Strategies

Video Examples
Established Treatment

Story-based intervention package

6-14 age range

Written description of the situation in which specific behaviors are expected

Answer the “who”, “what”, “when”, “where” and “why”
11 Established Treatments

21 Emerging Treatments

Comprehensive behavioral packages have the most evidence.

www.nationalautismcenter.org
| Evidence-Based Practices identified by the National Professional Development Center (NPDC) on ASD | Antecedent Package | Behavioral Package | Story-based Intervention Package | Modeling | Naturalistic Teaching Strategies | Peer Training Package | Pivotal Response Treatment | Schedules | Self-management | Comprehensive Behavioral Treatment for Young Children | Joint Attention Intervention |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prompting | X | | | | | | | | X | | | |
| Antecedent-Based Intervention | X | | | | | | | | | | | |
| Time delay | | | X | | | | | | | | | |
| Reinforcement | | | X | | | | | | | | | |
| Task analysis | | | X | | | | | | | | | |
| Discrete Trial Training | | | X | | | | | | | | | |
| Functional Behavior Analysis | | | X | | | | | | | | | |
| Functional Communication Training | | | X | | | | | | | | | |
| Response Interruption/Redirection | | | X | | | | | | | | | |
| Differential Reinforcement | | | X | | | | | | | | | |
| Social Narratives | X | | | | | | | | | | | |
| Video Modeling | | X | | | | | | | | | | |
| Naturalistic Interventions | | | | | X | | | | | | | |
| Peer Mediated Intervention | | | | | X | | | | | | | |
| Pivotal Response Training | | | | | X | | | | | | | |
| Visual Supports | | | | | | X | | | | | | |
| Structured Work Systems | | | | | | X | | | | | | |
| Self-Management | | | | | | | | | | | X |
| Parent Implemented Intervention | | | | | | | | | | | | |
| Social Skills Training Groups | | | | | | | | | | | | |
| Speech Generating Devices | | | | | | | | | | | | |
| Computer Aided Instruction | | | | | | | | | | | | |
| Picture Exchange Communication | | | | | | | | | | | | |
| Extinction | | | | | | | | | | | | |

The NPDC on ASD did not review comprehensive treatment models. Components of The Comprehensive Behavioral Treatment of Young Children overlap with many NPDC-identified practices. The NPDC on ASD considers joint attention to be an outcome rather than an intervention. Components of joint attention interventions overlap with many NPDC-identified practices. The NSP did not consider parent-implemented intervention as a category of evidence-based practice. However, 24 of the studies reviewed by the NSP under other intervention categories involve parents implementing the intervention.

Social Skills Training Groups (Social Skills Package) was identified as an emerging practice by the NSP.
Speech Generating Devices (Augmentative and Alternative Communication Device) was identified as an emerging practice by the NSP.
Computer Aided Instruction (Technology-based Treatment) was identified as an emerging practice by the NSP.
Picture Exchange Communication System was identified as an emerging practice by the NSP.
Extinction (Reductive Package) was identified as an emerging practice by the NSP.
Oregon Research

- Comprehensive longitudinal study over five years
  - 67 children assessed over 52 month period (pre-school and elementary ages)
  - 56 children assessed over an 18 month period (pre-school)

ORPATS Study-2009-2011 (Arick, Willis, Nakada and Lasley; 2011)
- All students were non-verbal at initial assessment
- 28 pre-school students participated
Training Provided to Instructional Staff During Both Studies

Instructional techniques of:

- Discrete Trial Training (DT)
- Pivotal Response Training (PRT)
- Functional Routines (FR)

Comprehensive use of many evidence based practices, for example:

- Schedules/aug. com systems/PBIS
- Token Economy
Students Improved In:

- Expressive and Receptive Language
- Social Interaction with an Adult
- Independence on Routines
- Pre-academic skills
- Most parents indicated that their children improved in receptive and expressive language at home


ORPATS Study Process

Participants:

✧ Children with autism in public school programs
✧ EI/ECSE Programs
✧ Local School District Programs
✧ Regional Autism Programs
✧ ORPATS Training Staff

Components:

- Assessment
- Training
- Follow Up
- Feedback: Parents & Teams
Assessments given:

**ASIEP-3**: Sample of Vocal Behavior Expressive Vocabulary Test-2 (EVT-2)
Peabody Picture Vocabulary Test- (PPVT-)

### ASIEP/SVB: Language Age Months

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<thead>
<tr>
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<th>ASIEP/SVB: Language Age Months</th>
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<tbody>
<tr>
<td>baseline</td>
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<tr>
<td>9 months</td>
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<td>17 months</td>
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### EVT-2 Age Equivalency in Months

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</table>
• Change scores at the 17 month interval are all statistically significant

• On the EVT-2 students averaged 1 month expressive language age growth for each month of instruction.

Additional and on-going study information can be found at www.orpats.org
Evidenced Based Treatments

Ideas for school-based programs
Consistent Themes from the Research

- Importance of Early Intervention
- Positive Behavior Intervention and Supports
- Family Involvement and Parent Education
- Curriculum Content Appropriate
- Interventions Matched to Learner Characteristics
- Staff Training
  - Fidelity
  - System wide

- Sufficient Intensity
- Family Involvement and Parent Education
Intensity of Instructional Time

Considerations:

• Time of 1:1 instruction is an individual student decision

• Instruction should be conducted throughout the typical school day to generalize skills learned during the 1:1 direct instruction

• ABA principles can be integrated throughout the student’s day.
Consistent Themes from the Research

- Sufficient Intensity
- Staff Training
  - Fidelity
  - System wide
- Interventions Matched to Learner Characteristics
- Curriculum Content Appropriate
- Family Involvement and Parent Education
- Positive Behavior Intervention and Supports
- Importance of Early Intervention

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STAFF Training

✧ Fidelity of implementation
✧ System-wide
✧ On-going support
✧ Training should include:
  • Demonstration
  • Coaching
  • Follow-up training
Consistent Themes from the Research

- Importance of Early Intervention
- Sufficient Intensity
- Positive Behavior Intervention and Supports
- Staff Training • Fidelity • System wide
- Interventions Matched to Learner Characteristics
- Family Involvement and Parent Education
- Curriculum Content Appropriate
Parent Involvement

National Autism Center (2009):

“The values and preferences of parents, care providers, and the individual with ASD should be considered.”

National Research Council (2004):

Characteristics of effective interventions include “inclusion of a family component, including parent training.”
Consideration when determining student’s educational program;

1. Established Treatments should be given serious consideration

2. Professional judgment of the professionals with expertise in ASD
   ✧ Student strengths and needs
   ✧ Data-based decision making

3. The values and preferences of the family

4. Capacity and sustainability: the treatment needs to be correctly implemented
Regional locations provide training to others in research-based practices across the state

Training sites use evidence-based practices

Cadre of trained autism specialists provide training to others at these sites

Between 2003-2011, established or maintained 43 sites (EI/ECSE; Elementary; Middle School)

Additional information about the ORPATS project will be presented in a later session.

www.orpats.org


