Effective Interventions for Students with ASD: Practical Applications for Classroom Success

Seminar One

Center for Autism and Related Disabilities
University at Albany State University of New York
Objectives

• Participants will understand the importance of evidence-based decision making & be able to determine if a practice is evidence-based

• Participants will be able to describe the important elements of choosing, implementing & evaluating the effectiveness of evidence-based practices to meet individual needs

• Participants will be able to use evidence-based decision making to develop exemplary antecedent based interventions for individuals with ASD
The Golden Circle
Simon Sinek
“the conscientious, explicit and judicious use of current best evidence in making decisions about the care of an individual”

Dr. David Sackett, 1992

Isn’t this already being done?
Scurvy – A Case for EBP

- Described since 5th century BC
- Two million deaths from 1500-1800
- Attributed to lack of citrus fruit – 1593, 1601, 1614, 1636, 1747
- Scurvy “killed” by use of citrus fruit in 1795 and treatment was widely published
- Went on to kill thousands more - WHY?
SCURVY OBLITERATED IN 1795!!!

• Cases rose dramatically in next decades
  – Fleets used cheap and easy to obtain substitutes for fruits that had been identified as effective
  – Food was prepared in ways that decreased quality of Vitamin C
  – People began to doubt effectiveness of treatment and did not implement with fidelity
  – Steam engines resulted in shorter voyages and fewer deaths from scurvy which reduced urgency
Origin of Evidence-Based Practices
Benefits of Adopting Routine Use of EBPs

- Contributes to informed decision making
- Increases likelihood of intended outcome
- Increases efficiency and effectiveness
- Long-term cost effectiveness
- It’s the law

*EBPs increase the likelihood that students will experience positive, life-long growth*
Why Professionals May Not Routinely Use EBPs

- Information overload
- Inertial decision making
- Inconsistent adoption
- Tradition, expert opinion and/or culture
- Overreliance on informal observation
- Intentional or unintentional bias
Evidence-Based Decision Making: Considerations

- Best available evidence-based resources
- Practitioner expertise
- Knowledge of individual characteristics, needs, values and preferences
- Contextual considerations
- Meaningful data to monitor progress
Best Available Research Evidence

- Skills, strategies and programs that have resulted in consistent positive results when experimentally tested
- Describes core intervention components that have been shown to be reliable in producing desirable effects
- Research results are based on a specific population

Mesibov & Shea, 2011
What Makes a Practice Evidence-Based?

1. Identify the problem or question
2. Review current literature/learn more about topic
3. Clarify the problem – specifically identify the purpose of the study
4. Clearly define terms and concepts
5. Define the population
6. Develop the instrumentation plan
7. Collect data
8. Analyze the data

How to Design and Evaluate Research in Education by Fraenkel, Wallen & Hyun, 2011.
EBPs and ASD

• No single Nationally accepted definition or set of EBPs for ASD

• Several projects have defined them
  – National Standards Project (2009 with a new publication due in Fall, 2014)
  – National Professional Development Center on ASD (2014)
  – National Research Council (2001)
National Standards Project
Original Project – 2005
New/updated report due in Fall, 2014

National Standards Project
Scientific Merit Rating Scale

- Control of research design
- Accurate and reliable data
- Evidence of treatment fidelity
- Use of established diagnostic tools and procedures
- Generalization data collected

Established: Sufficient evidence is available to confidently determine that a treatment produces favorable outcomes for individuals with ASD – they are effective

Emerging: One or more studies suggest that a treatment produces favorable outcomes for individuals with ASD but additional high quality studies must consistently show this outcome before a conclusion can be drawn about effectiveness

Unestablished: Little or no evidence to allow a conclusion to be drawn about effectiveness for individuals with ASD

National Standards Project Resources

• National Standards Report (2009)
• Findings and Conclusions of National Standards Project (2009)
• Evidence-Based Practice and Autism in the Schools Educator’s Guide (2010)
• http://www.nationalautismcenter.org/
National Professional Development Center on ASD

• Multi-university center to promote use of evidence-based practices for children with ASD
  – UC Davis/MIND Institute
  – FPG Child Development Institute/UNC at Chapel Hill
  – Waisman Center/UW at Madison

http://autismmpdc.fpg.unc.edu/
Goals of NPDC-ASD

• Promote optimal learning for children with ASD and support families through EBPs
• Increase capacity to implement EBPs in early identification, intervention, and public education
• Increase number of highly qualified personnel to work with children with ASD

http://autismpdc.fpg.unc.edu/
NPDC-ASD Resources

- EBP Report – 2014
  - Developed in same timeframe as NSP with similar findings but categorized differently
  - Includes 24 evidence-based practices

- Autism Internet Modules (AIMS)
  - Online modules of EBPs

- Evidence-Based Practice Briefs (BRIEFS)
  - Detailed documents of each evidence-based practice

More information can be found in Resource Guide or at http://autismpdc.fpg.unc.edu/
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The NPDC on ASD 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 involved 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.
NRC Resource
Educating Children with Autism

Features of EBPs for children with ASD:
- Begin early with proper intensity
- Initial and ongoing assessment & data collection
- Systematic planning/programming
- Use of evidence-based strategies
- Heavy emphasis on needs
- Train and support staff
- Individualization

More information can be found in Resource Guide or at http://www.nap.edu/openbook.php?isbn=0309072697
The Autism – Evidence-Based Technology Relationship

- Portable
- Affordable and reduces workload of teacher and students
- Cool factor
- Multi-purpose
- Assists with communication, processing and executive functioning demands
“Any item, piece of equipment, or product system, whether acquired commercially, off-the-shelf, modified or customized, that is used to increase, maintain, or improve functional capabilities…”
Evidence-Based Assistive Technology (AT) and ASD

• Must distinguish between research of AT and research of AT and ASD

• Growing body of research that AT is effective
  – Area of strength for many individuals with ASD
    • Visual representation
  – Increased motivation
  – Reduced challenging behavior during task
  – Should be used with caution
Technology and ASD
Technology-Based Treatment

• Most promise shown with technology that supports:
  – Discrete skills
  – Prompting – auditory and tactile
  – Organization
  – Error correction
  – Modeling, Practice, Feedback
  – Reinforcement
Types of Technology

• Indefinite or temporary
• Low tech
  – Do not require electricity or battery
  – Typically low cost and easy to use
• “Mid” tech
  – Battery operated or simple electronics
• High tech
  – Require complex support
Evidence-Based Technology
Computer-Aided Instruction

- The use of computers to teach academic skills and to promote communication and language development and skills
- Determined to be evidence-based by NPDC
- Determined to be emerging practice by NSP
- Evidence-based in domains of communication skills, academics and cognition
- Depending on target skill, can be used for any age
Handheld Devices
Skills to Consider Addressing First

- Remembering to do things
- Task-sequencing and way finding
- Social Stories and behavior Cues
- Communication (verbal students)
- Stress Management
- Academics
- Healthy living
Evidence-Based Technology Sources

• VCU Autism Center for Excellence
  – Website resources, apps, fact sheets, videos and trainings

• Wisconsin Assistive Technology Initiative
  – Assessments, tools, guidance

• Autism Speaks
  – Technology guide, evidence-based apps

• Closing the Gap
  – Website resources, apps, fact sheets, buying guides

More information found in Resource Guide
Evidence-Based Resources Need Practitioner Expertise

- EBP is not a “cookbook method” of selecting treatment
- Utilizing resources and professional judgment are a critically important part of decision making
- Research is ongoing and best practices evolve beyond current findings
Evidence-Based Decision Making: Considerations

- Best available evidence-based resources
- Practitioner expertise
- Knowledge of individual characteristics, needs, values and preferences
- Contextual considerations
- Meaningful data to monitor progress
Choosing and Implementing Evidence-Based Interventions

1. Assess the student and create measurable goals
2. Select an *appropriate* intervention/strategy
3. Staff preparation
4. Implementation
5. Data collection
6. Monitor progress

Taken from Odom et al., 2010
Step 1: Assess the Student and Create Meaningful Goals

- What are student’s current characteristics?
- What skills need to be developed?
- What are areas of strength?
- Address considerations of instruction
- Collaborate with team members
- Include family input and values
- Create meaningful, measurable goals

Taken from Odom et al., 2010
Considerations for Instruction
National Research Council

- Functional spontaneous communication
- Social skills
- Play (leisure) skills
- Cognitive development
- Functional academic skills
- Proactive interventions to address challenging behavior
Meet Harry

- 13-year old male
- High-functioning ASD; above-average IQ
- Attends fully-integrated middle school
- Has frequent “melt downs” in class
  - Yelling, throwing materials, laying on floor while thrashing and kicking
- Parents want him to be successful but are not consistent with meds because they do not want him “medicated” into compliance
Step 1. Assess the Student

- Bright, friendly, socially awkward
- Wants to be seen as smart and capable
- Proud of academic success
- Excels in math and science
- Struggles some in social studies and often in English where writing is a challenge
- Loves cooking, cooking shows and wants to be a chef
Step 1. Assess the Student, cont.

- Team FBA suggests that “melt downs” have a two-fold function
  - Avoiding anticipated class assignment
  - Seeking attention (comfort/assistance) from adults
- Happens mostly in English
- English teacher regularly asks class to do spontaneous writing
- Harry struggles with changes to routine and surprises, particularly in difficult subject areas
Step 1a. Create Meaningful Goal

- Harry will remain in general education classes and participate in an age appropriate manner
  - First step – stay in class (no melt downs)
- Harry will express frustrations by speaking in a calm voice and using coping strategies
Step 2: Selecting an Appropriate Intervention

- Identify which EBPs address the skill targeted within the student’s goal
- Some EBPs are more comprehensive
- Contextual variables have to be considered

Odom et al., 2010
National Standards Project
11 Established Treatments

• Antecedent Package
• Behavioral Package
• Comprehensive Behavioral Treatment for Young Children
• Joint Attention Intervention
• Modeling
• Naturalistic Teaching Strategies
• Peer Training Package
• Pivotal Response Treatment
• Schedules
• Self-Management
• Story-based Intervention Package

One Size Does NOT Fit All
Even if it is Evidence-Based

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<th>Skills Increased</th>
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| Ages |
|------|------|------|------|------|------|------|------|
| 0-2  | 3-5  | 6-9  | 10-14| 15-18| 19-21|
Context

- Student
- Promotion of practice
- Users
- Institutional context

Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005
Step 2. Select an Appropriate Intervention

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Step 3. Staff Preparation

• All members of the team working with the child need training in the why and how to implement the intervention
  – Not just verbal instruction/explanation
  – Modeling
  – Practice
  – Feedback/correction
  – Coaching/monitoring
NPDC BRIEFS

• Developed for all 24 EBPs
• Includes:
  – Overview
  – Evidence-base
  – Step by step for implementation
  – Implementation checklist
  – Data collection forms
  – Evidence-based citations

More information available in the Resource Guide
Step 3. Prepare Staff
Antecedent-Based Interventions

- Overview
- Evidence-base
- Step for implementation
- Implementation checklist
- Data collection forms
Autism Internet Modules
Hosted by OCALI

- Registration required – no cost
- 45 online modules available related to evidence-based practices
- Case studies, videos, photos, assessments, and glossary of terms
- Certificates and professional credits available

More information available in the Resource Guide
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Antecedent-Based Intervention

Discussion Questions

1. Why are antecedent-based intervention strategies particularly useful with learners with ASD?

A correct answer should include a statement such as:

- Many learners with ASD exhibit behaviors that interfere with learning and development (e.g., disruptive, self-injurious, repetitive, stereotypical).
- Antecedent-based intervention strategies are easy to implement and require little additional effort by teachers and other practitioners.
- Antecedent-based intervention strategies can be used across a variety of settings and activities to prevent and reduce interfering behaviors.
- The evidence base indicates that antecedent-based intervention strategies can be used with learners with ASD who are between 3 to 16 years of age.

2. How would you go about choosing which antecedent-based intervention strategy to use for a particular interfering behavior?

A correct answer should include a statement such as:

- Conduct a functional behavior assessment (FBA) to identify the function of the interfering behavior and particular conditions in the environment that may be reinforcing or maintaining the interfering behavior.
- Determine which antecedent-based intervention strategy addresses the function of the interfering behavior and whether it is appropriate for the individual learner with ASD (e.g., age appropriate, might be effective with learner).
- Determine whether the identified antecedent-based intervention strategy could be easily implemented within ongoing routines and activities and whether the necessary resources are available to support implementation.

3. Several types of antecedent-based intervention strategies were presented in this module. Which do you feel would be most beneficial to the learner with ASD that you know? What steps would you take prior to implementation to promote its success?

Answers to this question will vary. Each should be supported by content taken directly from the module regarding a particular antecedent-based intervention strategy.

Content for this module was developed by The National Professional Development Center.
Step 4: Implementation

- Goal-driven
- Make a written plan
- Practice
- Fidelity
- Social Validity
Step 4: Implementation

**BROAD-TERM GOAL:**
Harry will remain in general education classes and participate in an age appropriate manner.

**HYPOTHESIS STATEMENT** (include detailed definition of behavior):
When he is asked to write in English, without prior notice of event, topic or requirements, Harry will yell, throw materials, and/or lay on floor and thrash and kick. As a result, the assignment is terminated, he is sometimes removed from class, and he gets attention from the teacher.

**Strategy:**
**Antecedent-Based Intervention:** Social narrative and priming

<table>
<thead>
<tr>
<th>Materials Needed/Task to be done</th>
<th>Person Responsible</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social narrative</td>
<td>Classroom teacher</td>
<td>10/21</td>
</tr>
<tr>
<td>Dry erase “recipe card”</td>
<td>1:1 para</td>
<td>10/21</td>
</tr>
<tr>
<td>Prep 1:1 para and review priming and prompting practices on AIM</td>
<td>Classroom teacher</td>
<td>10/21</td>
</tr>
</tbody>
</table>

**Description of how the strategy is implemented:**

1. Talk to Harry about his meltdowns, brainstorm with him why meltdowns need to stop and how you are going to try to help him.
2. Use social narrative to explain the purpose of the strategies.
3. Each morning in SH, Harry and 1:1 discuss writing topic for English and review “recipe card”. Ask if he has any questions about topic.
4. At the beginning of English class, teacher reminds Harry to use “recipe card” and his “sous chef” as he needs it.
5. Prompt Harry as needed as writing begins and progresses.
6. Consistently praise him for using his strategies.

<table>
<thead>
<tr>
<th>Did the implementer(s) complete the step?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Yes No</td>
</tr>
<tr>
<td>2. Yes No</td>
</tr>
<tr>
<td>3. Yes No</td>
</tr>
<tr>
<td>4. Yes No</td>
</tr>
<tr>
<td>5. Yes No</td>
</tr>
<tr>
<td>6. Yes No</td>
</tr>
</tbody>
</table>
Evidence-Based Decision Making: Considerations

- Best available evidence-based resources
- Practitioner expertise
- Knowledge of individual characteristics, needs, values and preferences
- Contextual considerations
- Meaningful data to monitor progress
Step 5: Data Collection

• Essential piece to long-term positive change
• Make it useful to your process
  – It is not just recording observations, it provides valuable information

  • Frequency
  • Duration
  • Latency
  • Intensity
  • Function

Look for patterns!
Data Collection Methods

• Methods for establishing baseline and collecting intervention and post-intervention data:
  – Simple frequency count
  – Scatterplot
  – Behavior Rating Scale
Scatter Plots

Name: Greg

Description of behavior of interest: pushing children

Directions: At the end of each time interval, use the code below to fill in the square. Indicate the time and date beneath.

- No challenging behavior observed
- Challenging behavior observed

Time:

<table>
<thead>
<tr>
<th>Time</th>
<th>11/3</th>
<th>11/4</th>
<th>11/5</th>
<th>11/6</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 - 9:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 - 9:45</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>9:45 - 10:30</td>
<td>[ ]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 - 11:30</td>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30 - 12:00</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Frequency Counts

Behavior: On task behavior

Behavior Definition: Looking at the teacher while she is talking; talking to the teacher; or looking at assignment

Total Observation Time: 10 minutes  
Length of Interval: 1 minute

<table>
<thead>
<tr>
<th>Date</th>
<th>Interval Number</th>
<th>Total Intervals Behavior Occurred (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>+ or -</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Summary: The student was on task 6 out of 10 intervals, or 60% of the time

<table>
<thead>
<tr>
<th>Frequency Date:</th>
<th>Behavior: Call Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeroom</td>
<td>![Homeroom Icon]</td>
</tr>
<tr>
<td>Math</td>
<td>![Math ICON]</td>
</tr>
<tr>
<td>Art</td>
<td>![Art ICON]</td>
</tr>
<tr>
<td>Gym</td>
<td>![Gym ICON]</td>
</tr>
<tr>
<td>Lunch</td>
<td>![Lunch ICON]</td>
</tr>
<tr>
<td>Music</td>
<td>![Music ICON]</td>
</tr>
<tr>
<td>Spanish</td>
<td>![Spanish ICON]</td>
</tr>
<tr>
<td>Chemistry</td>
<td>![Chemistry ICON]</td>
</tr>
</tbody>
</table>
Behavior Rating Scale
Modified from Prevent Teach Reinforce Model (Dunlap et. al.)

<table>
<thead>
<tr>
<th>Child:</th>
<th>Collection Period:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenging Behavior:</td>
<td></td>
</tr>
<tr>
<td>Pro-Social Behavior:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Dimensions Scale With Anchor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

|          | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
|          | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
|          | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|          | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|          | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
Step 5. Data Collection

Behavior Rating Scale

Child:  *Harry*  
Collection Period: 10/21 – 11/25

Challenging Behavior: Yelling, throwing materials and/or progression to laying on the floor while thrashing and kicking (meltdowns) in 40 minute English class.

Pro-Social Behavior:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Dimensions Scale With Anchor Points</th>
<th>10/21</th>
<th>10/22</th>
<th>10/23</th>
<th>10/24</th>
<th>10/25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meltdowns</td>
<td>2.1+ minutes</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>1-2 minutes</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>31 seconds - 1 minute</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1- 30 seconds</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Not at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Step 6: Monitor Progress

• What does data collection show?
  – Behavior change (+ or -)
  – Fidelity
  – Connection to goal

• Outcome drives decisions
  – Adjust intervention
  – Maintenance
  – Generalization
Step 6. Monitor Progress

Behavior Rating Scale

Child: **Harry**

**Collection Period: 10/21 – 11/25**

**Challenging Behavior:** Yelling, throwing materials and/or progression to laying on the floor while thrashing and kicking (meltdowns) in 40 minute English class.

**Pro-Social Behavior:** Sitting in seat and writing independently, using his recipe card and asking for assistance as needed.

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Meltdowns</td>
<td>2.1+ minutes</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<td>5</td>
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<td></td>
<td>1-2 minutes</td>
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</tr>
<tr>
<td></td>
<td>31 seconds - 1 minute</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td></td>
<td>1- 30 seconds</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
<td>Not at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Writing Independently</td>
<td>81 - 100% of writing time</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td></td>
<td>61 - 80% of writing time</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<td>4</td>
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</tr>
<tr>
<td></td>
<td>41 - 60% of writing time</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td>3</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td></td>
<td>21 – 40% of writing time</td>
<td>2</td>
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<td>2</td>
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<td>2</td>
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<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0 – 20% of writing time</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tr>
</tbody>
</table>
Choosing and Implementing Evidence-Based Technology

1. Assess student/create goal/identify target skill that technology will address
2. Identify and acquire appropriate technology support
3. Staff preparation
4. Implementation
5. Data collection
6. Monitor progress
Questions/Comments

• Best available evidence-based resources
• Practitioner expertise
• Knowledge of individual characteristics, needs, values and preferences
• Contextual considerations
• Meaningful data to monitor progress

The links and/or locations to find all resources mentioned are available in the Resource Guide found on the CARD website
Antecedent-Based Interventions

Definition:

• Arrangement of events that precede the occurrence of an interfering behavior and designed to lead to the reduction of the behavior
Antecedent-Based Interventions

Goal:

- To identify the environmental conditions that reinforce the interfering behavior, and then modify the activity or the environment accordingly.
Antecedent-Based Interventions

**Uses:**

1) To reduce interfering behaviors, including self-injury, stereotypies, and self-stimulation

2) To increase classroom engagement and on-task behaviors
For whom is ABI effective?

Learners with ASD ranging in age from 3-16 years!
Common ABI Strategies

1) Using highly preferred activities to increase interest
2) Changing the schedule/routine
3) Pre-setting the child before transitions
4) Offering choices
5) Altering the manner of instruction
6) Enriching the environment with sensory stimuli that serve the same function as the interfering behavior
## Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use highly preferred activities</td>
<td>Escape/ Avoid</td>
<td>• Use the iPad to teach math skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Allow the child to hold a stuffed animal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>during task</td>
</tr>
</tbody>
</table>

NPDC, 2014
Antecedent-Based Intervention
Pudding – Highly Preferred
## Preference Assessment Worksheet: Early Childhood

**Date:** ____________________________  **Activity:** ____________________________

**Learner:** __________________________

**Directions:** To identify the preferences of a learner with ASD, observe him/her for at least 30 minutes during a free choice activity time. Every 2 to 5 minutes, circle the material or toy that the learner is interacting with or looking at. If the material/toy is not listed in the following chart, please record in the blank spaces at the bottom of the page. After the observation is complete, identify which material/toy the learner with ASD interacted with the most. Complete at least 3 observations to identify highly preferred materials or toys. Highly preferred materials/toys can then be incorporated into non-preferred activities to increase motivation and engagement.

<table>
<thead>
<tr>
<th>Animals</th>
<th>Animals</th>
<th>Animals</th>
<th>Animals</th>
<th>Animals</th>
<th>Animals</th>
<th>Animals</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Blocks</td>
<td>Blocks</td>
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<td>Blocks</td>
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<td>Blocks</td>
<td>Blocks</td>
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</tr>
<tr>
<td>Bristle</td>
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<td>Cars</td>
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<tr>
<td>Dolls</td>
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<td>motor</td>
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<tr>
<td>Play Dough</td>
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<tr>
<td>Pop up toy</td>
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<tr>
<td>Put in toy</td>
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<tr>
<td>Puzzles</td>
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<tr>
<td>Sensory toy</td>
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<tr>
<td>Sorting toy</td>
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<tr>
<td>Stack toy</td>
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<td>Stack toy</td>
<td>Stack toy</td>
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<tr>
<td>Swing</td>
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<tr>
<td>Trains</td>
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</tr>
</tbody>
</table>
# Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifying the schedule/routine</td>
<td>Escape/Avoidance</td>
<td>• Use visual activity schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Review assignment with a student before class starts</td>
</tr>
</tbody>
</table>

NPDC, 2014
## Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-setting the child</td>
<td>Escape/Avoid</td>
<td>• Place a visual schedule at the child’s desk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide a ten minute warning before transitions</td>
</tr>
</tbody>
</table>

NPDC, 2014
# Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offering Choices</td>
<td>Escape/Avoidance</td>
<td>• Allow child to choose his seat during a non-preferred activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Choosing which activity to do first</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Choosing which writing utensil to use</td>
</tr>
</tbody>
</table>

NPDC, 2014
Offering Choices

Insufficient

Exemplary
## Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Altering manner of instruction  | Escape/Avoid        | • Providing written instructions  
• Providing instructions in a checklist, not paragraph |
### Examples of ABI Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Functions Addressed</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriching the environment</td>
<td>Get/obtain</td>
<td>• Allowing quiet play with clay or silly putty during class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Allowing child to pick at an eraser top instead of his nose</td>
</tr>
</tbody>
</table>
Antecedent-Based Intervention
Change in Instructional Structure

Autism Internet Modules
ABIs: Steps for Implementation

Step 1: Identify the interfering behavior, and set an intervention goal

Step 2: Collect baseline data

Step 3: Choose and implement an ABI

Step 4: Monitor Learner Progress
How to Implement ABIs

Step 1: Identify the Interfering Behavior

- What, Where, When, How, With Whom
- Create a hypothesis statement

“Mary flaps her hands, rocks back and forth, and yells loudly each time the bell rings to switch classes because she does not like the noise, and she then needs help from a staff member to calm down and leave the room. This often results in Mary missing part of or the entire next class.”

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How to Implement ABIs

Identify an Overall Goal of the Intervention

1) Mary will engage in minimal hand-flapping and body rocking when the bell rings at the end of each class period
2) Mary will remain calm and quiet when the bell rings at the end of each class period
3) Mary will walk to class independently when the bell rings at the end of each class period
How to Implement ABIs

Step 2: Collect Baseline Data

Event Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Yelling</th>
<th>Total</th>
<th>Setting Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/01/2014</td>
<td>XXXXXXXXXXXXXXX</td>
<td>13</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/02/2014</td>
<td>XXXXXXXXXXXXXXXXX</td>
<td>16</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/03/2014</td>
<td>XXXXXXXXXXXXXXX</td>
<td>14</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/04/2014</td>
<td>XXXXXXXXXXXXXXX</td>
<td>11</td>
<td>Change in teacher</td>
</tr>
<tr>
<td>7/05/2014</td>
<td>XXXXXXXXXXXXXXX</td>
<td>9</td>
<td>Absence of teacher</td>
</tr>
<tr>
<td>7/06/2014</td>
<td>XXXXXXX</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7/07/2014</td>
<td>XXX</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

NPDC, 2014
How to Implement ABIs

Step 3: Implementing the ABI

• Choose a strategy that directly addresses the function of the interfering behavior

• Create a lesson plan that is followed **consistently** and with **fidelity**
  
  i. Weekly objectives
  
  ii. Statement of ABI strategy
  
  iii. Materials needed
**Sample ABI Lesson Plan**

**Date:** Week of 11/17/08 - 11/21/08  
**Classroom:** Math class  
**Teacher:** Mrs. Banks  
**Learner’s name:** Kenny  
**Interfering behavior:** Banging head on desk when asked to complete an in-class assignment

**Objectives for this week:**
1. Kenny will complete one in-class assignment with minimal head banging (i.e., less than three times).

**Strategy:** Altering how instruction is delivered

To implement the strategy, I will:
1. Give Kenny written instructions for assignments rather than providing them verbally.  
2. Modify worksheet instructions by providing Kenny with a checklist for completing the task.  
3. Ignore Kenny when he bangs his head while also pointing to written instructions again.  
4. Let Kenny have 10 minutes of computer time after completing an in-class assignment with minimal head banging (i.e., less than three times).

**Materials needed:**
1. Sentence strips: “Complete these math problems,” “Finish your work.”  
2. Checklists for all worksheets that need to be completed this week.
Example Checklist

Kenny’s Language Arts Checklist

☐ Share one homework answer with the class during homework review

☐ Check the lesson board for today’s language arts topic

☐ Raise your hand one time during the lesson to answer a question

☐ Pick up your new assignment from the desk at the end of class

10 minutes!
How to Implement ABIs

Step 4: Monitor Learner Progress

- Continue **Event Sampling** Data Collection
ABI Not Working?

TROUBLESHOOT!

• Is the interfering behavior well-defined? (observable and measurable?)
• Are the strategies being implemented consistently and with fidelity?
• Does the strategy directly address the identified function of the behavior?
Let's try an example!

A good example is more valuable than good advice.
The Process

• Charlie is a third grade student with difficulty adjusting to changes in his routine.
• If met with an unanticipated event, Charlie will become verbally and physically aggressive toward staff.
• After he aggresses, teachers allow him to choose his next activity.
The Process

Step 1: Identify the interfering behavior, and set an intervention goal

Behavior: Charlie’s teacher conducts an FBA and determines that Charlie’s behavior only occurs immediately following unanticipated changes in his schedule.

Immediate Goal: Charlie will reduce his hitting of staff members from 8x/week to < 3x/week within 2 weeks.
## The Process

### Step 2: Collect Baseline Data

<table>
<thead>
<tr>
<th>Date</th>
<th>Hitting</th>
<th>Total</th>
<th>Setting Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/01/2014</td>
<td>XX</td>
<td>2</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/02/2014</td>
<td>XXX</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7/03/2014</td>
<td>X</td>
<td>1</td>
<td>Teacher Absent</td>
</tr>
<tr>
<td>7/04/2014</td>
<td>XX</td>
<td>2</td>
<td>Routine Disrupted</td>
</tr>
<tr>
<td>7/05/2014</td>
<td>XXX</td>
<td>3</td>
<td>Routine Disrupted</td>
</tr>
</tbody>
</table>
The Process

Step 3: Implement the ABI

<table>
<thead>
<tr>
<th>Charlie's Lesson Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interfering Behavior:</strong> Hitting staff members</td>
</tr>
<tr>
<td><strong>Objectives for this week:</strong> 1. Charlie will reduce the number of times he hits staff from 8x/week to &lt; 3x/week</td>
</tr>
<tr>
<td><strong>Strategy:</strong> Pre-set Charlie before changes in his routine.</td>
</tr>
<tr>
<td><strong>To Implement this Strategy, I will:</strong></td>
</tr>
<tr>
<td>1. Reintroduce Charlie's visual schedule each morning</td>
</tr>
<tr>
<td>2. Remind Charlie that changes may occur to his schedule, and that he will be given notice.</td>
</tr>
<tr>
<td>3. Provide as much warning as possible to Charlie, both verbally and visually, that a change will occur in his schedule.</td>
</tr>
<tr>
<td>4. Allow Charlie to have 5 minutes of free time when he behaves appropriately after a change in his schedule.</td>
</tr>
<tr>
<td><strong>Materials Needed:</strong></td>
</tr>
<tr>
<td>1. A laminated visual schedule</td>
</tr>
<tr>
<td>2. Cue card to hand Charlie when a change is going to occur</td>
</tr>
</tbody>
</table>
Sample Visual Schedule

Table Work
Breakfast
Circle time
Centers
Story
Recess
The Process

Step 4: Monitor Learner Progress

<table>
<thead>
<tr>
<th>Date</th>
<th>Hitting</th>
<th>Total</th>
<th>Setting Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/08/2014</td>
<td>X</td>
<td>1</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/09/2014</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7/10/2014</td>
<td>X</td>
<td>1</td>
<td>Routine disrupted</td>
</tr>
<tr>
<td>7/11/2014</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7/12/2014</td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Let’s Practice

Matt is a fourth-grader with autism who engages in hand-flapping behavior during class, which routinely disrupts his fellow classmates.

What should we do first?
Let’s Practice

Step 1: Identify the behavior and set an intervention goal

What comes next?
Let’s Practice

Step 2: Collect Baseline Data

Now what do we do?
Let’s Practice

Step 3: Choose and Implement an ABI Strategy

What’s the final step?
Let’s Practice

Step 4: Monitor Learner Progress

Don’t forget to troubleshoot!
Using Technology

Evidence-based Apps
Free of Charge
1) Tantrum-Tracker Lite (Data collection software)
2) Words and Blocks (highly preferred activity)
Using Technology

Evidence-based Apps

Paid

1) Visual Routine (Pre-setting)
2) Visules (Pre-setting, altering instruction)
3) Week Planner for Kids (Pre-setting)
4) Word Magic (highly preferred activity)
CARD Albany is now on Facebook
https://www.facebook.com/cardalbany

Required Coursework for Special Education Professionals now online – “Responding to the Needs of Students with ASD”
http://www.albany.edu/autism/nysed_autism_training.php

Online Distance Learning Training
http://www.albany.edu/autism/33452.php
New York State Regional Centers for Autism Spectrum Disorders

http://www.albany.edu/autism/nysrcasd.php

Clinton - TBD

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http://www.wihd.org/page.aspx?pid=894#.U3uQMSiP_JZ

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www.summitautismcenter.org
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