Evidence-based Practices and Autism Spectrum Disorders: Navigating a Sea of Challenges

Opening Activity

A. List practices you use with students with ASD

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<th>Describe reasons why you use each practice</th>
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</table>

B. Rating Practices on a Continuum of Evidence

Weaker ----------------------------------- Strength of evidence ----------------------------------- Stronger

Practices
Evidence-based Practices and Autism Spectrum Disorders:

Navigating a Sea of Challenges

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Learning Outcomes
Participants will:
1. Summarize the critical EBP elements
2. Identify at least 3 questions that practitioners can ask when using EBP
3. Describe a process for choosing, using and evaluating EBP

Terminology
- Evidence-based
- Peer reviewed
- Scientifically based
- Research based
- Effective
- Validated
- Established
- Promising
- Emerging
- And others…

- Teaching
- Practice
- Intervention
- Treatment
- Model
- Package
- Training
- Special Education
- And others…

PsychINFO Database Search
Key words – “evidence-based practice” and “autism”

EBP is typically seen in two ways
1. Programs, interventions, methods, etc. that have been proven to be effective by rigorous research and review standards (Cook and Odom, 2013)

2. Process of integration of best research evidence with other factors, such as clinical expertise, patient values, etc. (Institute of Medicine, 2001)

Prizant called these narrow and appropriate approaches to EBP (2011)
ASD and the Need for EBP

- Legacy of ineffective, overvalued and non-validated methods
- Ethical and moral imperatives
- Federal mandates: NCLB and IDEA/IDEIA
- Limited opportunities to make a difference (need for timely use of maximally effective strategies)
  - A student who loses the equivalent of four weeks time due to ineffective interventions every school year from age 3-22 years will lose in excess of 76 weeks (>2 entire academic years!) due to use of ineffective interventions.

Effective Practices and ASD

Relative to ASD, EBP features
- Reliable and scientifically-valid evaluation or research design
- Clearly explained procedures that generated behavioral, developmental and/or educational outcomes
- Scientifically supported research designs and evaluation methods

No Child Left Behind (NCLB, 2001) Act: Educators base their programs and teaching on scientifically-supported research, i.e., supported by “rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs”. EBP thus have reliably and objectively demonstrated capacity to produce positive outcomes.

State of Kansas Pilot Data

Levels of Intervention Usage

- Stakeholders willingness to gamble on finding a long-awaited key to significant progress
- It is naïve to believe that people are “moved by evidence” and “change their views if events refute their beliefs” (Paul Krugman, 2009)
- People tend to believe “we are all capable of the extraordinary” (Kripal, 2013) (e.g., 2011 AP poll found 8 in 10 Americans believed in angels, including 4 in 10 people who never went to church)
Scientific Method and Ways of Knowing

- Educators’ decision making strategies, including policy formation and judgments of effectiveness of educational techniques:
  - Personal experience and personal beliefs
  - Common sense
  - Expert testimony
  - Political, spiritual and administrative influence
  - Science
  - Knowledgeable individuals use reasonable/logical models and objective information/data to create and test hypotheses via use of objective data

Fundamental Effective-Practice Program Elements

Critical Foundational Element 1: Commitment to selecting, using with fidelity, and evaluating scientifically supported methods
- Increases chances educators don’t select or prematurely abandon a potentially useful and effective intervention.
- Without understanding why a method or method implementation failed, we are likely to repeat our mistakes and waste precious time and resources.

Critical Foundational Element 2: Thoughtful and deliberate consideration of the unique and individualized needs of learners with ASD

Individualized Curricula and Programs that Address Salient Characteristics of ASD:
- Social interaction, communication/language, behavioral, daily and independent living, academic/pre-academic/functional academic skills
- No universally most-appropriate focused practices without considering suitability for individual learners and without carefully and individually tailoring these methods for unique student needs
- Students with ASD are heterogeneous and display a range of characteristics and functioning levels; thus they need individually crafted interventions

Critical Foundational Element 3: Resolute commitment among stakeholders to a collaborative and dynamic decision-making process
- Regularly scheduled collaborative team meetings open to multiple stakeholders, including parents and community personnel
- Designated professional staff team leaders who are personally knowledgeable of student’s needs and who are responsible for monitoring and reporting student’s instructional programs and progress participate in meetings
- Training, supervision and communication support that ensures that all school staff implement students’ programs in accordance with agreed upon protocol
- Training for parents and families that permits them to correctly apply interventions and treatments in home and community settings
- Problem solving and dispute resolution processes to respond to disagreements and related issues
- Resources and a structure to make sure that there are appropriate follow-up actions on decisions made at stakeholder meetings

Intervention Choice Guidelines

- Qualified personnel use effective methods
- Effective methods are used with appropriate intensity and fidelity
- Effective methods are used to accomplish meaningful outcomes
- Individualized program goals are addressed using effective methods
- Ongoing assessment and documentation of student progress
### What Proof Supports Intervention Effectiveness?
- Research documented gains; and degree to which a target individual is similar to research participants.
- Discriminate between scientifically valid and evidence-based research methods and those lacking these characteristics.
- Discriminate objective and scientific research reports from pseudoscience (e.g., anecdotally-based web reports, marketing/promotional brochures, purely personal testimony).
- Skepticism and caution directed towards methods promising extraordinary and universal improvements that far exceed outcomes reported for more tested strategies.

### How Will Selected Interventions For Individuals Be Evaluated?
- What target behaviors will be measured as evidence of progress (e.g., social interaction initiations, spoken words)?
- Who will conduct agreed upon evaluations and how often will interventions be evaluated?
- What standards or criteria will be used to determine if an intervention should be continued or changed?

### How Well Does an Intervention Fit an Individual’s Unique Needs?
- Perceived match of interventions with needs, values, and life styles of individual students and families.
- Independent of supporting research, qualitative factors (e.g., child’s learning style, personality, idiosyncratic preferences, family circumstances) might affect the application of an intervention.
- Discussions include quality-of-life factors, perceived practical benefits of particular interventions, students’ penchants and characteristics related to adopting certain methods.

### How Well Does an Intervention Fit an Individual’s Unique Needs?
- Discussions not intended to replace stakeholders’ consideration of interventions based on empirical scientific variables but rather to broaden the vetting standards by including informal and qualitative considerations as a part of the deliberation process.
- Stakeholders consider possible negative side effects, challenging circumstances/requirements associated with using a method, such as financial impact.

### General Themes of Effective Programming for Learners with ASD
- Early intervention is essential.
- Intervention intensity is important.
  - Active engagement for at least 25 hours/week.
  - Depending on needs, appropriate student-teacher ratio (e.g., 2:1).
- Parent and family participation is essential.
- Regular data-based monitoring of individualized goals.

### Types of EBP Reviews
- Literature reviews or meta-analyses of one particular intervention or method.
- Reviews of a single area/domain.
- Broad reviews of a range of ASD practices. These include evaluations of comprehensive programs or focused interventions or both.
BROAD REVIEWS

While there have been reviews done by a variety of organizations, the following are most relevant to education.

2005 - Simpson et al.
2015 – National Professional Development Center on ASD (Wong et al.)
2015 – National Autism Center

SIMPSON ET AL. (2005)

Conducted a subjective review of 37 commonly used or purported interventions and programs for children and youth in 5 categories such as interpersonal relations, cognitive, medical, etc.

Each method rating was based on many factors: treatment description, age, reported outcomes, risks, costs, implementer characteristics, etc.

SIMPSON ET AL. FINDINGS

- 4 Scientifically Based Practices including LEAP, DTT, ABA, PRT
- 13 Promising Practices including Social Stories, PECS, incidental teaching, CBM, etc.
- 18 Limited Supporting Information for Practices including Gentle Teaching, Power Cards, Pet Therapy, Floor time, AIT, RDI, etc.
- 2 Not Recommended including Facilitated Communication and Holding Therapy

WONG ET AL., 2015

- In 2007, the NPDC had identified 24 EBP
- 2015 update - reviewed focused behavioral, educational or developmental interventions for children and youth ages birth to 21
- Reviewed literature (1990–2011) with strict criteria and rated each method as: EBP or other interventions with some support

WONG ET AL. FINDINGS

- Included information on definitions, outcomes, and participants for:
  - 27 EBP including reinforcement, prompting, DTT, time delay, modeling, PECS, etc.
  - 24 other interventions with some support including music therapy, sensory diet, touch therapy, AIT, direct instruction, etc.

NATIONAL AUTISM CENTER

- In 2009, the NAC completed the National Standards Project Phase 1 – identified 11 established practices
- Findings were updated in 2015 - National Standards Project Phase 2
- Review of literature for interventions and treatment packages up to 2012
- Target group: up to age 22
### NAC Findings, 2015

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>14 Established Treatments</strong></td>
<td>Including Behavioral Package, Modeling, PRT, etc.</td>
</tr>
<tr>
<td><strong>18 Emerging Treatments</strong></td>
<td>Including PECS, Cognitive Behavioral Intervention Package, AAC, Music Therapy, etc.</td>
</tr>
<tr>
<td><strong>13 Unestablished Treatments</strong></td>
<td>Including Academic Interventions, AIT, FC, etc.</td>
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### Methodology Choices and Students with ASD

1. Programs based on effective methods
2. Provision of appropriate intensity
3. Emphasis on meaningful outcomes
4. Creation of an individualized program
5. Documentation of student progress

### Other Considerations

- Review differences
- Gender
- Race/ethnicity
- Age
- Other

### Recommendations for Selecting Interventions

- Key questions to ask when discussing the programming and methodology elements for students with ASD
  - What are the anticipated outcomes of the option?
  - What are the potential risks?
  - How will the method be evaluated?
  - What proof exists to support the efficacy of the method?
  - What options would be excluded if a particular method was adopted?

### What are the anticipated outcomes of the option?

1. Do outcomes promoted by an option match a students’ identified needs?
2. Does the option promote significant educational gain or merely address symptoms?
3. How similar is the student to others who have benefited from the approach?
What are the potential risks?

1. Are there health or behavioral risks for the student?
2. Are there risks for parents/families and/or school personnel?
3. What impact will the treatment have on the quality of life for the student and his family?
4. If the treatment/intervention fails, what are the implications?

How will the method be evaluated?

1. How will progress be demonstrated?
2. How frequently will the intervention be evaluated?
3. Who will conduct evaluations?
4. What criteria will be used to determine if a treatment should be continued or discontinued?

What proof exists to support the efficacy of the method?

1. Is the treatment published in peer-reviewed journals?
2. Does efficacy information come from a variety of sources?
3. Are the studies validating effectiveness of high quality?
4. Is empirical validation available, or does support come primarily from personal testimonials?
5. Do proponents claim the option has universal utility?

What options would be excluded if a particular method was adopted?

1. How does the treatment rate in terms of restrictiveness and intensity?
2. Are there less restrictive/intensive alternatives that may be equally effective?
3. Are there other options that are better researched than this one?
4. Does the treatment option consider the functional communication and socialization needs of the student?

Keeping the Door Open for Innovation and Advancement

Balance Current Push for EBP Use and Innovative/Pioneering

Search for New Effective Interventions

Examples:
- Power Cards
- Consequence Maps

An EBP Process

- Integrates all of the EBP elements, critical questions to ask, etc. into a process
- See handout
- Based on the work of: Simpson et al., 2005; NAC, 2015; NPDC, 2015; LaCava & Shogren, 2012, Reichow et al., 2010, Prizant, 2011
An EBP Process – (LaCava, 2016)

- Baseline Data
- Observable & Measurable
- Research evidence about behavior/skill & practice
- Evidence-based or Promising practices options
  - Risks/benefits
  - How will you evaluate
  - Can team use with fidelity
  - Professional experience
- Target Behavior / Skill
- How has this behavior/skill been addressed before
- What was learned
- Legal considerations
- Other assessment needed
- Review Practice Options – Choose and Tailor Practice
- Do practices match the learner’s strengths, preferences, etc.
- Learner/family input
- Can the practices be used in natural settings, by typical providers, etc.
- Are practices cost effective and acceptable
- Training
- Coaching
- Implementation and data plan
- Materials
- Plan, Use & Monitor Practice
- Data collection
- Fidelity checks
- Assess social validity
- Troubleshooting
- Data based decision making
- Final Steps
- If reach goal, choose new skill
- Generalization and maintenance
- Celebrate success
- What was learned
- Capacity to use with other learners
- How can practice inform research

A Few Resources

- Ohio Center for Autism and Low Incidence – Autism Internet Modules
  http://www.autisminternetmodules.org/
- National Professional Development Center on ASD
  http://autismpdc.fpg.unc.edu/
- Simpson et al. (2005). ASD: Interventions and Treatments for Children and Youth
- National Autism Center
  http://www.nationalautismcenter.org/

Thank you!

For feedback, questions or comments, please contact:

Paul   placava@ric.edu
Rich   richsimp@ku.edu
An EBP Process – (LaCava, 2016)

- Baseline Data
- Observable & Measurable
- Research evidence about behavior/skill & practice

Target Behavior/Skill

- How has this behavior/skill been addressed before
- What was learned
- Legal considerations
- Other assessment needed

Review Practice Options – Choose and Tailor Practice

- Do practices match the learner’s strengths, preferences, etc.
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- Can the practices be used in natural settings, by typical providers, etc.
- Are practices cost effective and acceptable

Plan, Use & Monitor Practice

- Data collection
- Fidelity checks
- Assess social validity
- Troubleshooting
- Data based decision making

Final Steps

- If reach goal, choose new skill
- Generalization and maintenance
- Celebrate success

- Evidence-based or Promising practices options
  - Risk/benefits
  - How will you evaluate
  - Can team use with fidelity
  - Professional experience

- Training
- Coaching
- Implementation and data plan
- Materials

- What was learned
- Capacity to use with other learners
- How can practice inform research
The CUEing Process Worksheet

Choosing, Using, and Evaluating Evidence-based Practices (EBP) for Students with Autism Spectrum Disorders (ASD)

Learner: ___________________________________________ Date: __________________________

Team members: __________________________________________________________________________

Target behavior/skill: ___________________________________ Related to IEP Goal _____ BIP _____

Observable and measurable definition of target behavior/skill: _________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

A. Background Information — answer each question and then add details as needed in the space provided

1. Have you taken baseline data on the target behavior/skill? YES / NO

2. Have you considered how this target behavior/skill been addressed in the past (practices used, results, etc.)? YES / NO

3. Have you considered any relevant legal factors? YES / NO

4. Is a functional behavior assessment, task analysis or other assessment needed? YES / NO

B. Choosing EBP

1. Have you reviewed the research evidence for this target behavior/skill? YES / NO

2. Which reviews have you used?
   • Evidence-based Practices for Children, Youth and Young Adults with ASD, National Professional Development Center on ASD, 2014/Wong et al., 2015 ______
   • National Autism Center’s National Standards Project Phase 2, 2015 ______
   • ASD Interventions and Treatments for Children and Youth, Simpson et al., 2005 ______
   • Evidence-based Practices and Treatments for Children with ASD, Reichow et al., 2010 ______
   • Educating Children with Autism, National Research Council, 2001 ______
   • Other ____________________________________________________________ ______
3. What EBP have been identified as possible options (considering skill/behavior, age, ASD severity, etc.):

Have You Considered the Following?

<table>
<thead>
<tr>
<th>EBP Options</th>
<th>Unique learner strengths, interests, needs, values, etc.</th>
<th>Learner &amp; family input</th>
<th>Professional experience &amp; judgment</th>
<th>Capacity (cost, setting, personnel, fidelity, etc.)</th>
<th>Benefits &amp; Risks</th>
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4. If no EBP are available or chosen, what promising practices can you consider?

Have You Considered the Following?

<table>
<thead>
<tr>
<th>Promising Practices Options</th>
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5. Which EBP or promising practice will you use? 
(explain rationale for using)

6. Explain how you will evaluate the chosen practice (who will take data, method type, how often, how will you know when to change tactics, etc.).

7. What training, coaching, resources, other supports are needed?

C. Using EBP

1. Implement chosen practice
2. Continue to collect, summarize and present data as planned
3. Troubleshoot as needed
4. Monitor treatment fidelity
5. Adjust practice as needed based on data and other factors
6. Assess social validity – was progress socially meaningful and important, was the method cost effective, did the learner, and team members accept it, was it easily implemented in natural settings, etc.)
7. Continue generalization and maintenance phases as needed

D. Final Steps

1. Celebrate successes!
2. What was learned by the team?
3. Is there capacity to use this practice with other learners?
4. How can this practice and results inform research and practice?
5. Choose new target behavior/skill
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Case Study

Work in small groups of 3 to 5 people on this activity. You may use handout notes, the CUEing Process Worksheet, the internet or other sources to help you.

1. Read the following case study.

James is a 7 year old, first grade boy diagnosed with autism spectrum disorder. He is liked by his peers because of his happy personality and huge knowledge base. James knows lots of facts about a variety of topics – outer space, rain forests, Star Wars, presidents, etc. He has a special interest in playing with Legos, using any type of computer technology, and learning about air conditioners. He has been included in general education classes since kindergarten and typically does well with academics given a variety of accommodations and individualized instruction. Visual supports have been particularly effective in helping James understand routines, schedules, expectations, and choice making. Parents reported that discrete trial training when James was 3 years old was not successful. James strongly and negatively reacted to the controlled and repetitive procedures he was asked to follow. His current academic skills are close to grade level except for writing. James does not like to write and will ask to use a computer for written work. Despite inclusion efforts, strong parental support, teacher knowledge of autism, and peer acceptance, James typically does not initiate or engage with peers at recess or during less structured times throughout the school day as well as in community outings.

Specific skills that are lacking include: initiating conversations with peers, being able to join games that have already begun, taking turns in conversations, not monopolizing conversations with his favorite topics, and recognizing and taking into account others’ thoughts and feelings.

Even when staff has gotten James engaged with recess games and activities he is prone to display social and behavior problems. For instance, James will quickly run away from the group and retreat to the edge of the playground where he will recite favorite facts about air conditioners and other idiosyncratic interests. When he encounters any issues or barriers to success, getting what he wants, etc., James will pick at his skin until it bleeds and/or pull his eyelashes out; bright lights are very bothersome to James and he will get up and run out of settings if he thinks the lights are too bright – this has caused safety issues when he has run out of the school or when on community outings.

2. Considering the above information, list what you consider to be James’s top strengths and concerns.

<table>
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<tr>
<th>Strengths</th>
<th>Concerns</th>
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</thead>
</table>
3. Identify your top concern and then work through the EBP process that follows.

Behavior/skill to address: _______________________________________________________
_____________________________________________________________________________

4. Choosing a Practice

   a. What initial questions do you need to ask about this behavior/skill?

   b. What sources will you use to help identify possible EBP to address this behavior/skill?

   c. What EBP or promising practices options will you consider to address this behavior/skill?

   d. Determine your top choice and explain why you want to use it to address this behavior/skill.

5. Tailoring the Practice

   a. What are the potential outcomes and risks of using this practice?
b. What other EBP elements/factors must you consider before implementing the EBP?

c. What is your plan to evaluate this EBP (data collection method, who, when, etc.)?

d. What training, coaching, resources, other supports are needed?

6. Implementation and Evaluation

a. Who will implement, when, with what degree of intensity, etc.?

b. How will you monitor treatment fidelity?

c. How will you assess social validity of the practice?

d. How meaningful do you think it will be to address this behavior/skill?