What’s New in the Alphabet Soup of ASD?

BCASLPA Conference
Penticton, BC
October 24, 2015
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- Registry of Autism Service Providers (RASP)
- Evidence-Based Practice (EBP) update
- Naturalistic Developmental Behavioural Interventions (NDBI)

- No: Registry of Autism Service Providers
  - a list of professionals with whom parents contract to provide services to their children with ASD under age 6
  - required by MCFD but maintained by ACT-Autism Community Training
  - includes Behavior Consultants, SL-Ps, OTs, and PTs
Behaviour Consultants?

- Professionals responsible for the overall plan of intervention for children under age 6
- NOT the same as behaviour interventionists (BIs)
  - BIs work under the supervision of BCs
  - Must be age 19 or over
  - Must pass a Criminal Records Check
- Training and experience of BCs varies widely….

BCBAs/BCaBAs

- BACB: international credentialing board for professional behaviour analysts
- Two main credentials
  - Board Certified Behavior Analyst (BCBA)
  - Board Certified assistant Behavior Analyst (BCaBA)

Behaviour Consultants in British Columbia

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<tr>
<th>Category</th>
<th>A (BCBA)</th>
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<th>B (BCaBA)</th>
<th>B (no BCaBA)</th>
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BCs and the RASP

- Currently, 69% of the 202 behaviour consultants on the RASP are BCBAs (124) or BCaBAs (15)
  - All new applications in the past 12 months have been BCBAs or BCaBAs
- Currently, the BC-ABA is working with the BC College of Psychologists to explore BC registration with College
  - Will increase accountability and raise the bar, in general
  - Will protect families by instituting a formal mechanism to investigate complaints
  - Stay tuned!

S-LPs and the RASP

- Currently, to be on the RASP, S-LPs have to
  - be registered with the BC College of Speech and Hearing Health Professionals (BCCSHHP)
  - have a minimum of one year’s experience with at least three children with ASD under age 6
  - document completion of courses or workshops in the area of ASD intervention over the past two years

RASP Update

- As of June 30, 2015, a new category was added to the RASP: Supervised SL-P
- Developed in consultation with BCASPLA and the BCCSHHP
  - provides Registered S-LPs who are new to working with children with ASD under age 6 with the opportunity to gain clinical experience under the supervision of an S-LP who is on the RASP or who meets the RASP requirements
- See http://www.actcommunity.ca/rasp/sp-info/spc/ for information about the requirements for supervised status, and for moving from supervised to full RASP status
- Occupational therapists are beginning to explore a parallel structure for individuals without ASD experience
Evidence-Based Practice (EBP) and Decision-Making

EBP: What Do We Know?

<table>
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<th>Source</th>
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<th>Ages 6-22</th>
<th>Adults (age 22+)</th>
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NPDC on ASD, 2014

- Reviewed 456 articles (out of a possible 3,449) on behavioural, developmental, and educational interventions for individuals with ASD from birth-22, published between 1990-2011
- EBP criteria:
  - At least two high quality randomized or quasi-experimental design group studies conducted by at least two different research groups OR
  - At least five high quality single subject design studies with at least 20 participants across three different research groups OR
  - A combination of the two: one high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least two different research groups
NPDC on ASD Designs

- Upcoming slides: (group studies, SSRDs)
  - (1, 12) means 1 group design study [RCT or QED] and 12 SSRDs

EBP: Behavior Regulation

- Antecedent-based interventions (0, 32): Modification of situation variables that precede the occurrence of problem behavior
- Cognitive-behavioural intervention (3, 1): Instruction on management or control of cognitive processes that lead to changes in behavior
- Differential reinforcement procedures (DRI/A/O) (0, 26): Provision of positive/desirable consequences for behaviors or their absence that reduce the occurrence of an undesirable behavior
- Exercise (3, 3): Increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior
- Extinction (0, 11): Withholding of reinforcers for interfering behavior in order to reduce the occurrence of that behavior

EBP: Behavior Regulation

- Functional behaviour assessment (0, 10): Systematic collection of information about an interfering behavior, designed to identify functional contingencies that support the behavior
- Functional communication training (0, 12): Replacement of interfering behavior that has a communication function with more appropriate communication that accomplishes the same function
- Response interruption and redirection (RIRD) (0, 10): Introduction of a prompt, comment, or other distracter when an interfering behavior occurs, that diverts the learner’s attention away from the interfering behavior and results in its reduction
- Self-management (0, 10): Teaching learners to discriminate between appropriate/inappropriate behaviors, monitor and record their behaviors, and reward themselves for appropriate behavior
### EBP: Instruction

- **Discrete trial teaching (0, 13):** Instruction delivered in units (trials) consisting of an adult instruction, optional prompt, child response, consequence, and a pause before the next trial.
- **Modeling (1, 4):** Teaching that involves an adult or peer modeling a behavior that the person with ASD subsequently initiates.
- **Naturalistic interventions (0, 10):** Intervention strategies that occur within the typical setting/activities/routines in which the learner participates.
- **Parent-implemented intervention (8, 12):** Interventions that parents learn to deliver in their home and/or community through a structured parent training program.

- **Peer-mediated interventions (0, 15):** Involve teaching children with ASD to initiate play and social interactions and teaching typically-developing peers (e.g., classmates, siblings) to facilitate interactions.
- **Picture Exchange Communication System (PECS) (2, 4):**
- **Pivotal response training (1, 7):** Interventions in which pivotal learning variables (i.e., motivation, responding to multiple cues, self-management, and self-initiations) guide intervention practices that are implemented in settings that build on learner interests and initiative.
- **Prompting (1, 32):** Verbal, gestural, or physical assistance given to learners to assist them in acquiring a target behavior or skill.
- **Reinforcement (1, 43):** A contingent event that leads to the increased occurrence of a behavior in the future.

- **Scripting (1, 8):** Verbal and/or written description about a specific skill or situation that serves as a model for the learner.
- **Social narratives (0, 17):** Narratives/stories that describe social situations in detail by highlighting relevant cues and offering examples of appropriate responding.
- **Social skills training (7, 8):** Group or individual instruction designed to teach learners how to interact appropriately with peers, adults, and other individuals.
- **Structured play group (2, 2):** Small group activities with a specific structure that are designed to teach children with ASD to play with typically developing peers.
- **Task analysis (0, 8):** A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill.
EBP: Instruction

- Technology-aided instruction and intervention (9, 11): Instruction or interventions in which technology is the central feature supporting the acquisition of a goal for the learner (includes use of PDAs, tablets, SGDs, computers, etc.)
- Time delay (0, 12): Use of a brief delay between the opportunity to use the skill and any additional instructions or prompts
- Video modeling (1, 31): Instruction that relies on a video recording of a target behavior to support learning
- Visual support (0, 18): Any visual display that supports the learner engaging in a desired behavior or skills independent of prompts

Insufficient Evidence

- Many other interventions were also examined and most had at least some empirical support but
  o Only a few studies,
  o <20 participants, or
  o Only one research group
- See http://autismpdc.fpg.unc.edu/evidence-based-practices for the complete report


- Cross-disciplinary panel of autism researchers and other experts
- Reviewed the educational and behavioral research literature with participants with ASD from 1957-2012 (adults 22+, 1987-2012)
  o Started with 3,765 studies, ended up with 1,136 (27 for adults)
- Used an elaborate and precise evaluation system, the Scientific Merit Rating Scale (SMRS), to examine the quality of evidence provided by each individual study; resulted in overall scores of 0-5 in several areas
They then evaluated groups of studies that all examined the same treatment.

Three groups:
- "Established": several published studies with SMRS scores of 3-5 that demonstrate a beneficial effect.
- "Emerging": few published studies with SMRS scores of 2 that demonstrate a beneficial effect.
- "Unestablished": SMRS scores of 0-1, with ineffective, unknown, or adverse effects.

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**Children and Adolescents**

Children and adolescents established interventions (0-22):

- *Behavioural interventions designed to increase adaptive behaviours and/or decrease challenging behaviours (298, 3-21)*
- *Cognitive behaviour therapy (CBT) (13, 6-14)*
- *Comprehensive behavioural treatment for young children (41, 0-9)*
- *Language training (vocal production) (12, 3-9)*
- *Modeling (in vivo or video) (79, 3-18)*
- *Naturalistic teaching procedures (30, 0-9)*

* Also endorsed by the NPDC - changed from emerging to established since 2009.
### Established Interventions (0-22)

- *Parent training package (48, 0-18)
- *Peer training package (46, 3-14)
- *Pivotal Response Treatment (17, 3-9)
- *Schedules (aka visual supports) (13, 3-9)
- *Scripting (11, 3-14)
- *Self-management (31, 15-21)
- *Social skills package (35, 13-18)
- *Story-based interventions (36, 3-14)

*Also endorsed by the NPDC; changed from emerging to established since 2009*

### Emerging Interventions (0-22)

- One or more studies with SMRS scores of 2
  - *AAC speech-generating devices*
  - Developmental relationship-based treatment (e.g., ESDM)
  - *Exercise*
  - *Exposure package*
  - *Functional communication training*
  - *Imitation-based intervention*
  - *Initiation training*
  - *Language training (prod + comp)*

*Endorsed by the NPDC as an EBP*

### Unestablished Treatments (0-22)

- Quality, quantity, and/or consistency of research is poor, so conclusions cannot be drawn:
  - *Animal-assisted therapy*
  - *Auditory integration training*
  - *Concept mapping*
  - *DIR/Floor time*
  - *Facilitated communication*
  - *Gluten-/casein-free diet*
  - *Movement-based intervention*
  - *SENSE Theatre intervention*
  - *Sensory intervention package*
  - *Shock therapy*
  - *Social Behavioural Learning strategy*
  - *Social Cognition intervention*
  - *Social Thinking intervention*
Adults

Established Interventions (22+)

- Behavioural interventions designed to both increase adaptive behaviors and decrease challenging behaviours (17)
  - Prompting
  - Extinction
  - Differential reinforcement of incompatible behaviour
  - Choice
  - Functional communication training
  - Combinations of these

Emerging Interventions (22+)

- Vocational training package
Unestablished Treatments (22+)

- Cognitive behavior intervention package
- Modeling
- Music therapy
- Sensory integration package

http://www.nationalautismcenter.org/national-standards-project/results-reports/

Where Does This Leave Us?

- With plenty of work to do!!
- We *desperately* need EBPs for
  - Adolescents and adults
  - Community living skills
  - Sensory issues and symptoms
  - Stereotypic behaviour
  - Vocational and independent living instruction
- Need more EBP reviews for
  - Biomedical treatments
  - Additional CAM treatments

How?

- By working together, across disciplines and boundaries
  - Pediatricians, psychologists, and neurologists
  - Geneticists and basic scientists
  - Applied researchers, teachers, behaviour analysts, speech-language pathologists, occupational therapists
  - Clinicians, parents, and individuals with ASD
  - And every other combination, and more!
NDBI Interventions
(Schreibman et al., 2015)

- “…empirically-based intervention methods
derived from both the principles of behavioral
learning and developmental sciences” (p. 2412)
- Multiple, published experimental studies have
demonstrated effectiveness

NDBIs

- Laura Schreibman, Yvonne Bruinsma, & Erin McNemey: Pivotal
  Response Training (PRT)
- Geraldine Dawson and Sally Rogers: Early Start Denver Model (ESDM)
- Amy Wetherby: Social Communication/Emotional Regulation/
  Transactional Support (SCERTS)
- Connie Kasari: Joint Attention Symbolic Play Engagement and
  Regulation (JASPER)
- Brooke Ingersoll and Aubyn Stahmer: Reciprocal Imitation
  Training (RIT)
- Gail McGee: Incidental teaching
- Ann Kaiser: Enhanced milieu teaching (EMT)
- Rebecca Landa: Early Achievements

NDBI Common Features

- “All evidence-based NDBIs are based upon well-
established principles of applied behavior analysis.
Thus, they represent ABA treatment” (p. 2417)
- Clear procedures are carefully described in the
  respective intervention manuals
- Fidelity of implementation assessments are available
- Methods are provided for systematic data collection to
  track child progress
- Developmental sequences are used to guide
  individualized goal development
**NDBI Common Features**

- Teaching is conducted in natural and varied settings, with a range of real life materials
- Instructions or opportunities to respond are presented within the context of a child-chosen or child-preferred activity or familiar routine (“follow the child’s lead”)
- Environment is set up so that the child must initiate or interact with the adult in order to obtain a desired outcome (environmental arrangement)
- Natural reinforcement that is intrinsic to the child’s goal is provided, attempts are reinforced, and easy-difficult tasks are interspersed

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**NDBI Common Features**

- Adults use systematic prompts/cues to teach new skills and fade prompts as quickly as possible
- Modeling is combined with prompts to teach target skills
- Shared control (turntaking/balanced turns/reciprocal interaction) is used to increase social reciprocity and extend the length of interactions
- Contingent imitation (mirroring/reciprocal imitation) is used to teach imitation, increase the child’s responsivity and attention to the adult, and continue an interaction

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**Some (but not all) NDBI Differences**

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<th>EMDM</th>
<th>SCERTS</th>
<th>JASPER</th>
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NDBI Example: ESDM

• AG, diagnosed with ASD at age 3;7
• Assessment using ESDM: interviewing parents, consulting with OT and SLP, observation at the preschool
• Write up joint SL-P and OT goals and objectives for her home program
• Training in goals/objectives and teaching strategies: parents, BIs, SL-P, SCD consultant, & preschool teacher
• 3;11 at the time of video

ESDM Goals

Approximately 26 goals from multiple areas of development

- Receptive Language
- Expressive Language
- Imitation
- Joint Attention
- Cognition
- Social Skills

- Social Skills with Peers
- Play
- Fine motor
- Gross motor
- Self-help skills

Example Goal

Expressive Communication
In everyday and play activities, when an adult performs an action and asks, "What am I doing?" or sees AG perform an action and asks, "What are you doing?" or shows pictures of action and ask, "What is he doing?,” AG will respond appropriately using action words, for the majority of opportunities for 2 or more adults in 3 consecutive sessions, and with adults at home and in the daycare.
Example Goal

Expressive Communication
In everyday activities, when an adult performs an action and pauses or presents an item of interest and pauses, AG will combine verbalizations with gaze by turning her head and eyes towards adult, 4/5 opportunities for 3+ activities, for 3 consecutive sessions, for 2+ people in 2+ environments.

Teaching Steps (Objectives)

<table>
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<tr>
<th>Opportunities</th>
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<td>3</td>
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<td>3, 2 people, 2+ environments</td>
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NDBI??

What is Developmental?
- Developmental treatment goals
- Child-chosen, child preferred activity
- Teaching in natural setting
- Natural reinforcement
- Adult matches child’s language level (one-up rule)
- Turn taking
- Target objectives from different developmental domains

What is Behavioural?
- Individualized treatment goals
- Management of child attention
- Instruction are delivered using the three-part contingency: Antecedent, Behaviour, Consequence
- Prompts and prompt fading (time delay)
- Teaching trials occur frequently (once per 20-30 sec)
- Systematic data collection (interval recording)
**Data Collection**

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**Punchline**

- Much progress has been made in the past few years re:
  - RASP in BC
  - Identification of EBPs
  - “Marriage” of developmental and ABA approaches
- Let’s continue to keep our eyes on the prize!