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ABA Workshop:
Part 2

Jane Summers, Ph.D.

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Overview of Part 2

- Definition of ABA
- Selection of skills to teach and setting teaching goals
- Rationale for teaching foundation skills

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What is ABA?

- **Applied Behavior Analysis** – branch of science that uses findings from basic research on the principles of learning to develop technologies that have practical benefits for society (Steege, M.W., Mace, F.C., Perry, L. & Longenecker,H. (2007). Applied behavior analysis: Beyond discrete trial teaching. Psychology in the Schools, 44, 91-99)
- Its effectiveness has been established in thousands of studies with many different populations
- Best known for educating children with autism

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Important Aspects of ABA*

(1) Choose skills that have a high functional value for the child

(2) Break skills down into a series of smaller, component steps

(3) Use prompts or guidance to decrease the child's errors and frustration during teaching

(4) Use systematic reinforcement

(5) Collect data on the child's learning performance

(6) Focus on generalization and maintenance of newly mastered skills

*Adapted from. Anderson, S.R., & Romanczyk, R.G. (1999). Early intervention for young children with autism: Continuum-based behavioral models. Journal of the Association for Severe Handicaps, 24(3), 162-173

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Selecting skills to teach

- Skills should be functional (helpful in everyday situations)
- Realistic (within child's abilities)
- Can be used to build more complex skills

- 3 important questions

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Selecting skills to teach

- 3 important questions:

- What are the skills I want my child to learn?
- How will these skills help my child to become more independent or function better?
- How will I make sure these skills are used regularly?

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Sample teaching curriculum

- Motor imitation
- Matching objects and photos
- Functional expressive communication
- Receptive commands and more complex receptive language skills if possible
- Self-care skills
- Play and leisure activities

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Foundation skills

- Attending (paying attention to people)
- Responding to simple instructions
- Accepting reinforcement
- Imitation
- Matching

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Imitation

- Important way for children to learn new skills is to watch other people and copy their actions ("imitate")
  - Gross motor – movement of arms and legs
  - Fine motor – movement of fingers
  - Motor imitation using objects – performance of action with an object

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Imitation (continued)

Imitation skills can be used as a basis to teach:
- Play skills
- School-related and work skills
- Self-care skills
- Sign language

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Matching

- Refers to an ability to detect similarities and differences among different types of stimuli
- Teaching sequence – easiest (actual object) → most difficult or abstract (line drawings, written text)

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Matching (continued)

Matching skills can be used as a basis to teach:
- Receptive commands (child looks at photo and gets her shoes)
- Functional sequences – child matches photos to items of clothing to assist with dressing
- Vocational and recreational activities – setting the table, sorting laundry, leisure activities (playing matching games)

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Importance of communication skills

- For children to express wants and needs for:
  - Food/drink
  - Access to preferred objects and activities
  - Social attention and physical contact
  - Requesting help, break or bathroom
- Responding to functional commands in everyday situations
- More complex receptive language (e.g., labels, attributes)
- Ability to understand and be understood may prevent or ameliorate behavior problems

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Augmentative and alternative communication systems (AAC)*

- Two types of AAC techniques – unaided and aided
- Unaided communication – doesn't require "equipment" that is external to the body
- Examples – manual signs, pantomine and gestures (Enhanced Natural Gestures, Calculator)
- (Mirenda, P. (2003). Toward functional augmentative and alternative communication for students with autism. Manual signs, graphic symbols and voice output communication devices. Language, Speech and Hearing Services in Schools, 34, 203-216).

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AAC (continued)

- Aided communication -- relies on devices that are external to the person who uses them and involves the use of symbols such as photos, line drawings, letters and words
- Examples – communication books, voice output devices

Getting back to goal setting

- What are the skills I want my child to learn?
- How will these skills help my child to become more independent or function better?
- How will I make sure these skills are used regularly?

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Goal setting: Skills I want my child to learn

- Communication – telling people that he wants a drink
- Social – greeting people with a wave
- Self-help – using a spoon to eat
- Play – push the button on a pop-up toy

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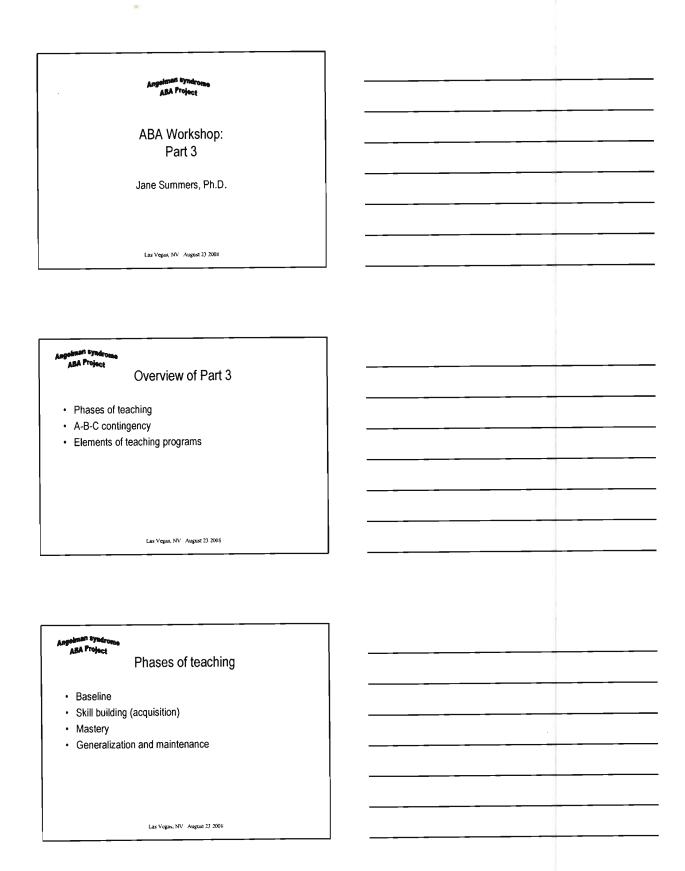## How will these skills help my child to become more functional or independent?

- Communication – other people can understand what he wants; he won't get upset because he can't ask for something
- Social – he can greet other people on his own and be accepted by his peers; he can learn not to grab people for attention
- Self-help – he can feed himself so I don't have to feed him
- Play – he can amuse himself for a short time and fit in better with other children

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How will I make sure these skills
are used regularly?

- Communication – put a photo of juice on the refrigerator
- Social – show him how to wave whenever he greets people
- Self-help – show him how to use a spoon whenever he eats solid food
- Play – set aside a few minutes each day for him to play with his siblings or peers

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ABA Workshop:
Part 3

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Overview of Part 3

- Phases of teaching
- A-B-C contingency
- Elements of teaching programs

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Phases of teaching

- Baseline
- Skill building (acquisition)
- Mastery
- Generalization and maintenance

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Baseline

- An assessment to determine the child's present level of skills (prior to intervention)

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Skill building

- Refers to teaching a new skill
  - Break skill down into series of smaller steps
  - Use prompts to guide child to respond correctly
  - Provide opportunities for repeated practice
  - Use positive reinforcement to strengthen the new response

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Mastery

- We continue to teach a new skill until the child demonstrates that he/she is competent at performing the behavior
  - Behavior is performed consistently and accurately
- For instance, he/she has to meet a criterion for performance mastery (e.g., correct independent responding the first time asked, 2 days in a row)

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Generalization

- Once a skill has been mastered, it needs to be generalized beyond the teaching circumstances to "real life" situations
  - People
  - Places
  - Materials
  - Instructions

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Maintenance

- Ensure that a new skill is not lost or "forgotten"
- Should be practiced or used frequently

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A-B-C contingency

Teaching trial consists of following steps:
- Adult gives instruction (**antecedent**)
- Child makes response (**behavior**)
- Child is reinforced for the behavior (**consequence**)

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Giving an instruction

- Child should be paying attention (look at you, not turning away, not distracted, call his/her name or say "look")
- Give clear, simple instruction and state it once

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Child response

- Child makes a response (correct or incorrect response) or does not make a response
  - If child makes correct response, reinforcement is provided
  - If child makes incorrect response or does not respond, he/she is prompted and reinforced

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Positive reinforcement

- Positive reinforcement is something that is given following a behavior and increases the likelihood that it will occur again
- Motivates children to learn
- Makes learning fun and enjoyable

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Types of reinforcers

- Consume – food and drinks
- Manipulate – playing with toy cars
- Activity-based – listening to music, watching movies
- Social – praise, high fives, pat on back

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Finding out what your child likes

- Observe to see what they like to do naturally
- Give free access or offer choices
- Look for signs of interest and enjoyment
- How long does these signs last

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General tips

- Reserve highly preferred items for teaching sessions
- Give small amounts and give consistently at first
- Once a skill is generalized, reinforcement should be "faded" from being given constantly to being given occasionally and randomly
- Always pair with social praise
- Skills that are never reinforced after teaching will likely stop happening altogether

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"Schedules" of reinforcement

- Continuous = behavior is reinforced each time it occurs
- Intermittent = behavior is reinforced occasionally
- Continuous reinforcement is better when teaching a new skill; intermittent reinforcement is better when maintaining a skill (more "real life")

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Prompts

- A prompt is a form of assistance or guidance to help a child respond correctly
- Very important in the initial stages of teaching when mistakes are common and child can become frustrated or confused
- Prompts can be physical, gestural, verbal and positional

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Errorless learning

- Errorless learning – prompt child to respond correctly before he or she has an opportunity to make an error

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Prompt fading

- Prompts are faded systematically to prevent child from becoming dependent on them
- Since many children with AS have a movement disorder, it may not be possible in some cases to fade prompts altogether
- In these situations, still try to provide the least amount of assistance possible in order for child to respond correctly

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Elements of teaching programs

- Skill domain
- Teaching goal or objective
- Set up
- Teaching procedures
  - Instruction
  - Target response
  - Reinforcement
  - When to move to next teaching target

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Elements of teaching programs
(continued)

- Prompting sequence and procedures
- Description of prompts
- Mastery criteria
- Generalization criteria
- Maintenance

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Sponsored by the Angelman Syndrome Foundation

Presented by: Jane Summers, Ph.D.

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Overview of Presentation

- Background to ABA project
- What is ABA and why use it with children (and adults) with Angelman syndrome?
- Key aspects of ABA teaching approaches
- How to design a teaching program and run an ABA session
- Ideas for ABA in the classroom
- Individual and group exercises

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Premise behind ABA study

- Had seen ABA help children with autism to learn new skills
- Wanted to apply these approaches to children with AS because they deserve to receive systematic evidence-based interventions
- Also to determine how children with AS would respond and what modifications would need to be made in light of their particular characteristics

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Before starting

- Thanks to Sheila Wenger, Eileen Braun and the Angelman Syndrome Foundation
- Grace Sampson
- Colleagues at McMaster Children's Hospital, Hamilton Health Sciences
- Acknowledge importance of other professionals in children's lives – neurologist, speech-language pathologist, physiotherapist, special educators, etc.
- Respect their input and need to coordinate our efforts with the work they do

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Before starting (continued)

- Like other children, children with AS have different patterns of skills and learn at different rates
- We know there are limits to what they will be able to learn
- Can't predict how well a particular child will do, but expect that all children will be able to benefit to some extent from these teaching approaches

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Learning and behavioral characteristics of children with AS

- Movement and balance disorder (difficulty performing actions that involve fine and gross motor responses)
- Lack of speech, so depend on motor skills
- Difficulty imitating people's actions
- Hypermotoric (always "on the go")
- Seizure disorder and anticonvulsant medication

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Learning and behavioral characteristics (continued)

- Sleep disturbances and decreased need for sleep
- Pica and mouthing
- Laughing excessively

- BUT – happy and endearing to work with = very rewarding experience
- Can help draw people to them and keep them motivated

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Cautions

- Workshop is an overview of ABA and teaching strategies (starting point)
- Tried to follow the tradition of parents as therapists for children with autism and parent training manuals (e.g., Ivar Lovaas, Catherine Maurice)
- Takes a lot of time and training to become a qualified ABA therapist and supervisor

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Cautions

- If you are interested in taking this further, find out what ABA services are being offered to children with autism in your area
- If you want to hire therapists, this may be a good place to start
- Find out about training opportunities for yourself

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ABA Workshop:
Part 4

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Overview of Part 4

- Preparing for a teaching session
- Running a teaching session

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Prepare the teaching environment

- You and your child should have comfortable, sturdy chairs to sit on and a sturdy table to work at
- Chair should be at comfortable height and distance from the table so child can reach toys and materials easily
- Adult should be sitting at child's eye level
- Floor is clear and free of clutter

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Prepare the teaching environment (continued)

- Is there enough light for your child to see? Is the room temperature comfortable?
- Is the room free of visual and auditory distractions?
- The goal is to maximize comfort and minimize distractions

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Prepare your child

- Does your child need to be taken to the washroom or changed first?
- Is your child hungry or thirsty? You want him or her to be a little hungry or thirsty to increase motivation to work for food/drink.
- Is your child excessively tired or having a lot of seizures? Would it be better to try again later in the day?

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How to run a teaching session

Preparation and set up
- Teaching sessions may last from 60-90 minutes, including several short breaks
- It is possible to work on 5-10 different programs during a session
- You will need to set aside some time at the beginning of the session to prepare your teaching material, programs and data sheets

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How to run a teaching session (continued)

- You will also need some time at the end of the session to clean and put away material, summarize your data and prepare data sheets for the next session

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How to run a teaching session (continued)

Teaching trials

Program objective – Teach motor action with an object (roll car).

- You will need: (1) the program for teaching motor actions with objects, (2) skill tracking sheet, (3) acquisition (cold probe) data sheet and (4) graph.
- Have child sitting quietly in chair with hands placed on the table.

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How to run a teaching session (continued)

- Make sure child is paying attention (looking at you). If necessary, call child's name and praise ("good looking").
- Give appropriate instruction once (say "roll car") while you roll the car across the table.
- Take child's hand and use full physical (hand-over-hand) prompt to move the car across the table.

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How to run a teaching session (continued)

- Provide enthusiastic, descriptive verbal praise ("Good rolling the car") and a toy or small piece of food.
- Continue to run teaching trials in this manner, moving to a different level of prompt as indicated in the teaching program.
- Indicate if the child achieved independent responding by the end of the session or needed a prompt (as well as the level of prompt needed).

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How to run a teaching session (continued)

- Repeat the steps outlined above for the other teaching programs.
- When you have finished the session, make sure your data sheets are filled in correctly. Prepare data sheets for the next session. Once a week, add the number of new skills that were mastered to the previous total and record on the graph.

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