

It's Just Another Tool: Augmentative Communication for Young Children with Significant Disabilities

New Developments in Knowledge, Strategies, and Devices to Improve Communication through AAC

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Why are you here today?



Today's Objectives

- Identify characteristics that indicate the need for AAC
- Describe the roles and skills of EI team members in selecting and implementing AAC
- Describe the use of Social Networks to assess AAC needs
- Describe three environmental considerations in implementing AAC
- List five device features to consider when selecting AAC and related AT for young children with disabilities
- Describe considerations and pitfalls in vocabulary selection and young children
- Name five web or other resources for AAC



What is Augmentative and Alternative Communication (AAC) ?

- Procedures and processes by which an individual's communication skills (production as well as comprehension) can be maximized for functional and effective communication (ASHA, 2001)
- Involves supplementing or replacing natural speech and/or writing with aided *or unaided* symbols
- Includes strategies to improve performance (e.g. establishing topic) and techniques (approaches or methods, e.g. dynamic display changes)

What is AAC?

- "Anything that helps children (or adults) to communicate when traditional strategies are not sufficient to accomplish a communication goal."

(Cynthia Cress, 2000)

What is AAC?

- An interdisciplinary field, but one that depends on the unique contributions of speech-language pathologists related to their knowledge of language and communication
- An intervention that frequently requires changes in the behavior of communication partners

What AAC is NOT!

- AAC does not only mean devices.
- AAC devices are not the only kinds of assistive technology that can help young children.
- AAC is not just high tech expensive devices.
- AAC devices in and of themselves, are NOT enough!
- AAC does not mean ONLY the devices, without the services necessary to support the devices.
- AAC does not mean the abandonment of efforts to establish or improve natural speech.

How can I tell if my child is likely to need or benefit from AAC intervention?

- Compromised systems on which speech depends
- A lot to "say" and not a lot of ways to say it
- A lot to "say" but (un) familiar partners don't understand it
- Highly restricted range of topics
- Highly restricted range of intents
- Diagnoses including but not limited to cerebral palsy; apraxia; autism
- Significant delay in onset of (intelligible) speech, especially if accompanied by child or partner frustration

Why are young children with physical disabilities at risk for communication disabilities?

- Inter-relationship of physical contact with and action on the "world" and early learning (sensori-motor achievements)
- Early communication typically depends on vocal or hand skills
- Parent's difficulty in recognizing and responding to idiosyncratic communication
- Lack of success in gaining attention and other early communication attempts leads to passivity
- Co-existence of other specific impairments

Early Intervention is Critical!

Children with significant communication disabilities are at risk in all aspects of development:

- ✓Functional Communication
- ✓Language Development
- ✓Cognitive Development and Learning
- ✓Literacy Development
- ✓Social Participation
- ✓Quality of Life

(Light, 2005)



Examples

- Jon uses "eye contact" as a primary strategy to gain adult attention.
- Lara can't reach, grab, or interact with a toy unless someone puts it in her hand.
- Clare can only look at toys, she can't hold them, touch them, bring them up to her mouth.
- Touching things unexpectedly usually make Ted "startle".

AAC means a “system”

- Multi-modal
- Includes gestures, postural and body shifts
- Includes vocal behaviors
- May include spontaneous and intentional behaviors as well as unintentional signals
- Behaviors and gestures support later AAC development
- Continuum of non-symbolic and symbolic behaviors

Why don't we see more AT (including but not limited to AAC) in EI?

- The use of AT is still limited and unsystematic with children under age 3 (Sullivan & Lewis, 2000)
- AT interventions remain underutilized and poorly integrated into plans for infants and toddlers with disabilities and special health care needs (Long et al, 2003)
- 2004 Part C report – 17 PA children had AT in the IFSP

Persistent questions, beliefs, and myths that create barriers to AAC

- Shouldn't we wait to provide AAC services until the child is past the age when s/he would begin to speak?
- Won't AAC interfere with the development of speech?
- Aren't there “pre-requisite” skills that a child needs before you start addressing AAC?
- Shouldn't we wait and see if “traditional” speech therapy works, first?

Persistent questions, beliefs, and myths that create barriers to AAC

- Any child under 30 months is too young to intervene with AAC.
- If you intervene with an AAC device and then the child ends up talking, you will have wasted all that money.
- There's no way to get those devices funded, anyway.
- Parents will reject AAC.
- Others?



There are no pre-requisites!

- Communication starts with interaction and the earliest behaviors of children
- Basic AAC intervention includes behaviors, gestures, cooperative actions and sounds, and is not restricted to controlling complex systems or devices.
- The relationship between cognition and communication is a complex one
- It is hard to accurately assess cognition with children with significant disabilities

Learned Helplessness

- Child learns he cannot successfully impact his environment
- Adults don't offer opportunities for communication (anticipate; pre-empt, or misinterpret)
- Giving the child CONTROL may be the first goal of a communication program!

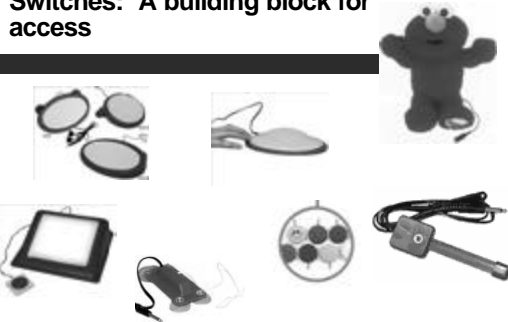
Young kids need to learn they can make things happen in their world

- They can make things move, through their movement.
- They can gain adult attention, by doing "something"
- They can make things happen, through others (COMMUNICATION!)

Using "basic" technology (switches)

- Requires child-initiated action
- Can motivate exploration, stimulate attention, promote a sense of environmental control
- Makes active participation and active learning possible
- Child learns the environment is responsive
- "I can do it myself!"
- Can make the difference between learning to learn vs. learning to be helpless (Sullivan & Lewis, 2000)

Switches: A building block for access



Learning control through AT can occur in the first year of life!

- Provide one or more *low-effort* responses resulting in a pleasant consequence
- Repeat the experience at regular intervals
- Vary consequences (toys) systematically, taking child's preferences into account
- Provide opportunity for discrimination
- Provide new responses and increase complexity
- Involves careful selection of toys and switches; AVOID SATIATION

Communication

A tool for control through interaction and participation.
Communication takes 2!

Roles of EI Team Members

- Acknowledge the importance of communication for even very young children and their families
- Recognize the need for AAC
- Identify and model appropriate communication partner behaviors
- Embed opportunities for interaction, participation, and communication in all interventions
- Support the family in facilitating communication in everyday routines

Family

- Key communication partners
- Key informants in the selection of topics and vocabulary
- Implements AAC strategies, techniques, and devices (if appropriate) as well as related AT in every day routines
- ...



Family

- Relationship between parental recognition and responsiveness to intentional behavior and improved communication development
- Communication Signal Inventory can assist in highlighting these behaviors and their meanings; increases responsiveness and forms the foundation of "vocabulary"

Communication Signal Inventory

Signal	Means	Partner does/says
<i>Head back, opens mouth and spreads arms</i>	<i>I want the game where you pick me up and make me "fly"</i>	You want to fly!
<i>Drops head, gazes down</i>	<i>I am done.</i>	No more? You're finished?
<i>Kicks footrest, vocalizes loudly</i>	<i>I want you to come here and talk to me</i>	I'm coming!

Making decisions

- Families need hands-on experience with any AAC devices.
- Demonstrations are available through PIAT.
- Becoming familiar with AT (in general) can help prepare families for specific assessments. (Judge, 2002).
- Psycho-social and family considerations
- Practical considerations

Family

- Successful AAC decision-making is family-centered
 - When families are involved from the start of the assessment process they feel like part of the team
 - Effective AAC teams are integral to AAC intervention
- (Bailey et al, 2006)

Speech-Language Pathologist

- The "expert" in development of language and communication
- Brings an understanding of both receptive and expressive communication
- Can identify the need for and recommend strategies to enhance communication and language development
- May or may not know "all" of the AT options, but can identify what are important features of the devices (if appropriate) for the child, considering the child's communication and linguistic needs
- ...

Speech-language Pathologist

- May be providing other services (e.g. feeding)
- May be providing strategies focused on the development of natural speech AND AAC simultaneously
- May need to consult with an SLP who DOES know the range and scope of AAC devices

Occupational or Physical Therapist

- Addresses access concerns
- Addresses seating and positioning, including relation of the child to visual materials
- May or may not know "all" of the AT options, but can identify the important access features of devices for the child
- ...

Special Instructor

- Recognizes the importance of "play" and its contribution to learning and development
- Builds on the relationship of play and communication to enhance the "what" of communication
- Develops strategies for participation, including AT
- May or may not know "all" of the AT options, but can identify what are important features of the devices (if appropriate) for the child, considering the child's cognitive, communication and linguistic needs
- ...

Service Coordinator

- Helps identify parental attitudes or practical concerns that might inhibit communication and the implementation of AAC.
- Identifies the need for external resources, e.g. AAC/AT consultation to identify AT devices
- Works with the team to develop an IFSP that reflects communication outcomes and the use of AT, as appropriate.
- Assists in the identification of resources to procure needed AT devices and services.
- Considers the use of AAC and other AT as the child transitions to preschool services.
- ...

AAC Devices and Young Children

The "promise" of AAC devices for enhancing communication and the development of language has not yet been realized.

AAC systems (currently) reflect adult perspectives and are not generally appealing to young children (or their peer communication partners!).

Toys



AAC Devices



What's New in AAC? Research into device characteristics and young children (Light et al, 2005)

- Versatile – usable in various contexts, provide growth
- Appealing for user and peers - Toy-like vs. tech-like (Wiggles, farts and burps, laughter, cowabunga dude!)
- Dynamic – accommodate vocabulary (e.g. typical preschoolers learn 5+ words/day)
- Easy to learn – reduce learning demands

Vocabulary and AAC

- Preliterate toddlers are unable to generate their own messages
- Adults do the selecting (vs. typically developing kids)
- Core vocabulary
- Fringe vocabulary (context-specific; identified through ecological inventory; not necessarily generalizable)

Vocabulary

- DiCarlo et al, 2001
- 3 speaking toddlers 24-36 months of age, across 2 activities in an inclusive day care center
- 16 words were used across both activities (center time; snack)
- Pronouns, verb, prepositions, demonstratives
- Different pragmatic functions expressed
- NO NOUNS!
- Follow up study: 50 toddlers from 5 different day care centers; similar findings

Vocabulary

a	don't	hot	myself	see
all	down	I	night	there
baby	food	in	no	up
bird	get	into	nose	want
boat	go	it	off	write
book	going	juice	oh	
car	gone	light	on	
dirty	good	little	other	
do	hat	more	pretty	
does	he	my	read	

Check out vocabulary decisions

- Range of concepts (people, actions, objects, social language, questions, etc.)
- Flexible
- Developmentally appropriate
- Kid-like (especially voice output)
- Individualized – culture, interests, family -centered
- Motivating and fun!
- Permits power and control

Vocabulary

- Organize vocabulary in small groups according to familiar events and activities
- Visual scene layout with vocabulary embedded
- Transition to traditional grid over time
- Balance navigational demands and need for increasing language

Young Children and Symbols

- Use representation that reflects the child's understanding
- Use symbols that represent meaningful contexts/experiences to the child (e.g. digital photos; line drawings that are meaningful to the child; avoid isolated parts)
- Teach symbols in context – INPUT; link symbol and concept explicitly
- Grab “teachable moments” to introduce the symbol
- Allow the child to “discover” the symbol and what it might mean

Representations



Organization

- Out of context
- Concepts are separate
- High processing demands
- Limitations on size and space may increase retrieval load (e.g. multiple pages)



Organization: Findings

- Very young children more accurate in visual scene layouts
- Present vocabulary in meaningful context, especially according to familiar events/activities
- Link concepts
- Use hotspots (on SGDs)
- Transition from visual scene to hybrid to traditional grid over time

Challenge

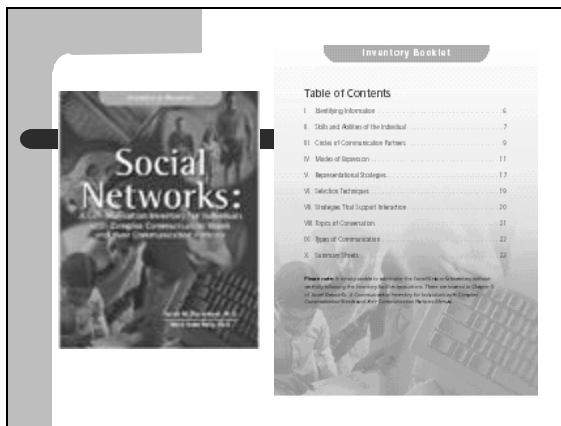
- Provide access to sufficient vocabulary while controlling navigational difficulty
- Do not sacrifice language development for the device
- Appreciate the demands on young children in coordinating themselves, their communication partner, the activity and the AAC system
- For children with physical disabilities, consider the physical access factor

Young Children

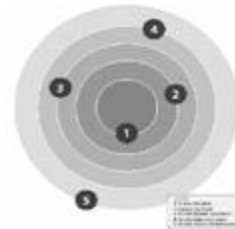
- Always model AAC + speech
- Always expose the child to more vocabulary and more complex messages than s/he currently uses
- Use milieu approaches like expectant time, expectant body posture and WAIT
- Respond “naturally”, e.g. by continuing the interaction/activity

A New Approach to Assessment

- Examine the communication behaviors of the speaking PARTNERS to identify those that are – or are not – facilitative of communication and language development
- Identify the need for intervention that may include training sessions for partners
- Blackstone, S.W. & Berg, M.H. (2003). Social Networks. Augmentative Communication, Inc. www.augcominc.com



Circles of Partners



Circles of Communication Partners Paradigm

First Circle

- Life-long communication partners
- Typically individuals with whom the person resides or is related; for young children, their family
- May not need any aids to understand – may understand idiosyncratic modes as well as unaided strategies including speech; body language and gestures.
- “I understand everything that Beth says”

Second Circle

- Close friends/relatives (may be close friends/relatives of the family, for example)
- Degree of closeness and familiarity
- May use a range of strategies including AT as well as trained partners

Third circle

- Acquaintances
- Known people but socialization is not regular or frequent
- May rely more on high-tech or more symbolic modes for communication success OR
- If no AAC, will not be understood without a "translator"

Fourth Circle

- Paid workers
- Therapists, doctors, day care workers, babysitters
- More frequent use of low-tech aids.

Fifth Circle

- Unfamiliar partners
- "everyone else"
- Potential interaction partners
- Unable to effectively interact without access to AAC devices (unless there is an "interpreter")

Communication and Development

- As children grow older, the number of circles expand.
- More partners are included in each circle.
- As circles expand, more communication modes may be added to the "multi-modal system".
- The goal of AAC is to help facilitate expanding relationships, across "circles".

Ability to access a variety of communication modes is a key to success across the circles!



What Are the Goals of AAC intervention for young children?

- Increase participation
- Build social interactions/turn-taking
- Express a range of communicative functions (social interaction; needs and wants; sharing information; establishing/maintaining joint attention)
- Develop more concepts and "meanings" to support more diverse communication
- Build greater complexity of language to support more complex communication
- Build phonological awareness/foundation for literacy (Light, 2005)

Intervention

- Intervention is needed to alter environments that do not provide opportunities
- Intervention is needed to alter environments that do not respond appropriately
- Intervention is needed to create environments (and partners) that require, invite, and reward communication

Communication intervention that works

- Opportunities for communication infused in play and daily activities
- Opportunities for AAC aid use infused in play and daily activities
- Infuse AAC into play
- Infuse play into AAC!

Communication intervention that works

- Include cause/effect and means/end in social activities. All communication is cause/effect!
- Use simple switch toys and messages in a complex way.
- Provide opportunities for independent control.
- Use new forms for existing functions.
- Capitalize on existing forms for new functions.



Achieving Communication Independence (Yvonne Gillette)

- Communication Opportunities Inventory
- Communication Skill Inventory
- Skill Component Analysis

Communication intervention: Milieu approaches

- Expectant time delay: WAIT!
- Joint attention
- Body language that shows you're involved
- Assure adequate opportunities for practice by engineering the environment (planned stupidity, choices, and routines)

Communication intervention

- Respond to communication attempts
- Respond to communication intents
- Expansion
- Model
- Offer more opportunities

Children

- Adam
- 26 months old
- Blind
- Says only 3 words (mom, Sam [the family dog], go)
- No motor impairment
- Cognitive development appears mildly delayed
- Lisa
- 16 months old
- Tube fed but beginning to take some pudding consistency by mouth
- Significant physical disabilities affecting all limbs, head control
- Uses vocalization to attract attention, uses eye gaze for joint attention
- No evident cognitive impairment

Routines

- Bath time
- Meal time
- Stacking Blocks

Identify:

- vocabulary and how you might organize it
- vocabulary and how you might represent it
- any environmental constraints and how you would "work around"
- opportunities and how you would engineer them



AAC: It's just another tool!

- *Smaller
- *Lighter
- *Better sounding voices
- *Built on generic platforms
- *More memory
- *Cheaper
- *Technology integration (e.g. with EADL)

AAC: It's Just Another Tool!

- Size
- Weight
- Memory
- Access modes
- Representational system
- Vocabulary retrieval
- Voice
- Flexibility
- Programming
- Cost
- More features?

L*E*O

- Digitized
- 32 minutes of recording time
- Under 2 pounds
- Allows multiple configurations of overlays (1-8-32 cell)
- \$799
- www.assistivetech.com



Cyrano Communicator

- 6 oz. Pocket PC base
- Embedded camera enables you to take and use digital pictures in the display
- Color touch screen
- Speech-to-text
- 5 voices (3 male, 2 female)
- Page linking capability
- Wireless keyboard
- \$1200!!
- cyranocommunicator.com



TechPAD SE

- "complete solution"
- Built-in mounting system
- Table PC interface
- Built-in wireless and Bluetooth
- BoardMaker
- Can install other software
- handsontechnology.ca
- \$\$\$??



Bluebird II

- 6 hours digitized output
- 10 easy to change overlays, selected by flipping to the desired overlay and then pressing the numbered overlay button to the left of the keyboard.
- Toy control overlay
- 24 buttons in a 6x4 configuration.
- Optional software permits other configurations
- Built-in legs can be flipped up to provide a 15° tilt
- Carry strap
- Volume control buttons
- Weight: 2.25 lbs.
- \$895
- www.salttillo.com



Cardinal

- Digitized
- Three levels of messages; 8 minutes of recording time
- 1, 2, 4 and 8 location overlays
- 13.5 ounces
- Direct selection
- 2 AA batteries
- \$229
- www.salttillo.com



Lex

- Three messages for single message playback (up to 20 seconds each)
- Excellent sound
- Large 5" x 7" keypad
- Create talking schedules
- For tray or table-top use, or attach to wall
- \$139
- www.adaptivation.com



Tellus 3+

- Touch screen (finger or active pen)
- Switch/joystick activation
- Infrared remote option, wireless
- Water resistant case, 5.5 lbs
- Windows XP Tablet
- MindExpress icon sequencing/grammatical prediction
- RealSpeak high quality speech engine
- \$7195
- www.triinc.com/english/product/s/mindexpress_pt.html



By transition to the 3-5 program:

- Seating and positioning established
- System(s) of unaided communication identified / developed, including partner-assisted scanning
- Access means identified (may be multiple types of switches; multiple activation sites)
- Aided system (s) including low-mid-high tech as appropriate identified and obtained
- Transition IFSP addresses AAC, include training for new partners in interpreting signals in unaided systems; teaching new partners about aided systems; teaching new partners to create/maximize opportunities; vocabulary selection; etc.

Resources

- Web sites
- Conferences
- Organizations
- PaTTAN
- Pennsylvania's Initiative on Assistive Technology or your state's "Assistive Technology Act" Program

After today, I will do one thing differently:

I will tell _____ the following about what I learned in today's presentation:

