

AAC for Adults with Acquired Motor, Language and/or Cognitive Challenges

Wisconsin Speech-Language Pathology
and Audiology Professional Association
Convention

February 25, 2010

Gary D. Cumley, Ph.D., CCC-SLP

Julia M. King, Ph.D., CCC-SLP

University of Wisconsin- Stevens Point

Learner Outcomes

■ Participants will

- Learn AAC strategies and techniques for adults in various medical settings (e.g., ICU, general hospital, and skilled nursing facilities (SNFs).
- Explain various intervention techniques for adults with acquired motor challenges (e.g., ALS, Parkinson's disease).

Degenerative and/or Acquired Diseases Leading to Communication Impairments

- ALS (Lou Gehrig's Disease)
- Parkinson's Disease
- Multiple Sclerosis
- Spinal Cord Injury
- Brain Stem Stroke
- Traumatic Brain Injury
- Stroke
- Dementia
- Beukelman, Yorkston, & Garrett, 2007; Beukelman & Mirenda, 2005

Augmentative and Alternative Communication (AAC)

- Refers to any strategy, technique or tool that enhances, replaces, augments or supplements an individual's communication capabilities.
- (Gibbons & Fried-Oken, 2009, AAC Clinical Pathways for Neurodegenerative Disease, Retrieved from <http://aac-rerc.psu.edu/>, January 18, 2010.

What is AAC?

- Variety of permanent or temporary means of communication.
- AAC encompasses a vast array of communication systems from "low-tech, light-tech, and high-tech".
- Use of multimodal approaches- different strategies to communicate across different contexts.
- AAC can be the bridge between formulating and expressing ones, wants/needs, social closeness, information transfer, and social etiquette. (Light, 1989)

AAC Philosophy

- For patients with neurodegenerative disease, the purpose of AAC is to provide tools and strategies so that an individual can continue to participate in daily life.
- AAC treatment is not necessarily based on assumptions to regain skills, improve skills, or even maintain skills.
- (Gibbons & Fried-Oken, 2009, AAC Clinical Pathways for Neurodegenerative Disease, Retrieved from <http://aac-rerc.psu.edu/>, January 18, 2010.

General Issues to Consider in Clinical Intervention

- Begin with a Participation Model of service delivery
- Participation, not Stimulation
- Participation model hinges on thinking differently about disability
- Focus on function, not disability per se
- Stress functional outcomes
- (Gibbons & Fried-Oken, 2009, AAC Clinical Pathways for Neurodegenerative Disease, Retrieved from <http://aac-lerc.psu.edu/>, January 18, 2010.

General Issues to Consider in Clinical Intervention, Cond't

- Neurodegenerative diseases warrant well-considered and purposeful interventions
- Function outcomes drive the goals and the clinical path
- Function of AAC vastly different depending on
 - Assumed course of condition/disease/disability/remediation/cognitive stability
 - Language knowledge/accessibility, etc.

Degenerative Diseases

AAC Intervention for Degenerative/Progressive Conditions

Beukelman, Yorkston & Garrett, 2007;
Beukelman & Mirenda, 2005

- All of these conditions are adult-onset and are progressive in nature.
- They typically involve both motor and cognitive limitations that affect lifestyle and therefore AAC intervention.
- They are long-term conditions with deterioration lasting many years and typically involves transitioning through a number of different care setting.

General Intervention Considerations for All Degenerative Diseases

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Because all are progressive in nature must consider intervention based on stages of the disease.
- Must plan for "Today and Tomorrow".
- Earlier diagnosis and earlier treatment is likely to result in a better outcome in terms of lengthen of survival, survival of good quality of life, with less stress on social services ... M. Swash, *Journal of Neurological Sciences* 1998; 160 (suppl.):S33-6.

What knowledge is needed for staging of communication intervention?

Beukelman, Yorkston, & Reichle, 2000

- Knowledge of
 - The body's response to the natural course of the disease or condition.
 - An individual's communication activities.
 - The society in which she or he wishes to participate

Process of Staging of Intervention?

Beukelman, Yorkston, & Reichle, 2000

- It is a term used in medical practices with the notion that interventions are different depending on the level of the severity of the disorder.
- Basically it is doing the right things for the right people at the right time

Five Stage Model of Intervention

Beukelman, Yorkston, & Reichle, 2000

- Stage 1: No Detectable Communication Disorder
- Stage 2: Obvious Communication Disorder with Intelligible Speech, Writing, and Functional Reading
- Stage 3: Reduction in Intelligibility
- Stage 4: Natural Communication Strategies Supplemented by Augmentative Techniques
- Stage 5: No Functional Speech

Key Decision Makers-Areas to Consider

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Natural course of the communication limitations.
- There should be common uses of AAC for this group.
- Funding for AAC technology.
- The role of the family/caregivers who are facilitators.

Function or Purpose of Communication (Light, 1988)

- Communication of wants and needs
- Information transfer
- Communication of social closeness-
- Social etiquette- adults like to thank people for helping!
- Communication with self- calendar reminders of meeting, events, etc. (Beukelman & Mirenda, 2005)

Selection of Technology

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- The key focus is not on the technology but participation of the individual.
- Participation is a key focus of the International Classification of Function, Disability and Health (2001).
- The goal is to increase participate or maintain their level of participation in life situations.

Parkinson's Disease (PD)

General Communication Symptoms

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Dysarthria common
- Reduced pitch variations (monopitch)
- Reduced loudness
- Reduced vocal parameters such as stress and emphasis (monotone)
- Variable rate, short rushes of speech
- Reduced range of speech movements
- Difficulty initiating movement (inappropriate pauses)
- Voice quality- harsh and/or breathy, low pitch
- Cognitive issues

General Facts about PD's

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Relatively common disease
- Slowly progressive disease involving the basal ganglia of the CNS
- Basic problem is the inability to automatically execute learned motor plans
- Individuals may be resistant towards AAC intervention, because they are able to speak
- Many people with PD are older adults and the normal aging peers frequently have a hearing loss may result in less effective communication interactions.

Staging of Intervention for Degenerative Diseases

Beukelman, Yorkston, & Reichle, 2000

- Staging is a term used in medical practice that refers to the notion that interventions are different depending on the level of severity of the disease.
- Basically it is doing the right thing for the right person at the right person.
- Staging is sequencing management so that current problems are addressed and future problems are anticipated.

Stage Intervention Approach

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Stage 1: No detectable speech disorder
 - Frequently often don't exhibit speech symptoms
 - Heighten aware of their speech
 - May recommended a voice amplification system for demanding
 - Grieving phase
 - Discussion of the possible supports that are or will be available

Stage Intervention Approach

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Stage 2: Obvious Speech Symptoms
 - Usually reduction in speech loudness, breathy or weak voice
 - Partners play an active role in signally the speaker to use clear speech or communication supports
 - Dysarthric speech symptoms implement speech intervention to facilitate speech intelligibility.
 - Speech intervention: portable speech amplifiers, telephone adaptations, delayed auditory feedback units (to slow the individual's speech down).
 - Introduce a behavioral Pacing Intervention (slow down speech rate).

Stage Intervention Approach

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Stage Three: Reduction in speech intelligibility
 - Decreased intelligibility in certain situations
 - Partners frequently asking them to repeat
 - Increase in dysarthria
 - Illegible writing
 - Language production problems.
 - Intervention: alphabet boards, topic display, remnant books, typing system, alphabet board/supplementation, high-tech AAC devices.
 - Caregiver role

Amyotrophic Lateral Sclerosis (ALS)

Types of ALS

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Spinal ALS
 - Usually have extensive motor impairments of trunk and limbs
 - Are also unable to meet communication needs through speech
 - Often need augmented writing system before a conversational system
 - Usually need a scanning system

Types of ALS

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Bulbar (Brain-Stem) ALS
 - Symptoms associated with speech and swallowing, possibly cognition changes in the later stages
 - Usually able to control, for some time, AAC devices that require direct selection via hands or fingers

Types of Losses with ALS

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Loss of control over one's fate.
- Loss of control of the body and its movements.
- Loss of communication and control over contacting, influencing, and directing the people in one's social and personal network.

Amyotrophic Lateral Sclerosis (ALS) Facts

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Progressive disease
- Unknown etiology involving the motor neurons of the brain and spinal cord.
- High need for AAC
 - Research followed 200 patients- At time of death 6% still could use their speech 94% required AAC
 - Multimodal communication options during the course of the disease. (low, light and high tech)
- Mean age of 56 years
- Common symptoms- weakness of extremities, difficulty with swallowing.

Amyotrophic Lateral Sclerosis (ALS) Facts, Cond't

- Eye movement is normal
- Survival rates are better for individuals with Spinal vs. Bulbar ALS
- Survival rate- medium survival rate 2.2 years
 - 14%-39% die within 5 years
 - 10% die within 10 years
- Respiratory status is an important predictor of survival.
- Rapid deterioration of natural speech.

Amyotrophic Lateral Sclerosis (ALS) Facts, Cond't

- Speaking rate decreases to approximately 125 wds/minute you see a marked drop in intelligibility. (Ball et al., 2001)
- Severe dysarthria to anarthric
- Don't usually experience language impairment.
- High level of depression and suicide rates.
- Motor control issues are extensive.
- Fatigue is a factor

General Communication Symptoms

- Mixed dysarthria results from weakness and spasticity over the progression of the disease.
 - Musculature enabling speech weakness. Most often the tongue first.
 - Speech volume changes, softer, less able to modulate with emotion, prosody.
 - Speech quality changes, rough, husky.
 - Speech clarity changes, slurred sounding, hypernasal, reduces intelligibility.

(Gibbons & Fried-Oken, 2009, AAC Clinical Pathways for Neurodegenerative Disease, Retrieved from <http://aac-lerc.psu.edu/>, January 18, 2010.

Intervention Stages

Beukelman, Yorkston, & Garrett, 2007;
Beukelman & Mirenda, 2005

- Stage One: No detectable speech disorder
 - Speaker notices no change in function
 - Listeners note no changes in speaking rate, precision, or loudness
 - Educational stage
 - This stage is shorter for those with bulbar symptoms
 - Intervention: Education and practice with future high and low tech systems, voice banking, vocabulary selection .

Intervention Stages, Cond't

- Stage Two: Obvious speech disorder with intelligible speech
 - Changes in speech are apparent
 - Changes may be more pronounced with stress or fatigue
 - My compensate for articulatory or respiratory impairments by decreasing speaking rate and breath groups
 - Voices quality may be harsh or breathy with mild articulatory problems present.
 - Intervention: Natural means, communication breakdowns repair set topic, voice amplification, education and practice with high and low tech systems.

Intervention Stages

- Stage Three: Reduction in speech intelligibility
 - Decreased intelligibility due to impaired speaking rate, articulation, and resonance
 - Environmental factors may compound intelligibility, for example nosey environment.
 - Communication breakdowns are occurring more frequently
 - Some may begin to support communication through using AAC techniques
 - Intervention: Natural means, slow speaking rate, shorter breath groups, palatal lift, topic setting methods, education and practice with high and low tech systems.

Intervention Stages

- Stage Four: Natural Speech Supplemented with AAC
 - AAC is primary mode of communication
 - Natural speech may be limited to highly predictable messages
 - Speaker may supplement natural speech by writing key words or by pointing to the first letter of each word
 - Caregivers as facilitators
 - Intervention: Alphabet and context supplementation, alert signals, low and high-tech AAC system (direct, scanning, head mouse, eye gaze)

Intervention Stages

- Stage Five: Loss of useful speech
 - People with ALS, especially advanced bulbar ALS, lose functional speech and depend on AAC
 - Should have communication system for yes/no, for emergencies, mealtime, and bed
 - Intervention: Eye-pointing, high-tech AAC (access, direct, scanning, head mouse, eye gaze), partner assisted scanning,

Intervention Stages

- Stage 5: No Useful Speech
 - Some individuals may vocalize for emotional expression or with extreme effort that do not produce understandable speech.

Closing Points

- Begin early and plan for Today and Tomorrow and Tomorrow.
- Involve individual and caregivers in the decision process.
- Be aware of the changing communication needs as the disease progresses.
- Be creative in your interventions
- Keep the person "First"

Learning Objectives: Part 2

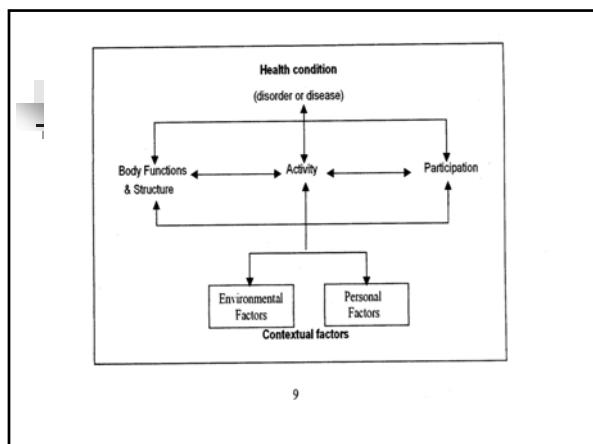
- Participants will describe intervention strategies and techniques to support adults with language and/or cognitive challenges
- Participants will learn about communication issues that occur at the end-of-life

Who Can Benefit?

- Adults with aphasia and language impairments (possible causes: stroke, degenerative diseases)
- Adults with cognitive-communication impairments (possible causes: TBI, stroke, degenerative diseases, dementia)

Why is A.T. beneficial?

- WHO Model (2002)
 - Impairment
 - Activities
 - Participation



Participation Model

- Beukelman & Mirenda (2005)

Challenges of AT

- Appropriateness: Is it the best AT to meet the needs of the person?
- Training: person with complex communication needs (CCNs) and partners
- Support: service, maintenance of technology, follow-up

Purposes of AT

- Engage in desired communication activities
- Participate in desired aspects of society (i.e., roles)
- Meet individual communication needs (Light, 1988)
 - Social closeness
 - Information transfer
 - Wants and needs
 - Social etiquette

What Strategies Support Participation for Language Impairments?

(Lasker, Garrett, & Fox, 2007)

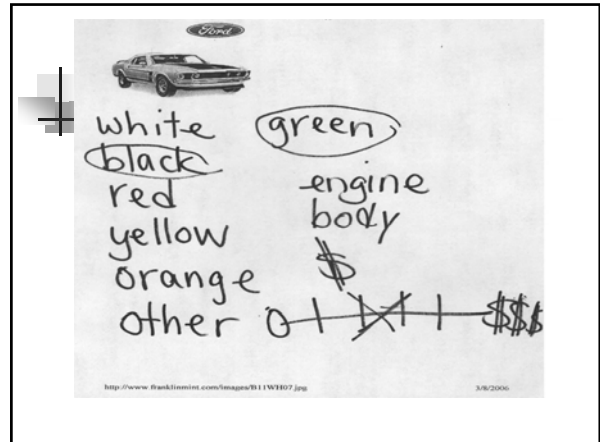
- Partner-dependent Communicator
 - Emerging communicator
 - Contextual choice communicator
 - Transitional communicator
- Independent Communicator
 - Stored message communicator
 - Generative communicator
 - Specific need communicator

Emerging Communicators

- Typically no tech or low/light tech
- Communication partner assumes responsibility for providing choices in meaningful contexts
- Strategies
 - Referential skills and choice making
 - Confirmation and rejecting
 - Turn taking

Contextual Choice Communicators

- Strategies:
 - Written Choice Conversational Technique (Garrett & Beukelman, 1992): to support input and output of messages
 - Augmented Input: to facilitate understanding
 - Tagged questions
 - Asking questions



Transitional Communicators

- Need support from partners for initiating, responding, providing opportunities for communication, assisting in strategy generation and use
- Examples of Needs: story telling, introducing self, asking for assistance, starting conversation, reminiscing
- Strategies: low tech speech output devices, communication book, remnants

Independent Communicators

- Use AT as an additional mode of communication
- May need preprogrammed messages
- May generate messages independently

Communication Books (King, Alarcon, Rogers, 2007)

What Strategies Support Participation for Cognitive-Communication Impairments?

- Static or improving conditions: TBI, stroke
- Degenerative conditions: Alzheimer's Disease, Primary Progressive Aphasia, Parkinson's Disease, other cause of dementia

Cognitive-Communication impairments and

Dementia

(Bourgeois & Hickey, 2007)

- Goals of AT intervention:
 - Enhance communication
 - Support memory
 - Support participation and engagement to maintain and improve quality of life
 - Provide training to caregivers and communication partners

Changes in AT

- Early stage
 - Purpose: maximize communicative functioning, capitalize on strengths, provide opportunities, reduce demands on memory/cognitive skills
 - Strategy: Memory aids, memory supports, reminder cards
- Middle stage
 - Purpose: social closeness, communicative interaction
 - Strategy: Memory wallets and memory books
- Late stage
 - Purpose: personal closeness, communicative interaction
 - Strategy: Memory books, collections of memorabilia

Memory Aids

- **Memory Books and Other Graphic Cuing Systems**
Practical Communication and Memory Aids for Adults with Dementia
(2007)
By Michelle S. Bourgeois, Ph.D., CCC-SLP

AT and the End of Life

- **Communication Topics and Partners at End of Life (2006)**
- Julia King, Ph.D. UWSP
- Joanne P. Lasker, Ph.D. Florida State University
- *We would like to acknowledge the support of the UPDC at UWSP*

Purposes of the Study

- What communication topics are discussed at end of life?
- Which communication partners are involved in end-of-life conversations?

Examples of Ranked Topics

- symptom management
- quality of life
- caregiver issues
- relationships
- bereavement
- access to care

Results

- Most frequent topics
 - Reminisce*
 - Symptom management*
 - Quality of life
 - Caregiver issues
 - Relationships*
 - Bereavement
- *verified across 3 question types

- Most frequent partners
 - Spouse/significant other*
 - Hospice personnel
 - Medical personnel*
 - Children*
 - Clergy
 - Other family*
- *verified across 3 question types

Clinical Implications

- This list of potential topics can be used to support the end-of-life conversations for adults who have terminal illnesses (i.e., Do you want to talk about how your husband will manage when you are gone?).
- The list of most frequent communication partners for adults who are near the end of life may be used to facilitate needed conversations to meet communication needs prior to death (i.e., resolve conflicts).

AT and End-of-Life

- What strategies would support desired topics of conversation?
- What strategies would support requesting desired conversational partners?
- Examples:
 - Topic board, Reminiscence book
 - Partner list, photo album

References

- Attached to handout

Questions



AAC for Adults with Acquired Motor, Language, and/or Cognitive Challenges
February 25, 2010
Wisconsin Speech-Language Pathology and Audiology Professional Association
Convention

Dr. Gary Cumley
Dr. Julia King
University of Wisconsin-Stevens Point

References

- American Speech-Language-Hearing Association. (2004). Roles and Responsibilities of Speech-Language Pathologists With Respect to Augmentative and Alternative Communication: Technical Report [Technical Report]. Available from www.asha.org/policy
- Ball, L. J., Beukelman, D. R., & Bardach, L. (2007). Amyotrophic lateral sclerosis. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 287-316). Baltimore, MD: Brookes.
- Ball, L. J., Beukelman, D. R., & Pattee, C. (2001). A protocol for identification of early bulbar signs in ALS. *Journal of Neurological Science*, 191, 43-53.
- Beukelman, D. R., & Mirenda, P. (2005). *Augmentative and alternative communication: Supporting children and adults with complex communication needs* (3rd ed.). Baltimore, MD: Brookes.
- Beukelman, D.R., & Mirenda, P. (1998). *Augmentative and alternative communication: Management of severe communication disorders in children and adults* (2nd ed.). Baltimore, MD: Brookes.
- Beukelman, D. R., Yorkston, K. M., & Reichle, J. (2000). *Augmentative and alternative communication for adults with acquired neurologic disorders*. Baltimore, MD: Brookes.
- Bourgeois, M. (2007). *Memory Books and Other Graphic Cuing Systems: Practical Communication and Memory Aids for Adults with Dementia*. Baltimore: Health Professions Press.
- Bourgeois, M. S., & Hickey, E. M. (2007). Dementia. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 243-285). Baltimore, MD: Brookes.
- Costello, J. M., & Fried-Oken, M. B. (2007). AAC in the intensive care unit. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 17-57). Baltimore, MD: Brookes.
- Garrett, K. L. & Beukelman, D. R. (1992). Augmentative communication approaches for persons with severe aphasia. In K. Yorkston (Ed.), *Augmentative communication in the medical setting* (pp. 245-338). Tucson, AZ: Communication Skill Builders.

- Garrett, K. L. & Lasker, J. P. (2005). Adults with severe aphasia. In D. R. Beukelman & P. Miranda (Ed.), *Augmentative and alternative communication: Supporting children and adults with complex communication needs* (3rd ed.) (pp. 467-504). Baltimore, MD: Brookes.
- King, J. M., & Lasker, J. (2006, April). Communication topics and partners at end of life. Poster session presented at the annual meeting of the Wisconsin Speech Language and Hearing Association-Professional, Green Bay, WI.
- King, J. M., & Alarcon, N., & Rogers, M. (2007). Primary progressive aphasia. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 207-241). Baltimore, MD: Brookes
- Lasker, J. P., Garrett, K. L., & Fox, L. E. (2007). Severe aphasia. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 163-206). Baltimore, MD: Brookes.
- Light, J. (1988). Interaction involving individuals using augmentative and alternative communication systems: State of the art and future directions. *Augmentative and Alternative Communication*, 4, 66-82.
- World Health Organization (2002). *Towards a common language for functioning, disability, and health: The international classification of functioning, disability and health*. Retrieved 8/22/07, from <http://www.who.int/classifications/icf/site/beginners/bg.pdf>
- Yorkston, K.M., & Beukelman, D. R. (2007). AAC intervention for progressive conditions: Multiple Sclerosis, Parkinson's Disease, and Huntington's Disease. In D. R. Beukelman, K. L. Garrett, & K. M. Yorkston (Eds.), *Augmentative communication strategies for adults with acute or chronic medical conditions* (pp. 317-345). Baltimore, MD: Brookes.

Resources

- AAC-RERC <http://aac-rerc.com/>
- AMDI <http://www.amdi.net/index.htm>
- Attainment Company <http://www.attainmentcompany.com/xcart/home.php>
- Chattervox- <http://www.chattervox.com>
- Dynavox <http://www.dynavoxtech.com/>
- Funding Help <http://www.aacfundinghelp.com/>

Luminard www.luminard.com

Prentke-Romich Company <http://www.prentrom.com>

Tobii www.tobii.com