

Managing The AAC Needs Of Adults With Acquired Communication Disabilities

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Thoughts On AAC For Adults

- Somewhere along the way, we tried to impose AAC assessment and intervention practices for adults with acquired communication disabilities along the lines with pediatric, developmentally based interventions.
 - Nature of the disorder
 - Cues administered to facilitate competency
 - Contrasting principals of learning VS recovery



Thoughts On AAC For Adults: Nature Of The Disorder

- Traditional speech/language focus:
 - Describing the nature and extent of the communication disability
 - Estimating prognosis for recovery
 - Developing intervention goals focused on recovery
- Acquired disabilities requiring AAC services assumes that the communication disorder is chronic and that natural language is not likely to occur.

Thoughts On AAC For Adults: Nature Of The Disorder

- The assessment focus:
 - Shifts to designing an AAC system that will provide for the highest level of generative communication that can be achieved.
- The intervention focus:
 - Shifts to support communication needs and capabilities using multimodal communication strategies.

Thoughts On AAC For Adults: Skilled Cues

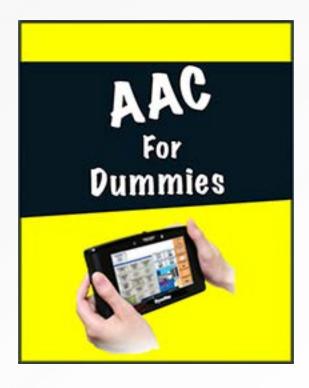
- Traditional developmental language interventions begin with vocabulary identification / naming goals. Imitation is a primary cueing strategy.
- In acquired symbolic language disorders, therapy protocols typically begin with convergent and divergent exercises with semantic and phonemic cue strategies.

Thoughts On AAC For Adults: Principals Of Learning / Recovery

- Learning language VS accessing language.
- Learning language functions VS supporting communication and participation patterns.
- Developmental intervention VS neuro-linguistic recovery.

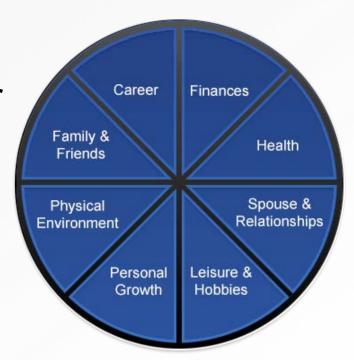
Thoughts On AAC For Adults

- We have to develop the insight to look at the assistive technology as a potential tool for maximizing communication abilities.
- There is a very real patient and family expectation that technology will alleviate the disability.



Impact of Acquired Disability

- Research has identified five broad roles that adults associate themselves with:
 - Worker
 - Citizen
 - Leisurite
 - Homemaker/Family Member



Impact of Acquired Disability

- Speech/language disability results in devastating disruption of the life roles that people have identified themselves with.
- It's not uncommon for persons with speech/ language disabilities to hold on to the same levels of commitment to life roles prior to their disability despite a reduction in their functional capabilities.
- This discrepancy between role performance and role commitment may lead to the personal dissonance that is experienced by many individuals with disabilities. (Brintnell et all 1996).

Impact of Acquired Disability

- Successful AAC outcomes require careful consideration of the social roles that persons with communication disability identify themselves with.
- Consideration of social roles translates to client/patient values and motivation.



Influence of Motivation on AAC

- The strongest desire to communicate is based on intrinsic motivation. (Deci & Ryan, 1985)
- Individuals engage in activities in which they perceive themselves as competent and that promote their self-esteem & self-satisfaction. (Bandura, 1986)
- AAC intervention must be tailored to intrinsic motivation (i.e. social roles) and achievable goals that result in feelings of communicative competence.

Diagnosis and ICD9- Code	Common Medical Diagnoses	Functional Needs and SGD Implications
Dysarthria ICD-9 784.5	Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Guillian-Barre Syndrome, Parkinson's Disease, Wilson's Disease, Progressive Supranuclear Palsy, Huntington's Disease, Myasthenia Gravis, Friedreich's Ataxia, Stroke (CVA), Traumatic Brain Injury, Cerebral Palsy, Moebius Syndrome, Encephalitis	Intelligible speech output Intelligibility decline with progressive diseases Disease may or may not induce cognitive decline Disease may or may not induce sensory loss
		Telephone, email, SMS, computer access tend to be very important Communicate complex language intelligibly in multiple settings with a variety of partners Determined based on needs and abilities

Adapted From:

Diagnosis and ICD9- Code	Common Medical Diagnoses	Functional Needs and SGD Implications
Aphonia ICD9 784.41	Locked-In Syndrome, Traumatic Brain Injury, Ventilator Dependent, Laryngectomy, Myasthenia Gravis, Parkinson's Disease, Multiple Sclerosis, Neurogenic Voice Disorder, Spastic Dysphonia, Amyotrophic Lateral Sclerosis	Functional communication to meet basic medical and physical needs
		Quantity of communication typically tied to health status
		Specific to medical facility and / or medical needs
		Telephone, email, SMS, computer access may or may not be very important

Adapted From:

Diagnosis and ICD9- Code	Common Medical Diagnoses	Functional Needs and SGD Implications
Apraxia ICD-9 784.69	Stroke, Traumatic Brain Injury, Parkinson's Disease,	Support language generation in the presence of other expressive problems
		Communicate with care provider and family
		Communicate medical and physical needs
		Device features: Word & grammatical prediction Core vocabulary Clear display Scaffold for language
		Telephone, email, SMS, computer access may or may not be very important

Adapted From:

Diagnosis and ICD9- Code	Common Medical Diagnoses	Functional Needs and SGD Implications
Aphasia ICD-9 784.3	Stroke, Traumatic Brain Injury, CNS Infection or Disease	Support language disability
		Skilled communication partners critical to successful outcomes
		Communicate functional needs
		Requesting very important
		Engage in family and social exchanges tend to be highly important
		Communicate with medical professionals and care providers
		Telephone / Internet may or may not be Important

Adapted From:

Models For AAC Intervention

- Communication Includes
 - Face to face
 - Email
 - Virtual telephony (Skype)
 - Text Messages
 - Twitter Messages
 - Social Media
 - Educational, Vocational and Support Groups

Models For AAC Intervention

- Consider dedicated or traditional SGD's as well as mainstream technologies.
 - Smart phones
 - Tablets
 - Portable Computers
- Emphasis is on communication participation and engagement in meaningful life roles.

Models For AAC Intervention: Phases

- Three Phase Intervention Model (Ball, Beukelman, Bardach)
- Provides a framework for intervention for 5 diagnoses:
 - Amyotrophic Lateral Sclerosis
 - Multiple Sclerosis
 - Guillain–Barré Syndrome
 - Parkinson's Disease
 - Brainstem Stroke

Models For AAC Intervention: Phases

- Within each of these diagnoses, guidelines for intervention are detailed across three phases, Early, Middle & Late.
- Focus is on identifying participation patterns and communication needs while assessing current and anticipated capabilities.
- Replaced stages of communication intervention in degenerative disease.

Early Phase ALS Management

- Monitor, Prepare & Support
 - Initial diagnosis through referral for AAC Evaluation
 - Speech is generally functional
 - Maintain speech effectiveness & monitor for changes
 - Educate about possible changes in speech, respiratory control, swallow ect
 - Educate about AAC (uses, high & low tech, accessories, funding)
- Initiate AAC referral when speech rate reached 125 WPM

- Assess, Recommend, Implement
 - Referral for AAC Assessment through SGD selection and initial training.
 - Goal is to identify the SGD and make sure the PALS has the necessary operational competence to use the SGD before speech is no longer intelligible.

Four Activities

- Identify participation patterns & communication needs
- Assess current and anticipated capabilities
- Assess social and personal care supports
- Select low and high tech SGD options to meet current and future needs

- Identifying participation & communication needs
 - Physical disability and lifestyle preferences determines communication needs, participation roles and contexts.
 - Decisions about patterns of participation influence communication needs and AAC strategies.
 - Crucial to consider preferences of PALS regarding participation and lifestyle patterns.
 - Managing daily needs and social closeness tend to be higher priorities.

- Assess current and anticipated capabilities
 - Predict the course of the disease
 - Access constraints
 - PALS / Caregiver attitudes toward AAC
 - AAC facilitator skill with the SGD
 - Funding for AT and training
- Evaluate Intervention Outcomes
 - Document what is working well to meet the PALS communication needs
 - Identify unmet communication needs
 - Document the effectiveness of the AAC services

- Facilitator support
 - PALS require ongoing support from AAC facilitators
 - AT set-up, positioning, maintenance, programing, access control, instruction



ALS Strategies for managing communication and swallowing. Retrieved 12/20/2013 from http://www.advanceweb.com/

Late Phase ALS Management

- Adapt and accommodate
- Period after AAC supports implemented.
- Modifications are provided as needs and condition change.
 - Communication needs
 - Physical capabilities / status
 - Living situations
- Towards the end of the disease process, light tech options tend to be preferred – especially eye linking methods.

Phases in Multiple Sclerosis Management

- Disease progression is variable.
- Dysarthria is the most common speech disorder.
- Approximately 50% will present with cognitive impairment.
- Estimated that 4% of persons with MS require AAC intervention and supports. (Beukelman, Kraft, Freal (1985)

Early & Middle Phases in Multiple Sclerosis Management

- Early Phase Interventions
 - Typically involve assistive technology other than AAC
 - Vision, spasticity, ataxia, weakness, tremor
- Middle Phase Interventions
 - Compensatory support of natural speech may be required
 - Alphabet supplementation is common

Late Phase Multiple Sclerosis Management

- AAC supports required with severe/profound dysarthria.
- Vision loss/impairments, ataxia, tremors, spasticity may complicate AAC intervention.
- Participation patterns & communication needs may be limited by:
 - Typically not able to work or attend school programs
 - Not unusual to require personal care assistance / skilled nursing
 - As a result, primary communication needs tend to be related to social closeness and conversations and managing daily needs

Phases in Guillain-Barre Management

- Paralysis progresses from lower extremities upward.
- Approximately 85% of persons with GBS recover completely.



Early Phase in Guillain-Barre Management

- Characterized by loss of speech.
- Typically require respiratory support.
- Initial AAC supports typically no tech and lite tech strategies.
- AAC system may be required if speech has not recovered within several weeks of onset.
- Communication needs tend to center around health messages and social communication.

Early Phase in Guillain-Barre Management

- Establish yes/no response followed by eye blink / eye point procedure.
- Develop AAC systems / boards that support communication needs through:
 - -Partner assisted scanning techniques
 - Eye linking techniques
 - Visual and/or auditory scanning
- Consider alphabet boards for message construction.

Middle Phase in Guillain-Barre Management

- Prolonged speechlessness followed by spontaneous recovery of speech.
- Length of speechlessness variable.
- Most persons with GBS continue to use light technology strategies.
- High tech SGD's to increase independence should not be ruled out.
- Late in this phase, persons with GBS transition back to functional speech.
- May continue to require respiratory support.

Late Phase in Guillain-Barre Management

- 15% of persons with GBS experience residual weakness.
- Very few of this group experience persistent dysarthria.
- Flaccid dysarthria is the most common speech symptom.
 - Interventions focus on maximizing natural speech effectiveness and intelligibility.
- Generally do not require long term AAC supports.

Phases in Parkinson's Management

- Dysarthria affecting speech and voice is the most common speech symptom.
 - Reduced pitch variability
 - Reduced loudness
 - Decreased use of all vocal parameters for achieving stress and emphasis
 - Imprecise articulation with variable speech rate
 - Harsh and/or breathy voice quality

Phases in Parkinson's Management

- Speech disorders among persons with PD are variable. As PD progresses, many demonstrate combinations of speech symptoms.
- Most people with PD communicate with natural speech to a greater or lesser extent. Therefore, AAC techniques tend to be multimodal.

Early Phase in Parkinson's Management

- AAC supports are not usually required.
 Work on maintaining and optimizing speech.
- May require assistance with computer access for employment, Internet use, and recreation/leisure.

Middle Phase in Parkinson's Management

- AAC supports may be necessary to supplement natural speech
 - DAF can be used to control speaking rate
 (8%)
 - Voice Amplifier
 - Not useful if unable to initiate phonation



Late Phase in Parkinson's Management

- AAC strategies are considered when unable to manage communication needs using residual speech
- Emphasis on resolving communication breakdowns:
 - -Communicating in adverse situations
 - Supplement all or portions of message
 - -Spelling methods are generally used

Late Phase in Parkinson's Management

- Identify participation patterns & communication needs
- Two primary factors influencing communication needs
 - Social environment since most are retired
 - Level of physical assistance needed as a result of physical disability

Late Phase in Parkinson's Management

- Assess Specific Capabilities
 - Cognitive/Linguistic Skills
 - Sensory/Perceptual Skills
 - Motor Skills
 - May need to consider impact on access to AAC because of reduced range and speed of movement due to rigidity, tremor
 - Evaluate keyguards, weights, alternative access methods

Phases in Brainstem Stroke Management

- Communication symptoms vary according to level and extent of brainstem damage.
 - Results in dysarthria or anarthria.
 - 25% regain some functional speech.
 - Nearly all require initial AAC support.
- Participation patterns and communication needs are influenced by medical status, healthcare needs and lifestyle.
- Generally have intact comprehension and awareness and thus extensive communication needs.

Early Phase Brainstem Stroke Management

- Early phase goals begins at inpatient admission :
 - Develop functional yes/no response
 - Access nurse call system
 - Later in the early phase, acquire the ability to use light tech options (PAS, Eye Linking, Eye Gaze)
- Selection of strategy dependent on the accuracy of the strategy and skilled communication partners.

Middle Phase Brainstem Stroke Management

- Middle Phase: Selection of AAC technology
- Clinical areas of assessment: Cognition, Language, Sensory / Perceptual, Motor
- AAC evaluation includes assessment of:
 - Communication needs
 - Residual capabilities

Middle Phase Brainstem Stroke Management

- AAC feature match & selection
 - Language skills intact if cortical / subcortical structures associated with language not affected.
 - High brainstem stroke may affect eye / eye lid muscles; middle or low will not.
 - May need to look at a range of access methods:
 - -Safe IR
 - Headpointing (Headmouse)
 - Eye gaze access
 - Keyguards, Weights, Stabilization Splints

Late Phase Brainstem Stroke Management

- Implementation of AAC into Daily Life
 - AAC is optimized for daily use



Models For AAC Intervention to Restore Natural Speech: Staging

- Sequencing management to address current problems and anticipated future problems.
- Goal to minimize clinical errors in AAC by:
 - Failing to deal with current communication needs because intervention is focused on future recovery.
 - Failure to provide AAC when recovery does not occur.
 - Primary focus on current communication disability and ignore future needs or problems.

Models For AAC Intervention to Restore Natural Speech: Staging

- Stage 1: No Useful Speech
 - AAC to support acute phase of recovery
- Stage 2: Reestablish Subsystem Control for Speech
 - Rehabilitation period
 - AAC supports evolve as communication status evolves
- Stage 3: Independent Use of Natural Speech
 - AAC strategies are used to support natural speech

Models For AAC Intervention to Restore Natural Speech: Staging

- Stage 4: Maximizing Speech Naturalness and Efficiency
 - AAC is no longer needed
 - Learning to use speech intelligibility strategies
- Stage 5: No Detectible Speech Disorder



Challenges in Aphasia and AAC

- Aphasia is characterized by loss of capacity to understand and / or use language following brain injury.
- Frequently accompanied with speech motor involvement.
- May affect one or all modalities (understanding, expression, reading, writing)
- Mild to Profound severity
- Devastating disconnection with premorbid life roles and social networks (family, life roles).

Challenges in Aphasia and AAC

- AAC techniques disrupt premorbid speech and language automaticity.
 - Unnatural shift to relying on external supports for communication.
 - Difficult for the person with aphasia to switch to externally represented AAC symbols.
- Mastering the competencies needed for communication in all daily environments.
- Participate in life activities that are important to them using multimodal techniques and skilled communication partners.

Challenges in Aphasia and AAC

- Matching the capabilities of the person with aphasia and a specific AAC strategy or device.
 - Evaluate the language representation methods of an AAC system.
 - Determine skills required to functionally use the system.
 - Evaluate whether the person with aphasia either has the capability or potential capability to learn to use the AAC system.

Challenges in Aphasia: Types of AAC Communicators

- Partner-Dependent AAC Communicators
 - Require "Smart Communication
 Partner" (SCP) to provide appropriate choices
 - SCP develops opportunities within daily life routines to support choice making, rejection, pragmatic skills
- Contextual Choice AAC Communicators
 - Able to use gestures and visual symbols (picture/text)
 - Lack linguistic ability to support conversation
 - Require written or picture choice to support conversation

Challenges in Aphasia: Types of AAC Communicators

- Transitional AAC Communicators
 - Transitional step between requiring a SCP and independent with AAC strategies
 - Able to use AAC strategies (pictures, words, gestures, draw)
 - Require partner cues to use AAC system
- Independent AAC Communicators
 - Independent use of AAC systems
 - AAC may or may not be a primary communication system

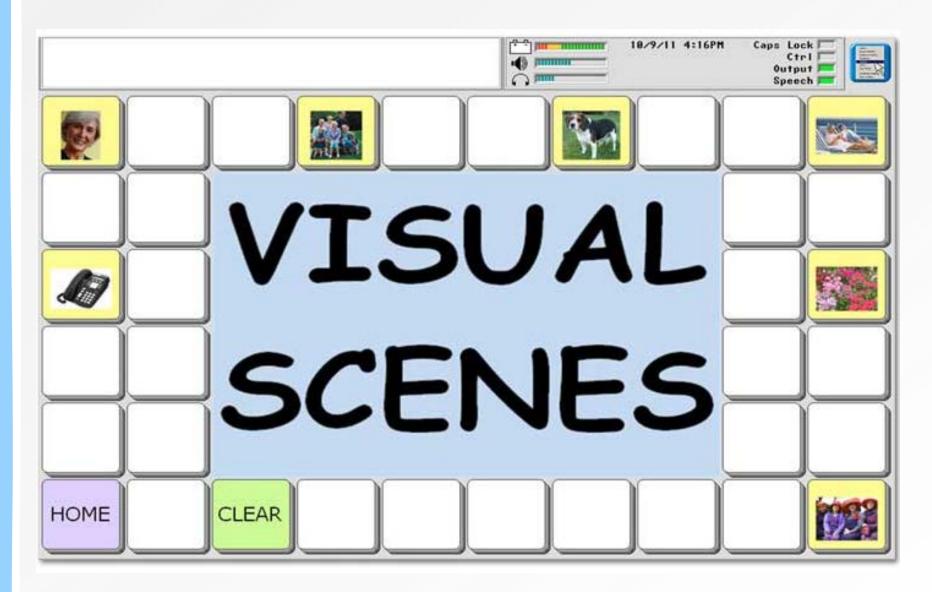
Visual Scene Displays (VSD) and Aphasia

- Traditional grid based AAC interventions can be difficult due to symbolic and linguistic processing demands of AAC devices and strategies.
- VSD make use of preserved skills as compensatory supports.
 - Visual processing
 - Memory & attention
 - Intelligence & general knowledge

Visual Scene Displays (VSD) and Aphasia

- VSD's provide personally meaningful and contextually rich photographs.
 - Pictures, photographs, or images that represent situations, places, or experiences by depicting people or objects in relation to one another, the natural environment, and the central action of a scene.
 - The contextual support of an appropriate scene seems to function as compensatory supports for augmentative communication.
- VSD's incorporate a logical navigation system that a person with severe aphasia is able to master.

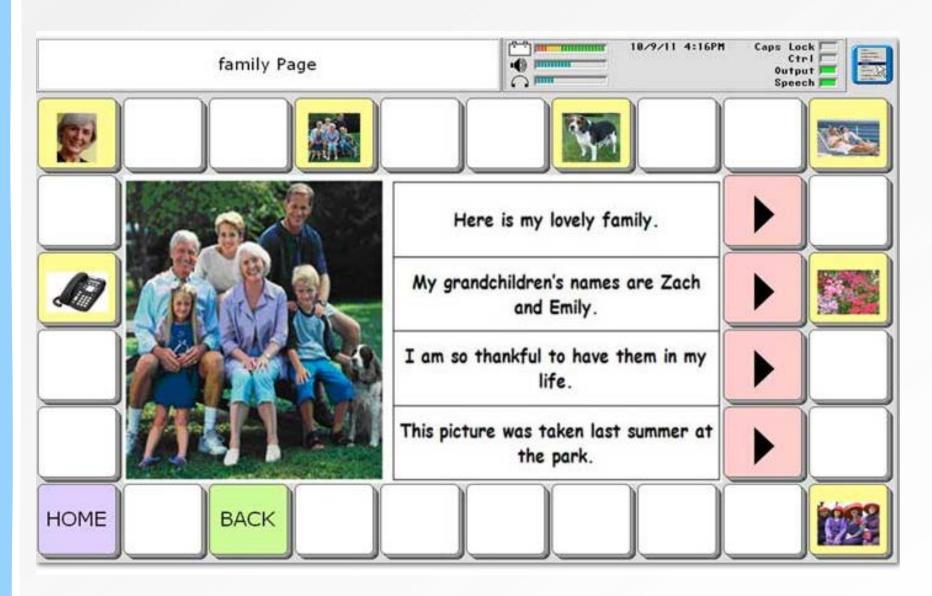
VSD'S and Aphasia



VSD'S and Aphasia



VSD'S and Aphasia



AAC In Traumatic Brain Injury

- Until the mid-1990s, AAC services were often delayed due to:
 - Wait until the patient stabilized attitude
 - Cognitive and motor impairments make access and use of complex technology difficult
 - Difficult to make long term recommendation since abilities changed over time.
 - Some TBI patients do recover speech and do not require a long term solution.

AAC In Traumatic Brain Injury

- Today's AAC team seeks to provide coordinated intervention so that TBI patients can participate in rehab programs and are able to communicate ongoing needs.
- Intervention focus has shifted from providing one single AAC system to providing a series of AAC systems designed to meet short term communication needs while continuing efforts to reestablish speech.

AAC In Traumatic Brain Injury

- Communication disorders associated with TBI are the result of impairments in 3 areas:
 - Cognitive Impairment
 - Acquired Aphasia
 - Speech Dysarthria
- Most patients will use multiple modes of communication at every stage.
 - Communication disorder can change dramatically over the course of recovery.
 - Predicating the path of recovery is difficult.

AAC In Traumatic Brain Injury: Natural-Ability Interventions

- Topic Supplementation
 - Patient presents with marginally intelligible speech.
 - Message can be understood only if the listener is aware of the topic.
 - Communication boards containing lists of frequent topics.
 - Increases word intelligibility by 28% and sentence intelligibility by 10.7%.
- Alphabet Supplementation
 - The speaker identifies the first letter of each word on an alphabet board while saying the word.
 - Significant impact on intelligibility typically double or greater improvement from speech only.

Early Stage Management In TBI (Rancho Levels I, II, and III)

- Goal is to increase the consistency of responses and shape these responses into meaningful communication.
- Response can and will be influenced by motor control, language and cognitive deficits.
- As purposeful movements occur introduce contingency awareness or cause/effect.
 - Switch adapted single function environmental control.
 - As the patient becomes more purposeful, introduce single message VOCA for greetings, social phrases.

Early Stage Management In TBI (Rancho Levels I, II, and III)

- Use a limited number of symbols (1 to 4) to represent choices at this stage.
 - AAC teams should understand the patient's visual capabilities.
 - Double vision to CVI.
- Motivating and personally relevant stimuli.
- Seek out input from family and friends.

Middle Stage Management In TBI (Rancho Levels IV and V)

- Goal is to identify residual capabilities that can be used to achieve specific communication goals.
- Address seating and positioning to minimize reflex activity, excessive tone or other movements that interfere with AAC and/or speech.
- Assess motor control capabilities to determine direct selection and / or scanning options.
- Assess memory and attention capabilities.
- Assess visual-perceptual and visual acuity.

Middle Stage Management In TBI (Rancho Levels IV and V)

- Choose one or two major communication goals
- Messages relate to wants, needs, and information sharing is more important than social closeness & etiquette messages.
 - Typically light tech or simple SGD's.
 - May use alphabet displays, but encoding is almost always too difficult at this stage.
 - Patients with extensive attention memory limitations may require written choice strategies.

Late Stage Management In TBI (Rancho Levels VI, VII and VIII)

- At this stage, patients are generally oriented and demonstrate goal directed socially appropriate behavior.
- May have difficulty learning new information due to residual cognitive impairments.
- Many have regained natural speech.
- May require augmented writing systems.

Late Stage Management In TBI (Rancho Levels VI, VII and VIII)

- For patients who will need AAC long term, don't assume that picture based AAC systems will be required due to cognitive impairments.
 - Cognitive impairments can mask residual skills.
 - Reading and writing can be residual skills; learning a difference encoding scheme can be VERY difficult due to difficulty with new learning.
- Interactional needs include communicating wants and needs, sharing information, social closeness and participating in social routines.

AAC intervention: Primary Progressive Aphasia (PPA)

- Type of aphasia that begins gradually.
- Nonverbal memory, visuospatial skills, executive functions and social abilities initially remain intact.
- Problems with language NOT cognitive skills.
- Speech or language symptoms that will vary depending on the brain areas affected by the disease.
- Compensate for the progression of language loss using visual language strategies and tools.

AAC intervention: Primary Progressive Aphasia (PPA)

Research by Melanie Fried-Oken, Ph.D., CCC/Sp, Oregon Health & Science University on AAC intervention for people with primary progressive aphasia key findings:

- People with primary progressive aphasia
 - are more successful in communication when they use AAC
 - can use AAC both with family members as well as clinical researchers
 - can make use not only of low tech communication boards, but also natural AAC supports (photo albums, newspapers, maps) available in their daily environments.
- Communication partner plays pivotal role

AAC intervention: Dementia

- Speech Pathology has a long history of providing light technology visual supports to persons with dementia.
 - Memory wallets / books, Notebooks, Calendars,
- These can be used to support memory and conversation.
- Fried-Oken and Rowland (2008) studied the value of voice output with visual communication systems.
 - Implemented customized communication boards containing 16 personal pictures with digitized one- to twoword voice output
 - AAC devices with digitized voice output decreased conversational performance and distracted participants with moderate AD as compared to similar devices without voice output.







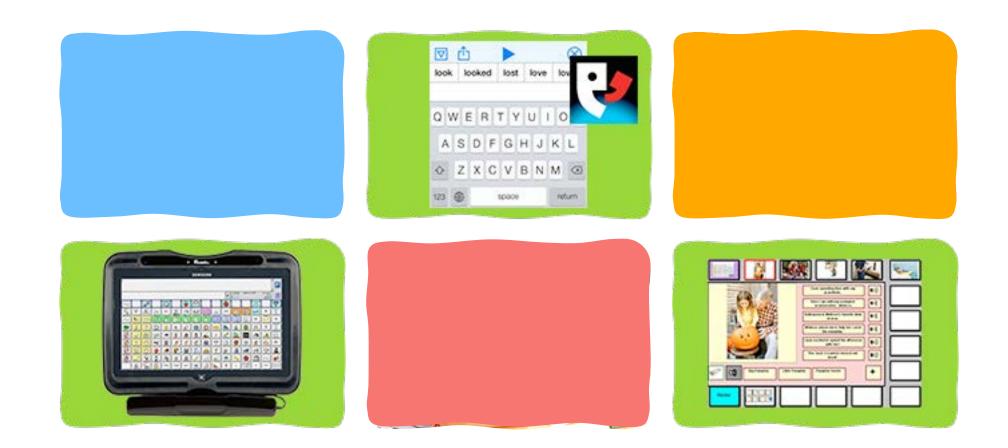
- AAC evaluation for persons with acquired communication disabilities is driven by both clinical and personal evidence.
- Targeted outcomes always centers on identifying tools, strategies and techniques that will yield the most effective communication possible.

- Clinical evidence includes "traditional" components of an SLP/AAC evaluation
 - Diagnostic Characteristics
 - Cognitive Communication
 - Sensory Status
 - Physical Status
 - Pragmatic Skill

- Personal Evidence is related to the person who requires AAC
 - Patient driven input to decision-making
 - Values & beliefs of the AAC user
 - Personal Preferences
 - Family / caregiver supports
- Personal Evidence is a valid component of evidence based practice in AAC.

AAC Evaluation Components

- Current functional communication levels
- Predict future levels of communication effectiveness
- Communication environments and partners
- Current and future access needs and anticipated changes
- The individual's ability to use existing expressive communication modes
- SGD Device and accessories recommendations
- Prognostic indicators for functional SGD usage
- Funding, procurement, set-up and training needs
- Identify functional communication goals and treatment options



Thank You!

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