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AAC and Aphasia

Presenter:
Sarah Wallace, Ph.D.

Moderated by:
Amy Natho, M.S., CCC-SLP, CEU Administrator, SpeechPathology,com

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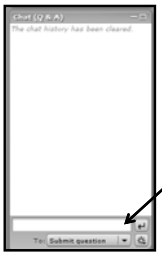

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Today's Presenter

- Sarah Wallace, Ph.D.
- Assistant Professor in the Department of Speech-Language Pathology at Duquesne University.

AAC and Aphasia

AAC AND APHASIA

Augmentative and alternative communication strategies for people with aphasia

OBJECTIVES

- Participants will be able to:
  - Describe various no, low, and high technology AAC options appropriate for people with aphasia.
  - Describe the unique AAC challenges in the area of aphasia such as those related to cognitive-linguistic impairments resulting from aphasia.
  - Describe appropriate components of AAC evaluations of people with aphasia.

OUTLINE

- AAC & Aphasia Overview
  - What is AAC? What is Aphasia?
  - Why AAC?
- What unique factors related to people with aphasia influence AAC use?
- What are the components of AAC assessments?
- What AAC strategies might be appropriate for people with aphasia?
- What modifications to typical strategies might be appropriate for people with aphasia?
- Wrap Up

AAC DEFINITION

- Strategies, techniques, or devices intended to supplement or replace, either permanently or temporarily, insufficient or ineffective communication skills.
- "a set of procedures and processes by which an individual's communication skills (i.e., production as well as comprehension) can be maximized for functional and effective communication" (ASHA, 2002, p. 420).

AAC BASICS

- Aided or Non-Aided
- Aided: No, Low or High technology
  - Letterboards, communication notebooks, electronic dynamic display devices with voice output.

- Non-Aided:
  - Incorporate manual signs, gestures, body movements into a person's communication repertoire.

AAC BASICS

- AAC is a system, not a device
  - A combination of strategies and techniques to minimize barriers to communication

APHASIA

- "Aphasia is a **multimodality** physiological inefficiency with verbal **symbolic** manipulations (e.g. association, storage, retrieval, and rule implementation). *In isolated form it is caused by focal damage to cortical and/or subcortical structures of the hemisphere(s) dominant for such symbolic manipulations. It is affected by and affects other physiological information processes to the degree that they support, interact with, or are supported by the symbolic deficits.*" (McNeil, 1988)

AAC AND APHASIA: WHY

- Unmet Communication Needs
  - " In all but the most transient of aphasia, and perhaps its mildest forms, there is little reason to believe that aphasia therapy 'removes' the aphasia" (Holland & Beeson, 1993, p. 582).

AAC AND APHASIA: WHY

- Traditional therapy: **restore** linguistic function, then clinicians use **compensatory** strategies to deal with residual deficits
- However, if introduction of AAC is early:
  - Language restoration is supported by functional tasks
  - Person is familiar with AAC if needed in future

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UNIQUE FACTORS

- Cognition
- Symbolic processing disorder
- Timing of interventions
- AAC facilitators
- Strengths

UNIQUE FACTORS

- Cognition
  - Executive function
  - Cognitive flexibility

- Purdy & Van Dyke, 2009
- Wallace, 2009

UNIQUE FACTORS

- Symbolic Processing Disorder
  - Consider representations of meaning
  - EXAMPLE: Sign language
  - Benefit from redundancy through multiple modalities and strategies to reduce reliance on symbols.

UNIQUE FACTORS

- Timing of AAC interventions

UNIQUE FACTORS

- AAC facilitators
  - TBI literature
    - 17 use High Tech AAC; 2/4 abandon due to lack of facilitator support
  - Communication partner training
    - Effective means for improving communication & participation of PwA
  - More research needed

Fager, Hux, Karantounis, & Beukelman, 2006

Simmons-Mackie, Raymer, Armstrong, Holland, & Cherney, 2010

UNIQUE FACTORS

- Strengths of people with aphasia
  - Visual perception
  - Intellectual functions
  - World Knowledge

(McNeil, 1988)

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AAC ASSESSMENT

- Goal: Develop a capability profile
  - Traditional aphasia battery
  - Specific cognitive functions
    - Cognitive Linguistic Quick Test
  - Specific AAC measures
    - Multi-modal Communication Screening Task for Persons with Aphasia
    - Partner dependency
    - Needs assessment & Topic Inventory
    - Strategy and Device Trials

AAC ASSESSMENT

- Traditional Battery
  - Western Aphasia Battery -Revised (WAB-R)
  - Boston Diagnostic Aphasia Examination – 3 (BDAE)
  - Boston Naming Test – 3 (BNT)
  - Test of Adult and Adolescent Word Finding (TAWF)

AAC ASSESSMENT

- Specific Cognitive Functions
  - Cognitive Linguistic Quick Test (CLQT)
    - Trail Test
  - Wisconsin Card Sorting Test (WCST)?
  - Communicative Abilities in Daily Living -2 (CADL-2) – modified

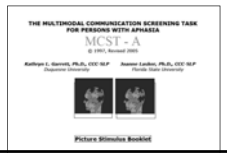
MODIFIED

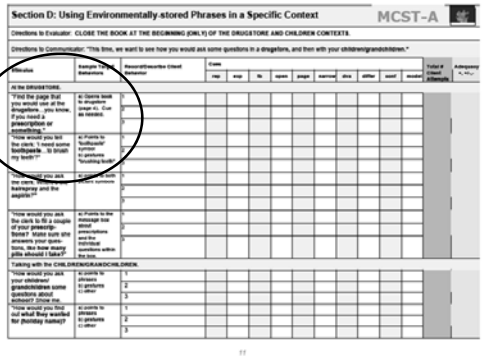
- 48 expressive items
- If initial communication attempt fails, counted as opportunity to switch modalities
- If 2nd attempt with another modality is success, recorded as successful switch
- If 2nd attempt fails, unsuccessful switch
- Ratio: # successful modality switches **/** # opportunities to switch

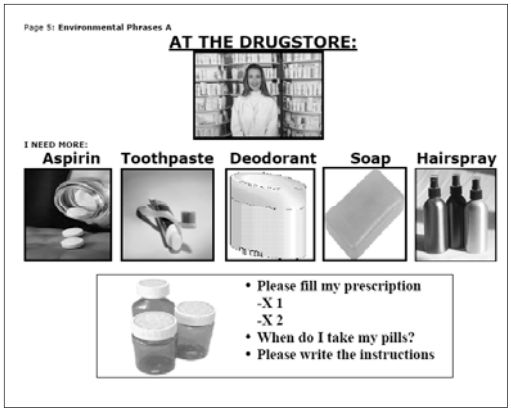
(Purdy & Koch, 2006)

AAC ASSESSMENT

- Specific AAC Measures
  - Multi-modal Communication Screening Task for Persons with Aphasia (http://aac.unl.edu/screen/screen.html)
    - Assesses ability to communicate with an external system, search pictures, categorize, combine symbols, combine communication modalities, and use symbols for story telling or to convey a message.







AAC ASSESSMENT

- Specific AAC assessment measures
  - Partner Dependency
    - http://aac.unl.edu/screen/aphasiachecklist.pdf
  - *Emerging Communicator*
  - Contextual Choice Communicator
  - Transitional Communicator
  - Stored Message Communicator
  - *Generative message Communicator*
  - *Specific Need Communicator

AAC ASSESSMENT

- Specific AAC assessment measures
  - Partner Dependency
  - Emerging Communicator
    - Requires maximal assistance
    - Contextual awareness
    - No initiation or repetition of verbalizations
    - No or extremely limited functional speech or gestures
    - Persistent global aphasia

- Develop turn-taking
- Develop choice-making ability
- Develop signals for agreement and rejection

AAC ASSESSMENT

- Specific AAC assessment measures
  - Partner Dependency
  - Generative Message Communicator
    - May need training to effectively use AAC strategies.
    - Initiates conversations with extra time
    - Recognizes errors & may sometimes repair conversation

- Ask questions via pointing to pre-stored information
- Draw or point to maps or figures to communicate
- Resolve conversational breakdowns
- Use a variety of communication modes as needed

AAC ASSESSMENT

- Specific AAC assessment measures
  - Partner Dependency
    - http://aac.unl.edu/screen/aphasiachecklist.pdf

AAC-Aphasia Categories of Communication Checklist

Adapted from Carrell, K. & Lester, J. (2006). Adults with severe aphasia. In D.S. Beukelman and P. Mirenda (Eds.) Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs, 3rd edition. Baltimore: Brookes Publishing Co. (Available at: http://aac.unl.edu/)

Instructions: Observe the person with aphasia during Needs Assessment, Impairment Testing, AAC Skills Assessment and in functional activities when possible. Check the box in the Skills or Challenges column if communication behaviors are observed more than once. Use a "Mosaic" approach to identify the most representative communication type. Start in, look for a predominance of behaviors in a category. Circle the communication type that represents the most advanced level of communication for which a variety of behaviors has been identified. Please see sense in the next communication type if you think that communication is advancing to the next level but have not yet mastered all of the skills. Mastermaster this checklist if it appears that the person's capabilities, needs, or setting have changed.

Partner Dependent Communicators

Communicator type	Skills	Challenges
Emerging Communicator	☐ Instructor attribution to tangible objects (e.g. clothing), personal photos, or remembrance items • Emerging ability to demonstrate immediate acceptance or rejection of a tangible choice • Looks up when greeted ☐ Uses objects and returns them to command within familiar routines • Moves although to communicate via natural modalities ☐ Can clearly indicate an answer or preference by pointing to a choice of objects, pictures, or large print written words • Can participate in mediated communication given partner-supported strategies (written choice, tagged yes no [illegible]	☐ Most comprehension without unique or personal context ☐ Inconsistent or nonuniform signal for "yes" or "no" ☐ Most demonstrable emerging comprehension of daily routine, but is easily confused by changes in the routine of new events ☐ No functional speech or gestures • Speech or gestures are essentially comprehensible ☐ Generate little information on their own ☐ Seldom initiates, even by pointing or vocalizing • Poor comprehension of the mediated modality information (e.g., commands, questions that do not pertain to needs in the present and/or personally [illegible]
Contextual Choice Communicator		

AAC ASSESSMENT

- Specific AAC assessment measures
  - Needs Assessment & Topic Inventory
    - Identify all contexts and interactions in which a person desires to communicate
      - Aphasia Needs Assessment (http://aac.unl.edu/screen/screen.html)
      - Inventory of Topics

AAC ASSESSMENT

- Strategy and Device Trial

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AAC STRATEGIES & DEVICES

- Unaided
  - Gestures
- Aided No technology
  - Augmented Input
  - Written Choice
  - Drawing
  - Writing
  - Scales
  - Conversation starters
  - Communication notebook
- Aided High technology

Daumuller et al 2010

AAC STRATEGIES & DEVICES

- Gestures
- Must directly teach how & when to use them
  - Waving a hand, touching a person's arm, establishing joint eye contact to gain attention
  - Pointing to desired object instead of verbally requesting
  - Head nods and shakes
  - Indicate feelings through facial expression (eyebrows raised)
  - Intervention: visual action therapy (VAT) (Helm-Estabrooks, 2004); imitation; practice in real-life or simulated situations; drill and practice

AAC STRATEGIES & DEVICES

- ~~Unaided~~
  - ~~Gestures~~
- Aided No technology
  - Augmented Input*
  - Written Choice
  - Drawing
  - Writing
  - Scales
  - Conversation starters
  - Communication notebook
- Aided High technology

AAC STRATEGIES & DEVICES

- Augmented Input/Comprehension*
  - Multimodality
  - Drawing, writing key words, gesturing, referencing context, prosodic emphasis
  - In combination with spoken utterances
    - Communication partner: Did you go to your sister's (writes sister?) on Sunday (points to Sunday on calendar)
    - Person with aphasia: (nods head)
    - Communication partner: So, yes (nods head), you did go to your sister's (points to written word) on Sunday (points to calendar).
    - Person with aphasia: (nods head)

AAC STRATEGIES & DEVICES

- Written Choice
  - "What restaurant do you want to go to? Do you want to go to Old India, Italian Kitchen, Rudy's steak house, or somewhere else?"

Restaurant?

•Old India

•Italian Kitchen

•Rudy's steakhouse

•Somewhere else

AAC STRATEGIES & DEVICES

- Drawing

Communication
Drawing Program

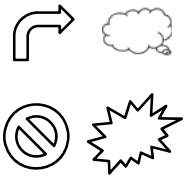
AAC STRATEGIES & DEVICES

- Drawing Intervention
  1. Identify key shapes in line drawings
  2. Trace shapes
  3. Copy shapes of increasing complexity
     - Shapes become complex enough to resemble objects
  4. Complete half finished drawings
  5. Begin drawing to convey info displayed on cards only visible to person with aphasia.
  6. Initiate drawing as supplement to verbal or written words
  7. *Practice in real-life or simulations

AAC STRATEGIES & DEVICES

- Drawing Intervention (con't)
  - Two skills to focus on….
- Enlargement

- Graphic Elements



AAC STRATEGIES & DEVICES

- Drawing
  - Resistance to using drawing is NORMAL
    - SO… Keep markers and paper handy
    - Counsel about switching handedness
    - Imitation is best form of flattery
    - "Air drawing"
  - Drawback
    - How do you draw *acceptable*??

AAC STRATEGIES & DEVICES

- Writing
  - Anagram and Copy Treatment (ACT)
    - Spelling by arrangement of component letters
    - Copying target words
  - Copy and Recall Treatment (CART)
    - Repeated copying of target words in the presence of pictured stimuli, followed by recall trials in the form of written picture naming
    - Weekly treatment and daily homework

Resource: (Helm-Estabrooks & Albert, 2004)

AAC STRATEGIES & DEVICES

- Scales

Today's session was….

1 2 3 4 5 6 7 8 9 10

The pictures you used were……

1 2 3 4 5 6 7 8 9 10

Not good ok Very good

AAC STRATEGIES & DEVICES

- Conversation Starters
  - Hurricane Katrina
  - Rebuilding after the storm
  - The response
  - FEMA

Hurricane Scale		
Category	Winds (mph)	Surge
1	74 - 95	5-8
2	96 - 110	9-12
3	111 - 130	12-17
4	131 - 155	14-20
5	155+	17-25

It was good
It was too late
It was poorly done

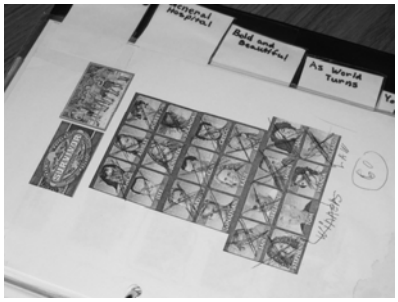
bad 1 2 3 4 5 good

AAC STRATEGIES & DEVICES

- Communication Books
  - Convey basic wants and needs
  - Target specific communication:
    - Relay personal information about person with aphasia
  - Establish social closeness
    - Small talk & story telling
    - Make communication repairs
  - SLPs should:
    - Provide instructions about methods of facilitating communication for the communication partner
    - Ensure book is updated regularly

AAC STRATEGIES & DEVICES

AAC STRATEGIES & DEVICES



AAC STRATEGIES & DEVICES

- ~~Unaided~~
  - ~~Gestures~~
- ~~Aided No-technology~~
  - ~~Augmented Input*~~
  - ~~Written Choice~~
  - ~~Drawing~~
  - ~~Writing~~
  - ~~Scales~~
  - ~~Conversation starters~~
  - ~~Communication notebook~~
- Aided High technology

AAC STRATEGIES & DEVICES

- High Technology

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MODIFICATION TO STRATEGIES

- Visual representation
  - High-Context Photographs
  - Visual Scene Displays
    - High & Low Technology
- Multimodality Communication Training Program

MODIFICATION TO STRATEGIES

- Visual Representation
  - High-Context Photographs
    - Represent situations, places, or experiences
    - Depict people or objects in relation to one another, the natural environment, and the central action of a scene
    - Convey the "gist" of a situation or event
    - Provide support for conversational exchanges

Four criteria:

1. Environmental context
2. Interaction
3. Personal relevancy
4. Clarity

MODIFICATIONS TO STRATEGIES

MODIFICATIONS TO STRATEGIES

- Visual Representation
  - High-Context Photographs
  - What does the research tell us??
    - Preferences of people with aphasia
    - Better identification by people with aphasia
    - Support reading comprehension??

MODIFICATIONS TO STRATEGIES

- Visual Representation
  - High-Context Photographs

  - Many Uses
    - Therapy Stimuli – naming, pictures descriptions, Sentence Production Program for Aphasia (SPPA)
    - Communication notebooks
    - Other no or low tech AAC strategies
    - High technology AAC systems

  - *Show many examples prior to collection of photos

MODIFICATIONS TO STRATEGIES

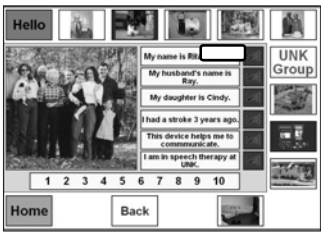
- Visual Representation
  - Visual Scene Displays
    - Traditional (Grid) vs. VSDs
    - No technology & High technology examples

MODIFICATIONS TO STRATEGIES

- Traditional grids
  - Semantic Organization
  - De-contextualization
  - Isolation
  - Icons
  - Assume intact language system
    - (Wilkinson & Jagaroo, 2004)
- VSDs
  - Episodic organization
  - Color highlights
  - Text
  - High Context photographs
  - Speech buttons

(Meyer-Johnson, 2006)

MODIFICATIONS TO STRATEGIES



- Not perfect…

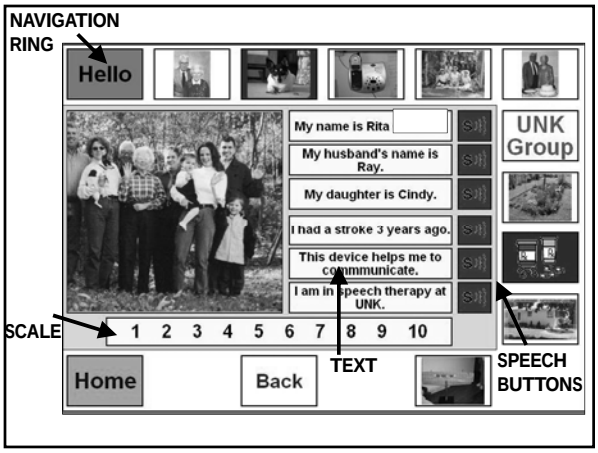
MODIFICATIONS TO STRATEGIES

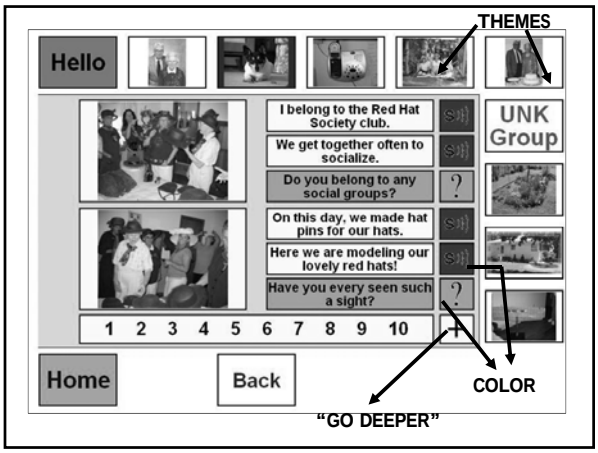
- No Tech VSD
  - Evaluation of VSD
  - Back up
  - Personal preference
  - Free!

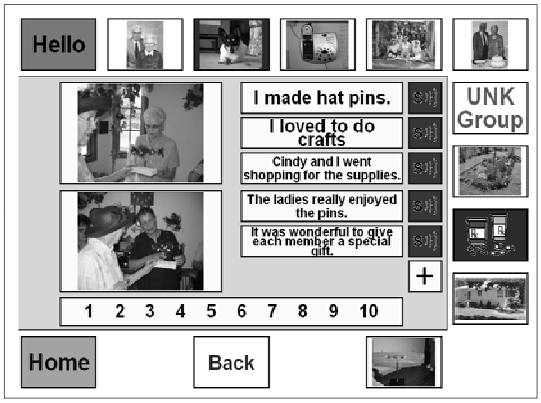
http://aac.unl.edu

MODIFICATIONS TO STRATEGIES

- High Technology VSD
  - Notice..
    - Navigation ring with theme images
    - Text and speech buttons
    - Color highlighting
    - Scale
    - Go deeper buttons







MODIFICATIONS TO STRATEGIES

- Why do VSDs work?
  - Area of current research
  - Hypotheses:
    - Supplement language processing by adding **redundant information** to facilitate inefficient language processing.
    - **Minimize reliance** on linguistic or symbolic processing.

MODIFICATION TO STRATEGIES

- ~~Visual representation~~
  - ~~High Context Photographs~~
  - ~~Visual Scene Displays~~
    - ~~High & Low Technology~~
- Multimodality Communication Training Program

MODIFICATIONS TO STRATEGIES

- Multimodality Communication Training Program
  - Problem:
    - Poor generalization of strategy use
    - Failure to spontaneously switch to alternative modality (Purdy et al, 1994)
    - Most training programs teach one modality at a time
      - May not create multimodal representations

MODIFICATIONS TO STRATEGIES

- Multimodality Communication Training Program
  - Intervention
    - Goal: improve strategic competence or ability to determine appropriate AAC strategy if communication breakdowns occur
    - Teach modalities together to create cohesive multimodality representation
    - Pilot Study with 2 participants (Purdy & VanDyke, 2009)

MODIFICATIONS TO STRATEGIES

- Multimodality Communication Training Program
- Intervention
  - Express concept by verbalizing, gesturing, writing, and drawing.
  - Feedback & cues to elicit correct production in each modality. *"How else can you communicate that?"*
  - Following practice with all modalities for a single concept, a new concept was introduced.
  - 20 concepts were drilled 2-4X per session.

MODIFICATIONS TO STRATEGIES

- Multimodality Communication Training Program
- Intervention
  - Switch spontaneously among 3 modalities
- Caution
  - Improvement may be limited by poor semantic representations.
  - Semantic treatment program (Semantic Feature Analysis) may be needed.

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WRAP UP

- "Holland recommends that treatment focus on *COMMUNICATIVE COMPETENCE*…aphasic persons need NOT be perfect speakers or listeners to *COMMUNICATE* adequately."

WRAP UP

- Complete AAC assessment – capability profile
- Select system of AAC strategies - unaided, aided, high-, low-, no-technology
- Promote generalization
  - Teach PwA to use AAC during "integrative situations that demand strategic, on-the-spot implementation" (Garrett & Kimelman, 2000).
  - Consider strategic competence

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SpeechPathology.com Virtual Conference on AAC

Guest Moderator: Filip Loncke

Monday, 3/21	**AAC in School Settings: What is the Role of the SLP?** *Nancy Robinson, Ph..D., CCC-SLP*
Tuesday 3/22	**Use of AAC Devices and Strategies for People with Aphasia** *Sarah Wallace, Ph.D.*
Wednesday 3/23	**Practicing AAC in Acute Care Settings** *Debora Downey, M.A., CCC-SLP*
Thursday 3/24	**AAC Funding and Report Writing for Medicare, Medicaid and Insurance** *Lewis Golinker, Esq.*
Friday 3/25	**AAC Funding and Report Writing for Special Education** *Lewis Golinker, Esq.*