The Critical Role of the Person with Aphasia in Speech Production Treatment

Katarina L. Haley
University of North Carolina at Chapel Hill

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Presentation Overview

• Current AOS treatment evidence and practice guidelines
• Models for comprehensive goal setting
  – ICF
  – A:FROM
  – An alternative model
• The LIV Cards: PWA and proxy
• Targeting Communicative Life Participation
  – Script training
  – Integration between AAC and speech practice
  – Self-administered practice
• “Auto-Speech” (autonomous speech production training)
• Conclusions

Current AOS treatment evidence and practice guidelines

AOS treatment guidelines
ANCDS committee, 2006; update 2014/2015

Articulatory kinematic approaches - “probably effective”
Rate/rhythm control approaches - “possibly effective”
Intersystemic approaches - “possibly effective”
AAC approaches - could not be rated for likelihood of benefit


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American Academy of Neurology Classification system for clinical practice guidelines

• Class I: Randomized controlled clinical trial (RCT) in a representative population (masked, objective, or independent outcome assessment)
• Class II: Cohort lacking in masked, objective, or independent outcome assessment, case-control
• Class III: Controlled within-participant designs (with masked, objective, or independent outcome assessment)
• Class IV: Uncontrolled studies
### Articulatory kinematic approaches
- Modeling
- Integral stimulation (speech entrainment)
- Articulatory placement cues
- Shaping
- Minimal contrast practice
- Biofeedback

**GOALS/OUTCOME:** Improved accuracy of sound, syllable, sentence production based on probes and (less frequently) articulation tests. Mixed results for generalization to untreated exemplars. No generalization to untreated targets.

### Rate/rhythm approaches
- Metronomic pacing
- Finger tapping/counting
- Instructional feedback
- Computerized pacing – oral reading
- Pacing board

**GOALS/OUTCOME:** Mixed results for improved accuracy of sound production and increased fluency based on probes. Mixed results for generalization to untreated exemplars. No generalization to untreated targets.

### Inter-systemic approaches
- Iconic gestures (e.g. Amerind)
- Rhythmic gestures (tapping, counting)
- Singing

**GOALS/OUTCOME:** Improved accuracy of sound production based on probes and (less frequently) articulation tests; increased use of iconic gestures. Mixed results for generalization to untreated exemplars. No generalization to untreated targets.

### AAC approaches
- Gestures
- Communication boards>Notebooks
- Speech generating devices
- Multiple communication systems – writing, drawing, notebooks, gestures

**GOALS/OUTCOME:** Increased use of AAC system/s, communicative success in the environment where training occurred, but unwillingness to use in typical communication settings

### Almost all evidence supporting AOS tx is at the level of body structures/functions
articulatory-kinematic and rate/rhythm approaches are promising, BUT....

It is unknown how outcomes affect life with AOS (and aphasia)

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### Models for comprehensive goal setting
- ICF
- A-FROM
- An alternative model
What people with aphasia want:

1. Return to pre-stroke life. Be normal and enjoy life.
2. Recover ability to communicate about interesting things
3. Learn more about aphasia, stroke, and prognosis
4. SLP tx that meet their life participation needs
5. Control and independence
6. Dignity and respect
7. Engage in social, leisure, and work activities
8. Contribute to society
9. Good physical function and health


Could aspects of our tx be iatrogenic?

- Are we unintentionally strengthening negative personal factors by suppressing autonomy and revealing lack of competence?
- Does our avoidance of environmental factors promote “resistance to AAC” or a feeling of “failure”?
- How much of a partner are PWA in goal setting?
- What does it feel like to “take” the treatment?
- Does the plan include living with AOS and aphasia?

Beyond motivation as tx candidacy: Self-Determination Theory

- Innate psychological needs:
  - Autonomy: the experience of initiating and regulating one’s actions
  - Competence: the desire to act proficiently in our surroundings
  - Relatedness: the importance of feeling supported and connected with others

Do you embrace client-centered care?

- Occupational therapists indicated in interviews that they embraced principles of client-centered care, but clients interviewed by the same investigators indicated they were unaware of attempts described by the therapists to engage them actively in the rehabilitation process.

- When the same therapists were informed of the clients’ perspectives, they cited barriers to enacting client-centered care:
  - inability to engage clients with impaired language/cognition
  - interference of high productivity demands
  - difficulty with clients who are passive and unmotivated,
  - work climates where the clients' personal goals are not the priority of the health-care team.


Client-centered tx in aphasia

- Aphasia is often perceived as an overwhelming barrier.
- Family members and friends give important input, but relying on them introduces other problems for psychosocial well-being, motivation, and information accuracy.
- Using family members or friends present for support and supplemental input also affects autonomy of the PWA.


The L!V Cards: PWA and proxy

- Do you know what I want out of my SLP/OT/PT therapy?

The Life Interests and Values Cards (L!V Cards)

What do you want to do more in your life?

Study 1: Mean agreement between PWA and family member/friend proxy: 71%

<table>
<thead>
<tr>
<th>PWA</th>
<th>&quot;Does now&quot;</th>
<th>&quot;Doesn't&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01</td>
<td>90%</td>
<td>77%</td>
</tr>
<tr>
<td>P02</td>
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<td>60%</td>
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<td>71%</td>
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<td>71%</td>
</tr>
<tr>
<td>P10</td>
<td>82%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Mean: 74% 71%

SD: 9% 9%

What does “disagreement” mean? Is it the presence of aphasia that causes limited agreement?

Study 2: Mean agreement between seniors and family members/friend proxy: 72%

Study 3*: Mean agreement between PWA and family member/friend proxy: 70%

PWA want to do more home/community, relaxing/creative, physical, AND social activities

So...

- PWA know what Life Activities they want
- Family members and close friends are not so good at speaking for them

Valued communicative life participation as goals for speech production treatment

A. Script Training for aphasia
- Goal is to achieve "islands of automatic speech" that can be produced fluently that are available for use in real-life discourse
- Automaticity is achieved via repetition, choral reading, and independent production
  - Similarities with articulatory kinematic and rate/rhythm approaches for AOS
- Scripts are highly personalized and situation-specific
  - Topic is selected by PWA and lines are developed jointly by SLP and PWA
- Outcomes are primarily situation-specific, but generalization has also been observed
  - Script phrases occur observed in everyday conversation and in conversations with novel partners


Example of a script


Speech outcomes of script training
- Words from the target script
- Increased speaking rate
- Improved sound production accuracy
- Increased fluency

**Script Training with modification**


*As needed: Gradual progression of target length, Personalized cues

**Practice of target scripts increases speaking rate/target word use and reduces disfluency for communicative life participation**


**B. Integration between AAC and speech practice**

- Home speech practice using a speech generating device (SGD) and motor learning guided (MLG) therapy resulted in improved production of trained items
  - What about AAC use?
- ...in probes
  - What about in conversation? Communicative Life Participation?


**C. Self-administered computerized practice**

- **Multimodality sensory stimulation**
  - auditory, visual, orthographic
  - "Imagined production" followed by actual production
  - What about personalized cues?
- **Outcomes**
  - Increased fluency for trained targets... in probes
  - What about communicative life participation?


**How to support autonomous practice**

Use multiple modalities and presentation choices (→ multimedia)

Use intuitive (and low-cost) interface (→ digital photo/video album)

Build gradually (→ simple access to cameras, deleting, reordering)

**THE CHALLENGE IS TO KEEP IT SIMPLE, YET FLEXIBLE**

**Personalized cueing**

Personalized cueing

“Auto-Speech” (autonomous speech production training)

PRINCIPLES of Auto-Speech for AOS
• Speech practice targets Communicative Life Participation
  — Target words and phrases are common or anticipated conversation topics determined by the PWA
  — Content grows gradually
  — When the PWA gains fluency, targets are practiced in context
• Dynamic environmental factors are modified
  — Practice in real settings becomes less taxing
  — AAC is introduced implicitly and naturally, because practice items are convenient alternatives to talking
• Dynamic personal factors (self-determination) are supported
  — The PWA determines what to say and when to say it
  — The PWA selects personal cues and evaluates effectiveness
• Intense practice is feasible
  — Practice could take place most anywhere and most anytime

Conclusions
• AOS responds to various articulatory kinematic and rate/rhythm approaches, but intensity is important
• Almost all AOS treatments address only body structures/functions and not communicative life participation—which is the most important goal for people with aphasia (and AOS).
• PWA know what kind of life participation they want—their friends or family members can only infer
• Communicative Life Participation can be addressed by targeting speech production via script training, integration with AAC, and by providing opportunity to practice independently.
• “Auto-Speech” (autonomous speech production training) may be a useful approach.
The Critical Role of the Person with Aphasia in Speech Production Treatment

- **Functional goal setting**
  - Communicative Life Participation

- **Motivation to learn and practice**
  - Personal factors → tx at any level

- **Application of strategies and skills**
  - Environmental factors must be modified, so PWA can learn to “generalize”

- **Continued (life-long) learning and growth**
  - Communicative needs are dynamic and persistent

Thank You!

khaley@med.unc.edu