

Intensive Comprehensive Aphasia Program (ICAP): Three Years Later, Lessons Learned



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BACKGROUND

Recent research in aphasia rehabilitation has examined the potential benefits of intensity in aphasia programming with regard to both frequency and duration of treatment, as well as the nature of the rehabilitation protocol itself^[2]. Principles of neuroplasticity indicate that high-intensity intervention yields more immediate improvements to functional outcomes than low-intensity service delivery models following brain injury, specifically regarding motor speech and intelligibility^[6]. Parallels have been drawn to aphasia treatment^{[2][7]}. Based on these principles, a service delivery model for Intensive, Comprehensive Aphasia Programming (ICAP) was developed^[8]. An ICAP is defined as a program that:

- 1) Program Duration and Participant Selection:** is time-bound with a clearly defined start and end date, with a single cohort of participants per program
- 2) Intervention Dosage:** provides a minimum of three hours of therapy per day for at least two weeks to a group of participants beginning and ending the program at the same time
- 3) Methods and Service Delivery:** incorporates a variety of treatment methods and delivery models (i.e., individual and group treatment), including both impairment-based and activity/participation-focused intervention per WHO ICF guidelines^[9]
- 4) Care Partner Involvement:** incorporates family/care partner education and training

Research into the extent and nature of benefits of ICAPs has been limited secondary to the paucity of available programs, as only twelve ICAPs have been documented worldwide^[5]. Further, methods and treatment protocols vary across programs, as well as populations served^[10]. Each ICAP boasts a focus on development of functional communication, with individualized treatment protocols addressing oral and written language rehabilitation; however, in few programs are these methods specified or standardized^[10]. More research is needed to determine optimal population, dosage, and treatment protocol^[12].

PURPOSE

We sought to explore aphasia treatment programming options in a university clinical setting by developing an ICAP with a specific focus on the development of functional reading and written language skills through the discourse level. In developing such a program, we hope to encourage replication and expansion of similar programming in CSD programs nation-wide.

GRADUATE CLINICIAN TRAINING

Graduate students participated in an intensive training seminar across two dates for 2-3 hours per session, reviewing assessment and treatment protocols. Hands-on practice, modeling, and individual supervision were provided as-needed prior to and during the intensive program. Weekly supervision groups were held to review protocols, reinforce therapy techniques, and develop individualized treatment modifications.

DEMOGRAPHICS

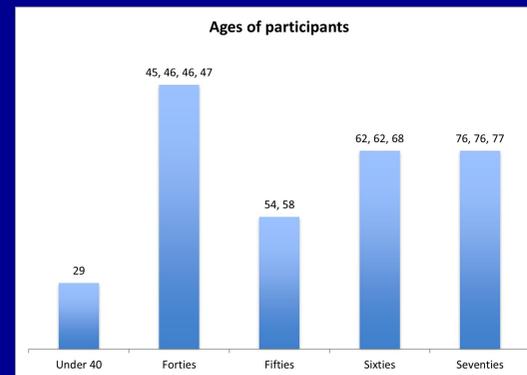


Figure 1

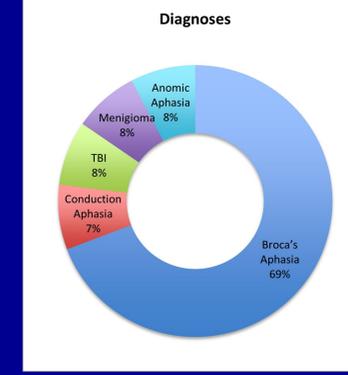


Figure 2

INDIVIDUAL TREATMENT PROTOCOLS

Anagram, Copy, and Recall Treatment ^[14]

Oral Reading for Language in Aphasia ^[15]

Attentive Reading and Constrained Summarization-Written ^[13]

CART procedure during treatment session:

- Present picture to participant (for example, "dog")
 Say: "What is this? Can you tell me the name?"
 -Correct name: "It's a dog. Can you spell dog?"
 -Incorrect name: "It's a dog. Say dog. Can you spell dog?"
 -Correct spelling: Provide feedback and move to next item.
 -Incorrect spelling: Proceed through the following steps:
 -Correct: Move on to the next word.
 -Incorrect: Repeat step 2 and 3.
- Present a handwritten model of the word, either written by the clinician or from an example of the patient's previous correct written response.
 Say: "Here is the word dog. Can you copy it?"
 Encourage copying of the word three times, giving feedback about accuracy with each copying attempt.
- Cover up all written examples of the word. Show the picture, and prompt recall of the spelling three times.
 Say: "Let's see if you remember it. Write the word dog."
 Provide feedback and then cover the word two additional times, prompting recall.
 -Correct: Move on to the next word.
 -Incorrect: Repeat steps 2 and 3.
- If correct recall cannot be achieved after several trials, move on to the next word. If there is time in the session, try to return to the difficult word. Provide extra homework practice with difficult words, as well.

Oral Reading for Language in Aphasia

- The speech-language pathologist reads aloud to the patient, pointing to each word as he or she reads along. The length of the material may vary from 3 to 100 words, depending on the auditory comprehension skills of the patient.
- The speech-language pathologist reads aloud to the patient again, pointing to each word as he or she reads along and encouraging the patient to also point to each word.
- The speech-language pathologist reads the paragraph aloud together with the patient, while continuing to point to each word as he or she reads along. The patient also points to each word. The clinician adjusts the rate and volume of the oral reading according to the specific patient (e.g., reading a little ahead of the patient so he or she is able to hear the initial phonemes of the words; decreasing volume as the patient requires fewer cues).
- For each line or sentence of the paragraph, the speech-language pathologist states a word that the patient must then identify. Words may be content words (e.g., nouns, verbs) or function words (e.g., pronouns, prepositions, conjunctions).
- For each line or sentence of the paragraph, the speech-language pathologist points to a word for the patient to read aloud. Both content and function words are selected.
- The patient reads the whole sentence aloud again in unison with the speech-language pathologist.

ACRS-W Treatment Steps:

Treatment step	Participant action	Clinician action
Step 1	Nil	Clinician reads article aloud
Step 2	Participant reads one to three sentence segments twice, in sequential, for comprehension	Nil
Step 3	Participant identifies the words in the segment and writes them down	Clinician writes down key words from the segment
Step 4	Participant and clinician compare key words, discuss what is most important, and trade list of key words	Clinician compares key words and trades key word list with participant
Step 5	Participant produces a written summary of the segment (the word with the assistance of their key word list while following prescribed constraints to be topic-specific words only on topic, plus individual constraints)	Clinician provides feedback regarding if constraints were followed and if important information was included in the words
Step 6	Participant summarizes segment in writing and then reads it to the clinician and checks for errors	Clinician provides feedback regarding if constraints were followed and if important information was included in the words
Read until entire article is summarized	Nil	Nil
Step 7	Participant reads/summarizes to the entire article	Clinician provides general feedback about completeness of the summary
Step 8	Participant produces summary of the entire article verbally	Clinician provides general feedback about completeness
Step 9	Participant writes summary of the entire article	Nil
Step 10	Participant rates the comprehensibility of their written summary on a scale of 1-5 (1 = not comprehensible at all, 5 = somewhat complete, and 5 = very complete)	Nil

GROUP TREATMENT

Structure

- Dosage:** 1-2 hours weekly
- Purpose:** Promote social communication between group members, fostering a positive communicative environment
- Methods:** homework review, conversation practice, creation of group project, presentation, community outreach

Outcomes

- Flexibility to adapt format to meet client needs
- Casual, convivial environment promoting positive social communication
- Client empowerment



What are our participants saying?

What are our care partners saying?

I'm feeling great. I can really see changes; this one feels really good.

The homework really reinforced the skills in each therapy session. She's reading and writing so much more independently and this is what we hoped for from this program

My husband's confidence in his reading increased so much. This program has done wonders for him. We can't wait to come back next summer!

Everything [I do is] for the kids. Before I can't write to my son. Today I wrote a letter to him. I can't ever do that before. I'm so happy.

What helped my husband the most was the redundancy. He performed better seeing the same material daily. I think he got better at finding his errors. The group component made him use his skills in a different way.

DAILY SCHEDULE

2018	2019	2020
<p>Intensive Reading & Writing Aphasia Program</p> <p>Schedule</p> <p>9:00 – 10:00 am: Anagram, Copy, and Recall Treatment</p> <p>10:00 – 11:00 am: Oral Reading for Language in Aphasia</p> <p>11:00 – 12:00 pm: Functional Communication Group</p> <p>12:00 – 1:00 pm: Social Lunch</p> <p>1:00 – 2:00 pm: Attentive Reading and Constrained Summarization-Written</p> <p>2:00 pm – 3:00 pm: Attentive Reading and Constrained Summarization-Written</p>	<p>Intensive Reading and Writing Aphasia Program: 2019</p> <p>10:00 – 11:00am: Anagram, Copy, and Recall Treatment*</p> <p>11:00 – 12:00pm: Oral Reading for Language in Aphasia*</p> <p>12:00 – 1:00pm: Social Lunch</p> <p>1:00 – 2:00pm: Attentive Reading and Constrained Summarization-Written*</p> <p>2:00pm – 3:00pm: Functional Communication Group</p>	<p>Intensive Reading and Writing Virtual Aphasia Program 2020</p> <p>9:00 – 10:00am: Anagram, Copy, and Recall Treatment*</p> <p>11:00 – 12:00pm: Oral Reading for Language in Aphasia*</p> <p>1:00 – 2:00pm: Attentive Reading and Constrained Summarization-Written*</p> <p>3:00 – 4:00pm: Functional Communication Group</p>

METHODS

	2018	2019	2020: Teletherapy
Program Duration and Participant Selection	<ul style="list-style-type: none"> 4 Weeks Intervention + 2 Weeks Pre/Post Assessment N = 9 participants 	<ul style="list-style-type: none"> 4 Weeks Intervention + 2 Weeks Pre/Post Assessment N = 10 participants 	<ul style="list-style-type: none"> 4 + 2 Weeks N = 8 participants
Intervention Dosage	<ul style="list-style-type: none"> 5 consecutive hours/day on site, 2 days/week 2 hours/day home program 	<ul style="list-style-type: none"> 5 consecutive hours/day on site, 2 days/week 1 hour/day home program 	<ul style="list-style-type: none"> 3-4 hours/day teletherapy with 1-hr breaks, 2 days/week 1 hour/day home program
Methods and Service Delivery	<ul style="list-style-type: none"> 3 hours Pre/Post Treatment Assessment (WAB-R, RCBA-2, CETI, CIU Analysis) 3 hours impairment-based individual treatment (ACRT, ORLA, ARCS-w) 2 hours LPAA group (1 hour social lunch, 1 hour group) 	<ul style="list-style-type: none"> 1.5 hours pre/post assessment (CETI, AIQ, CIU Analysis, Reading sample) 3 hours impairment-based individual treatment 1 hour group/week 	<ul style="list-style-type: none"> 1.5 hours pre/post assessment (CETI, AIQ, CIU Analysis, Reading sample) 3 hours impairment-based individual treatment 1 hour group/week
Care Partner Involvement	<ul style="list-style-type: none"> Observe sessions Support group 2 hours/week 	<ul style="list-style-type: none"> Observe sessions Support group 1 hour/week 	<ul style="list-style-type: none"> Observe/participate in sessions

SUCCESSSES AND CHALLENGES

	2018	2019	2020: Teletherapy
SUCCESSSES	<ul style="list-style-type: none"> Improvement across clients Reported generalization of skill Regular attendance 	<ul style="list-style-type: none"> Better compliance with home program More consistent participant selection criteria 	<ul style="list-style-type: none"> Good participation and fatigue management Adaptation to change in modality Home program compliance Group satisfaction
CHALLENGES	<ul style="list-style-type: none"> Home program burden, poor fidelity Client fatigue Participant selection criteria 	<ul style="list-style-type: none"> Group treatment satisfaction and participation LPAA, client/care partner goal negotiation 	<ul style="list-style-type: none"> Care partner involvement Social connections Learning curve

We'd like to acknowledge and provide a sincere "thank you" to our clients; the Edward D. Mysak Clinic; our colleagues Felix Matias, Lindsay Milgram, and Elise Wagner; and the CSD Program at Teachers College, Columbia University.



Snapper's Story

MY MOTHER'S CAT