

## Proposal

### Background:

The earliest published article considering intensive therapy for persons with aphasia (PWA) was published in 1947 according to Hinckley (2012). Theoretical constructs as to the validity of intensive vs. less intensive therapy options has been ongoing. Bhogal, Teasell and Speechley (2003) found therapy provided in a more intensive level (8.8 hours/week) for a shorter period yielded stronger improvements than on a less intensive level. Basso and Caporali (2001) also reported intensity to be an important factor in recovery. However, it was the seminal article by Kleim and Jones (2008) that identified massed practice as one of the experience based principles in neuroplasticity. More recently, Cherney, Patterson, Raymer, Frymark, and Schooling (2008) provided a systematic review on the effects of intensity of aphasia treatment. Their findings revealed greater gains when treatment was delivered on a less intensive schedule for chronic aphasics but the evidence was modest.

### Aim:

The purposes of this presentation are three fold: (1) to discuss theoretical constructs developed to infuse evidence based practice into the core of “Aphasia House”, an Intensive Comprehensive Aphasia Program (ICAP) within a university clinical setting, to benefit both the participants and graduate level student clinicians, (2) to outline logistical constructs undertaken for intensive therapy to be conducted, and (3) to document empirical outcomes in language impairment of PWA who underwent the “Aphasia House” ICAP.

### Subjects:

Twenty-two PWAs (14 males and eight females) who enrolled in the “Aphasia House” ICAP between 2010 and 2013 were included. All participants were status-post left hemisphere stroke, ages 30 to 80, with an educational status between a high school diploma to a doctorate degree. Aphasia types included four anomic, three conduction, two global, eleven Broca, and two Wernicke as determined by their Aphasia Quotients on the WAB. Seventeen of the 22 participants were administered all subtests from the CLQT. Of those, their scores were as follows: five mild, eight moderate, two severe, and two within normal limits.

### Methodology:

Each treatment cohort of the “Aphasia House” ICAP included four PWAs. Given that supportive environment improves psychosocial function in aphasia (Elman & Bernstein-Ellis, 1999), therapy context in “Aphasia House” was designed to mimic home environment to promote relaxed and social interactions for all PAWs, family, and students.

Participants were administered the Western Aphasia Battery (WAB; Kertesz, 2006), all or only the nonverbal subtests from the Cognitive Linguistic Quick Test (CLQT; Helm-Estabrooks, 2001), and the Main Concept Analysis (MCA; Kong, 2009, 2011) prior to admission to the intensive program. Based on the performance profile on the WAB and CLQT profile and their self-determined communication goals, four areas of impairment were selected during the intensive program. Four graduate level student clinicians were assigned to each participant with each graduate student selecting an area of impairment. Each student conducted a literature review on treatments for their assigned impairment. Using the Client-Based Article Critique (C-BAC), a departmental protocol to rate ten features of quality evidence from research articles, students obtained a total article score and then related this article to client applicability. This was then discussed with the clinical educator and approved. Prior to the onset of the intensive program, four protocols, based on published evidence, were selected that best met the client's four areas of impairment. Furthermore, at the onset of intervention, participants were administered the Life Interests and Values Cards, L!V cards (Haley, Womack, Helm-Estabrooks, Caignon, & McCulloch, 2010) to aid in selecting topics for stimuli, facilitating conversations and creating participation opportunities beyond the clinic.

Each PWA received 4 hours of treatment, 4 days/week for 6 weeks. Treatment included individual, dyadic or group sessions. Assistive technology was integrated throughout the sessions. At the end of the six weeks, the WAB, CLQT, and MCA were re-administered. The WAB and CLQT were also conducted again at the 6 month post-treatment date.

#### Results:

Results of multiple paired sample t-tests suggested that the participants' overall performance on the WAB (in terms of the scores of both Aphasia Quotient and Language Quotient) and CLQT was significantly different between the following: (a) the time treatment began (T1) and ended (T2), and (b) T1 and six months after the end of treatment (T3). In particular, further T1-T2 comparisons of the WAB subtests of spontaneous speech, repetition, naming, reading and writing as well as the CLQT subtests on the cognitive domains of language and memory revealed significant differences at the  $p < .01$  level or lower, suggesting a strong treatment effect at the end of the six weeks of intensive program. This was further supported by the significant improvement in producing accurate and complete information and significant decrease in missing speech content, as reflected by the paired sample t-tests results of MCA performance ( $p < .05$  level or lower). The T1-T2 comparison of the overall MCA scores also suggested a significant gain ( $p < .001$  level) in the presence, accuracy, and completeness of content in oral narratives among our PWA.

Significant differences on most of the above-mentioned WAB and CLQT subtests remained for the T1-T3 comparisons, suggesting a relatively strong maintenance effect. On the other hand, significant differences on the WAB Aphasia Quotient, Language Quotient, or subtests were absent in the T2-T3 comparisons; similar results were obtained for the CLQT

overall and subtest scores. In addition, as reflected by the CLQT profile qualitatively, at the end of the treatment, there was an increase in proportion of participants who were rated as mildly impaired (from 29.4% to 47.4%) or within normal limit (from 11.8% to 15.8%).

#### Conclusions:

The inclusion of an ICAP within a university clinic has been effective. Graduate level students benefited from the experience of implementing EBP protocols in an intensive delivery environment that targeted both impairment and activity/participation levels of language and communication functioning. Participant outcome data from standardized tests were positive for improved language abilities in all participants.

#### References:

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