Research Update, February 2020:
Aphasia Research and Treatment Lab at UT Austin (PI: Maya L. Henry)

Communication difficulty can be a prominent, early, and debilitating feature of Alzheimer's dementia and related neurodegenerative disorders such as frontotemporal dementia. However, there is a lack of research investigating treatment for cognitive-communication deficits in these populations. The purpose of our lab's work is to discover ideal modes of treatment for speech and language in individuals with progressive impairments of communication, or primary progressive aphasia (PPA). Funding from the Darrell K Royal Research Fund for Alzheimer's Disease has been an important factor in the success of our research program. Below, we outline the lab's recent research accomplishments and future directions:

- We have published several group studies[1,2] documenting the immediate and long-term benefits of language intervention for individuals with PPA. In one study, we show that individuals with language deficits caused by Alzheimer's disease or frontotemporal dementia can show significant and lasting (up to one year post-treatment) benefit from treatment[1]. In the other, we show, in the first-ever group study with this population, that individuals with nonfluent/agrammatic PPA also show significant and lasting gains from treatment[2]. We also documented, via MRI data, that recovery of language functions is associated with the integrity of spared neural regions in the speech-language network.
- We have published a paper[3] showing that speech-language treatment delivered via teletherapy is as effective as that delivered in person for individuals with focal, language-prominent dementias. This is an important finding, given that many individuals with progressive communication impairments have geographical, physical or other limitations that make travel to standard clinical settings for treatment impractical or impossible.
- In addition to monolingual speakers, we are enrolling participants with progressive aphasia who speak more than one language. In a forthcoming paper, we will report findings from a naming intervention administered to nine bilingual speakers. These individuals showed a robust response to treatment that was maintained at follow-ups in each of their treated languages. We also explore means to promote cross-language transfer of learning so that therapy for bilingual speakers can be maximally beneficial.
- Additional research directions for the lab include the following: exploring compensatory treatments such as augmentative and alternative communication as well as caregiver training; piloting a new treatment that combines speech-language intervention with a proven counseling treatment, in order to help patients with progressive aphasia deal with the psychological and emotional consequences of progressive aphasia; using electroencephalography (EEG) and functional MRI to examine how targeted communication interventions affect speech-language processing in the brain.

[1]Henry, M. L., Hubbard, H. I., Grasso, S. M., Dial, H. R., Beeson, P. M., Miller, B. L., & Gorno-Tempini, M. L. (2019). Treatment for word retrieval in semantic and logopenic variants of primary progressive aphasia: Immediate and long-term outcomes. *Journal of Speech, Language, and Hearing Research, 62*(8), 2723-2749.

[2]Henry, M.L., Hubbard, H.I., Grasso, S.M., Mandelli, M.L., Wilson, S.M., Sathishkumar, M., ... & Gorno-Tempini, M.L. (2018). Retraining speech production and fluency in nonfluent/agrammatic primary progressive aphasia. *Brain, 141*(6), 1799-1814.

[3] Dial, H.R., Hinshelwood, H.A., Grasso, S.M., Hubbard, H.I., Gorno-Tempini, M.L., Henry, M.L. (2019). Investigating the utility of teletheraphy in individuals with primary progressive aphasia. *Clinical Interventions in Aging, 14,* 453-471.