

## RESEARCH PROPOSAL

### A. Abstract

**Background:** Low-vision rehabilitation can improve functional outcomes in patients with macular disease, the most common type of incurable vision loss. However, the impact of comorbid cognitive impairment in this population is not known, and no tailored rehabilitation strategies exist for macular disease patients with cognitive impairment.

**Aims:**

1. To characterize functional outcomes associated with cognitive impairment among macular disease patients undergoing low-vision rehabilitation.
2. To design a low-vision rehabilitation program tailored to older adults with both macular disease and cognitive impairment

**Study Design:** Prospective cohort study

**Sample:** Patients  $\geq 65$  years old with macular disease referred to the Duke Low-vision Clinic

**Measurements:** Independent Variables: 1) demographics 2) health/vision information 3) psychosocial characteristics 4) cognitive measures Dependent Variables: *Primary outcome:* self-reported instrumental activities of daily living (IADLs), *Secondary outcomes:* self-reported activities of daily living (ADLs), mobility function, vision function, and measured gait speed Qualitative Data: Standardized interviews with each subject (and/or proxy), the low-vision optometrist, and the low-vision occupational therapist will assess goals, perceived benefits, potential barriers to rehabilitation, and possible solutions.

**Analysis:** Univariate statistics will describe the cohort with respect to independent and dependent variables. Regression models will assess the association between baseline cognitive status and the dependent variables, while controlling for potentially important covariates. The association will be assessed cross-sectionally using functional measures at baseline and longitudinally by modeling the trajectory of each dependent variable after standard rehabilitation. Qualitative analytic techniques will be applied to data collected from subjects, proxies, and members of the low-vision team to abstract and categorize relevant themes.

**A Novel Intervention:** Through a series of multi-disciplinary meetings, quantitative and qualitative data from the above analyses will be synthesized to design a tailored rehabilitation strategy. A future trial will evaluate the intervention's effect on functional outcomes compared to standard rehabilitation.