

Project 3 Interim Presentation:

Identifying trajectories of onset of memory and other cognitive loss in persons at risk of developing mild cognitive impairment (MCI) or dementia

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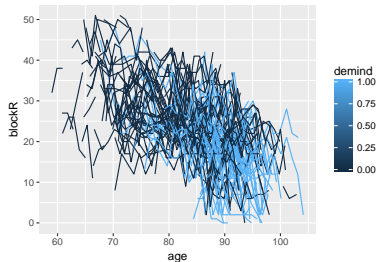
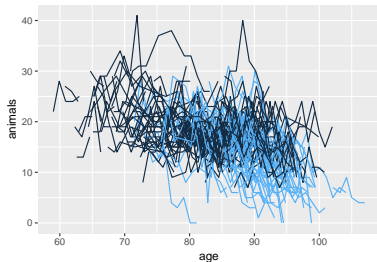
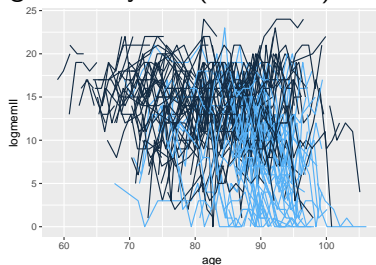
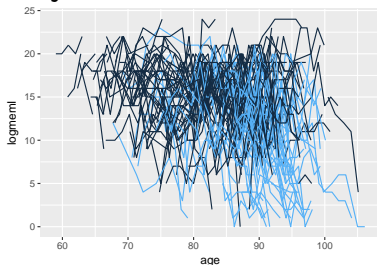
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Question(s) of Interest

- ▶ We have 216 healthy, community-dwelling, cognitively intact elders
- ▶ We are interested in four cognitive measures of interest:
 1. the Wechsler Memory Scale Logical Memory I Story A
 2. Wechsler Memory Scale Logical Memory II Story A
 3. category fluency for animals
 4. the Wechsler Adult Intelligence Scale-Revised Block Design
- ▶ What is the rate of memory decline based on four measures over the aging process in healthy individuals?
- ▶ What is the rate in individuals diagnosed with MCI/dementia during the study?
- ▶ Is there a period of time before the diagnosis, in which the rate of memory decline changes, and what time is that?

Individual Trajectory Plots by Dementia Presence

- ▶ There are an average of 7.8 observations per subject
- ▶ Subjects were followed an average of 7.7 years (80.0-87.7)



Analysis Plan

1. Find memory loss acceleration differences between those diagnosed with dementia and those that are not
 - ▶ Linear mixed models for each outcome
 - ▶ Include interaction between age and diagnosis
 - ▶ Include linear and quadratic trends with age for both subjects diagnosed and subjects not diagnosed
 - ▶ Let terms differ between diagnosed subjects and non-diagnosed subjects
2. Identify change point
 - ▶ Add spline terms to allow for trends to change at point prior to diagnosis
 - ▶ Estimate change point using a profile likelihood approach

Methods modeled after Hall et. al.'s paper: A change point model for estimating the onset of cognitive decline in preclinical Alzheimer's disease