An Overview of Cognitive Indicators: The LongROAD Study

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Cognition and Driving

- Cognitive functioning is associated with safe driving and likelihood of continued driving
  - Anstey and colleagues (2005) found that memory, attention, executive function, and mental status were all associated with ability to drive safely
  - Cognitive impairment associated with restricted driving and driving cessation (Freund & Szinovacz, 2002)
  - Cognition supports ability to engage in complex behaviors
Key Characteristics of Cognition

- Multidimensional Construct
- Change/decline differs by cognitive domain
- Large individual differences
- Normative cognitive decline is distinct from clinical cognitive impairment
Berlin Aging Study - Performance from Age 70 to 100+
Substantial Individual Differences in Functional Level At All Ages

Some over 90 perform at higher levels than individuals in their 70s
Current Empirical Gaps

• Prior to LongROAD, no existing US longitudinal studies with extensive driving and cognition assessment of older adults
• LongROAD design will allow for evaluation of baseline cognitive profiles and how they relate to driving behavior concurrently and longitudinally
• Also, examination of change in cognitive performance as a leading indicator of unsafe driving, driving cessation
• Intersection of cognitive performance, driving self-regulation, and driving behavior outcomes
LongROAD Cognitive Assessments – In Order

- TICS – Driving, Health and Functioning Survey
- Retrieval Fluency
- Trail Making
- Immediate Word Recall
- Clock Drawing
- Digit Symbol Substitution
- Delayed Word Recall
TICS – Telephone Interview for Cognitive Status

- **Assesses cognitive status**
  - Today’s date
  - Vocabulary (Scissors, Cactus)
  - Naming President and Vice President
  - Backwards Counting

- **Scored as count of correct responses**
Retrieval Fluency

- Measure of verbal/retrieval fluency
- Name as many animals as you can in 60 seconds
- Repeat animals are not valid
- Administered with a stop watch
- Categories (e.g. dog) and types (collie, pug) are counted as correct
Trail Making

- Attention/executive function task, timed
- Scored as seconds to complete task
Immediate/Delayed Word Recall

- Participants are read a 10 word list (harmonized to the lists used in HRS)
- Lists alternate across LongROAD waves
- Asked to recall as many of the 10 words as possible immediately after hearing the list
- Roughly 5 minutes later asked to recall as many words as possible
Digit Symbol Substitution

- Attention, speed task, 90 seconds timed
Clock Drawing

- Test of visuospatial skills and knowledge
- Instruction read out loud “Next I would like you to draw a clock on this sheet of paper. Put all the numbers in their correct locations and set the time at ten minutes after eleven.”
- Participants given a sheet of paper to draw the requested clock
“Next I would like you to draw a clock on this sheet of paper. Put all the numbers in their correct locations and set the time at ten minutes after eleven.”