executive functioning (between-person effect) (p < -0.001, 95% CI -0.37, -0.14) but not memory, while presence of AD biomarkers was associated with a lower memory intercept (p < -0.001, 95% CI -0.52, -0.39) but not executive function. However, only presence of AD pathology at baseline was associated with faster longitudinal decline on both memory and executive functioning over time. Baseline cerebrovascular disease did not independently relate to rate of cognitive decline.
Conclusions: Consistent with widely held assumptions, our between-person analyses showed that MRI evidence of cerebrovascular disease was associated with worse executive functioning but not memory, while biomarker evidence of AD pathology was associated with worse memory but not executive function. Longitudinally, however, AD is the primary driver of decline in both executive and memory function. These results extend our understanding of how pathology impacts cognition in aging cohorts and highlight the importance of using longitudinal models.

Categories: Neurodegenerative Disorders
Keyword 1: cerebrovascular disease
Keyword 2: cognitive functioning
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51 Feasibility of Remote Administration of a Modified UDSv3 Cognitive Battery

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Objective: Face-to-face administration is the "gold standard" for both research and clinical cognitive assessments. However, many factors may impede or prevent face-to-face assessments, including distance to clinic, limited mobility, eyesight, or transportation. The COVID-19 pandemic further widened gaps in access to care and clinical research participation. Alternatives to face-to-face assessments may provide an opportunity to alleviate the burden caused by both the COVID-19 pandemic and longer standing social inequities. The objectives of this study were to develop and assess the feasibility of a telephone- and video-administered version of the Uniform Data Set (UDS) v3 cognitive batteries for use by NIH-funded Alzheimer's Disease Research Centers (ADRCs) and other research programs.
Participants and Methods: Ninety-three individuals (*M* age: 72.8 years; education: 15.6 years; 72% female; 84% White) enrolled in our ADRC were included. Their most recent adjudicated cognitive status was normal cognition (N=44), MCI (N=35), mild dementia (N=11) or other (N=3). They completed portions of the UDSv3 cognitive battery, plus the RAVLT, either by telephone or video-format within approximately 6 months (*M*:151 days) of their annual in-person visit, where they completed the same in-person cognitive assessments. Some measures were substituted (Oral Trails for TMT; Blind MoCA for MoCA) to allow for phone administration. Participants also answered questions about the pleasantness, difficulty level, and preference for administration mode. Cognitive testers provided ratings of perceived validity of the assessment. Participants' cognitive status was adjudicated by a group of cognitive experts blinded to most recent in-person cognitive status.
Results: When results from video and phone modalities were combined, the remote assessments were rated as pleasant as the in-person assessment by 74% of participants. 75% rated the level of difficulty completing the remote cognitive assessment the same as the in-person testing. Overall perceived validity of the testing session, determined by cognitive assessors (video = 92%; phone = 87.5%), was good. There was generally good concordance between test scores obtained remotely and in-person (r = .3 - .8; p < .05), regardless of whether they were administered by phone or video, though individual test correlations differed slightly by mode. Substituted measures also generally correlated well, with the exception of TMT-A and OTMT-A (p > .05). Agreement between adjudicated cognitive status obtained remotely and cognitive status based on in-person data was generally high (78%), with slightly better concordance between video/in-person (82%) vs phone/in-person (76%).

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Conclusions: This pilot study provided support for the use of telephone- and video-administered cognitive assessments using the UDSv3 among individuals with normal cognitive function and some degree of cognitive impairment. Participants found the experience similarly pleasant and no more difficult than in-person assessment. Test scores obtained remotely correlated well with those obtained in person, with some variability across individual tests. Adjudication of cognitive status did not differ significantly whether it was based on data obtained remotely or in-person. The study was limited by its' small sample size, large test-retest window, and lack of randomization to test-modality order. Current efforts are underway to more fully validate this battery of tests for remote assessment.
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Categories: Neurodegenerative Disorders
Keyword 1: teleneuropsychology
Keyword 2: psychometrics
Keyword 3: dementia - Alzheimer's disease
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52 Memory Learning Curve and in vivo Brain Pathology in Non-Demented Individuals with Autosomal Dominant Alzheimer's Disease: Findings from the Colombia-Boston Biomarker Study

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Objective: Associative memory is impacted early in Alzheimer's disease (AD). Poorer performance on associative memory tests has been related to greater amyloid and regional tau burden in preclinical AD. Our group previously examined the association of brain pathology and performance on the Free and Cued Selective Reminding Test (FCSRT) in Autosomal Dominant Alzheimer's Disease (ADAD), finding that associative memory summary scores distinguished non-demented mutation carriers from non-carriers several years before clinical onset of cognitive impairment. In the current study, we examined whether FCSRT learning slopes were associated with brain pathology in a sample of ADAD carriers and non-carriers.
Participants and Methods: There were 119 participants including 57 non-demented carriers of the Colombian kindred with the Presenilin1 E280A mutation and 62 non-carrier family members (mean age= 36.3, 60% female). Participants were administered the Mini-Mental State Examination (MMSE), a measure of global cognitive status, and the FCSRT, which consists of three trials in which participants are asked to freely recall the same list of 16 items. It is a well-established measure known to be sensitive to early changes in AD. A subsample of 69 participants (32 carriers and 37 non-carriers) underwent positron emission tomography (PET) to measure in vivo cortical amyloid-beta (Pittsburgh compound B, PiB), and regional tau (Flortaucipir, FTP) burden in entorhinal and precuneus regions, which are among the earliest sites of tau accumulation in this ADAD population. Mann Whitney U tests, Spearman correlations, and chi-square tests were used to examine group differences and relations among variables of interest. Learning slope was calculated by subtracting the number of items freely recalled in FCSRT Trial 1 from the number of items freely recalled in Trial 3.
Results: Compared to non-carriers, carriers had greater cortical amyloid-β and regional tau burden, lower MMSE scores (mean [SD]: carriers= 27.5 [2.7]; non-carriers= 28.8 [1.0]), and lower scores on total immediate/ delayed free/ cued recall scores on the FCSRT (all $p<.01$). The groups did not differ on age, sex, or education level (all $p> 0.05$). In the whole sample and in carriers only, we found that higher MMSE scores were associated with higher learning slope, meaning faster learning (whole group $\rho= 0.25$, $p= 0.006$; carriers $\rho= 0.30$, $p=0.029$). In the whole sample, we found that lower learning slope was associated with higher levels of amyloid ($\rho=-.34$, $p=.006$) and tau in the left, right, and bilateral precuneus region ($\rho=-.43$, $p<.001$; $\rho=-.46$, $p<.001$; $\rho=-.45$, $p<.001$). In carriers only, lower learning slope was associated with higher tau burden in the left,

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