

Framingham Heart Study

Manual of Procedures

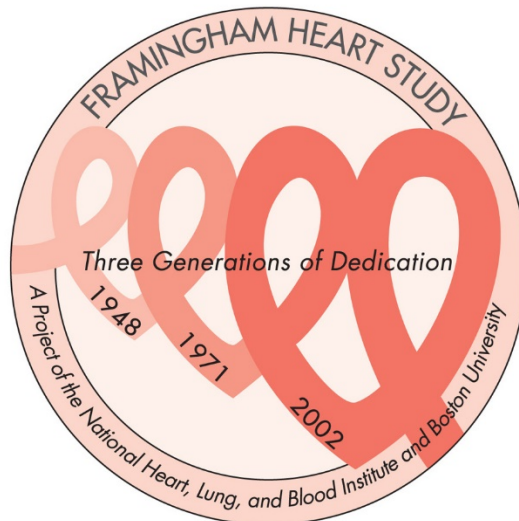
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Research Examination Center

Generation 3, Omni 2, NOS Cohorts Examination 3

Section #8a Neurocognitive Questionnaire



FHS Neuropsychological Exam Manual of Procedures

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Cohorts

FHS Third Generation, Omni 2 and New Offspring Spouses

Exam number

Three (commencing 2016)

Grant Funding

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Aims of this Research Project

Neuropsychological function, also known as cognitive function, refers to the complete set of human mental abilities such as reasoning, memory, thinking speed and problem solving. With aging, some aspects of cognition become sharper, such as vocabulary, whereas others may decline, such as memory and processing speed. However, trajectories of cognitive change differ greatly between individuals. Unfortunately, some older adults lose cognitive ability more than others, and the causes of this are incompletely understood. This project aims to examine neuropsychological performance during the third examination cycle for Framingham Third Generation participants. By comparing test scores against neuropsychological performance assessed during examination cycle 2 (2008-2011), change in cognitive functioning can be determined over time. This allows us to track the cognitive status of participants over time and when combined with other health data, allows us to examine risk factors for brain aging and cognitive decline.

ADMINISTRATION AND SCORING INSTRUCTIONS

General Instructions to Examiners

Interruptions should be avoided during testing. If someone interrupts the session, the examiner must note it on the “Factors Affecting the Validity of Data” form by coding it as “other” and providing an explanation in the Comments section of that form.)

Position yourself so that the participant is not able to see the response sheets at any time. Use of a clipboard is recommended as this allows for easy recording without placing the response sheets on the table. Upon completion of one response sheet, it can be tucked under the others on the clipboard, or placed upside-down and out of sight of the participant.

Thirty minutes has been allocated for cognitive testing. Although we expect the large majority of participants to complete all cognitive tasks, some participants may not finish within 30 minutes. In such cases, cease testing after 30 minutes so that the participant can move to the next testing station.

Explain to participants that you will be administering a series of cognitive tasks, which measure abilities such as memory and thinking. Reassure participants that people are often not able to complete all aspects of the tasks. For example, not everyone can recall everything that they are asked to remember, and that’s ok; we would just like them to try their very best on all tasks. Prior to the participant’s session, turn on the voice recorder and state the tech id, the participant’s FHS ID, the first name of the participant and the date of examination (and then hit ‘pause’). Once the participant is in the room, ask the participant for permission to record their voice throughout the session, such that you will not miss any of their responses. If verbal consent is given, resume the digital voice recording.

If participants ask you for answers or feedback on their performance, respond with something neutral but encouraging. Inform them that you are not able to tell them whether their answers are correct. For example, if asked something like, “Is that right?” respond simply with, “You’re doing fine,” or “You did fine,” or “That was good.” If really pressed for feedback, say, “Unfortunately, I can’t give you your score, I haven’t even calculated it yet, but you are doing fine.”

Offer neutral phrases of support during transitions from one condition to another. For example, when participants have provided all their responses on Trial 1 of the CERAD, a quick “great” or “good” before beginning the next trial is appropriate, although not mandatory. Nodding while the participant is responding is also a sign that seems to be reassuring. It is helpful especially with a participant who seems nervous, uncomfortable, or reluctant.

Order of Testing

- CERAD Word List Trials 1-3
- AD8
- Victoria Stroop task
- MoCA
- CERAD Word List Recall and Recognition

Recording of responses

Participants are to use a blue pen, and the examiner is to use either a purple or green pen.

CERAD Word List Memory Task (Trials 1-3)

Purpose

This test assesses participants' ability to learn and remember new information. It is a memory test, not a reading test. Ten common nouns are used. To ensure that participants are familiar with and attend to each word, they are asked to read the words printed on the pages of the CERAD "flip books." The ten words on the flip cards are presented at a constant rate and then the subject is immediately asked to recall as many as possible. There are three trials, each of which presents the words in a different order. After a delay, participants are asked to recall the words again. The final condition is a recognition task to see whether they can pick the correct words out of a group of target and non-target words.

Time allocation: Time to administer the CERAD memory task (trials 1-3) is approximately 5 minutes.

Materials Needed

1. CERAD Word List flip-book
2. Stopwatch
3. Data form
4. Clipboard
5. Pen
6. Digital Voice Recorder

A. Learning Trials

Say *“In this next test you’re going to be asked to remember some words. Just to let you know, most people usually cannot remember everything, which is fine. Whatever you do will be great.”*

Place the flipbook on the table in front of the participant so the title page faces him/her.

Trial 1

“Now I am going to show you ten printed words. Read each word out loud as I show it to you. Later I will ask you to recall all ten words.”

Show the words in the first set at the rate of one word every two seconds. If the participant cannot read the word, or misreads the word, or mispronounces the word say it for him/her and check the “target word is read incorrectly” column on the Response Sheet for that word. After the last word has been read, turn to the next (blank) page and say:

“Now, tell me as many as you can.” **** Start stopwatch immediately****

****Allow a maximum of 90 seconds for recall.** If a participant says s/he is done within 90 seconds, end the trial and move on to next section. It is ok to confirm with the participant whether they are done if their nonverbal behavior leads you to believe they are. You can ask, "Are you finished?" ******

Data Recording

1. If the participant does not read the word correctly, place a check mark in the column with the header, "Check if the target word is read incorrectly."
2. In the "Responses (verbatim)" column, write down each word the participant says in the exact order that the participant said them. Be sure to **include** words that are not on the list (intrusions) and words that are repeated (perseverations).
3. Stop after the participant has given 35 responses.
4. If the participant gives more than 20 responses, attach an additional sheet with the additional responses.

Place the flipbook on the table in front of the participant so the title page faces him/her.

Trial 2

"I'm going to show you the same words again. As before, read them aloud as I show them to you."

Show the words in the second set (Trial 2) at the rate of one word every two seconds. If the person mispronounces a word or misreads a word, do not correct them on Trials 2 and 3. The goal of the test is consistency between the trials, not reading or pronunciation. After the last word has been read, turn to the next (blank) page and say:

"Now, tell me as many as you can."

**** Start stopwatch immediately****

****Allow a maximum of 90 seconds for recall**. If a participant says s/he is done within 90 seconds, end the trial and move on to next section. It is ok to confirm with the participant whether they are done if their nonverbal behavior leads you to believe they are. You can ask, "Are you finished?" ******

Data Recording

1. In the "Responses (verbatim)" column, write down each word the participant says in the exact order that the participant said them. Be sure to **include** words that are not on the list (intrusions) and words that are repeated (perseverations).
2. Stop after the participant has given 35 responses.
3. If the participant gives more than 20 responses, attach an additional sheet with the additional responses.

Trial 3

"I'm going to show you the same words again. As before, read them aloud as I show them to you."

Show the words in the third set (Trial 3) at the rate of one word every two seconds. After the last word has been read, turn to the next (blank) page and say:

“Now, tell me as many as you can.”

**** Start stopwatch immediately****

****Allow a maximum of 90 seconds for recall**. If a participant says s/he is done within 90 seconds, end the trial and move on to next section. It is ok to confirm with the participant whether they are done if their nonverbal behavior leads you to believe they are. You can ask, "Are you finished?" ******

Data Recording

1. In the “Responses (verbatim)” column, write down each word the participant says in the exact order that the participant said them. Be sure to **include** words that are not on the list (intrusions) and words that are repeated (perseverations).
2. Stop after the participant has given 35 responses.
3. If the participant gives more than 20 responses, attach an additional sheet with the additional responses.
4. **Record the clock time (i.e., the time of day) in the space provided at the bottom of the page.**

Proceed to the next tasks before completing the CERAD delayed recall component.

Victoria Stroop Test (VST)

Purpose

The purpose of the Victoria Stroop Test is to measure the Stroop effect, defined as interference in reaction time. The Stroop effect is created when written colors are presented in incongruent ink colors (i.e. the word 'red' written in yellow ink). The task measures the ability of a person to respond efficiently to a goal (read the color of the ink) while suppressing irrelevant information (the spelling of the word). The Stroop test is a measure of processing speed, response inhibition and executive function.

Time allocation: Time to administer the VST is approximately 5 minutes.

Materials Needed:

1. Stopwatch
2. Data form
3. Clipboard
4. Pen
5. Digital Voice Recorder
6. Three stimuli pages: Dots, Words, and Colors

Trial 1: Dots

Place the "Dots" stimulus page in front of the participant. Say:

"Name the colors of the dots as quickly as you can. Begin here [point] and go across the rows from left to right."

Direct the participant's eyes across the rows from left to right. Clarify, using your own words, if necessary. Once the participant understands the task, say:

"Ready, begin."

Start stopwatch.

Correct any errors immediately (if not self-corrected) by pointing to the incorrect color patch while saying the correct response. Then say, ***"Now continue as fast as you can."*** **If the technician and the participant make the correction at the same time, and it is ambiguous on who made the correction first give it to them.**

If the participant makes a partial self-correction mark as correct. For example, if they say "bl, green" mark as correct.

Record time to completion, to the 100th of a second.

Trial 2: Words

Place the "Words" stimulus page in front of the participant. Say:

"This time, name the colors of the words as quickly as you can. Begin here

[point] and go across the rows from left to right.”

Direct the participant’s eyes across the rows from left to right. Clarify, using your own words, if necessary. Once the participant understands the task, say:

“Ready, begin.”

Start stopwatch.

Correct any errors immediately (if not self-corrected) by pointing to the incorrect color patch while saying the correct response. Then say, *“Now continue as fast as you can.”*

If the technician and the participant make the correction at the same time, and it is ambiguous on who made the correction first give it to them.

If the participant makes a partial self-correction mark as correct. For example, if they say “bl, green” mark as correct.

Record time to completion, to the 100th of a second.

Trial 3: Colors

Place the “Colors” stimulus page in front of the participant. Say:

“Again, name the colors in which the words are printed as quickly as you can. Do NOT read the word, tell me the color in which the word is printed.”

Direct the participant’s eyes across the rows from left to right. Clarify, using your own words, if necessary. Once the participant understands the task, say:

“Ready, begin.”

Start stopwatch.

Correct any errors immediately (if not self-corrected) by pointing to the incorrect color patch while saying the correct response. Then say, *“Now continue as fast as you can.”*

If the technician and the participant make the correction at the same time, and it is ambiguous on who made the correction first give it to them.

If the participant makes a partial self-correction mark as correct. For example, if they say “bl, green” mark as correct.

Record time to completion, to the 100th of a second.

Data Recording for all trials

1. As participant is responding, follow along on the data page.
2. If the participant makes a mistake but corrects it him/herself, circle the “1, Self-corrected.”

3. If the participant makes a mistake **WITHOUT** correcting, prompting the examiner to correct the error, circle the “2, Examiner-corrected.”
4. Record the completion time, to the 100th of a second, in the appropriate box.

The AD8: The Washington University Dementia Screening Test (*Eight-item Interview to Differentiate Aging and Dementia*)

Purpose

The AD8 is a brief 8-item screening tool designed to differentiate non-demented from demented participants.

Time allocation: Time to administer the AD8 is approximately 2 minutes.

Materials Needed

1. Data form
2. Pen
3. Clipboard
4. Digital Voice Recorder

Administration

The AD8 can be administered to an informant of the participant, administered directly to a participant or self-completed by the participant. We will administer the AD8 directly to the participant. Ask the patient to rate changes in his/her ability for each of the items, without attributing cause;

“I am going to ask you some questions about your memory and thinking in the last several years. Please respond to the following questions by choosing one of the three options: ‘Yes, a change,’ ‘No, no change,’ or ‘I don’t know.’ If you believe there has been a change in the last several years caused by thinking and memory problems, please refrain from explaining the cause of the change.”

It is important to read carefully the phrase as worded and give emphasis to note changes due to cognitive problems (not physical problems). There should be a one-second delay between individual items. No timeframe for change is required.

Scoring and interpretation

Award 1 point for each item answered as “Yes, a change” before summing the points.

0-1: Normal cognition:

2 or greater: Impairment in cognition is likely to be present.

Reference:

Galvin JE et al, Neurology 2005: 65:559-564.

Montreal Cognitive Assessment (MoCA)

Purpose

The MoCA is a brief cognitive screening tool designed to assist in detecting mild cognitive impairment and dementia. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. Numerous versions of the MoCA exist, and we are using the original version (7.1).

Time allocation: Time to administer the MoCA is approximately 10 minutes.

Materials Needed

1. Data form
2. Pen
3. Clipboard
4. Digital Voice Recorder

Administration and Scoring Instructions

Before beginning, ask the participant “*how many years of education do you have? Add together all your years of schooling, including elementary school and college.*” Write down the participants response in the designated spot, in the top right-hand corner of the MoCA form. As detailed later in these instructions, when calculating the total score, add one point for an individual who has 12 years or fewer of formal education, for a possible maximum of 30 points. If information on education is available from a previous Framingham exam, the previously obtained education information will be used to determine whether the participant has 12 or fewer years of formal education.

1. Alternating Trail Making:

Instructs the subject: “*Please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)].*”

Scoring: Allocate one point if the subject successfully draws the following pattern: 1 –A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. Any error that is not immediately self-corrected earns a score of 0.

2. Visuoconstructional Skills (Cube):

Instruct the subject while pointing to the **cube**: “*Copy this drawing as accurately as you can, in the space below.*”

Scoring: One point is allocated for a correctly executed drawing.

- Drawing must be three-dimensional
 - All lines are drawn
 - No line is added
 - Lines are relatively parallel, and their length is similar (rectangular prisms are accepted)
- A point is not assigned if any of the above-criteria are not met.

*Award points if the participant draws the cube in a rotated plane relative to cube to be copied (assuming that the above scoring criteria are satisfied).

*There is limited space to draw the cube. Thus, if a participant self-corrects a mistake or attempts to start again, the examiner can offer the participant the chance to start again on a fresh sheet of paper without penalty. The new piece of paper should be attached to the MOCA following the session. Only one second attempt should be permitted.

3. Visuoconstructional Skills (Clock):

Indicate the right third of the space and give the following instructions: *“Draw a clock. Put in all the numbers and set the time to 10 past 11”*.

Scoring: Allocate one point for each of the following three criteria:

- Contour (1 pt.): the clock face must be a circle with only minor distortion acceptable (e.g., slight imperfection on closing the circle);
- Numbers (1 pt.): all clock numbers must be present with no additional numbers; numbers must be in the correct order and placed in the approximate quadrants on the clock face; Roman numerals are acceptable; numbers can be placed outside the circle contour;
- Hands (1 pt.): there must be two hands jointly indicating the correct time; the hour hand must be clearly shorter than the minute hand; hands must be centered within the clock face with their junction close to the clock center. A point is not assigned for a given element if any of the criteria above are not met.

*It was decided that if the participant asks you to repeat the time, you may repeat the instructions in full as follows *“Draw a clock. Put in all the numbers and set the time to 10 past 11”*.

*Examiners should be able to distinguish the minute hand from the hour hand based on visual inspection, without relying on a measuring instrument. Do not award points if the hour hand is not clearly shorter than the minute hand.

*There is limited space to draw the clock. Thus, if a participant self-corrects a mistake or attempts to start again, the examiner can offer the participant the chance to start again on a fresh sheet of paper without penalty. The new piece of paper should be attached to the MOCA following the session. Only one second attempt should be permitted.

4. Naming:

Beginning on the left, point to each figure and say: *“Tell me the name of this animal.”*

Scoring: One point each is given for the following responses:

- (1) Lion
- (2) Rhinoceros or rhino
- (3) Camel or dromedary.

5. Memory:

Read the list of 5 words at a rate of one per second, giving the following instructions: *“This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn’t matter in what order you say them”*.

Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions:

“I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time.”

Put a check in the allocated space for each word the subject recalls after the second trial.

At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying,

“I will ask you to recall those words again at the end of the test.”

Scoring: No points are given for Trials One and Two.

6. Attention:

Forward Digit Span:

Give the following instruction: *“I am going to say some numbers and when I am through, repeat them to me exactly as I said them”*. Read the five number sequence at a rate of one digit per second.

Backward Digit Span:

Give the following instruction: *“Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order.”* Read the three number sequence at a rate of one digit per second.

Scoring: Allocate one point for each sequence correctly repeated, (N.B.: the correct response for the backwards trial is 2-4-7).

Vigilance:

Read the list of letters at a rate of one per second, after giving the following instruction: *“I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand”*.

To insure that taps are audible, it was decided that the examiner could read the following instructions in place of the above *“I am going to read a sequence of letters. Every time I say the letter A, tap your hand on the table once, such that I can hear it. If I say a different letter, do not tap your hand”*.

Scoring: Give one point if there is zero to one error (an error is a tap on a wrong letter or a failure to tap on letter A).

Serial 7s:

Give the following instruction: *“Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop.”* Give this instruction twice if necessary.

Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is if the participant responds with an incorrect number but continues to subtract correctly 7 from it, give a point for each correct subtraction. For example, a participant may respond “92 – 85 – 78 – 71 – 64” where the “92” is incorrect, but all subsequent numbers are subtracted correctly. This is one error, and the item would be given a score of 3.

7. Sentence repetition:

Give the following instructions: *“I am going to read you a sentence. Repeat it after me, exactly as I say it [pause]: **I only know that John is the one to help today.**”*

Following the response, say: *“Now I am going to read you another sentence. Repeat it after me, exactly as I say it [pause]: **The cat always hid under the couch when dogs were in the room.**”*

Scoring: Allocate 1 point for each sentence correctly repeated. Repetition must be exact. Be alert for errors that are omissions (e.g., omitting "only", "always") and substitutions/additions (e.g., "John is the one who helped today;" substituting "hides" for "hid", altering plurals, etc.).

8. Verbal fluency:

Give the following instruction: *“Tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for proper nouns (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop.”*

Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject’s response in the bottom or side margins.

9. Abstraction:

Ask the subject to explain what each pair of words has in common, starting with the example: *"Tell me how an orange and a banana are alike."* If the subject answers in a concrete manner, then say only one additional time: *"Tell me another way in which those items are alike."* If the subject does not give the appropriate response (*fruit*), say, *"Yes, and they are also both fruit."* Do not give any additional instructions or clarification.

After the practice trial, say: *"Now, tell me how a train and a bicycle are alike."*

Following the response, administer the second trial, saying: *"Now tell me how a ruler and a watch are alike."* Do not give any additional instructions or prompts.

Scoring: Only the last two item pairs are scored. Give 1 point to each item pair correctly

answered. The following responses are acceptable:

Train-bicycle = means of transportation means of traveling, you take trips in both;

Ruler-watch = measuring instruments, used to measure.

The following responses are **not** acceptable:

Train-bicycle = they have wheels;

Ruler-watch = they have numbers.

*It was decided that the following response would also be awarded as correct for the item 'train-bicycle': both take people to different places; both take you places. No points are to be awarded for the 'ruler-watch' item: both measurements.

10. Delayed recall:

Give the following instruction: *"I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember."* Make a check mark (✓) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

Scoring: **Allocate 1 point for each word recalled freely without any cues.**

*The examiner should ignore responses that the participant mumbles to themselves and only give points for target words that are spoken to the examiner. If the examiner thinks that he/she has heard a participant response, they can ask the participant to clarify without giving away clues (i.e. "I'm sorry, I did not hear you. When ready, could you repeat your answer?").

11. Orientation:

Give the following instructions: *"Tell me the date today"*. If the subject does not give a complete answer, then prompt accordingly by saying: *"Tell me the [year,*

month, exact date, and day of the week].” Then say: “Now, tell me the name of this place, and which city it is in.”

Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place. No points are allocated if the subject makes an error of one day for the day and date. The correct answer for city is ‘Framingham’. ‘Boston’ is not a correct answer for city. The correct answer for place is ‘Framingham Heart Study’, ‘Framingham clinic’ or the correct street address.

TOTAL SCORE:

Sum all subscores listed on the right-hand side. Add one point for an individual who has 12 years or fewer of formal education, for a possible maximum of 30 points. A final total score of 26 and above is considered normal.

Reference.

Information on the MoCA, including scoring instructions, were taken from <http://www.mocatest.org/> with additional information from Nasreddine ZS et al. Journal of the American Geriatrics Society 2005, 53(4).

CERAD WORD LIST RECALL AND RECOGNITION

Purpose

Delayed recall and recognition component of the CERAD word list presented earlier.

Time allocation: Time to administer the CERAD memory task (recall and recognition) is approximately 5 minutes.

Materials Needed

1. Stopwatch
2. Data form
3. Clipboard
4. Pen
5. Digital Voice Recorder

B. Word List Recall

Say:

“A few minutes ago I asked you to learn a list of ten words which you read one at a time from pages in a book. Now I want you to try to recall those words. Go ahead and tell me as many of those ten words as you can remember.”

Allow the participant a maximum of 90 seconds.

Data Recording

1. Record the clock time (i.e., the time of day) in the space provided.
2. In the “Responses (verbatim)” column, write down each word the participant says in the exact order that the participant said them. Be sure to **include** words that are not on the list (intrusions) and words that are repeated (perseverations).

C. Word List Recognition

Say:

“Now I am going to show you a set of words printed on separate pages. Some of the words are from the list you saw earlier, and some are words I haven't shown you before. I want you to tell me which words are from the list you saw earlier (show the first word). Is this one of the words you saw earlier?”

If participants lose track of the task, you can repeat the original instruction: ***“Is this one of the words you saw earlier?”***

Urge subjects to give "Yes" or "No" responses, since "don't know" cannot be scored. If a participant still does not wish to provide a response, record this in the "comments" section.

Data Recording

Circle (or check) 0 if the participant says “no,” or 1 if the participant says “yes.”

Flagging participants with possible cognitive impairment

Participants scoring below 26 on the MoCA **OR** 2 or greater on the AD8 will be flagged for further neuropsychological evaluation (to take place at a later date). The Victoria Stroop and CERAD Word list tasks are not used for the purpose of flagging participants. The examiner is responsible for deriving total scores and determining whether participants should be flagged for further evaluation. Linda Farese should be informed when a participant is flagged. She will then contact the participant to organize a time for further neuropsychological evaluation as per the aims of dementia tracking grant.

Staff Training and Certification

Dr. Devine will walk all trainee staff through the testing procedures. The training will include thorough instructions on each individual test, and also etiquette, recording and pre and post test procedures. Testers will be given administration manuals which they are required to study and memorize. Trainees will be shown proper administration and scoring techniques and will need to demonstrate competency before testing on their own. Each trainee will first observe a more experienced person administer testing. They will then perform testing on a non-study volunteer under the observation of Dr. Devine or a more experienced tester. Once proficient, the trainee will perform testing on an FHS participant, under Dr. Devine's supervision. Constructive feedback will be provided to the trainee. Once testing is performed to the satisfaction of Dr. Devine, the trainee can commence testing without supervision.

Quality Control

Scores obtained from the neuropsychological assessment will be entered into a spreadsheet by the examiner on the same day as testing. The same data will then be re-entered within a week. Consistency between the two entries will be manually checked and differences will be reconciled by checking against the original documents.

Audio recordings of the testing sessions are to be archived onto the server on a weekly basis. This will enable data to be checked against participant responses.

With respect to the MoCA, each item will be entered into a spreadsheet. An algorithm will then be used to derive the MoCA total score. Total scores will be checked against that calculated by the examiner for the purpose of flagging. Discrepancies will be reconciled with any additional participants flagged as appropriate. Years of education will also be checked against existing data for the purpose of quality control.

Each quarter, the following will be implemented to ensure ongoing quality control:

- Every tester will undergo observation by Dr. Devine. This will be followed by a debriefing session such that the examiner can receive constructive feedback on their performance.

- For every tester, testing forms from two recent participants will be selected at random and reviewed for accuracy by Dr. Devine. The tester(s) will be provided with constructive feedback as to their performance.

- Cognitive test score distributions (mean, SD, range, min, max etc.) will be examined for each tester. Abnormal looking distributions (i.e. distributions with many outliers or distributions that are unexpectedly skewed) will be investigated. Means will also be compared between testers, with differences statistically compared. Any large differences will be investigated.

Equipment

Equipment	Supplier
CERAD Word List stimuli	CERAD, Center for the Study of Aging and Human Development Duke University Medical Center Durham, NC 27710
VST stimuli	Produced in-house.
Clipboard	New England Office Supply, W.B. Mason or Office Depot
Pen	New England Office Supply, W.B. Mason or Office Depot
Control Company Stopwatch	Spectrum Chemical
Digital Voice Recorder (Yamaha PR7 Pocket Recorders)	Amazon

Quality controls for equipment.

Voice recordings will be checked after each session, to ensure proper function of the voice recorder and to prevent loss of data. Stopwatches will be calibrated on a yearly basis to ensure consistent and accurate results.

Exam forms and materials (see following pages)

CERAD Word List Memory Task: Learning Trials

Administration

“In this next test you’re going to be asked to remember some words. Just to let you know, most people usually cannot remember everything, which is fine. Whatever you do will be great.”

Place flip book in front of participant.

Trial 1: “Now I am going to show you ten printed words. Read each word out loud as I show it to you. Later I will ask you to recall all ten words.”

Present the words. After last word is read, say, ***“Now, tell me as many as you can.”***

(Maximum time = 90 seconds. If participant reports being done before 90 seconds, move on to next trial.)

CERAD Word List Memory Task: Learning Trials

TRIAL 1		
Target	Exposure Time 1 word every 2 seconds	Responses (verbatim)
Butter	Maximum Recall Time 90 seconds	1.
Arm		2.
Shore	<u>Δατα Πεχορδινυ</u> <i>Trial 1: check the appropriate box if the target word is read incorrectly.</i> <i>All Trials: In the Responses column, record ALL words provided by the participant, in the exact order the participant says them.</i>	3.
Letter		4.
Queen		5.
Cabin		6.
Pole		7.
Ticket		8.
Grass		9.
Engine		10.
		11.
	12.	
	13.	
	14.	
	15.	
	16.	
	17.	
	18.	
	19.	
	20.	

NP002

ΧΕΡΑΔ Ωορδ Λιστ Μεμορψ Τασκ: Λεαρνινγ Τριαλσ (χοντινυ
εδ)

Administration

Trials 2 & 3: *“I’m going to show you the same words again. As before, read them aloud as I show them to you.”*

Present the words, one word every 2 seconds. Then say
“Now, tell me as many as you can.”

In the Responses column, record ALL words provided by the participant, in the exact order the participant says them.

Do *not* correct the participant on Trials 2 and 3.

(Maximum time = 90 seconds. If participant reports being done before 90 seconds, move on to next trial.)

ΧΕΡΑΔ Ωορδ Λιστ Μεμορψ Τασκ: Λεαρνινγ Τριαλσ (χοντινυεδ)

TRIAL 2		TRIAL 3	
Target Words	Responses (verbatim)	Target Words	Responses (verbatim)
Ticket	1.	Queen	1.
Cabin	2.	Grass	2.
Butter	3.	Arm	3.
Shore	4.	Cabin	4.
Engine	5.	Pole	5.
Arm	6.	Shore	6.
Queen	7.	Butter	7.
Letter	8.	Engine	8.
Pole	9.	Ticket	9.
Grass	10.	Letter	10.
	11.		11.
	12.		12.
	13.		13.
	14.		14.
	15.		15.
	16.		16.
	17.		17.
	18.		18.
	19.		19.
	20.		20.

****** Clock time at end of third trial ____ : ____**

Victoria Stroop Test (VST) – Part 1: Dots

Administration

Place the “Dots” stimuli page in front of participant.

**“Name the colors of the dots as quickly as you can.
Begin here and go across the rows from left to right.”**

*Direct the participant’s eyes across the rows from left to right. Clarify, in your own words, if necessary. Once the participant understands the task say: “Ready,
begin”*

****Examiner:** *Start stopwatch immediately after telling participant to begin.***

****Correct any errors immediately (if not self-corrected)
by pointing to the incorrect color patch while saying the
correct response. Then say “Now continue as fast as
you can.”****

Victoria Stroop Test (VST) – Part 1: Dots

Data Recording: If an error is made, circle 1 if self-corrected or 2 if examiner-corrected. If no error is made, leave blank. Record the total time in the box at the top of the page.

ΔΟΤΣ		Τοταλ Τιμε ___ (μιν) ____ . ____ (σεχ)	
Green 1 2 Self- Examiner- Corrected Corrected	Blue 1 2 Self- Examiner- Corrected Corrected	Yellow 1 2 Self- Examiner- Corrected Corrected	Red 1 2 Self- Examiner- Corrected Corrected
Yellow 1 2 Self- Examiner- Corrected Corrected	Red 1 2 Self- Examiner- Corrected Corrected	Green 1 2 Self- Examiner- Corrected Corrected	Blue 1 2 Self- Examiner- Corrected Corrected
Blue 1 2 Self- Examiner- Corrected Corrected	Green 1 2 Self- Examiner- Corrected Corrected	Yellow 1 2 Self- Examiner- Corrected Corrected	Red 1 2 Self- Examiner- Corrected Corrected
Blue 1 2 Self- Examiner- Corrected Corrected	Yellow 1 2 Self- Examiner- Corrected Corrected	Red 1 2 Self- Examiner- Corrected Corrected	Green 1 2 Self- Examiner- Corrected Corrected
Red 1 2 Self- Examiner- Corrected Corrected	Green 1 2 Self- Examiner- Corrected Corrected	Blue 1 2 Self- Examiner- Corrected Corrected	Yellow 1 2 Self- Examiner- Corrected Corrected

Yellow	Green	Blue		Red	
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 Self- Examiner- Corrected Corrected	2 1 Self- Examiner- Corrected Corrected		

NP004

Victoria Stroop Test (VST) – Part 2: Words

Administration

Place the “Words” stimuli page in front of participant.

‘This time, name the colors of the words as quickly as you can. Begin here and go across the rows from left to right.’

Direct the participant’s eyes across the rows from left to right. [Clarify if necessary with this instruction: “Name the colors in which the words are printed.”]

“Ready, begin” Start stopwatch immediately *after telling participant to begin.**.*

****Correct any errors immediately (if not self-corrected) and tell participant, “Now continue as fast as you can.”****

Victoria Stroop Test (VST) – Part 2: Words

Data Recording: If an error is made, circle 1 if self-corrected or 2 if examiner-correct. If no error is made, leave blank. Record the total time in the box at the top of the page.

Ωορδσ		Τοταλ Τιμε__ (μιν) __ . __ (σεχ)	
Green	Blue	Yellow	Red
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Corrected Examiner- Corrected	1 2 Self- Examiner- Corrected Corrected
Yellow	Red	Green	Blue
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Corrected Examiner- Corrected	1 2 Self- Examiner- Corrected Corrected
Blue	Green	Yellow	Red
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Corrected Examiner- Corrected	1 2 Self- Examiner- Corrected Corrected
Blue	Yellow	Red	Green
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Corrected Examiner- Corrected	1 2 Self- Examiner- Corrected Corrected
Red	Green	Blue	Yellow
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Corrected Examiner- Corrected	1 2 Self- Examiner- Corrected Corrected

Yellow	Green	Blue		Red	
1	1	1	2	1	2
2	2	Self- Corrected	Examiner- Corrected	Self- Examiner- Corrected	Corrected
Self- Examiner- Corrected Corrected	Self- Examiner- Corrected Corrected				

NP005

Victoria Stroop Test (VST) – Part 3: Colors Administration

Place the “Colors” stimuli page in front of participant.

“Again, name the colors in which the words are printed as quickly as you can. Do NOT read the word, tell me the color in which the word is printed.”

Direct the participant’s eyes across the rows from left to right. Clarify if necessary with this instruction:

“Ready, begin” *Start stopwatch immediately after telling participant to begin.*

****Correct any errors immediately (if not self-corrected) and tell participant, “Now continue as fast as you can.”****

Victoria Stroop Test (VST) – Part 3: Colors

Data Recording: If an error is made, circle 1 if self-corrected or 2 if examiner-correct. If no error is made, leave blank. Record the total time in the box at the top of the page.

Χολορος		Τοταλ Τιμε ___ (μιν) ____ . ____ (σεχ)	
Green	Blue	Yellow	Red
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected
Yellow	Red	Green	Blue
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected
Blue	Green	Yellow	Red
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected
Blue	Yellow	Red	Green
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected
Red	Green	Blue	Yellow
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected

Yellow	Green	Blue	Red
1 2 Self- Examiner- Corrected Corrected	1 2 Self- Examiner- Corrected Corrected	1 Self- Examiner- Corrected Corrected 2	1 Self- Examiner- Corrected Corrected 2

NP006

The AD8: The Washington University Dementia Screening Test
("Eight-item Interview to Differentiate Aging and Dementia")

Administration

"I am going to ask you some questions about your memory and thinking in the last several years. Please respond to the following questions by choosing one of the three options: 'Yes, a change,' 'No, no change,' or 'I don't know.' If you believe there has been a change in the last several years caused by thinking and memory problems, please refrain from explaining the cause of the change."

It is important for the clinician to carefully read the phrase as worded and give emphasis to note changes due to cognitive problems (not physical problems).
There should be a one second delay between individual items.
No timeframe for change is required.

Scoring and interpretation

Award 1 point for each item answered as "Yes, a change" before summing the points.

0-1: Normal cognition:

2 or greater: Impairment in cognition is likely to be present.

The AD8: The Washington University Dementia Screening Test
("Eight-item Interview to Differentiate Aging and Dementia")

Data recording: Circle only one of the 3 responses (1= Yes, a change; 0= No, no change; 8= I don't know).

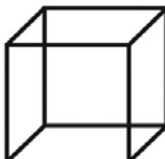
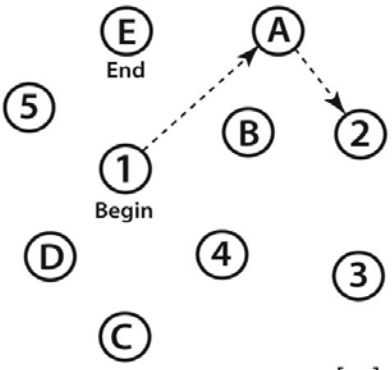
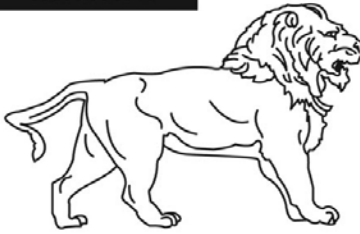
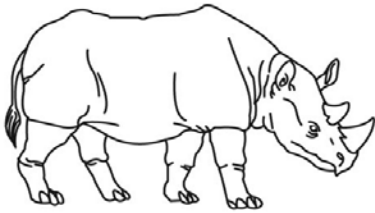
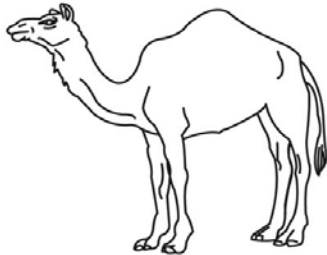
Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	YES, A change (1)	NO, No change (0)	N/A, Don't know (8)
1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)	1	0	8
2. Less interest in hobbies/activities	1	0	8
3. Repeats the same things over and over (questions, stories, or statements)	1	0	8
4. Trouble learning how to use a tool, appliance, or gadget (e.g., computer, microwave, remote control)	1	0	8
5. Forgets correct month or year	1	0	8
6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)	1	0	8
7. Trouble remembering appointments	1	0	8
8. Daily problems with thinking and/or memory	1	0	8
TOTAL AD8 SCORE (Final score is the sum of the number of items marked "Yes, A change.")			

NP007

Turn page over and present to participant

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME : _____
Education : _____ Date of birth : _____
Sex : _____ DATE : _____

VISUOSPATIAL / EXECUTIVE			Copy cube Draw CLOCK (Ten past eleven) (3 points)	POINTS																		
	[]	[]	[] [] [] Contour Numbers Hands	___/5																		
NAMING																						
	[]		[]		[]	___/3																
MEMORY		Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">FACE</td> <td style="text-align: center;">VELVET</td> <td style="text-align: center;">CHURCH</td> <td style="text-align: center;">DAISY</td> <td style="text-align: center;">RED</td> </tr> <tr> <td style="text-align: center;">1st trial</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2nd trial</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		FACE	VELVET	CHURCH	DAISY	RED	1st trial						2nd trial						No points
	FACE	VELVET	CHURCH	DAISY	RED																	
1st trial																						
2nd trial																						
ATTENTION		Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [] 2 1 8 5 4 Subject has to repeat them in the backward order [] 7 4 2	___/2																			
ATTENTION		Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors [] FBACMNAAJKLBAFAKDEAAAJAMOFAAB	___/1																			
ATTENTION		Serial 7 subtraction starting at 100 [] 93 [] 86 [] 79 [] 72 [] 65 4 or 5 correct subtractions: 3 pts , 2 or 3 correct: 2 pts , 1 correct: 1 pt , 0 correct: 0 pt	___/3																			
LANGUAGE		Repeat : I only know that John is the one to help today. [] The cat always hid under the couch when dogs were in the room. []	___/2																			
LANGUAGE		Fluency / Name maximum number of words in one minute that begin with the letter F [] ____ (N ≥ 11 words)	___/1																			
ABSTRACTION		Similarity between e.g. banana - orange = fruit [] train - bicycle [] watch - ruler	___/2																			
DELAYED RECALL		Has to recall words WITH NO CUE	FACE [] VELVET [] CHURCH [] DAISY [] RED []	Points for UNCUED recall only	___/5																	
Optional		Category cue Multiple choice cue																				
ORIENTATION		[] Date [] Month [] Year [] Day [] Place [] City	___/6																			
© Z.Nasreddine MD www.mocatest.org Normal ≥ 26 / 30		TOTAL ___/30																				
Administered by: _____		Add 1 point if ≤ 12 yr edu																				

Montreal Cognitive Assessment (MoCA) Instructions

1. Alternating Trail Making: *"Please draw a line, going from a number to a letter in ascending order. Begin here [point to (1)] and draw a line from 1 then to A then to 2 and so on. End here [point to (E)]."*

2. Visuoconstructional Skills (Cube): *"Copy this drawing as accurately as you can, in the space below."* Point to the cube while giving instructions.

3. Visuoconstructional Skills (Clock): Indicate the right third of the space and give the following instructions: *"Draw a clock. Put in all the numbers and set the time to 10 past 11."*

4. Naming: Beginning on the left, point to each figure and say: *"Tell me the name of this animal."*

5. Memory: The examiner reads a list of 5 words at a rate of one per second, giving the following instructions: *"This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn't matter in what order you say them."* Mark a check in the allocated space for each word the subject produces on this 1st trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a 2nd time with the following instructions: *"I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time."* Put a check in the allocated space for each word the subject recalls after the second trial. At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying, *"I will ask you to recall those words again at the end of the test."*

6. Attention:

a.) Forward Digit Span: *"I am going to say some numbers and when I am through, repeat them to me exactly as I said them."* Read the number sequence at a rate of one digit per second.

***b.) Backward Digit Span:** *"Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order."* Read the number sequence at a rate of one digit per second.

c.) Vigilance: The examiner reads the list of letters at a rate of one per second, after giving the following instruction: ***“I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand.”***

d.) Serial 7s: ***“Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop.”*** Give this instruction twice if necessary.

7. Sentence repetition: The examiner gives the following instructions: ***“I am going to read you a sentence. Repeat it after me, exactly as I say it [pause]: I only know that John is the one to help today.”*** Following the response, say: ***“Now I am going to read you another sentence. Repeat it after me, exactly as I say it [pause]: The cat always hid under the couch when dogs were in the room.”***

8. Verbal fluency: ***“Tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for proper nouns (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready? [Pause] Now, tell me as many words as you can think of that begin with the letter F. [time for 60 sec]. Stop.”***

9. Abstraction: ***“Tell me how an orange and a banana are alike.”*** If the subject answers in a concrete manner, then cue only once: ***“Tell me another way in which those items are alike.”*** If the subject does not give the appropriate response say, ***“Yes, and they are also both fruit.”*** Do not give any additional instructions or clarification. After the practice trial, say: ***“Now, tell me how a train and a bicycle are alike.”*** Administer the 2nd trial, saying: ***“Now tell me how a ruler and a watch are alike.”***

10. Delayed recall: ***“I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can remember.”*** Make a check mark (✓) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

11. Orientation: ***“Tell me the date today.”*** If the subject does not give a complete answer, then prompt accordingly by saying: ***“Tell me the [year, month, exact date, and day of the week].”*** Then say: ***“Now, tell me the name of this place, and which city it is in.”***

**** Clock time at start of Recall trial ____ : ____

CERAD Word List Memory Task: Recall

Administration: “A few minutes ago I asked you to learn a list of ten words which you read one at a time from pages in a book. Now I want you to try to recall those words. Go ahead and tell me as many of those ten words as you can remember.”

(Maximum time = 90 seconds. If participant reports being done before 90 seconds, move on to Recognition trial.)

In the Responses column, record ALL words provided by the participant, in the exact order the participant says them.

Target Words	Responses (verbatim)
Butter	1.
Arm	2.
Shore	3.
Letter	4.
Queen	5.
Cabin	6.
Pole	7.
Ticket	8.
Grass	9.
Engine	10.
	11.
	12.
	13.
	14.
	15.
	16.
	17.
	18.
	19.
	20.
NP009	

<p><u>Maximum Recall Time</u> 90 seconds</p>

CERAD Word List Memory Task: Recognition

Administration

Place flip-book on desk in front of participant.

"Now I am going to show you a set of words printed on separate pages. Some of the words are from the list you saw earlier and some are words I haven't shown you before. I want you to tell me which words are from the list you saw earlier."

Show the first word.

Is this one of the words you saw earlier?

(Only YES or NO responses are acceptable.)

CERAD Word List Memory Task: Recognition

(Only YES or NO responses are acceptable.)

Δατα Ρεχορδινγ: Χιρχλε 0 ιφ παρτιχιπαντ σαψσ No. Χιρχλε 1 ιφ παρτιχιπαντ σαψσ Ψεσ.

	NO	YES
Church	0	1
Coffee	0	1
Butter	0	1
Dollar	0	1
Arm	0	1
Shore	0	1
Five	0	1
Letter	0	1
Hotel	0	1
Mountain	0	1
Queen	0	1
Cabin	0	1
Slipper	0	1
Pole	0	1
Village	0	1
String	0	1
Ticket	0	1
Troops	0	1
Grass	0	1
Engine	0	1
		NP010

CERAD	Stroop
<p>Test completed _____ Test not completed _____</p> <p>If test is not completed, circle the number below that corresponds to the reason:</p> <p>1 = refused 2 = insufficient time 3 = examiner error 4 = other (explain in comments section below)</p>	<p>Test completed _____ Test not completed _____</p> <p>If test is not completed, circle the number below that corresponds to the reason:</p> <p>1 = refused 2 = insufficient time 3 = examiner error 4 = other (explain in comments section below) 5 = color blind (for Stroop only)</p>
<p>Test was completed, but something may have affected the validity of the data. THIS IS A JUDGMENT CALL ON THE PART OF EXAMINER. Examples include, but are <u>not limited to</u>: phone ringing; knock on door; participant did not appear to give best effort; participant reported being distracted by pain; participant's accent was strong making it difficult to be confident about recorded data; participant makes comments in the middle of trial; examiner gave incorrect instructions but then repeated trial with correct instructions)</p> <p>YES, something may have affected testing (check here)____ If yes, describe what happened in "Comments" section below. If no, do not check above.</p>	<p>Test was completed, but something may have affected the validity of the data. THIS IS A JUDGMENT CALL ON THE PART OF EXAMINER. Examples include, but are <u>not limited to</u>: phone ringing; knock on door; participant did not appear to give best effort; participant reported being distracted by pain; participant's accent was strong making it difficult to be confident about recorded data; participant talked about something unrelated after seeing words but before providing responses; delay time greater than 40 minutes)</p> <p>YES, something may have affected testing (check here)____ If yes, describe what happened in "Comments" section below. If no, do not check above.</p>
<p>Comments:</p>	<p>Comments:</p>

NP011

AD8	MoCA
<p>Test completed _____ Test not completed _____</p> <p>If test is not completed, circle the number below that corresponds to the reason:</p> <p>1 = refused 2 = insufficient time 3 = examiner error 4 = other (explain in comments section below)</p>	<p>Test completed _____ Test not completed _____</p> <p>If test is not completed, circle the number below that corresponds to the reason:</p> <p>1 = refused 2 = insufficient time 3 = examiner error 4 = other (explain in comments section below)</p>
<p>Test was completed, but something may have affected the validity of the data. THIS IS A JUDGMENT CALL ON THE PART OF EXAMINER. Examples include, but are <u>not limited to</u>: phone ringing; knock on door; participant did not appear to give best effort; participant reported being distracted by pain; participant's accent was strong making it difficult to be confident about recorded data; participant makes comments in the middle of trial; examiner gave incorrect instructions but then repeated trial with correct instructions)</p> <p>YES, something may have affected testing (check here)____ If yes, describe what happened in "Comments" section below. If no, do not check above.</p>	<p>Test was completed, but something may have affected the validity of the data. THIS IS A JUDGMENT CALL ON THE PART OF EXAMINER. Examples include, but are <u>not limited to</u>: phone ringing; knock on door; participant did not appear to give best effort; participant reported being distracted by pain; participant's accent was strong making it difficult to be confident about recorded data; participant talked about something unrelated after seeing words but before providing responses; delay time greater than 40 minutes)</p> <p>YES, something may have affected testing (check here)____ If yes, describe what happened in "Comments" section below. If no, do not check above.</p>
<p>Comments:</p>	<p>Comments:</p>

