



Evaluation, Diagnosis, and Assessment in the Primary Care Office

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Evaluation

How to approach a patient?

Is some change in memory normal with aging?

When is it abnormal? What do I treat? When do I refer?

Are there different types of dementia?

What are the main dementia types?

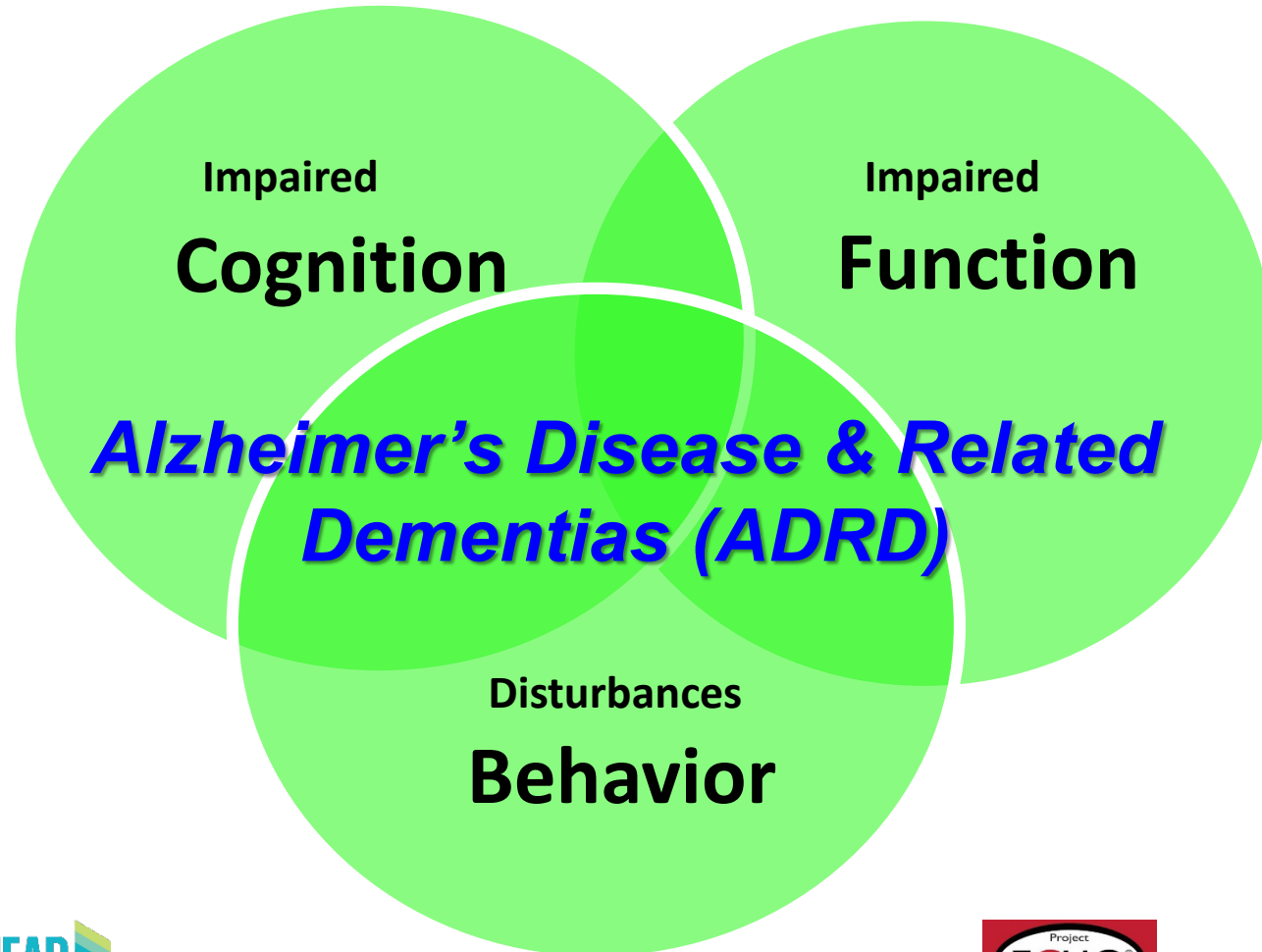
How do you diagnose different dementias?

Can cognitive decline be treated?

Can memory loss be prevented?

Does treatment change the disease?

Key Features of Dementia



- American Psychiatric Association. *DSM-IV*. 1994.
- Brangman SA. *Am J Alzheimers Dis Other Demen*. 2003;18:79-84.
- Atri A. *Med Clin North Am*. 2019 Mar;103:263-293.

How to evaluate and diagnose? If you're a Neurologist...

History of Present Illness & Medical History

Cognitive Assessment

- Orientation
- Attention & Concentration
- Memory testing
- Executive function tests
- Speech, Language & Praxis testing
- Tests of Spatial Attention [R/O neglect]
- Visuospatial processing & Reproduction

Elemental Neurological Exam

- CN, Sensory, Motor, Cerebellar, Gait-Station, Reflexes, Pathological reflexes – Babinski

Diagnostic Studies & Biomarker testing [if indicated]

How to evaluate and diagnose in Primary Care Setting?

History of Present Illness & Medical History

Physical Exam

Cognitive Screening

- Mini-Mental Status Exam (MMSE)
- Montreal Cognitive Assessment
- Mini-Cog
- SAGE (Self Administered Gerocognitive test)

Standardized Inventories

- Functional Assessment
- Depression Inventory
- Sleep Assessment

Cognitive Screening Exams

The Mini-Mental State Exam

Patient _____ Examiner _____ Date _____

Maximum Score

5	()	Orientation
5	()	What is the (year) (season) (date) (day) (month)? Where are we (state) (country) (town) (hospital) (floor)?
3	()	Registration Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he/she learns all 3. Count trials and record. Trials _____
5	()	Attention and Calculation Serial 7's. 1 point for each correct answer. Stop after 5 answers. Alternatively spell "world" backward.
3	()	Recall Ask for the 3 objects repeated above. Give 1 point for each correct answer.
2	()	Language Name a pencil and watch.
1	()	Repeat the following "No ifs, ands, or buts"
3	()	Follow a 3-stage command: "Take a paper in your hand, fold it in half, and put it on the floor."
1	()	Read and obey the following: CLOSE YOUR EYES
1	()	Write a sentence.
1	()	Copy the design shown.



Total Score
ASSESS level of consciousness along a continuum _____
Alert Drowsy Stupor Coma

"MINI-MENTAL STATE." A PRACTICAL METHOD FOR GRADING THE COGNITIVE STATE OF PATIENTS FOR THE CLINICIAN. *Journal of Psychiatric Research*, 12(3): 189-198, 1975. Used by permission.

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

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

VISUOSPATIAL / EXECUTIVE		Copy cube	Draw CLOCK (Ten past eleven) (3 points)	POINTS				
				4/5				
NAMING								
			3/3					
MEMORY		FACE	VELVET	CHURCH	DAISY	RED	No points	
Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.		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		2/2		
Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors		[] FBACMNAAJKLBAFAKDEAAAJAMOF AAB				1/1		
Serial 7 subtraction starting at 100 [✓] 93		[✓] 86	[] 79	[] 72	[] 65	2/3		
4 or 5 correct subtractions: 3 pts. 2 or 3 correct: 2 pts. 1 correct: 1 pt. 0 correct: 0 pt.								
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. [X]		1/2		
Fluency/Name maximum number of words in one minute that begin with the letter F		[X] 4 (N ≥ 11 words)				0/1		
ABSTRACTION		Similarity between e.g. banana - orange = fruit [✓] train - bicycle [X] watch - ruler time				1/2		
DELAYED RECALL		Has to recall words WITH NO CUE	FACE [X]	VELVET [X]	CHURCH [X]	DAISY [X]	RED [X]	Points for UNKUED recall only
Optional		Category cue	X	X	X	X	✓	
		Multiple choice cue	✓	✓	X	✓		
ORIENTATION		[✓] Date	[✓] Month	[✓] Year	[✓] Day	[✓] Place	[✓] City	6/6
© Z.Nasreddine MD		www.mocatest.org		Normal ≥ 26 / 30		TOTAL 20/30		

Cognitive Screening Exams

Mini-Cog®

Instructions for Administration & Scoring

ID: _____ Date: _____

Step 1: Three Word Registration

Look directly at person and say, "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies.^{1,3} For repeated administrations, use of an alternative word list is recommended.

Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Banana	Leader	Village	River	Captain	Daughter
Sunrise	Season	Kitchen	Nation	Garden	Heaven
Chair	Table	Baby	Finger	Picture	Mountain

Step 2: Clock Drawing

Say: "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say: "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say: "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

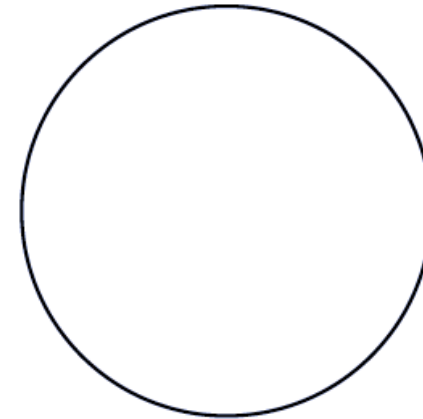
Word List Version: _____ Person's Answers: _____

Scoring

Word Recall: _____ (0-3 points)	1 point for each word spontaneously recalled without cueing.
Clock Draw: _____ (0 or 2 points)	Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored. Inability or refusal to draw a clock (abnormal) = 0 points.
Total Score: _____ (0-5 points)	Total score = Word Recall score + Clock Draw score. A cut point of <3 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status.

Clock Drawing

ID: _____ Date: _____



How Well Are You Thinking?

Please complete this form in ink **without** the assistance of others.

Name _____ Date of Birth ____/____/____
 How far did you get in school? _____ I am a Man _____ Woman _____
 I am Asian _____ Black _____ Hispanic _____ White _____ Other _____
 Have you had any problems with memory or thinking? Yes _____ Only Occasionally _____ No _____
 Have you had any blood relatives that have had problems with memory or thinking? Yes _____ No _____
 Do you have balance problems? Yes _____ No _____
 If yes, do you know the cause? Yes (specify reason) _____ No _____
 Have you ever had a major stroke? Yes _____ No _____ A minor or mini-stroke? Yes _____ No _____
 Do you currently feel sad or depressed? Yes _____ Only Occasionally _____ No _____
 Have you had any change in your personality? Yes (specify changes) _____ No _____
 Do you have more difficulties doing everyday activities due to thinking problems? Yes _____ No _____

1. What is today's date? (from memory – no cheating!) Month _____ Date _____ Year _____

2. Name the following pictures (don't worry about spelling):



CONTINUE NEXT PAGE

SAGE Test – Version 1

Answer these questions:

3. How are a watch and a ruler similar? Write down how they are alike. They both are... what?

4. How many nickels are in 60 cents? _____

5. You are buying \$13.45 of groceries. How much change would you receive back from a \$20 bill?

6. Memory Test (memorize these instructions). Do later only after completing this entire test:

At the bottom of the very last page: Write "I am done" on the blank line provided

7. Copy this picture:



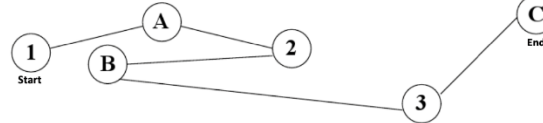
8. Drawing test

- Draw a large face of a clock and place in the numbers
- Position the hands for 5 minutes after 11 o'clock
- On your clock, label "L" for the long hand and "S" for the short hand

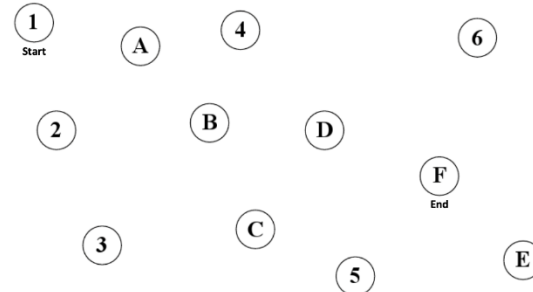
CONTINUE NEXT PAGE

9. Write down the names of 12 different animals (don't worry about spelling):

Review this example (this first one is done for you) then go to question 10 below: Draw a line from one circle to another starting at 1 and alternating numbers and letters (1 to A to 2 to B to 3 to C).



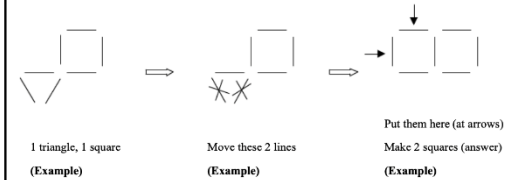
10. Do the following: Draw a line from one circle to another starting at 1 and alternating numbers and letters in order before ending at F (1 to A to 2 to B and so on).



CONTINUE NEXT PAGE

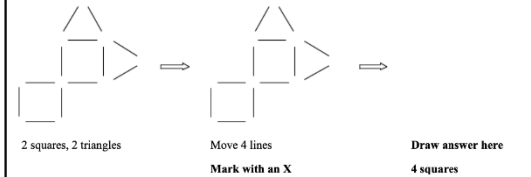
Review this example (this first one is done for you) then answer question 11 below:

- Beginning with 1 triangle and 1 square
- Move 2 lines (marked with an X)
- To make 2 squares and no triangle
- Each line must be part of a complete square (no extra lines).



11. Solve the following problem:

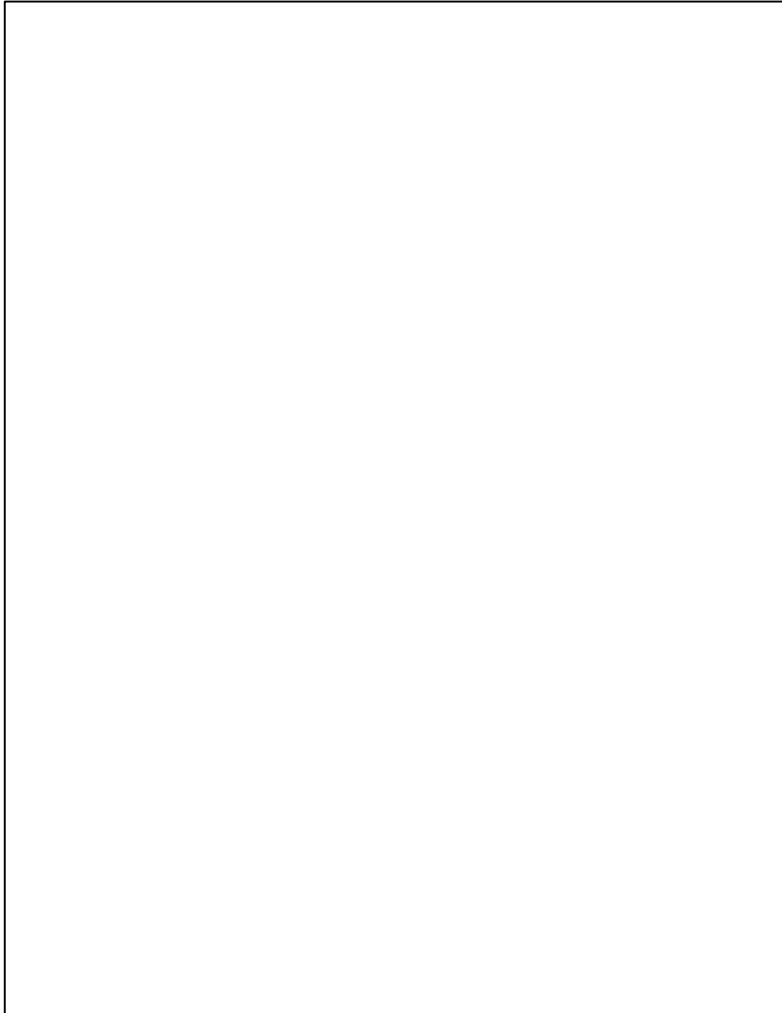
- Beginning with 2 squares and 2 triangles
- Move 4 lines (mark with an X)
- To make 4 squares and no triangles
- Each line must be part of a complete square (no extra lines).



12. Have you finished? _____

STOP

Depression Screening – Sleep Evaluation



Epworth Sleepiness Scale

Name: _____ Age: _____ Gender: _____

Physician in-charge: _____ Date: _____

What is the Epworth sleepiness scale?

The Epworth Sleepiness Scale is widely used in the field of sleep medicine as a subjective measure of a patient's sleepiness. The test is a list of eight situations in which you rate your tendency to become sleepy on a scale of 0, no chance of dozing, to 3, high chance of dozing. When you finish the test, add up the values of your responses. Your total score is based on a scale of 0 to 24. The scale estimates whether you are experiencing excessive sleepiness that possibly requires medical attention.

How sleepy are you?

How likely are you to doze off or fall asleep in the following situations? You should rate your chances of dozing off, not just feeling tired. Even if you have not done some of these things recently try to determine how they would have affected you. For each situation, decide whether or not you would have:

- 0 = No chance of dozing
- 1 = Slight chance of dozing
- 2 = Moderate chance of dozing
- 3 = High chance of dozing

Select the number corresponding to your choice in the right hand column. Total your score below.

Situation	Chance of dozing			
	0	1	2	3
Sitting and reading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watching TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting inactive in a public place (e.g., a theater or a meeting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As a passenger in a car for an hour without a break	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lying down to rest in the afternoon when circumstances permit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting and talking to someone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting quietly after a lunch without alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In a car, while stopped for a few minutes in traffic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Total score:				

Functional Assessment Scales

KATZ BASIC ACTIVITIES OF DAILY LIVING (ADL) SCALE

Patient Name _____	Today's Date _____
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ACTIVITIES POINTS (0 or 1)	INDEPENDENCE: (1 POINT) NO supervision, direction or personal assistance	DEPENDANCE: (0 POINTS) WITH supervision, direction, personal assistance or total care
BATHING POINTS: _____	(1 POINT) Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area or disabled extremity.	(0 POINTS) Needs help with bathing more than one part of the body, getting in or out of the tub or shower. Requires total bathing.
DRESSING POINTS: _____	(1 POINT) Gets clothes from closets and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	(0 POINTS) Needs help with dressing self or needs to be completely dressed.
TOILETING POINTS: _____	(1 POINT) Goes to toilet, gets on and off, arranges clothes, cleans genital area without help.	(0 POINTS) Needs help transferring to the toilet, cleaning self or uses bedpan or commode.
TRANSFERRING POINTS: _____	(1 POINT) Moves in and out of bed or chair unassisted. Mechanical transferring aides are acceptable.	(0 POINTS) Needs help in moving from bed to chair or requires a complete transfer.
CONTINENCE POINTS: _____	(1 POINT) Exercises complete self-control over urination and defecation.	(0 POINTS) Is partially or totally incontinent of bowel or bladder.
FEEDING POINTS: _____	(1 POINT) Needs partial or total help with feeding or requires parenteral feeding.	(0 POINTS) Needs partial or total help with feeding or requires parenteral feeding.

TOTAL POINTS = _____	6 = HIGH (patient independent) 0 = LOW (patient very dependent)
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Patient Name _____

Testing to Rule Out Other Diseases

History – No evidence or history of delirium

- Gather history about chronic diseases including: *depression, hypertension, atherosclerosis, or cardiovascular or cerebrovascular disease, diabetes*

Laboratory – CBC, tests of kidney and liver function, vitamin D & B₁₂, thyroid hormone levels, and RPR/VDRL; *EEG recommended*

Imaging - MRI Brain Scan - noticeable cerebral atrophy, especially in temporal lobes, Evaluate PVWM hyperintensities vs PVWM changes

R/O and treat depression, sleep disorders, hearing loss. Correct laboratory anomalies (e.g., low TSH) & manage chronic diseases/ insulin resistance

Clinical Case

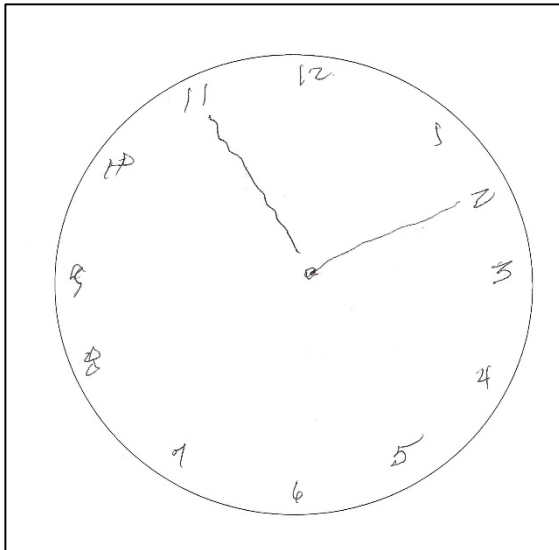
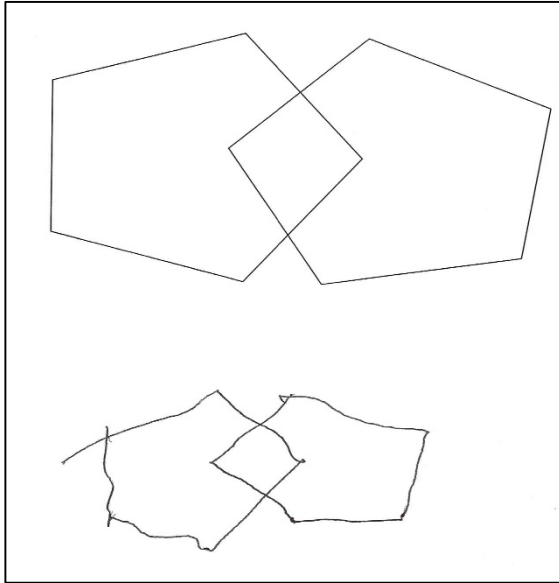
Chief Complaint: cognitive decline

History of Present Illness: Mrs. Lewis is a 59-year-old executive who has been having trouble learning new people's names. She often forgets about meetings that she arranges herself. Her ability to speak well is declining. She is functionally independent.

Past Medical & Social History – unremarkable

Examination – Delayed Recall 0 of 3 words, some word-finding pauses in conversation, no other cognitive deficits. Elemental neurological exam nonfocal.

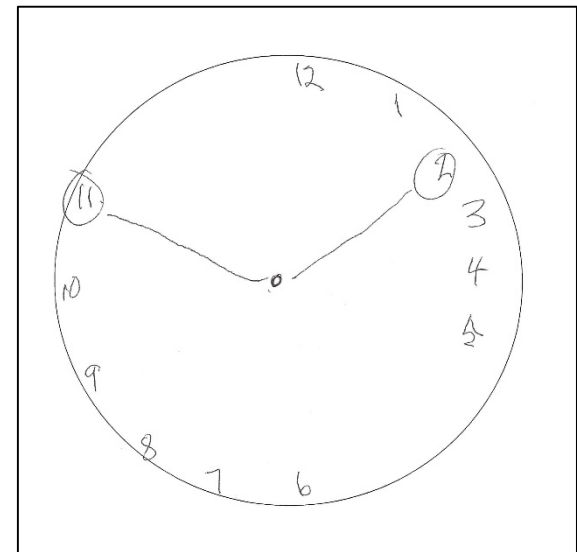
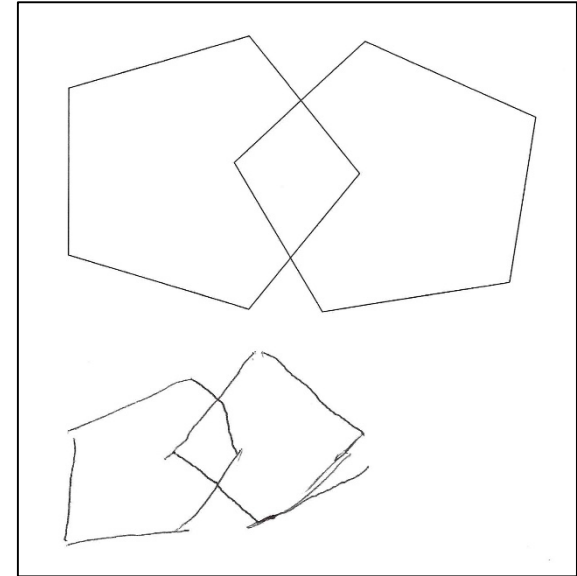
Time 1



Clinic Case

Copy-Complex Figure

Time 2



Draw-A-Clock Test



Cognitive complaint

Diagnostic Studies

Rule out treatable etiologies

Biomarkers of Disease

Preclinical
Pathologic brain changes, but cognitively normal

Mild Cognitive Impairment (MCI)
Some cognitive impairment, but independence in functional abilities intact

Dementia
Symptoms significant enough to impair functional independence

Single Domain Amnesic

Single Domain Non-Amnesic

Single Domain Executive dysfunction

Multiple Domains Amnesic + Other



Questions?