



MARS Evaluation Summary

Patient information

Name: Jane Doe Date of Evaluation: October 12, 2016
Date of Birth: January 19, 1932 Referring Physician: Doctor, MD

Diagnosis:

- Dementia, Mild
 - Deficits and decline are most pronounced in memory functioning. Also low scores on word finding/fluency. General cognitive functioning is intact.
- Clinical symptoms of anxiety and depression
 - Psychiatric symptoms cannot account for the documented cognitive deficits.

Etiology:

- Cognitive data is consistent with
 - A progressive neurodegenerative disease the most common of which is Dementia of the Alzheimer's type.
 - Given medical history, cerebrovascular damage may be contributing secondarily.

Effects on Daily Living:

- MARS Memory-Health Network will discuss the following with the client:
 - May require supervision and support in complex activities of daily living including meal preparation, financial planning, and medication monitoring.
 - Cognitive testing suggests that driving should be limited. We will discuss this issue with the client at the time of feedback.

Recommendations:

- Rule out of potentially reversible causes (e.g., hypothyroidism, nutritional/metabolic deficiencies)
- Pharmacological treatment of the cognitive deficits should be considered with cholinesterase inhibitor or Namenda
- Recent research suggests that a Mediterranean diet combined with a diet to lower hypertension (i.e., MIND diet) can also help to improve cognitive functioning.
- MARS Memory-Health Network will offer referral for psychotherapy for mild depression/anxiety.
- MARS Memory-Health Network will offer caregiver counseling for her husband

Recommended Reevaluation:

- 1-year re-evaluation to monitor the efficacy of the pharmacological treatment, if initiated, and assess the progression/stability of memory and cognition.



MARS Evaluation Score Table

Assessments				Performance		
	Test	Sub-test	Normative Range	2014 Result	2016 Result	Change
Memory	WMS-IV	Logical Memory I	> -1.50	b -1.40	L -1.90	↓
		Logical Memory II	> -1.50	L -1.65	L -2.20	↓
		Verbal Paired Assoc. I	> -1.50	L -1.60	L -1.75	
		Verbal Paired Assoc. II	> -1.50	b 1.35	b -1.45	
		Verbal Paired Delayed	> -1.50	-0.17	b -1.50	↓
		Logical Memory Delayed	> -1.50	b -1.20	L -2.00	↓
	RAVL-T	Immediate Recall	> -1.50	-0.55	-0.50	
		Delayed Recall	> -1.50	-1.10	L -1.70	↓
		Recognition	> -1.50	-1.10	L -1.67	↓
		Total Recall	> -0.50	-0.75	L -1.55	↓
	DRS	Memory	> -0.67	-1.15	L -1.55	
Total Score		> -0.67	-1.05	b -1.25		
General Cognition	WAIS-IV	Full Scale IQ	> -1.50	0.67	0.67	
		Vocabulary	> -1.50	1.25	1.20	
		Similarities	> -1.50	0.67	0.37	
		Block Design	> -1.50	0.75	0.50	
		Processing Speed	> -1.50	-0.50	-0.75	
Executive Functioning	BCT	Concept Formation	> -1.50	0.20	-0.30	↓
	Stroop	Impulsivity	> -1.50	-0.45	-0.50	
	Trails A	Attention	> -1.50	0.02	0.30	
	Trails B	Complex Attention	> -1.50	-0.03	b -1.45	↓
Language	COWAT	FAS	> -1.50	-0.15	b -1.30	↓
		Animals	> -1.50	b -1.45	L -1.60	
		1st Names	> -1.50	-0.13	-0.65	↓
	BNT	Naming	> -1.50	0.20	-0.67	↓
Visual	ROCF	Construction Copy	> -1.50	0.13	0.25	
		Immediate Memory	> -1.50	-0.10	0.00	
		Delayed Memory	> -1.50	b -1.25	L -1.55	
	HVOT	Organization	> 19	25.5	24.5	
	JLO	Line Orientation	> 19	24	24	
Manual Dexterity		Dominant Hand	> -1.50	-0.30	0.00	
		Non-Dominant Hand	> -1.50	0.30	-0.15	
Emotion	CES-D	Depression	< 16	H 24	H 29	
	STAXI	Anxiety	< 40	35	H 41	
Global Screen	MMSE	Total score	> 24	29	28	

H = Abnormal High; **L** = Abnormal Low; b = Borderline; ↓ = downward trend ≥ 0.5 Standard Deviation

Estimated Pre-morbid IQ (NAART) = 110



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SAMPLE LETTER



MARS Evaluation Report

Patient information

Name: Jane Doe
Date of Birth: January 19, 1939
Date of Evaluation: October 12, 2016
Previous evaluations: September 15, 2014
Age: 77
Referring Physician: Doctor, MD

Background Information:

Mrs. Doe was initially referred by Doctor, MD, in September 2014 with a rule out diagnosis of Memory Loss, NOS. Test results indicated that Mrs. Doe had experienced a significant decline in memory from estimated premorbid levels of functioning, but that other cognitive domains were essentially spared. The results indicated a diagnosis of Mild Cognitive Impairment, single domain (memory), and recommendations were made for treatment and ongoing monitoring. Mrs. Doe returns now for her scheduled follow-up appointment. Background information was obtained through clinical interview of Mrs. Doe and her son.

Mrs. Doe is a widowed, 77-year-old retired office clerk who lives alone in a condominium in Wilmington, NC. She completed 12 years of education, earning a high school diploma. Mrs. Doe achieved grades in the B and C range and described herself as a "good student." She indicated that her performance in school was impacted by extended absences as a child secondary to medical conditions. Mrs. Doe stated that she worked as an office clerk for several different agencies within the U.S. Government for approximately 15 years, retiring in the early 1970's to raise her family.

Mrs. Doe denied a family history for dementia, but indicated that heart disease and diabetes are common in her family of origin. She indicated that her medical history is significant for hypertension, high cholesterol, and diabetes. Mrs. Doe denied the experience of any symptoms consistent with stroke or TIA. She was diagnosed with breast cancer in 2004, but did not receive chemotherapy. She denied a history for alcohol abuse/dependence, head injury, neurological problems, or significant symptoms of anxiety or depression. Mrs. Doe reported that she experiences mildly elevated stress and anxiety secondary to arthritis pain. Her son indicated that she appears depressed at times, possibly secondary to loneliness. Her current



medications include: Diovan, Furosemide, Tricor, Lorazepam 1mg bid, and Nitrofurantoin.

Mrs. Doe reported that she first noticed a gradual decline in her cognitive functioning approximately 1 to 2 years ago and this would be consistent with the past test data. She characterized this decline as increased word finding difficulty and forgetting of recent information. Mrs. Doe's son corroborated her report, and indicated that she frequently forgets conversations and has become confused about doctors appointments in the recent past. Both denied any significant difficulties with completing activities of daily living. Mrs. Doe's son expressed some concern regarding several instances of Mrs. Doe displaying attentional lapses while driving, but denied that she has any past traffic violations or accidents.

Basis of Evaluation:

Mrs. Doe's intellectual and memory functioning were assessed on October 12, 2016 lasting a total of 2½ hours using subtests from the Wechsler Adult Intelligence Scale, Fourth Edition (WAIS-IV), subscales from the Wechsler Memory Scale, Fourth Edition (WMS-IV), the North American Adult Reading Test (NAART), the Rey Auditory Verbal Learning Test (RAVLT), the Controlled Oral Word Association Test (COWAT), the Boston Naming Test (BNT), the Hooper Visual Organization Test (HVOT), the Rey-Osterrieth Complex Figure (ROCF), the Benton Judgment of Line Orientation Test (JLO), the Trail making Test (Forms A and B), the Stroop Color and Word Test, the Dementia Rating Scale (DRS), and the Mini Mental State Examination (MMSE). Mrs. Doe was also evaluated using the NEO-FFI, the Center for Epidemiological Studies in Depression Scale, and the state anxiety scale of the State Trait Anxiety Inventory (STAI).

Results:

Intellectual Functioning:

Mrs. Doe's performance on the NAART (a reading test to obtain an estimate of her baseline intellectual functioning) indicated that her intellectual functioning should fall in the average to high average range and this is consistent with premorbid estimates and her performance from two years ago. Mrs. Doe's current performance across nonverbal subtests of a measure of general intellectual functioning (the WAIS-IV) was below this estimate, falling in the average range relative to her same age peers. Her scores on subtests assessing her verbal intellectual functioning were more robust, falling in the high average range. Importantly, when compared to her performance from the last



assessment, Mrs. Doe's general cognitive functioning appears to have remained relatively stable.

Mrs. Doe scored 28 out of 30 possible points on a brief screening measure of cognitive functioning (the MMSE) and this is not significantly different from her score from two years ago. Importantly, the MMSE can often miss more subtle examples of cognitive decline, especially among individuals with higher premorbid intellectual functioning.

Memory Functioning:

Mrs. Doe's immediate and delayed recall of auditory information on the WMS-IV ranged from borderline to impaired relative to others her age. Her recall was not facilitated by repetition of the information or external cueing (i.e., recognition format). Importantly, Mrs. Doe's current scores reflect a systematic decline across virtually all memory indices over the last two years.

Mrs. Doe's performance on a 15-word list-learning task (the RAVLT) ranged from low average to impaired in comparison to others in her age group. She recalled 4 words following initial presentation, indicating low average immediate attention. She displayed a limited learning curve, recalling 4, 5, 6, 6, and 5 words across 5 learning trials. Her immediate recall was in the low average range, as she recalled 6 words. Following a 30-minute delay, her recall declined to the impaired range, as she was able to recall 3 words. When the words were presented in a recognition format, she correctly identified only 5 of the words, and also made 4 false-positive errors, indicating little benefit from the increased structure of the recognition format. As was the case with the WMS, these test scores also exhibited a relatively mild, but consistent decline in functioning when compared to the previous assessment.

On the current testing, Mrs. Doe displayed average immediate recall of a complex figure (the ROCF) relative to others her age. However, after a delay, her recall of the visual information dropped to the borderline range compared to others her age, and this reflected a subtle decline from two years ago.

Mrs. Doe's scores on a global measure of dementia (DRS) fell in the borderline range relative to others of the same age, and she was especially compromised in the memory domain. This score reflects a subtle decline from the initial assessment.



Executive Functioning:

Mrs. Doe's performance on Trails A (a measure of sustained attention and motor speed involving simple sequencing of numbers 1-25) was average relative to her same age peers. Her performance on this measure was stable from the initial assessment. On the more complex Trails B (a measure of attentional shifting involving alternate sequencing of numbers and letters; e.g., 1-A-2-B...), her score was in the borderline impaired range, and this was a marked decline from the 2014 assessment. She also made 2 sequencing errors, indicating loss of conceptual set. Interestingly, on a more complex measure of executive abilities (the BCT), Mrs. Doe's performance continues to be in the normative range. However, this score has significantly declined since 2014. Mrs. Doe's information processing speed was in the average range in comparison to others her age. She displayed average information processing efficiency on the Stroop test, indicating intact ability to inhibit automatic responses. Her processing speed scores are stable compared to the initial evaluation.

Language Functioning:

Mrs. Doe's language functioning was evaluated using the COWAT and the BNT. Mrs. Doe displayed low average to borderline impaired ability to generate a list of words according to abstract categories (i.e., letters of the alphabet). Her performance remained in the impaired to borderline impaired range when given the more concrete task of generating lists of animals. These scores reflect a decline in word finding relative to 2014. She displayed intact (average) ability to name common objects on the BNT; however, this score was significantly lower than last year's performance.

Visual Construction/Organization:

Mrs. Doe's approach to copying a complex figure (the ROCF) was well within normal limits, and unchanged from last year. She preserved the overall shape of the design and included many of the design details, with her overall performance falling in the average range. Mrs. Doe displayed intact visual organization/integration on a measure requiring accurate perception of pictures of objects broken into their component parts (the HVOT). Her performance was also intact on the JLO, a measure of visual orientation/perception requiring accurate perception of spatial relationships between lines. Finally, scores on the WAIS-IV Perceptual Organization index remain average. Importantly, all scores related to visual organization and perception are stable relative to the last assessment.



Emotional Functioning:

Mrs. Doe's responses to a measure of mood and acute anxiety indicate clinically significant (though mild) symptoms of depression and anxiety. These scores reflect a slight increase in symptom endorsement relative to 2014. Her son completed a measure of personality functioning, the NEO-FFI collateral report form, on her behalf. The profile of scores indicates that Mrs. Doe is a down-to-earth and conventional individual who is susceptible to periods of excessive worry, irritability, and emotional distress.

Effects on Daily Living:

Although Mrs. Doe's overall intellectual functioning appears unimpaired when compared to premorbid standards and scores obtained from the previous assessment, she exhibited significant memory and verbal fluency/naming deficits. Deficits in memory can be associated with increased difficulty in completing more complex activities of daily living. Although Mrs. Doe denied any current problems, the fact that she is living alone would suggest that there might be relatively low self-awareness for any mild decline that may have occurred. As such, Mrs. Doe may benefit from increased structure and supervision with activities such as financial management, medication monitoring, and meal preparation. Intact attentional functioning is particularly important in driving, and it is recommended that Mrs. Doe's driving be limited to familiar areas and times of low traffic congestion, or ideally, discontinued. Planning for alternative modes of transportation going forward would be most ideal. We plan to discuss these issues with Mrs. Doe and her family during a feedback session scheduled for October 20, 2016. We will offer her family the opportunity to meet with the caregiving specialist at the non-profit Alzheimer's NC to discuss any current or future concerns regarding Mrs. Doe's caregiving needs.

Conclusions/Recommendations:

Diagnosis:

Mrs. Doe's profile of scores on the current measures indicates the presence of a mild dementia, characterized by relative and normative deficits in memory and verbal fluency/naming. These deficits appear to be relatively localized at this time, though she also evidenced some problems on one measure of complex executive functioning. Importantly, Mrs. Doe does appear to have declined significantly in these areas of functioning over the last two years. She currently endorsed clinical symptoms of depression and anxiety. However, within the



context of observed adequate effort, the documented cognitive deficits cannot be accounted for by her psychiatric functioning.

Etiology:

The exact etiology of the documented cognitive deficits appears to reflect a neurodegenerative disease, the most common of which is dementia of the Alzheimer's type. It is noted that Mrs. Doe has a history for several risk factors (e.g., hypertension, high cholesterol, diabetes) that increase her chance of developing a co-occurring vascular dementia. Importantly, in addition to vascular dementia, cardiac risk factors also increase the probability of developing a progressive memory disorder, such as Alzheimer's disease. The reported gradual onset and decline in Mrs. Doe's cognitive functioning over the last two years, the documented poor retention of learned information, and relatively poor recognition memory are most consistent with this conclusion.

Recommendations:

Following rule out of potentially reversible causes (e.g., hypothyroidism, nutritional/metabolic deficiencies), pharmacological treatment of Mrs. Doe's cognitive deficits should be considered. Current pharmacological treatments (i.e., cholinesterase inhibitor and/or Namenda) have been determined to be effective in attenuating cognitive decline in Alzheimer's disease and in dementias with a vascular etiology. Recent research also suggests that a Mediterranean diet combined with a diet to lower hypertension (i.e., MIND diet) can also help to improve cognitive functioning. MARS Memory-Health Network will also offer caregiver counseling for her husband and any other interested family members.

The symptoms of depression and anxiety can be addressed pharmacologically, but they can also be reduced through psychotherapy, given that Mrs. Doe remains cognitively intact enough to potentially benefit from this intervention at this time. We will provide Mrs. Doe with a referral should she be interested in pursuing the psychotherapy option. We will direct her to consult with her primary care physician to discuss possible pharmacotherapy.

Recommended Return Visit: 1 year.

Annual re-evaluation is an important feature of high quality memory care. Annual re-evaluations provide detailed objective information on the course of the disease. This information can be used to:

- optimize the outcome of the treatment by evaluating and adjusting drug and dosage effects
- improve patient compliance by demonstrating the effectiveness of



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treatment

- improve diagnosis by monitoring the rate of change of cognitive deficits, and
- aid the family of the patient in planning and prepare the family for emotional, physical, and cognitive changes of their loved one.

Thank you for the referral. We hope that you find this report helpful in Mrs. Doe's ongoing care and please keep us in mind for future memory assessment needs.

John Clinician, Psy.D.

Jane Clinician, Ph.D.

SAMPLE LETTER