


Geriatric Assessment: Tools for the Assessment of Cognition





Tools for the Assessment of Cognition

- n **A variety of tools are available for bedside screens and measures of cognition.**
- n **These tools can be applied with relative ease in the assessment of elderly patients to provide insight into cognitive function.**
- n **Clinicians using these tools should familiarize themselves with their strengths and weaknesses as well as how their combined use might add useful information.**



Assessment of Cognition: Why Bother ?

- n **The clinical experience of unrecognized dementia.**
- n **The well-developed literature documenting the under-recognition of dementia.**
- n **The “silent epidemic.”**
- n **Implications of unrecognized dementia are profound: reversibility, compliance, symptom reporting, safety, victimization, crisis and catastrophe avoidance.**



Assessment of Cognition: What to Do About It ?

- n **Do not expect patients to report their impairment.**
- n **Family members may not be reliable reporters of symptoms of dementia.**
- n **The solution rests with the clinician.**
 - **Clinicians consider questioning older patients about memory impairment.**
 - **Clinicians should consider using simple screening tests to help answer the question of whether a person might be demented.**



Assessment of Cognition: Who Should Be Targeted?

- n **The syndrome of dementia becomes common in the late 70s and may affect 30-35% of persons in their mid-80s.**
- n **Rates increase into old-old age.**
- n **Consider routine assessment of cognition in those older than age 75 years.**



Dementia Screening Targeting Criteria

- n **Age > 75-80.**
- n **Transitional living situation.**
- n **History of the following: delirium, depression, diabetes mellitus, Parkinson's disease, unexplained loss of function.**
- n **Hospitalized elderly.**
- n **Preoperative evaluation of the elderly.**




Assessment Tools: General Issues

- n **Structured instruments are useful in assessing for problems that often go undetected.**
- n **Instruments are often insensitive to small changes.**
- n **Summary scores are not always useful.**
- n **Self-administered vs. Interviewer administered.**
- n **Potential performance vs. Actual performance.**
- n **Scores should be interpreted in the context of other information known about the patient**



Tests to Assess Cognition: General Comments

- n **Most of the bedside cognitive screening tools have similar sensitivity and specificity when used as screening tests for dementia.**
- n **Screening tests are an adjunct to diagnosis and should not override clinical judgment.**
- n **90% of patients find the testing helpful, 5% are distressed by the testing, and 2% consider the testing intrusive.**
- n **There must be linkage between detection and the provision of information and services.**




Dementia –DSM-IV

The development of multiple cognitive deficits manifested by *Memory impairment* and

– One or more of the following:

- a)Aphasia (language disturbance).
- b)Apraxia (impaired to to carry out motor activities despite intact motor function).
- c)Agnosia (failure to recognize or identify objects despite intact sensory function).
- d)Disturbance in Executive function (i.e., Planning, organizing, sequencing, abstracting).

The cognitive deficits cause significant impairment in social or occupational functioning and represent a significant decline from a previous level of functioning.



Tests to Assess Cognition: Barriers to Use

- n **Time needed administrate test (particularly important).**
- n **Concern that patient's will be offended.**
- n **Lack of familiarity with the psychological tests.**
- n **Concern that the diagnosis of an incurable impairment will alarm the patient or family**



Bedside Tests of Cognitive Assessment


- n **Folstein mini mental state.**
- n **The short portable mental status questionnaire (SPMSQ).**
- n **The instrumental activities of daily living.**
- n **The clock drawing test.**
- n **The trail making test A and B.**
- n **The time and change test**



MMSE Scoring

<u>Method</u>	<u>Score</u>	<u>Interpretation</u>
Single cutoff	<24	Abnormal
Range	<21	Increased odds of dementia
	>25	Decreased odds of dementia
Education	21	Abnormal for 8 th grade Ed
	<23	Abnormal for HS Ed
	<24	Abnormal for college Ed
Severity	24-30	No cognitive impairment
	18-23	Mild cognitive impairment
	0-17	Severe cognitive impairment

Interpretation of MMSE Scores



Score	Degree of Impairment	Formal Psychometric Assessment	Day to day Functioning
25-30	? significant	If clinical sign of cognitive impairment are present, formal assessment of cognition may be valuable	May have clinically significant mild deficits. Likely to affect only the most demanding activities
20-25	Mild	Formal assessment may be helpful to define pattern and extent of deficits	Significant effect, may require supervision, support and assistance
10-20	Moderate	Formal assessment may be helpful if there are specific clinical indications	Clear impairment may require 24 hour supervision
0-10	Severe	Patient likely not to be testable	Marked impairment. Likely to require 24 hour supervision and assistance with ADL's



MMSE and A.D.L.'s

	MMSE Range			
	0-10	11-20	21-25	26-30
Cope with small sums of money	2%	22%	47%	50%
Perform household tasks	3%	13%	37%	44%
Recall recent event	3%	8%	11%	9%
Remembers short lists of items	5%	11%	17%	16%
Find way around familiar streets	8%	28%	61%	47%
Recognize surroundings	18%	66%	70%	81%
Able to dress self	18%	62%	85%	84%
Able to find way about indoors	32%	60%	80%	84%
Have a tendency to dwell in the past	50%	57%	48%	34%
Able to feed self	66%	95%	98%	94%
Continent of bowel and bladder	59%	86%	83%	88%



Characteristics of the MMSE

n **Strengths**

- Widely used and recognized (enhances communication).
- Ease of administration.
- Useful as screen, establish a baseline, and to monitor progress.

n **Weaknesses:**


- Insensitive to subtle cognitive impairment.
- Influenced by educational experience and cultural background.
- Insensitive to dementia without cortical features



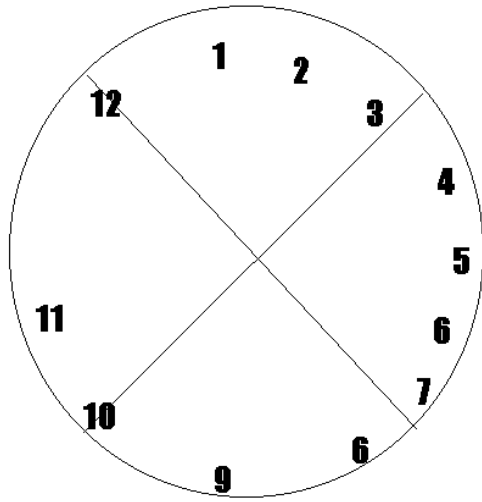
The Clock-drawing Test

- n **Give the patient a sheet of paper with a large circle on it (3 1/2 inches diameter).**
- n **Instruct the patient to draw the numbers in the circle to make the circle look like the face of a clock.**
- n **After completing the task, consider instructing the patient to draw the hands of the clock to read “11:20”.**

Scoring the Clock Test

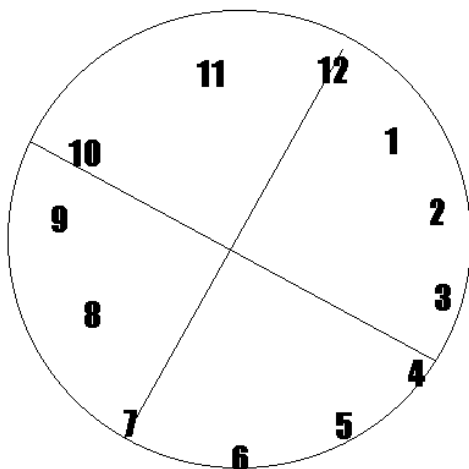
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- n Step 1
 - n **Divide the circle into 4 equal quadrants by drawing one line through the center of the circle and the number that best corresponds to the 12. Draw a second line perpendicular and bisecting the first**
 - n Step 2
 - n **Count the number of digits in each quadrant in the clockwise direction beginning with the digit corresponding to the number 12. Each digit is counted only once. If a digit falls on one of the reference lines, it is included in the quadrant that is clockwise to the line** Any three digits in each quadrant is considered correct.
 - n Step 3
 - n **For any error in the first three quadrants, assign a score of 1. For any error in the 4th quadrants, assign a score of 4**
 - n Step 4
 - n **A normal score ranges from 0-3. An abnormal score is 4-7**

Scoring the Clock Test

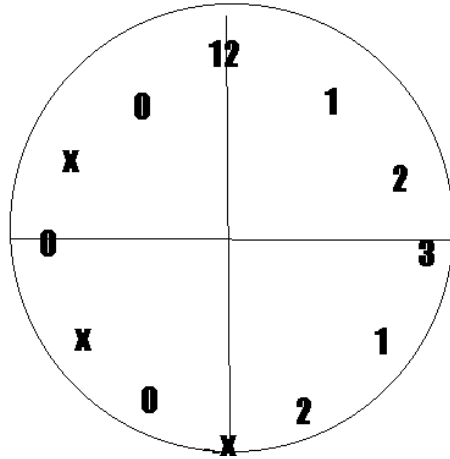


Errors		
n	Q1	1
n	Q1	1
n	Q1	1
n	Q1	4
Total		7


Scoring the Clock Test



Errors		
n	Q1	1
n	Q1	0
n	Q1	1
n	Q1	0
Total		2



Errors		
n	Q1	0
n	Q1	0
n	Q1	0
n	Q1	0
Total		0




Characteristics of the Clock Drawing Test.

n **Strengths:**

- Simple and quick to administer.
- May be less threatening to the patient.
- Sensitive to Alzheimer's disease.
- Most useful as a screen or adjunct to other test.

n **Weaknesses:**

- A confusing array of scoring systems.
- Less sensitive to vascular dementia.
- Limited ability to grade severity, establish baseline cognition, or monitor progress.




The Instrumental A.D.L.S As a Cognitive Screen.

- n **Four IADL items correlate well with cognitive impairment:**
 - Telephone use.
 - Use of means of transportation.
 - Responsibility for medication intake.
 - Handling of finances.
- n **Performance on the IADLs can be used as a screen for dementia (see next side).**



Performance of Four IADL for the Detection of Dementia.

<u>Score Cutoff</u>	<u>Sensitivity</u>	<u>Specificity</u>
At least 1	0.94	0.71
At least 2	0.86	0.88
At least 3	0.77	0.94
At least 4	0.60	0.98



Characteristics of the I.A.D.Ls As a Cognition Screen

n **Strengths:**

- Correlates well with cognitive impairment.
- Useful adjunct to other cognitive tests and in the assessment of overall function.
- May be less threatening to the patient.

n **Weaknesses:**

- Poor test performance characteristics.
- May require a proxy for valid information.



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