

Dementia:

Guidelines for Assessment and Differential Diagnosis

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Objectives

- Provide a brief overview of:
 - Maine's State Plan for Dementia
 - American Geriatric Society Guide to dementia evaluation and management
- Review general clinical aspects of diagnostic assessment and treatment

Maine's State Plan

- Sponsored by Maine's State Chapter of National Alzheimer's Association and DHHS
- Phase 1: Advocacy
 - June 2011: Law established task force
- Phase 2: Develop plan
 - May 2012: Final draft completed
- Phases 3/4: Implement & revise

State Plan for Alzheimer's Disease and Related Dementias in Maine



Aging and Disability
Services

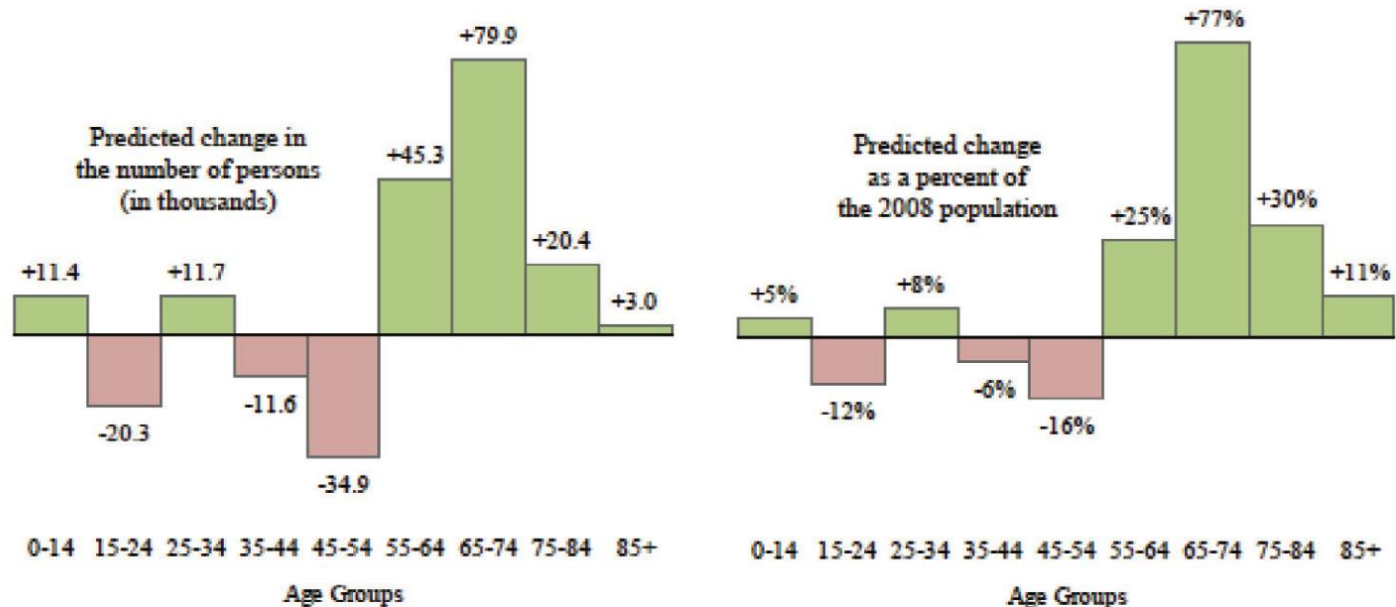
An Office of the
Department of Health and Human Services

Paul R. LePage, Governor

Mary C. Mayhew, Commissioner

Maine is Getting Old

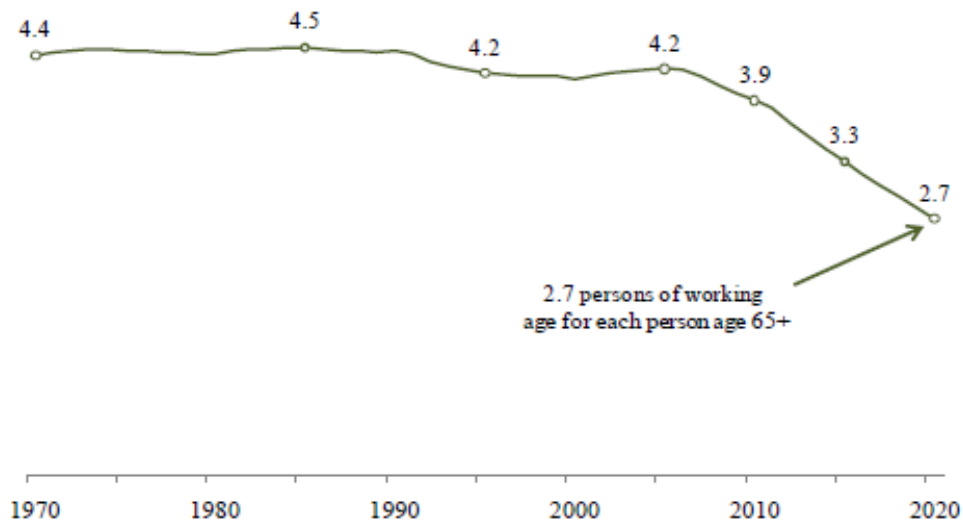
Figure 1-2
Maine's older population is projected to grow quickly between 2008 and 2020



Source: Woods and Poole Economics, Inc., "2008 New England State Profile: State and County Projections to 2040", and U.S. Census Bureau, Population Division, "Interim State Population Projections", 2005

Who Will Provide Care?

Figure 3-1
Maine's elderly dependency ratio
The Number of Persons of Working Age (20-64) for Each Person Age 65+



Although Maine's elderly dependency ratio held fairly steady from 1970 to 2005, it is projected to be in steady decline through 2020. While Maine had an estimated number of 4.2 working age

(20-64) persons in 2005 for each person age 65-or-above, the ratio is projected to decline to just 2.7 working age persons in 2020 for each person age 65-or-above.

Source: Woods and Poole Economics, Inc., "2008 New England State Profile: State and County Projections to 2040"

Contents of the State Plan

- Disease Background
- Public health and Safety Objectives
- Diagnosis and Treatment
- Home and Community-Based Services
- Facility-based LTC Services
- Financing LTC
- Education and Training

Diagnosis and Treatment:

Goals of Maine's State Plan

- Coordinate care across settings to improve recognition and management
- Expand PCMH Community Care Team model to provide coordinated care
- Promote screening within Primary Care
- Promote CME in diagnosis and treatment guidelines

Clinical Guideline:

“Comprehensive Roadmap” by John Campbell, MD

- Provides an expert overview of:
 - Screening and assessment of cognition and functional status
 - Differential diagnosis of dementia
 - Treatment of cognitive decline
 - Assessment and treatment of neuropsychiatric symptoms
 - General dementia care issues: driving, home safety, end of life care, caregiver support

Screening in Primary Care

- Routine screening often not recommended by clinical practice guidelines beyond questions about:
 - Short term memory
 - IADLS
 - Money management, driving, medication management, safety in the home

Alzheimer's Assoc. Recommendations

Cordell CB et al. Alz Assoc 2013; 1-10

- But, Alz. Association advisory group does recommend routine screening
 - Incorporate into Medicare Annual Wellness Visit:
 - Affordable Care Act provides for Medicare reimbursement for screening of depression and dementia at the AWW
 - CI missed in 27-81% of visits
 - Structured tools improve detection
 - (83% vs. 59%) *Borson et al. 2006*

Advisory Group Recommendations

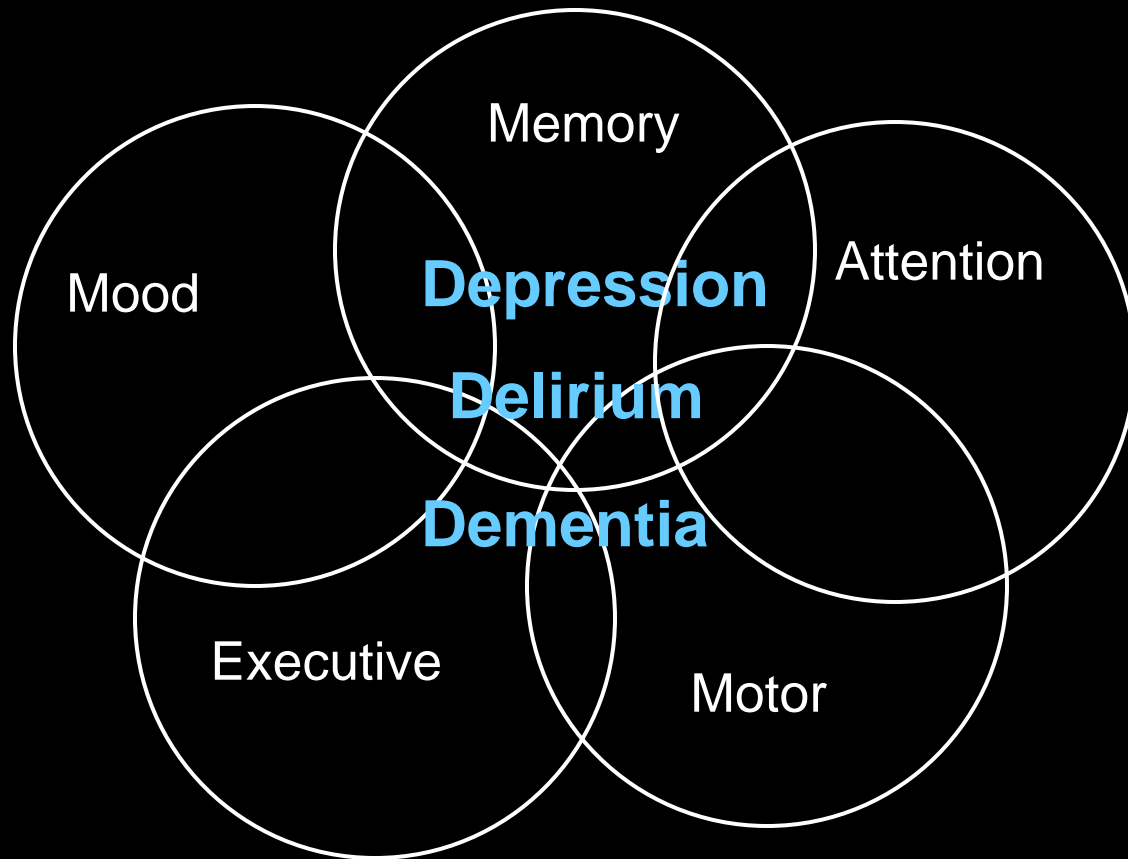
Cordell CB et al. Alz Assoc 2013; 1-10

- 2-step process:
 - Screen with either Mini-Cog or GPCOG at AWW
 - Positive screen or clinical suspicion: reschedule for more evaluation with MoCA or SLUMS, plus labs, depression screen, neurologic exam or refer to dementia expert (geriatrician, geriatric psychiatrist, neurologist, neuropsychologist)

AGS Guidelines for Diagnosis

- Recommend screening only if patient or family member or clinician suspects a problem
- Use validated instrument
- If positive screen:
 - Document cognitive domains affected
 - Document functional impairment
 - Document time course and progression
 - R/O delirium and depression

The Overlapping Syndromes: The 3-D's Often Co-Exist



History

- What has changed?
 - Functional status
 - Cognition
 - Behavior
- Gradual vs. abrupt onset?
- Progressive vs. stable?
- Hx of EtOH, depression, CVA/TIA, TBI, HTN, DM, sleepiness?

Functional Status

- ADLs
 - Dressing, bathing, toileting, hygiene, mobility and balance, motor skills
- IADLs
 - Finances, med management, driving, cooking, tools, hobbies

Emotions and Behavior

- Mood/Affect
- Thinking
- Sleep and wake
 - Insomnia, sleepiness, REM Behaviors
- Initiative/Motivation/Impulse Control
- Perceptions/Sensory
- Coordination and balance

Cognition

- Attention and concentration
- Speech and language
- Orientation, registration and recall
- Visuospatial
- Calculations
- Judgment, insight, reasoning

What's Normal?

- What's his name?
- What's that called?
- Where did I park?
- Where did I put those?
- Did I tell you this already? Yes.
- Did I ask this already? Yes.
- Did you tell me this already? Yes.

What's Not Normal

- Getting lost in a familiar place.
- Not being able to follow a directions/recipe
- Telling the same story more than twice without asking.
- Asking the same question more than twice.
- Losing interest in conversation, leaving home, hygiene, other people

Cognitive Exam

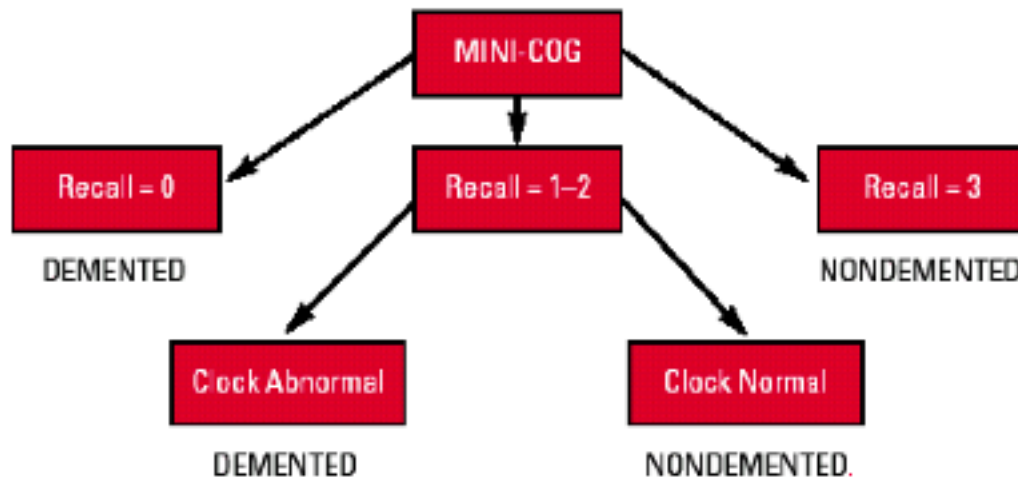
- Use standardized scale if possible:
 - Fast: Mini-Cog, Six-Item Screen, GPCOG
 - More sensitive and diagnostic: MMSE, MoCA, SLUMS
- No scale handy?
 - Good: Orientation, 3-word recall, clock
 - Better: add verbal fluency task, serial 3s or digit span and family/caregiver interview

Mini-Cog

- 3-word recall and clock draw test
- Pass/fail or 7-point scoring
- 2-4 minutes administration
- Validated across cultures
- Suitable for screening in primary care but not for diagnostic evaluation

Mini-Cog Algorithm

Figure 1. The Mini-Cog scoring algorithm. The Mini-Cog uses a three-item recall test for memory and the intuitive clock-drawing test. The latter serves as an "informative distractor," helping to clarify scores when the memory recall score is intermediate.



Reference

Borson S. The mini-cog: a cognitive "vitals signs" measure for dementia screening in multi-lingual elderly
Int J Geriatr Psychiatry 2000; 15(11):1021.

MONTREAL COGNITIVE ASSESSMENT (MOCA)

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

VISUOSPATIAL / EXECUTIVE		Copy cube		Draw CLOCK (Ten past eleven) (3 points)		POINTS	
				<input type="checkbox"/> Contour <input type="checkbox"/> Numbers <input type="checkbox"/> 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.		FACE	VELVET	CHURCH	DAISY	RED	No points
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					___/2
Subject has to repeat them in the backward order		[] 7 4 2					
Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors		[] FBACMNAAJKLBAFAKDEAAAJAMOF AAB					___/1
Serial 7 subtraction starting at 100		[] 93	[] 86	[] 79	[] 72	[] 65	___/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. []							___/2
The cat always hid under the couch when dogs were in the room. []							
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 Version 7.1 www.mocatest.org Normal ≥ 26 / 30						TOTAL	___/30
Administered by: _____						Add 1 point if ≤ 12 yr edu	

MOCA

(www.mocatest.org)

10-15 minutes

Educational bias

Sensitive enough for MCI

Diagnostic value

Available in many

languages

In the public domain

MoCA vs. MMSE

Nasreddine ZS et al. J Am Ger Soc 2005; 53:695-699

- MoCA (≤ 26)
 - Sensitivity
 - MCI=90%
 - Mild AD=100%
 - Specificity
 - Mild AD=87%
- MMSE (≤ 26)
 - Sensitivity
 - MCI=18%
 - Mild AD=78%
 - Specificity
 - Mild AD=100%

VAMC SLUMS Examination

Questions about this assessment tool? E-mail aging@slu.edu.

Name _____ Age _____
Is patient alert? _____ Level of education _____

/1
/1
/1

/3

/3
/5

/2

/4
/2

/8

1. What day of the week is it?
2. What is the year?
3. What state are we in?
4. Please remember these five objects. I will ask you what they are later.
Apple Pen Tie House Car
5. You have \$100 and you go to the store and buy a dozen apples for \$3 and a tricycle for \$20.
1 How much did you spend?
2 How much do you have left?
6. Please name as many animals as you can in one minute.
1 0-4 animals 2 5-9 animals 3 10-14 animals 4 15+ animals
7. What were the five objects I asked you to remember? 1 point for each one correct.
8. I am going to give you a series of numbers and I would like you to give them to me backwards.
For example, if I say 42, you would say 24.
1 87 2 649 3 8537
9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.
2 Hour markers okay
2 Time correct
10. Please place an X in the triangle.
1 Which of the above figures is largest?
11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.
Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
2 What was the female's name?
2 When did she go back to work?
2 What work did she do?
2 What state did she live in?

TOTAL SCORE

 Department of
Veterans Affairs



SAINT LOUIS
UNIVERSITY



SCORING

HIGH SCHOOL EDUCATION		LESS THAN HIGH SCHOOL EDUCATION
27-30	Normal	25-30
21-26	MNCD*	20-24
1-20	Dementia	1-19

* Mild Neurocognitive Disorder

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for Detecting Mild Cognitive Impairment and Dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *Journal of Geriatric Psychiatry* 14:500-510, 2006.

Six Item Screen

Wilbur et al. Acad Emerg Med 2008; 15:613-616

- Time orientation (day, month, year) and 3-item recall
- Average administration time: 1 minute
- May not be as sen/spec as MMSE
- Add CDT and animal or letter fluency for an excellent ad hoc exam

Functional Status

- ADLs
- IADLs (instrumental or cognitive ADLs)
- Descriptive instruments
 - General Practitioner Assessment of Cognition (GPCOG)
 - Clinical Dementia Rating Scale
 - Functional Assessment Scale

CPCOG (www.gpcog.com.au)

Brodaty H et al. JAGS 2002; 50:3:530-534

- Patient assessment of memory, date and CDT (2-5 minutes)
- Family interview regarding function and symptoms (1-3 minutes)
- Use of direct assessment and both patient and caregiver interview of ADLs is unique and increases sensitivity

Patient name: _____

Date: _____

GPCOG Screening Test

Step 1: Patient Examination

Unless specified, each question should only be asked once

Name and Address for subsequent recall test

1. "I am going to give you a name and address. After I have said it, I want you to repeat it. Remember this name and address because I am going to ask you to tell it to me again in a few minutes: John Brown, 42 West Street, Kensington." (Allow a maximum of 4 attempts).

Time Orientation

2. What is the date? (exact only)

Correct Incorrect

<input type="checkbox"/>	<input type="checkbox"/>
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Clock Drawing – use blank page

3. Please mark in all the numbers to indicate the hours of a clock (correct spacing required)
4. Please mark in hands to show 10 minutes past eleven o'clock (11.10)

<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Information

5. Can you tell me something that happened in the news recently? (Recently = in the last week. If a general answer is given, eg "war", "lot of rain", ask for details. Only specific answer scores).

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Recall

6. What was the name and address I asked you to remember

John
Brown
42
West (St)
Kensington

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

(To get a total score, add the number of items answered correctly)
Total correct (score out of 9)

/9

If patient scores 9, no significant cognitive impairment and further testing not necessary.

If patient scores 5-8, more information required. Proceed with Step 2, informant section.

If patient scores 0-4, cognitive impairment is indicated. Conduct standard investigations.

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Informant Interview

Date: _____

Informant's name: _____

Informant's relationship to patient, i.e. informant is the patient's: _____

These six questions ask how the patient is compared to when s/he was well, say 5 – 10 years ago

Compared to a few years ago:

- | | Yes | No | Don't Know | N/A |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| Does the patient have more trouble remembering things that have happened recently than s/he used to? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Does he or she have more trouble recalling conversations a few days later? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| When speaking, does the patient have more difficulty in finding the right word or tend to use the wrong words more often? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Is the patient less able to manage money and financial affairs (e.g. paying bills, budgeting)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the patient less able to manage his or her medication independently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Does the patient need more assistance with transport (either private or public)?
(If the patient has difficulties due only to physical problems, e.g. bad leg, tick 'no') | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

(To get a total score, add the number of items answered 'no', 'don't know' or 'N/A')

Total score (out of 6)

If patient scores 0-3, cognitive impairment is indicated. Conduct standard investigations.

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CLINICAL DEMENTIA RATING (CDR)

CLINICAL DEMENTIA RATING (CDR):	0	0.5	1	2	3
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	Impairment				
	None 0	Questionable 0.5	Mild 1	Moderate 2	Severe 3
Memory	No memory loss or slight inconsistent forgetfulness	Consistent slight forgetfulness; partial recollection of events; "benign" forgetfulness	Moderate memory loss; more marked for recent events; defect interferes with everyday activities	Severe memory loss; only highly learned material retained; new material rapidly lost	Severe memory loss; only fragments remain
Orientation	Fully oriented	Fully oriented except for slight difficulty with time relationships	Moderate difficulty with time relationships; oriented for place at examination; may have geographic disorientation elsewhere	Severe difficulty with time relationships; usually disoriented to time, often to place	Oriented to person only
Judgment & Problem Solving	Solves everyday problems & handles business & financial affairs well; judgment good in relation to past performance	Slight impairment in solving problems, similarities, and differences	Moderate difficulty in handling problems, similarities, and differences; social judgment usually maintained	Severely impaired in handling problems, similarities, and differences; social judgment usually impaired	Unable to make judgments or solve problems
Community Affairs	Independent function at usual level in job, shopping, volunteer and social groups	Slight impairment in these activities	Unable to function independently at these activities although may still be engaged in some; appears normal to casual inspection	No pretense of independent function outside home Appears well enough to be taken to functions outside a family home	
Home and Hobbies	Life at home, hobbies, and intellectual interests well maintained	Life at home, hobbies, and intellectual interests slightly impaired	Mild but definite impairment of function at home; more difficult chores abandoned; more complicated hobbies and interests abandoned	Only simple chores preserved; very restricted interests, poorly maintained	No significant function in home
Personal Care	Fully capable of self-care		Needs prompting	Requires assistance in dressing, hygiene, keeping of personal effects	Requires much help with personal care; frequent incontinence

Score only as decline from previous usual level due to cognitive loss, not impairment due to other factors.

Morris J et al. Neurology 1993; 43:2412-4

Functional Activities Questionnaire

Administration

Ask informant to rate patient's ability using the following scoring system:

- Dependent = 3
- Requires assistance = 2
- Has difficulty but does by self = 1
- Normal = 0
- Never did [the activity] but could do now = 0
- Never did and would have difficulty now = 1

Writing checks, paying bills, balancing checkbook	
Assembling tax records, business affairs, or papers	
Shopping alone for clothes, household necessities, or groceries	
Playing a game of skill, working on a hobby	
Heating water, making a cup of coffee, turning off stove after use	
Preparing a balanced meal	
Keeping track of current events	
Paying attention to, understanding, discussing TV, book, magazine	
Remembering appointments, family occasions, holidays, medications	
Traveling out of neighborhood, driving, arranging to take buses	
TOTAL SCORE:	

Evaluation

Sum scores (range 0-30). Cutpoint of 9 (dependent in 3 or more activities) is recommended to indicate impaired function and possible cognitive impairment.

Pfeffer R. et al.
J Gerontol.
1982; 37:3:323-329

Neuropsychological Testing

- Referral to neuropsychologist for sensitive documentation of cortical function (“deeper biopsy”).
- NOT diagnostic, although provides important cues to diagnosis and treatment.
- Not appropriate for acutely ill, >85 or more impaired patients.

Occupational Therapy

- Underutilized
- Provide functional assessment of IADLs
- Important both for diagnosis, treatment and safety planning.
- Driving? OT or driving school instructor.

Geriatric Depression Scale (GDS)

Scoring Instructions

Instructions: Score 1 point for each bolded answer. A score of 5 or more suggests depression.

- | | | |
|---|------------|-----------|
| 1. Are you basically satisfied with your life? | yes | no |
| 2. Have you dropped many of your activities and interests? | yes | no |
| 3. Do you feel that your life is empty? | yes | no |
| 4. Do you often get bored? | yes | no |
| 5. Are you in good spirits most of the time? | yes | no |
| 6. Are you afraid that something bad is going to happen to you? | yes | no |
| 7. Do you feel happy most of the time? | yes | no |
| 8. Do you often feel helpless? | yes | no |
| 9. Do you prefer to stay at home, rather than going out and doing things? | yes | no |
| 10. Do you feel that you have more problems with memory than most? | yes | no |
| 11. Do you think it is wonderful to be alive now? | yes | no |
| 12. Do you feel worthless the way you are now? | yes | no |
| 13. Do you feel full of energy? | yes | no |
| 14. Do you feel that your situation is hopeless? | yes | no |
| 15. Do you think that most people are better off than you are? | yes | no |

A score of ≥ 5 suggests depression

Total Score _____

Ref. Yes average: The use of Rating Depression Series in the Elderly in Form (34). Clinical Memory Assessment of Older Adults, American Psychological Association, 1986

Rule out depression
by interview, exam
and rating scale.

The Confusion Assessment Method (CAM) Diagnostic Algorithm

Feature 1: *Acute Onset and Fluctuating Course*

This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions: Is there evidence of an acute change in mental status from the patient's baseline? Did the (abnormal) behavior fluctuate during the day, that is, tend to come and go, or increase and decrease in severity?

Feature 2: *Inattention*

This feature is shown by a positive response to the following question: Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?

Feature 3: *Disorganized thinking*

This feature is shown by a positive response to the following question: Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

Feature 4: *Altered Level of consciousness*

This feature is shown by any answer other than "alert" to the following question:

Overall, how would you rate this patient's level of consciousness? (alert [normal]), vigilant [hyperalert], lethargic [drowsy, easily aroused], stupor [difficult to arouse], or coma [unarousable])

The diagnosis of delirium by CAM requires the presence of features 1 and 2 and either 3 or 4.

CAM Instrument and Algorithm adapted from Inouye, S., van Dyck, C., Alessi, C., Balkin, S., Siegel, A. & Horwitz, R. (1990). Clarifying confusion: the confusion assessment method. *Annals of Internal Medicine*, 113(12), 941-948.

Rule out delirium by history, exam and applying simple criteria.

Epworth Sleepiness Scale

Name: _____ Today's date: _____

Your age (Yrs): _____ Your sex (Male = M, Female = F): _____

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired?

This refers to your usual way of life in recent times.

Even if you haven't done some of these things recently try to work out how they would have affected you.

Use the following scale to choose the **most appropriate number** for each situation:

- 0 = would **never** doze
- 1 = **slight chance** of dozing
- 2 = **moderate chance** of dozing
- 3 = **high chance** of dozing

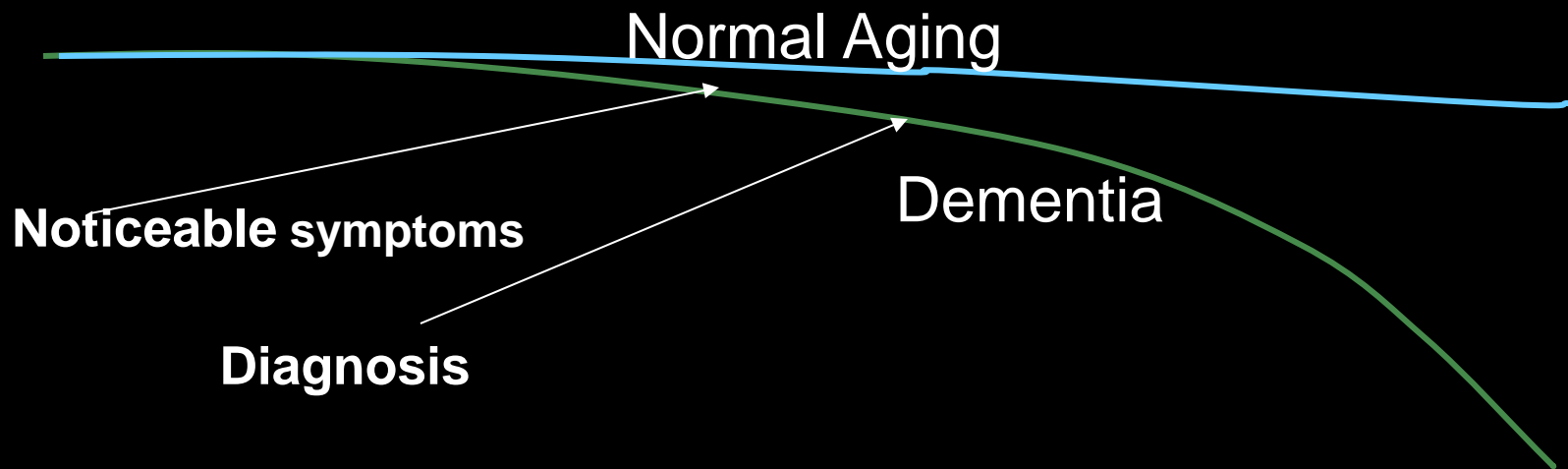
It is important that you answer each question as best you can.

Situation	Chance of Dozing (0-3)
Sitting and reading _____	_____
Watching TV _____	_____
Sitting, inactive in a public place (e.g. a theatre or a meeting) _____	_____
As a passenger in a car for an hour without a break _____	_____
Lying down to rest in the afternoon when circumstances permit _____	_____
Sitting and talking to someone _____	_____
Sitting quietly after a lunch without alcohol _____	_____
In a car, while stopped for a few minutes in the traffic _____	_____

THANK YOU FOR YOUR COOPERATION

Assess sleepiness by speaking with family, asking key questions and referring for OSA rule-out if ESS \geq 10.

Natural History of Cognitive Change



Progression of Memory Decline

- Age-associated memory impairment
 - Primarily episodic memory and noun retrieval
 - Not disabling or progressive
- Mild cognitive impairment
 - Significant episodic memory impairment
 - Not disabling but does progress
- Dementia
 - Disabling memory or executive dysfunction

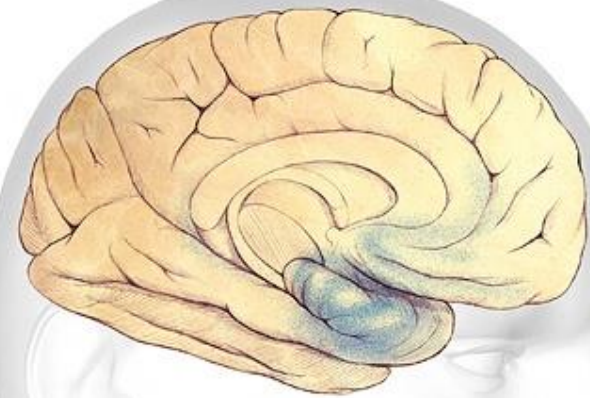
Mild Cognitive Impairment

Peterson R et al. Arch Neurol 1999; 56:303-308

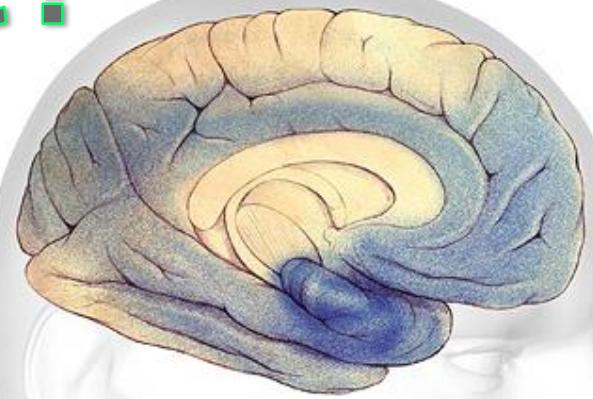
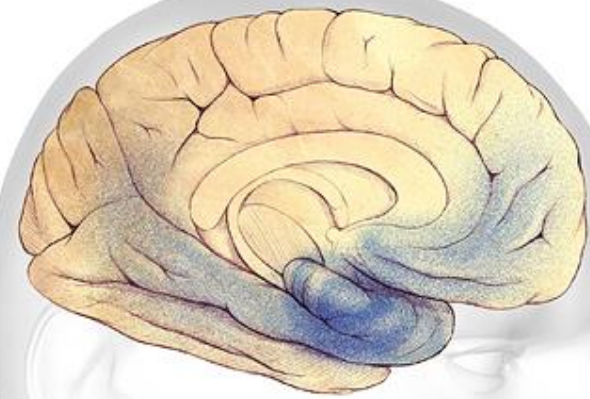
- Subjective memory complaint
- Normal ADLs
- Normal general cognition
- Abnormal memory for age (lowest 10%)
- At high risk for dementia
 - Initial report of conversion rate 12-15% per year vs. 1-2% for those w/normal recall
 - Subsequent cohorts convert at lower rates

Cognitive Changes

	<i>Aging</i>	<i>MCI</i>	<i>Dementia</i>
Recall and learning	Intact	Impaired	Impaired
Executive	Intact	Intact	Dependent
Reasoning	Abstract	Abstract	Concrete
Navigation	Intact	Transition	Impaired
Speech	Mild WFD	Transition	Anomia
Behavior	Normal	Changing	Changed



When Does Dementia Start?



Dementia Diagnosis:

McKhann GM et al. Alz & Dem 2011; 7:263-269

- Cognitive problem interferes w/ function
- Decline from previous level of function
- Not due to delirium or mental illness
- Impairment is validated by testing
- Impairment is present in ≥ 2 domains:
 - New learning and memory, executive, visuospatial, language, behavior

Causes of Dementia

- Primary Dementia: gradual, progressive
 - Alzheimer's disease
 - Multi-infarct vascular dementia
 - Dementia with Lewy Bodies
 - Parkinson's Disease Dementia
 - Frontotemporal Dementia
- Secondary dementia: acute or subacute:
 - Traumatic Brain Injury
 - CNS Infections
 - Alcohol-related (Korsakoff's)
- “Reversible” Causes
 - Medical and psychiatric causes

Reversible Causes

Fillit H, Cummings J. *Manag Care Interface*. 2000;13:51-56

- Metabolic
- Endocrine
- Alcoholism
- Drug toxicity
- Nutritional
- Vasculitis
- Brain tumor
- Subdural hematoma
- Hydrocephalus
- Psychiatric
- Infection

Labs and Imaging

- Labs: CBC, CMP, B12/folate, TSH
- Imaging: CT in most, especially with motor or gait findings unless very old and dementing > 3 years
- MRI if need to assess white matter
- PET/SPECT/LP if FTD suspected
- EEG if with rapid onset, myoclonus

AD Diagnosis:

McKhann GM et al. Alz & Dem 2011; 7:263-269

- Probable AD: dementia, insidious onset, worsening with time, either amnestic or nonamnestic presentation, no other disease accounts for findings
 - Supportive evidence (genetic, imaging and CSF biomarkers) add “increased level of certainty”
- “Possible” and “mixed” types remain

Imaging in AD: PET vs. PiB

Bacskai BJ et al. Arch Neurol 2007; 64:431-434

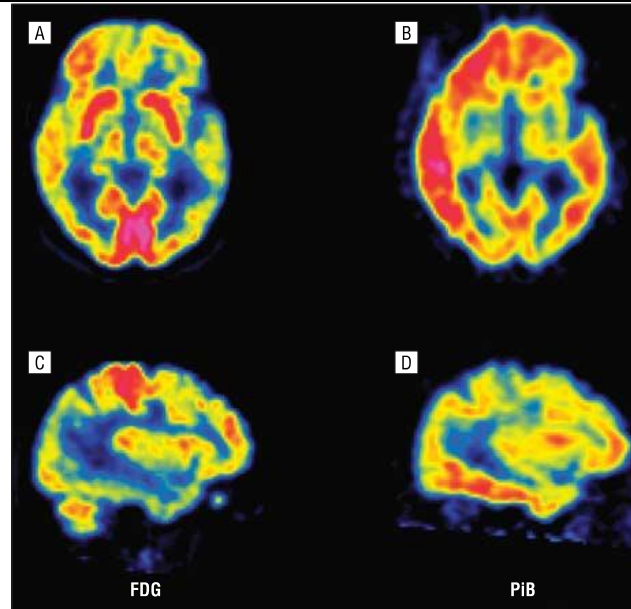


Figure 1. Positron emission tomography (PET) images from a 76-year-old patient with dementia. Fluorodeoxyglucose (FDG) and Pittsburgh Compound E (PiB) scans were performed within 3 years of each other. A and B, Positron emission tomography images from coregistered transaxial FDG (A) and PiB (B) PET images at the level of the striatum. Red areas represent higher metabolism of FDG and higher PiB retention. There is diffuse hypometabolism and PiB retention in frontal and temporal cortices. Regions with relatively normal metabolism, such as striata and medial occipital cortex, demonstrate relatively less PiB retention. Subject's left is at right. Evidence of the known subdural effusion occurring in the interval between FDG and PiB imaging is seen in the right frontal convexity of the PiB image. C and D, Coregistered left parasagittal FDG (C) and PiB (D) images at level of the insula. In this view, PiB retention is greatest in the inferior temporal gyrus, and there is relative sparing of the primary sensorimotor cortex where FDG uptake is highest.

Clinical Features At Diagnosis

	<i>AD</i>	<i>VaD</i>	<i>DLB</i>	<i>FTD</i>	<i>NPH</i>	<i>MDD</i>	<i>Delirium</i>
<i>age</i>	older	older	older	younger	older	older	older
<i>memory</i>	poor recent recall	slow retrieval	slow retrieval	variable	slow retrieval	slow retrieval	poor recent recall
<i>executive</i>	less severe	more severe	more severe	concrete, dysfluent speech	more severe	more severe	very severe
<i>attention problems</i>	normal to mild	variable	waxing/waning	ADD	variable	variable	waxing/waning
<i>motor findings</i>	slowing	focal and EPS	EPS	normal to mild	gait dyspraxia	slowing	ataxia
<i>psychiatric</i>	apathy, anxiety	apathy, anxiety	apathy, VH	apathy, disinhibit, delusions	apathy	anxious, sad, irritable	VH, delusion

Outline of Dementia Care:

Early Stages

- Pre-diagnosis: Assessment, counseling and reduction of risk factors
- Mild dementia: Discussion of diagnosis and prognosis, driving, supervision and support, quality of life activities, cognitive maintenance, medications

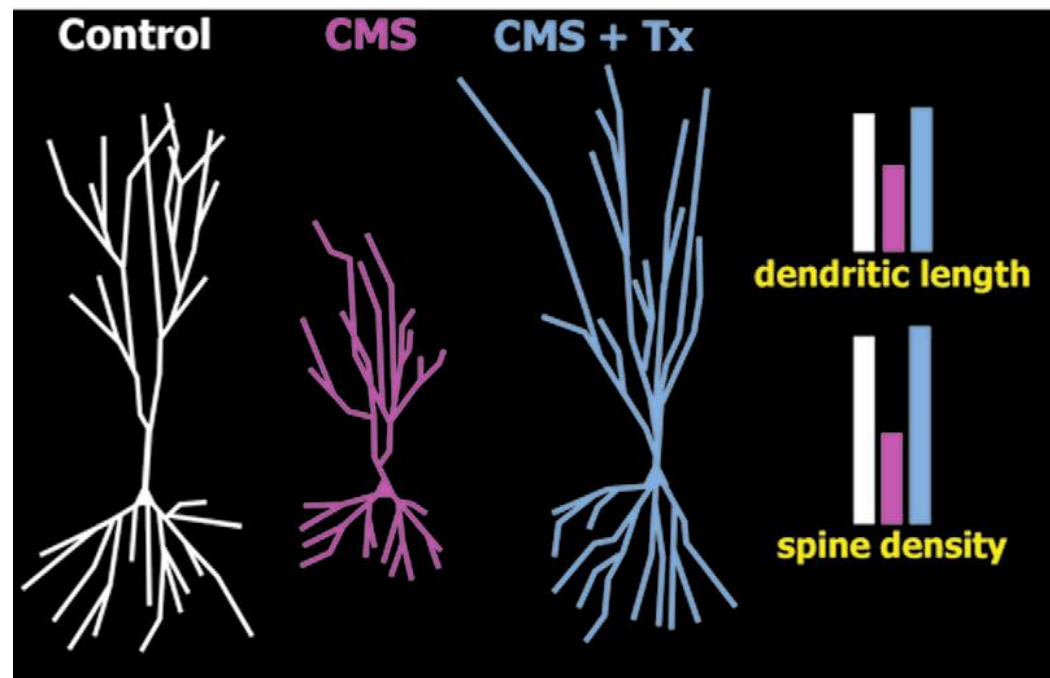
Mindful Practices

- Meditation, adequate sleep, exercise and stress reduction may help many of your middle-aged patients with memory complaints (“ADD by habit”).
- Frontal activation compensates (up to a point) for age-related declines in memory

Effects of Stress on Neurons

Kays JL et al. J Neuropsychiatry Clin Neurosci 2012; 24:2:118-24

FIGURE 3. Exposure of rats to 6 weeks of unpredictable chronic mild stress (CMS; pink) induces depressive-like behaviors (e.g., anhedonia, learned helplessness) and multiple detrimental effects in the hippocampus and medial prefrontal cortex (mPFC), including decreases in neurogenesis, dendritic length, and synaptic density, as compared with control conditions (white). Both behavioral and structural deficits can be reversed by administration of antidepressants (Tx) during the final 2 weeks of CMS (CMS + Tx; blue).¹³ Schematic representations of mPFC neurons under the three conditions illustrate average dendritic changes. The authors of this study noted that these results were independent of neurogenesis, suggesting that restoration of normal dendritic length and synaptic density underlie behavioral recovery.



Cholinesterase Inhibitors

- AD: Start and maintain for at least 1 yr.
 - expect improvement in some, slowed decline in most, mild psychotropic effect
- LBD/PDD (rivastigmine): Expect better response and moderate psychotropic effect (VH, delusions)
- VaD: Off label, less response (?) but often mixed with AD
- FTD, EtOH, TBI: No benefit

Memantine (Namenda)

- Typically added after several months on cholinesterase inhibitory (ChEI)
- Complementary mechanism to ChEI
- Very modest benefit when used alone
- Well tolerated
- FDA approved for moderate to severe AD

Psychotropic Target Symptoms

Analgesic:

*restless
calling out
grimacing
combative*

Mood Stabilizer

*impulsivity
hyperactivity*

Antidepressant

irritability

*anxiety
dysphoria*

Trazodone,
Quetiapine:

insomnia

Clonazepam:

*REM sleep
behavior*

Stimulants:

*apathy
sleepiness*

*physical
aggression*

*delusions
hallucinations*

Antipsychotic

Chl:

*apathy
hallucinations
misperceptions
confusion
inattention*

Cognitive Rehabilitation

- Promoting diet, exercise and cognitive activity interventions are not likely to help memory or cognition once dementia develops, but these efforts can provide hope.
- Various psychosocial interventions can improve mood, appetite, sleep, morale and quality of life.

Providing Information

- Diagnosis and prognosis
- Community resources for day programs and long term care
- Home safety (falls, fires, wandering)
- Driving evaluation
- Support groups and classes
- Alzheimer's Association, Alzheimer's Foundation of America, Family Caregiver Alliance

“The Husband” by [Joseph Mills](#)

He comes every day to eat lunch and sit with her in the sun room. Sometimes he reads letters out loud from their children or friends; sometimes he reads the paper as she sleeps. One day the staff makes her favorite cake to celebrate their anniversary, and he tells how, to buy her ring, he worked months of overtime at the factory, so she thought he was seeing someone else. "As if I would look at other women when I have Pearl," he says, shaking his head. She begins to cry and tells him, "You're sweet, but I miss my husband." He pats her hand. "I know," he says, "It's all right. Try some cake."

Resources

- Alzheimer's Association
 - www.alz.org and www.alz.org/maine
- Alzheimer's Disease Education and Referral Center
 - www.nia.nih.gov/Alzheimer's
- Family Caregiver Alliance
 - www.caregiver.org
- Alzheimer's Foundation of America
 - <http://www.alzfdn.org>
- Namaste End of Life Dementia Care
 - <http://namastecare.com>

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 - www.americangeriatrics.org/files/documents/resources/GEMS/Dementia.pdf
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