This project is supported by a grant from the Health Resources and Services Administration (HRSA), under grant number UB4HP19050 West Virginia Geriatric Education Center for $2,000,000. The information and conclusions are those of the author and should not be construed as the official policy of, nor should be any endorsement inferred by the HRSA, DHHR, or U. S. Government.
Learning Objectives

- Recognize the signs and symptoms of ADRD
- Describe the steps necessary to assess for and diagnose ADRD when present
- Describe the general strategies for managing ADRD in the context of other health conditions
- Recognize caregiver burden and depression, and help provide resources for ADRD caregivers who demonstrate significant burden and/or depression
First Polling Question

What is your profession/specialty?

A. Physician or Physician in training
B. Mid-level (PA/NP)
C. Nurse
D. Social Work
E. Nursing Home or other Healthcare Administration
F. Government or Insurance Industry
G. Other
Polling Question

True or False: Dementia is normal/universal in aging; everyone gets dementia if they live long enough!

A. Yes/True
B. No/False
News item:
“World's oldest woman had normal brain”

- Amsterdam, 9 June 2008 – A 115-year-old woman who remained mentally alert throughout her life had an essentially normal brain, with little or no evidence of Alzheimer's disease, according to a study in the August, 2008 issue of Neurobiology of Aging
Polling Question

Alzheimer’s is the:

A. #1 cause of death in the United States
B. #6 cause of death in the United States
C. #3 cause of death in the United States
D. None of the above
E. N/A; Alzheimer’s does not cause death
Causes of Death

The 15 leading causes of death in 2009 (Table B) were as follows:

1. Diseases of heart
2. Malignant neoplasms
3. Chronic lower respiratory diseases
4. Cerebrovascular diseases
5. Accidents (unintentional injuries)
6. Alzheimer’s disease
7. Diabetes mellitus
8. Influenza and pneumonia
9. Nephritis, nephrotic syndrome and nephrosis
10. Intentional self-harm (suicide)
11. Septicemia
12. Chronic liver disease and cirrhosis
13. Essential hypertension and hypertensive renal disease
14. Parkinson’s disease
15. Assault (homicide)

New study ranks Alzheimer’s as third-leading cause of death, after heart disease and cancer

By Tara Bahrampour, Published: March 5  E-mail the writer

Alzheimer’s disease likely plays a much larger role in the deaths of older Americans than is reported, according to a new study that says the disease may be the third-leading cause of death in the United States.

The Centers for Disease Control and Prevention lists Alzheimer’s as the sixth-leading cause of death, far below heart disease and cancer. But the new report, published Wednesday in the medical journal of the American Academy of Neurology, suggests that the current system of relying on death certificates for causes misses the complexity of dying for many older people and underestimates the impact of Alzheimer’s.
<table>
<thead>
<tr>
<th>TABLE 8. Ten Leading Causes of Death by Age and Sex, United States, 2011</th>
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<tbody>
<tr>
<td><strong>ALL AGES</strong></td>
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<tr>
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<tr>
<td><strong>MALE</strong></td>
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<td>All Causes</td>
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</tbody>
</table>
Dementia is Not Normal Aging!

- National: 5 million in US with AD in 2012, large increases projected, costs > $200 billion and rising.
- WV State: 44,000 people, with 50,000 expected by 2025
- WV State AD Registry
- 6th leading cause of death in the United States
- 5th leading cause of death in adults 65 and older

Do YOU list dementia as a cause of death on death certificates?
Prevalence of AD by Age

Famous PWAs

Margaret Thatcher's Dementia Confirmed


LONDON, Aug. 25 -- The daughter of former prime minister Margaret Thatcher said Britain’s “Iron Lady” is suffering from dementia, family’s first public confirmation of what has been widely rumored for years.

Thatcher’s condition has deteriorated so much that she forgets her name. The family said in a brief statement that she is in “a secure care facility under the supervision of medical professionals.”

Government officials said they had no information about Thatcher’s condition.

Rita Hayworth in Gilda

Special Report

Alzheimer’s Special Report: Why There’s Real Reason to Hope

Alzheimer’s Century

Alzheimer’s Special Report: Relationships Do Matter in Fending Off Alzheimer’s

Alzheimer’s Special Report: Obsessing Over Things May Be a Good Thing

Ronald Reagan 1911-2004
Polling Question

Have you seen and/or used the WV Alzheimer’s Registry?
A. Yes
B. No
WV AD Registry – Have you seen it?

### Diagnosing or Treating Physician

- **West Virginia Medical License Number:**
- **First Name:**
- **Middle Initial:**
- **Last Name:**
- **Physician’s Preferred Contact Address:**
  - **Street:**
  - **City:**
  - **State:**
  - **Zip:**
- **Telephone:**
- **Fax:**
- **Email:**
- **Medical Specialty:**
  - Neurology
  - Psychiatry
  - Geriatrics
  - Family/General Practice
  - Internal Medicine
  - Other
- **Estimated Diagnosis of Alzheimer’s Disease or Related Disorder (ADRD):**

### Patient Information & Medical History of Alzheimer’s Disease or Related Disorder (ADRD)

- **Patient’s Name:**
  - **First Name:**
  - **Middle Initial:**
  - **Last Name:**
  - **Maiden Name:**
- **Gender:**
  - Male
  - Female
- **Last Four Digits of Social Security Number:**
- **Place of Birth:**
  - **City:**
  - **State:**
  - **Country:**
  - **Date of Birth:**
- **Education Level:**
  - Grade School
  - High School
  - College
  - Graduate Degree
- **Patient’s Current Address:**
  - **Street:**
  - **City:**
  - **State:**
  - **Zip:**
- **With whom does the patient live?:**
  - Alone
  - Assisted living
  - Nursing home
  - State Facility
  - Veteran’s Administration facility
  - Private residence with caregiver
  - Other
- **In the caregiver:**
  - Spouse
  - Other family member
  - Paid assistant
  - Adult day care center
  - Other
- **Race:**
  - White
  - African American
  - American Indian/Alaskan Native
  - Asian Pacific Islander
  - Multi-racial
  - Other
- **Ethnicity:**
  - Non-Hispanic/Non-Latino
  - Hispanic
  - Other
- **Is the patient or caregiver interested in receiving further disease-related information?:**
  - Yes
  - No
- **Age at ADRD onset:**
  - Unknown
  - Age at ADRD diagnosis:
  - Unknown
- **If possible, classify patient’s dementia:**
  - Alzheimer’s disease
  - Senile dementia
  - Presenile dementia
  - Multi-infarct dementia
  - Vascular Dementia
  - Mixed dementia
  - Drug induced or alcoholic dementia
  - Medical diagnosis with dementia
  - Creutzfeldt-Jakob disease
  - Parkinson’s disease
  - Huntington’s disease
  - Dementia with Lewy Bodies
  - Frontotemporal Dementia
- **Stage of ADRD at Diagnosis:**
  - Early (Mild)
  - Middle (Moderate)
  - Late (Severe)
- **Current stage of ADRD:**
  - Early (Mild)
  - Middle (Moderate)
  - Late (Severe)
- **ADRD-related exams:**
  - EEG
  - Mini Mental
  - MRI
  - Others
- **Is the patient receiving prescription medication(s) for ADRD?:**
  - Yes
  - No
- **Other health conditions:**
  - Obesity
  - Diabetes
  - Hypertension
  - Elevated cholesterol
  - Cardiovascular disease
  - cerebrovascular disease
  - Neurological disease
  - Other
- **Does the patient have any other psychiatric illness?:**
  - Yes
  - No
- **Does the patient have blood relatives that have or had ADRD?:**
  - Yes
  - No
  - Unknown
- **Has the patient been exposed to the following?:**
  - Head trauma
  - Tobacco
  - Drug abuse
  - Alcohol abuse
  - Prolonged exposure to contaminants and/or toxins?
Welcome to the West Virginia Alzheimer’s Disease Registry

The West Virginia Alzheimer’s Disease Registry collects information concerning Alzheimer disease and related disorders among West Virginians. It acts as a central information for policy, planning and research concerning Alzheimer’s disease and related disor...
Spectrum of Cognitive Impairment

Charting the Course of Healthy Aging, MCI, and AD

- AD brain changes start decades before symptoms show
- Amnestic MCI: memory problems; other cognitive functions OK; brain compensates for changes
- Cognitive decline accelerates after AD diagnosis

- Normal age-related memory loss
- Total loss of independent function

Birth | 40 | 60 | 80 | Death

Life Course

Healthy Aging | Amnestic MCI | Clinically Diagnosed AD
Many Types of Dementia/Neurocognitive Disorders/Degenerative Brain Diseases

- Alzheimer’s disease (AD)
- Lewy Body Disease (LBD)
- Vascular dementia (VaD)
- Parkinson’s Disease dementia (PDD)
- Frontotemporal dementias (FTD/FTLD, Pick’s, PSP, CBD) (Tau Protein Disorders)
- Huntington’s disease
- Normal Pressure Hydrocephalus (NPH)
- Alcoholic Dementia
- Anoxic/Traumatic Brain Injury (TBI/Dementia Pugilistica)
- Infectious: Creutzfeldt-Jakob disease (Prion), HIV
Alzheimer’s disease (AD)

- First described 1907 by Alois Alzheimer (German Neuropathologist) in a 52 year old woman
- Pathological findings at autopsy
  - B-amyloid plaques
  - Neurofibrillary tangles (Tau protein)
- Biomarkers
  - Biomarkers of brain amyloid-beta (Aβ) protein deposition: low cerebrospinal fluid Aβ_{42} and positive PET amyloid imaging
  - 3 major biomarkers of downstream neuronal degeneration or injury are: elevated CSF tau, [both total tau and phosphorylated tau (p-tau)]; decreased ¹⁸fluorodeoxyglucose (FDG) uptake on PET in temporo-parietal cortex; and disproportionate atrophy on structural magnetic resonance imaging in medial, basal, and lateral temporal lobe, and medial parietal cortex.
Auguste D was born in May 1850. Her maiden name is unknown: however, the D stands for Deter. She married Karl Deter in the 1880s or so and together they had one daughter. Auguste had a normal life. However, during the late 1890s, she started showing symptoms of dementia. After many years, she became completely mindless, muttering to herself. She died on 8 April 1906. She was the first person diagnosed with Alzheimer's Disease.
ABOUT A PECULIAR DISEASE OF THE CEREBRAL CORTEX


BY ALOIS ALZHEIMER
TRANSLATED BY L. JARVIK AND H. GREENSON

A. reports on his observation of a patient at the insane asylum in Frankfurt/Main whose central nervous system he examined at the request of Director Sioli. The picture he presents is of a case so deviant even on clinical grounds alone that it does not fit into any of the known disease categories, and the anatomical findings diverge from all currently known disease processes.

CASE PRESENTATION

The first noticeable symptom of illness shown by this 51-year-old woman was suspiciousness of her husband. Soon, a rapidly increasing memory impairment became evident; she could no longer orient herself in her own dwelling, dragged objects here and there and hid them, and at times, believing that people were out to murder her, started to scream loudly.
SDAT - Neuropathology

- Senile or neuritic or beta amyloid plaques
  - Extra-cellular lesions composed of amyloid peptides which appear to cause brain dysfunction and cell death.

- Neurofibrillary tangles
  - Intracellular paired helical filaments found predominantly in hippocampus and temporal cortex. Composed of abnormally phosphorylated tau proteins (normal component of microtubules).
Definition of Dementia

- Global progressive cognitive impairment sufficient to impair functioning.
- Distinguish from normal aging/benign senescent forgetfulness/MCI, CIND.
- Term “senility” vague and pejorative and should not be used.
- A syndrome, not a disease: Alzheimer’s Disease most common cause.
- “Neurocognitive disorder” (DSMV)
What is Dementia?

- From Latin; de- “away” + mentis “mind”
- A loss of previously acquired cognitive skills
- Dementia is a term, like “heart disease”, that is used to describe a group of diseases
DSM IV Diagnostic Criteria for AD/
Dementia of Alzheimer’s Type 331.0/294.1

1. Dementia: development of multiple cognitive deficits manifested by memory impairment, word finding difficulty, and at least one of the following cognitive disturbances: aphasia, apraxia, agnosia, disturbance in executive functioning

2. Course characterized by gradual onset and decline

3. Cognitive deficits cause significant impairment in social or occupational function and represent a significant decline from previous level of functioning

4. Cognitive deficits not due to other Central Nervous System conditions, systemic conditions, substance induced conditions, delirium, or any other mental disorder (e.g. depression, schizophrenia).
### Major Neurocognitive Disorder

#### Diagnostic Criteria

A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:
   1. Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and
   2. A substantial impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.

B. The cognitive deficits interfere with independence in everyday activities (i.e., at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).

C. The cognitive deficits do not occur exclusively in the context of a delirium.

D. The cognitive deficits are not better explained by another mental disorder (e.g., major depressive disorder, schizophrenia).

**Specify whether due to:**
- Alzheimer’s disease
- Frontotemporal lobar degeneration
- Lewy body disease
- Vascular disease
- Traumatic brain injury
- Substance/medication use
- HIV infection
- Prion disease
- Parkinson’s disease
- Huntington’s disease
- Another medical condition
- Multiple etiologies
- Unspecified
views & reviews

Article abstract—Clinical criteria for the diagnosis of Alzheimer’s disease include insidious onset and progressive impairment of memory and other cognitive functions. There are no motor, sensory, or coordination deficits early in the disease. The diagnosis cannot be determined by laboratory tests. These tests are important primarily in identifying other possible causes of dementia that must be excluded before the diagnosis of Alzheimer's disease may be made with confidence. Neuropsychological tests provide confirmatory evidence of the diagnosis of dementia and help to assess the course and response to therapy. The criteria proposed are intended to serve as a guide for the diagnosis of probable, possible, and definite Alzheimer's disease; these criteria will be revised as more definitive information becomes available.

Clinical diagnosis of Alzheimer’s disease:
Report of the NINCDS-ADRDA Work Group* under the auspices of Department of Health and Human Services Task Force on Alzheimer’s Disease

Guy McKhann, MD; David Drachman, MD; Marshall Folstein, MD; Robert Katzman, MD; Donald Price, MD; and Emanuel M. Stadlan, MD
NINCDS-ADRDA Criteria (Neurology, 1984)

- **Probable AD**
  - Dementia established by clinical examination, progressive worsening of memory/cognition, no disturbance of consciousness, onset between 40-90, absence of other disorders that could account for the deficits. Supported by impaired ADL, family history, normal/nonspecific labs/EEG/CT.

- **Possible AD**
  - Dementia syndrome in the absence of other explanatory disorders, in the presence of variations in onset, presentation or course, may be made in presence of another condition which is not considered to be the primary cause of dementia.

- **Definite AD**
  - Clinical criteria for probable AD plus histopathological evidence obtained from biopsy or autopsy.
NIA-Alzheimer’s Association’s Revised Diagnostic Guidelines for Alzheimer’s disease

- Several articles in Alzheimer’s & Dementia, 2011
- For clinical use:
  - Mild cognitive impairment because of AD (MCI)
  - Alzheimer’s disease (AD Dementia)
- For research purposes:
  - Preclinical AD
  - (by definition cannot be used clinically)
  - Pathological diagnosis of AD
Core Clinical Criteria for Dementia

Cognitive or behavioral (neuropsychiatric) symptoms:

1. Interfere with the ability to function at work or at usual activities; and
2. Represent a decline from previous levels of functioning and performing; and
3. Are not explained by delirium or any other major psychiatric disorder; and
Core Criteria (cont.)

4. Cognitive impairment is detected and diagnosed through a combination of:
   A. history-taking from the patient and a knowledgeable informant, and
   B. (2) an objective cognitive assessment, either a bedside mental status examination or neuropsychological testing.

   • Neuropsychological testing should be performed when the routine history and bedside mental status examination cannot provide a confident diagnosis.
Probable AD

Meets criteria for dementia, and has the following characteristics:

• Insidious onset. Symptoms have a gradual onset over months to years, not sudden over hours or days; and

• Clear-cut history of worsening of cognition by report or observation; and

• The initial and most prominent cognitive deficits are evident on history and examination in one of the following categories.
Probable AD: Presentations

- Amnestic presentation
- Language presentation:
  - The most prominent deficits are in word-finding, but deficits in other cognitive domains should be present.
- Visuospatial presentation:
  - The most prominent deficits are in spatial cognition, including object agnosia, impaired face recognition, simultanagnosia, and alexia. Deficits in other cognitive domains should be present.
- Executive dysfunction:
  - The most prominent deficits are impaired reasoning, judgment, and problem solving. Deficits in other cognitive domains should be present.
Do not use the dx “Probable AD” if:

- Substantial concomitant cerebrovascular disease, or
- Core features of dementia with Lewy bodies other than dementia itself; or
- Prominent features of behavioral variant frontotemporal dementia; or
- Prominent features of semantic variant primary progressive aphasia or nonfluent/agrammatic variant primary progressive aphasia; or
- Evidence for another concurrent, active neurological disease, or a non-neurological medical comorbidity or use of medication that could have a substantial effect on cognition.
Possible AD

• Atypical course
  • E.g. has a sudden onset of cognitive impairment or demonstrates insufficient historical detail or objective cognitive documentation of progressive decline

• Etiologically mixed presentation
  • Concomitant cerebrovascular disease, or
  • Features of dementia with Lewy bodies other than the dementia itself, or
  • Evidence for another neurological disease or a non-neurological medical comorbidity or medication use that could have a substantial effect on cognition

• Definite AD: Pathological diagnosis
Non-Alzheimer’s Dementias

- Vascular
- Lewy Body
- Parkinson’s
- Frontotemporal
- Huntington’s
- Creutzfeldt-Jakob
- HIV
- NPH
Lewy Body Dementia (LBD)

Central feature

- Progressive dementia - deficits in attention and executive function are typical. Prominent memory impairment may not be evident in the early stages.

Core features:

- Fluctuating cognition with pronounced variations in attention and alertness.
- Recurrent complex visual hallucinations, typically well formed and detailed.
- Spontaneous features of parkinsonism.

Suggestive features:

- REM sleep behavior disorder (RBD), which can appear years before the onset of dementia and parkinsonism.
- Severe sensitivity to neuroleptics occurs in up to 50% of LBD patients who take them.
- Low dopamine transporter uptake in the brain's basal ganglia as seen on SPECT and PET imaging scans. (These scans are not yet available outside of research settings.)

Supportive features:

- Repeated falls and syncope (fainting).
- Transient, unexplained loss of consciousness.
- Autonomic dysfunction.
- Hallucinations of other modalities.
- Visuospatial abnormalities.
- Other psychiatric disturbances.

A clinical diagnosis of LBD can be probable or possible based on different symptom combinations.
Frontotemporal Dementias (FTD/FTLD)
Several types: Pick’s disease, Primary Progressive Aphasia, Semantic dementia, PSP, CBD
Vascular Dementia (VaD)
Clinical/Pathological Criteria

- Clinical definition of VaD:
  1) Dementia (decline in memory and intellectual abilities causing impaired ADL)
  2) Evidence of cerebrovascular disease clinically/brain imaging
  3) They must be reasonably temporally related

- Brain imaging: large vessel strokes, small vessel / subcortical disease, and/or leukoencephalopathy.

- No specific radiologic lesions. Absence of ischemia rules out VaD.

- Mixed dementia = AD + CVD

- Probable, possible, definite
Normal Pressure Hydrocephalus

- Friedland RP. 'Normal'-pressure hydrocephalus and the saga of the treatable dementias. JAMA 1989;252:2577-258.
Dementia/Cognitive Impairment - Differential Dx

- Depression (pseudo-dementia), other psychiatric disorders, delirium
- Medication/drug/alcohol/chemical toxicity
- Metabolic/Endocrine
  - Azotemia/Renal failure/dehydration/hyponatremia/acid-base
  - Hypoglycemia/hyperglycemia
  - Hepatic insufficiency
  - Hypothyroidism/hyperthyroidism
  - Hypercalcemia
  - Adrenal/pituitary insuff./Cushing’s
  - Nutritional deficiencies/B12/ folate/niacin
- Infection/fever
- Cardiopulmonary/vascular/MI/CHF/PE/COPD/CVA
- Brain trauma/subdural/NPH/concussion/hemorrhage/infection/tumor
- Pain/surgical abdomen/fecal/urinary retention
- Hospitalization/anesthesia/sensory deprivation/blindness/deafness
- Heme Onc/Anemia/CA/ Para-neoplastic syndromes, “CHEMO BRAIN”
- Post- delirium “ICU Brain”
Mild Cognitive Impairment (MCI)

- Concern regarding a change in cognition:
  - There should be evidence of concern about a change in cognition, in comparison with the person’s previous level.
- Impairment in one or more cognitive domains
  - Decline in episodic memory most common in MCI due to AD
- Preservation of independence in functional abilities
- Not demented
  - These cognitive changes should be sufficiently mild that there is no evidence of significant impairment in social or occupational functioning.
MCI (cont.)

- Because other domains of cognitive function may be involved, it is important to test more than memory
  - Executive functions (e.g., set-shifting, reasoning, problem-solving, planning),
  - Language (e.g., naming, fluency, expressive speech, and comprehension),
  - Visuospatial skills,
  - Attentional control (e.g., simple and divided attention).
Mild Cognitive Impairment (MCI)

Mild cognitive impairment (MCI) is a general term most commonly defined as a subtle but measurable memory disorder. A person with MCI experiences memory problems greater than normally expected with aging, but does not show other symptoms of dementia, such as impaired judgment or reasoning.

Compared with the large body of information about Alzheimer’s disease, research about MCI is at a relatively early stage. Because scientists are still answering basic questions about this disorder, it is important to note that the definition of MCI is itself a “work in progress.”

Defining MCI
In 2001, the American Academy of Neurology (AAN) published practice guidelines for the early detection of memory problems. The AAN workgroup of specialists identified the following criteria for an MCI diagnosis:

- an individual’s report of his or her own memory problems, preferably confirmed by another person
- measurable, greater-than-normal memory impairment detected with standard memory assessment tests
- normal general thinking and reasoning skills
- ability to perform normal daily activities
Polling Question

Should you screen all older patients for dementia with a formal mental status test (e.g. MMSE, Mini-Cog, etc.)

A. Yes
B. No
Screening for AD

- Lots of interest, but with pros and cons

- Pros:
  - Early diagnosis
  - Potential opportunities to participate in future trials
  - Opportunity to begin planning earlier

- Cons:
  - Increased anxiety / depression
  - Labeling
  - Not currently able to change the course of illness
Screening for AD (cont.)

- Busy primary care practitioners need to be able to identify those patients who need more evaluation (whether pure screening, or in response to a vague or general concern)
- Medicare AWV includes a cognitive screen – no specific instrument required but MINI-COG suggested.
USPSTF 2014

Screening for Cognitive Impairment in Older Adults: U.S. Preventive Services Task Force Recommendation Statement

Virginia A. Moyer, MD, MPH, on behalf of the U.S. Preventive Services Task Force*

Description: Update of the 2003 U.S. Preventive Services Task Force (USPSTF) recommendation on screening for dementia.

Methods: The USPSTF reviewed the evidence on the benefits, harms, and sensitivity and specificity of screening instruments for cognitive impairment in older adults and the benefits and harms of commonly used treatment and management options for older adults with mild cognitive impairment or early dementia and their caregivers.

Population: This recommendation applies to universal screening with formal screening instruments in community-dwelling adults in the general primary care population who are older than 65 years and have no signs or symptoms of cognitive impairment.

Recommendation: The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for cognitive impairment. (I statement)

For author affiliation, see end of text.
* For a list of USPSTF members, see the Appendix (available at www.annals.org).
This article was published online first at www.annals.org on 25 March 2014.

BUT:

SUBJECTIVE MEMORY COMPLAINTS LINKED TO COGNITIVE DECLINE
Brief Screening: Mini-Cog

- The Mini-Cog assessment instrument:
  - Give 3 words to remember
  - Clock-drawing test (CDT)
  - Recall the 3 words
- Can be administered in <= 3 minutes
- Requires no special equipment
- Relatively uninfluenced by level of education or language variations.
Clock Drawing Test
Folstein Mini-Mental State Exam (MMSE)

- 30 point scale
- Originally published 1975, widely used, and sensitive to changes in patient’s ability (i.e. lower scores correlate well with worsening cognition)
- Copyright issues have created confusion about this test, especially for researchers
- Consider Montreal Cognitive Assessment Test (MOCA), St. Louis University Memory Screen (SLUMS) (free and in public domain)
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
   1. How much did you spend?
   2. How much do you have left?
   3. Please name as many animals as you can in one minute.
      0-4 animals  5-9 animals  10-14 animals  15+ animals
   4. What were the five objects I asked you to remember? 1 point for each one correct.
   5. 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.
      87  649  8357
   6. This is a clock face. Please put in the hour markers and the time at
      ten minutes to eleven o’clock.
   7. Time correct
   8. Please place an X in the triangle.
   9. Which of the above figures is largest?
   10. 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.

   What was the female’s name?
   What work did she do?
   When did she go back to work?
   What state did she live in?

TOTAL SCORE

SCORING

High School Education
- Normal: 25-30
- MND: 20-24
- Dementia: 1-19

* Mild Neurocognitive Disorder

Department of Veterans Affairs

Saint Louis University
Course and Stages of Alzheimer’s/Dementia

1) Normal (no cognitive decline)
2) Forgetfulness (very mild cognitive decline)
3) Forgetfulness (MCI; earliest clear cut deficits)
4) Late confusional (mild AD/moderate cognitive decline)
5) Early dementia (moderate AD/moderately severe decline)
6) Middle dementia (moderate to severe AD/severe cognitive decline)
7) Late dementia (severe AD/very severe cognitive decline).(HOSPICE)

Clinical Dementia Rating Scale
0 = Normal
0.5 = Very Mild Dementia
1 = Mild Dementia
2 = Moderate Dementia
3 = Severe Dementia
AD: Making a Diagnosis

- Patient with a consistent clinical presentation, with clinical evidence of cognitive impairment, what additional work up is needed?
- Careful history and physical exam, especially looking for evidence of focal neurological deficits, medical conditions that could impair cognition
- Careful review of all medications
# Medications That Can Cause Memory Loss or Confusion

<table>
<thead>
<tr>
<th>Medication Category</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allergy Medications</strong></td>
<td>Benadryl, Diazinon, Slinex, Vistaril</td>
</tr>
<tr>
<td><strong>Anti-anxiety</strong></td>
<td>Ativan, Equanil, Librium, Miltown, Serax, Valium, Xanax</td>
</tr>
<tr>
<td><strong>Antidepressants</strong></td>
<td>Asedin, Desyrel, Elavil, Lithium, Ludiomil, Norpramin, Pamelar, Sinequan, Surmontil, Tofranil</td>
</tr>
<tr>
<td><strong>Antipsychotics</strong></td>
<td>Haldol, Mellaril, Navane, Thoraazine</td>
</tr>
<tr>
<td><strong>Ant-Seizure</strong></td>
<td>Dilantin, Phenobarbital, Primidone, Phenytoin</td>
</tr>
<tr>
<td><strong>Heart Medications</strong></td>
<td>Aldomet, Apresoline, Atropine, Catepres, Digitalis, Diuretics, Inderal, Lidocaine, Lopressor, Reserpine</td>
</tr>
<tr>
<td><strong>Hypnotics</strong></td>
<td>Ativan, Barbiturates, Chloral Hydrate, Serax, Xanax</td>
</tr>
<tr>
<td><strong>Parkinson’s Drugs</strong></td>
<td>Bromocriptine, L-Dopa, Sinemet, Symmetrel</td>
</tr>
<tr>
<td><strong>Other Medications</strong></td>
<td>General Anesthesia, Insulin, Narcotic pain medication, Non-narcotic pain medication, Pepcid, Steroids, Tagamet, Zantac</td>
</tr>
</tbody>
</table>
AD: Making a Diagnosis (cont.)

- Complete blood count, sedimentation rate
- Chemistry panel
- Thyroid function
- Assess Vitamin B12 levels (better to check methylmalonic acid level to detect clinically significant deficiency)
- Consider CT or MRI imaging
- Depression screening
Geriatric Depression Scale (GDS)

- 15 questions, may be self-administered
- 5 or more “positive” responses suggestive of clinically significant depression
- More severe cognitive impairment may limit effectiveness of screen
- If cognitive impairment mild, and depression severe, consider treating depression before making AD diagnosis
The Mini-Mental State Exam

<table>
<thead>
<tr>
<th>Maximum</th>
<th>Score</th>
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<tbody>
<tr>
<td>5</td>
<td>0</td>
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<tr>
<td>5</td>
<td>0</td>
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<tr>
<td>3</td>
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<tr>
<td>5</td>
<td>0</td>
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<tr>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Orientation**
What is the year (season) (date) (day) (months)?

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.

Attention and Calculation
Serial 7s. 1 point for each correct answer. Stop after 5 answers. Alternatively spell “world” backward.

Recall
Ask for the 3 objects repeated above. Give 1 point for each correct answer.

Language
Name a pencil and watch. Repeat the following “No ink, and, or buts”.

“Take a paper in your hand, fold it in half, and put it on the floor.”

Read and obey the following: CLOSE YOUR EYES

Write a sentence. Copy the design shown.

Total Score
ASSESS level of consciousness along a continuum.

MINI-MENTAL STATE: A PRACTICAL METHOD FOR GRADING THE COGNITIVE STATE OF PATIENTS FOR THE CLINICIAN.

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Geriatric Depression Scale

Date: ___________ Patient Name: ___________

Yes No

1. Are you basically satisfied with your life? 0 1
2. Have you dropped many of your activities and interests? 1 0
3. Do you feel that your life is empty? 1 0
4. Do you often get bored? 1 0
5. Are you are you in good spirits most of the time? 0 1
6. Are you afraid something bad is going to happen to you? 1 0
7. Do you feel happy most of the time? 0 1
8. Do you often feel helpless? 1 0
9. Do you prefer to stay at home, rather than going out and doing new things? 1 0
10. Do you feel you have more problems with memory than most? 1 0
11. Do you think it is wonderful to be alive? 0 1
12. Do you feel pretty worthless the way you are now? 1 0
13. Do you feel full of energy? 0 1
14. Do you feel your situation is hopeless? 1 0
15. Do you think that most people are better off than you are? 1 0

Total (over 5 indicates depression)
Questions or Comments about Part 1?