A Fresh View of Cognitive Disorders in Older Adults:
New Classification and Screening Strategies

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http://www.alz.org/alzheimers_disease_facts_and_figures.asp
Alzheimer’s Association
The Brain

Lobes of the Cerebral Cortex
A. Evidence of cognitive decline from previous higher level of functioning in 1 or more cognitive domains. Due to concern of individual, reliable historian or practitioner and preferably documented modest impairment on standardized neuropsychological testing

B. No IADLs deficits, but may require compensation

C. Rule out delirium

D. Deficits not caused by other mental disorders such as MDD or schizophrenia
Step 2: Specify subtype

Step 3: Specify with or without behavioral disturbances
Major NCD:

A. Evidence of cognitive decline from previous higher level of functioning in 1 or more cognitive domains. Due to concern of individual, reliable historian, or practitioner and preferably documented substantial impairment on standardized neuropsychological testing.

B. Interferes with daily IADLs

C. Rule out delirium

D. Deficits not caused by other mental disorders, such as MDD or schizophrenia
DSM-5:Dx Initial Steps: 
Mild versus Major NCD

- Step 2: Specify Subtype
- Step 3: Specify with or without behavioral disturbances
- Step 4: Specify severity:
  - A. Mild: Difficulty with IADLs
  - B. Moderate: Difficulty with ADLs
  - C. Severe: Complete dependence

APA 2013
Subtypes of NCD

Common

- Alzheimer’s Disease (AD):
  - Most common form, at least 50% of cases
- Vascular dementia: Multi-infarct, Diffuse White Matter (Binswanger)
  - Common in elderly, esp. w/ vascular dz risk factors
- Alcoholism
- Drugs/medication intoxication
- Parkinson’s Disease (PD)
Less common causes of NCD

- **Vitamin Def:** B1; B12; Nicotinic Acid
- **Endocrine d/o, organ failure:** Hypothyroid; adrenal dysfunction; hyper- or hypo-parathyroidism; liver failure; respiratory failure
- **Chronic infections:** HIV; neurosyphilis; papovavirus; TB, fungal; protozoal; Whipple’s dz
- **Head trauma/brain damage:** dementia pugilistica; chronic SDH; postanoxia; postencephalitis; NPH
- **Toxic d/o:** Drugs; opioid poisoning; heavy metal intox; dialysis; organic toxins
- **Psychiatric illnesses:** Depression; schizophrenia; conversion reaction

Harrison's online: www.accessmedicine.com/popup.aspx?alID=9146243
Less common causes of NCD

Degenerative d/o:
- Huntington's Dz
- Dementia with Lewy Bodies; (DLB)
- Progressive Supranuclear Palsy
- Multisystem Atrophy
- Hereditary ataxias
- Motor neuron dz (ALS)
- Frontotemporal Dementia (FTD- most common under age 65);

- Corticobasal degeneration;
- MS
- Adult Down’s Syndrome with AD
- ALS Parkinson’s Complex Dementia of Guam;
- Prion Dz (Creutzfeldt-Jacob)

Harrison's online:
www.accessmedicine.com/popup.aspx?aID=914624
Less common causes of NCD

Others:
- Sarcoidosis
- Vasculitis
- CADASIL
- Acute intermittent porphyria
- Recurrent non convulsive seizures

Neoplastic:
- Primary or metastatic brain tumor
- Paraneoplastic limbic encephalitis
Medical w/u for NCD

Usual:
- History, PE, detailed neuro exam, depression screening
- Labs: TSH, B12, CBC, Lytes, CT/MRI

Optional/Focused
- Psychometric testing
- CXR
- Lumbar puncture
- LFTs
- Renal Fx
- Urine toxin screen
- HIV
- Apolipoprotein E (APOE)
- RPR or VDRL
Key functional areas of the brain

- Intelligence, judgement, and behavior
- Language
- Memory
Clinical Presentation

Alzheimer’s Disease (AD)
- 1st Sx: Memory Loss
- Mental Status: Episodic memory loss
- Neuropsych: Initially normal
- Neuro Exam: Initially normal
- Imaging: Entorhinal cortex and hippocampus atrophy

Frontal Temporal Dementia (FTD)
- 1st Sx: Apathy; poor judgment/insight; speech/language impairment; hyperorality
- MS: Frontal/executive, language, spares memory
- NP: Apathy, disinhibition, hyperorality, euphoria, depression
- Exam: Vertical gaze palsy, axial rigidity, dystonia, alien hand or MND
- Imaging: Frontal, insular +/- temporal atrophy; spares posterior parietal lobe
Clinical Presentation

Dementia-Lewy Body (DLB) or NCDLB

1st Sx: Visual hallucinations, REM sleep d/o, delirium, Capgras syndrome, parkinsonism

Mental Status: Drawing & frontal/executive impaired; spares memory, delirium prone

Neuropsych: Visual hallucinations, depression, sleep problems, delusions

Neuro Exam: Parkinsonism

Imaging: Posterior parietal atrophy; hippocampi larger c/t AD

Vascular Dementia

1st Sx: May be sudden; apathy; falls; focal weakness

MS: Frontal/executive; cognitive slowing; can spare memory

NP: Apathy, delusions, anxiety

Exam: Motor slowing, spasticity, can be normal

Imaging: Cortical +/- subcortical infarcts; confluent white matter disease
Brain MRI, T2 sequence: multiple cortical and subcortical infarcts in a vascular dementia patient.

Tsiptsios et al. (2003). *Annals of General Hospital Psychiatry*. 2:8
doi:10.1186/1475-2832-2-8
Screening Tests


- SLUMS: St Louis Univ. Mental Status [http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam_05.pdf](http://medschool.slu.edu/agingsuccessfully/pdfsurveys/slumsexam_05.pdf)

Medicare Annual Wellness Visit (AWV)

- Cognitive assessment is a required element
- No specific cognitive screen tool is required

<table>
<thead>
<tr>
<th>Begin Assessment</th>
<th>Elements</th>
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<tbody>
<tr>
<td>□ An assessment</td>
<td>Obtain the following measurements:</td>
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<tr>
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<td>- Height, weight, body mass index (or waist circumference, if appropriate), and blood pressure; and</td>
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<tr>
<td></td>
<td>- Other routine measurements as deemed appropriate, based on medical and family history.</td>
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<tr>
<td>□ Establishment of a list of current providers and suppliers</td>
<td>Include current providers and suppliers that are regularly involved in providing medical care to the beneficiary.</td>
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<tr>
<td>□ Detection of any cognitive impairment that the beneficiary may have</td>
<td>Assess the beneficiary's cognitive function by direct observation, with due consideration of information obtained by way of patient reports and concerns raised by family members, friends, caretakers, or others.</td>
</tr>
</tbody>
</table>
PATIENT COGNITIVE ASSESSMENT FORM

1. Ask the patient to listen carefully to and remember following 3 words and then to repeat the words back to you: Ocean, Desk, Tractor.

2. Instruct the patient to draw the face of a clock, including the numbers and hands pointing to 8:20. These instructions can be repeated, but no additional instructions should be given. If the patient cannot complete the clock drawing test in ≤5 min, move on to the next step.

3. Ask the patient to repeat the 3 previously presented words.

Scoring:
1. Order the words remembered above. One point for each word remembered.

WORD RECALL SCORE (minimum 0, maximum 3): ___

2. The clock drawing test is considered normal if all numbers are depicted, once each, in the correct sequence and position, and the hands readily display the requested time. Give 2 points for a normal clock drawing test, and 0 points for an abnormal clock drawing test.

CLOCK DRAWING SCORE (Normal 2, abnormal 0): ___

TOTAL SCORE (0–2 indicates positive screen for dementia, 3–5 negative screen): ___


MiniCog Assessment Form
Copyright 2007 Stall Geriatrics
8/2/07
MMSE-2

Mini-Mental State Examination, 2nd Edition™
(MMSE®-2™)

Marshall F. Folstein, MD and Susan E. Folstein, MD; User’s Manual by
Marshall F. Folstein, MD, Susan E. Folstein, MD, Travis White, PhD, and
Melissa A. Messer, MHS

Purpose: Screen for cognitive impairment
Age range: 18 to 100 years
Admin: Individual
Admin time: 5 minutes for the MMSE-2: BV; 10-15 minutes for the MMSE-2: SY; 20
minutes for the MMSE-2: EV
Scoring time: 5 minutes
Qualification level: 5 or B

Foreign language translations are available! See below for more information.

Click here for pricing.

Supplemental Product Resources
SLUMS:
St. Louis University Mental Status Examination
MoCA: Montreal Cognitive Assessment Version 2
Informant Assessment

Interview/ history from reliable informant

Tools available:
- **General Practice Cog: GPCOG Assessment Test**
  - Has patient and informant components
- **Short Form Informant Questionnaire on Cognitive Decline in the Elderly: Short IQCODE**
- **AD8: Dementia Screening Interview**
0-1: Normal
≥ 2: Cognitive impairment is likely to be present
Alzheimer's Disease Classification (2011)

- Prior criteria from 1984
- Reflects
  - Spectrum of dz
  - Advances in understanding of dz
- 3 stages
  - Early
  - Middle
  - Final: sx of dementia are present

- Preclinical:
  - Before sx occur
  - Pathology in brain present

- MCI: Memory and/or thinking problems
- Dementia: Impairs function

Mild Cognitive Impairment (MCI)

- Key differential: *no impact on function*
- Normal aging results in slowing of processing and decreased ability to learn new information

- If the cognitive impairment does negatively impact function, then impairment is beyond MCI
- Two types:
  - Amnestic: memory impairment
  - Nonamnestic: decisions, sequence, time and steps
Concern about a change in cognition relative to previous functioning

Impairment of one or more cognitive functions, like memory and problem solving, that is greater than expected for the person’s age and education.

Memory is the function most commonly impaired among people who progress from MCI to Alzheimer’s dementia.

Preserved ability to function independently in daily life, though some complex tasks may be more difficult than before

No dementia
Core Clinical Criteria for dx of MCI

- Concern regarding change in cognition
- Impairment in 1 or more cognitive domains
  - Memory
  - Executive function
  - Attention
  - Language
  - Visuospatial
- Preservation of functional independence
- Not “demented”
MCI

- A syndrome: clinical, cognitive and functional criteria
  - Prevalence: 10-20% of age 65
- Episodic memory impairment (amnestic) that represents the pre clinical stage of AD: “MCI associated with AD”

In establishing presence of MCI:
- Longitudinal data is most helpful
- Look for medical problems that may be cause
- Look for genetic causes

Biomarkers will help clarify this condition
Cognitive impairment diagnostic algorithm

- Patient presents with memory concern
  - Perform clinical evaluation (see Table 65-7)
    - Does patient have memory impairment by history and supported by impaired recall on MMSE or other cognitive tests?
      - No: Consider diagnosis of normal aging, nonamnestic MCI, or depression
      - Yes: Does the patient have deficits in other cognitive areas, such as language, executive functioning, etc.?
        - No: If isolated memory deficit, consider diagnosis of single-domain amnestic MCI
        - Yes: Does the patient show impairment in social or occupational function that represents a decline from his or her previous level of function?
          - No: If no functional impairment, consider diagnosis of multidomain amnestic MCI
          - Yes: Has the patient had a gradual and progressive decline in cognition?
            - No: Consider diagnosis of non-Alzheimer dementia, depression, or delirium
            - Yes: Are there other systemic or central nervous system conditions, substance abuse problems, medication side effects, delirium or depression that could explain the cognitive decline?
              - Yes: Reevaluate cognition after confounding condition treated
              - No: Suspect AD and develop treatment and management plan with patient and family

Thank you for your attention.