

Diagnosis of Neurocognitive Disorders in Geriatric Memory Clinic



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Learning Objectives



Demonstrate	Demonstrate understanding of diagnostic criteria for neurocognitive disorders
Identify	Identify typical cognitive symptoms and neuropsychological test results observed in common neurodegenerative disorders such as Alzheimer's disease, Lewy Body disease, and cerebrovascular disease
Describe	Describe specific techniques/instruments used for screening and assessment of cognitive impairment in older adults
Integrate	Integrate demographic characteristics, clinical history, and cognitive test results to formulate a diagnostic impression for persons with cognitive impairment
Consider	Consider applications of learning material to various clinic settings

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Major Neurocognitive Disorder (DSM-5, 2013)

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).

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All-Cause Dementia (NIA-AA, 2011)

- ◆ Cognitive or neurobehavioral symptoms that
 - ◆ interfere with the ability to function at work or at usual activities; and
 - ◆ represent a decline from previous levels of functioning and performing; and
 - ◆ are not explained by delirium or major psychiatric disorder
- ◆ Cognitive impairment is detected and diagnosed through a combination of
 - ◆ history-taking from the patient and a knowledgeable informant and
 - ◆ an objective cognitive assessment, either a “bedside” mental status examination or neuropsychological testing.
- ◆ Cognitive or behavioral impairment involves a minimum of two of the following domains: Learning/memory, executive functioning (reasoning, judgment, handling complex tasks), visuospatial function, language function, personality or behaviors

McKhann et al., Alzheimer's & Dementia, 2011

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Mild neurocognitive disorder (DSM-5, 2013)

Diagnostic Criteria

- A. Evidence of modest 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 mild decline in cognitive function; and
 - 2. A modest impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.
- B. The cognitive deficits do not interfere with capacity for independence in everyday activities (i.e., complex instrumental activities of daily living such as paying bills or managing medications are preserved, but greater effort, compensatory strategies, or accommodation may be required).
- 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).

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Mild cognitive impairment (NIA-AA, 2011)

- ◆ Cognitive concern reflecting a change in cognition reported by patient or informant or clinician (i.e., historical or observed evidence of decline over time)
- ◆ Objective evidence of impairment in one or more cognitive domains, typically including memory (i.e., formal or bedside testing to establish level of cognitive function in multiple domains)
- ◆ Preservation of independence in functional abilities

*Note the criteria described in this article are primarily focused on MCI due to Alzheimer's disease

Albert et al., Alzheimer's & Dementia, 2011

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Differentiating mild vs major (MCI vs dementia)

The differentiation of dementia from MCI (see companion article [5] on the diagnosis of MCI) rests on the determination of whether or not there is significant interference in the ability to function at work or in usual daily activities. This is inherently a clinical judgment made by a skilled clinician on the basis of the individual circumstances of the patient and the description of daily affairs of the patient obtained from the patient and from a knowledgeable informant.

NIA-AA Dementia

McKhann et al., Alzheimer's & Dementia, 2011

Persons with MCI commonly have mild problems performing complex functional tasks which they used to perform previously, such as paying bills, preparing a meal, or shopping. They may take more time, be less efficient, and make more errors at performing such activities than in the past. Nevertheless, they generally maintain their independence of function in daily life, with minimal aids or assistance. It is recognized that the application of this criterion is challenging,

NIA-AA Mild Cognitive Impairment

Albert et al., Alzheimer's & Dementia, 2011

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Neurocognitive disorders

SYNDROME

Mild
(MCI)

Due to?
→

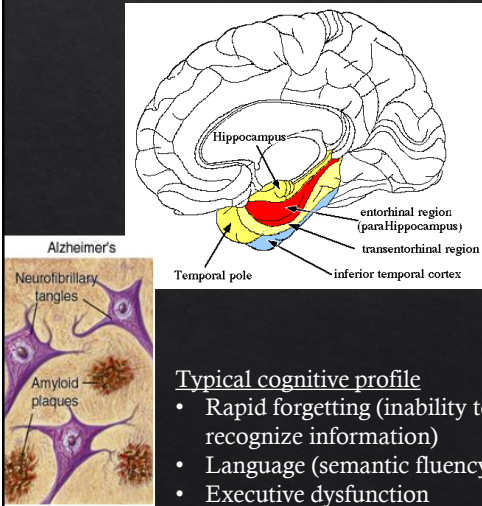
Major
(Dementia)

ETIOLOGY

Alzheimer's disease
Frontotemporal lobal degeneration
Lewy body disease
Vascular disease
Traumatic brain injury
Substance/medication use
HIV infection
Prion infection
Parkinson's disease
Huntington's disease
Another medical condition (e.g., brain tumor, multiple sclerosis, epilepsy, sleep disorder etc)
Multiple etiologies
Unspecified

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ALZHEIMER'S DISEASE



- Insidious onset - Gradual onset over months to years not sudden over hours or days
- Clear-cut history of worsening of cognition by report or observation
- Initial and most prominent cognitive deficits are evidence on history and exam in **memory**

Typical cognitive profile

- Rapid forgetting (inability to recall or recognize information)
- Language (semantic fluency, naming)
- Executive dysfunction

For review, see McKhann et al., 2011

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Alzheimer's Dementia – Progressive Changes

EARLY (MCI/Mild Dementia)	MIDDLE (Moderate Dementia)	LATE (Severe Dementia)
Memory loss Language impairment Executive dysfunction Anxiety Depression Irritability Still have insight	Additional cognitive impairment (e.g., visuospatial, attention deficits, disorientation) May lose insight Agitation or outbursts Sleep disturbance Hallucinations/delusions Wandering	Difficulty communicating Difficulty swallowing Difficulty with mobility Need 24-hour assistance with personal cares Vulnerable to infections (especially pneumonia)

COGNITIVE SYMPTOMS

BEHAVIORAL SYMPTOMS

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LEWY BODY DISEASE

CORE CLINICAL FEATURES

Fluctuating cognition with pronounced variations in attention and alertness.

Recurrent visual hallucinations that are typically well formed and detailed.

REM sleep behavior disorder, which may precede cognitive decline.

One or more spontaneous cardinal features of parkinsonism: these are bradykinesia (defined as slowness of movement and decrement in amplitude or speed), rest tremor, or rigidity.

SUPPORTING CLINICAL FEATURES

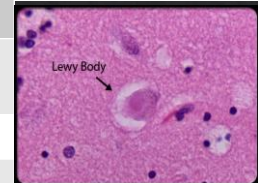
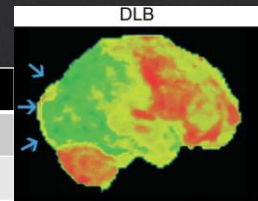
Severe sensitivity to antipsychotic agents

Postural instability; repeated falls; syncope or other transient episodes of unresponsiveness

Severe autonomic dysfunction, e.g., constipation, orthostatic hypotension, urinary incontinence

Hypersomnia; hyposmia

Hallucinations in other modalities; systematized delusions; apathy, anxiety, and depression

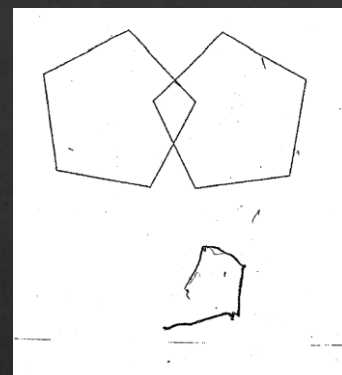
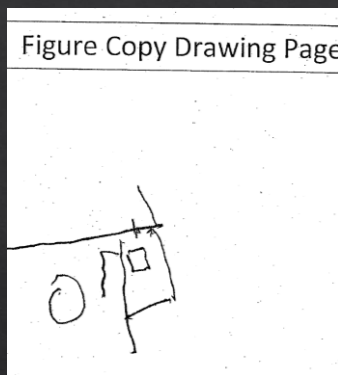
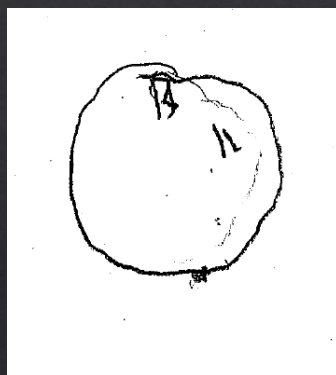


Typical cognitive profile

- Visuospatial deficits
- Attention difficulty
- Executive dysfunction
- Milder memory loss

For review, see McKeith et al., 2017

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LEWY BODY DISEASE

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VASCULAR NEUROCOGNITIVE DISORDER



- Onset of deficits temporally related to cerebrovascular event OR Evidence for decline prominent in complex attention (including processing speed) and frontal-executive dysfunction
- Evidence of cerebrovascular disease from history, physical exam, and/or neuroimaging sufficient to account for neurocognitive deficits



Common cognitive profile

- Slowed processing speed
- Executive dysfunction
- Milder memory loss
- If left-sided MCA stroke, likely aphasia

- ✓ Large vessel or strategically placed infarcts or hemorrhages
- ✓ Two or more lacunar infarcts
- ✓ Small vessel disease or subcortical ischemic changes

For review, see Gorelick et al., 2011

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Frontotemporal degeneration

Diagnostic Criteria

- A. The criteria are met for major or mild neurocognitive disorder.
- B. The disturbance has insidious onset and gradual progression.
- C. Either (1) or (2):
 - 1. Behavioral variant:
 - a. Three or more of the following behavioral symptoms:
 - i. Behavioral disinhibition.
 - ii. Apathy or inertia.
 - iii. Loss of sympathy or empathy.
 - iv. Perseverative, stereotyped or compulsive/ritualistic behavior.
 - v. Hyperorality and dietary changes.
 - b. Prominent decline in social cognition and/or executive abilities.

FTDbv

For a review of PPA classification, see Gorno-Tempini et al., *Neurology* 2011

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How are neurocognitive disorders diagnosed?

History-taking from person and knowledgeable informant	Cognitive changes (symptoms, onset, course, frequency) Functional abilities (ADLs, IADLs) Mood/anxiety, substance use, sleep, chronic pain Motor symptoms Psychosocial history
Objective cognitive assessment	Learning and memory Executive functioning (planning, decision-making, working memory, inhibition, mental flexibility) Complex attention (sustained, divided, selective, processing) Language Perceptual-motor function (visuospatial, visuoconstruction, praxis, etc)
Medical evaluation	Labs Neuroimaging Physical examination



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History-taking from person and knowledgeable informant

Cognitive Domain	Symptoms
Memory	- Forgetting recent conversations, events, or upcoming appointments? - Repetitive questions or statements? - Misplacing personal belongings? - Getting lost on familiar routes?
Attention/ Executive Functioning	- Difficulty organizing? Difficulty planning? - Difficulty sequencing through activities? - Easily distracted? Difficulty completing tasks? - Poor understanding of safety risks or poor decision-making abilities?
Visuospatial abilities	- Difficulty putting on clothing? - Difficulty recognizing objects or people? - More difficulty reading (not due to difficulty remembering)?
Language	- Difficulty getting words out or words coming out wrong? - Difficulty completing sentences when speaking? - Making unusual writing or spelling mistakes? - Difficulty understanding what other people are saying to you (not just due to hearing loss)?
Personality/ behavior	Agitation, impaired motivation, apathy, social withdrawal, loss of empathy, socially inappropriate behaviors, obsessive or compulsive behaviors

Follow-up question: “Is this a change for you or is this something you always had difficulty with?”

Important to query about gradual vs acute onset of symptoms and course of symptoms (e.g., stable vs worsening vs up and down)

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History-taking from person and knowledgeable informant

- Start by asking about each IADL
 - How often do they do this activity?
 - If someone else does it for them, is that a change? If a change, why (e.g., due to cognitive impairment or other reasons)?
- Ask broadly about if there are other things they used to do that they no longer do or someone helps them with
- Get collateral information

ADLs	IADLs
Showering	Driving/using transportation
Brushing teeth	Manage finances (manage checkbook, pay bills)
Dressing	Manage medications
Feeding oneself	Using the telephone
Toileting oneself	Preparing meals
Transferring	Shopping
	Cleaning/laundry/household chores

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History-taking from person and knowledgeable informant

- ◊Mood/anxiety
- ◊Substance use
- ◊Sleep
- ◊Chronic pain
- ◊Motor symptoms (balance, tremor, falls)
- ◊Psychosocial history (education, occupation, social support)

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Screens for cognitive symptoms, functional abilities, mood

Cognitive symptom inventories	Functional assessments	Mood screens
- IQCODE - Everyday Cognition (E-Cog, E-Cog12) - Cognitive Function Instrument - Memory Functioning Questionnaire	- ADLs: -Katz -Barthel - IADLs: -Lawton -FAQ	- Depression: Geriatric Depression Scale (GDS, GDS-15), PHQ-9 - Anxiety: GAS, GAS-10, GAD-7, STAI - Behavioral/psychological symptoms of dementia: NPI

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CASE EXAMPLE

He has missed appointments and doesn't seem to be refilling his medicine. Today, he's often relying on his wife to answer questions about his medical history.



Warning signs from provider:

- Forgetting appointments, appearing on wrong day
- Unintentionally and repeatedly failing to follow directions
- Deferring to family to answer questions

PCP or clinic staff perform brief cognitive screen

VAMC SLUMS EXAMINATION
 (Questions about the assessment tool: E-mail slums@slu.edu)

Name: _____ Level of education: _____ Age: _____

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 Tin Banana Cat
 5. You have \$100 and you go to the store and buy a dozen apples for \$3 and a turkey for \$30.
 How much did you spend?
 How much do you have left?
 6. Please name as many animals as you can in one minute.
 7. What were the five objects I asked you to remember? I'll give you one 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.
 9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.
 10. Please place an X in the triangle.
 11. Which of the above figures is largest?
 12. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.
 13. Mrs. A very successful clockmaker. She made a lot of money on the stock market. She then met Jack, a down-on-his-luck man. She married him and had three children. They lived in Chicago. She then stopped work and moved at home to bring up her children. When her three teenagers, she went back to work. She and Jack lived happily ever after.
 14. What was the husband's name?
 15. What work did she do?
 16. What state did she live in?

TOTAL SCORE: _____

CLINICIAN'S SIGNATURE: _____ DATE: _____ TIME: _____

Total=17/30
Impaired range

<https://www.slu.edu/medicine/internal-medicine/geriatric-medicine/aging-successfully/assessment-tools/mental-status-exam.php>

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CASE EXAMPLE – HISTORY TAKING



Cognitive symptoms: No concerns per patient. Below symptoms are changes reported by spouse.

- **Memory:** Repeats questions within 10 minutes, forgets to complete tasks.
 - **Attention/Executive Functioning:** Not completing tasks ordinarily would do (e.g., needs prompting to do tasks normally does automatically, can't follow multi-step directions)
 - **Language:** Denied problems.
 - **Visuospatial Functioning:** Denied problems.
 - **Personality/behavior:** Difficulty initiating activities, apathy (e.g., stopped engaging in hobby of building legos, "doesn't feel like it")
- Onset and course of cognitive symptoms: gradual onset first noticed about 2 years ago and progressive worsening over the past year
 - Day-to-day variability: Denied, described as consistent day-to-day



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

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CASE EXAMPLE – HISTORY TAKING



Functional ability: No changes per patient. Below are changes reported by spouse.

IADLs	
Driving/using transportation	Stopped driving two months ago
Manage finances (manage checkbook, pay bills)	Spouse always managed
Manage medications	Uses a pillbox
Using the telephone	No change
Preparing meals	Spouse always managed
Shopping	Spouse always managed
Cleaning/laundry/household chores	Spouse always managed

Making wrong turns, not remembering where he was going or how to get places

No longer aware of checking account transactions or involved in discussing finances with spouse

Spouse started prompting daily to take medications out of pillbox due to forgetting

Independent in most basic ADLs except some urinary incontinence

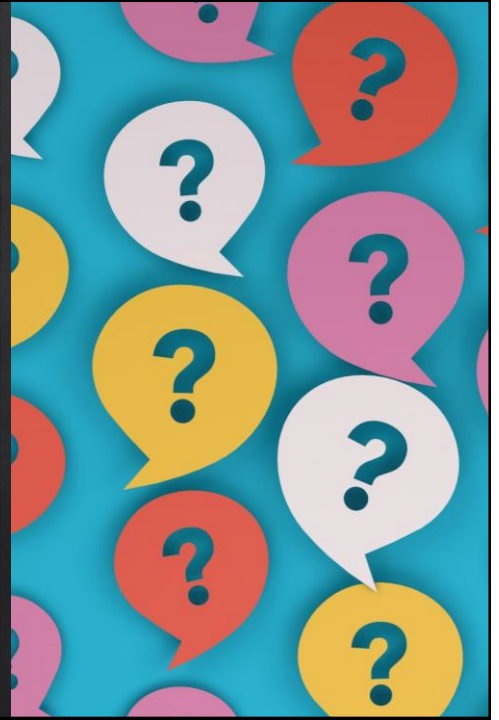


B. The cognitive deficits interfere with independence in everyday activities (i.e., at a minimum, requiring assistance with complex instrumental activities of daily living such as paying bills or managing medications).

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Case example

- ◆ What are we thinking at this point in terms of differential diagnosis?
- ◆ What other information/data would help?



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CASE EXAMPLE – HISTORY TAKING



Described current mood as "normal," and denied symptoms of depression, anxiety, or hallucinations. Denied current or history of alcohol or substance use disorders.



Denied difficulty falling or staying asleep. Denied snoring or daytime fatigue. Spouse noted daily afternoon nap and reported that he moves around quite a bit while sleeping.



Denied balance difficulty or recent falls. Denied tremor, described occasional numbness/tingling in hands.

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CASE EXAMPLE – HISTORY TAKING



SOCIAL HISTORY:

Married, lives at home with wife.

Education: Graduated high school. Denied learning difficulties in school.

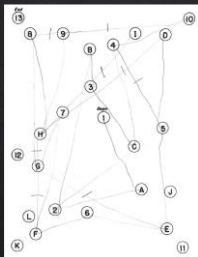
Occupation: 3 years Air Force mechanic. Dairy farmer until retired at age 65.

FAMILY HISTORY OF DEMENTIA:

Denied. Father had a stroke at age 75.

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OBJECTIVE COGNITIVE ASSESSMENT



Domain	Measures
Screens or brief cognitive batteries	MMSE, MoCA, SLUMS, Mini-Cog <u>Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)</u> Cognistat
Learning/Memory	WMS-IV (includes story memory) Word-list learning/memory (CVLT, HVL, RAVLT) Visual memory (BVM)
Executive Functioning	<u>Trailmaking Test</u> Stroop Wisconsin Card Sorting Test
Attention/Processing Speed	Digit Span Digit Symbol/Coding
Language	<u>Category/semantic fluency</u> (e.g., animals) Lexical/phonemic fluency (e.g., FAS, CFL) Object naming (e.g., Boston Naming, MINT)
Visuospatial Function	Judgment of line orientation <u>Clock Drawing Test</u> Hooper Visual Organization Test Rey-O (or other complex figure copy tasks)
Intellectual Function or Academic Achievement	Wechsler Abbreviated Scale of Intelligence (WASI-II) <u>WRAT-5 Reading</u>

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Building and maintaining rapport is essential

- Spend at least a few minutes building rapport
- Provide rationale for why doing the test(s)
- Normalize that cognitive tests are designed to be at least somewhat challenging, and it is okay to take guesses

Important to use standardized instructions

- Normative data/cut scores were based on the tests being administered in a standardized way. Deviations from standard administration can reduce validity of results
- But, don't be a robot. Pay attention to changes in mood, cooperation level, fatigue/boredom and check in with person
- Training and practice administration is important for standardization, otherwise the score can be meaningless

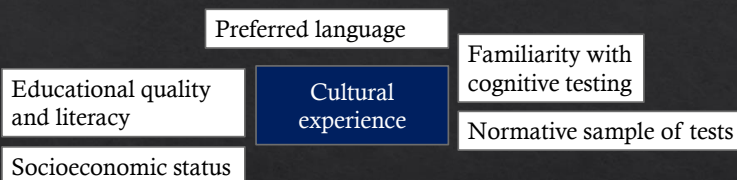
Document all behavioral observations and consider if contribute to performance

- Hearing/vision, expressive/receptive speech, motor, pain, alertness/fatigue, insight, mood/affect

Best practices for administering cognitive tests

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Considerations for multicultural assessment

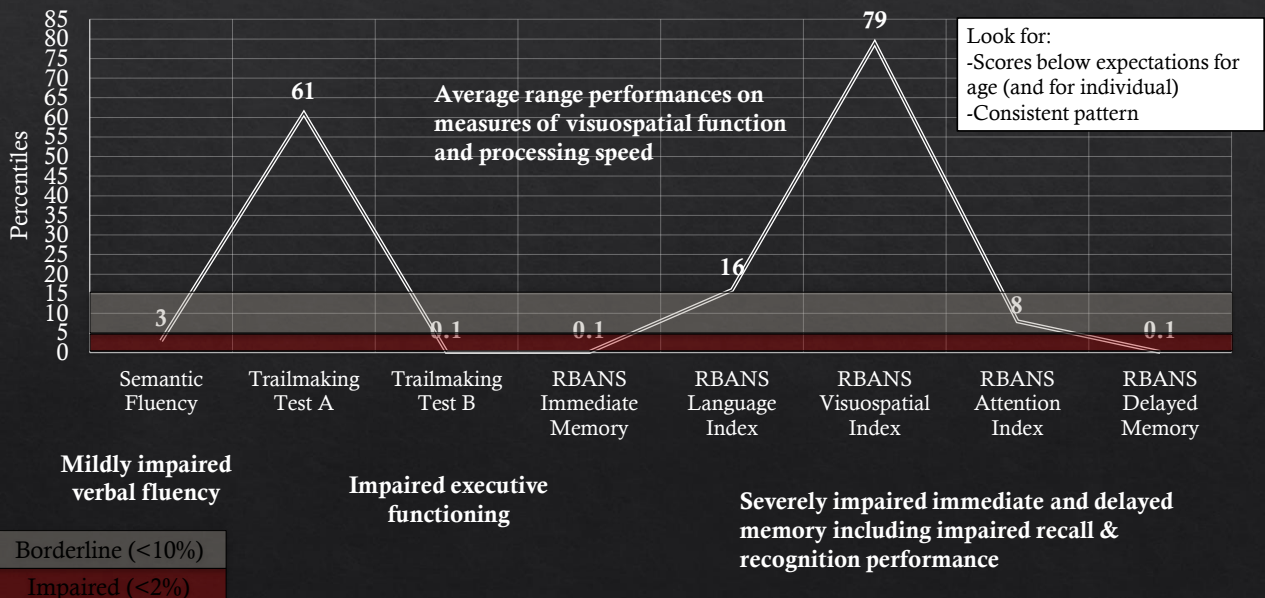


- Maintain a “sociocultural lens” throughout the evaluation
- Use the best available neuropsychological instruments and norms and acknowledge potential limitations in report
- Gather as much sociocultural information as possible (acculturation, quality of education, linguistic background)
- Refer to a neuropsychologist with expertise with the population (or consult when referral not feasible); only use professional interpreters when outside referral not feasible
- Consider psychometric characteristics to determine how low scores should be interpreted to avoid misdiagnosis and mismanagement of neurocognitive disorder
- Suggest longitudinal assessments
- Be careful not to erroneously attribute problems to cultural or linguistic issues

Handbook on Neuropsychology of Aging and Dementia, Ch. 3

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CASE EXAMPLE – COGNITIVE ASSESSMENT



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Interpret scores

- ◇ *Is the normative sample representative of our patient? If not, interpret these scores with caution as they may not be valid.*
 - ◇ Is our patient similar in demographics to the normative sample?
 - ◇ Was the test administered in the same way as it was administered to the normative sample or were any modifications made?
- ◇ *Do these scores represent a decline for this person?*
 - ◇ Although <2nd percentile often considered “impaired,” <10th percentile (or higher) can be considered lower than expected for someone who was functioning at a much higher level.
- ◇ *Any notable behavioral observations or qualitative aspects of performance that are important to consider?*
 - ◇ Impulsive approach? Emphasizes speed over accuracy?
 - ◇ Test anxiety?
 - ◇ Hearing loss interference?

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CASE EXAMPLE – BEHAVIORAL OBSERVATIONS

Appearance

Arrived on time. Appeared stated age and was well-groomed.

Mood

Appeared euthymic and affect was appropriate. Joked at times.

Orientation

Oriented to person, place, and date.

Hearing/vision

No problems reported or observed.

Speech

Fluent and normal in rate, rhythm and tone. Word-finding problems were not observed in spontaneous speech. Able to understand test instructions without difficulty. Looked to wife to respond during clinical interview at times.

Motor/ambulation

Ambulated independently; no tremor or other motor abnormalities were observed.

Pain

Denied.

Insight

Poor.

Validity of assessment

Veteran was cooperative and appeared to put forth full effort. The results of this evaluation were deemed to provide a reliable and valid estimate of the adequacy of the Veteran's cognitive functioning.

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Medical evaluation



Physical/neurological
evaluation



Labs (CBC, B12, D, TSH, etc)



Medication review



Head imaging (CT or MRI)

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CASE EXAMPLE



Heart murmur, Chronic kidney disease stage 3, Prostate cancer, Tinnitus, Diabetes mellitus type 2, Obesity, Hyperlipidemia, Hearing loss, Hypertension



Labs within expected levels



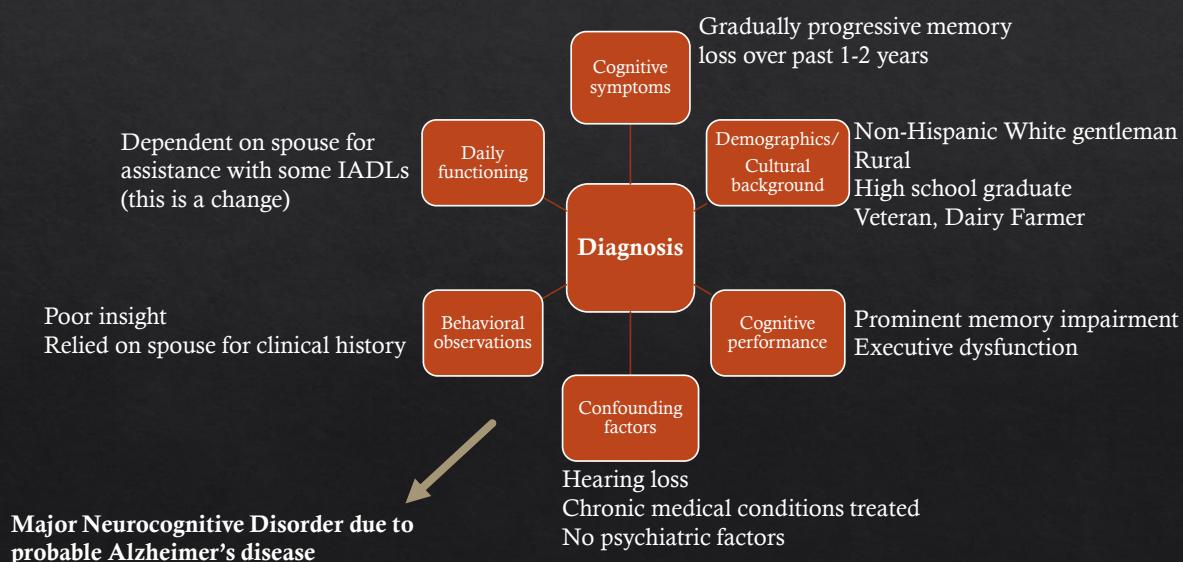
Medication review
(Consider alternatives to anticholinergic medications)



Head CT unremarkable

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Case conceptualization



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Assessment Feedback

Why?

It's ethical

9.10 Explaining Assessment Results

Regardless of whether the scoring and interpretation are done by psychologists, by employees or assistants, or by automated or other outside services, psychologists take reasonable steps to ensure that explanations of results are given to the individual or designated representative unless the nature of the relationship precludes provision of an explanation of results (such as in some organizational consulting, preemployment or security screenings, and forensic evaluations), and this fact has been clearly explained to the person being assessed in advance.

<https://www.apa.org/ethics/code>

But also, it's
therapeutic!



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Assessment Feedback

- ◆ Feedback often given a few weeks after the assessment, and occasionally immediately after the assessment
- ◆ Length – often approximately one hour
- ◆ Focus – cognitive strengths/weaknesses, impacts of emotional functioning, translation of results to daily life, diagnostic issues, recommendations
- ◆ Greater satisfaction with evaluation when feedback received (and when it was perceived as useful feedback)
 - ◆ Greater perceived utility when the feedback provided information on cognitive strengths, weaknesses, and relationship between results and everyday behavior
- ◆ Information retention of neuropsychological feedback is low
 - ◆ More research needed on whether visual aids or motivational interviewing techniques may improve information retention

From: A Scoping Review of Communicating Neuropsychological Test Results to Patients and Family Members

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Feedback – Clinical Recommendations

Improve retention	• Give in-person feedback, plan multiple sessions if needed • Give balanced feedback (focus on strength and weaknesses) • Explain the normative comparison • Use concrete metaphors to illustrate cognitive domains • Limit feedback to essential points and repeat these • Involve family members • Let patients and family members take notes • Provide written or visual materials using understandable language. • Evaluate level of understanding and level of emotional acceptance multiple times.
Improve adherence	• Ascertain the retention of the feedback provided • Evaluate whether the patient is willing to adapt to recommendations and explore barriers they might experience (e.g., access to care) • Communicate with the referrer to attenuate whether feedback and recommendations are appropriate • Provide patient and family with contact details if questions arise
Motivational Interviewing (MI)	MI principles can be used to improve retention, adherence and a positive relationship with the clinician. The core principles: • Show empathy (e.g., reflective listening principles such as listening rather than telling) • Make the patients see the discrepancy between their behavior and their goals (e.g., by making them aware of the consequences) • Avoid argument (e.g., by shifting the attention of focus on another topic) • Do not oppose to resistance, but adjust to the patient • Stimulate self-efficacy

From: A Scoping Review of Communicating Neuropsychological Test Results to Patients and Family Members

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Feedback - Recommendations

Medical/medication-related	Advanced care planning
• Consider pharmacological therapies (e.g., cholinesterase inhibitors or NMDA receptor antagonists) • Reduce anticholinergic medications/polypharmacy • Treat vitamin deficiencies • Ensure vascular/metabolic risk factors well-controlled • New FDA approved anti-amyloid therapies for Alzheimer's disease – not covered by Medicare, still many barriers to implementation	• Ensure up-to-date advanced directives (Healthcare and financial POAs completed and on file) • Explore options for greater assistance with activities of daily living • Connect with appropriate community organizations (e.g., Alzheimer's & Dementia Alliance, Alzheimer's Association, Aging & Disability Resource Center)
Brain health/compensatory strategies	Caregiver support
• Recommend appropriate compensatory strategies for the severity of impairment (e.g., display monthly or weekly calendar that is easily viewed, use a pillbox or bubble-packed medications) • Structured daily activities that provide cognitive and social stimulation (e.g., senior center, companion, visits from family, adult day programs) • Physical activity	• Respite • Counseling • Support groups • Education on management of BPSD (e.g., DICE approach)

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Geriatric memory clinic – various models depending on setting/resources

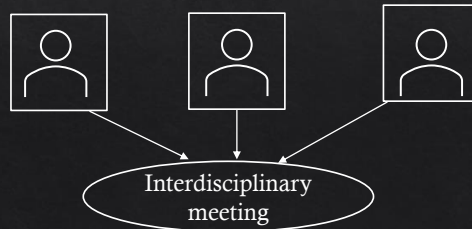
Synchronous team approach



Modified synchronous team approach



Asynchronous team approach



If multiple people are gathering information, key is making sure it all comes together to inform the diagnosis and recommendations

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Telehealth model



Madison VA hospital



Computer with secure telehealth software and webcam



Neuropsychologist or other provider



Test booklets, stopwatch, etc



Document camera



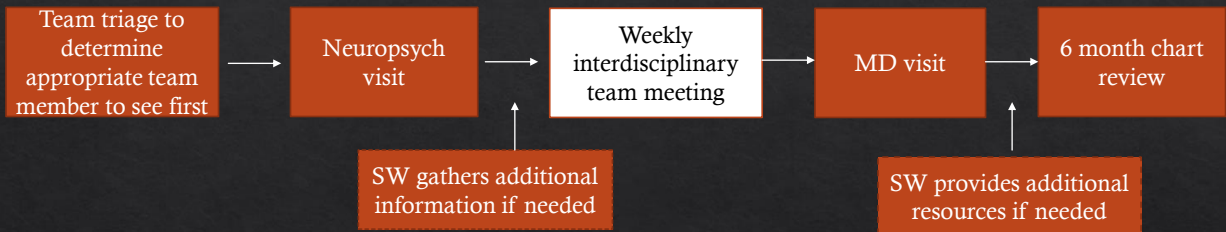
LPN or other trained clinical staff member



Test stimuli

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Asynchronous telehealth model



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Take home message

Neurocognitive disorder diagnosis requires integration of information from multiple sources including history-gathering from patient (and collateral if available), medical evaluation/chart review to rule out other sources of cognitive decline, and objective cognitive assessment (at minimum, cognitive screen).

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Discussion/Break Out Groups



How to integrate these learnings into your clinic settings/teams?

Thought prompts

- ❖ What are the diagnostic challenges we struggle with the most?
- ❖ What improvements could be made in information gathering for diagnosis?
- ❖ What barriers exist in my setting? Are there adaptations that could be made?

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References

❖ Textbooks

- ❖ A practical guide to geriatric neuropsychology – Susan McPherson (Ch. 5 and Ch. 6)
- ❖ Handbook on the Neuropsychology of Aging and Dementia
- ❖ Neuropsychological Assessment, 5th edition – Muriel Lezak
- ❖ Conducting a Culturally-Informed Neuropsychological Evaluation – Daryl Fujii

❖ Podcasts:

- ❖ Dementia Matters
- ❖ Navigating Neuropsychology



❖ Articles

- ❖ McKhann et al., 2011 – The diagnosis of dementia due to Alzheimer's disease
- ❖ Albert et al., 2011 – The diagnosis of mild cognitive impairment due to Alzheimer's disease
- ❖ McKeith et al., 2017 – Diagnosis and management of dementia with Lewy bodies: 4th consensus report of the DLB consortium
- ❖ Gorelick et al., 2011 – Vascular contributions to cognitive impairment and dementia: a statement for healthcare professionals from the American heart association/American stroke association

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Extra Slides

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CASE EXAMPLE #2

- ◆ Reason for referral: 76 year-old gentleman. Monitor course of mild neurocognitive disorder. Some forgetfulness and irritability described by spouse but unclear if due to worsening cognitive impairment or PTSD.

Cognitive Symptoms

- Forgets details of conversations, names, and occasional events
- Denies changes in language, visuospatial, attention/executive functioning
- Onset/course: Gradual onset, stable to mild decline reported

Functional ability

- Stopped driving about 10 years ago due to falling asleep while driving
- Spouse always managed finances
- Spouse always organized both their pillboxes, he self-administers without reminders.
- Makes sandwiches or simple meals, reports he was always a bad cook
- Does household tasks (cleaning and laundry)
- Continues to enjoy using computer to research historical events. Continues to enjoy building/repairing things, always enjoyed working with his hands.
- Per patient and spouse (and chart review) above are similar to prior evaluation

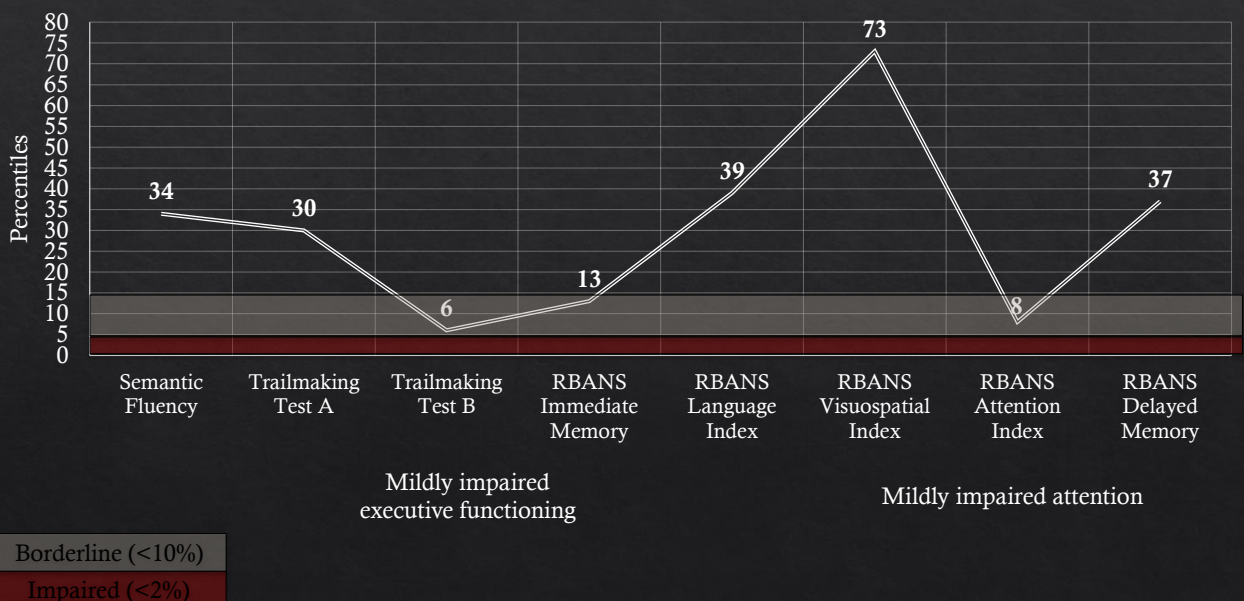
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CASE EXAMPLE #2

- ◆ Mood/Sleep/Substance
 - ◆ Followed by mental health for chronic PTSD and depression, takes escitalopram. Denied current depressive episode but described adjustment-related changes associated with aging and neuropathy.
 - ◆ Had a sleep study which did not show evidence for sleep apnea
 - ◆ No alcohol or other substance use
- ◆ Motor symptoms
 - ◆ Evaluated by Neurology and diagnosed with essential tremor and neuropathy.
- ◆ Psychosocial/cultural
 - ◆ Married, lives at home with wife and pets
 - ◆ 15 years of education
 - ◆ Retired Army – worked as emergency response coordinator in the public health dept
 - ◆ Self-described as “Type A” personality and as an “achiever”

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CASE EXAMPLE – COGNITIVE ASSESSMENT



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Medical evaluation

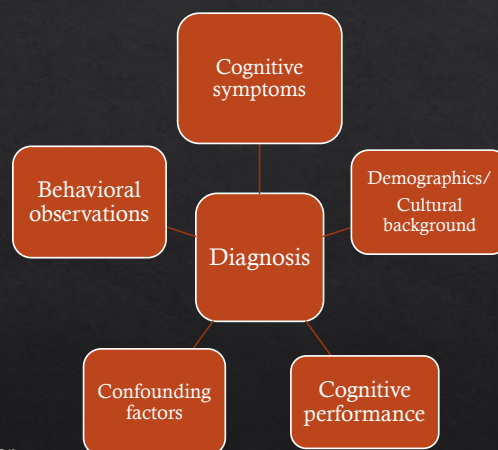
Medical history: DM2, peripheral vascular disease, atrial fibrillation, intermittent claudication, anemia, restless legs syndrome, bilateral tinnitus, sensorineural hearing loss, bilateral, coronary artery disease, diabetic peripheral neuropathy, hyperlipidemia, hypertension, chronic PTSD, recurrent major depressive disorder, hypothyroidism

Head CT

- ❖ Hypoattenuation within left supplementary motor area related to remote infarction. Subtle old ischemic changes in right external capsule
- ❖ Chronic small vessel ischemic changes throughout deep frontoparietal white matter, unchanged from prior exam
- ❖ No mass lesion or midline shift or intracranial hemorrhage or hydrocephalus

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Case conceptualization



Mild vascular neurocognitive disorder
PTSD and major depressive disorder
Neuropathy
Hearing loss

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