# "Initial evaluation of suspected dementia"

Family Medicine Rounds

Blanca Loja Yi

PGY1

UCLA Health

- Definition
- Criteria
- Statistics
- Risk factors
- H&P
- Who to screen for dementia
- Steps
- Summary

# Definition

- Dementia is a disorder:  decline in cognition involving one or more cognitive domains (learning and memory, language, executive function, complex attention, perceptual-motor, social cognition)
- The deficits must represent a decline from previous level of function and be severe enough to interfere with daily function and independence.
- The most common form of dementia in older adults is Alzheimer disease (AD), accounting for 60 to 80 percent of cases.

# Criteria

**DSM-IV and DSM-5 criteria for dementia**

| DSM-IV criteria for dementia |
| --- |
| **A1.** Memory impairment |
| **A2.** At least one of the following:<br>- Aphasia<br>- Apraxia<br>- Agnosia<br>- Disturbance in executive functioning |
| **B.** The cognitive deficits in A1 and A2 each cause significant impairment in social or occupational functioning and represent a significant decline from a previous level of functioning. |
| **C.** The cognitive deficits do not occur exclusively during the course of delirium. |
| |

*References:*

1. *American Psychiatric Association Diagnostic and Statistical Manual, 4th ed, APA Press, Washington, DC 1994.*
2. *American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), American Psychiatric Association, Arlington, VA 2013.*

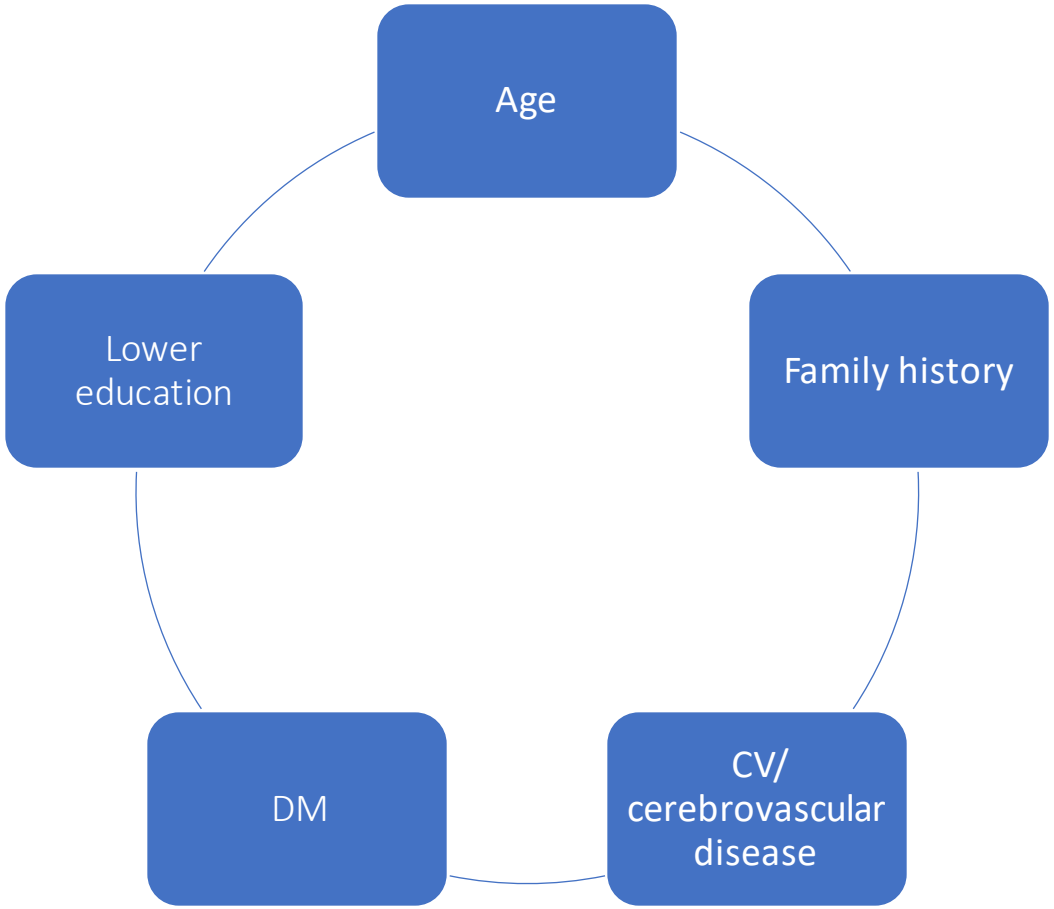
Graphic 91276 Version 6.0

# Statistics

- 55 million people with dementia worldwide
- 78 million people with dementia worldwide in 2030 and about 139 million in 2050.
- 61% live in low and middle-income-countries
- Global cost 1.3 trillion US$
- 50% of costs by informal care
- 74% of costs in high-income countries.


WHO-Global status report of the public health response to dementia-2021.

# Risk factors




AAFP-evaluation of suspected dementia

# H&P

- Should include history of reliable informant (e.g., family members, close friends, caregivers)
- Should include education level, timeline of symptom presentation, and speed of progression (VITAMINS).
- Should include type of impaired activities (paying bills, balancing the checkbook vs difficulty with eating, bathing, dressing, toileting, walking and transferring, and continence).

TABLE 3

## Key Findings and Suggested Etiologies in Patients with Cognitive Impairment

| Suggested etiology | Key findings on history and examination |
|---|---|
| Alzheimer disease | Insidious and gradual onset of memory and learning symptoms without evidence of plateaus; recall of recent events is most affected; cardiovascular disease risk factors; depression and apathy; sleep disturbances |
| Delirium | Recent hospitalization or acute illness, inattention, fluctuating behavior changes, altered level of consciousness |
| Frontotemporal dementia | Socially inappropriate behaviors; loss of empathy; changes in dress, eating habits, religious/political beliefs; development of compulsive behaviors; progressive aphasia |
| Human immunodeficiency virus infection | History of high-risk sexual behavior or drug use, apathy, poor attention and concentration, hyperreflexia, slow limb movements |
| Hypoperfusion from heart failure | Syncope, history of heart failure |
| Intracranial tumor | Seizures, neurologic deficits |
| Medication adverse effects | Use of anticholinergic drugs, benzodiazepines, opioids, or muscle relaxants |
| Neurocognitive disorder with Lewy body dementia | Daytime drowsiness, daytime naps lasting more than two hours, prolonged staring spells, disorganized speech, visual hallucinations, parkinsonian symptoms |
| Vascular dementia | History of symptoms beginning after cerebrovascular events |
| Other medical conditions | |
| Depression | Anhedonia, feelings of worthlessness, slowed speech, flat affect, sleep disturbance |
| Hypothyroidism | Fatigue, cold intolerance, constipation, weight gain, dry skin, prolonged deep tendon reflexes, myalgias |
| Neurosyphilis | History of high-risk sexual behavior or injection drug use, vision and hearing loss, decreased proprioception, stabbing extremity pains |
| Niacin/vitamin $B_3$ deficiency | History of bariatric surgery or malabsorption disorders, photosensitive rash, anxiety, insomnia, diarrhea, vomiting |
| Normal-pressure hydrocephalus | Urinary incontinence and broad-based, shuffling gait |
| Vitamin $B_{12}$ deficiency | Ascending paresthesias, tongue soreness, limb weakness, weight loss |
| Wernicke-Korsakoff syndrome | History of alcoholism, nystagmus or extraocular muscle weakness, broad-based gait and stance |

*Adapted with permission from Simmons BB, Hartmann B, Dejoseph D. Evaluation of suspected dementia. Am Fam Physician. 2011;84(8):897, with additional information from references 23 through 27, 31, and 32.*

# Who to screen for dementia?

- Insufficient evidence to assess the benefits vs. harms of screening for cognitive impairment in older adults.

- Only screen patients that have dementia symptoms.

# 1st step

## Mini-Cog©[1,4,5]:

- Composite of 3-word recall and clock drawing; validated in multiple languages in primary care setting; has been found to be more sensitive than MMSE for detecting mild cognitive impairment
- 2-4 min*
- Sensitivity†=76%; specificity‡=89%
- ≤3 indicates possible cognitive impairment§

## GPCOG (General Practitioner Assessment of Cognition)[1,4]:

- Patient section assesses aspects of orientation, awareness, and memory. Informant section compares patient's current and previous functioning
- 2 to 5 minutes (patient); 1 to 3 minutes (informant)*
- Combined patient/informant: sensitivity†=85%; specificity‡=86%
- A patient score of <5 alone or a patient score of 5-8 with an informant score of ≤3 indicates possible cognitive impairment

# Mini-Cog©

## Instructions for Administration & Scoring

ID: _____ Date: _____

### Step 1: Three Word Registration

Look directly at person and say, "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies.[1-3] For repeated administrations, use of an alternative word list is recommended.

| Version 1 | Version 2 | Version 3 | Version 4 | Version 5 | Version 6 |
|---|---|---|---|---|---|
| Banana | Leader | Village | River | Captain | Daughter |
| Sunrise | Season | Kitchen | Nation | Garden | Heaven |
| Chair | Table | Baby | Finger | Picture | Mountain |

### Step 2: Clock Drawing

Say: "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say: "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

### Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say: "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

### Scoring

| | |
|---|---|
| Word Recall: _____ (0-3 points) | 1 point for each word spontaneously recalled without cueing. |
| Clock Draw: _____ (0 or 2 points) | Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored.<br>Inability or refusal to draw a clock (abnormal) = 0 points. |
| Total Score: _____ (0-5 points) | Total score = Word Recall score + Clock Draw score.<br><br>A cut point of <3 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status. |

## General Practitioner Assessment of Cognition - Patient Examination

Unless specified, each question should only be asked once.

**Name and address for subsequent recall**
"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**"

*(Say the info and allow patient to repeat it up to 4 times to commit to memory. Do not score yet)*

**Time Orientation**

**What is the date?**

○ Correct ○ Incorrect *Accept exact date only*

**Clock Drawing (visuospatial functioning)** use a paper with a printed circle

**Please mark in all the numbers to indicate the hours of a clock (correct spacing required).**

○ Correct ○ Incorrect *For a correct response (above), the numbers 12, 3, 6 and 9 should be in the correct quadrants of the circle and the other numbers should be approximately correctly placed.*

**Please mark in hands to show 10 minutes past eleven o'clock (11:10)**

○ Correct ○ Incorrect *For a correct response (above), the hands should be pointing to the 11 and the 2, but do not penalise if the respondent fails to distinguish the long and short hands.*

**Information**

**Can you tell me something that happened in the news recently? (in the last week)**

○ Correct ○ Incorrect *Respondents are not required to provide extensive details, as long as they demonstrate awareness of a recent news story.*
*If a general answer is given, such as 'war', 'a lot of rain', ask for details.*
*If unable to give details, the answer should be scored as incorrect.*

**Recall**

**What was the name and address I asked you to remember?**

☐ John *Check each correct component - leave incorrect responses blank*
☐ Brown
☐ 42
☐ West Street
☐ Kensington

## INFORMANT INTERVIEW

Please ask an informant who knows the patient well. If you don't have an informant available today, you can skip this part and complete it later. The informant interview can be completed over the phone at any time.

### How is the patient compared to 5 to 10 years ago?

| | yes | no | unsure | n/a |
|---|---|---|---|---|
| **Does the patient have more trouble remembering things that have happened recently than she used to?** | ○ | ○ | ○ | ○ |
| **Does he or she have more trouble recalling conversations a few days later?** | ○ | ○ | ○ | ○ |
| **When speaking, does the patient have more difficulty in finding the right word or tend to use the wrong words more often?** | ○ | ○ | ○ | ○ |
| **Is the patient less able to manage money and financial affairs (e.g. paying bills, budgeting)?** | ○ | ○ | ○ | ○ |
| **Is the patient less able to manage his or her medication independently?** | ○ | ○ | ○ | ○ |
| **Does the patient need more assistance with transport (either private or public)?** (If the patient has difficulties only due to physical problems, e.g. bad leg, tick 'no'.) | ○ | ○ | ○ | ○ |

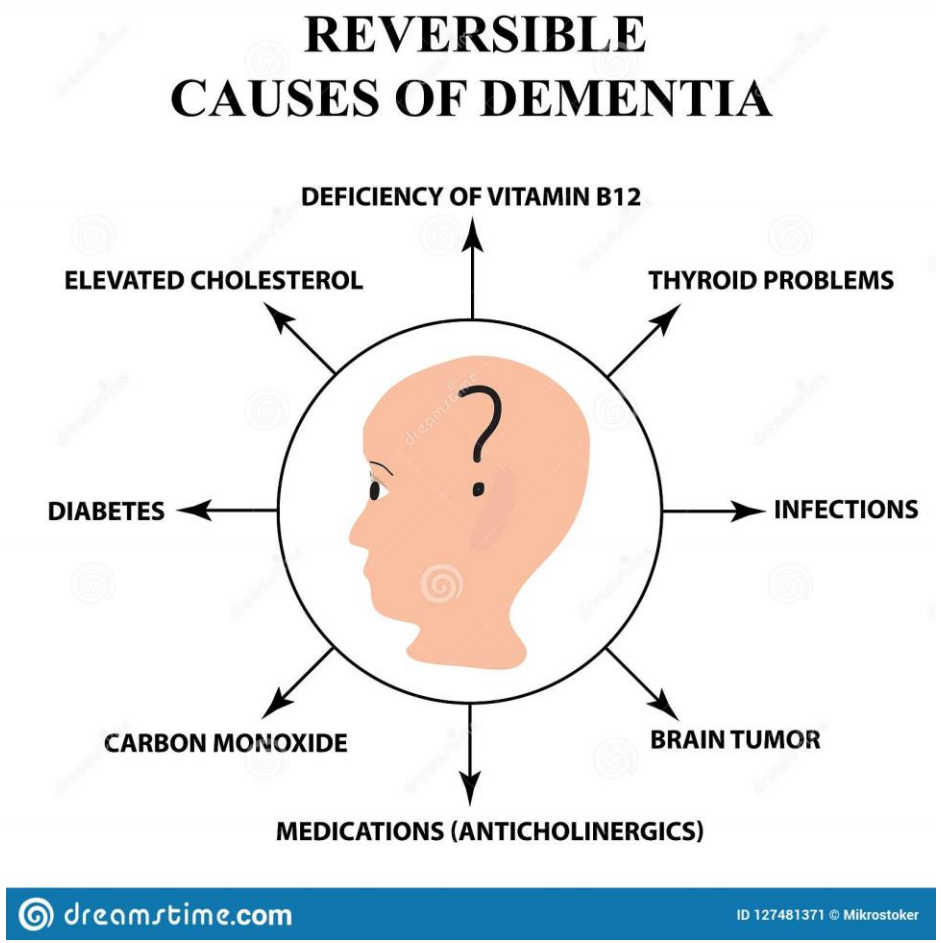
# 2nd step

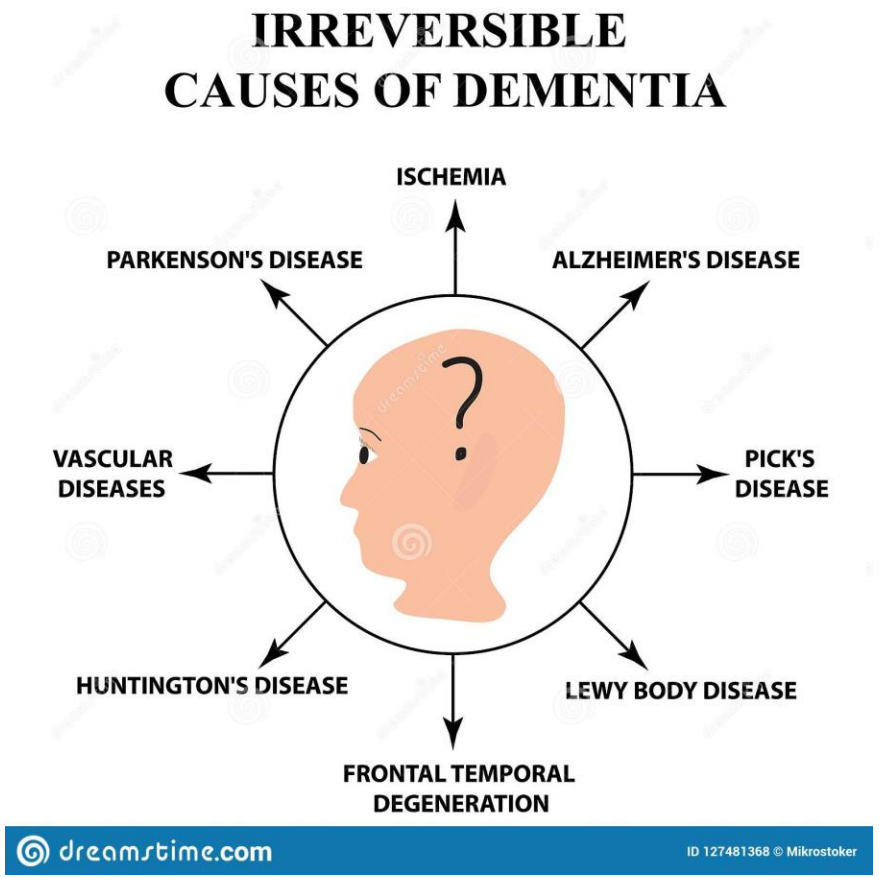
| MMSE (Mini-Mental State Examination) | MoCA (Montreal Cognitive Assessment) |
|---|---|
| The most widely used cognitive assessment tool; often serves as a reference to compare evaluations with other assessments, but does not include executive function assessment. | A brief screener with excellent sensitivity for mild cognitive impairment. It includes an assessment of executive function and is available in nearly 100 languages. |
| **MCI Detection** | |
| Less sensitive; patients with MCI may score as "normal" | More sensitive for detecting MCI |
| **Moderate/Severe Impairment** | |
| Appropriate for patients with more advanced AD dementia | May be too difficult for patients with moderate or severe cognitive impairment |
| **Administration Time** | |
| 10 min | 10 min |
| **Scoring** | |
| Maximum of 30 points*<br>25 or above=normal cognitive function<br>20 to 24=mild dementia<br>13 to 20=moderate dementia<br>12 or lower=severe dementia | Maximum of 30 points†<br>26 or above=normal cognitive function<br>25 or lower=cognitive impairment; either MCI or dementia |

**Cognitive Areas Assessed**

| | MMSE | MoCA |
|---|---|---|
| Orientation | ✔ | ✔ |
| Attention and concentration | ✔ | ✔ |
| Language | ✔ | ✔ |
| Visual construction | ✔ | ✔ |
| Memory | ✔ | ✔ |
| Executive functions | | ✔ |
| Conceptual thinking | | ✔ |
| Calculation | ✔ | ✔ |

# 3rd step-ruling out Reversible Causes



# Reversible causes of dementia

- Drugs
- Depression
- Brain lesions
- Electrolytes abnormalities/vitamin deficiencies

# Reversible causes of dementia-Drugs

- Anticholinergics-incontinence
- TCAs
- Benadryl
- Benzodiazepines
- Anticonvulsants

- Review the patient's medications for those that may affect cognition using a resource such as the American Geriatric Society's Beers Criteria.

# Reversible causes of dementia-Depression

**Table 5. Five-Item Geriatric Depression Scale**

| | |
|---|---|
| 1. Are you basically satisfied with your life? | Yes/No |
| 2. Do you often get bored? | Yes/No |
| 3. Do you often feel helpless? | Yes/No |
| 4. Do you prefer to stay at home rather than going out and doing new things? | Yes/No |
| 5. Do you feel pretty worthless the way you are now? | Yes/No |

NOTE: *A "no" response to question 1, or a "yes" response to questions 2 through 5 each counts as one point. A score of two or more points is considered a positive screen.*

*Information from reference 26.*

**Table 6. 15-Item Geriatric Depression Scale**

*Choose the best answer for how you have felt over the past week:*

| | |
|---|---|
| 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 new things? | **Yes**/No |
| 10. Do you feel 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 pretty 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 |

*Reprinted with permission from Sheikh JI, Yesavage JA. Geriatric Depression Scale (GDS): recent evidence and development of a shorter version. In: Brink TL, ed.* Clinical Gerontology: A Guide to Assessment and Intervention. *London, United Kingdom: Taylor & Francis; 1986:170.*

*Additional scoring information from http://www.stanford.edu/~yesavage/GDS.english.short.score.html: Answers in bold indicate depression. More than five of these answers suggests depression and warrants follow-up.*

Screening for depression-AAFP 2012

# Reversible causes of dementia- Brain lesions

- Routine neuroimaging-recommended by AAN and ACRA.
- MRI without contrast media is the preferred imaging test to exclude other intracranial abnormalities.
- MRI is more sensitive than computed tomography for distinguishing patterns of regional atrophy.
- CT if MRI is contraindicated.

ACR Appropriateness Criteria dementia and movement disorders. 2015.

# Reversible causes of dementia- Labs

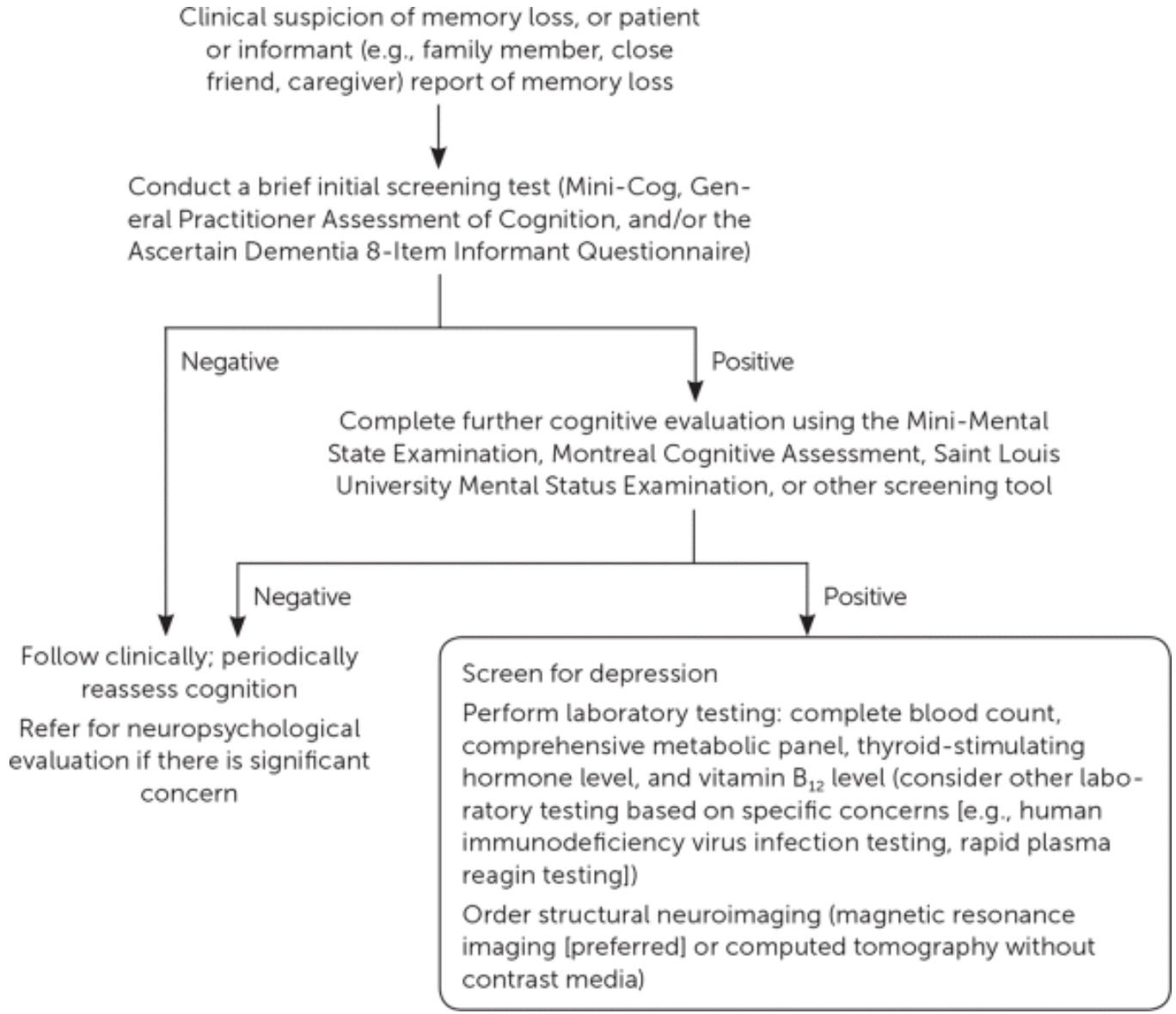
- CBC, CMP, TSH, B12
- Based on risk factors:

  -HIV, RPR, Metal poisoning, vitamin D

There are no clear data to support or refute ordering "routine" laboratory studies such as electrolytes, glucose, and renal and liver function tests.

# Ruling out other causes

- CSF- rapidly progressive symptoms.
- CSF 14-3-3 protein- Creutzfeldt Jakob disease.
- Genetic testing-E4 allele-not recommended.
- Referral for genetic testing-patients with multiple family members who were dx w/ Alzheimer at a young age (AD pattern).


Clinical suspicion of memory loss, or patient or informant (e.g., family member, close friend, caregiver) report of memory loss
Conduct a brief initial screening test (Mini-Cog, General Practitioner Assessment of Cognition, and/or the Ascertain Dementia 8-Item Informant Questionnaire)
Negative
Positive
Complete further cognitive evaluation using the Mini-Mental State Examination, Montreal Cognitive Assessment, Saint Louis University Mental Status Examination, or other screening tool
Negative
Positive
Follow clinically; periodically reassess cognition
Refer for neuropsychological evaluation if there is significant concern
Screen for depression
Perform laboratory testing: complete blood count, comprehensive metabolic panel, thyroid-stimulating hormone level, and vitamin $B_{12}$ level (consider other laboratory testing based on specific concerns [e.g., human immunodeficiency virus infection testing, rapid plasma reagin testing])
Order structural neuroimaging (magnetic resonance imaging [preferred] or computed tomography without contrast media)

- Evaluation of cognitive impairment and dementia - UpToDate
- Global status report on the public health response to dementia (who.int)
- Evaluation of Suspected Dementia - American Family Physician (aafp.org)
- Screening for Depression - American Family Physician (aafp.org)
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