

Updates in Geriatric Medicine: The 4M Framework

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Disclosure

I have no financial interests or relationships to disclose.



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Learning Objectives

- Incorporate the Age Friendly Health System® 4 M Framework (What Matters, Medication, Mentation, and Mobility) into routine primary care visits using rapid screening tools
- Evaluate patient medication regimens and incorporate cognitive/functional status to initiate safe deprescribing strategies
- Translate recent clinical guidelines and literature updates across the 4Ms into individualized management plans for older adults

The Problem

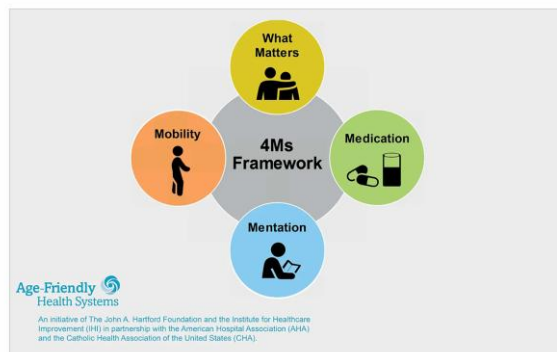
- The Aging Population:
 - 2022: 58 million 65+ (~17% of population)
 - 2050: projected 82 million 65+ (23% of population)
- Adults ≥65 years old make up **17% of the population but account for nearly 40% of acute care hospital admissions** and 50% of all hospital expenditures for adults.

The Problem

- **Current care models often lead to harm** (delirium, deconditioning, functional and cognitive decline, medication discrepancies, transition fragmentation, hospital readmissions, and mortality)
 - 88% of older hospitalized patients had at least one clinically significant problem related to **prescribing**
 - 22% had at least one potentially **serious and life-threatening adverse drug event**
 - **Delirium** occurs in 29%–64% of hospitalized patients
 - Among hospitalized medical patients ≥70 years old, approximately one-third are **discharged with a disability** that was not present 2 weeks before admission
 - Hospitalization accounts for 50% of **new-onset disability** in frail older adults.

The Solution

- The 4Ms framework is an evidence-based, quality improvement standard designed to address these core issues



Key Outcomes of 4Ms Care

- **Fewer Complications:**
 - Lowers rates of delirium, falls, and adverse drug reactions.
- **Reduced Utilization:**
 - Decreases 30-day hospital readmissions, emergency department visits, and shorter hospital stays.
- **Higher Satisfaction:**
 - Increases patient and caregiver satisfaction with care decisions.
- **Preserved Independence:**
 - Maximizes functional ability and increases the number of healthy days older adults spend at home



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IHI Age-Friendly Health System Recognition

- **Level 1 (Participant)** teams have successfully developed plans to implement the 4Ms.
- **Level 2 (Committed to Care Excellence)** teams have three months of data of older adults who received 4Ms care.



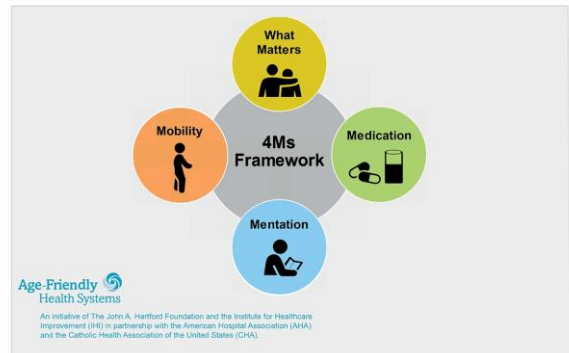
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CMS Age-Friendly Hospital Measures

CY 2025 Reporting Period/FY 2027 Payment Determination

5 Domains:

- Eliciting patient healthcare goals
- Responsible medication management
- Frailty screening and intervention
- Social vulnerability
- Age-friendly care leadership



The Case of Mr. H

- Mr. H is a 90 y/o male with h/o anxiety, insomnia, DM2, HTN, CAD, and advanced HFrEF who presents to your office for his annual wellness exam.

WHAT MATTERS MOST

Physician Orders for Life-Sustaining Treatment (POLST)

Do not take away unless they are correct. Complete this if a patient is frail, has serious illness, or is nearing the end of life. Do not complete this if the patient is healthy, has no serious illness, or is not near the end of life.

A. Cardiopulmonary Resuscitation (CPR) Person has no pulse and is not breathing. Should we try to restart their heart and breathing? (Circle your choice)

☐ Always Resuscitate (CPR) ☐ Do Not Attempt Resuscitation (DNR) (Use your choice)

B. Medical Interventions Person has a tube in their mouth or throat. Should we keep the tube in place? (Circle your choice)

☐ Yes, keep the tube in place. ☐ No, do not keep the tube in place. (Use your choice)

C. Artificially Administered Nutrition Offer feeding through a tube and/or other means? (Circle your choice)

☐ Yes, offer feeding through a tube and/or other means. ☐ No, do not offer feeding through a tube and/or other means. (Use your choice)

D. Bowel Care and Comfort of Medical Condition (Circle your choice)

☐ Yes, provide bowel care. ☐ No, do not provide bowel care. (Use your choice)

Signature of Physician _____

Signature of Patient, Surrogate, or Representative _____

Printed Name of Attending Physician _____

Address _____

City, State, Zip _____

Telephone Number (Office) _____

Telephone Number (Personal) _____

Do Not Copy Do Not Alter

STOP DO NOT Resuscitate

Effective Date: _____
Expiration Date, if any: _____

☐ Check box if no expiration

DO NOT RESUSCITATE ORDER

Patient's full name: _____

In the event of cardiac and/or pulmonary arrest, no resuscitative efforts at cardiopulmonary resuscitation of the patient SHOULD NOT be made. This order does not affect other medical interventions and treatment.

I have documented the patient's condition and the consent obtained by the NC General Statute 90-21.37(b)(1) in the patient's records.

Signature of Physician/Physician Assistant/Nurse Practitioner _____

Printed Name of Attending Physician _____

Address _____

City, State, Zip _____

Telephone Number (Office) _____

Telephone Number (Personal) _____

Do Not Copy Do Not Alter

ARS Question #1

A 90-Year-Old Nursing Home Resident With a 10-Year History of AD Has Had Coughing After Meals for 6 Months. He Has Profound Memory Deficits, No Longer Recognizes Family, Is Bedbound, Is Only Able to Mumble a Couple of Words, and Is Unable to Perform Any ADLs/IADLs. He Is Losing Weight.

How Should He Be Evaluated/Treated?

- Refer to GI for percutaneous feeding tube
- Start Megace (Megestrol Acetate) to help with appetite
- Start Marinol (Dronabinol) to help with appetite
- Refer to hospice and provide comfort feeds

What Matters Most

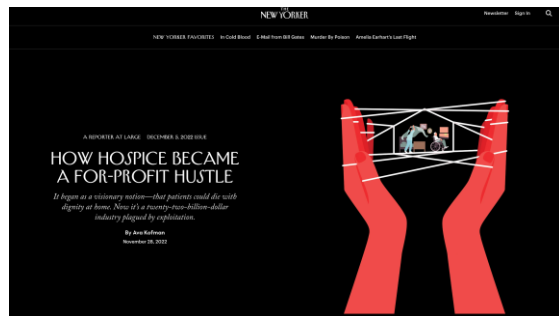
The North Star

- What Matters is a patient-centered approach in which the health care team ascertains and aligns care with each older adult's specific health goals and care preferences including, but not limited to, end-of-life care
- Shift from "code status" only discussion to identifying patient's health outcome goals and care preferences

What Matters Most

- Elicit patient preferences
 - What are their priorities?
 - What are their goals of care?
 - What is the main reason for this hospitalization? Office visit?
 - What makes life worth living to them?
- **Actionable Items:**
 - Ask the patient and document What Matters in notes
 - Determine Healthcare Proxy / POA
 - Complete Advance directives / POLST/Do Not Resuscitate (DNR) per patient wishes

Literature Updates: What Matters Most



Original Investigation

February 27, 2023

Association of Hospice Profit Status With Family Caregivers' Reported Care Experiences

Rebecca Anhang Price, PhD¹; Layla Parast, PhD²; Marc N. Elliott, PhD³, et al

> Author Affiliations

JAMA Intern Med. 2023;183(4):311-318. doi:10.1001/jamainternmed.2022.7076

Hospice Study

- Cross-sectional study
- Consumer Assessment of Healthcare Providers and Systems (CAHPS) Hospice survey
 - 653,203 CG responses from 3,107 hospices
 - A score of 8 measures of hospice care experience
 - Communication, timely care, symptom management, and emotional/religious support

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Hospice Study

- Family caregivers reported worse care experiences at for-profit hospices compared with not-for-profit hospices

Hospice Study

- Limitations:
 - CG not patient surveyed
 - Low response rate (32%)
 - Lots of variability hospice performance
 - New/small for profit hospices largely not included
- Take home: not all for profit are bad and not all non-profit are good

Hospice Study

- Introducing Hospice earlier offers several advantages
 - Better symptom management
 - Reduced Emergency room visits/ICU admissions/decreased readmissions
 - More time for planning/emotional support

Hospice Criteria for Dementia

- **FAST stage 7 or beyond**
- Unintentional weight loss >10% over 6 months
- Comorbid condition within the past 12 months (aspiration pneumonia, pyelonephritis, sepsis, multiple stage ¾ ulcers, fever after antibiotics)

Stage	Stage Name	Characteristic
1	Normal Aging	No Deficits
2	Possible MCI	Subjective Deficits
3	MCI	Objective Deficits, still Independent ADLs/IADLs
4	Mild Dementia	Needs help with bills, cooking, driving, medicine
5	Moderate Dementia	Needs help picking proper clothes
6a	Moderately Severe Dementia	Needs help putting on clothes
6b	Moderately Severe Dementia	Needs help bathing
6c	Moderately Severe Dementia	Needs help toileting
6d	Moderately Severe Dementia	UI
6e	Moderately Severe Dementia	FI
7a	Severe Dementia	Speaks only 5-6 words
7b	Severe Dementia	Speaks 1 word
7c	Severe Dementia	Can not walk
7d	Severe Dementia	Can not sit up
7e	Severe Dementia	Can not smile
7f	Severe Dementia	Can not hold up head



Adapted from: Reisberg B, Ferris SH, Franssen E. An ordinal functional assessment tool for Alzheimer's-type dementia. *Hosp Community Psychiatry*. 1985 Jun;36(6):593-5. doi: 10.1176/ps.36.6.593. PMID: 4007814.

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What Matters Most Recap

Actionable Items:

- Simple query "What is the main reason for this visit/ hospitalization? What would a good day look like for you this month? What matters most?"
- Document What Matters in Notes
- Determine Health Care Proxy / Power of Attorney (POA)



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What Matter Most

Back to the Case

- Mr. H states his primary goal is to walk his dog and have a good quality of life.



MEDICATIONS



ARS Question #2

You Are Treating a 70-Year-Old Male Without Known H/O CAD. He Has a 10-Year Atherosclerotic Cardiovascular Disease (ASCVD) Risk Score of 12.4%. He Asks if He Should Be Taking Aspirin to Prevent Future Heart Attacks.

How Do You Respond?

- A. Initiate daily low-dose aspirin, as his 10-year ASCVD risk exceeds the 10% threshold for primary prevention.
- B. Do not start Aspirin, as it is not recommended for primary prevention in his age cohort
- C. Defer the decision until a coronary artery calcium (CAC) score is obtained to further stratify his net clinical benefit.
- D. Recommend daily low-dose aspirin provided it is co-prescribed with a proton pump inhibitor (PPI) to mitigate bleeding risks



CONTINUING EDUCATION COMPANY

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Medications

- **Polypharmacy:** ≥ 5 medications, including OTC or alternative meds
 - 2 out of 3 elderly take at least one medication per day
 - Polypharmacy is present in almost half of older adults
- Older adults have lower threshold for medication toxicity, limited lifespan (which may restrict the ability to draw treatment conclusions), and the lack of data because older adults are not included in clinical trials
- Hospital admission and discharge are ideal times to perform a comprehensive medication review, with the goal of discontinuing or changing medications

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Beers Criteria

- The intention of the AGS Beers Criteria® is to: (1) reduce older adults' exposure to potentially inappropriate medications (PIMs) by improving medication selection; (2) educate clinicians and patients; and (3) serve as a tool for evaluating the quality of care, cost, and patterns of drug use in older adult
- The criteria are intended to be applied to adults 65 years old and older in all ambulatory, acute, and institutionalized settings of care, except hospice and end-of-life care settings.



Potentially Inappropriate Medications for Older Adults

- 1st generation antihistamines
- Antihypertensives
- Antiarrhythmics
- Antidepressants
- Antipsychotics
- Genitourinary-antispasmodics
- Narcotics
- Barbiturates
- Benzodiazepines
- NSAIDS
- Skeletal muscle relaxants
- Hypoglycemic agents
- Tricyclic antidepressants



Medications

- Evaluate for polypharmacy
- Deprescribing high risk medications
- Optimal prescribing
- Adverse medication effects and medication burden
- **Actionable Items:**
 - Focus on polypharmacy, deprescribing, and high-risk medications
 - Is this medication necessary to meet the patient's "What Matters Most" goal?
 - Tools:
 - STOPP/START Criteria
 - Beers Criteria

Literature Updates: Medications

Received: 7 March 2023 | Accepted: 29 March 2023
DOI: 10.1111/jgs.18772

SPECIAL ARTICLES

Journal of the
American Geriatrics Society

American Geriatrics Society 2023 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults

By the 2023 American Geriatrics Society Beers Criteria® Update Expert Panel 

Correspondence
Mary Jordan Samuel, American Geriatrics Society, 40 Fulton Street, Suite 809, New York, NY 10038, USA.
Email: msamuel@americangeriatrics.org

Abstract

The American Geriatrics Society (AGS) Beers Criteria® (AGS Beers Criteria®) for Potentially Inappropriate Medication (PIM) Use in Older Adults is widely used by clinicians, educators, researchers, healthcare administrators, and regulators. Since 2011, the AGS has been the steward of the criteria and has produced updates on a regular cycle. The AGS Beers Criteria® is an explicit list of PIMs that are typically best avoided by older adults in most circumstances or under specific situations, such as in certain diseases or conditions. For the 2023 update, an interprofessional expert panel reviewed the evidence published since the last update (2019) and based on a structured assessment process approved a number of important changes including the addition of new criteria, modification of existing criteria, and formatting changes to enhance usability. The criteria are intended to be applied to adults 65 years old and older in all ambulatory, acute, and institutionalized settings of care, except hospice and end-of-life care settings. Although the AGS Beers Criteria® may be used internationally, it is specifically designed for use in the United States and there may be additional considerations for certain drugs in specific countries. Whenever and wherever used, the AGS Beers Criteria® should be applied thoughtfully and in a manner that supports, rather than replaces, shared clinical decision-making.

KEYWORDS

Beers criteria, Beers list, inappropriate prescribing, medications and drugs, older adults

Noteworthy Changes

- Aspirin:
 - No longer recommended for primary prevention of cardiovascular disease



Guirguis-Blake et al. Interventions to Prevent Falls in Older Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2024 Jul 2;332(1):58-69..

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Noteworthy Changes

- Anticoagulation:
 - Warfarin: Avoid starting warfarin as initial therapy for the treatment of venous thromboembolism (VTE) or nonvalvular atrial fibrillation unless alternative options (e.g., DOACs) are contraindicated
 - Xarelto (Rivaroxaban): Avoid rivaroxaban for long-term treatment of nonvalvular atrial fibrillation or VTE in favor of safer anticoagulant alternatives.
 - Pradaxa (Dabigatran): Use caution in selecting dabigatran over other DOACs (e.g., Eliquis/apixaban) for long-term treatment of nonvalvular atrial fibrillation or VTE.



Guirguis-Blake et al. Interventions to Prevent Falls in Older Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2024 Jul 2;332(1):58-69..

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Noteworthy Changes

- Sulfonylureas
 - Avoid all sulfonylureas as first- or second-line monotherapy or add on-therapy in recognition of their association with a higher risk of cardiovascular events, all-cause mortality, and hypoglycemia



Guirguis-Blake et al. Interventions to Prevent Falls in Older Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2024 Jul 2;332(1):58-69.

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Noteworthy Changes

- PIMs exacerbating Specific Diseases
 - Heart failure:
 - Avoid dextromethorphan/quinidine (Nuedexta)
 - Delirium:
 - Opioids and steroids added as meds that can exacerbate
 - Avoid H2 receptor antagonists like Famotidine
 - Falls:
 - Antidepressants have been lowered to moderate in patients with history of falls



Guirguis-Blake et al. Interventions to Prevent Falls in Older Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA. 2024 Jul 2;332(1):58-69.

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One of the first duties of the physician is to educate the masses not to take medicine.
~Sir William Osler,
the "Father of Modern Medicine"



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Medications Recap

Actionable Items:

- Focus on polypharmacy, deprescribing, and high-risk medications
- Recognize any new medication can negatively impact Mind and Mobility
- Is this medication necessary to meet the patient's "What Matters Most" goal?
- Tools:
 - STOPP/START Criteria (Screening Tool for Older Persons' Prescriptions (STOPP)/Screening Tool to Alert to Right Treatment (START) criteria)
 - Deprescribing.org
 - Beers Criteria



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Back to the Case

Mr. H's Medication List

- Coumadin 2 mg daily
- Coreg 12.5 BID
- Metformin 500 mg BID
- Amlodipine 5 mg daily
- Atorvastatin 20 mg daily
- Glipizide 2.5 mg daily
- Famotidine 20 mg daily
- Clonazepam 1 mg BID prn
- Ambien 10 mg nightly
- Paroxetine 10 mg daily
- Furosemide 40 mg daily
- KCL 20 meq daily



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Back to the Case

Mr. H's Medication List

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- Coreg 12.5 BID
- Metformin 500 mg BID
- Amlodipine 5 mg daily
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- Famotidine 20 mg daily
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- Ambien 10 mg nightly
- Paroxetine 10 mg daily
- Furosemide 40 mg daily
- KCL 20 meq daily

Geriatric Medication Review

- Coumadin -> Eliquis
- Amlodipine -> DC (? prescribing cascade with Lasix)
- Glipizide - Beers criteria -> DC
- Famotidine -> hold inpatient if +delirium
- Clonazepam and Ambien -> Beers criteria, rec slow taper
- Paroxetine -> change to sertraline, less anticholinergic



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MIND



ARS Question #3

You Are Treating a 74-Year-Old Male Who Is APOE4+ with MCI, AFib on Apixaban, DM2, and OSA Who Is Interested in Medications to Help His Memory.

What Do You Recommend?

- A. Start Donepezil
- B. Start Lecanemab
- C. Start Donanemab
- D. Advise against any medications at this time

Mentation

Prevent, Identify, Treat, and Manage Dementia, Depression, and Delirium

- **Actionable Items:**
- Targeted Screen for Mood disorders, Delirium, and Dementia
 - Mood : PHq 2/9 and Geriatric Depression Scale
 - Memory : Mini-cog.MoCA/ AD8
 - Delirium: CAM
- Use brief, validated tools in Annual Wellness Visit
- Recognize acute changes in baseline cognition during routine primary care follow ups after hospitalizations



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Mentation: The 3 D's: Dementia, Delirium, Depression

Distinguishing the 3 D's

	Dementia	Delirium	Depression
Onset	Gradual	Sudden (acute)	Slow, persistent
Course	Progressive cognitive decline; irreversible	Reversible but fluctuates over days/weeks/months	Variable; remits, but can later relapse
Memory	Progressive impairments	Inattention, dramatic fluctuations	Selective, difficulty concentrating
Mood	Apathy can be confused with depression	Fluctuations in mood can be observed	Depressed, hopeless, anhedonia



Used with permission from Anthony Caprio, MD.

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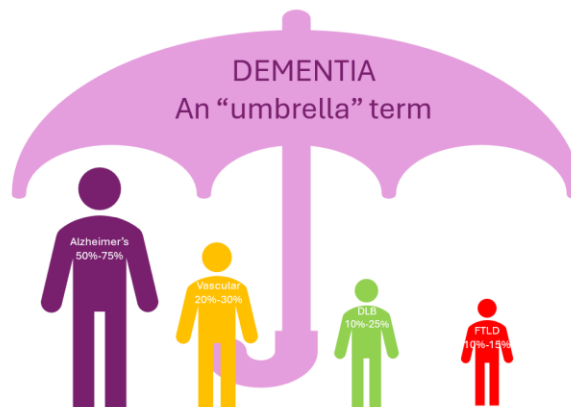
MCI vs. Dementia

Mild Neurocognitive Disorder / Mild Cognitive Impairment (MCI)

- Intermediate state between normal cognition and dementia in which there are objective cognitive impairments but no decline in overall level of function
- Clinical trials of donepezil, galantamine, and rivastigmine in the treatment of MCI have not provided support for the use of acetylcholinesterase inhibitors in preventing progression of MCI to dementia

Major Neurocognitive Disorder/ Dementia

- Decline in cognition involving one or more cognitive domains (learning and memory, language, executive function, complex attention, perceptual-motor, social cognition)
- Deficits must represent a decline from previous level of function and be severe enough to interfere with daily function and independence.



Mentation: Dementia

- Prevalence of dementia doubles with every 5-year increase in age
 - 1-2% at age 65
 - 30% at age 85
 - Over 50% at age 90
- Twice as likely to be hospitalized than those without cognitive impairment, and are more likely to have:
 - Longer hospitalizations
 - Develop delirium and functional decline
 - Be discharged to a skilled-nursing facility
- Dementia is also a risk factor for falls, use of restraints, nonadherence to therapy, feeding tube placements, decision-making incapacity, readmissions, and 30-day and 1-year mortality

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 (just say 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. For repeated administrations, use of an alternative word list is recommended.

Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Banana	Leopard	Village	River	Captain	Daughter
Chair	Table	Kitchen	Nation	Garden	Mountain

Step 2: Clock Drawing

Say: "Now, 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.

Word List Version: _____ Person's Answers: _____

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 another position with no missing or duplicated numbers). Hands are pointing to the 11 and 1 (11-10). Hand length is not scored. Heavily or refused to draw a clock (abnormal) = 0 points.
Total Score: (0-5 points)	Total score = Word Recall score + Clock Draw score.

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.

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME: _____ Education: _____ Sex: _____ Date of Birth: _____ Date: _____

VERBOSPATIAL EXECUTIVE

Copy cube (1 point) _____

Draw CLOCK (10 min past eleven) (3 points) _____

NAMING

Contour (1 point) _____ Numbers (1 point) _____ Hands (1 point) _____

MEMORY

Read list of words; subject must repeat them. (2 points) _____

On a recall after 5 minutes. (2 points) _____

ATTENTION

Read list of digits (11 digit serial) _____

Subject has to repeat them in the forward order. (1 point) _____

Subject has to repeat them in the backward order. (1 point) _____

Read list of letters. The subject must tap with his hand at each letter A. (1 point) _____

Serial 7 subtraction starting at 100. (1 point) _____

LANGUAGE

Repeat: "Long know that John is the one to help make it." (1 point) _____

The cat always hid under the couch when dogs were in the room. (1 point) _____

Fluency / Name maximum number of words in one minute that begin with the letter F. (1 point) _____

ABSTRACTION

Similarity between e.g. banana - orange - fruit (1 point) _____

bat - bicycle (1 point) _____

switch - ruler (1 point) _____

DELAYED RECALL

Has to read words with no cue. (1 point) _____

FACE (1 point) _____ VELVET (1 point) _____ CHURCH (1 point) _____ DAISY (1 point) _____ RED (1 point) _____

Optional

Category cue (1 point) _____

Multiple choice cue (1 point) _____

ORIENTATION

Date (1 point) _____ Month (1 point) _____ Year (1 point) _____ Day (1 point) _____ Place (1 point) _____ City (1 point) _____

© 2014 New Medicine, Inc. www.mocatest.org Normal: >26 / 30 TOTAL: _____ / 30

Administered by: _____

AD8 Dementia Screening Interview

Patient ID#: _____

CS ID#: _____

Date: _____

Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	YES, A change	NO, No change	N/A, Don't know
1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)			
2. Less interest in hobbies/activities			
3. Repeats the same things over and over (questions, stories, or statements)			
4. Trouble learning how to use a tool, appliance, or gadget (e.g., VCR, computer, microwave, remote control)			
5. Forgets correct month or year			
6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)			
7. Trouble remembering appointments			
8. Daily problems with thinking and/or memory			
TOTAL AD8 SCORE			



Adapted from Galvin JE et al. The AD8, a brief informant interview to detect dementia. *Neurology* 2005;65:559-564
 Copyright 2005. The AD8 is a copyrighted instrument of the Alzheimer's Disease Research Center, Washington University, St. Louis, Missouri.
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Mentation: Delirium

- Disturbance in attention
- Change in cognition
- Develops over a short period & tends to fluctuate
- Evidence disturbance is caused by a medical condition, intoxication, or medication, or is multifactorial



The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)

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Reversible Causes of Delirium Mnemonic

D	Drugs	Any new additions, increased dosages, or interactions Consider OTC drugs and alcohol
E	Electrolyte disturbances	Especially dehydration, sodium imbalance Thyroid abnormalities
L	Lack of drugs	Withdrawals from chronically used sedatives, including alcohol and sleeping pills Poorly controlled pain (lack of analgesia)
I	Infection	Especially urinary and respiratory tract infections
R	Reduced sensory input	Poor vision, poor hearing (lack of glasses, hearing aids in the hospital)
I	Intracranial	Infection, hemorrhage, stroke, tumor
U	Urinary, fecal	Urinary retention; Fecal impaction, constipation
M	Myocardial, pulmonary	Myocardial infarction, arrhythmia, exacerbation of heart failure, exacerbation of COPD, hypoxia, hypercarbia

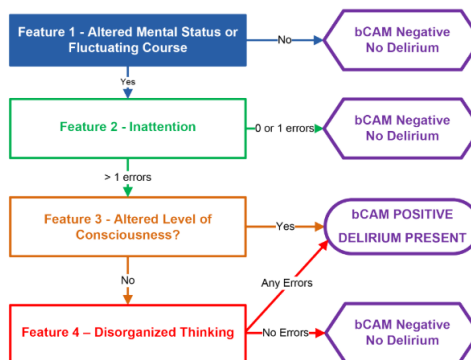
Mentation: Delirium

- Patients ≥ 70 years old
 - Inpatient Medicine: 1/3 experience delirium
 - ICU: 35-50% experience delirium
 - ED: 10%–15% are delirious at presentation
 - End of life: as high as 85%
- Associated with numerous poor outcomes
 - Functional decline
 - Nursing-home placement
 - Prolonged cognitive decline
 - Dementia
 - Death

Confusion Assessment Method (CAM)

- Must have 1 and 2, then either 3 or 4
 1. Acute onset or fluctuating course
 2. Inattention
 3. Disorganized thinking
 4. Altered level of consciousness

bCAM Calculator



Mentation: Depression

- Prevalence as high as 13%
- 30% of elderly with chronic illnesses
- Represent 17% of US population but ~25% of suicides!
- Depressive symptoms are common in hospitalized older adults (prevalence 8%–45%), prognostically important, potentially ameliorable, and often unrecognized.

Depression Screen

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)				
Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

Best Single Question: "Do You Ever Feel Sad or Depressed?"

Sensitivity 85% & Specificity of 65%

Answers "Yes" to either of the following (PHQ-2):

In the past month, have you often been bothered by:

- feeling down, depressed, or hopeless?
- having little interest or pleasure in doing things?

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Geriatric Depression Scale (GDS)

- Specifically designed for geriatric population
- Minimizes the influence of physical symptoms that can overlap with both aging and depression

Geriatric Depression Scale

Date: 2016-08-12

Patient Name: TEST, TEST

	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)		☐

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Literature Updates: Mentation



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Clinical Trial Anti-Amyloid Therapies

- Double blind RCT comparing anti-amyloid infusion (Lecanemab q 2 weeks or Donanemab q4 weeks) to placebo infusion for 18 months in patients with MCI or early AD with confirmed evidence of Amyloid on PET or CSF
- Primary Outcomes: Clinical Dementia Rating Scale Sum of Boxes (CDR-SB)
- Secondary Outcome: Clearing of Amyloid
- Primary Harm: ARIA (MRI q3 months)



van Dyck CH, Swanson CJ, Aisen P, Bateman RJ, Chen C, Gee M, Kanekiyo M, Li D, Reyderman L, Cohen S, Froelich L, Katayama S, Sabbagh M, Vellas B, Watson D, Dhadda S, Izratty M, Kramer LD, Iwatsubo T. Lecanemab in Early Alzheimer's Disease. *N Engl J Med*. 2023 Jan 5;388(1):9-21. doi: 10.1056/NEJMoa2212948. Epub 2022 Nov 29. PMID: 36448413.

Sims JR, Zimmer JA, Evans CD, Lu M, Ardoylo P, Sparks J, Wessels AM, Scherbinin S, Wang H, Monkul Nery ES, Collins EC, Solomon P, Salloway S, Apostolova LG, Hanson O, Ritchie C, Brooks DA, Mintun M, Skovronsky DM, TRAILBLAZER-ALZ 2 Investigators. Donanemab in Early Symptomatic Alzheimer Disease: The TRAILBLAZER-ALZ 2 Randomized Clinical Trial. *JAMA*. 2023 Aug 8;330(6):512-527. doi: 10.1001/jama.2023.13239. PMID: 37459141; PMCID: PMC10352931.

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Clinical Trial Anti-Amyloid Therapies

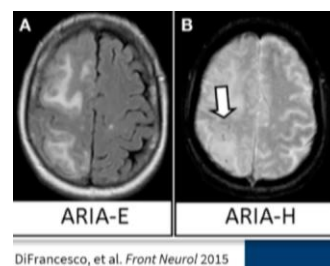
	Lecanemab	Donanemab
Primary Outcome (CDR-SB)	Placebo: worsened by 1.66 Lecanemab: Worsened by 1.21 Difference: 0.45 points (95% CI= 0.23-0.67)	Placebo: worsened by 1.88 Donanemab: Worsened by 1.20 Difference: 0.67 points (95% CI= -0.95 to -0.40)
Secondary Outcome (Amyloid Clearing)	Lecanemab -55.48 Placebo +3.64	Lecanemab -88 Placebo +0.2

Comparison to Donepezil Trial Outcomes

- Primary Outcomes: Clinical Dementia Rating Scale Sum of Boxes (CDR-SB)
 - **Minimum clinically important difference = 1 point**
- Lecanemab 0.45
- Donanemab 0.67
- Donepezil 0.53

AAT: Side Effects

- Significant side effects
 - Amyloid-related imaging abnormalities (ARIA)-edema or hemorrhage
 - Headache
 - Confusion
 - Diarrhea
 - Falls
 - Hypersensitivity, including angioedema and urticaria



	Lecanemab	Donanemab
ARIA-E (Edema)	12.6 % (placebo 1.7%)	24% (placebo 2.1 %)
ARIA-H (Hemorrhages/ Hemosiderin deposition)	17% (placebo 9%)	31.4% (placebo 13.6%)

AAT: Prescribing Guide

- MRI prior to initiating treatment and with each dose escalation
- CMS and VA Coverage
 - CMS-approved in July 2023
 - VA-approved coverage, Feb 2023

	Lecanemab	Donanemab
Target	Soluble amyloid-beta protofibrils	Amyloid-beta plaques
Frequency	Every 2 week	Every 4 weeks
Duration	• 18 months infusion • Autoinjector weekly for maintenance	18 months (or until clearance)
Delivery	Infusion or Subcutaneous autoinjector	Infusion

AAT: Appropriate Use Recommendations

- MCI or Early AD
 - MoCA Score: Lecanemab >17 Donanemab >16
 - Limited functional impairments
- Anticoagulants-Avoid in patients on anticoagulants/DOACs
- Confirm + amyloid status
- Relative Contraindications:
 - APOE4 homozygote-increased risk of ARIA
 - MRI with SAH, ICH, >4 microhemorrhages, cortical infarct/>1 lacunar infarct, Severe or diffuse WMD, CAA, Aneurysm
 - Contraindication to frequent MRI scans
 - Known blood dyscrasias
 - Uncontrolled HTN, recent MI/unstable angina,
 - History of uncontrolled seizures



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Cochrane Review of Monoclonal Antibodies

- The effect on cognitive function and dementia severity at 18 months is trivial.
- The effect functional ability at 18 months is Ape small at best.
- Increase the risk of amyloid-related imaging abnormalities.
- They successfully remove amyloid
- Successful removal of amyloid from the brain does not seem to be associated with clinically meaningful effect in people with MCI or mild dementia due to Alzheimer's disease.



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Mentation Recap

- Dementia, delirium, and depression are common in older adults and screening is recommended in all care settings.
- **Actionable Items:**
- Screen for mood disorders, Delirium, and Dementia
 - Mood Screens: PHq2/9 and Geriatric Depression Scale
 - Memory Screens: Mini-cog
 - Delirium Screen: bCAM

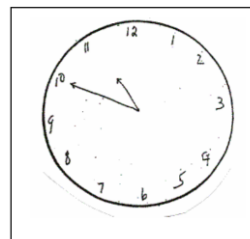


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Back to the Case

The 3D's Screening Results for Mr. H

- Dementia Screen: 2/3 recall. CDT:
- Depression Screen: PhQ2: 0
- bCAM: negative



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Mobility



Mobility

- Immobility = Harm
 - Immobility during hospitalization rapidly leads to diminished strength and subsequent difficulty walking
 - A single day of bedrest can lead to significant muscle loss
- Strategies to promote mobility and reduce falls include:
 - Avoiding restraints and tethers, decluttering the environment, minimizing use of medications associated with falls, providing walking assistance for those who walk with difficulty, attending to patient's toileting needs, addressing sensory impairments, and providing physical therapy for those with weakness or gait abnormalities

Mobility

Falls

- Falls are a leading cause of preventable death and injury and reduced function in patients greater than age 65
- Risk increase with age
- 30-40% of community dwelling adults over the age of 65
- 60% of those with a history of falls will fall again
- Ask all older adults about falls in the past year or any difficulty with walking or balance!

Mobility - Functional Status

- Does the patient need assistance with ADLs/IADLs?
 - Or supervision? Or are they totally dependent?
- Are any of these activities difficult due to health problems?
- 10% of community dwelling older adults will lose one or more ADL per year
- 75% of older adults will lose function during hospitalization

Mobility – Functional Status

Activities of Daily Living

ADLs

- Transferring
- Ambulating
- Toileting
- Bathing
- Dressing
- Grooming
- Eating

Instrumental ADLs

- Transportation
- Shopping
- Cooking
- Laundry
- Household Chores
- Finances
- Medications
- Telephone

Mobility

Timed Up & Go (TUG)

- Pt is asked to rise from chair, walk 10 feet, turn around, walk back to chair and sit down.
- Can use assistive device if has (cane, walker)
- Look for: pace, balance, stride length, shuffling, arm swing, en bloc turning, proper use of assistive device
- Time > 12 seconds
 - High risk of falls
 - 34% chance of losing one ADL in next year
- Quick, reliable, and valid.

Mobility

Ensure Older Adults Move Safely Daily to Maintain Function and Preserve Independence

- Amount of mobility and function
- Impaired gait and balance
- Prevention of injuries from falls



• Actionable Items

- Screen for fall risk
 - Have you fallen in the last year, do you feel unsteady when standing/walking?
- TUG: 15 second timed up and go screen
 - >12 seconds = fall risk
- Check Orthostatic Vital Signs
- Cognitive Screening
- Review medications for fall risk increasing drugs

Mobility: Literature Updates

Journal of the American Geriatrics Society

**Journal of the
American Geriatrics Society**

| SPECIAL ARTICLE

Updating STEADI for Primary Care: Recommendations From the American Geriatrics Society Workgroup

Theodore M. Johnson II^{1,2} | Jennifer L. Vincenzo³ | Bryanna De Lima⁴ | Colleen M. Casey⁵ | Shelly Gray⁶ | Siobhan K. McMahon⁷ | Elizabeth A. Phelan⁸ | Elizabeth Eckstrom⁴

Mobility: Literature Updates

- CDC released STEADI (stopping elderly accidents, deaths, and injuries) toolkit based on AGS fall prevention guidelines
- Updated in 2024 based on 448 stakeholders and work groups
 - Screen
 - Assess
 - Intervene



Johnson et al. Updating STEADI for Primary Care: Recommendations From the American Geriatrics Society Workgroup. J Am Geriatr Soc. 2025 Jan 29. doi: 10.1111/jgs.19378.

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Mobility: Literature Updates

- Screen
 - Screen with three key questions:
 - Have you fallen in the past year?
 - Are you concerned* about falling? -*avoid fear/worry
 - Do you feel unsteady standing or walking?



Johnson et al. Updating STEADI for Primary Care: Recommendations From the American Geriatrics Society Workgroup. J Am Geriatr Soc. 2025 Jan 29. doi: 10.1111/jgs.19378.

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Mobility: Literature Updates

- Assess
 - If screen is positive, then should lead to an intervention
 - Ask remaining STEADI-12 questionnaire
 - Check orthostatic vital signs
 - Hearing and cognitive screen

Mobility: Literature Updates

- Intervene
 - Review medications for FRIDs (fall risk increasing drugs)
 - Address urinary symptoms, especially nighttime
 - For bladder issues recommend behavioral interventions or pelvic PT
 - Recommend 1000 to 2000 IU vitamin D3
 - Recommend single distance glasses outside the home/ refer to ophthalmology if they have not seen in greater than one year
 - Address home safety concerns/ footwear, osteoporosis status, and recommend physical therapy or home exercises that focus on gait, balance, and strength
 - Give out: “Check for safety” and “what you can do to prevent falls”

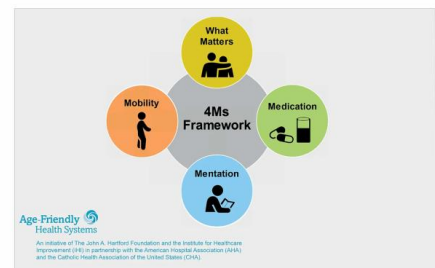
Mobility Recap

- **Actionable Items**

- Screen for fall risk
 - Have you fallen in the last year, do you feel unsteady when standing/walking?
- TUG: 15 second timed up and go screen
 - >12 seconds = fall risk
- Check Orthostatic Vital Signs
- Cognitive Screening
- Review medications for fall risk increasing drugs

Back to the Case: Putting the 4Ms Together for Mr. H

- Mr. H reports 3 falls in the past year. Orthostatic Vital Signs are Positive.
- Cognitive Screen was +
- Significant Polypharmacy
- States his primary goal is to walk his dog
 - Med review to reduce antihypertensives and Beers meds that increase fall risk
 - PT/OT eval for balance and home safety check
 - Follow up visit for full Cognitive Eval scheduled



Putting It All Together

Adding the 4Ms to Inpatient Care

WHAT MATTERS MOST

Actionable Items:

- Simple query “What is the main for this visit/hospitalization? What would a good day look like for you this month? What matters most?”
- Document What Matters in Notes

Mentation

Actionable Items:

- Screen for Depression, Delirium, and Dementia
 - Mood Screens: PHQ2/9 and Geriatric Depression Scale
 - Memory Screens: Mini-cog
 - Delirium Screen: CAM



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Putting It All Together

Adding the 4Ms to Inpatient Care

MOBILITY

Actionable Items

- TUG: 15 second timed up and go screen
- >12 seconds = fall risk
- Check Orthostatic Vital Signs
- Cognitive Screening
- Review medications for fall risk increasing drugs

MEDICATIONS

Actionable Items:

- Focus on polypharmacy, deprescribing, and high-risk medications
- Is this medication necessary to meet the patient’s “What Matters Most” goal?
- Tools:
 - STOPP/START Criteria
 - Beers Criteria
 - Deprescribing.org



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Take Home Points

- Avoid high risk medications based on AGS Beers Criteria in older adults.
- Prescribe exercise and multifactorial interventions to reduce falls in older adults.
- Introduce hospice eligibility earlier in disease progression for patients with dementia.