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Together for Tomorrow

Geriatric Syndrome

Cognitive Impairment

Learning Objectives

Cognitive Impairment

At the conclusion of the module on cognitive impairment and the older adult, the learner should:

KNOW

- Compare and contrast common types of cognitive impairment
- Risk factors for cognitive decline
- Behavioral and therapeutic options for the management of cognitive impairment/dementia

DO

- Screenings and assessments for cognitive concerns
- Referral options
- Treatment strategies

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Case

Mr. Garcia

Mr. Garcia is a 75-year-old man who lives with his wife of 52 years. He has a history of HTN, HLD, T2DM, and OA for which his PCP has prescribed lisinopril 20 mg, atorvastatin 20 mg, metformin 500 mg daily, respectively, and Tylenol 325 mg prn.

Mr. Garcia's wife has been concerned that her husband seems less steady on his feet and just "not really himself" so she accompanies her husband to a PCP visit to address these concerns. She adds that he repeats himself often and can't seem to get himself organized to go their regularly scheduled activities.

The PCP doesn't ask any follow-up questions, but runs labs, reviews his meds, and refers Mr. Garcia to see a physical therapist for evaluation and treatment.

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Definitions

- **Geriatric Syndrome**
- **Screening**
- **Assessment**
- **Treatment**
- **Cognitive Impairment**

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Definitions

Geriatric Syndrome

- A multifactorial condition that is prevalent in older adults and develops when an individual experiences accumulated impairments in multiple systems that compromise their compensatory abilities.

- Common geriatric syndromes include **Cognitive Impairment**, Chronic/Persistent Pain, Delirium, Depression, Falls, Frailty, Incontinence, Malnutrition, Polypharmacy, Pressure Injury, and Sleep Disturbance.

Definitions

Screenings

- Screening tools are tests or measures to evaluate for diseases and health conditions before symptoms appear.
- Screenings allow for earlier management and referral to appropriate providers.
- An age-friendly provider conducts screenings for conditions that are prevalent in older adults.

Definitions

Assessments

- Assessment tools are tests and measures used to evaluate the patient's presenting problem, confirm a diagnosis, determine its severity, and aid in identifying specific treatment options.

- An age-friendly provider uses appropriate assessments, makes referrals, and communicates with the patient's care providers.

Definitions

Treatment

- An age-friendly care provider considers the 4Ms when making treatment recommendations so that what matters to the patient is always part of the plan of care.

- An age-friendly provider communicates with the patient, family, and interdisciplinary team.

Definitions

Cognitive Impairment

- When a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life.
- Cognitive impairment ranges from mild to severe. With mild impairment, people may begin to notice changes in cognitive functions, but still be able to do their everyday activities.
- Severe levels of impairment can lead to losing the ability to understand the meaning or importance of something and the ability to talk or write, resulting in the inability to live independently.

GLOSSARY

Neuro-cognition

6 Domains of Neurocognition[1]

Learning & Memory

Learning: acquisition of a new skill or knowledge

Memory: expression of what has been acquired

Language

ability to speak and understand

Complex Attention

identify, integrate, and analyze visual and spatial relationships among objects

Executive Function

cognitive processes and mental skills to plan, monitor, and problem solve

Social Cognition

Recognition of emotions and social cues, impulse control.

Perceptual-Motor

Psychomotor movements that require cognitive and motor processes

Age-Associated Memory Decline

Normal aging changes[2]

Forgetting details of a conversation or event that took place over a year ago	Difficulty finding words, on occasion	Unable to come up with the name of an acquaintance
Forgetting things or events on occasion	Forgetting which day it is or losing track of the date	Missing a monthly payment

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Cognitive Changes

Diagnostic Categories

- Subjective Cognitive Decline
- Mild Cognitive Impairment
- Dementia

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Subjective Cognitive Decline (SCD)

Epidemiology[3]

1 in 9
adults aged 45 and older reported SCD

Almost 50%
were aged 45-64 years; compared to 40% of persons aged 65 years and older

28.6%
adults with SCD reported having coronary heart disease or stroke

2 or more
chronic diseases have been found to be associated with increased cognitive decline

66%
of adults with SCD have two or more chronic diseases

Half
of adults with SCD experienced SCD-related functional difficulties

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Mild Cognitive Impairment (MCI)

Epidemiology[4-12]

Loss in 1 Domain

Prevalence

Age
Lower education levels

Progression

From 6-15%

Imaging

Lower hippocampal volumes 2-3 times as likely to convert to dementia

Protective Factors

Bilingual
Advance education
Lifestyle

More than 25%

of patients with MCI revert back to age-normed cognitive baselines

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Alzheimer's and Related Dementias (ADRD)

Epidemiology[13-16]

Double

ADRD
by 2060

Triple

Alzheimer's dx
By 2060
From 5 million to 14 million

1 in 3

adults over age 85

Race

Black and Hispanic Americans

Gender

2/3s are women

$$$$$

Most expensive disease in the US.
Direct care costs over $200 billion a year.

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Caregivers

Direct and Indirect Care[17, 18]

Direct care is paid care

Caregiving is indirect care – unpaid care

Caregiving – both family and informal is an essential part of care for the person with ADRD.

An estimated 15 million caregivers provide **18 BILLION hours** of unpaid care annually.

ADRD: Most Common Dementia Diagnoses[1][19]

Alzheimer's	Dementia with Lewy Bodies	Parkinson's Disease Dementia	Vascular Dementia	Frontotemporal Dementia
• Initially, loss of short-term memory, progressing to more severe disorientation	• Progressive decline in thinking, reasoning, independent function, visual hallucinations, "blanking out," movement changes	• A decline in thinking and reasoning • 50- 80% of people with PD • Resembles DLB	• Damage to blood vessels that interrupts blood flow, reducing or depriving areas of the brain of oxygen and nutrients	• Earlier onset • Extreme changes in behavior and personality

Risk Factors

Dementia[20-29]

Age

Strongest risk factor

Genetics

Parent with dementia
Age of parental onset

Stroke

10% after first stroke
1/3 after recurrent stroke

Cardiometabolic

T2D
Hypercholesterolemia
Hypertension
Obesity
Vascular disease

Metabolic Syndrome

increased blood pressure
high blood sugar
excess body fat around the waist
abnormal cholesterol or triglyceride levels

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Reducing Risk

Activity [30-31]

Physical, ADL, and Social Activity

11 year longitudinal study over 500,000 participants.

Frequent vigorous exercise, household related activity, and friend/family visits

Physical and mental activity as effective interventions in the primary prevention of dementia

Leisure activities and dementia

Systematic review and meta-analysis

Physical, cognitive, and social activities were inversely associated with the incidence of dementia.

Physical and cognitive activities were related with a reduced risk of AD.

Physical activity was associated with a lower incidence of VD.

Screening

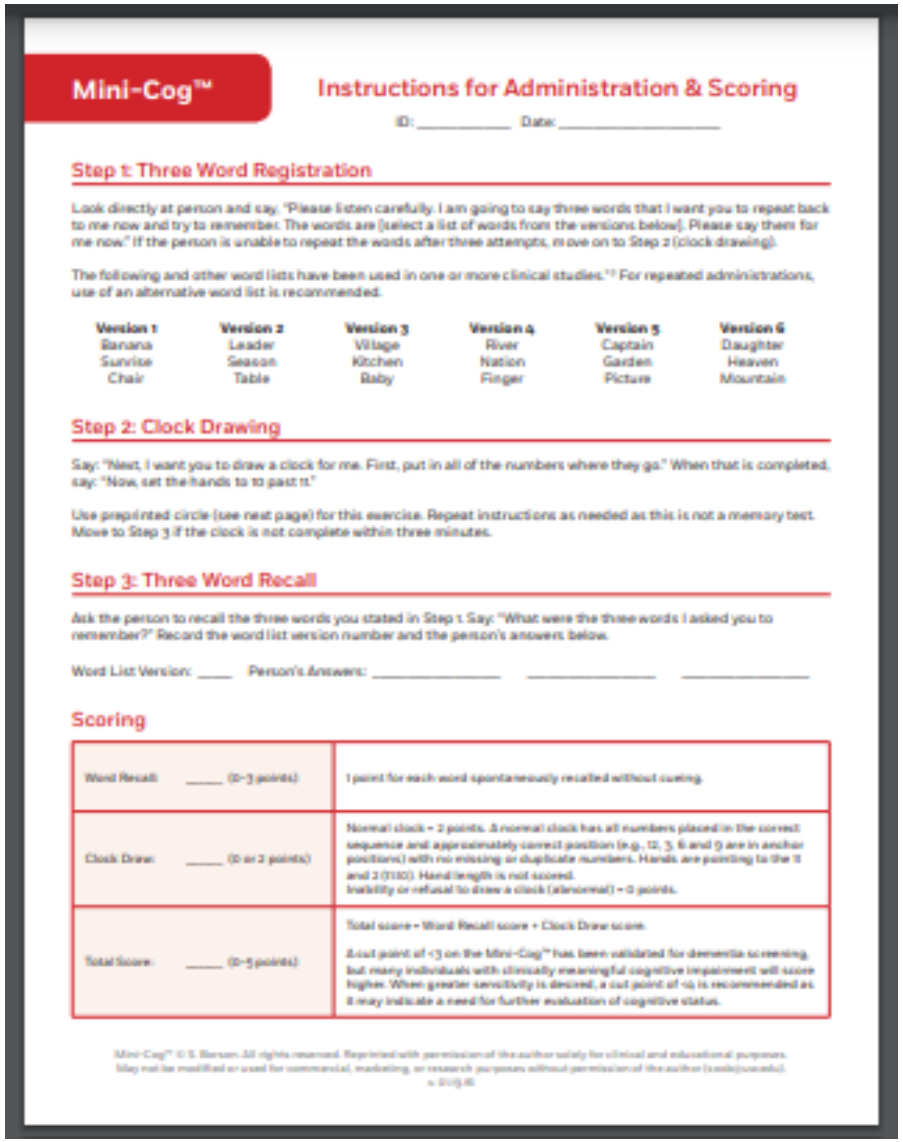
Assessment

Treatment

Think Back to the 6 Domains of Cognition

- **Learning & Memory:**
  - Do you (or your loved one) repeat questions or comments?
  - Do you (or your loved one) forget recent events or conversations?
- **Language:**
  - Do you (or your loved one) have trouble communicating thoughts or understanding what is being said?
- **Complex Attention (Visuospatial Function):**
  - Do you (or your loved one) tend to get lost or turned around?
- **Executive Function:**
  - Can you (or your loved one) use appliances and devices as well as you (they) used to?
- **Social Cognition**
  - Have you (or your loved one) become impulsive, careless, or unguarded?
- **Perceptual-motor:**
  - Has your (or your loved one's) coordination and dexterity changed?

Mini-Cog



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] 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.

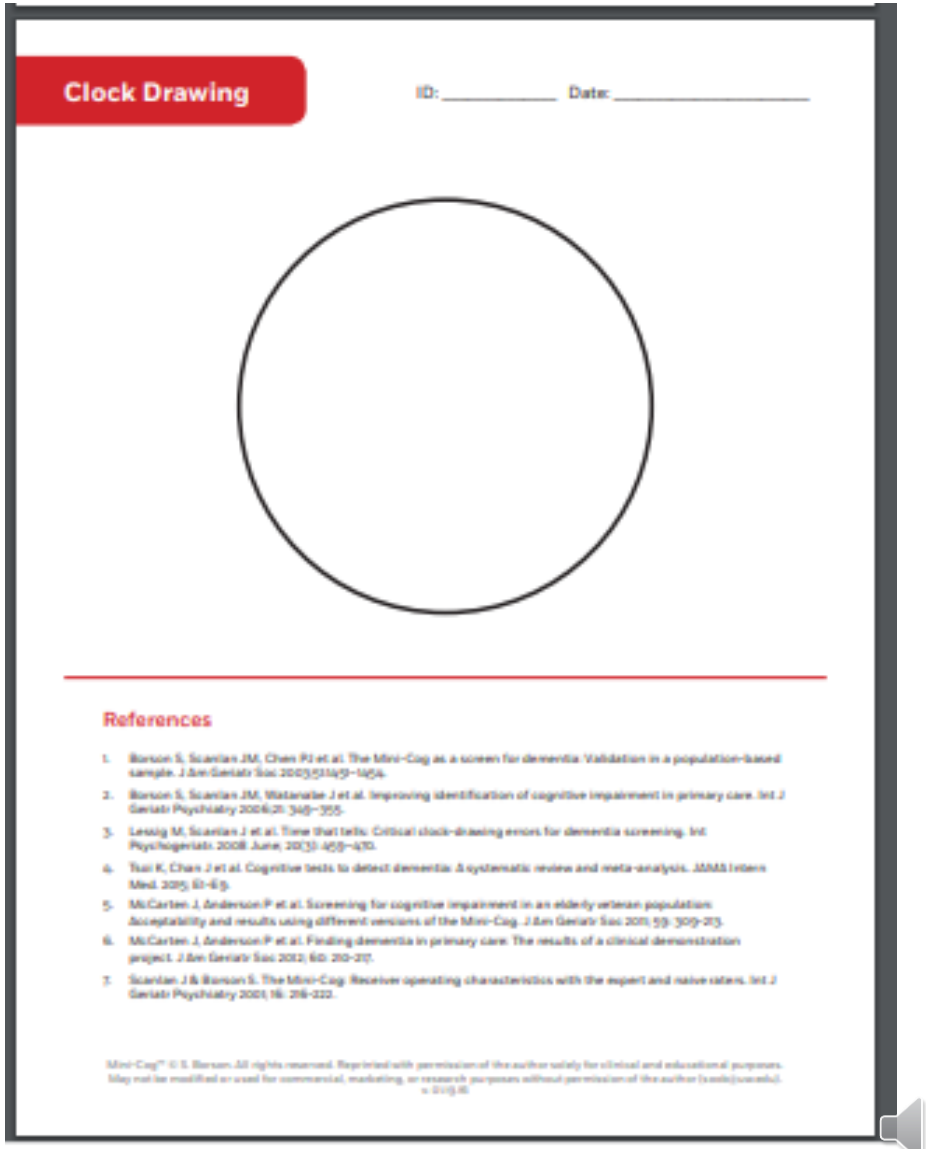
Step 3: Three Word Recall

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.

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 anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored. Inability or refusal 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.



Clock Drawing

ID: _____ Date: _____

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Montreal Cognitive Assessment (MoCA)[26]

- Widely used test of moderate length
- Specifically designed to detect the more subtle cognitive deficits that characterize MCI
- Mandatory training & certification module ensures competency in explaining, administering, and scoring the MoCA.
  - https://www.mocatest.org/
- Assesses domain of cognition:
  - Delayed Word Recall (5 points)
  - Visuospatial/Executive Function (7 points w/ clock-drawing)
  - Language (6 points)
  - Attention/Concentration (6points)
  - Orientation (6 points)
- Scores range from 0-30
  - ≥26 considered normal, with no cognitive issues apparent
  - <26 could warrant further evaluation

Walking Speed[34]

- Dual Decline: Slower gait speed correlates with the risk of dementia especially when there is a noted decline in another cognition domain.
  - Adding walking speed screening/assessment to dementia risk screening/assessment may help healthcare providers more accurately identify at-risk individuals

- Walking Speed Test: 4 meters
  - Need 8 meters total (26 feet)
  - Patient walks 8 meters – examiner measures middle 4 meters
  - Gait speed = Distance/Time (4 meters/x seconds)
  - Normal gait speed > = 0.8 m/s OR <= 5 seconds on the 4 meter walkway
  - Slow gait speed < = 0.8 m/s

Assessment [35-38]

Alzheimer's	Dementia with Lewy Bodies	Parkinson's Disease Dementia	Vascular Dementia	Frontotemporal Dementia
• Atrophy effecting the hippocampi, MTLs, and posterior parietal lobes • Biomarkers of plaques and tangles, measuring amyloid and tau proteins in CSF	• Normal MRI or mild, nonspecific atrophy with relative sparing of MTLs • Abnormal deposits of the protein alpha-synuclein (called Lewy bodies) in the brain cortex	• Similar to DLB, with Lewy bodies present • Abnormal Lewy bodies & neurites located at the presynaptic level, resulting in damage to substantia nigra	• Lab tests, imaging to TIA, small strokes, strokes • Multiple bilateral chronic lacunar strokes; white matter hyperintensities	• Atrophy of the frontal and temporal lobes • Abnormal amounts of proteins tau and TDP-43 in the frontal and temporal lobes

Further Medical Assessments Include:[39]

- Comprehensive Metabolic Panel
- Assessment for hypothyroidism, vitamin B_{12}, and folate deficiency
- Mood disorders assessment
- Other Assessment Considerations:
  - Infectious Diseases Including STDs
  - Intoxicants
  - Sleep Studies

- Cognitive decline can be associated with these conditions and others may improve with treatment

Treatments/ Management of Cognitive Impairment[40]

- Medications
  - As of 2020, there are no approved medication therapies shown to modify neurodegenerative disorders, although many are being studied in clinical trials.
  - The available medications are symptomatic treatments.
    - Acetylcholinesterase inhibitors: Donepezil (Aricept)
    - Memantine (Namenda)
    - OTC: Ginkgo biloba
  - A review of pharmacological treatment in MCI revealed no benefit, although exercise training and cognitive training correlated with improved cognitive performances.

Treatment

Treatments/ Management of Cognitive Impairment

- Exercise:
  - 150 minutes minimum (30 minutes, 5 times a week) to 300 minutes/week
  - Multicomponent physical activity that includes balance training as well as aerobic and muscle-strengthening activities
  - Referral to physical therapist
- Nutrition
  - DASH (Dietary Approaches to Stop Hypertension) diet
  - Mediterranean Diet
  - Referral to a registered dietician
- Cognitive Stimulation
  - “Exercising the brain” through challenging and stimulating activities such as playing a game like chess or crossword puzzles, learning words in another language, or watching educational programs
  - Referral to community support programs

Treatments/ Management of Cognitive Impairment

- Management of Depressive Symptoms (if present)
  - Combination of medicine, counseling, support groups, and (re)connection to activities and relationships.
  - Refer to the engage module on Depression in this series
- Social Engagement
  - Connecting with others socially may benefit brain health and may actually delay the onset of dementia. Those who are engaged with other people also tend to have reduced rates of mortality and disability
  - Referral to community support programs
- Sleep Behavioral Interventions
  - Regular sleep and wake times
  - Refer to the engage module on interventions for sleep
- Routines
  - Predictable daily schedules
  - Predictable placement of often-used items
  - Use of lists as reminders

Caring for Your Patient's Caregiver[17-18]

- Remember that family caregivers are often providing extensive care and support (physical, psychological, cognitive, and spiritual) for their loved one in addition to all of the "regular" stressors of life
  - employment
  - other family responsibilities
  - feeling pulled in every direction
  - their own grief and loss
  - financial concerns, including navigating health insurance

Referral to Community Support[17-18]

- The Alzheimer's Association 24/7 Helpline (800.272.3900)
  - Available around the clock, 365 days a year
  - Free service
  - Specialists and master's-level clinicians offer confidential support and information to people living with the disease, caregivers, families, and the public
- The Alzheimer's Association Programs
  - All virtual, by webinar or phone.
  - Free
- Community Resource Finder
  - communityresourcefinder.org
  - local community living services, day programs, medical resources
- Area Agencies on Aging
  - Resources on respite care, community support, adult day care

Remember Mr. Garcia?

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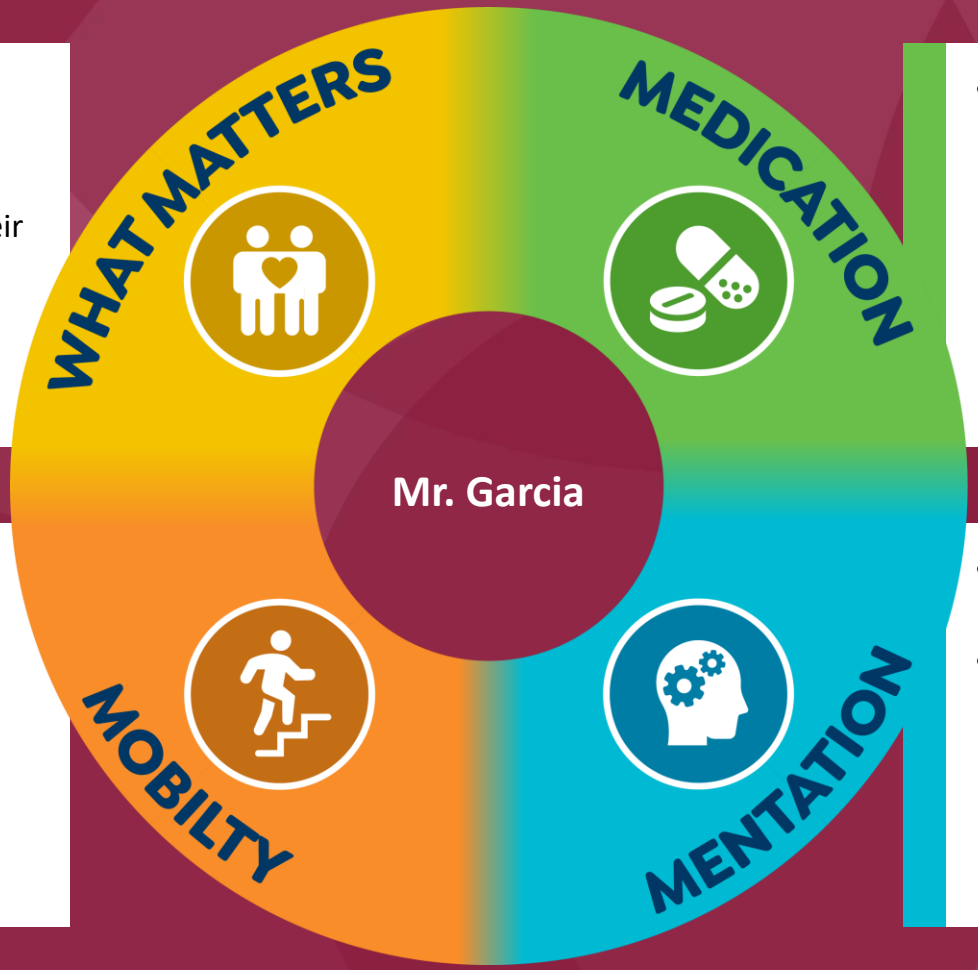
Un-Age-Friendly Care (4Ms)

- The PCP chooses to not talk with Mr. and Mrs. Garcia about their concerns.
- By not addressing what matters to them, the provider has invalidated their concerns.

- PCP reviews current meds but does not ask Mr. Garcia about his schedule of taking them, nor if he has added anything.

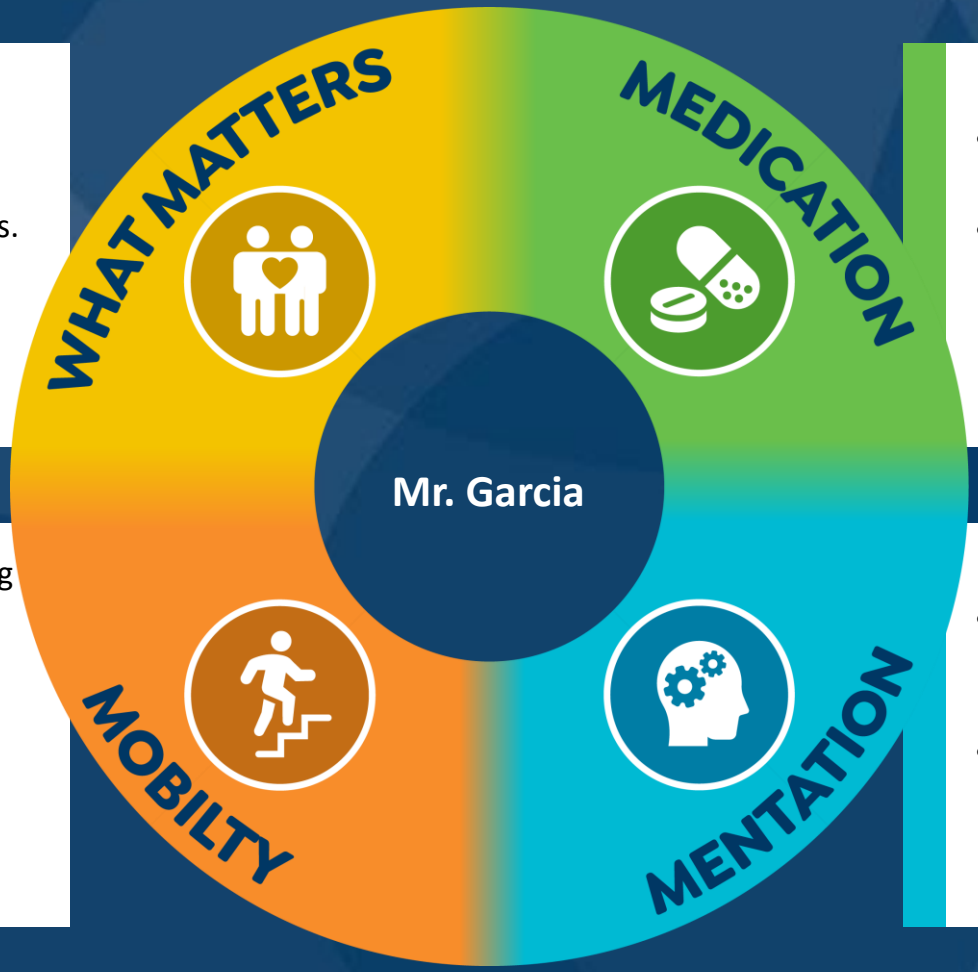


- PCP does not appear to consider Mr. Garcia's mobility through balance or walking tests.
- Unsure about OA reassessment

- PCP does not ask questions about mood, sleep, or affect.
- Does not conduct any cognitive or mood disorder screens.

Age-Friendly Care (4Ms)

- PCP speaks with Mr. and Mrs. Garcia about their concerns, gathering more information about lifestyle changes,
- Follow-up questions about ADLs. IADLs.
- The PCP validates their concerns and offers assurance that those concerns will be considered in assessment and treatments



- PCP asks about the inclusion of new medication or supplements.
- Offers suggestions such as the use of a pill box to support his medication regimen

- Conducts a balance screen and walking test.
- Considers impact of OA of his undteadiness.
- Communicate all finding with PT.

- Conducts mood disorders assessment for depression and makes appropriate recommendations
- Conducts screening and/or assessments for cognitive declines

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Cognitive Impairment

Clinical Pearls

Evaluating Cognitive Impairment

- Screen for patient or family reports of cognitive changes.
- Consider impacts of co-morbidities on cognitive status and function.

Managing Cognitive Impairment

- First-line treatment for most types of Cognitive Impairment involves behavioral/lifestyle changes which should be encouraged and continued even if medication therapy is initiated.
- Management is multifaceted and complex. Best practice requires the provider's knowledge of available community support and services for the patient and family.

About Engage

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engage is part of Georgia Gear, a multi-institute partnership whose goal is to improve clinical care and quality of life for older adults and their families.

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