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## Mild Cognitive Impairment in Heart Failure Affects Care Transition

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# Mild Cognitive Impairment in Heart Failure affects Care Transition

**Kitsum Li, OTD, OTR/L, CSRS**

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Assistant Professor, Dominican University of California

**Kristin Myers, OT/L**

Mills-Peninsula Health Services

# Objectives

After attending the presentation, the audiences will be able to:

- Understand the importance of cognition in everyday activity and the cognitive hierarchy to guide practice.
- Recognize the incidence of mild cognitive impairment in individuals with heart failure.
- Understand how mild cognitive impairment may affect heart failure self-care practice and hospitalization readmission.
- Identify the evidence that support use of cognitive screen to identify mild cognitive impairment in individuals with heart failure.
- Compare the evidence among three cognitive screens (Mini-mental Status Exam, Montreal Cognitive Assessment and St. Louis University Mental State Exam).
- (Using Montreal Cognitive Assessment as an example) Identify cognitive components assessed in a cognitive screening tool
- Individualize care transition program that target individual's cognitive impairments and address individual's learning needs.

# Cognition in Everyday Activity

- Cognition... is the outcome of an ongoing **dynamic** interaction between the person, an activity and the environment (Toglia)

Pedretti 6<sup>th</sup> edition, p. 591

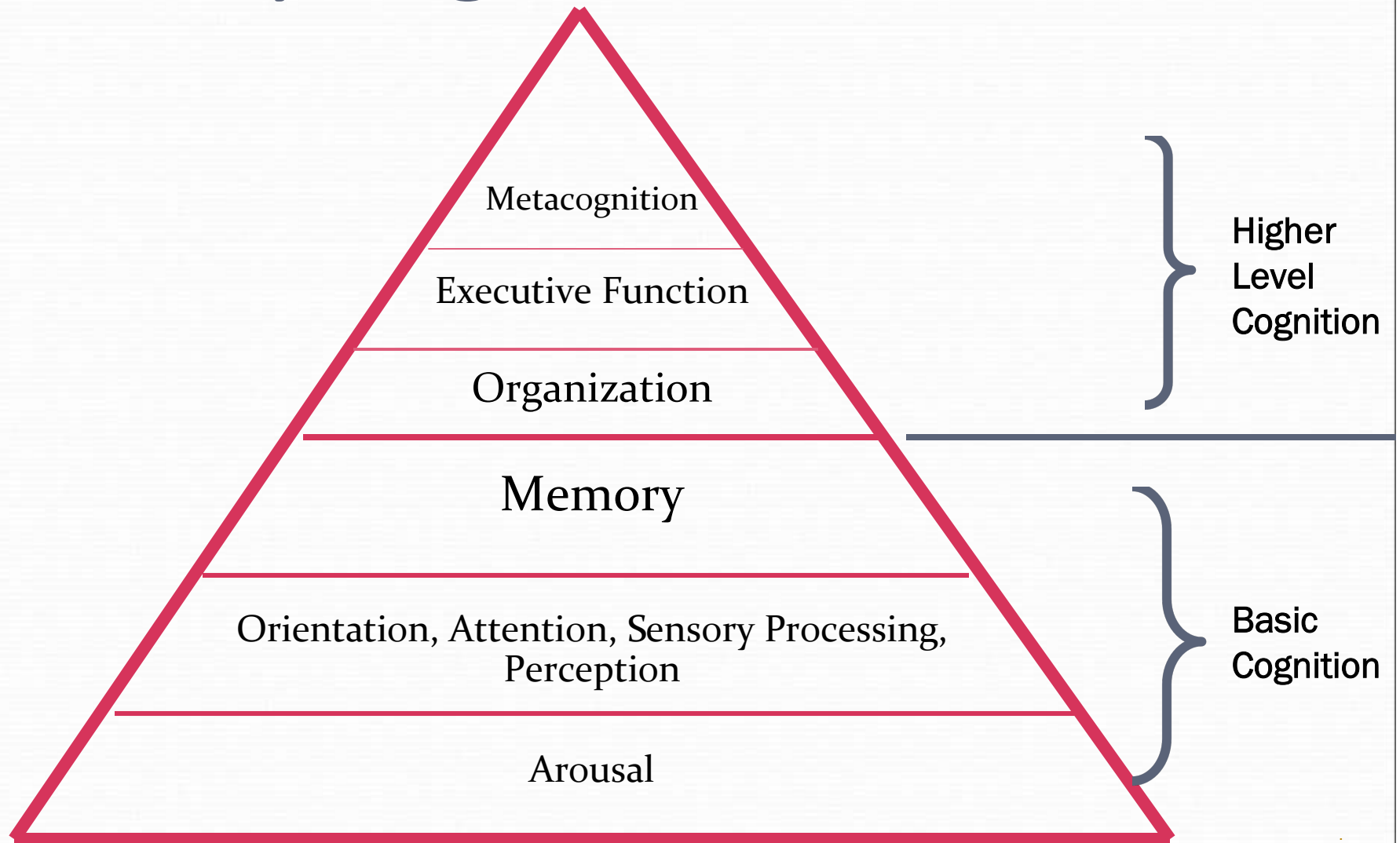


# Definitions of Cognition

Pedretti 7<sup>th</sup> edition, p. 591

- A person's capacity to acquire and use information to adapt to environmental demands.
- All of the mental activities involved in receiving information, comprehending it, storing it, retrieving it, and using it.

# Primary Cognitive Functions





# What is Mild Cognitive Impairment (MCI)?

Four criteria:

- An individual's report of his/her own memory problems
- Measurable, greater-than-normal memory impairment detected with standard memory assessment tests
- Normal general think and reasoning skills
- **Ability to perform normal daily activities**

American Academy of Neurology, 2001

## Normal Aging

vs

## Mild Cognitive Impairment (MCI)

- Subjective memory complaints
- Difficulties recalling detailed events
- Problems with name retrieval
- Delayed processing

- Mild but persistent memory loss
- Word finding difficulties
- Subtle cognitive deficits such as visual spatial, attention

Currie, Rideout, Lindsay & Harkness, 2014;  
Davis et al., 2015; Harkness et al., 2014

**Normal Aging** → **Mild Cognitive Impairment** → **Dementia**



# Assessing for MCI?

- Mini Mental State Exam (MMSE)
- St. Louis University Mental Status Exam (SLUMS)
- Montreal Cognitive Assessment (MoCA)
- Cognitive Status Examination (Cognistat) Five©

# MMSE (Folstein test)

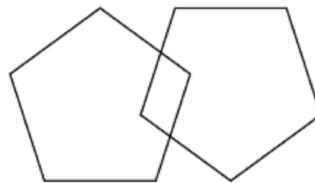
- Drs. Folstein and McHugh in 1975
- 11 questions to assess six cognitive domains: Orientation, Registration, Attention and Calculation, Recall, Language, and visual construction
- About <10 minutes to complete
- Validated and extensively used in clinical practice and research (many neurological diagnosis)
- Maximum 30 points, 18-23 indicative of mild cognitive impairment
- Ceiling effect?
- Copyright sold to PAR since 2001

# The Mini-Mental State Exam

Patient \_\_\_\_\_ Examiner \_\_\_\_\_ Date \_\_\_\_\_

Maximum      Score

- |                                  |     |   |
|----------------------------------|-----|---|
| 5                                | ( ) | <b>Orientation</b>  |
| 5                                | ( ) | What is the (year) (season) (date) (day) (month)?<br>Where are we (state) (country) (town) (hospital) (floor)?  |
| <b>Registration</b>              |     |   |
| 3                                | ( ) | Name 3 objects: 1 second to say each. Then ask the patient<br>all 3 after you have said them. Give 1 point for each correct answer.<br>Then repeat them until he/she learns all 3. Count trials and record.<br>Trials _____ |
| <b>Attention and Calculation</b> |     |   |
| 5                                | ( ) | Serial 7's. 1 point for each correct answer. Stop after 5 answers.<br>Alternatively spell "world" backward.   |
| <b>Recall</b>                    |     |   |
| 3                                | ( ) | Ask for the 3 objects repeated above. Give 1 point for each correct answer.   |
| <b>Language</b>                  |     |   |
| 2                                | ( ) | Name a pencil and watch.  |
| 1                                | ( ) | Repeat the following "No ifs, ands, or buts"  |
| 3                                | ( ) | Follow a 3-stage command:<br>"Take a paper in your hand, fold it in half, and put it on the floor."   |
| 1                                | ( ) | Read and obey the following: CLOSE YOUR EYES  |
| 1                                | ( ) | Write a sentence.   |
| 1                                | ( ) | Copy the design shown.  |



\_\_\_\_\_ Total Score  
ASSESS level of consciousness along a continuum \_\_\_\_\_  
Alert Drowsy Stupor Coma

"MINI-MENTAL STATE." A PRACTICAL METHOD FOR GRADING THE COGNITIVE STATE OF PATIENTS FOR THE CLINICIAN.  
*Journal of Psychiatric Research*, 12(3): 189-198, 1975. Used by permission.

# St. Louis University Mental Status Exam (SLUMS)

- 11 questions to assess orientation, memory, attention and executive function
- Takes about 7-10 minutes to complete
- Maximum 30 points
- Based on education level, 21-26 = MCI (High School or above ) OR 20-24 = MCI (less than High School Education)
- Validated for elderly veterans and community-dwelling elders

# SLUMS Examination

Permission to use granted from St. Louis University

Name \_\_\_\_\_ Age \_\_\_\_\_ Education Level \_\_\_\_\_

\_\_\_/1

1 1. What day of the week is it?

\_\_\_/1

1 2. What is the year?

\_\_\_/1

1 3. What state are we in?

4. Please remember these five objects. I will ask you what they are later.

Apple Pen Tie House Car

5. You have \$100 and you go to the store and buy a dozen apples for \$3 and a tricycle for \$20.

\_\_\_/3

1 How much did you spend?

2 How much do you have left?

\_\_\_/3

6. Please name as many animals as you can in one minute.

0 0-4 animals

1 5-9 animals

2 10-14 animals

3 15+ animals

\_\_\_/5

7. What were the five objects I asked you to remember? 1 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.

\_\_\_/2

0 87

1 648

1 8537

9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.

\_\_\_/4

2 Hour markers okay

2 Time correct

1 10. Please place an X in the triangle.



\_\_\_/2

1 Which of the above figures is largest?

11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.

\_\_\_/8

2 What was the female's name?

2 What work did she do?

2 When did she go back to work?

2 What state did she live in?

\_\_\_\_\_ TOTAL SCORE

# Cognistat Five©

- Less than 5 minutes
- Screen for Delirium, MCI and Dementia
- 4 areas: Memory registration, orientation, memory recall and construction
- Spatial, Amnestic, Mixed or Unspecified MCI



# Cognitstat Five



# Severn MCI index

Index zero = no indication of cognitive impairment

Index 1 = Risk of MCI

Index 2 = Suspected MCI

Index 3 = MCI

Index 4 = Risk of Dementia

Index 5 = Suspected Dementia

Index 6 = Dementia



# Montreal Cognitive Assessment (MoCA)

- 16 items to assess seven cognitive domains: visuo-spatial, executive functions, naming, memory, attention, language, abstraction, and orientation
- 10 minutes to complete
- Maximum score of 30
- 18-25 = MCI (after adjustment for Education)
- No ceiling or floor effect
- Widely validated to a variety of conditions (including medical conditions)

# Montreal Cognitive Assessment

**MONTREAL COGNITIVE ASSESSMENT (MOCA)**  
Version 7.1 Original Version

NAME: \_\_\_\_\_ Education: \_\_\_\_\_ Date of birth: \_\_\_\_\_  
Sex: \_\_\_\_\_ DATE: \_\_\_\_\_

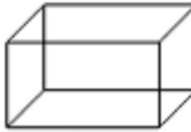
VISUOSPATIAL / EXECUTIVE		Copy cube	Draw CLOCK (Ten past eleven) (3 points)	POINTS																		
		[ ]	[ ]	___/5																		
		[ ]	[ ]																			
<b>NAMING</b>																						
				___/3																		
<b>MEMORY</b> Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.		<table border="1"> <thead> <tr> <th></th> <th>FACE</th> <th>VELVET</th> <th>CHURCH</th> <th>DAISY</th> <th>RED</th> </tr> </thead> <tbody> <tr> <td>1st trial</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2nd trial</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		FACE	VELVET	CHURCH	DAISY	RED	1st trial						2nd trial							No points
	FACE	VELVET	CHURCH	DAISY	RED																	
1st trial																						
2nd trial																						
<b>ATTENTION</b> Read list of digits (1 digit/sec). Subject has to repeat them in the forward order [ ] 2 1 8 5 4 Subject has to repeat them in the backward order [ ] 7 4 2				___/2																		
Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors. [ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B				___/1																		
Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65 4 or 5 correct subtractions: <b>3 pts</b> , 2 or 3 correct: <b>2 pts</b> , 1 correct: <b>1 pt</b> , 0 correct: <b>0 pt</b>				___/3																		
<b>LANGUAGE</b> Repeat: I only know that John is the one to help today. [ ] The cat always hid under the couch when dogs were in the room. [ ]				___/2																		
Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words)				___/1																		
<b>ABSTRACTION</b> Similarity between e.g. banana - orange = fruit [ ] train - bicycle [ ] watch - ruler				___/2																		
<b>DELAYED RECALL</b> Has to recall words WITH NO CUE		<table border="1"> <thead> <tr> <th></th> <th>FACE</th> <th>VELVET</th> <th>CHURCH</th> <th>DAISY</th> <th>RED</th> </tr> </thead> <tbody> <tr> <td>Category cue</td> <td>[ ]</td> <td>[ ]</td> <td>[ ]</td> <td>[ ]</td> <td>[ ]</td> </tr> <tr> <td>Multiple choice cue</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		FACE	VELVET	CHURCH	DAISY	RED	Category cue	[ ]	[ ]	[ ]	[ ]	[ ]	Multiple choice cue							Points for UNCLSD recall only
	FACE	VELVET	CHURCH	DAISY	RED																	
Category cue	[ ]	[ ]	[ ]	[ ]	[ ]																	
Multiple choice cue																						
<b>Optional</b>																						
<b>ORIENTATION</b> [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City				___/6																		
© Z.Nasreddine MD www.mocatest.org Normal ≥ 26 / 30		TOTAL		___/30																		
Administered by: _____		Add 1 point if ≤ 12 yr old																				

**MONTREAL COGNITIVE ASSESSMENT (MOCA®)**  
Version 7.2 Alternative Version

NAME : \_\_\_\_\_  
Education : \_\_\_\_\_ Date of birth : \_\_\_\_\_  
Sex : \_\_\_\_\_ DATE : \_\_\_\_\_

**VISUOSPATIAL / EXECUTIVE**

Copy rectangle



Draw CLOCK (Five past four) (3 points)

Points: [ ] [ ] [ ]

Contour Numbers Hands

**NAMING**



**MEMORY**

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	TRUCK	BANANA	VIOLIN	DESK	GREEN
1st trial					
2nd trial					

No points

**ATTENTION**

Read list of digits (1 digit/ sec).

Subject has to repeat them in the forward order [ ] 3 2 9 6 5

Subject has to repeat them in the backward order [ ] 8 5 2

\_\_\_/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] FBACMNAAJKLBAFAKDEAAAJAMOF AAB

\_\_\_/1

Serial 7 subtraction starting at 90 [ ] 83 [ ] 76 [ ] 69 [ ] 62 [ ] 55

4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

\_\_\_/3

**LANGUAGE**

Repeat: A bird can fly into closed windows when it's dark and windy. [ ]

The caring grandmother sent groceries over a week ago. [ ]

\_\_\_/2

Fluency / Name maximum number of words in one minute that begin with the letter S [ ] \_\_\_\_\_ (N ≥ 11 words)

\_\_\_/1

**ABSTRACTION**

Similarity between e.g. carrot - potato = vegetable. [ ] diamond - ruby [ ] cannon - rifle

\_\_\_/2

**DELAYED RECALL**

Has to recall words

WITH NO CUE [ ] [ ] [ ] [ ] [ ]

TRUCK	BANANA	VIOLIN	DESK	GREEN
[ ]	[ ]	[ ]	[ ]	[ ]

Points for UNCLUED recall only

\_\_\_/5

**Optional**

Category cue

Multiple choice cue

**ORIENTATION**

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

\_\_\_/6

Adapted by : Z. Nasreddine MD, N. Phillips PhD, H. Chertkow MD  
© Z. Nasreddine MD www.mocatest.org

Normal ≥ 26 / 30

TOTAL \_\_\_/30

Administered by: \_\_\_\_\_

Add 1 point if ≤ 12 yr edu

**MONTREAL COGNITIVE ASSESSMENT / MoCA-BLIND**  
Version 7.1 Original Version

Name:  
Education:  
Sex:  
Date of birth:  
Date:

MEMORY		FACE	VELVET	CHURCH	DAISY	RED	POINTS	
Read list of words, subject must repeat them. Do 2 trials even if 1st trial is successful. Do a recall after 5 minutes.	1st trial						No points	
	2nd trial							
<b>ATTENTION</b>								
Read list of digits (1 digit/sec.) Subject has to repeat them in the forward order [ ] 2 1 8 5 4 Subject has to repeat them in the backward order [ ] 7 4 2							___ / 2	
Read list of letters. The subject must tap with his hand at each letter A. No point if $\geq 2$ errors [ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B							___ / 1	
Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt							___ / 3	
<b>LANGUAGE</b>								
Repeat: I only know that John is the one to help today. [ ] The cat always hid under the couch when dogs were in the room. [ ]							___ / 2	
Fluency / Name maximum number of words in one minute that begin with the letter F. [ ] _____ (N $\geq$ 11 words)							___ / 1	
<b>ABSTRACTION</b>								
Similarity between e.g. banana - orange = fruit [ ] train - bicycle [ ] watch - ruler							___ / 2	
<b>DELAYED RECALL</b>		Has to recall words	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCLUED recall only
		<b>With no cue</b>	[ ]	[ ]	[ ]	[ ]	[ ]	
<b>Optional</b>		Category cue						
		Multiple choice cue						___ / 5
<b>ORIENTATION</b>								
[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City							___ / 6	
© Z. Nasreddine MD <a href="http://www.mocatest.org">www.mocatest.org</a> Normal $\geq 18 / 22$							<b>TOTAL</b>	___ / 22
Administered by: _____							Add 1 point if $\leq 12$ yr edu	

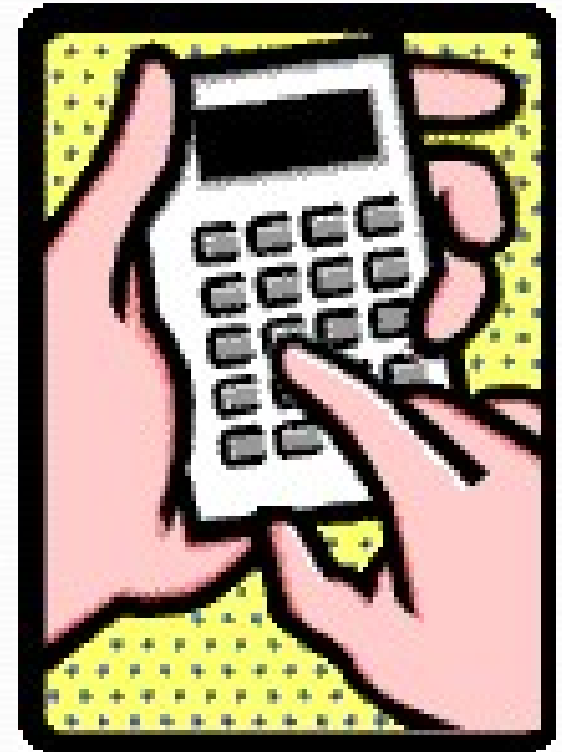


# What does the score mean?

- Diagnostic
  - Not within OT scope of practice
- A snap shot
  - Static
  - Multi-factorial: intrinsic vs extrinsic
- Guide intervention
  - How?
- “Dissecting” the assessment
  - Short term memory, working memory, semantic memory, executive function, visuo-spatial, attention, language fluency & processing, abstraction

# Incidence of MCI in Heart Failure (HF)

- **28%-60%** in individual with HF (Bauer, Johnson & Pozehl, 2011; Cameron, Warroll-Carter, Page, Stewart & Ski, 2012; Kaur, Sidhu, Sibia & Kaur, 2014; Lee et al., 2013)
- Increase with age
  - 19% <75, 22% 75-84, 29% >85 (Lopez et al., 2003)
- **2X** more likely to have MCI (1.62-1.96) than general population 65 years and older (Cameron et al., 2010; Clark & McDougall, 2006; Vogels, Scheltens, Schroeder-Tanka & Weinstein, 2007)





# Why?

- Microembolism
- Chronic or intermittent cerebral hypoperfusion
- Impaired cerebral vessel reactivity
- Cerebral hypoxia or ischemic brain damage

Dardiotis et al., 2012



# Irreversible!

- Attention
- Memory (delay recall or working memory deficit)
- Executive functions
- Psychomotor speed
- Visual spatial

Bauer et al., 2011; Dickson, Tkacs, & Riegel, 2007;  
Dardiotis et al., 2012; Harkness et al., 2013; Levin et al., 2014



# Consequence of unrecognized MCI in patients with Heart Failure

- High readmission rates
- Poor compliance with cardiac therapy
- Poor compliance with heart failure self-care management
  - Poor compliance with medication management
  - Poor compliance with diet restrictions
  - Failure to recognize early symptoms of heart failure deterioration.

Currie et al, 2014; Desai & Stevenson, 2012;  
Dickson et al., 2007; Hajduk et al., 2013;  
Harkness et al., 2013; Kerzman, Baron-Epel, & Toren, 2005;  
Wu et al., 2008



## Why is MCI not being recognized?

- Variations in reporting if cognitive impairment detected or not detected
  - Patient is alert and oriented x 4
  - Patient is able to walk the walk and talk the talk
  - MCI is subtle and not easily detected.
  - MCI is often overlooked in heart failure patients because MCI can be subtle.

Bauer et al., 2011; Lee et al., 2013



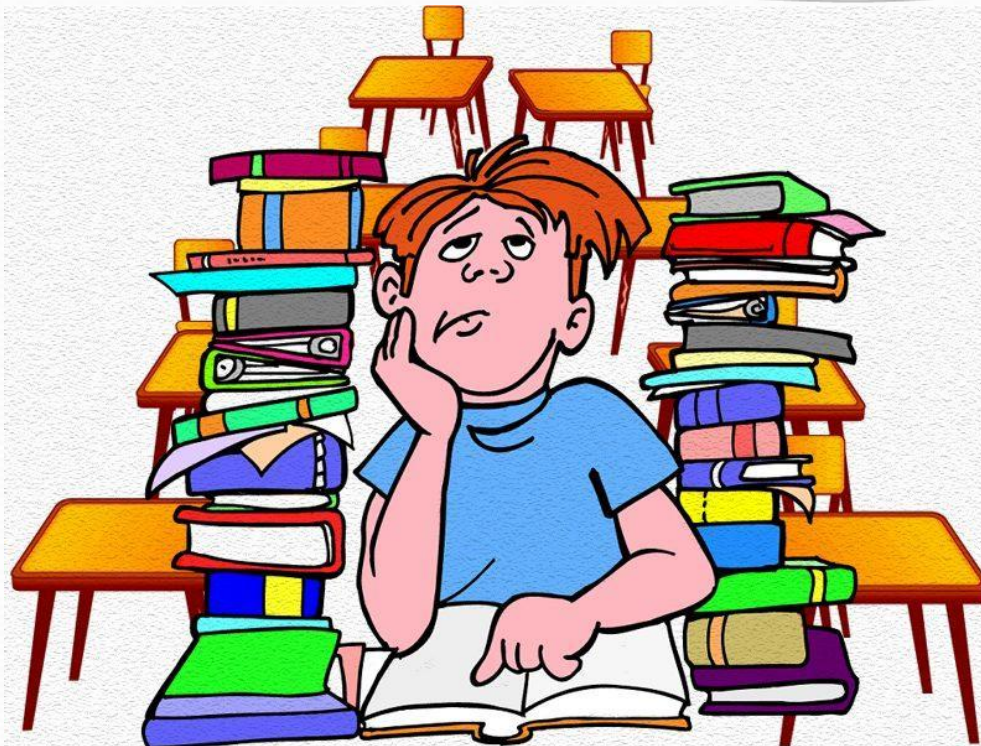
## How does MCI impact care transitions

- Affects what services are recommended for patient when MCI not being recognized
  - Does this person benefit from home OT evaluation for home safety ?
  - Would this patient benefit from Circle of Care or AIM referral ?
  - Does this person require further follow up appointments with outpatient services such as a neuropsychologist?

## How does MCI impact Care Transitions (Continued)

- Affects education provided to patient at the time of discharge:
  - Does this patient require the presence of a caregiver/family to receive discharge instruction?
  - Does this patient require literature and written handouts for heart failure self-care program?
  - What mode or alternate teaching methods would benefit the heart failure patient with MCI?

Barnason, Zimmerman, Hertzog & Schulz, 2010;  
Davis et al., 2012; Scott, 2010; White et al, 2013;  
Wu et al, 2008; Zaverternik 2014



# EVIDENCE REVIEW



## Evidence in Cognitive Screening Tools

- Multiple Cognitive Screening Tools available to detect/recognize Mild Cognitive Impairment
  - MMSE: Mini Mental State Exam
  - MoCA: Montreal Cognitive Assessment
  - Cognistat: Cognistat Assessment Section
  - SLUMS: Saint Louis University Mental Status Exam

## Evidence in Cognitive Screening Tools (continued)

- Predictive Validity of NYHA and ACC/AHA Classifications of Physical and Cognitive Functioning in Heart Failure
- 90 participants, mean age of 62 and predominantly men
  - Found the predictive validity of NYHA and ACC/AHA stages of HF was supported by relations with cognitive screening scores of the MoCA.

Athilingam, D'aoust, Zambroski, Mcmillan, & Sahebzemani, 2013

# MMSE or MoCA?

Aggarwal & Kean, 2010; Athilingam et al., 2010

## MMSE

- Most widely used screening measures in assessing cognitive impairments
- High level of sensitivity in moderate to severe cognitive impairment.

## MoCA

- Developed to specifically screen MCI
- Has a higher sensitivity at detecting MCI
- Uses more words in assessing memory
- Longer delay before testing memory recall



# What does the evidence tell us?

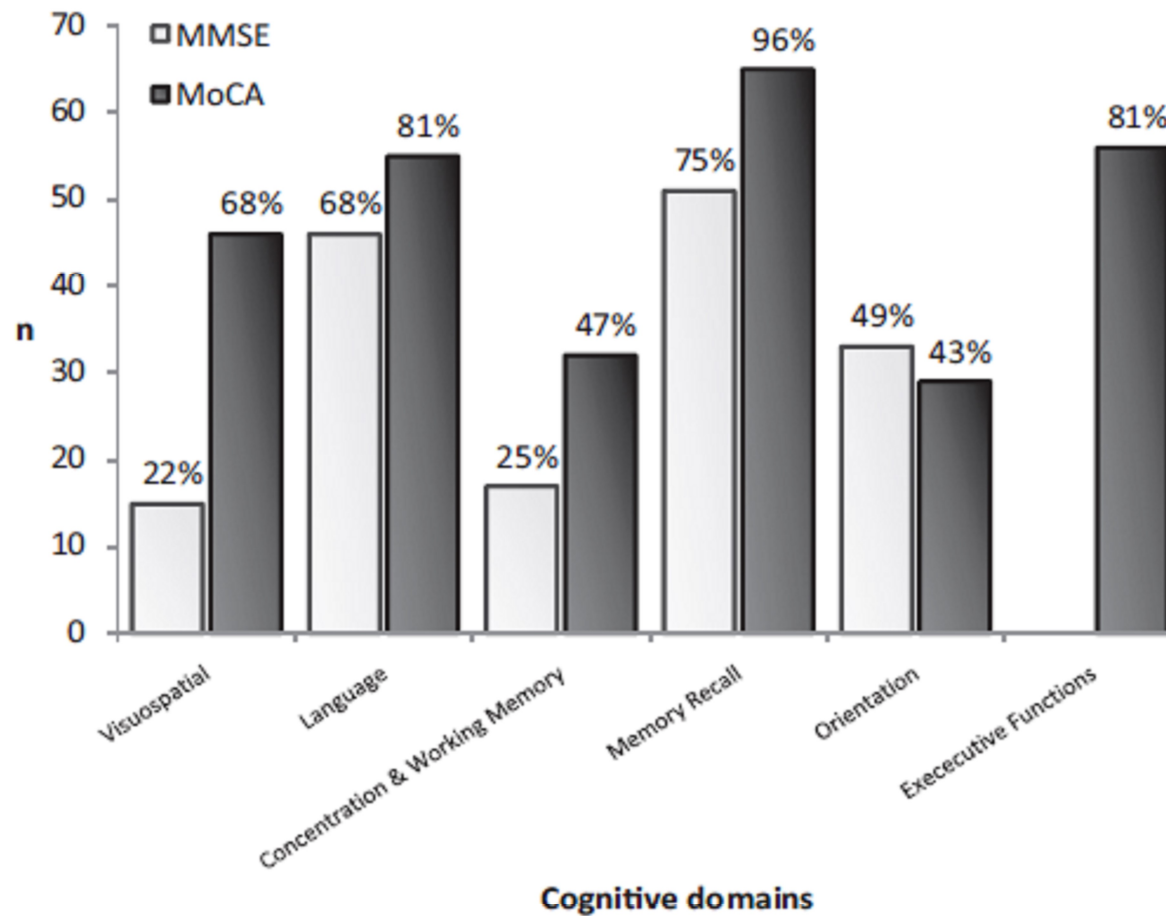
Cameron et al., 2012

## MoCA

- Cameron et al article- in sample of CHF patients, cognitive impairments that would otherwise have been unrecognized were found in 73% of the sample
  - MoCA identified 38 patients that were not identified on MMSE

## MMSE

- Widely used as a frontline screening but accuracy in detecting MCI is limited
- More than 80% of participants with scores suggestive of MCI on MoCA was not observed on MMSE.



Differences in the frequency of observed task errors between Mini Mental State Exam (MMSE) And Montreal Cognitive Assessment (MoCA) in patients with low cognitive scores suggestive mild Cognitive impairment ( $n=68$ )

Cameron, et al., 2012

# MoCA and cut-off point

- Suggested cut off score- greater then or equal to 26 shows no cognitive deficits
  - Mild Cognitive Impairment 18-25
  - Moderate Cognitive Impairment 10-17
  - Severe Cognitive Impairment below 9

## MOCA SCORES

	Normal Controls (NC)	Mild Cognitive Impairment (MCI)	Alzheimer's Disease (AD)
Number of subjects	90	94	93
MoCA average score	27.4	22.1	16.2
MoCA standard deviation	2.2	3.1	4.8
MoCA score range	25.2 – 29.6	19.0 – 25.2	21.0 – 11.4
<b>Suggested cut-off score</b>	<b>≥26</b>	<b>&lt;26</b>	<b>&lt;26<sup>ψ</sup></b>
<sup>ψ</sup> Although the average MoCA score for the AD group is much lower than the MCI group, there is overlap between them. The suggested MoCA cut-off score is thus the same for both. The distinction between AD and MCI is mostly dependent on the presence of associated functional impairment and not on a specific score on the MoCA test.			

## NORMATIVE DATA

### Sensitivity and Specificity (%) MoCA and MMSE

Cut-off	≥ 26	< 26	< 26
Group (n)	Normal controls (90)	Mild Cognitive Impairment (94)	Alzheimer Disease (93)
MoCA	87	90	100
MMSE	100	18	78

Nasreddine et al., 2005

# MoCA cut-off point for Heart Failure patients

- MoCA <26 Sensitivity 83% Specificity 30% for heart failure self care deficit
- MoCA <24 Sensitivity 83% Specificity 52% for heart failure self care deficit

McLennan, Mathias, Brennan & Stewart, 2011

- MoCA <22 Sensitivity 89% Specificity 84% for MCI

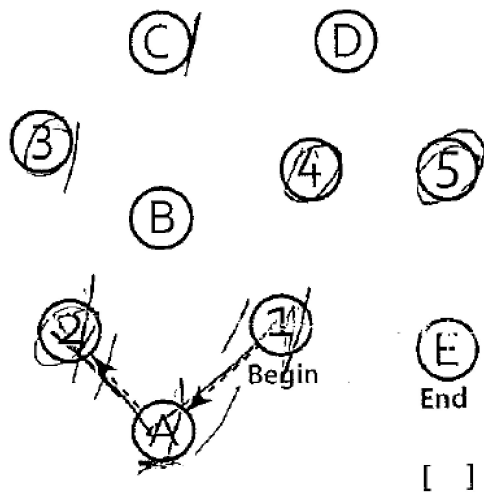
Lee et. al., , 2008

# Deficits in cognitive domains

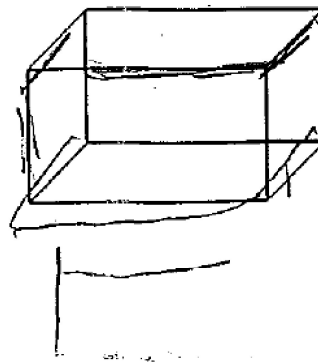
- Delayed recall (Amnestic MCI)
- Visuo-spatial/executive function (Constructive MCI)
- Abstraction

Gallagher et.al., 2013

## VISUOSPATIAL / EXECUTIVE



Copy rectangle

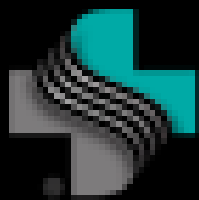


Draw CLOCK (Five past four)  
(3 points)



[ ] [ ] [ ]  
Contour Numbers Hands

# Evidence-based Project



**Sutter Health**

Mills-Peninsula Health Services

**We Plus You**

# Current practice in acute setting

- **Problem:** Patient care transition can be affected when mild cognitive impairment is not being recognized during hospital stay
- **Current Practice:** No standardized cognitive assessment to detect mild cognitive impairment



# PICO Question



**Will occupational therapy  
completing a brief cognitive screen,  
increase recognition of Mild  
Cognitive Impairment in Heart  
Failure patient population in order  
to improve care transitions?**

Procedures

OT assesses for MCI as a standard practice

Care Transition

Not being assessed in a standardized manner



Teaching during discharge and referral for post-discharge care

MCI

May have subtle, mild cognitive impairment

Patients with HF

# Suggested Care Transitions

- Use of color flip chart with very concrete suggestion when to call for Medical advice
  - HF self-care behavior and daily weights improved significantly ( $p=.01$  and  $.03$ )  
Caldwell, Peters & Dracup, 2005
- Individualized + follow-up telephone calls
  - Over 2-3 sessions
  - Printed materials at 6<sup>th</sup> grade level
  - Individualized educational and counseling sessions
  - Involvement of family/caregiver

Dunbar, 2015; Krumholz et.al., 2002

# Next Steps in Documentation

- Patient Education Section
  - Types of education
    - Teach back
    - Visual
      - Highlight
      - Demonstration
    - Literature



Bauer et al., 2011; Lambrinou, Protopapas, & Kalogirou, 2014  
White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013;  
Vreeland, Rea, & Montgomery, 2011; Wu et al, 2008



## Next Steps in Documentation (continued)

- 3 KEY POINTS to education
  - Literature has found that patient education provided with 3 key points is most efficient
- Slow down in teaching
- Short teachings over consecutive days
- Involve Family and Caregivers

Davis et al., 2012; Davis et al., 2015; Lambrinou et al., 2014;  
Shen et al., 2006; McBride & Andrews, 2013; Zaveritnik, 2014

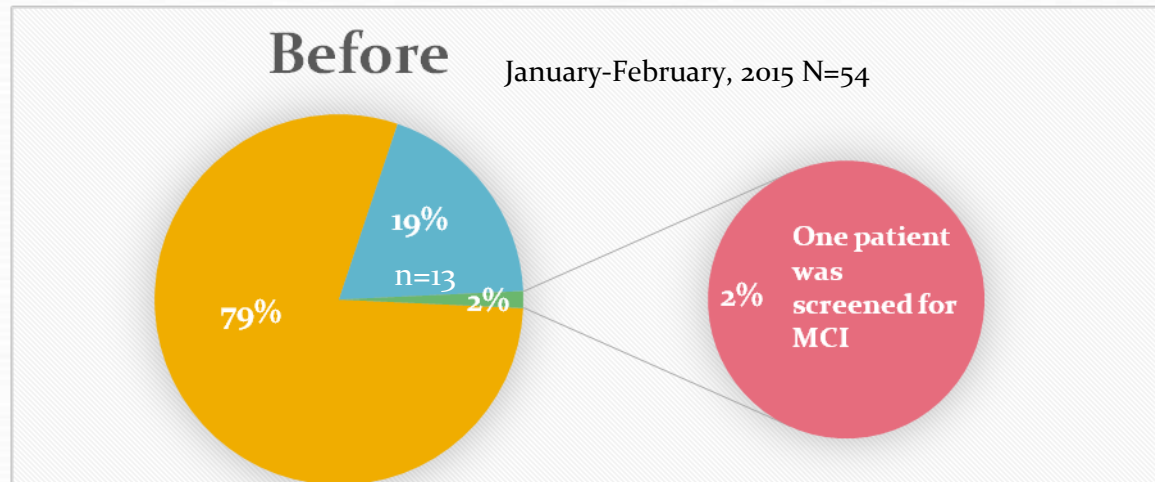
# Example of documentation using MoCA

Patient scored **22/30** in Montreal Cognitive Assessment, and this shows that patient has {mild, moderate, severe} cognitive impairment in {abstraction, attention, executive function, language, memory, visual spatial}. When teaching the patient, use {emphasize 3 key points, give literature, involve family/caregiver in teaching, short teaching sessions over consecutive days, slow down in teaching, teach back, use highlighter to highlight important information, visual demonstration}. Recommend follow up service at home: {AIM, Circle of Care, Heart Failure Specialty program in Home Health, Home Health PT/OT for home safety}.

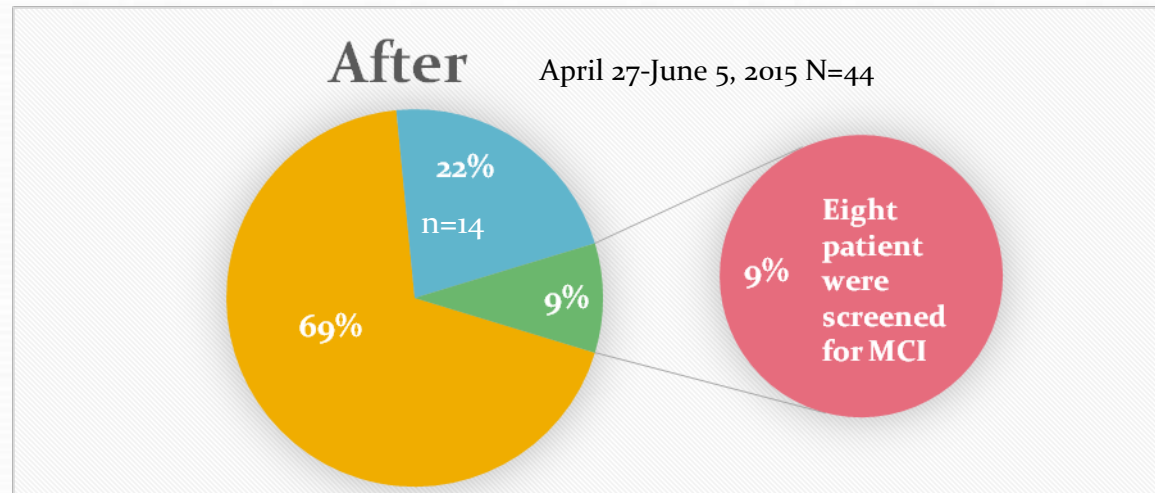
# Outcome Measurements

- Outcome Measurements:
- 1. # of qualified heart failure patients that are eligible (i.e. could get) for MoCA assessment (from Apr 27 – Jun 5) (denominator)
- 2. # of above that are assessed during the same time period (numerator)
- 3. # and type of impairments identified in the MoCA assessments
- 4. Percentage documentation made based on MoCA findings
- 5. #/% of increased referrals to additional services such as home health and circle of care program after MCI is recognized in the heart failure patient

# MoCA Evaluation & Feasibility



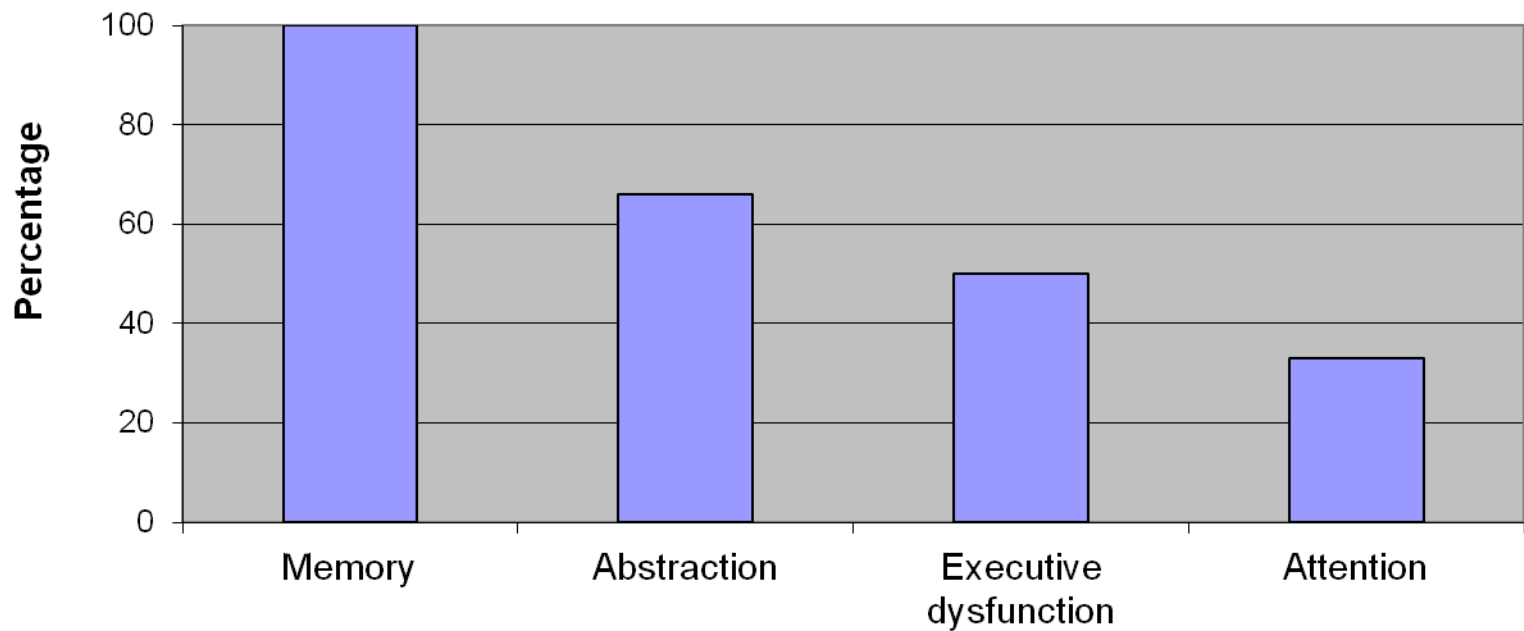
- HF patients without receiving OT
- HF patients who received OT but no MCI screen
- HF patients who received OT and MCI screen





# MoCA Evaluation & Feasibility

**Cognitive impairments in heart failure patients**





# Successes and Challenges

## Successes:

- Heart Failure patients receive standardized cognitive screen
- Mild cognitive impairment is being identified!
- Engage interprofessional collaboration

## Challenges:

- Nurses and case managers need more education
- Short time frame
- Making sure MD referring to OT
- New practice for OT



# Take Home Messages

- MCI is subtle
  - Subjective and objective detection of memory impairment
  - It can also affect single or multiple cognitive domains
- High incidence of MCI in patients with HF
- MCI affects results of HF self-care management
- Use of cognitive screen can help quickly identify impairments in different cognitive domains