

# Early Detection of Alzheimer Disease – What Do The New CCCDTD5 Guidelines Tell Us?

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# Faculty Disclosure: Zahinoor Ismail

## Grants

- CIHR
- CCNA
- Brain Canada
- CABHI
- Weston
- ADDF
- NIA

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- Janssen
- Lundbeck
- Otsuka

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- Acadia
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- Roche
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# Objectives

1. Discuss the Alzheimer disease cognitive spectrum from Subjective Cognitive Decline to Mild Cognitive Impairment to Dementia
2. Review CCCDTD5 guidance on tools and approaches for dementia assessments

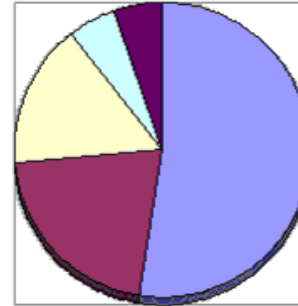
# Types of Dementia

Dementia is an "Umbrella term", referring to many different types of dementia



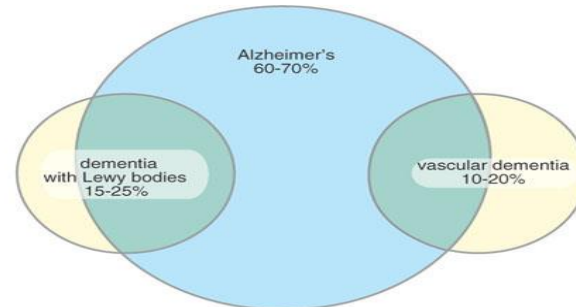
The most common type of dementia is **Alzheimer's Disease** (illustrated as the handle of this umbrella)

Each of the lesser common types of dementia, such as **Vascular, Lewy Body, Frontotemporal**, etc, is illustrated as a separate section of the umbrella

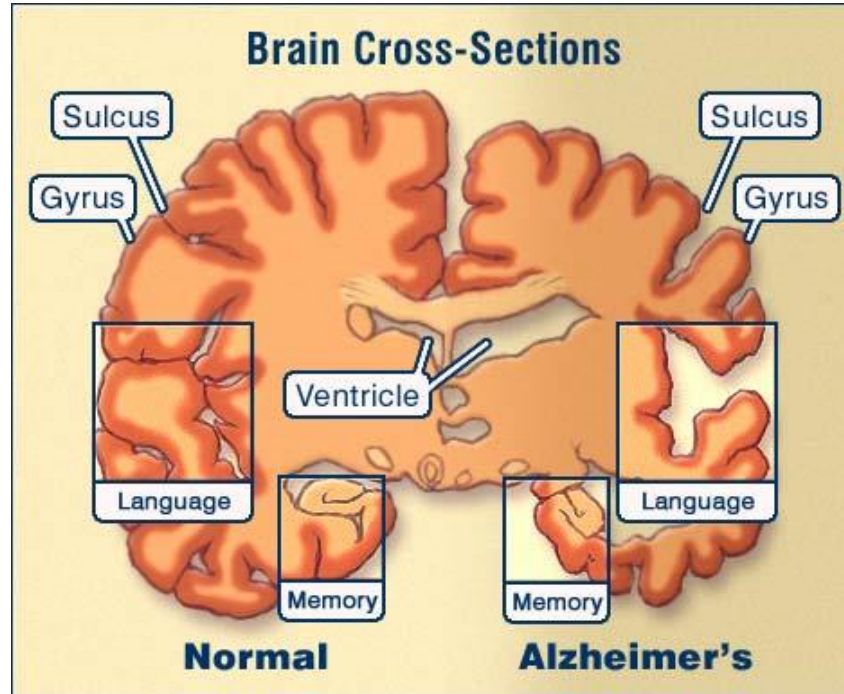


- Alzheimer's Dementia
- Vascular Dementia
- Lewy Body Dementia
- Frontotemporal Dementia
- Other types of Dementia

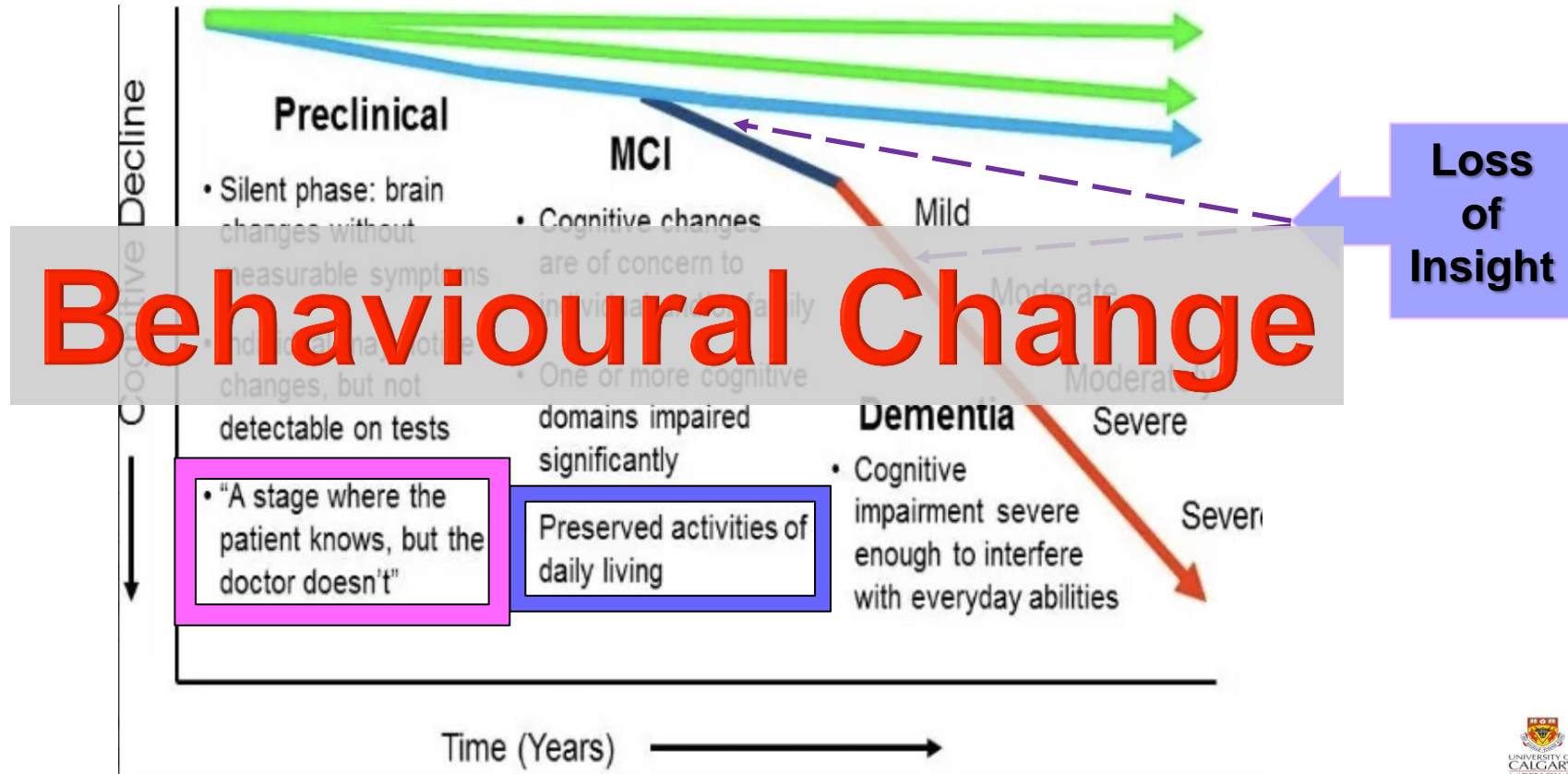
**Mixed Dementia:**  
Overlap of Alzheimer Disease with Other Dementias



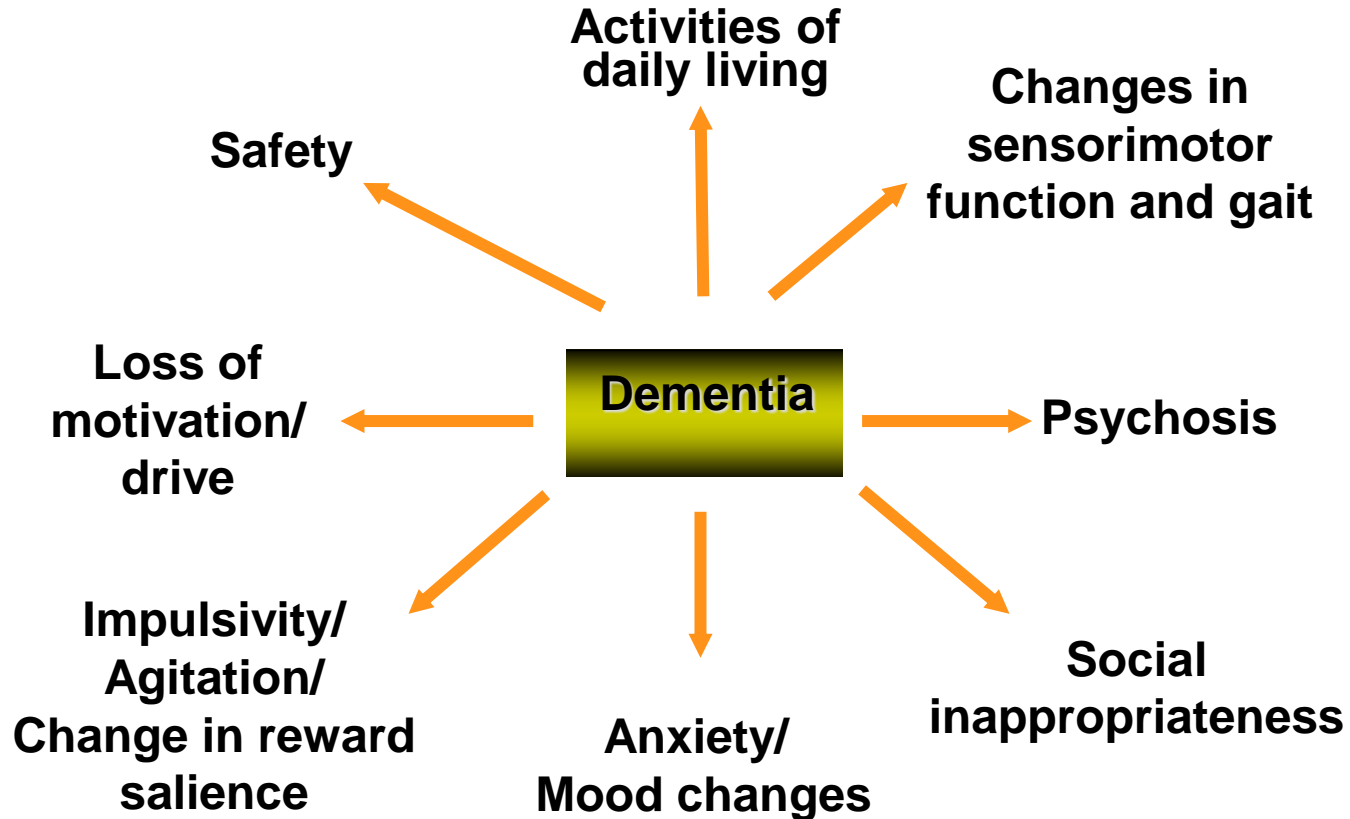
# Alzheimer's Dementia



# Subjective Cognitive Decline, Mild Cognitive Impairment, and Dementia

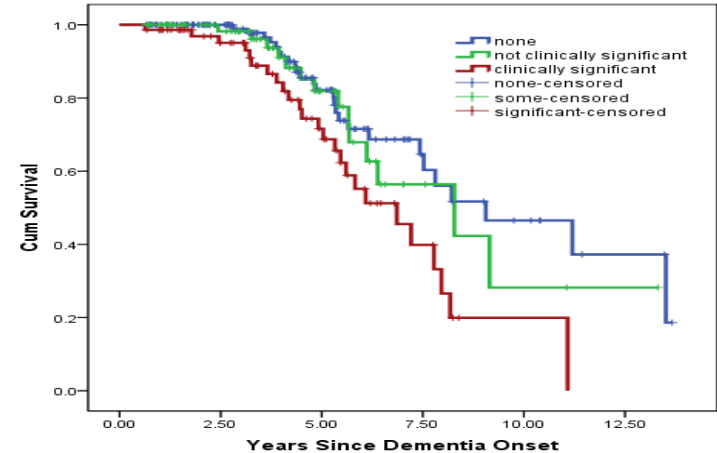


# Dementia Is More than Cognitive Impairment



# NPS are “bad” for patients & caregivers

- Greater ADL impairment<sup>1</sup>
- Worse quality of life<sup>2</sup>
- Earlier institutionalization<sup>3</sup>
- Caregiver burden<sup>4</sup>
- Higher costs<sup>5</sup>
- Faster to severe dementia<sup>6</sup>
- Accelerated mortality<sup>6</sup>

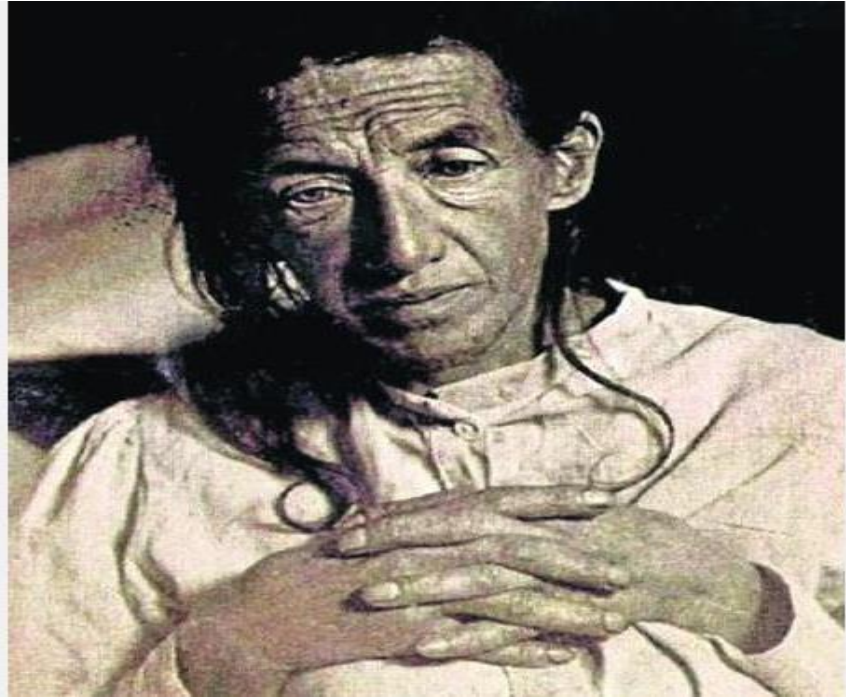


<sup>1</sup>Lyketsos et al, 1997; <sup>2</sup>Gonzales-Salvador et al, 1999; <sup>3</sup>Steele et al, 1990;

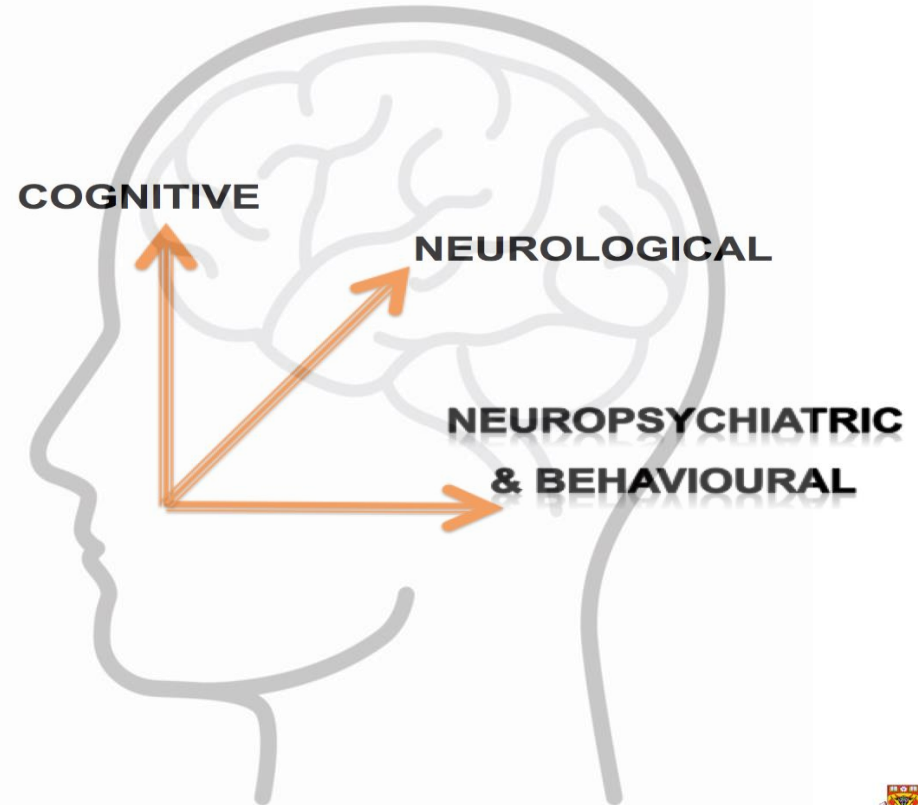
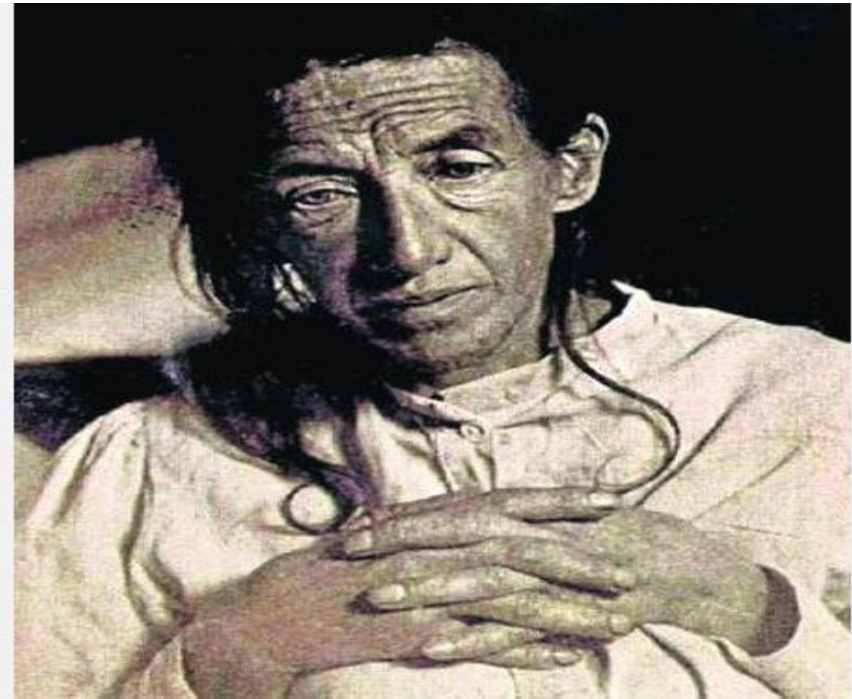
<sup>4</sup>Lyketsos et al, 1999; <sup>5</sup> Murman et al, 2002; <sup>6</sup> Peters et al, 2015



# Auguste D and the natural history of her cognitive symptoms



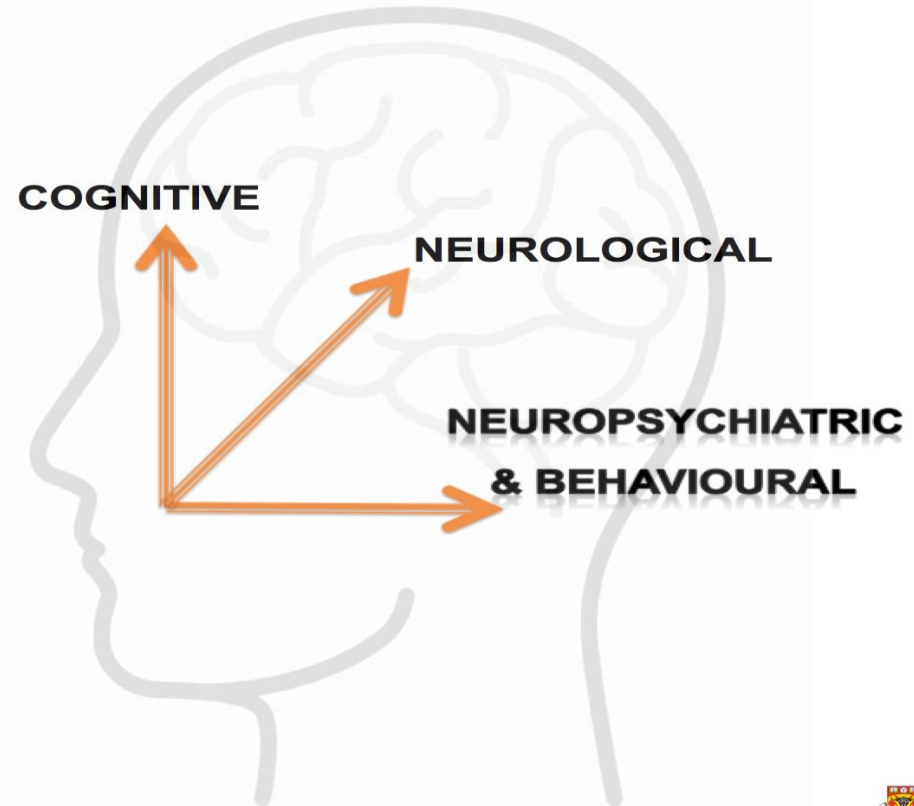
**Rather than thinking of dementia as a cognitive continuum, consider it as a multiaxial syndrome**



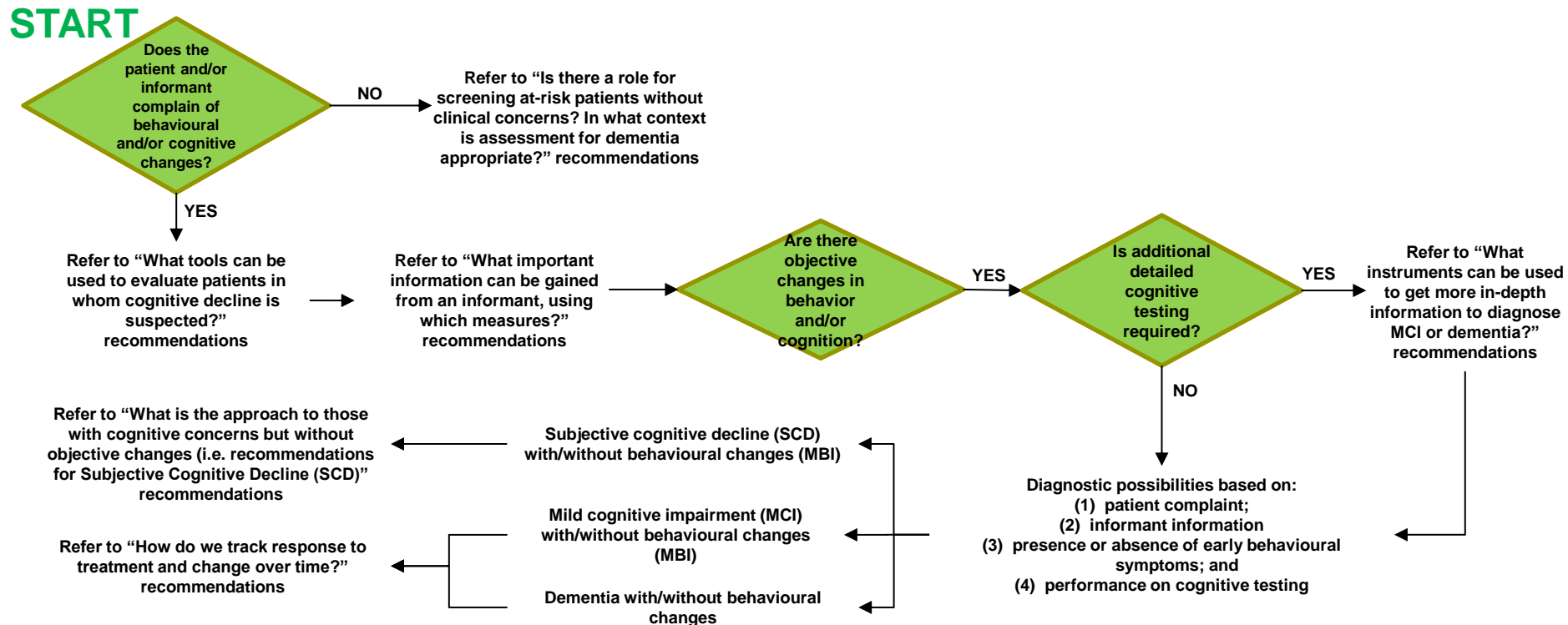
# Rather than thinking of predementia as a cognitive continuum, consider it as a multiaxial syndrome

## CCCDTD5 – novelty and detection principles

- Non-cognitive markers
- Detection
  - Cognition, behaviour, and function
  - From patient AND informant



# CCCDTD5 – Initial Assessment Flowchart



# Is there a role for screening at-risk patients without clinical concerns?

- Cognitive testing to screen asymptomatic adults is not recommended
- Vigilance for potential symptoms in older or at-risk individuals, which would trigger assessment of cognition, behaviour, and function from patient and informant:
  - Report of cognitive symptoms from patient or informant
  - Otherwise unexplained decline in IADLs
  - Missed appointments, difficulty remembering/following instructions or taking medications
  - Decrease in self care
  - Victimized by financial scams
  - New onset later-life behavioural changes including new onset depression or anxiety

# Is there a role for screening at-risk patients without clinical concerns?

- In persons at elevated risk for cognitive disorders:
  - Very advanced age
  - History of stroke or TIA or brain injury
  - Untreated sleep apnea
  - Unstable metabolic or cardiovascular morbidity
  - Pre-existing brain diseases such as Parkinson disease
  - Recent episode of delirium
  - Risk factors such as diabetes
- It is reasonable to ask patient and informant about memory concerns, which would trigger assessment of cognition, behaviour and function from patient and informant

# What tools can be used to evaluate patients in whom cognitive decline is suspected?

- Some instruments are subject to potential fees or training requirements. Clinicians should determine what is feasible in their setting when it comes to choosing the instruments. If fees or training requirements preclude using a specific scale, other validated scales can be chosen. **The most important principle is measurement-based care**, using all potential sources of information, which necessitates the use of a validated instrument, even if it is not one recommended here.

# Scales administered to patient...

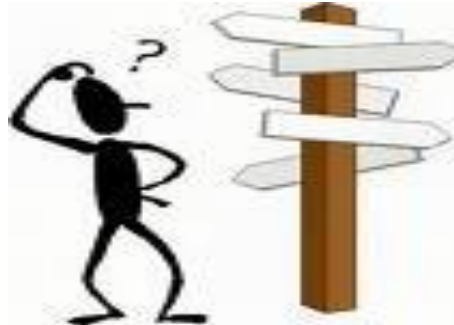




# Ideal screening test

1. Brief in duration
2. Acceptable to patients
3. Insensitive to confounding factors such as culture, language and education
4. Simple to administer and score
5. Sensitivity and inter-rater reliability
6. Cover a broad range of cognitive functions

# “No ifs ands or buts...”



# MMSE

Question	Maximum Scores
<b>Orientation</b> What is the (year) (season) (date) (day) (month)? Where are we? (State) (County) (Town) (Hospital) (Floor)	One point for each correct answer, maximum of five. One point for each correct answer, maximum of five
<b>Registration:</b> Name three objects: One second to say each. Then ask the patient all three after you have said them	One point each correct answer, maximum of three
<b>Attention and Calculation:</b> Serial 7's: Subtracts 7 from 100 and keep doing it backward until five answers. Alternatively, spell "world" backward or name all the twelve months backward	One point for each correct answer, maximum of five.
<b>Recalls:</b> Ask for the three objects repeated above	One point for each correct answer, maximum three
<b>Language:</b> Name a pencil, and watch  Repeat the followings: No if, s, and's or but's. Follow a 3-stage command: Take a paper in your right hand, fold it in half, and put it on the floor.	One point for each correct answer, maximum two One point One point each, maximum of three
<b>Read and Obey the following:</b> Close your eyes Write a sentence Copy the following design	One point One point One point if copied all ten surfaces and ten angles.



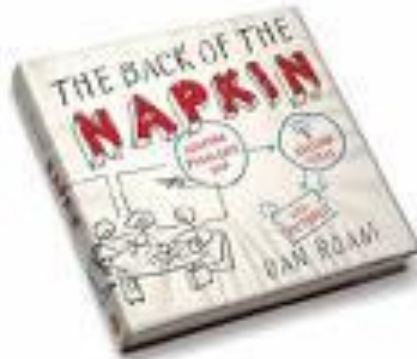
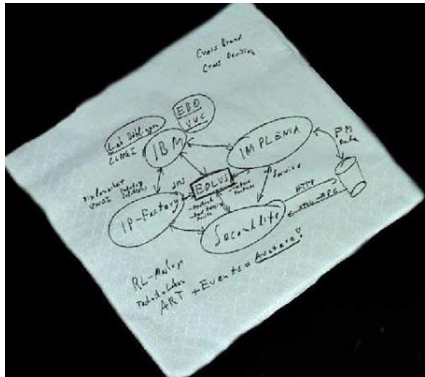
MINI MENTAL SCORE		Non Prénom	Date
Examen de Folstein sur l'état mental : Mini Mental State		Age	
<b>A - ORIENTATION</b>			Cote max
1° - Quel est :	_____ I M J V S D l'année le mois le jour le jour de la semaine La saison : printemps <input type="checkbox"/> été <input type="checkbox"/> automne <input type="checkbox"/> hiver <input type="checkbox"/>		5
2° - Où sommes-nous ?	Région _____ Pays _____ Ville, village _____ Lieu (hôpital, maison, etc.) _____ Étage _____		5
<b>B - APPRENTISSAGE</b>			
3° - Dire à haute voix UN des groupes de 3 mots suivants	Prendre une seconde pour prononcer chaque mot.		
	cigare, fleur, porte ou citron, clé, ballon ou chemise, bleu, honnête		3
	Demander de répéter les 3 mots choisis Donner 1 point pour chaque bonne réponse au premier essai. Répéter l'exercice jusqu'à ce que le sujet retienne les 3 mots. Compter le nombre d'essais et le noter, pour information seulement.	Nombre d'essais	
<b>C - ATTENTION et CALCUL (cocher l'un ou l'autre test)</b>			
4°	Faire la soustraction par intervalles de 7 à partir de 100 $100-7 = ( )$ $93-7 = ( )$ $86-7 = ( )$ $79-7 = ( )$ $72-7 = ( )$ $65$ Donner 1 point pour chaque bonne réponse. ou, si le maximum de point n'est pas obtenu Répéter le mot "MONDE" à l'envers. (EDNOM) Retenir la meilleure réponse. (écrire les lettres)		5
<b>D - RAPPEL - Récitation manéque</b>			
5°	Répéter les trois mots déjà mentionnés cigare, fleur, porte ou citron, clé, ballon ou chemise, bleu, honnête		3
<b>E - LANGAGE</b>			
6°	Montrer au sujet un crayon ( ) une montre ( ) et demander de nommer l'objet.		2
7°	Répéter la phrase suivante : « Pas de MAIS, de SI, ni de ET »		1
8°	Obéir à un ordre en 3 temps : « Prenez mon papier de la main droite, pliez-le en deux, jetez-le par terre » (Demander au sujet d'obéir de prendre de la main gauche et vice versa) (Poser la feuille à portée, ne pas la tendre à la main ; éviter les indices non verbaux)		3
9°	Lire et faire FERMER LES YEUX (voir feuille suivante)		1
10°	Écrire une phrase (voir feuille suivante) Une phrase comprend au minimum un sujet, un verbe et un complément		1
<b>F - PRAXIES CONSTRUCTIVES</b>			
11°	Copier le dessin  (voir feuille suivante)		1
• Nombre d'années de scolarité : _____ Max = 30 • Niveau de conscience ( ) vigilant ( ) somnolent • Indiquer les conditions ayant pu influencer l'évaluation			Total

# Problems with the MMSE

- Poor assessment of frontal / exec function
- Designed in an English speaking population
- MMSE scores are influenced by age, education, ethnicity, and language of interview
- Some words can't be translated and some concepts are not relevant to other cultures
- Excluding items that were culturally biased, resolved inter-ethnic diff in “severe” dementia

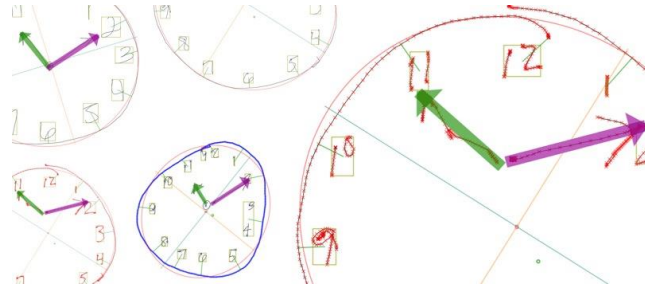
# MMSE development

- Napkin (serviette)

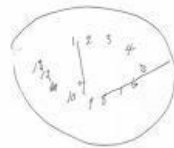
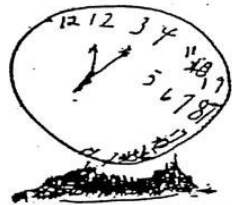
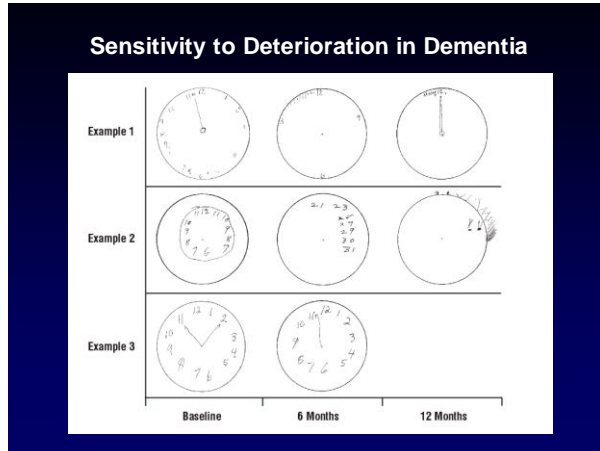


# Clock Drawing Test

- “This is a clock face. Please fill in the numbers and then set the time to 10 past 11”

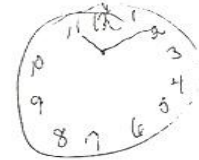


# CDT

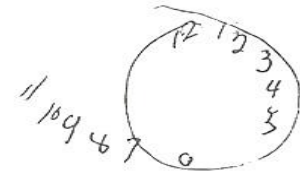


### Examples of Clock Drawing Test

#### Early Alzheimer's Disease



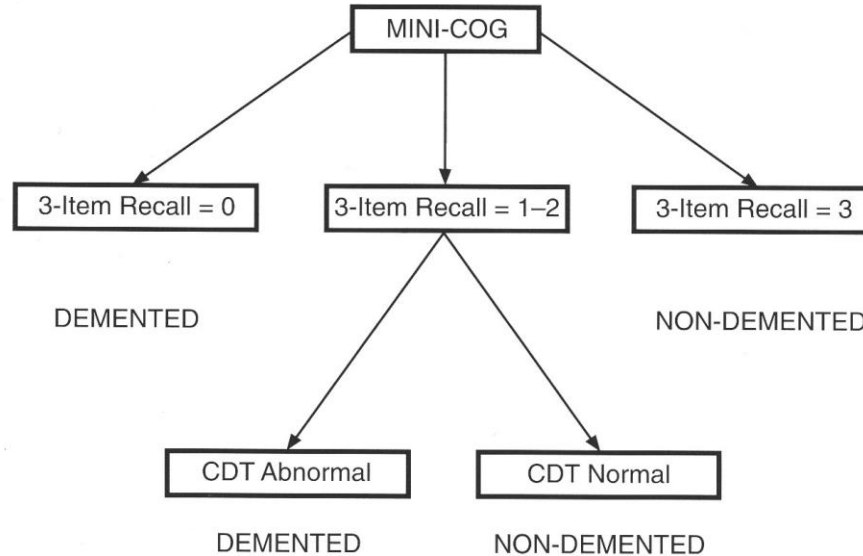
#### Moderate Alzheimer's Disease



#### Severe Alzheimer's Disease



# Mini-Cog



*Mini-Cog scoring algorithm. (Reproduced from Borson et al, 2000, with permission from John Wiley & Sons Ltd.)*

Borson, S., J. Scanlan, et al. (2000). "The mini-cog: a cognitive 'vital signs' measure for dementia screening in multi-lingual elderly." *Int J Geriatr Psychiatry* 15(11): 1021-7.



# Mini-Cog™

## Instructions for Administration of the Mini-Cog™

ADMINISTRATION	SPECIAL INSTRUCTIONS																								
<p>1. Three Word Recall Get patient's attention. Say: "I am going to say three words that I want you to remember. The words are (select from word list). "Please say them for me now." If patient is unable to repeat after 3 tries, then go to clock drawing test.</p> <p>2. Clock Drawing Test (CDT) Say in order: "Please draw a clock. Start by drawing a large circle." (when done, say) "Put all the numbers in the circle." (when done, say) "Now set the hands to show 11:10 (10 past 11) OR 8:20 OR 1:45.</p> <p>3. Say: "What were the three words I asked you to remember?"</p>	<p>The following word lists have been used in one or more clinical studies:<sup>1-3</sup></p> <table border="0"> <tr> <td>- <b>Version 1</b></td> <td>- <b>Version 3</b></td> <td>- <b>Version 5</b></td> </tr> <tr> <td>• Banana</td> <td>• Village</td> <td>• Captain</td> </tr> <tr> <td>• Sunrise</td> <td>• Kitchen</td> <td>• Garden</td> </tr> <tr> <td>• Chair</td> <td>• Baby</td> <td>• Picture</td> </tr> <tr> <td>- <b>Version 2</b></td> <td>- <b>Version 4</b></td> <td>- <b>Version 6</b></td> </tr> <tr> <td>• Daughter</td> <td>• River</td> <td>• Leader</td> </tr> <tr> <td>• Heaven</td> <td>• Nation</td> <td>• Season</td> </tr> <tr> <td>• Mountain</td> <td>• Finger</td> <td>• Table</td> </tr> </table> <ul style="list-style-type: none"> <li>• A clock should not be visible to the patient during this task.</li> <li>• Use either a blank piece of paper and have patient draw circle OR provide a preprinted circle – administration would then be to ask the patient to put in all the numbers like the face of a clock.</li> <li>• Repeat instructions as needed. This is not a memory test. Move to next step if clock is not complete within 3 minutes.</li> <li>• Inability or refusal to draw a clock is scored abnormal (0 points).</li> </ul> <p>Ask the patient to recall the three words you stated in Step 1.</p>	- <b>Version 1</b>	- <b>Version 3</b>	- <b>Version 5</b>	• Banana	• Village	• Captain	• Sunrise	• Kitchen	• Garden	• Chair	• Baby	• Picture	- <b>Version 2</b>	- <b>Version 4</b>	- <b>Version 6</b>	• Daughter	• River	• Leader	• Heaven	• Nation	• Season	• Mountain	• Finger	• Table
- <b>Version 1</b>	- <b>Version 3</b>	- <b>Version 5</b>																							
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• Daughter	• River	• Leader																							
• Heaven	• Nation	• Season																							
• Mountain	• Finger	• Table																							

## Scoring

Word recall ____ (0-3 points)	1 point for each word spontaneously recalled without cueing.
Clock draw ____ (0 or 2 points)	<ul style="list-style-type: none"> <li>• Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (eg, with 12, 3, 6, and 9 in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10) or the 8 and 4 (8:20) or 1 and 9 (1:45). (Length of hands less important).</li> <li>• Abnormal clock = 0 points.</li> </ul>
Total = _____ (0- 5 points)	Total score = word recall score + clock score Negative screen for cognitive impairment: Mini-Cog™ 4-5 score Positive screen for cognitive impairment: Mini-Cog™ 0-3 score

## References/Copyright Information

1. Borson S, Scanlan J, Brush M, Vitaliano P, Dokmak A. The mini-cog: a cognitive "vital signs" measure for dementia screening in multi-lingual elderly. *Int J Geriatr Psychiatry*. 2000;15(11):1021–1027. 2. Borson S, Scanlan JM, Chen P, Ganguli M. The Mini-Cog as a screen for dementia: validation in a population-based sample. *J Am Geriatr Soc*. 2003;51(10):1451–1454. 3. McCarten JR, Anderson P, Kuskowski MA, et al. Finding dementia in primary care: the results of a clinical demonstration project. *J Am Geriatr Soc*. 2012;60(2):210–217.


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# RUDAS – a culturally sensitive tool

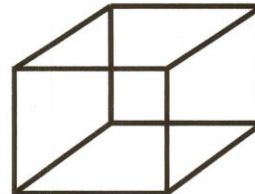
## R U D A S

The Rowland Universal Dementia Assessment Scale: A Multicultural Cognitive Assessment Scale.  
(Storey, Rowland, Basic, Conforti & Dickson, 2004). International Psychogeriatrics, 16 (1), 13-31

Date: \_\_\_/\_\_\_/\_\_\_ Patient Name: \_\_\_\_\_

Item	Max Score
<p><b>Memory</b></p> <p>1. (Instructions) I want you to imagine that we are going shopping. Here is a list of grocery items. I would like you to remember the following items which we need to get from the shop. When we get to the shop in about 5 mins. time I will ask you what it is that we have to buy. You must remember the list for me. <b>Tea, Cooking Oil, Eggs, Soap</b> Please repeat this list for me (ask person to repeat the list 3 times). (If person did not repeat all four words, repeat the list until the person has learned them and can repeat them, or, up to a maximum of five times.)</p>	
<p><b>Visuospatial Orientation</b></p> <p>2. I am going to ask you to identify/show me different parts of the body. (Correct = 1). Once the person correctly answers 5 parts of this question, do not continue as the maximum score is 5.</p> <p>(1) show me your right foot .....1                  (2) show me your left hand .....1                  (3) with your right hand touch your left shoulder .....1                  (4) with your left hand touch your right ear .....1                  (5) which is (indicate/point to) my left knee .....1                  (6) which is (indicate/point to) my right elbow .....1                  (7) with your right hand indicate/point to my left eye .....1                  (8) with your left hand indicate/point to my left foot .....1</p>	....5
<p><b>Praxis</b></p> <p>3. I am going to show you an action/exercise with my hands. I want you to watch me and copy what I do. Copy me when I do this ... (One hand in fist, the other palm down on table - alternate simultaneously.) Now do it with me. Now I would like you to keep doing this action at this pace until I tell you to stop - approximately 10 seconds. (Demonstrate at moderate walking pace). Score as:  <i>Normal</i> = 2 (very few if any errors; self-corrected, progressively better; good maintenance; only very slight lack of synchrony between hands)  <i>Partially Adequate</i> = 1 (noticeable errors with some attempt to self-correct; some attempt at maintenance; poor synchrony)  <i>Failed</i> = 0 (cannot do the task; no maintenance; no attempt whatsoever)</p>	....2
<p><b>Visuoconstructional Drawing</b></p> <p>4. Please draw this picture exactly as it looks to you (Show cube on back of page). (Yes = 1) Score as:                  (1) Has person drawn a picture based on a square? .....1                  (2) Do all internal lines appear in person's drawing? .....1</p> <div style="display: flex; align-items: center;">  <span>(3) Do all external lines appear in person's drawing? .....1</span> </div>	....3
<p><b>Judgment</b></p> <p>5. You are standing on the side of a busy street. There is no pedestrian crossing and no traffic lights. Tell me what you would do to get across to the other side of the road <b>safely</b>. (If person gives incomplete response that does not address both parts of answer, use prompt: "Is there anything else you would do?") Record exactly what patient says and circle all parts of response which were prompted. ..... ..... .....</p> <p>Score as:                  Did person indicate that they would look for traffic? (YES = 2; YES PROMPTED = 1; NO = 0) .....2                  Did person make any additional safety proposals? (YES = 2; YES PROMPTED = 1; NO = 0) .....2</p>	....4

<p><b>Memory Recall</b></p> <p>1. (Recall) We have just arrived at the shop. Can you remember the list of groceries we need to buy? (Prompt: If person cannot recall any of the list, say "The first one was 'tea'." (Score 2 points each for any item recalled which was not prompted – use only 'tea' as a prompt.)</p>		
Tea .....2 Cooking Oil .....2 Eggs .....2 Soap .....2	....8	
<p><b>Language</b></p> <p>6. I am going to time you for one minute. In that one minute, I would like you to tell me the names of as many different animals as you can. We'll see how many different animals you can name in one minute. (Repeat instructions if necessary). Maximum score for this item is 8. If person names 8 new animals in less than one minute there is no need to continue.</p>		
1. .... 5. .... 2. .... 6. .... 3. .... 7. .... 4. .... 8. ....		
<b>TOTAL SCORE =</b>		....8 <b>/30</b>



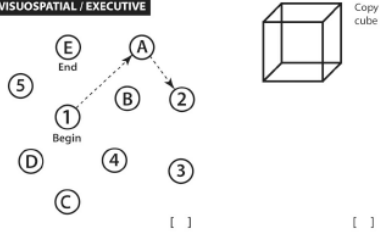
# Montreal Cognitive Assessment (MoCA)

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

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

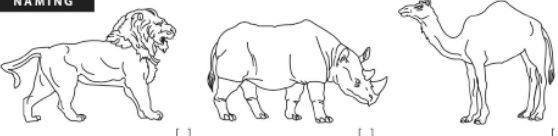
**VISUOSPATIAL / EXECUTIVE** POINTS

Copy cube Draw CLOCK (Ten past eleven) (3 points)



Contour  Numbers  Hands  \_\_\_/5

**NAMING**



\_\_\_/3

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

	FACE	VELVET	CHURCH	DAISY	RED	No points
1st trial						
2nd trial						

**ATTENTION** 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 \_\_\_/3  
4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

**LANGUAGE** 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

**ABSTRACTION** Similarity between e.g. banana - orange = fruit  train - bicycle  watch - ruler \_\_\_/2

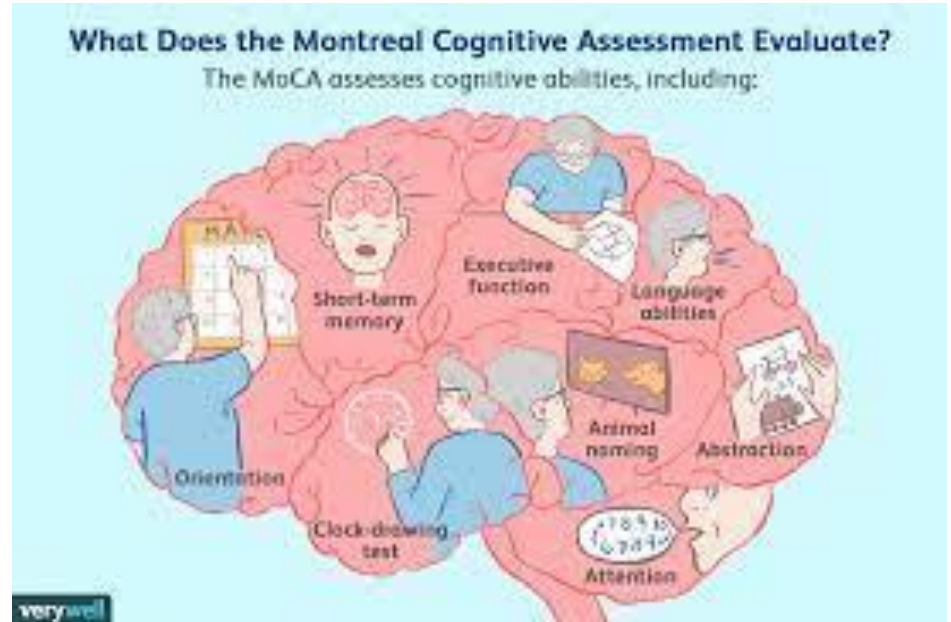
**DELAYED RECALL** Has to recall words WITH NO CUE

	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCLUED recall only
Category cue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Multiple choice cue						

\_\_\_/5

**ORIENTATION**  Date  Month  Year  Day  Place  City \_\_\_/6

© Z.Nasreddine MD [www.mocatest.org](http://www.mocatest.org) Normal: ≥ 26 / 30 TOTAL  30  
Administered by: \_\_\_\_\_ Add 1 point if ≤ 12 yr edu.




# Alternatives to MoCA

## VAMC SLUMS Examination

Questions about this assessment tool? E-mail [aging@slu.edu](mailto:aging@slu.edu).

Name \_\_\_\_\_ Age \_\_\_\_\_  
Is patient alert? \_\_\_\_\_ Level of education \_\_\_\_\_

- 1/1 1. What day of the week is it?  
1/1 2. What is the year?  
1/1 3. What province 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.  
1 How much did you spend?  
2 How much do you have left?  
6. Please name as many animals as you can in one minute.  
1 0-4 animals 1 5-9 animals 2 10-14 animals 3 15+ animals  
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.  
1 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.  
2 Hour markers okay  
2 Time correct  
10. Please place an X in the triangle.   
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 Toronto. 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.  
2 What was the female's name? 2 What work did she do?  
2 When did she go back to work? 2 What province did she live in?
- TOTAL SCORE \_\_\_\_\_

SCORING	
High School Education	Less than High School Education
27-30	25-30
21-26	20-24
1-20	1-19
NORMAL	MILD NEUROCOGNITIVE DISORDER
	DEMEMENTIA

CLINICIAN'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

SH Tariq, N Tumosa, JT Chiswell, HM Perry III, and JE Macley. The Saint Louis University Mental Status (SLUMS) Examination for detecting mild cognitive impairment and dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *J Am J Geriatr Psychiatry* 14:900-10, 2006.

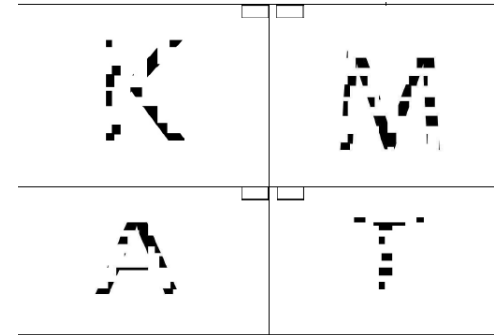
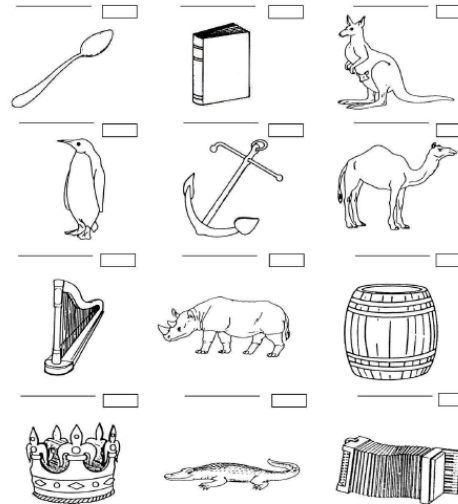
### ADDENBROOKE'S COGNITIVE EXAMINATION – ACE-III American Version A

Name: \_\_\_\_\_ Date of Testing: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Date of Birth: \_\_\_\_\_ Tester's Name: \_\_\_\_\_  
Age: \_\_\_\_\_ Education: \_\_\_\_\_  
Place of Testing: \_\_\_\_\_ Occupation: \_\_\_\_\_  
Handedness: \_\_\_\_\_

Ask: What is the	Day	Date	Month	Year	Season	Attention [Score 0-5]
Ask: Which	No./Floor	Street/Hospital	Town	County	Country	Attention [Score 0-5]

\*Remember only the items in BOLD for the ACE-III score!

Ask the subject to name the following pictures:



sew  
pint  
soot  
dough  
height

# More detailed testing

## TorCA

Domain	Subtest	Subtest score	Maximum score for domain
Orientation	Orientation	12	12
Immediate Memory	CERAD Word List Trial 1	10	
	CERAD Word List Trial 2	10	
	CERAD Word List Trial 3	10	30
Delayed Recall	CERAD—Delayed Recall	10	
	Benson Figure Delayed Recall	17	27
Delayed Recognition	CERAD Delayed Recognition	20	
	Benson Figure Delayed Recognition	1	21
Visuospatial	Benson Figure Copy	17	
	Clock Drawing	15	32
Working Memory/Attention/Executive Control	Serial 7 s	13	
	Serial 3 s	13	
	Digit Span—Forward	9	
	Digit Span—Reverse	8	
	Trails A	24	
	Trails B	24	
	Alternating Sequences	2	
	Similarities	10	
	Verbal Fluency—F words	N/A	N/A
	Language	Verbal Fluency—Animals	N/A
MINT Naming		15	
Repetition		10	
Single Word Comprehension		8	
Single Word Reading Comprehension		2	
Sentence Comprehension		8	
Single Word Reading		12	
Semantic Knowledge		10	N/A

## DCQ

Dépitage Cognitif de Québec

Last name: \_\_\_\_\_ Education: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

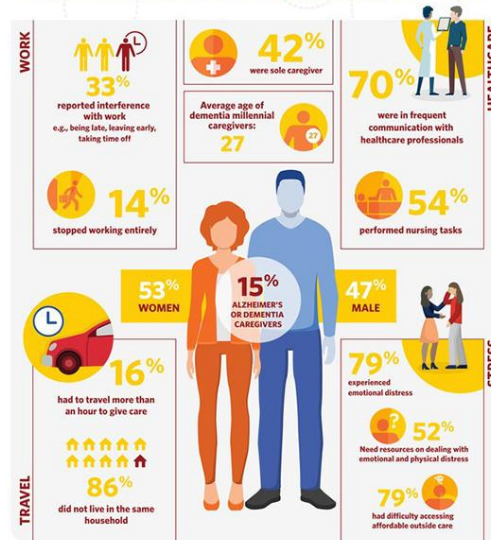
ID: \_\_\_\_\_ Sex: \_\_\_\_\_ Examiner: \_\_\_\_\_ DB: \_\_\_\_\_

Summary			
Index 1. Memory		Index 4. Language	
<b>Sub-Index</b>	<b>Score</b>	<b>Sub-Index</b>	<b>Score</b>
1. Recall	Immediate recall	1. Storytelling	/1
	Delayed recall	Naming	/5
2. Recognition		2. Writing	/5
		3. Sentence writing	/3
<b>Total Memory Index /24</b>		4. Comprehension	/3
		5. Semantic	/6
		6. Repetition	/5
		<b>Total Language Index /28</b>	
Index 2. Visuospatial		Index 5. Behavior	
<b>Sub-Index</b>	<b>Score</b>	<b>Sub-Index</b>	<b>Score</b>
1. Embedded figures	/5	1. Caregiver questionnaire	/16
2. Visuospatial rotation	/4	2. Social cognition	/8
3. Visuospatial construction	/2	<b>Total Behavior Index /24</b>	
4. Letter detection	/3		
<b>Total Visuospatial Index /14</b>			
Index 3. Executive Functions		<b>DCQ TOTAL SCORE</b>	
<b>Sub-Index</b>	<b>Score</b>	Index 1: Memory	/24
1. Backward digit span	/3	Index 2: Visuospatial	/14
2. Months backward	/1	Index 3: Executive Functions	/10
3. Alternating sequence	/1	Index 4: Language	/28
4. Abstraction	/3	Index 5: Behavior	/24
5. Verbal fluency (>12)	/1	<b>DCQ TOTAL SCORE /100</b>	
6. Stroop (>11)	/1		
<b>Total Executive Functions Index /10</b>			

# Scales given to caregiver / informant



## A PROFILE OF MILLENNIAL DEMENTIA CAREGIVERS




 Volz, H. A., Alvarez, M. P., & Rodriguez, J. (2017). Millennial and Dementia Caregiving in the United States. *City Research from National Science and NSF. www.cmg.umd.edu/research/2017/04/04/*


# IQCODE and ECog

Version 2/16/2021

## Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)

Now we want you to remember what your friend or relative was like 10 years ago and to compare it with what he/she is like now. 10 years ago was in 19\_\_\_. Below are situations where this person has to use his/her memory or intelligence and we want you to indicate whether this has improved, stayed the same, or got worse in that situation over the past 10 years. Note the importance of comparing his/her present performance with 10 years ago. So if 10 years ago this person always forgot where he/she had left things, and he/she still does, then this would be considered 'Hasn't changed much'. Please indicate the changes you have observed by circling the appropriate answer.

Compared with 10 years ago how is this person at:

	1	2	3	4	5
1. Recognizing the faces of family and friends	Much improved	A bit improved	Not much change	A bit worse	Much worse
2. Remembering the names of family and friends	Much improved	A bit improved	Not much change	A bit worse	Much worse
3. Remembering things about family and friends e.g. occupations, birthdays, addresses	Much improved	A bit improved	Not much change	A bit worse	Much worse
4. Remembering things that have happened recently	Much improved	A bit improved	Not much change	A bit worse	Much worse
5. Recalling conversations a few days later	Much improved	A bit improved	Not much change	A bit worse	Much worse
6. Forgetting what he/she wanted to say in the middle of a conversation	Much improved	A bit improved	Not much change	A bit worse	Much worse
7. Remembering his/her address and telephone number	Much improved	A bit improved	Not much change	A bit worse	Much worse
8. Remembering what day and month it is	Much improved	A bit improved	Not much change	A bit worse	Much worse
9. Remembering where things are usually kept	Much improved	A bit improved	Not much change	A bit worse	Much worse
10. Remembering where to find things which have been put in a different place from usual	Much improved	A bit improved	Not much change	A bit worse	Much worse

NOTE: To be completed by a caregiver or family member/friend of the individual

Patient/individual's Name \_\_\_\_\_ Participant's Center/ID Number \_\_\_\_\_

Today's Date \_\_\_\_\_

## Everyday Cognition – Informant/Caregiver Form

Directions: Please rate the person's ability to perform various everyday tasks NOW, as compared to their own baseline (for example, you could compare the individual's ability to do these same tasks now as compared to 10 years ago). In other words, try to remember how they were doing 10 years ago and indicate any change in their level of ability. Rate the amount of change on the following scale: 1) there has been no change compared to 10 years ago, 2) he/she occasionally performs the task worse but not all the time, 3) he/she consistently performs the task a little worse, 4) he/she performs the task much worse or, 9) I don't know/not applicable. Circle the number that fits your response.

Compared to 10 years ago, has there been any change in...	Better or no change	Questionable /occasionally worse	Consistently a little worse	Consistently much Worse	Don't know/Not applicable
<b>Memory</b>					
1. Remembering a few shopping items without a list.	1	2	3	4	9
2. Remembering things that happened recently (such as recent outings, events in the news).	1	2	3	4	9
3. Recalling conversations a few days later.	1	2	3	4	9
4. Remembering where he/she has placed personal items or objects.	1	2	3	4	9
5. Unknowingly repeating stories and/or questions multiple times.	1	2	3	4	9
6. Remembering the current date or day of the week.	1	2	3	4	9
7. Remembering he/she has already told someone something.	1	2	3	4	9
8. Remembering appointments, meetings, or engagements.	1	2	3	4	9
9. Remembering to do important tasks like pay bills or take medications.	1	2	3	4	9

© ECog  
Version 2/16/2021

Compared to 10 years ago, has there been any change in...	Better or no change	Questionable or occasional problems	Consistently a little worse	Consistently much Worse	Don't know/Not applicable
<b>Language</b>					
1. Coming up with the right names of commonly used everyday objects (e.g., telephone, toothbrush).	1	2	3	4	9
2. Verbally giving instructions to others.	1	2	3	4	9
3. Finding the exact right words to use in a conversation.	1	2	3	4	9

# AD8 and FAQ

## 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			
<b>TOTAL AD8 SCORE</b>			

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.  
 All Rights Reserved.

## Functional Activities Questionnaire

### Administration

Ask informant to rate patient's ability using the following scoring system:

- Dependent = 3
- Requires assistance = 2
- Has difficulty but does by self = 1
- Normal = 0
- Never did [the activity] but could do now = 0
- Never did and would have difficulty now = 1

1. Writing checks, paying bills, balancing checkbook	
2. Assembling tax records, business affairs, or papers	
3. Shopping alone for clothes, household necessities, or groceries	
4. Playing a game of skill, working on a hobby	
5. Heating water, making a cup of coffee, turning off stove after use	
6. Preparing a balanced meal	
7. Keeping track of current events	
8. Paying attention to, understanding, discussing TV, book, magazine	
9. Remembering appointments, family occasions, holidays, medications	
10. Traveling out of neighborhood, driving, arranging to take buses	
<b>TOTAL SCORE:</b>	

### Evaluation

Sum scores (range 0-30). Cut-point of 9 (dependent in 3 or more activities) is recommended to indicate impaired function and possible cognitive impairment.

Pfeffer, R.I., Kurosaki, T.T., Harrah, C.H. Jr., Chance, J.M., & Filos, S. (1982). Measurement of functional activities in older adults in the community. *Journal of Gerontology*, 37(3), 323-329. Reprinted with permission of Oxford University Press.



# Lawton IADL Scale

Instrumental Activities of Daily Living

Name of patient: \_\_\_\_\_ Date: \_\_\_\_\_

This form may help you assess the functional capabilities of your older patients. The data can be collected by a nurse from the patient or from an informant such as a family member or other caregiver. (I = independent; A = assistance required; D = dependent)

Obtained from:		Activity	Guidelines for assessment
Patient	Informant		
I A D	I A D	Using telephone	I = Able to look up numbers, dial telephone, and receive and make calls without help A = Able to answer telephone or dial operator in an emergency, but needs special telephone or help in getting numbers and/or dialing D = Unable to use telephone
I A D	I A D	Traveling	I = Able to drive own car or to travel alone on buses or in taxis A = Able to travel, but needs someone to travel with D = Unable to travel
I A D	I A D	Shopping	I = Able to take care of all food and clothes shopping with transportation provided A = Able to shop, but needs someone to shop with D = Unable to shop
I A D	I A D	Preparing meals	I = Able to plan and cook full meals A = Able to prepare light foods, but unable to cook full meals alone D = Unable to prepare any meals
I A D	I A D	Housework	I = Able to do heavy housework (i.e., scrub floors) A = Able to do light housework, but needs help with heavy tasks D = Unable to do any housework
I A D	I A D	Taking medicine	I = Able to prepare and take medications in the right dose at the right time A = Able to take medications, but needs reminding or someone to prepare them D = Unable to take medications
I A D	I A D	Managing money	I = Able to manage buying needs (i.e., write checks, pay bills) A = Able to manage daily buying needs, but needs help managing checkbook and/or paying bills D = Unable to handle money

FIGURE 2. Instrumental Activities of Daily Living scale. This instrument evaluates the patient's ability to perform the more complex activities that are necessary for optimal independent functioning.

Adapted with permission from Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist* 1969;9:179-86.

- IADLs
- Patients may deny many of these issues and caregiver can provide a better history

# Neuropsychiatric Interview

**Neuropsychiatric Inventory Questionnaire**

Name of patient: \_\_\_\_\_ Date: \_\_\_\_\_  
 Informant: Spouse \_\_\_\_\_ Child \_\_\_\_\_ Other: \_\_\_\_\_

Please answer the following questions based on changes that have occurred since the patient first began to experience memory problems. Circle "yes" only if the symptom has been present in the past month. Otherwise, circle "no".

For each item marked "yes":  
 Rate the severity of the symptom (how it affects the patient):  
 1 = Mild (noticeable, but not a significant change)  
 2 = Moderate (significant, but not a dramatic change)  
 3 = Severe (very marked or prominent; a dramatic change)

Rate the distress you experience because of that symptom (how it affects you):  
 0 = Not distressing at all  
 1 = Minimal (slightly distressing, not a problem to cope with)  
 2 = Mild (not very distressing, generally easy to cope with)  
 3 = Moderate (fairly distressing, not always easy to cope with)  
 4 = Severe (very distressing, difficult to cope with)  
 5 = Extreme or very severe (extremely distressing, unable to cope with)

Please answer each question honestly and carefully. Ask for assistance if you are not sure how to answer any question.

<b>Delusions</b>	Does the patient believe that others are stealing from him or her, or planning to harm him or her in some way?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Hallucinations</b>	Does the patient act as if he or she hears voices? Does he or she talk to people who are not there?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Agitation or aggression</b>	Is the patient stubborn and resistive to help from others?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Depression or dysphoria</b>	Does the patient act as if he or she is sad or in low spirits? Does he or she cry?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Anxiety</b>	Does the patient become upset when separated from you? Does he or she have any other signs of nervousness, such as shortness of breath, sighing, being unable to relax, or feeling excessively tense?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Elation or euphoria</b>	Does the patient appear to feel too good or act excessively happy?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Apathy or indifference</b>	Does the patient seem less interested in his or her usual activities and in the activities and plans of others?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Disinhibition</b>	Does the patient seem to act impulsively? For example, does the patient talk to strangers as if he or she knows them, or does the patient say things that may hurt people's feelings?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Inability or lability</b>	Is the patient impatient and cranky? Does he or she have difficulty coping with delays or waiting for planned activities?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Motor disturbance</b>	Does the patient engage in repetitive activities, such as pacing around the house, handling buttons, wrapping string, or doing other things repeatedly?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Nighttime behaviors</b>	Does the patient awaken you during the night, rise too early in the morning, or take excessive naps during the day?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5
<b>Appetite and eating</b>	Has the patient lost or gained weight, or had a change in the food he or she likes?
Yes No	Severity: 1 2 3 Distress: 0 1 2 3 4 5

FIGURE 3. Neuropsychiatric Inventory Questionnaire. This tool provides a reliable assessment of behaviors commonly observed in patients with dementia.

Adapted with permission from Kaufer DJ, Cummings JL, Ketchel P, Smith V, MacMillan A, Shelley T, et al. Validation of the NPI-Q, a brief clinical form of the Neuropsychiatric Inventory. *J Neuropsychiatry Clin Neurosci* 2000;12:233-9. Copyright © J.L. Cummings, 1994.

- NPI-Q
- Yes or No
- Rate severity of Yes symptoms as mild, moderate or severe
- Long version NPI is frequency x severity scale

# MBI checklist

## Mild Behavioral Impairment Checklist (MBI-C)

Date: \_\_\_\_\_

Rated by:  Clinician  Informant  Subject

Location:  Clinic  Research

Label

Circle "Yes" **only** if the behavior has been present for at least **6 months** (continuously, or on and off) and is a **change** from her/his longstanding pattern of behavior. Otherwise, circle "No".

Please rate severity: 1 = Mild (noticeable, but not a significant change); 2 = Moderate (significant, but not a dramatic change); 3 = Severe (very marked or prominent, a dramatic change). If more than 1 item in a question, rate the most severe.

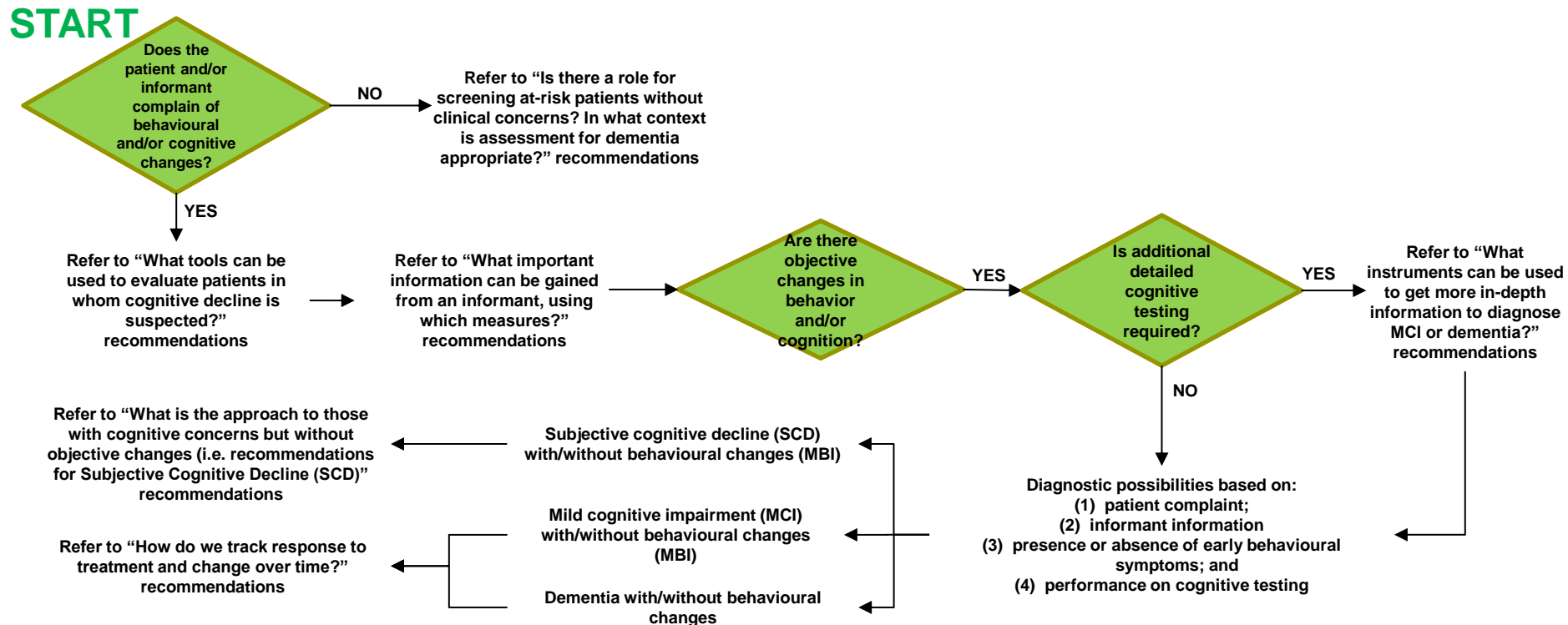
	YES	NO	SEVERITY
<b><i>This domain describes interest, motivation, and drive</i></b>			
Has the person lost interest in friends, family, or home activities?	Yes	No	1 2 3
Does the person lack curiosity in topics that would usually have attracted her/his interest?	Yes	No	1 2 3
Has the person become less spontaneous and active – for example, is she/he less likely to initiate or maintain conversation?	Yes	No	1 2 3
Has the person lost motivation to act on her/his obligations or interests?	Yes	No	1 2 3
Is the person less affectionate and/or lacking in emotions when compared to her/his usual self?	Yes	No	1 2 3
Does she/he no longer care about anything?	Yes	No	1 2 3
<b><i>This domain describes mood or anxiety symptoms</i></b>			
Has the person developed sadness or appear to be in low spirits? Does she/he have episodes of tearfulness?	Yes	No	1 2 3
Has the person become less able to experience pleasure?	Yes	No	1 2 3
Has the person become discouraged about their future or feel that she/he is a failure?	Yes	No	1 2 3
Does the person view herself/himself as a burden to family?	Yes	No	1 2 3
Has the person become more anxious or worried about things that are routine (e.g. events, visits, etc.)?	Yes	No	1 2 3
Does the person feel very tense, having developed an inability to relax, or shakiness, or symptoms of panic?	Yes	No	1 2 3
<b><i>This domain describes the ability to delay gratification and control behavior, impulses, oral intake and/or changes in reward</i></b>			
Has the person become agitated, aggressive, irritable, or temperamental?	Yes	No	1 2 3
Has she/he become unreasonably or uncharacteristically argumentative?	Yes	No	1 2 3
Has the person become more impulsive, seeming to act without considering things?	Yes	No	1 2 3
Does the person display sexually disinhibited or intrusive behaviour, such as touching (themselves/others), hugging, groping, etc., in a manner that is out of character or may cause offence?	Yes	No	1 2 3

Based on the ISTAART-AA Research Diagnostic Criteria for MBI © 2016  
For more information contact Zahino or Ismail MD email: [MBIchecklist@gmail.com](mailto:MBIchecklist@gmail.com) or visit [www.MBItest.org](http://www.MBItest.org)

Has the person become more easily frustrated or impatient? Does she/he have troubles coping with delays, or waiting for events or for their turn?	Yes	No	1	2	3
Does the person display a new recklessness or lack of judgement when driving (e.g. speeding, erratic swerving, abrupt lane changes, etc.)?	Yes	No	1	2	3
Has the person become more stubborn or rigid, i.e., uncharacteristically insistent on having their way, or unwilling/unable to see/hear other views?	Yes	No	1	2	3
Is there a change in eating behaviors (e.g., overeating, cramming the mouth, insistent on eating only specific foods, or eating the food in exactly the same order)?	Yes	No	1	2	3
Does the person no longer find food tasteful or enjoyable? Are they eating less?	Yes	No	1	2	3
Does the person hoard objects when she/he did not do so before?	Yes	No	1	2	3
Has the person developed simple repetitive behaviors or compulsions?	Yes	No	1	2	3
Has the person recently developed trouble regulating smoking, alcohol, drug intake or gambling, or started shoplifting?	Yes	No	1	2	3
<b><i>This domain describes following societal norms and having social graces, tact, and empathy</i></b>					
Has the person become less concerned about how her/his words or actions affect others? Has she/he become insensitive to others' feelings?	Yes	No	1	2	3
Has the person started talking openly about very personal or private matters not usually discussed in public?	Yes	No	1	2	3
Does the person say rude or crude things or make lewd sexual remarks that she/he would not have said before?	Yes	No	1	2	3
Does the person seem to lack the social judgement she/he previously had about what to say or how to behave in public or private?	Yes	No	1	2	3
Does the person now talk to strangers as if familiar, or intrude on their activities?	Yes	No	1	2	3
<b><i>This domain describes strongly held beliefs and sensory experiences</i></b>					
Has the person developed beliefs that they are in danger, or that others are planning to harm them or steal their belongings?	Yes	No	1	2	3
Has the person developed suspiciousness about the intentions or motives of other people?	Yes	No	1	2	3
Does she/he have unrealistic beliefs about her/his power, wealth or skills?	Yes	No	1	2	3
Does the person describe hearing voices or does she/he talk to imaginary people or "spirits"?	Yes	No	1	2	3
Does the person report or complain about, or act as if seeing things (e.g. people, animals or insects) that are not there, i.e., that are imaginary to others?	Yes	No	1	2	3

Based on the ISTAART-AA Research Diagnostic Criteria for MBI © 2016  
For more information contact Zahino or Ismail MD email: [MBIchecklist@gmail.com](mailto:MBIchecklist@gmail.com) or visit [www.MBItest.org](http://www.MBItest.org)

# CCCDTD5 – Initial Assessment Flowchart



# Diagnostic Possibilities Based on the Evaluation

## CLINICAL OUTCOMES/POSSIBILITIES

Cognitive Complaints from the PATIENT	Cognitive Complaints from the INFORMANT	Change in Function	Change in Cognition on Testing	Potential Classification (1 <sup>st</sup> step)	Change in Behaviour	Potential Classification (2 <sup>nd</sup> step)	WHAT TO DO NEXT	
Yes	Yes	No	No	SCI/SCD	No	SCI/SCD	Refer to <b>“What is the approach to those with cognitive concerns but without objective cognitive changes (i.e. SCD)?”</b> recommendations	
Yes	Yes	No	No	SCI/SCD	Yes	SCI/SCD + MBI		Treat behaviour
Yes/No	Yes	No	Yes	MCI	No	MCI	Refer to <b>“How do we track response to treatment and change over time?”</b> recommendations	
Yes/No	Yes	No	Yes	MCI	Yes	MCI + MBI		Treat behaviour
No (usually)/Yes	Yes	Yes	Yes	Dementia	No	Dementia		
No (usually)/Yes	Yes	Yes	Yes	Dementia	Yes	Dementia + BPSD	Treat behaviour	