Dementia

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March 1, 2023

Plan

- Background
- Objectives
- PAL cases
- Go home!

UGME Clerkship Objectives

1. Conduct an interview to elicit a possible diagnosis of Alzheimer's disease and screen for features of Lewy body dementia, vascular dementia, and frontotemporal dementia, and demonstrate an understanding of the importance of collateral sources of information
2. Demonstrate the ability to properly administer the Montreal Cognitive Assessment (MoCA) and Folstein exams, and explain the significance of deficits in any of the domains tested
3. Demonstrate an understanding of the unique stressors and demands placed on the family and caregivers of patients with dementia, and counsel them on sources of support and information

MCC Objectives

Given a patient with dementia”

1. List and interpret critical clinical findings including those based on
    a. A history from the patient and other collateral to determine whether cognitive decline has occurred, the time course, and possible risk factors (eg. drugs, toxins)
    b. A differentiation of true neurocognitive disorder (dementia) from psychiatric disorders (eg. depression)
    c. Determination of the patient’s mental status as well as the results of the mini-mental status examination
2. List and interpret critical investigations (eg. TSH, B12, VRDL)
3. Conduct and effective initial management plan including
    a. Treatment of reversible underlying conditions
    b. Initiation of appropriate pharmacotherapy (eg. cholinesterase inhibitors)
    c. Patient and family counseling (eg. prognosis, alternate decision-making and support services)
    d. Determination as to whether a referral to specialized services (eg. occupational therapy, addictions treatment) is required.

What is dementia?

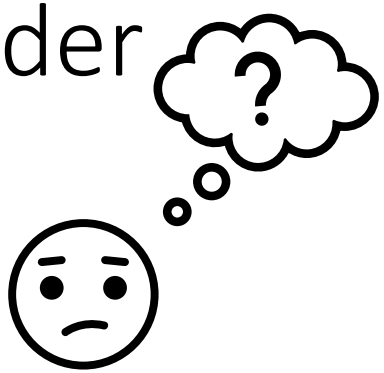
- Decline in cognitive ability severe enough to **impact daily <u>function</u>**
- **Not normal aging**
- Encompasses multiple different diagnoses – most are **progressive**

569 600
Canadians are currently living with dementia

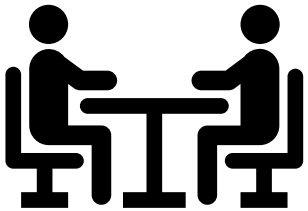
1 in 5
Canadians have cared for someone with dementia

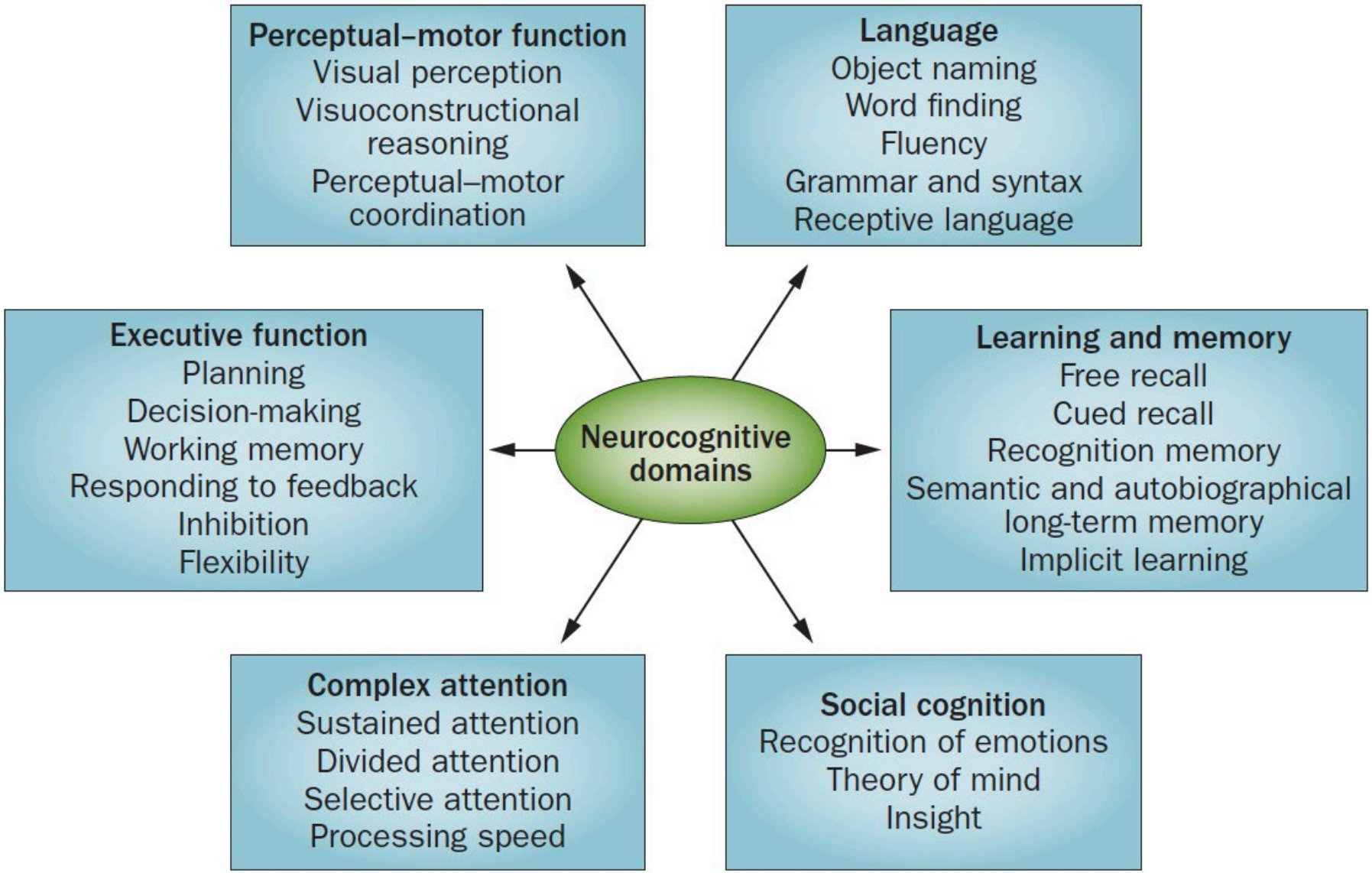
$10.4 billion
is spent per year is spent on dementia care in Canada

DSM-V Criteria: Major Neurocognitive Disorder

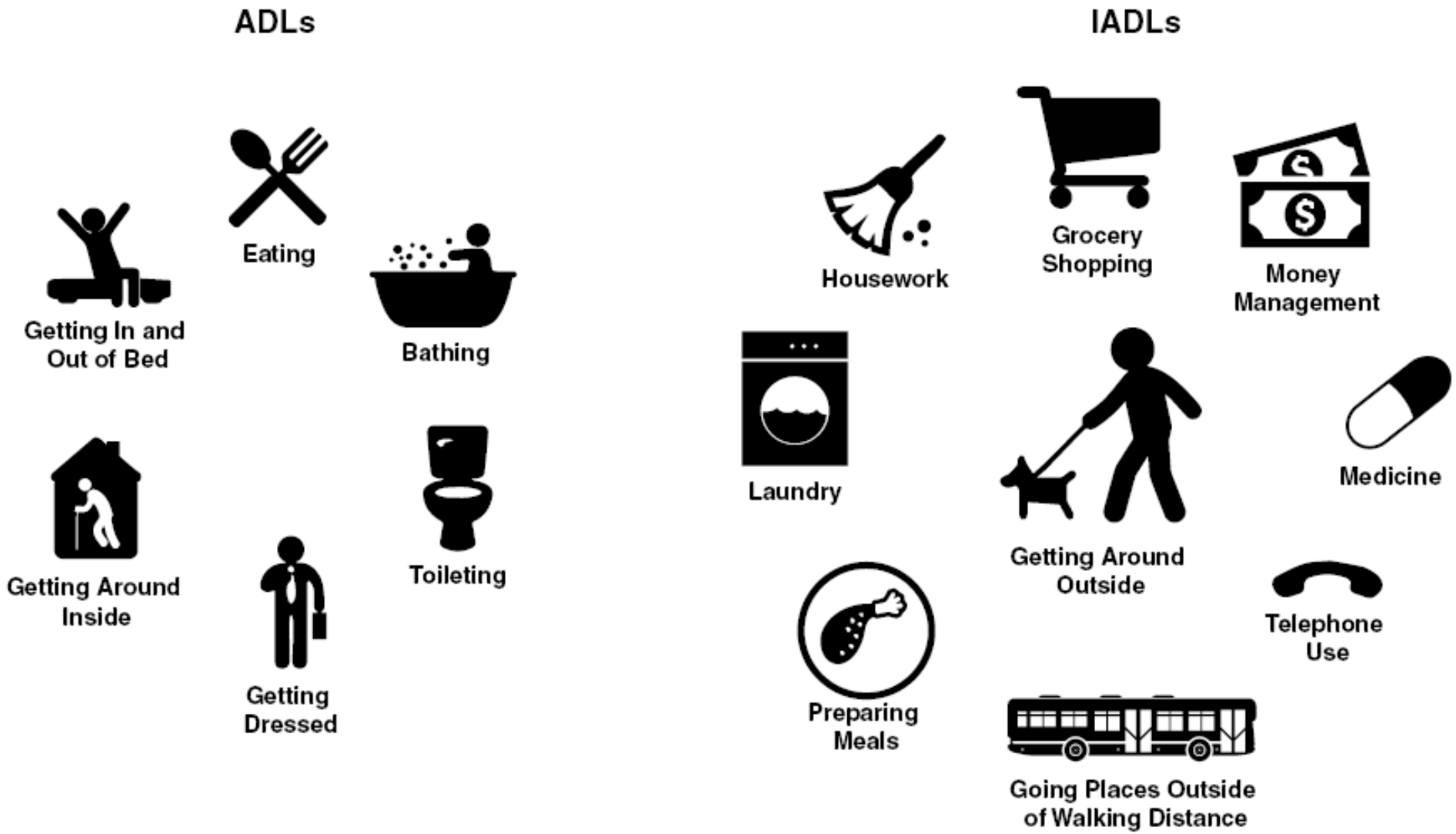


A. Evidence of significant cognitive decline from previous level of performance in **one or more cognitive domain(s)**
B. Interferes with independence in everyday activities (at least complex IADLs)
C. Not due exclusively to delirium
D. Not better explained by another psychiatric disorder (eg. depression)




Perceptual–motor function
Visual perception
Visuoconstructional reasoning
Perceptual–motor coordination
Language
Object naming
Word finding
Fluency
Grammar and syntax
Receptive language
Executive function
Planning
Decision-making
Working memory
Responding to feedback
Inhibition
Flexibility
Neurocognitive domains
Learning and memory
Free recall
Cued recall
Recognition memory
Semantic and autobiographical long-term memory
Implicit learning
Complex attention
Sustained attention
Divided attention
Selective attention
Processing speed
Social cognition
Recognition of emotions
Theory of mind
Insight

ADLs and IADLs



ADLs and IADLs

DEATH

D – Dressing

E – Eating

A – Ambulation

T – Toileting and Transfers

H – Hygiene

SHAFT

S – Shopping

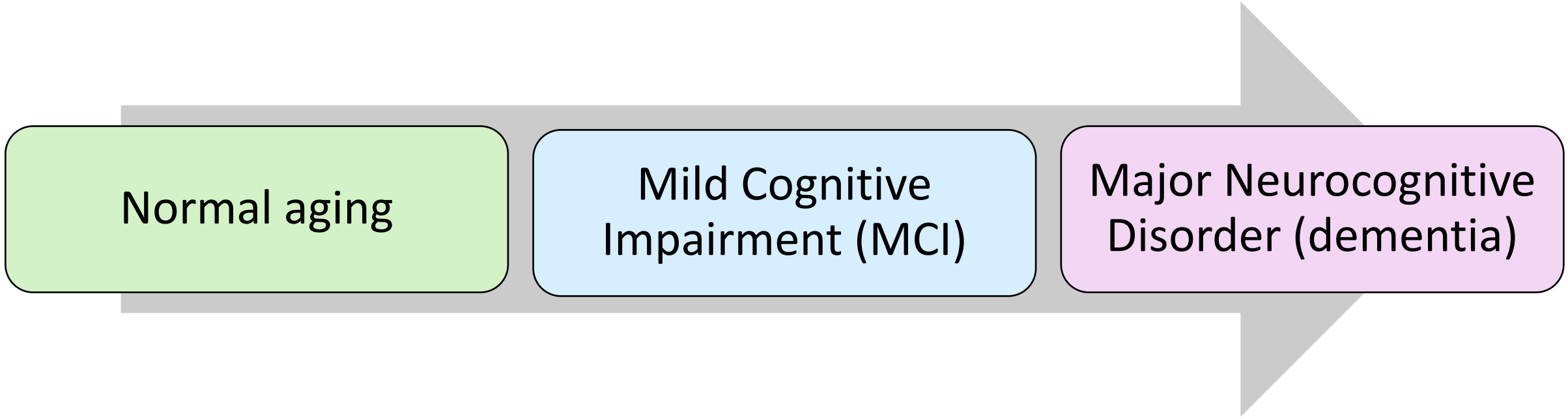
H – Housework and Hobbies

A – Accounting

F – Food prep

T – Telephone, Tools, Transport

What is dementia?



No objective cognitive loss
Recalls with cueing

Cognitive loss with NO functional impairment

Cognitive loss WITH functional impairment

What is dementia?

Dementia =

progressive **cognitive** impairment

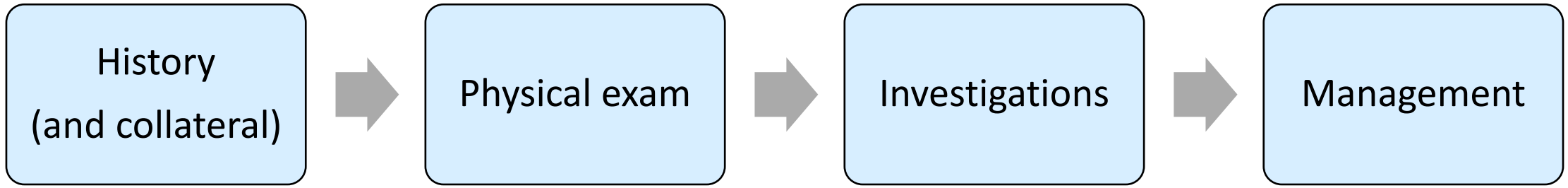
<u>WITH</u>

functional impairment

Risk factors for dementia

- **Age:** greatest factor – 80% of cases > age 75
- **Trauma**: head injuries/TBI
- **Vascular risk factors**: HTN, DM, CVD, stroke/TIA history, smoking, dyslipidemia, OSA
- **Genetics**: genetic variants; Down's syndrome
- **Drugs**: eg. anticholinergics, benzodiazepines, alcohol
- **Psychosocial:** low SES, social isolation, physical inactivity, depression

An approach to dementia



Symptoms of dementia

Differentiating between different types of dementia

Consider the 3Ds

Functional and safety assessment

Collateral information

Examination

MOCA

MMSE

Geriatric depression scale (GDS)

Confusion Assessment Method (CAM)

Rule out reversible causes

Pharmacologic management

Non-pharmacologic management

Family/caregiver support

Getting a good history

- How is your memory? Do you find yourself forgetful?
- Have other family members or friends told you that they are concerned about your memory?
- How do you spend your days?
- Do you feel a sense of enjoyment in life eg. hobbies?
- Are there things that you used to do that you don’t do anymore? Why did you stop?

Collateral information is critical

Triangulate with your own observations

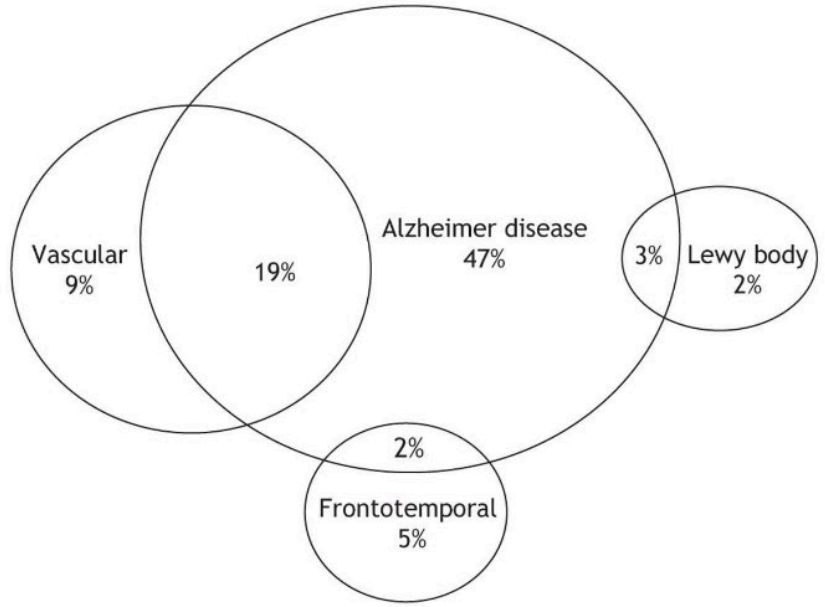
Think about the “A”s of dementia

- Aphasia – problems with language and communication
- Agnosia – problems with recognizing things or people
- Apraxia – loss of motor skills needed for movement and coordination
- Amnesia – memory loss
- Altered perception – may present as paranoia, delusions
- Apathy – loss of interest in what is happening around them
- Anosognosia – inability for individual to recognize impairments

Remember: Dementia is not one disease

- Alzheimer's disease
- Vascular neurocognitive impairment
- Lewy body disease/Parkinson's
- Frontotemporal dementia
- Traumatic brain injury
- Huntington's disease
- HIV
- Other causes

Types of dementia commonly seen in Canadian memory clinics.6
Note: Other mixed types of dementia make up 10% of the total number of cases.

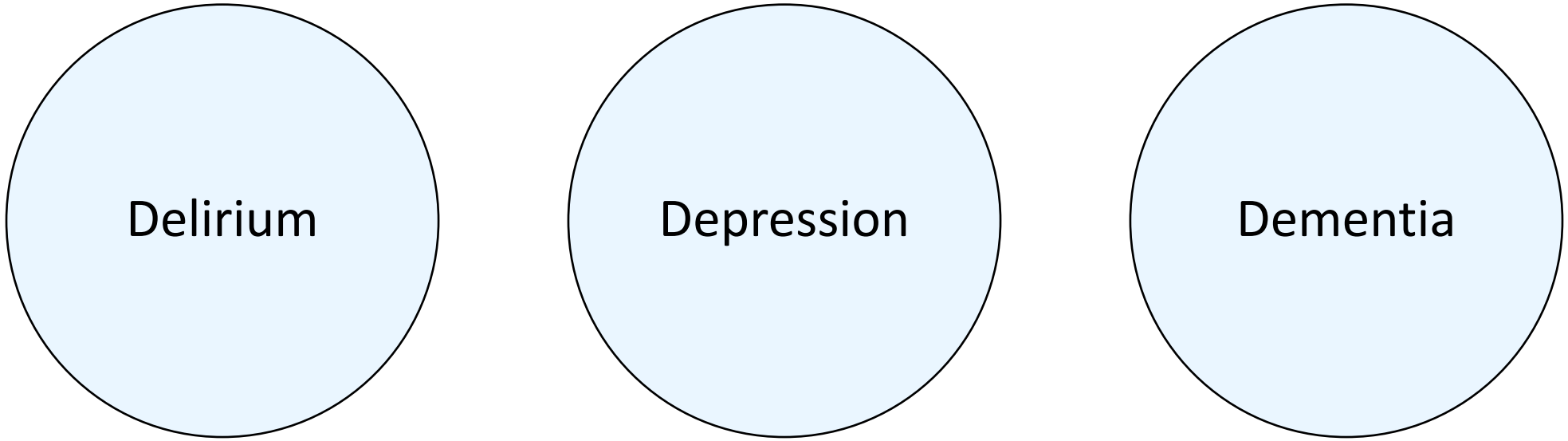


CMAJ·JAMC

Chertkow H CMAJ 2008;178:316-321

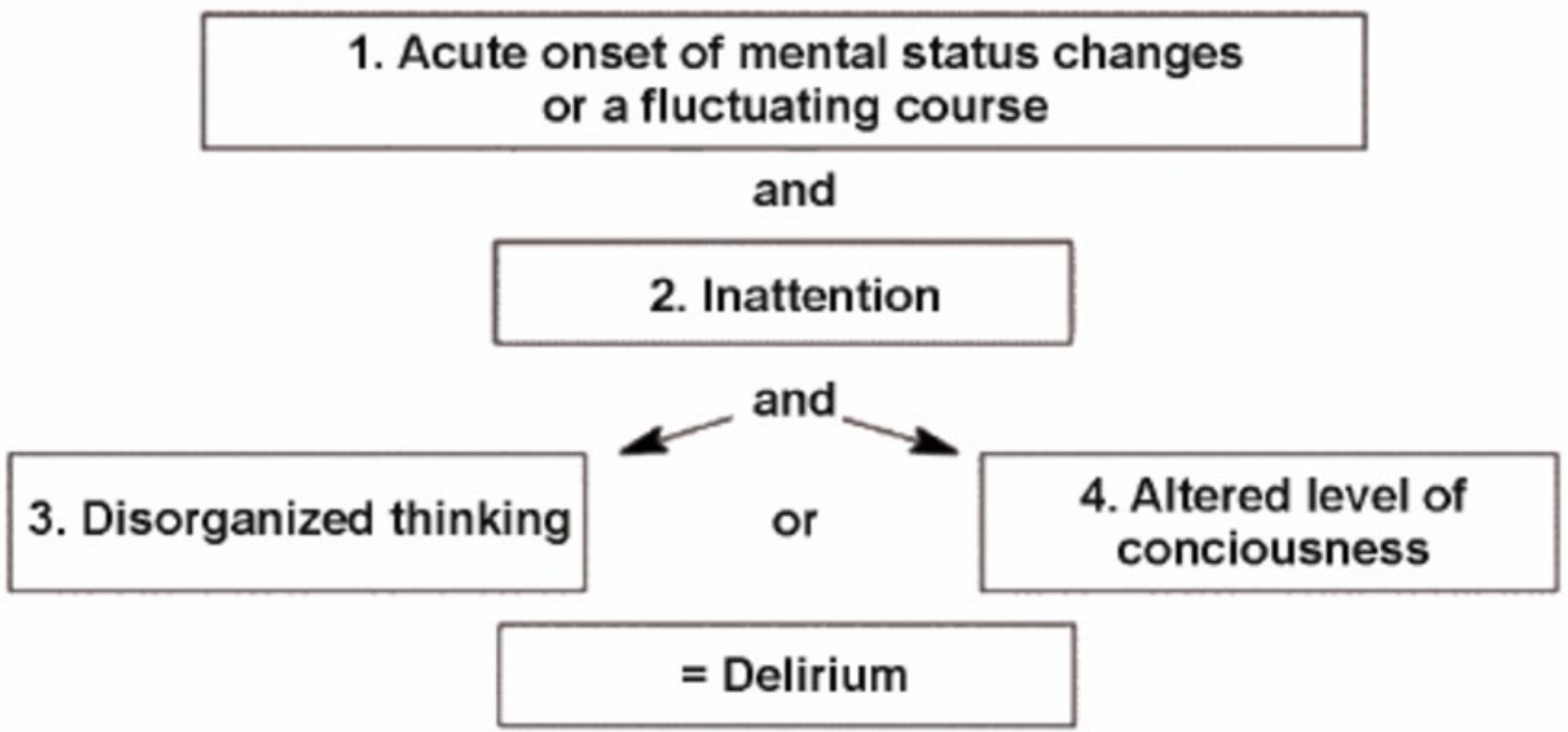
Dementia diseases (prevalence)	Key features
Alzheimer disease (~50%)	Insidious with gradually progressive symptoms in ≥2 cognitive domains Primarily **memory** (especially short term); word finding difficulties
Vascular dementia (~10%)	Sudden and step wise decline; vascular risk factors; microangiopathic changes on imaging
Mixed type (~20%)	Alzheimer's + vascular dementia
Lewy body dementia/with Parkinson's (~2%)	Often rapid fluctuations early on in course; visual spatial and executive dysfunction Hallucinations, REM sleep behaviour disorders Highly sensitive to neuroleptic medications
Frontotemporal dementia (~5%)	Earlier onset (40-69 years) Behavioual variant (most common): early changes in personality, apathy Language variant: semantic or non-fluent

Consider the “3Ds”



	Delirium	Dementia	Depression
Onset	Acute (hours to days)	Chronic, progressive	Variable; may be abrupt & coincide with life changes
Course	Short, fluctuating, often worse at night	Long, progressive, stable loss over time	Diurnal effects; often worse in the morning
Duration	Typically, short (hours to less than 1 month); may persist	Chronic (months to years)	Signs & symptoms present for at least 2 weeks; may persist
Level of consciousness	Lethargic or hyperalert Fluctuates	Normal until late stage	Normal
Attention	Fluctuating inattention, impaired focus, distractibility	Generally normal; may decline in with progression	Minimal impairment; poor concentration
Orientation	Impaired, fluctuating	Intact initially	Intact
Sleep-wake cycle	Reversed sleep-wake cycle	Fragmented sleep at night	Early morning wakening
Mood and affect	Anxious, irritable, fluctuating	May be low ± some lability	Stable low mood ± apathy
Cognition	Fluctuating	Decreased executive function; thought paucity; may not be aware	Impaired concentration; aware of deficits; may unwilling to engage in testing
Memory loss	Marked short-term	Short-term, eventually long-term	Short-term
Screening tools	Confusion Assessment Method (CAM)	MOCA, Mini-Cog, MMSE, clock draw test (CDT), RUDAS, Trails A&B	Geriatric Depression Scale, Cornell Depression Scale

Confusion Assessment Method (CAM)



Geriatric Depression Scale (GDS)

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

1. Are you basically satisfied with your life? YES / **NO**
2. Have you dropped many of your activities and interests? **YES** / NO
3. Do you feel that your life is empty? **YES** / NO
4. Do you often get bored? **YES** / NO
5. Are you in good spirits most of the time? YES / **NO**
6. Are you afraid that something bad is going to happen to you? **YES** / NO
7. Do you feel happy most of the time? YES / **NO**
8. Do you often feel helpless? **YES** / NO
9. Do you prefer to stay at home, rather than going out and doing new things? **YES** / NO
10. Do you feel you have more problems with memory than most? **YES** / NO
11. Do you think it is wonderful to be alive now? YES / **NO**
12. Do you feel pretty worthless the way you are now? **YES** / NO
13. Do you feel full of energy? YES / **NO**
14. Do you feel that your situation is hopeless? **YES** / NO
15. Do you think that most people are better off than you are? **YES** / NO

Answers in **bold** indicate depression. Score 1 point for each bolded answer.

A score > 5 points is suggestive of depression.
A score ≥ 10 points is almost always indicative of depression.
A score > 5 points should warrant a follow-up comprehensive assessment.

Physical exam & in-office testing

Exam

- Vitals
- General physical exam
- Neurological exam
  - Focal deficits, upper motor findings
  - Parkinsonism

Psychometric testing:

- Mini-Cog: clock drawing, naming, 3-word recall
- Montreal Cognitive Assessment (MoCA)
- Mini Mental Status Examination (MMSE)

Screening tools for other contributing factors:

- Geriatric Depression Scale (GDS)
- Confusion Assessment Method (CAM)

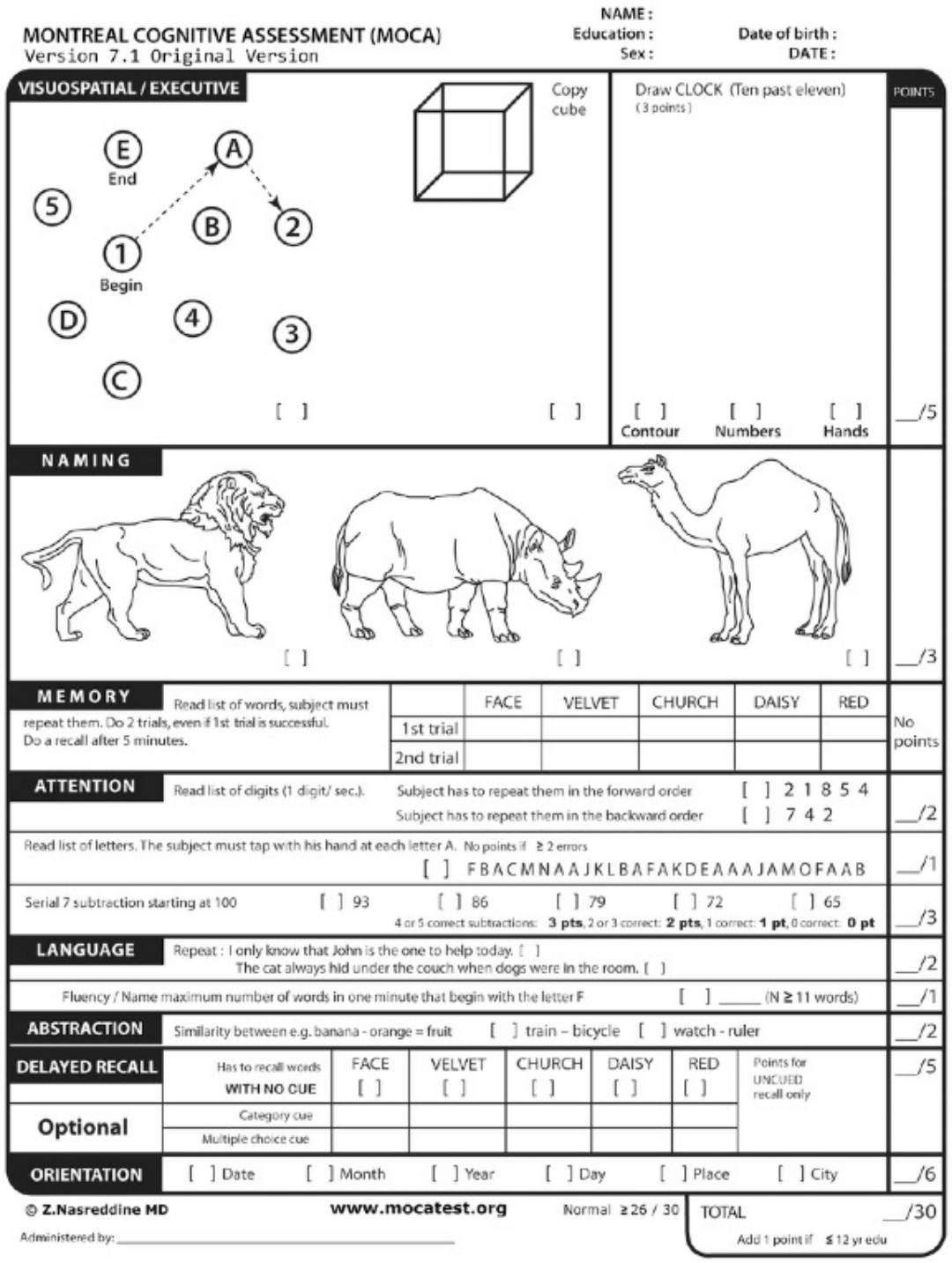
MoCA

Normal: ≥26/30

Sensitivity: 100%

Specificity: 87%

~10 minutes to administer



MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

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

VISUOSPATIAL / EXECUTIVE — Copy cube — Draw CLOCK (Ten past eleven) (3 points) — POINTS

E End, A, 5, B, 2, 1 Begin, D, 4, 3, C

[ ] [ ] [ ] 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
1st trial					
2nd trial					

No points

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

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

	FACE	VELVET	CHURCH	DAISY	RED	
Has to recall words WITH NO CUE	[ ]	[ ]	[ ]	[ ]	[ ]	Points for UNCUED recall only
Optional: Category cue						
Optional: Multiple choice cue						

/5

ORIENTATION — [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City /6

© Z.Nasreddine MD — www.mocatest.org — Normal ≥ 26 / 30

TOTAL /30

Add 1 point if ≤ 12 yr edu

Administered by: _____

MoCA

More info than just a total score

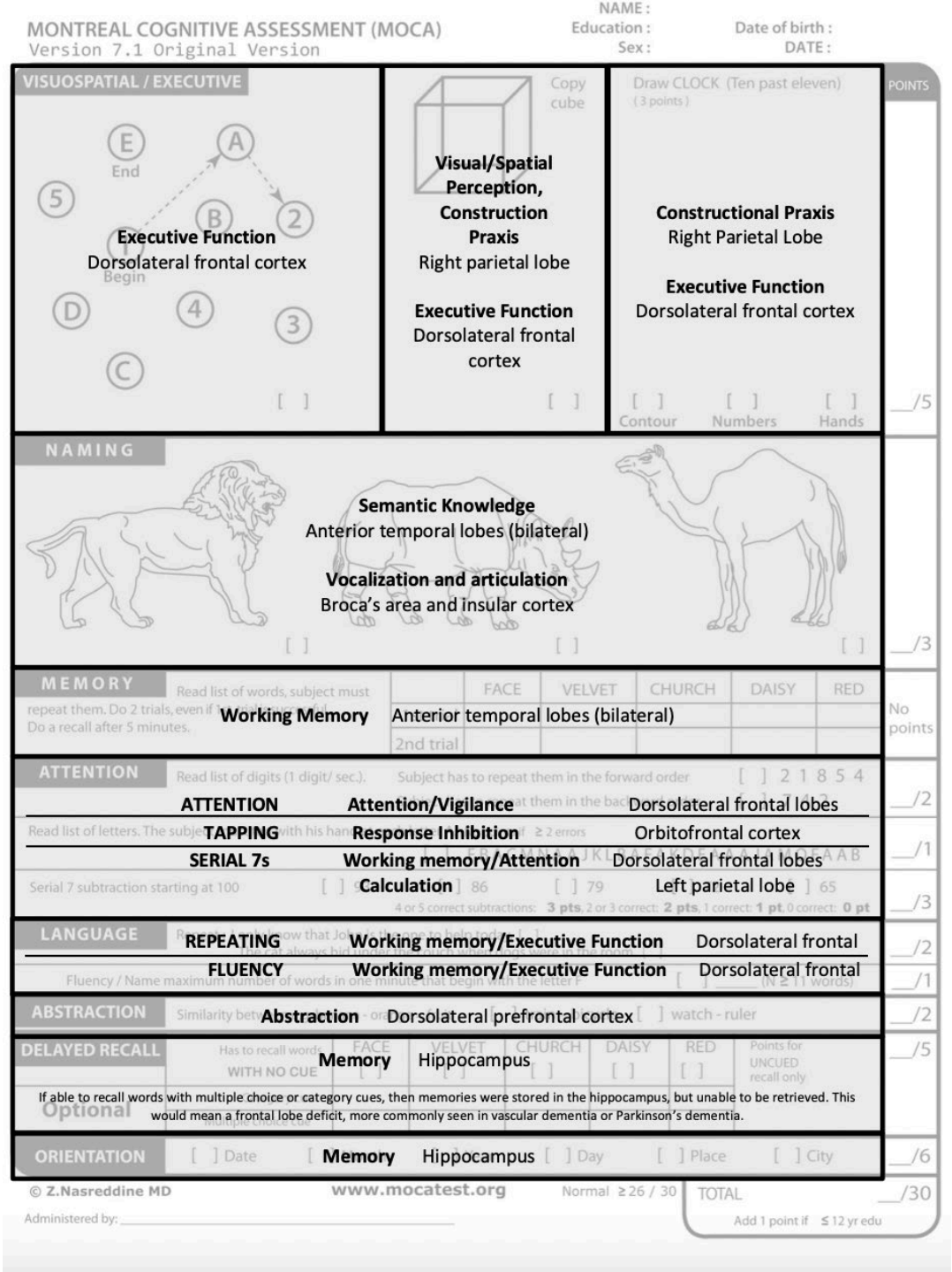
Example administration:

https://youtu.be/XjrnsIXoSCg

Administration and scoring tips with examples:

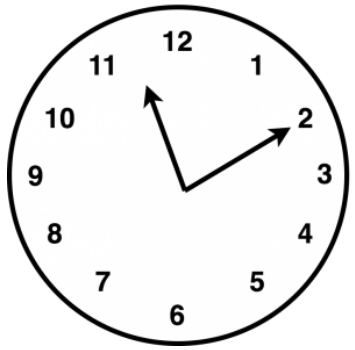
https://youtu.be/wO7n19KMveU

References: ACTonALZ.org, psychdb.com, mocatest.org



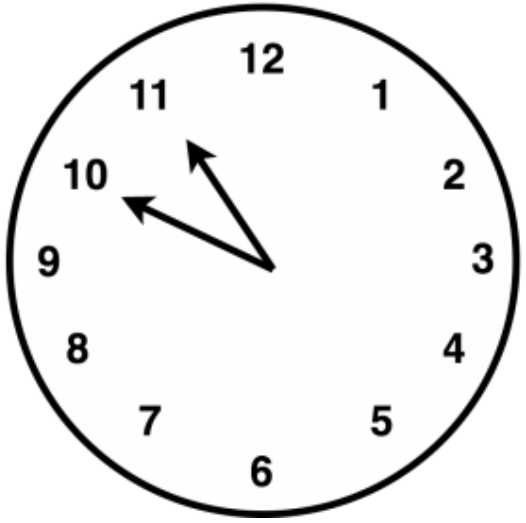
Clock drawing examples

NORMAL CLOCK DRAWING



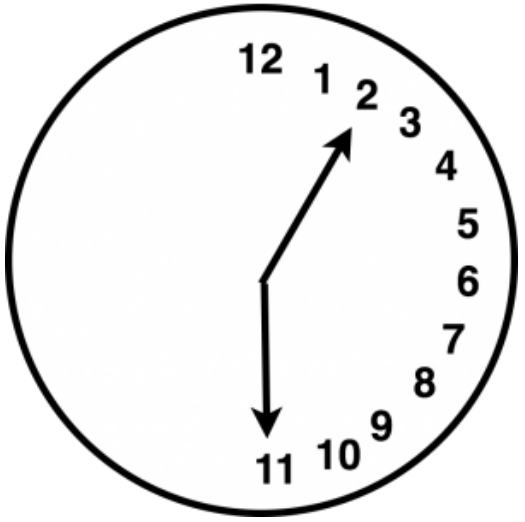
1. Is there correct spacing with even spaces between numbers?
2. Is the placement of 3, 6, 9, and 12 correct?
3. Is the placement of the clock hands (hour and minute) correct?

STIMULUS BOUND RESPONSE



PERSEVERATION

HEMINEGLECT



MMSE

Normal: ≥24/30

Sensitivity: 44-100%

Specificity: 46-100%

Mini-Mental State Examination (MMSE)

Patient's Name: _____ Date: _____

Instructions: Score one point for each correct response within each question or activity.

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day? Month?"
5		"Where are we now? State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then the instructor asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible.
5		"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...) Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) 
30		TOTAL

Investigations

Work up to assess for underlying causes

Should generally do

- CBC ⟶ rule out anemia
- Calcium ⟶ rule out hypercalcemia
- TSH ⟶ rule out hypothyroidism
- B12 ⟶ rule out B12 deficiency
- Glucose (FBG) ⟶ rule out hyperglycemia
- Electrolytes ⟶ rule out hyponatremia

Might do

- Folate (if malnutrition or celiac)
- ECG (rule out CI to AChEi: left BBB, heart block, sick sinus, HR < 50)

Should generally not do

- Homocysteine level
- CSF amyloid or tau level
- Genetic testing (ie. testing apoE*)

* although may consider testing for other genes in select cases with genetic counseling

Investigations

What about head imaging? (CCCDTD3)

CT/MRI generally recommended if ≥1 of the following are present:

- Age < 60 years old
- Rapid (eg. over 1-2 months) unexplained decline in cognition or function
- Short duration of dementia
- Recent and significant head trauma
- Unexplained neurologic symptoms (eg. new onset of severe headache or seizures)
- History of cancer (especially types that metastasize to the brain)
- Use of anticoagulants or history of bleeding disorder
- History of urinary and gait disorder early in course of dementia (consider NPH)
- Any new localizing signs (eg. hemiparesis or Babinski reflex)
- Unusual or atypical cognitive symptoms or presentation (eg. progressive aphasia)
- Significant vascular risk factors – to rule in vascular dementia

Management: Non-pharmacologic

Refer:

- Alzheimer's Society, Dementia Society, SW, OT, home care CCAC

Reduce risk factors:

- Healthy diet, exercise; smoking, EtOH; socialization
- **Vascular dementia:** manage vascular risk factors (HTN, DM, smoking, lipids); consider antiplatelet if previous stroke Hx

Address medication & comorbid issues:

- Eliminate contributing meds (eg. BZD, anticholinergics)
- Blister pack medications/pill reminders
- Consider impact of dementia on ability to manage comorbidities (eg. DM, CHF)

Address safety issues:

- Driving
- Fire hazards (eg. microwave, stove, smoke detector)
- Wandering, falls (recommend Medic Alert)

Consider caregiver issues:

- Respite services, counseling, support groups, day programs, placement

Consider capacity issues & ACP*:

- SDM/POA status, GOC

*ideally with patient while patient is still capable; if not, will need to discuss with SDM/POA

Management: Pharmacologic

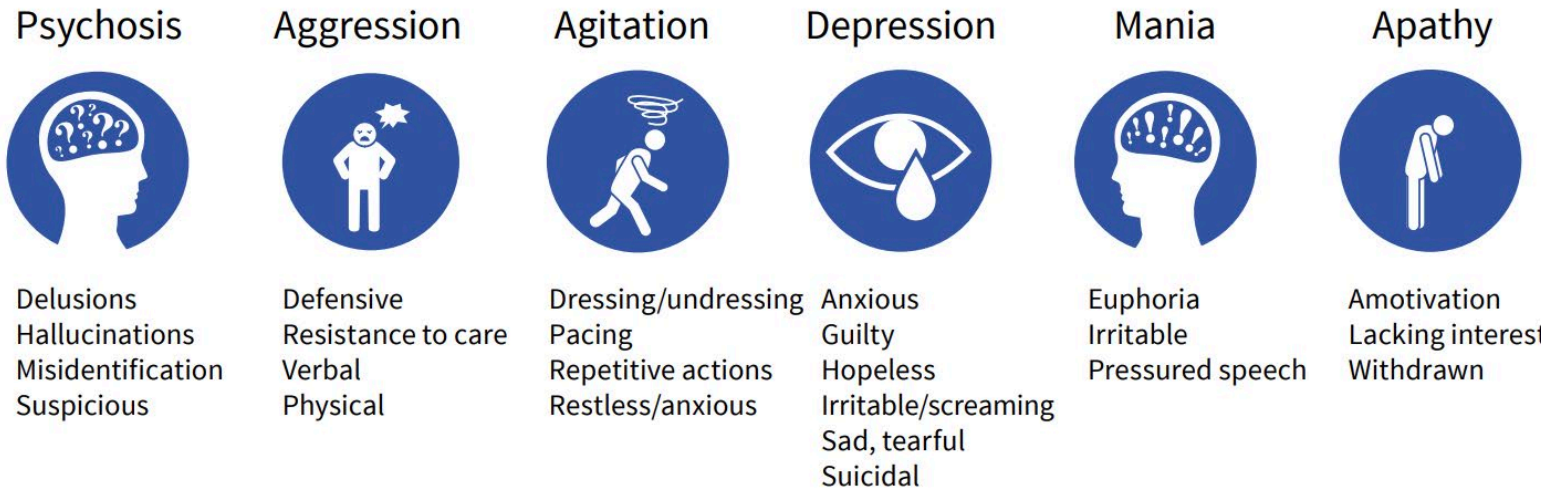
Acetylcholinesterase inhibitors (AChEIs) – eg. donepezil

- For mild to moderate AD
- ”Rule of thirds”: super, stable, and non-responders
- SE: nausea, vomiting, diarrhea, hypotension, bradycardia (avoid with heart block)
- Contraindications: 2˚ or 3˚ heart block, LBBB, sick sinus, bradycardia, long QTc
- No evidence long term benefit

N-methyl-D-aspartate receptor antagonist – memantine

- For moderate to severe AD; monotherapy or with AChEI
- SE: dizziness, confusion, agitation, renal damage
- No evidence for long term benefit

Behavioural and Psychiatric Symptoms of Dementia (BPSD)



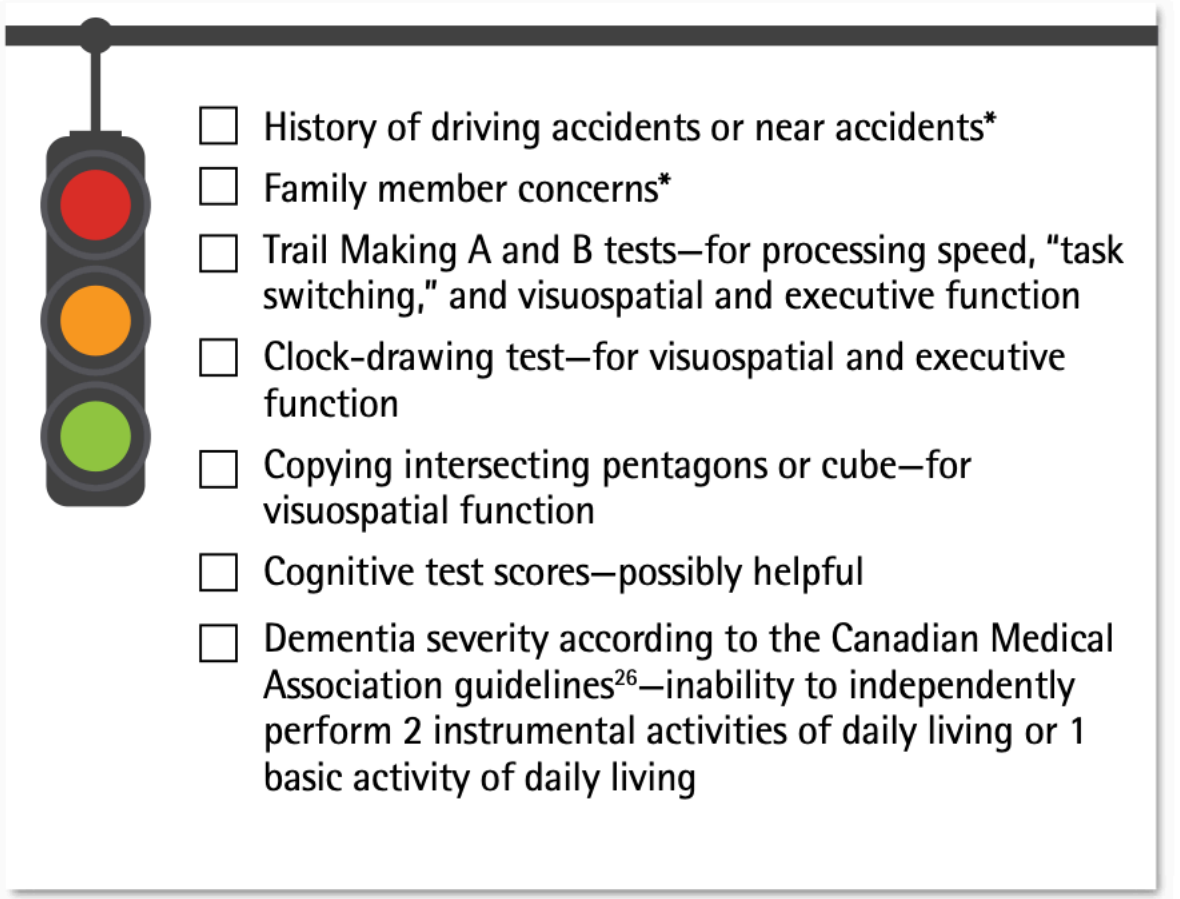
1. Address underlying triggers ⟶ physical, emotional, environmental
2. Non-pharmacologic treatment ⟶ eg. behavioural therapy
3. Pharmacologic treatment (mostly antipsychotics) ⟶ if acute risk of harm to others; distressing/disturbing symptoms; non-pharm not effective
   - Discuss risks vs. benefits, obtain consent, start low and go slow, reassess regularly

Driving safety

Absolute contraindications to driving (CMA Driver's Guide):

- Severe dementia
- Inability to perform ≥2 IADLs or ≥1 ADL due to cognition
- Dementia with LB with hallucinations and visual-spatial impairment
- Behavioural variant FTD

Figure 1. Checklist of considerations in driving safety



*Ask the patient and a family member separately.

Table 1. 10-Minute Office-Based Dementia and Driving Checklist*

Time: ≤10 minutes. It is not necessary to complete all 10 items if the patient is obviously unsafe to drive based on ≥ 1 item.	
1. Dementia type	Generally Lewy body dementia (fluctuations, hallucinations, visuospatial problems) and frontotemporal dementias (if associated behaviour or judgment issues) are unsafe.
2. Functional impact of the dementia	According to Canadian Medical Association guidelines, driving is unsafe if there is • impairment of more than 1 instrumental ADL (IADL) due to cognition (SHAFT: shopping, housework/hobbies, accounting, food, telephone/tools); • *or* impairment of 1 or more personal ADL (PADL) due to cognition (DEATH: dressing, eating, ambulation, transfers, hygiene).
3. Family concerns (ask in a room separate from the person)	Do you feel safe/unsafe in the car when the individual with dementia is driving? (Make sure family has recently been in the car with the person driving) The granddaughter question: Would you feel it was safe if a 5-year-old granddaughter was in the car alone with the person driving? (Often produces a different response from family's answer to previous question) Generally if the family feels the person is unsafe, he or she is unsafe. If the family feels the person is safe, the person may still be unsafe as the family may be unaware or may be protecting patient.
4. Visuospatial (intersecting pentagons, clock drawing)	If major abnormalities, likely unsafe
5. Physical inability to operate a car (often a "physical" reason is better accepted)	Medical/physical concerns such as musculoskeletal problems, weakness/multiple medical conditions (neck turn, problems in the use of steering wheel/pedals), cardiac/neurological (episodic "spells")
6. Vision/visual fields	Significant problems including visual acuity, field of vision
7. Drugs (if associated with side effects: drowsiness, slow reaction time, lack of focus)	Alcohol, benzodiazepines, narcotics, neuroleptics, sedatives, anticholinergic, antiparkinsonian, muscle, relaxants, tricyclics, antihistamines (OTC), antiemetics, antipruritics, antispasmodics, and others
8. Trailmaking A and B†	Trailmaking A • Unsafe = >2 minutes or 2 or more errors Trailmaking B • Safe = <2 minutes and <2 errors (0 or 1 error) • Unsure = 2–3 minutes or 2 errors (consider qualitative dynamic information regarding *how* the test was performed: slowness, hesitation, anxiety or panic attacks, impulsive or preservative behaviour, lack of focus, multiple corrections, forgetting instructions, inability to understand test, etc.) • Unsafe = >3 minutes or 3 or more errors
9. Ruler Drop Reaction Time test‡	Ask the patient to take his or her dominant hand and hold the thumb and first finger 2.5 cm (1 inch) apart. Hold a 30 cm (12 inch) ruler with the bottom end between the patient's thumb and first finger. Tell the patient you are going to let the ruler drop and he or she is to try to catch it .The usual is catching by 15–23 cm (6–9 inches) falling. Failure is the ruler hitting the floor twice.
10.Judgment/insight (ask the person)	What would you do if you were driving and saw a ball roll out on the street ahead of you? With your diagnosis of dementia, do you think at some time you will need to stop driving?

Conclusion§

Safe	Unsafe	Unsure
Reassess in 6–12 months	Report to provincial registrar	• If only driving is an issue, then refer for a specialized on-road assessment. • If there are other dementia-related issues as well as driving, then refer to specialized dementia assessment services.

ADL = activities of daily living; OTC = over-the-counter.

*Based on clinical opinion and experience, not evidence. Development lead by and copyright held by Dr. W. Dalziel. Reprinted with permission.

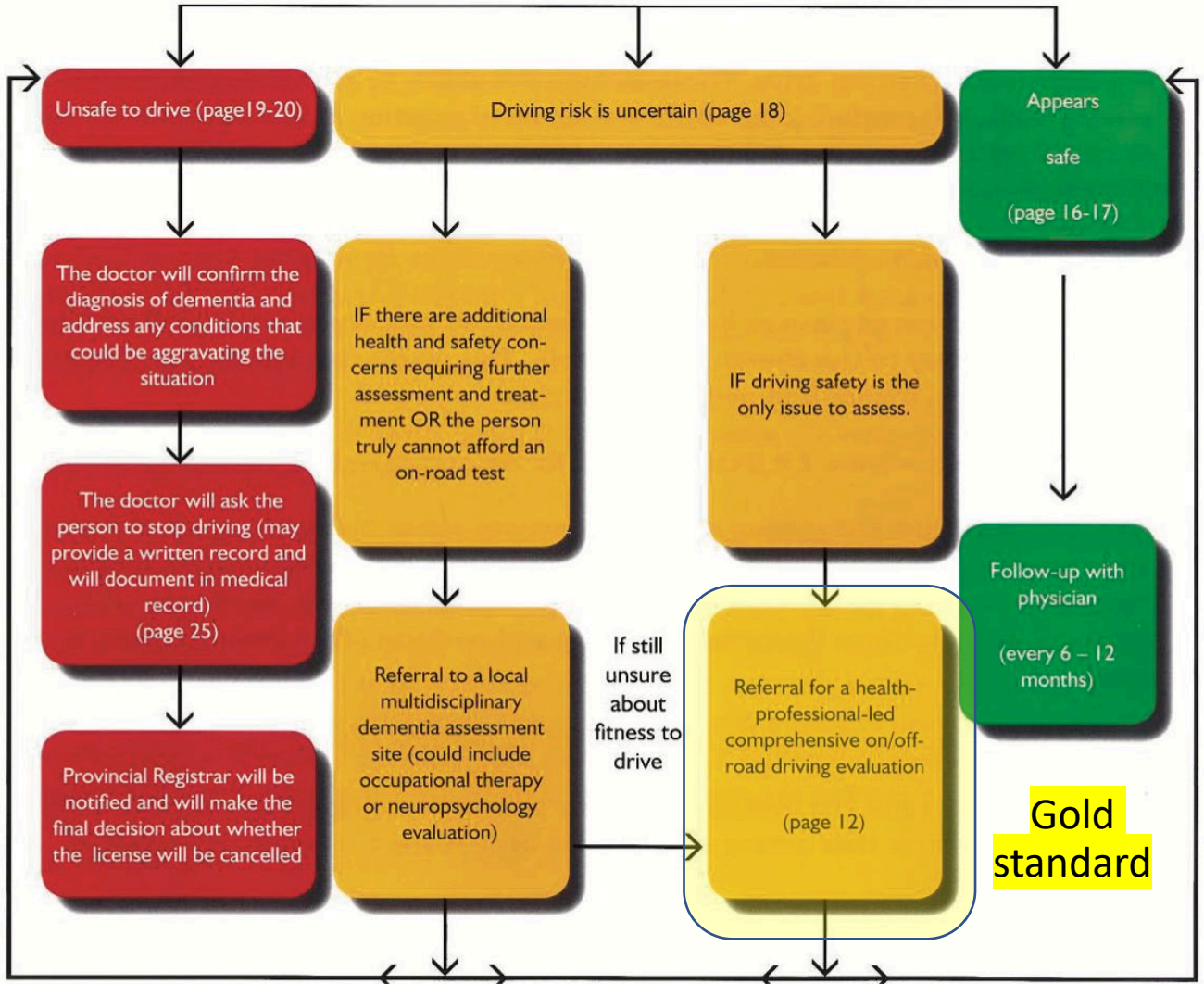
†Source: Trail-Making Tests, at http://www.rgpc.ca/best/GiiC%20Resources/GiiC/pdfs/3%20The%20Trails%20Tests.pdf.

‡Source: Data from Accident Analysis and Prevention 2007;39(5):1056–63.

§Sources: Data from Age and Aging 2009 and the Alzheimer Knowledge Exchange Resource Centre, at https://akeontario.editme.com/Driving.

Available at www.rgpeo.com. Developed by Dr. W.B. Dalziel.

ROAD MAP FOR ASSESSMENT OF A DRIVER WITH DEMENTIA



Role of the family physician

- Help keep patients well, address modifiable risk factors
- Provide timely diagnosis
- Exclude other conditions that may present like dementia
- Communicate the diagnosis with dignity – and be there to follow-up
- Coordinate care - including community-based services
- Address caregiver burden
- Initiate goals of care discussions
- Assess and address for safety – including driving
- Manage ongoing comorbidities – “whole person care”

Resources for families

The Dementia Society: www.dementiahelp.ca and www.dementia613.ca

Alzheimer Society of Ottawa and Renfrew County: www.alzheimer.ca/ottawa/en

Additional slides (for your info/interest)

DSM-5 diagnostic criteria for dementia due to Alzheimer's disease (AD)

A. Significant decline in one or more cognitive domains

B. Cognitive deficits interfere with independence in everyday activities (at minimum, assistance required for complex IADLs eg. medications, finances)

C. Not exclusively in context of delirium

D. Not better explained by another mental disorder

E. Insidious onset and gradual progression of impairment in ≥2 cognitive domains

F. Either of the following:

Causative AD gene mutation from family history or genetic testing

All three of:

1. Clear decline in memory and ≥1 other domain

2. Steadily progressive gradual decline in cognition without extended plateaus

3. No evidence of mixed etiology**

*based on patient/informant concern, or clinician; and substantial impairment in cognitive performance **preferably documented by standardized neuropsychological testing** or another quantified assessment

**no other neurodegenerative or cerebrovascular disease, or another neurological, mental or systemic disease or condition contributing to cognitive decline

Summary of non-AD major neurocognitive disorders

Table 2: Types of dementia seen in patients referred to dementia clinics in Canada

Type of dementia	% of patients
Alzheimer disease	47.2
Mixed Alzheimer disease	27.5
Mixed others	6.3
Vascular dementia	8.7
Frontotemporal dementia	5.4
Dementia associated with Parkinson disease or with Lewy bodies	2.5
Unclassifiable	1.8
Other	0.7

Source: Feldman et al.[34]

Box 5: Key characteristics of non-Alzheimer disease dementias

Frontotemporal dementia

- Younger age of onset than Alzheimer disease
- Hallmark features typically include either:
  - Prominent behavioural changes (e.g., social conduct dysregulation, disinhibition, perseveration and emotional blunting) OR
  - Prominent language impairment (e.g., progressive nonfluent aphasia or semantic problems, with breakdown of word meaning and knowledge)

Dementia associated with Lewy bodies or with Parkinson disease

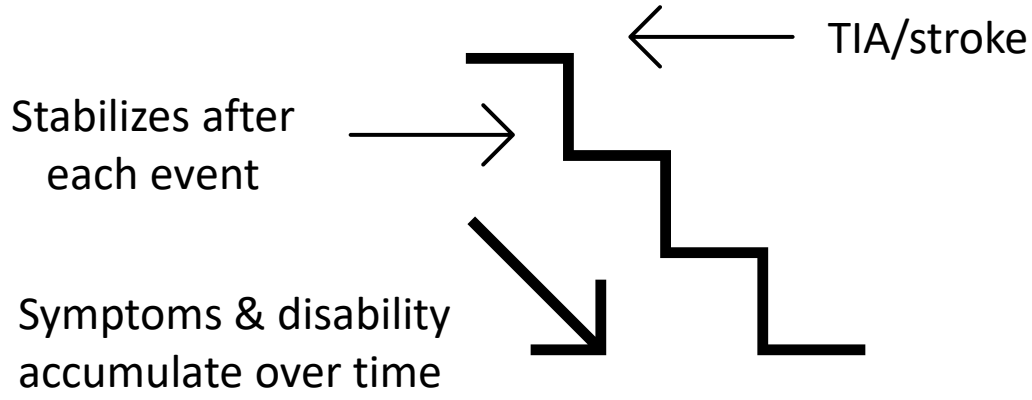
- Clinical features of these 2 conditions overlap considerably
- Dementia associated with Parkinson disease begins with idiopathic Parkinson disease for ≥ 1 year before the onset of dementia, whereas dementia associated with Lewy bodies begins with a cognitive and behavioural disorder that can have concurrent parkinsonian features
- Neuropsychiatric features include visual hallucinations and fluctuations in disease course

Vascular dementia

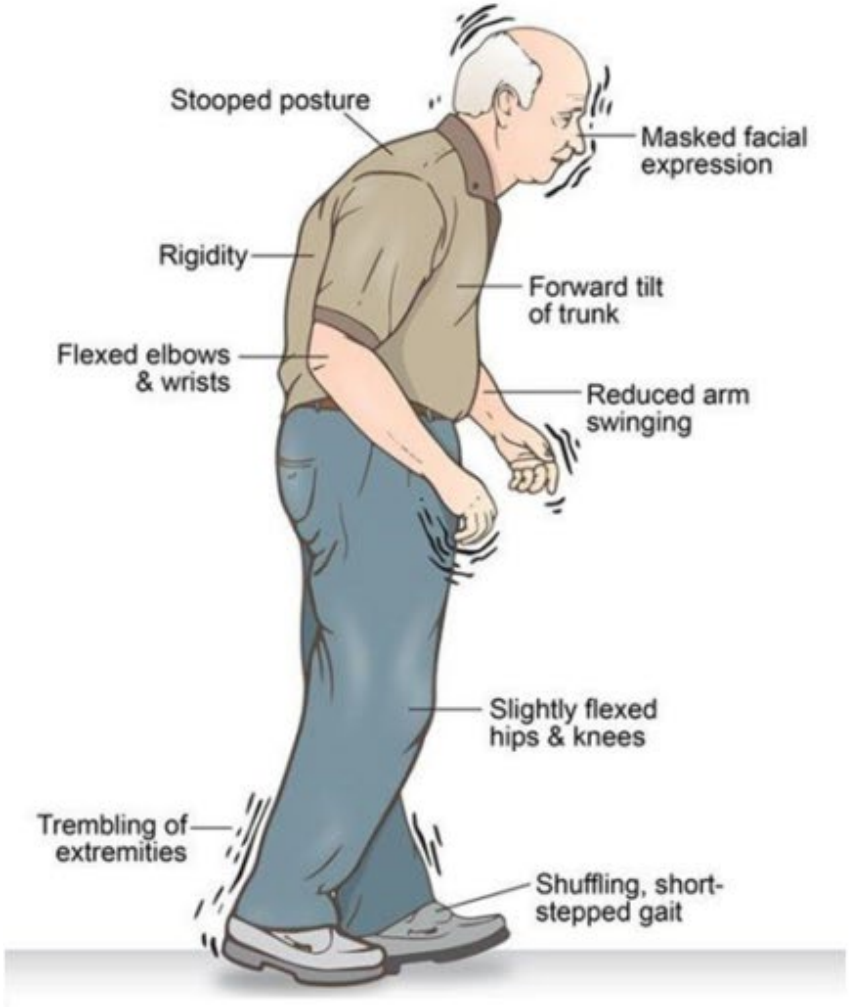
- Typically evolves in stepwise fashion but can also progress insidiously
- Hallmark cognitive feature of a dysexecutive syndrome
- Focal neurologic findings frequently found early in the disease course

Vascular dementia

- Imaging evidence of cerebrovascular disease (ie. microangiopathic changes, previous stroke)
- May have focal neurological findings early after onset
- Temporal relationship between vascular event and cognitive decline; often **step-wise progression**



Dementia with Lewy Bodies or with Parkinson's disease



T Tremor: shaking, usually starting on one side

R Rigidity: stiffness of the limbs, neck, or trunk

A Akinesia: loss or impairment in power of voluntary movement

P Posture and balance

Dementia with Lewy Bodies or with Parkinson's Disease

- Fluctuating cognition **early in the course of disease**
- Recurrent vivid visual hallucinations (often animals)
- Associated features of parkinsonism (TRAP)
- May have concurrent REM sleep disorder
- **Neuroleptic hypersensitivity**
- Memory and object naming often less affected vs. Alzheimer's

If parkinsonism features for ≥1 year before dementia ⟶ **PD**

If onset of dementia within one year of parkinsonism features ⟶ **LBD**

Frontotemporal Dementia (FTD)

Behavioural variant

- Young onset (50 to 60s) with p**rominent personality changes** (lack of insight, social awareness, empathy; apathy)

Language variant (primary progressive aphasia)

Semantic-variant: **prominent problems with comprehension**

- Speech fluency normal
- May demonstrate anomia, semantic paraphasia, surface dyslexia and dysgraphia

Non-fluent/agrammatic variant: **prominent problems with fluency**

- Effortful, non-fluent, halting speech
- May demonstrate anomia, over-simplification of words

Normal Pressure Hydrocephalus (NPH)

“Weird, Wet, & Wobbly”

Weird ⟶ Rapidly progressive cognitive decline

Wet ⟶ Urinary urgency or incontinence

Wobbly ⟶ Gait apraxia