



Age-Friendly Healthcare: Mentation's 3Ds (Delirium, Depression & Dementia)

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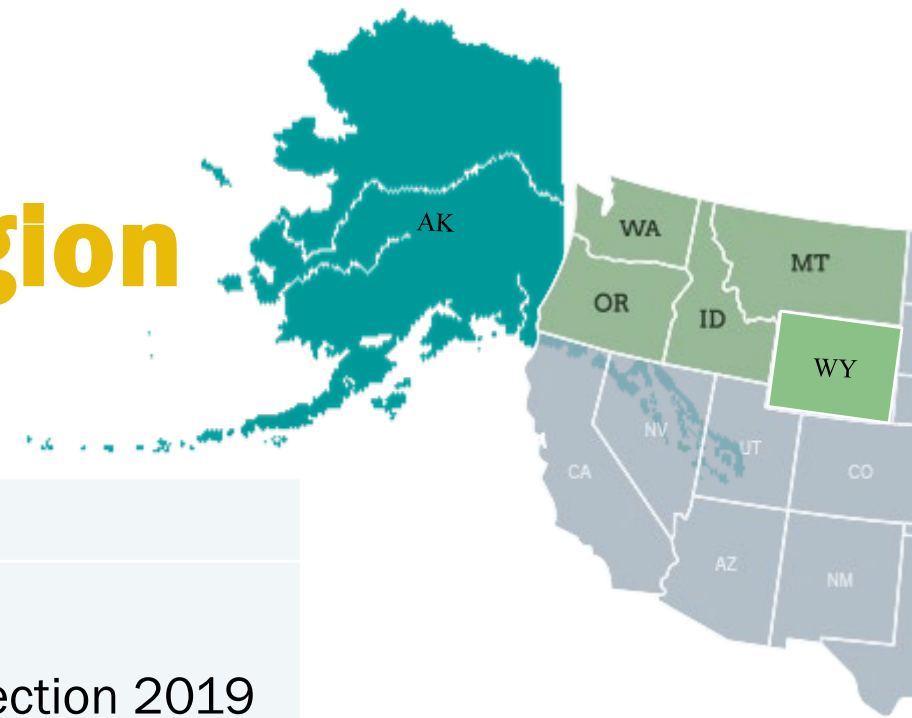
Disclosures & Acknowledgments

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- The views and opinions in this presentation are those of the presenter and they do not necessarily reflect, and should not be taken as, official policy of the U.S. Department of Veterans Affairs or the University of Washington.
- Thanks to my colleague and co-developer of the Mentation Module of the GRECC Allied Health Geriatrics Core Curriculum, **Beth Hogans, MD/PhD**, of the VA Maryland HCS GRECC and Johns Hopkins School of Medicine
- I live and work on the traditional land of the Duwamish and Coast Salish peoples and honor it with gratitude for the privilege it affords me.

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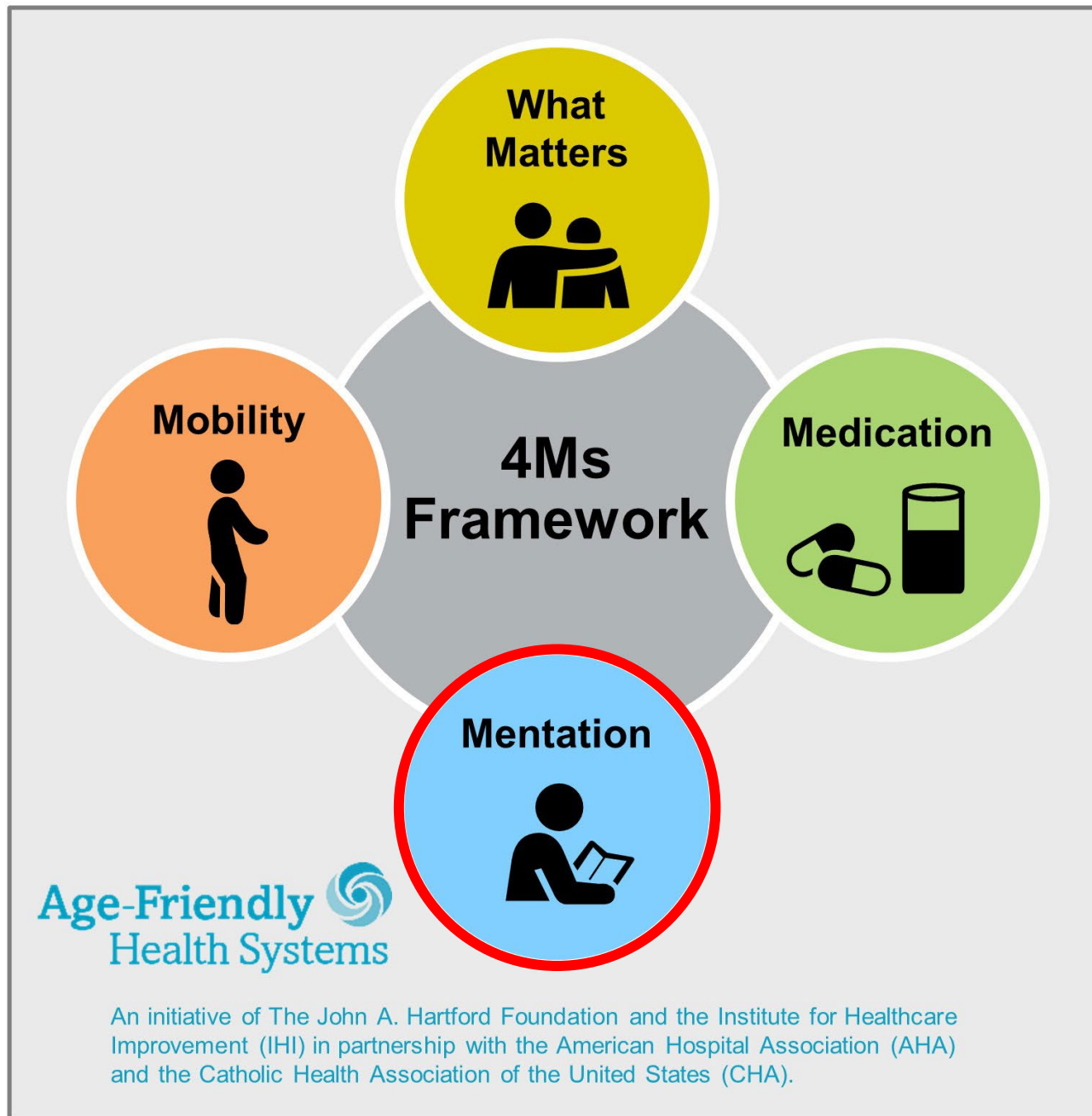
Aging Population by State: Number of Persons 65 and over

State	Census 2010	Census 2020 v Projection 2019
AK	54,938	95,876 v 91,588
ID	194,668	305,994 v 290,670
MT	146,742	213,392 v 206,437
OR	533,533	789,527 v 766,080
WA	827,677	1,247,874 v 1,209,723
WY	70,090	103,776 v 99,179

Data Source: US Census Bureau

How to provide care for this increasing and changing demographic?

- Geriatric specialists
- Primary Care Providers (PCPs)
- PACT – Patient Aligned Care Team
- Given the significant consequences of declines in mentation there needs to be a paradigm shift such that the top disorders affecting mentation are a regular part of the workup and diagnostic differential for aging patients
- Healthcare team approach is best



What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.



Mentation in Aging

Describe mentation

Verbalize what dementia is & what it is not

Explain the importance of mental health, especially depression in aging

Identify and prevent delirium - key features

Mentation

- Mentation comprises both cognitive function and mental health
 - Includes the 3Ds of Aging
- What are normative “typical” changes in mentation one might see in aging?
- What are warning signs “red flags” for changes in mood or thinking?
- How does mentation support independence in daily function for older adults?



“Typical” Cognitive Aging

- Autobiographical memory
- Recall of well-learned information
- Procedural memory
- Emotional processing

⇓ Encoding of new memories

- Slower to learn new tasks, need more repetition

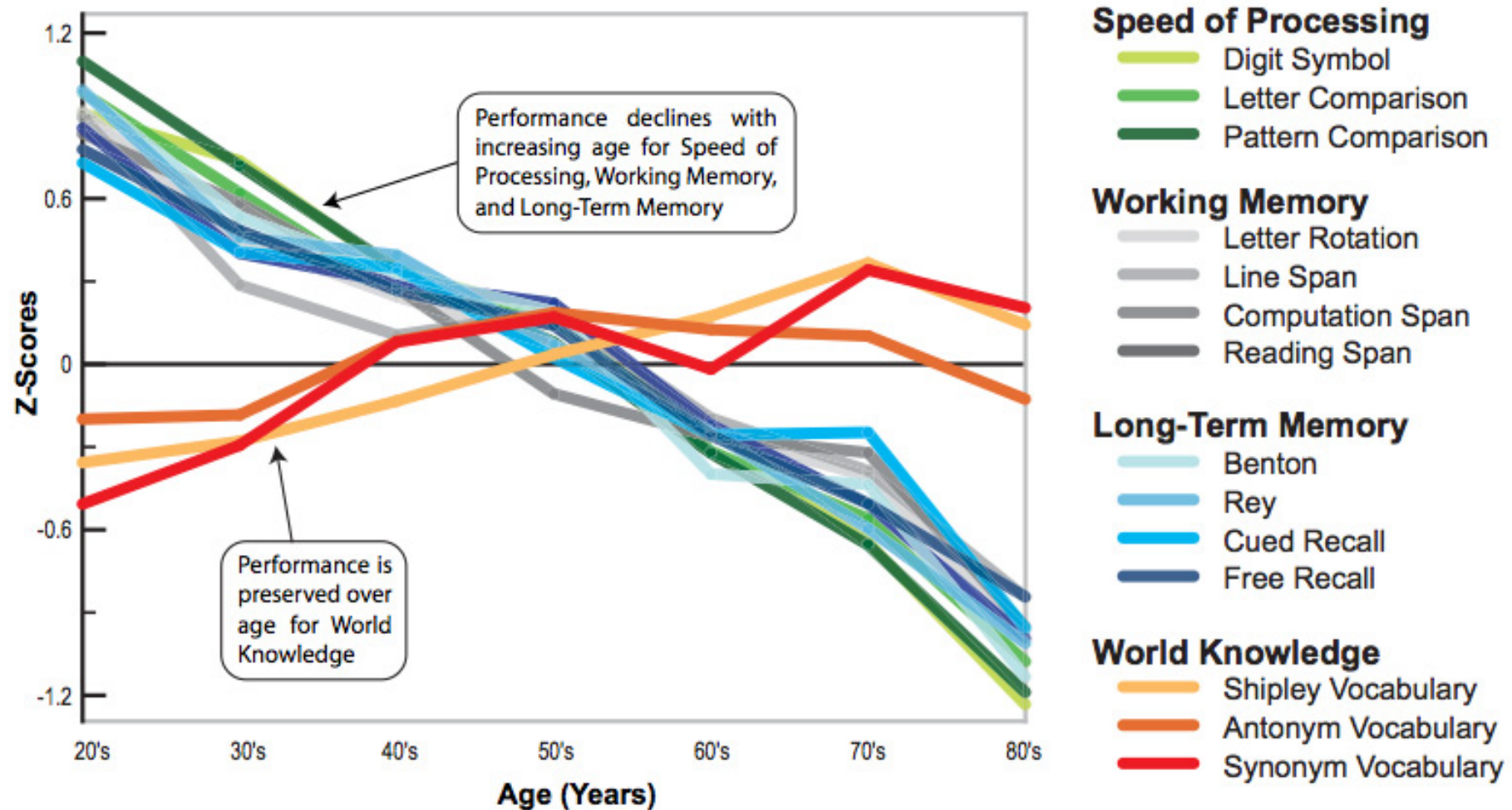
⇓ Working memory/multi-tasking

- Can't juggle as many things at once

⇓ Processing speed

- Slower to respond to novel situations

More typical cognitive aging



Knowledge check

Identify whether the following are: A) likely age-related or B) are clear red flags

___ Can't recall major parts of own life story, e.g., duration of military service

___ Learning new tasks more slowly, e.g., how to navigate new smart phone

___ Can't remember well-learned facts, e.g., U.S. presidents

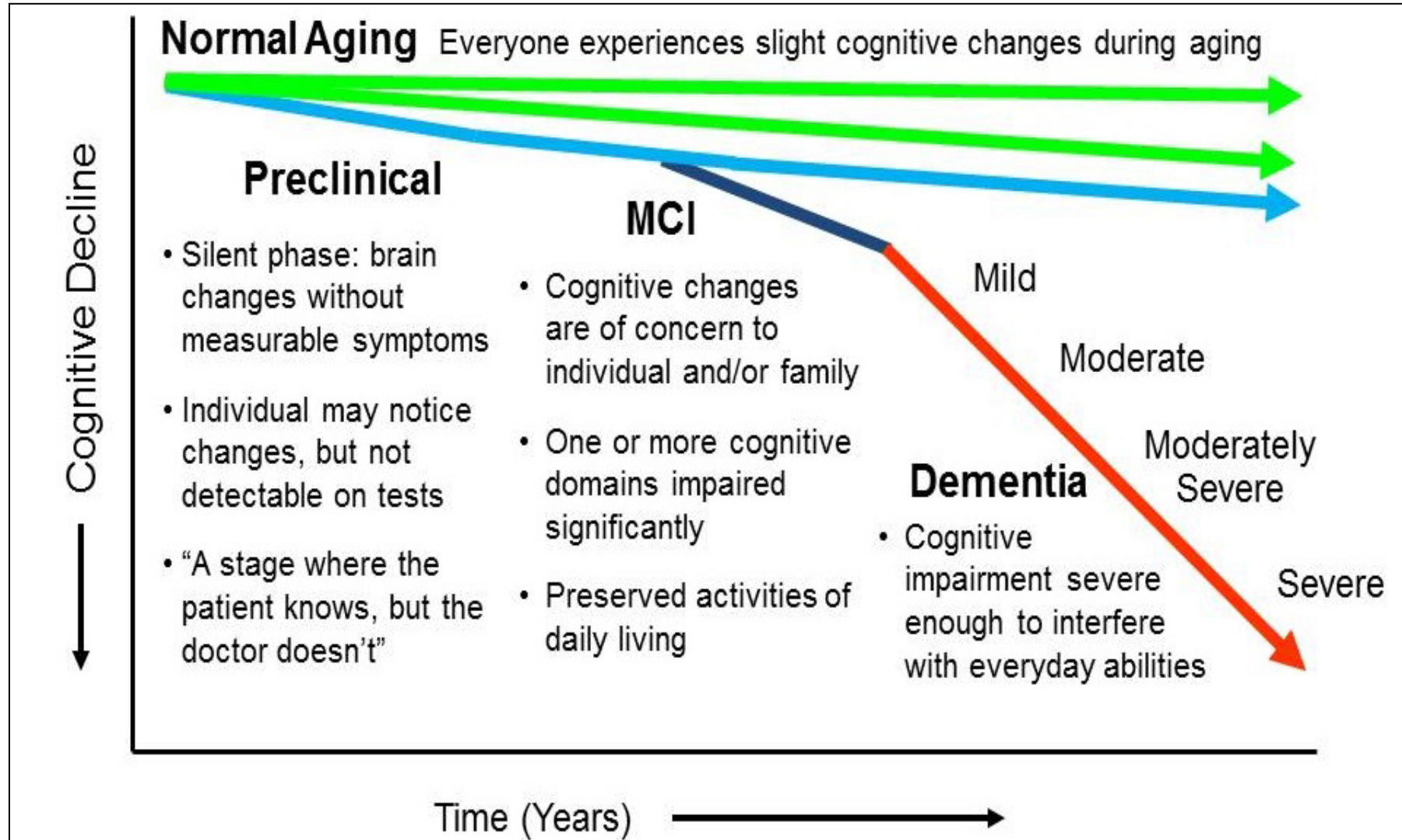
___ Has trouble with multi-tasking, e.g., talking while performing arithmetic

___ Can't describe steps in a common task, e.g., how to mail a letter

___ Responds a bit slower to new information, e.g., needs time to process details

___ Loses track of the emotional tone of an interaction, e.g., seems to detach quickly

Not all changes are typical



Depression

Includes decreased mood, interest, pleasure, and altered sleep, appetite, and cognition.

Anxiety

Excessive worry and anxiety, panic, physiological stress responses, impairments in sleep, concentration, and function all possible.

Post Traumatic Stress Disorder (PTSD)

Emotional numbing, intrusive memories and thoughts, confusion, memory loss, negative appraisals of self and others, feelings of estrangement.

Substance Use Disorders (SUD)

A complex chronic condition associated with cravings and uncontrolled substance use despite negative consequences.



Mental Health

Mentation: impacts on functional independence

Cognition is essential for:

- Attending healthcare appointments
- Adhering to treatment plans
- Managing household needs
- Paying bills
- Navigating transportation

Mental Health is essential for:

- Attending to self-care and health
- Making good choices
- Maintaining positive relationships
- Anticipating future needs
- Avoiding conflict and legal problems

What you might hear in clinic

- I can't focus
- She's not interested in her usual activities
- I can't come up with the word I want
- My energy is low
- My husband's "selective attention" is worse – he doesn't listen to me
- My short-term memory is shot
- I couldn't find my car in the parking lot
- You didn't tell me to increase my atenolol and stop taking HCTZ

Could it be . . .
Depression?
Delirium?
Dementia?

Dementia Is . . .

a decline in some aspect of cognitive function and/or behavior



Daily Living Skills

- ✓ Significant
 - functional consequences
- ✓ Chronic
 - insidious onset and progressive course
- ✓ Loss
 - new impairments (not lifelong)
- ✓ Structural Damage
 - neurons die

. . . What Dementia Is Not

- Delirium — acute onset, attention and concentration problems
- Depression – apathy, distraction; apparent cognitive deficits, but none during testing
- Sensory deficits or communication problems
- Normal aging

Types of Dementia



Alzheimer's Dementia

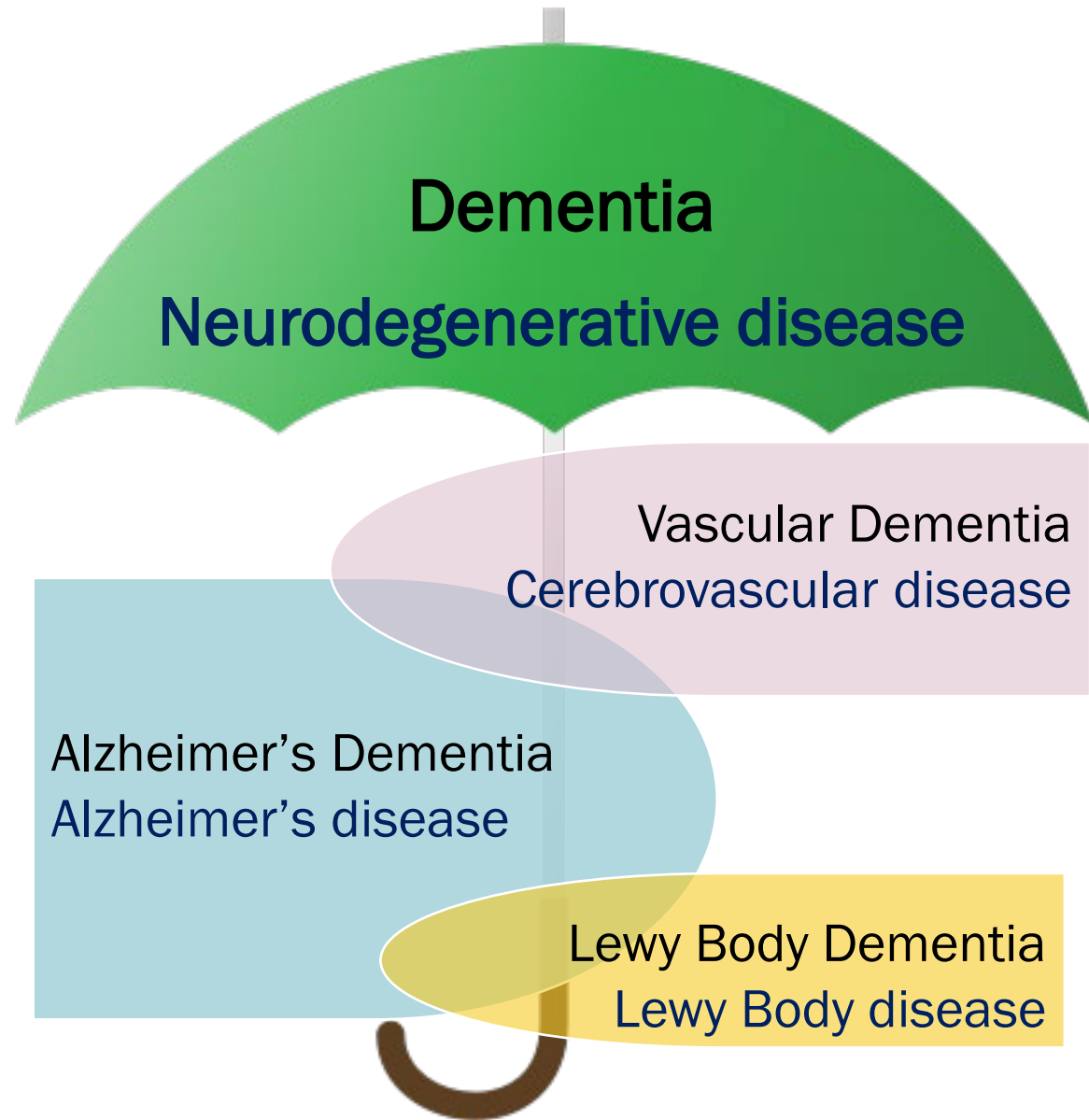
Vascular Dementia

Lewy Body Dementia

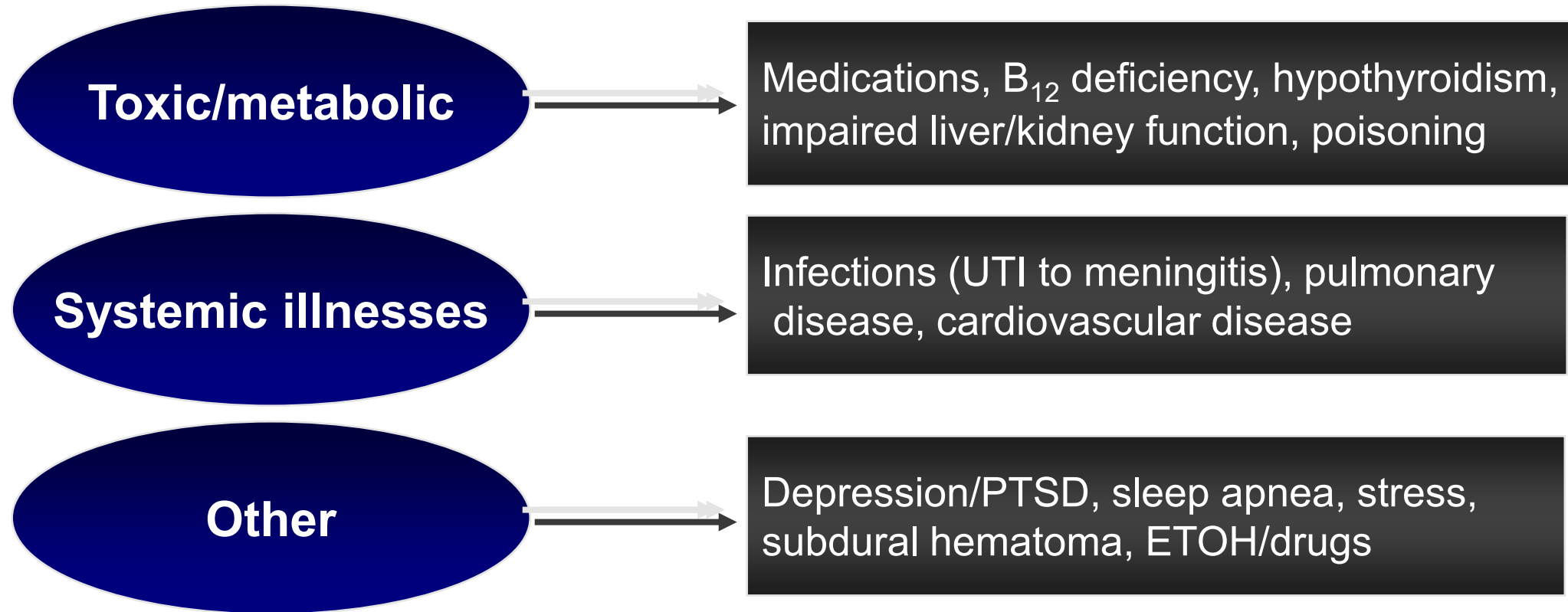
Parkinson's Disease with Dementia

Frontotemporal Dementia

Prevalent Causes of Dementia in Older Adults



Causes that Mimic Dementia



**Treatment may improve, but not fully reverse, symptoms*

What Delirium Is . . .



aka “Toxic Metabolic Encephalopathy” or “Acute Confusional State”

A medical condition:

- Rapid onset
 - Deficits in attention and concentration
 - Waxing and waning mental status
 - Infections, medications, metabolic abnormalities are the most common causes
- ✓ **Mental status changes often precede objective signs of illness**
 - ✓ **Under-recognized** (Inouye, Westendorp, and Saczynski, *Lancet*, 2014)

... What Delirium Is Not

- Insignificant – increased mortality when followed over 6-24 months McCusker, et al, JAMA, 2002; McCusker, et al, JAGS, 2014; Witlox, et al, JAMA, 2010; Tsai, et al, Intl J Psych Med, 2013, and many more.
- Dementia – slower onset, slower decline, more subtle fluctuation
- Rapidly resolving, even when the cause is corrected
- Normal aging

Risk Factors for Delirium

- Hospitalization – delirium affects up to 40% (Review & Meta-analysis by Ahmed, Leurent, & Sampson, 2014)
 - Pooled analysis risk factors: dementia, illness severity, visual impairment, urinary catheterization, low albumin, and length of hospital stay
- Risk factors in a hip fracture hospital sample (Mosk, et al, 2017)
 - n=566, 35% with delirium
 - Age, dementia, hx of delirium, overall health rating, preoperative hx of institutionalization, functional dependency, amount of blood transfusion, low Hb

Recognizing Delirium

- ✓ Confusion that develops over days or weeks
- ✓ Trouble with attention, focus, & concentration
- ✓ Waxing and waning
- ✓ Fluctuating sleep disturbances
- ✓ Hyperactive (agitated) or hypoactive (sedated)
- ✓ Erratic, uncharacteristic, inappropriate behavior
- ✓ Hallucinations (especially visual), paranoia
- ✓ Somnolence

Emergency department: Patients will present with acute confusion and disorientation, detailed initial work up with therapy targeted to identified derangements, may require one-on-one care.

PACU: Patients recovering from surgery may develop acute delirium, monitoring and assessment of oxygen delivery and other major metabolic factors. May require transfer to unit with closer monitoring that is typical.

Med-Surg unit: Patient will require closer supervision and monitoring, testing.

Skilled nursing care/CLC: Patient will require closer supervision and monitoring, testing.

Outpatient clinic: Patient will require transfer to emergency department for evaluation.

What Depression is . . .

A syndrome of psychological and bodily symptoms

- Low mood or anhedonia (lack of pleasure)
- Problems with sleep (too little or too much)
- Problems with appetite (too high or too low)
- Trouble concentrating
- Decreased interests
- Feelings of guilt or having done something wrong
- Low energy
- Slowed movements
- Suicidal thoughts
- Unreal experiences: “my mind playing tricks on me” (hearing voices/feeling paranoid)

. . . What Depression Is Not

- A bad day, week, or month
- Grief
- A natural reaction to medical illness or loss
- A cause of dementia – “pseudo-dementia”
- **Untreatable in older adults**

Normative mental health in aging:

Grief vs. acceptance

Grouchiness vs. good spirits

Adjustment to medical illness or loss vs. ‘rebellion’

New interests vs. persistence of personality

Positive self-appraisal and perspective-taking

Recognizing Depression

- ✓ Often presents as nonspecific physical symptoms
 - Fatigue
 - Pain
 - GI problems
- ✓ Older patients might be less likely than younger to admit to being “depressed”
- ✓ Depression is stigmatized
- ✓ Patients often more willing to endorse mental health symptoms in writing than in person

Depression in Older Adults

- As many as 10% of adults age 65+ seen in primary care settings have clinically significant depression^{1,2}
 - However, only ~10% of older adults with depression receive treatment³
- Behavioral Activation: meta-analysis of 7 RCTs showed moderate-intensity exercise reduced depressive symptoms⁴
- Younger and older adults respond equally well to treatment: psychotherapy and/or pharmacotherapy⁵
 - Consider medical comorbidity for best treatment options
 - Pharmacotherapy is not always advised
 - Psychotherapy caveat for certain populations

1. Unützer, *N Engl J Med* 2007. 2. Lyness, et al. *J Gen Intern Med* 1999; 3. Klap, et al. *Am J Geriatr Psychiatry* 2003. 4. Bridle, et al. *Br J Psychiatry* 2012. 5. Taylor, WD, *N Engl J Med* 2014. Clinical practice. Depression in the elderly.



Antidepressants Commonly Used to Treat Late-Life Depression

Taylor WD. N Engl J Med 2014;371:1228-1236.

Table 3. Antidepressants Commonly Used to Treat Late-Life Depression.*

Class and Agent	Initial Daily Dose	Therapeutic Daily Dose	Side Effects	
			Common	Serious but Rare
First-line therapy				
SSRIs			Nausea, diarrhea, headaches, sexual dysfunction, increased risk of falls	Abnormal bleeding (due to altered platelet function), hyponatremia
Sertraline	25–50 mg	50–100 mg, to a maximum of 200 mg		

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Sertraline	25–50 mg	50–100 mg, to a maximum of 200 mg		
Escitalopram	10 mg	10–20 mg		

Second-generation antipsychotic agents[‡]

Aripiprazole	2–5 mg	5 mg, to a maximum of 15 mg	Sedation, nausea, headache, weight gain, increased cholesterol levels	Tardive dyskinesia, the neuroleptic malignant syndrome, increased stroke risk among patients with dementia-related psychosis [¶]
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* This table does not provide a comprehensive list of antidepressant drugs (rather, one to two examples per class) or of side effects. Selective serotonin-reuptake inhibitors (SSRIs) are typically used as first-line therapy. Use of sertraline is supported by data from large randomized, controlled trials^{12,13}; such data are lacking for escitalopram, but it is commonly used owing to a generally favorable adverse side-effect profile. Serotonin-norepinephrine reuptake inhibitors (SNRIs) and agents with novel pharmacologic mechanisms are often used as second-line therapy. Duloxetine use is supported by a large randomized, controlled trial¹⁴; data supporting venlafaxine, bupropion, and mirtazapine are from smaller controlled trials or open-label trials. Owing to their side-effect profiles, tricyclic antidepressants and second-generation antipsychotic agents should be used only for persons who do not have a response to other treatment options. These guidelines are concordant with recommendations in the American Psychiatric Association Practice Guideline for the Treatment of Patients with Major Depressive Disorder, third edition.

† According to the package insert, there is no evidence that doses higher than 60 mg per day confer an additional benefit.

‡ Dosing should target plasma steady-state levels of 80 to 120 ng per milliliter.

§ Second-generation antipsychotic agents should be used for antidepressant augmentation, not as the sole therapy for depression.

¶ An increased risk of stroke is specifically reported for older patients with dementia-related psychosis. Whether the same risk extends to other older patients is not known.



Pocket Guide for...
"This guide has been...
improving medication...
clinical decision-making...
concerning the quality of care. It...
Inappropriate Medication

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Depression in Older Adults

- Monitor patients with increased medical morbidity as rates of depression are as high as 37% post critical care hospitalization¹
- Cognitive impairment can be predictive of a less robust/poor response to antidepressants^{2,3}
- Monitor for cognitive decline because depression in later life could be a red flag for preclinical dementia⁴
- Suicide rates: higher in the elderly
 - Also higher in Veterans, males, and White/Native American peoples*

1. Girard, et al. *Lancet*, 2014. 2. Alexopoulos, et al. *Biol Psychiatry*, 2005. 3. Sheline, et al. *Arch Gen Psych*, 2010. 4. Singh-Manoux, et al. *JAMA Psychiatry* 2017.

Dementia, Delirium, and Depression

	Common Features	Hallmarks
Dementia	Subjective confusion Difficulty performing tasks	Problems with memory plus problems with speech, actions, recognition, or executive functioning Chronic and progressive, slow onset Functional decline
Delirium	“Not right” on interview	Trouble with attention and concentration Rapid onset; waxing and waning Due to a medical cause
Depression	Loved ones are worried	Decreased concentration and interest Sensorium is clear

Overlap in Syndromes

- Delirium superimposed on dementia (DSD) = estimate ranges 22-58% (Fick, et al, 2002, Mosk, et al, 2017; Morandi, et al, 2019)
- Older hospitalized patients, n=459, age 70+ (Givens, Jones, & Inouye, 2009)
 - Delirium and Depression – 5%
 - Delirium alone – 8.5%
 - Depression alone – 26.3%
 - **Overlap syndrome = higher odds of 1 month functional decline, and NH placement or death at 1 year**
- Rates of depression in dementia are reported to range from 20-86% (Wright & Persad, 2007; Tsuno & Homma, 2009)

Case - Joseph

- 66 year old male Veteran
- Divorced x 2 years from 2nd wife (<5 year marriage)
- New to primary care clinic; moved here to be closer to daughter
- Living independently in an apartment
- Daughter's concern is: "He just sits around all day and forgets what I tell him"
- PMHx: diabetes, HTN – historically good control



Case - Joseph



- 66 year old male Veteran, living in an apt
- Divorced x 2 years from 2nd wife (<5 year marriage)
- New to clinic; moved here to be closer to daughter
- Daughter's concern is: "He just sits around all day and forgets what I tell him"
- PMHx: diabetes, HTN – they reported good control, but current BP and glucose are out of range
 - Is he taking his medications/insulin as prescribed?
- He says he misses his wife and doesn't have friends
- Doesn't seem cognitively sharp; disengaged at visit

Next steps?

Initiate Work Up

Identification / Screening

What are some available tools?

DELIRIUM

- Delirium is a *medical* condition that causes a temporary problem with mental function.
- Delirium occurs commonly in *sick older adults*, in *hospital settings*, and in those with *pre-existing* cognitive problems.
- Delirium is a *medical emergency*; often the presenting symptom of an underlying illness. Early diagnosis/treatment of the underlying condition offers the best chance of recovery.
- Marked by problems with *attention and concentration*, and shows a *waxing and waning course* (patients can seem normal at times).
- Consider delirium and work up potential causes of delirium in **ALL** patients with mental status changes.

Most common medical causes: metabolic disorders, infections, medications, hypoxemia, dehydration

Most common medication causes: opioids, anticholinergics, sedative-hypnotics

Delirium is also known as *Acute Brain Failure*; *Toxic-Metabolic Encephalopathy*; or *Acute Confusional State*.

Delirium Assessment Tool Confusion Assessment Method (CAM) Diagnostic Algorithm

Delirium is diagnosed with the presence of Features 1 and 2, and either Feature 3 or 4.

Feature 1: Acute Onset and Fluctuating Course

Usually obtained from family member or caregiver: rapid change from baseline, and fluctuating severity during the day.

Feature 2: Inattention

Trouble with attention, being distractible or having difficulty keeping track of what was said. **Example:** Recite the months of the year backwards.

Feature 3: Disorganized Thinking

Rambling or irrelevant conversation, unclear or illogical flow of ideas or unpredictable switching from subject to subject.

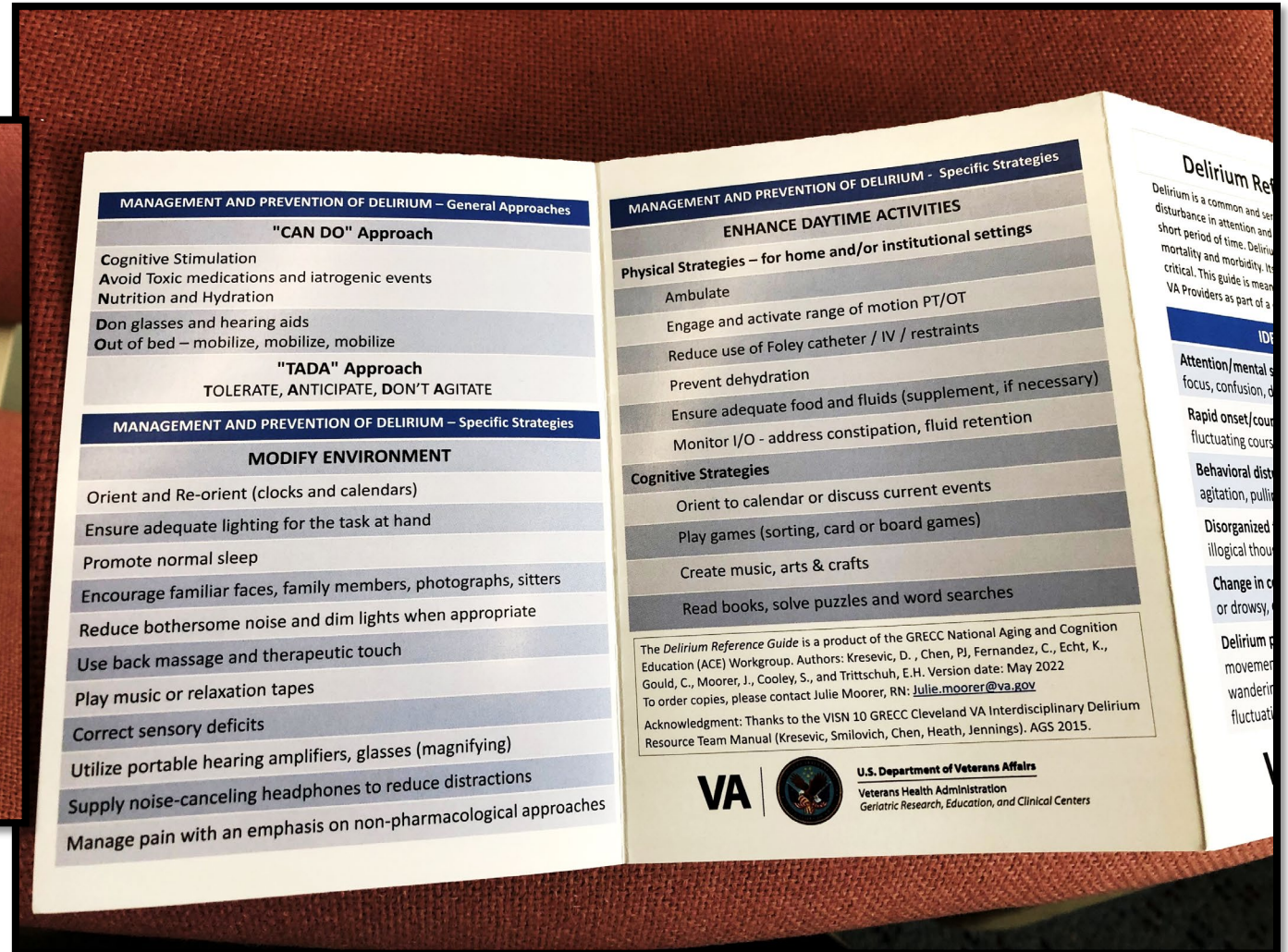
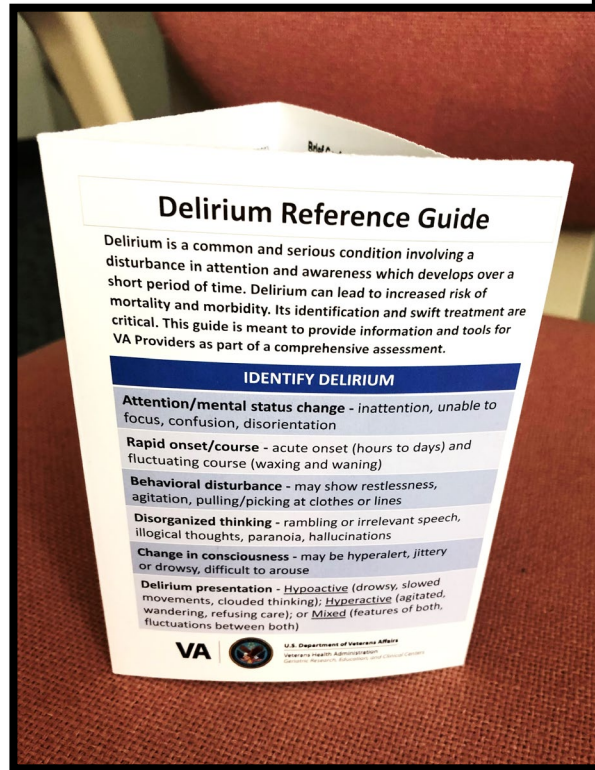
Feature 4: Altered Level of Consciousness

Anything other than alert on scale of Normal [alert], Vigilant [hyperalert], Lethargic [drowsy, easily aroused], Stupor [difficult to arouse] or Coma [unarousable].

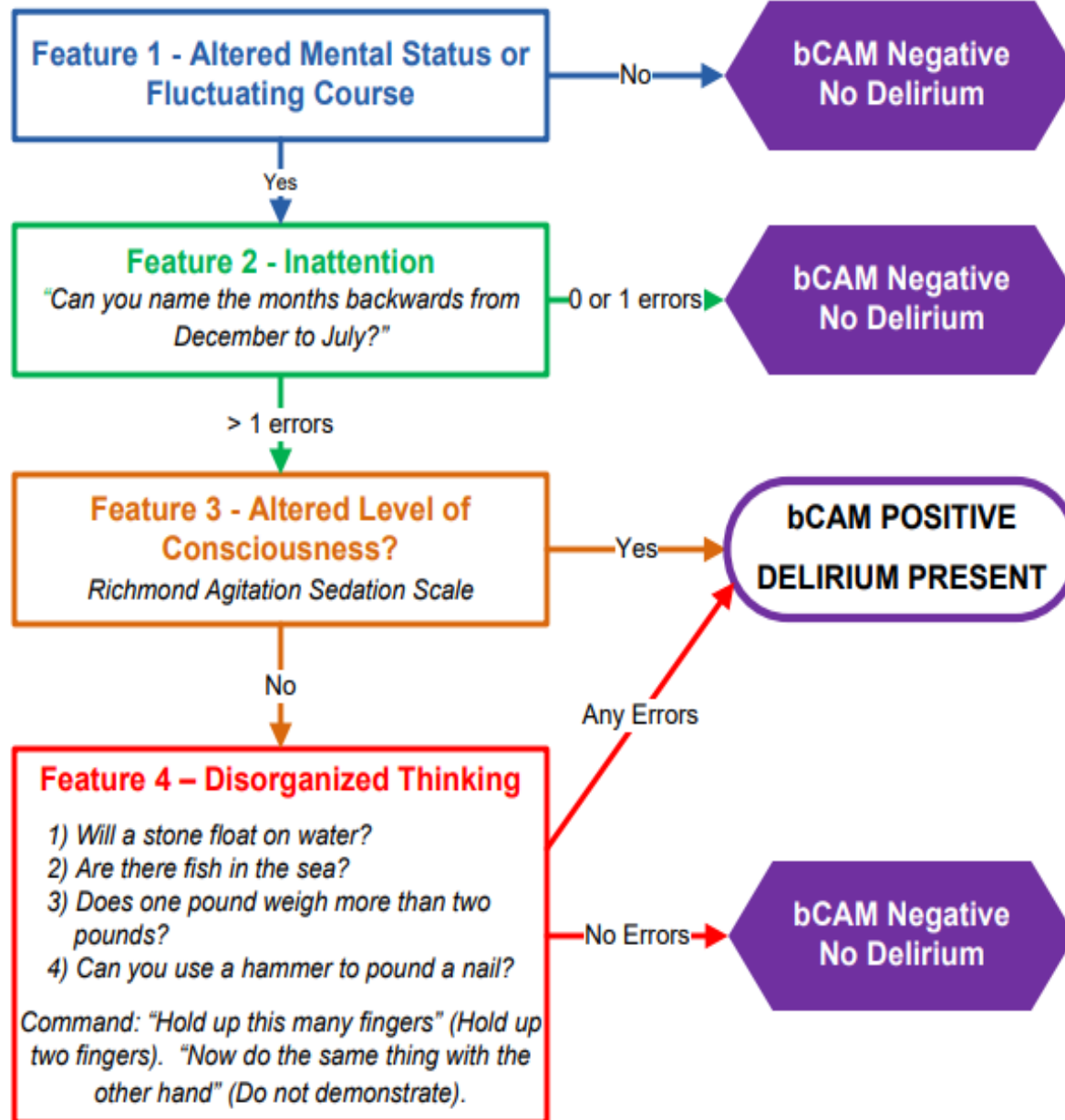
Inouye SK, et al *Ann Intern Med.* 1990; 113: 941-948. Confusion Assessment Method: Training Manual and Coding Guide. © 2003 Hospital Elder Life Program, LLC. Reprinted with permission.

Delirium

Delirium Reference Guide



Brief Confusion Assessment Method (bCAM) Flow Sheet



Score	Description
+4 Combative	Violent, danger to staff
+3 Very agitated	Very distractible, pulls/removes tubes, aggressive, fighting environment
+2 Agitated	Resists care or uncooperative, frequent non-purposeful movement
+1 Restless	Pays attention most of the time; anxious but cooperative, movements not aggressive/vigorous
0 Alert and calm	Makes eye contact; responds appropriately to calling their name
-1 Drowsy	Not fully alert, sustained awakening to voice, (maintains eye contact for >10 secs.)
-2 Light sedation	Briefly awakens to voice (eye opening and contact <10 secs.)
-3 Moderate sedation	Movements or eye opening to voice (but NO eye opening/contact)
-4 Deep sedation	Can't stay awake; no response to voice, but has movement/eye opening to physical stimulation
-5 Unarousable	No response to voice or physical stimulation

The mRASS is a VA-developed instrument. See Chester J.G., Beth Harrington M., Rudolph J.L.:Br J Hosp Med 2012; 7: pp. 450-453.

Modified Richmond Agitation & Sedation Scale (mRASS)

The RASS is a tool developed to assess the level of sedation or agitation in the intensive care unit (ICU). The mRASS is a modified version to be used in non-ICU settings.

Working Up Delirium

Joseph's work up
was negative

- Use collateral sources of information
- Consider the whole clinical picture – broad differential

Infections

Withdrawal

Acute metabolic

Trauma

CNS pathology

Hypoxia

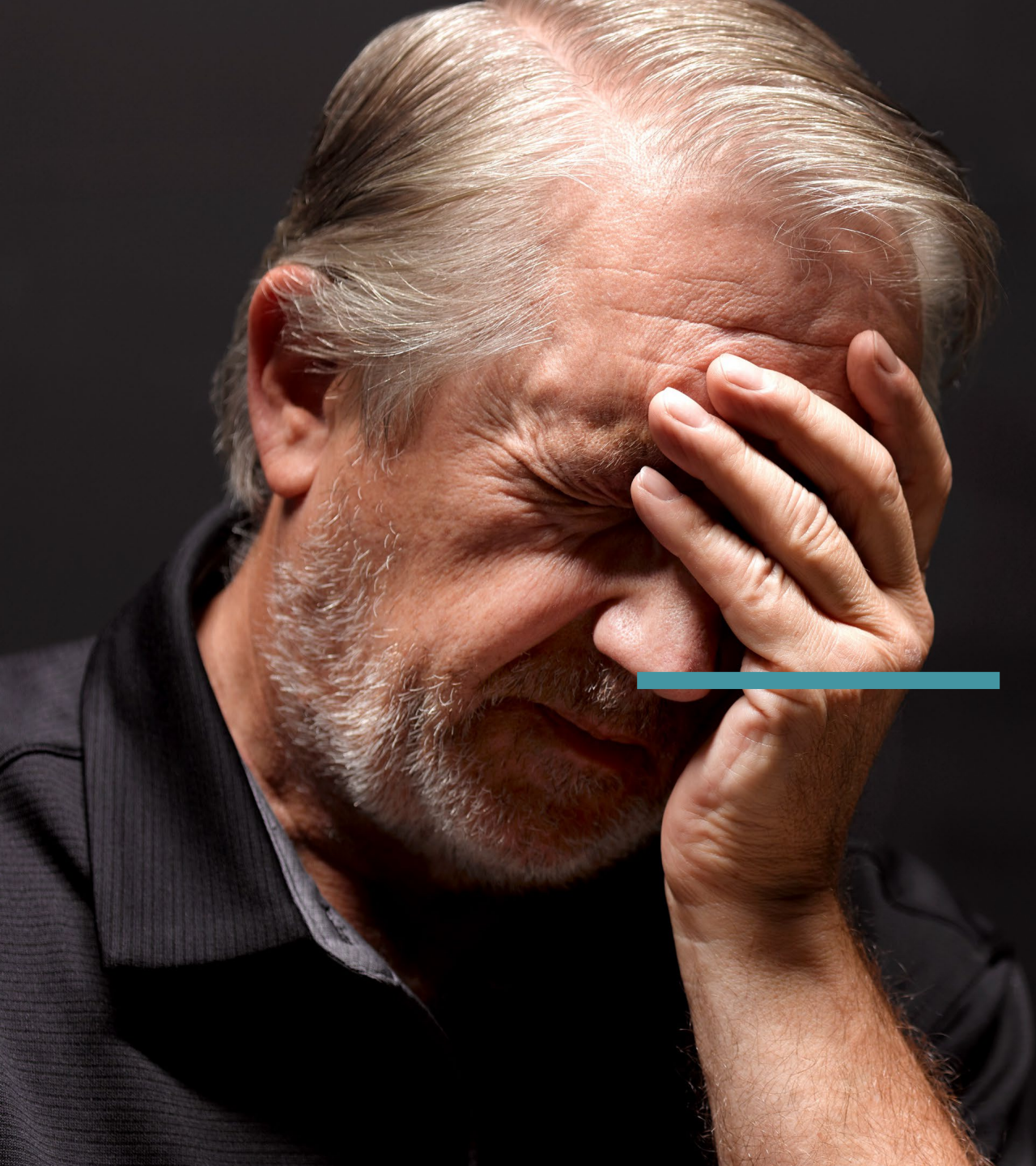
Deficiencies

Endocrinopathies

Acute vascular

Toxins or drugs

Heavy metals



You do not need to be a mental health professional to ask about symptoms of depression

- Use recommended tools to guide you and have a plan for how to triage when you get a positive
- Screening is covered by Medicare Part B

Depression

- PHQ-2 >> PHQ-9: well-validated, free and common
- Geriatric Depression Scale (GDS): 30-item or 15-item
- VHA adds the Columbia-Suicide Severity Rating Scale (C-SSRS)
 - <https://www.hrsa.gov/behavioral-health/columbia-suicide-severity-rating-scale-c-ssrs>

Patient Health Questionnaire: PHQ-2

A quick, self-report screen which may be appropriate for your setting

“Over the past two weeks, how often have you been bothered by these problems?”

	Not at all	Several days	> Half of the days	Nearly every day
1. Little or no interest or pleasure in doing things?	0	1	2	3
2. Feeling down, depressed, or hopeless?	0	1	2	3
A score of 3 or greater merits completing the PHQ-9, next slide.				

PHQ-9

Questions use PHQ-2 0–3 scale

Depression likely if total score is >10

Suicide risk evaluation recommended if total score is >10 and/or response to question #9 is >0

Joseph's work
up was positive

1. Little or no interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?
3. Trouble falling asleep, staying asleep, or sleeping too much?
4. Feeling tired or having little energy?
5. Poor appetite or overeating?
6. Feeling bad about yourself, feeling that you are a failure, or feeling that you have let yourself or your family down?
7. Trouble concentrating on things such as reading the newspaper or watching television?
8. Moving or speaking so slowly that others could have noticed, or being so fidgety and restless that you have been moving around a lot more than usual?
9. Thinking that you would be better off dead or that you want to hurt yourself in some way?

Clinicians may notice:

- Is Your Patient.....
- Inattentive to appearance or unkempt, inappropriately dressed for weather or disheveled?
- A “poor historian” or forgetful?
- Does your patient.....
- Fail to keep appointments, or appear on the wrong day or wrong time for an appointment?
- Have unexplained weight loss, “failure to thrive” or vague symptoms e.g., dizziness, weakness?
- Repeatedly and apparently unintentionally fail to follow directions e.g., not following through with medication changes?
- Defer to a caregiver or family member to answer questions?

Patients or caregivers may report:

- Asking the same questions over and over again
- Becoming lost in familiar places
- Not being able to follow directions
- Getting very confused about time, people & places
- Problems with self-care, nutrition, bathing or safety

Dementia



Signs/symptoms a clinician, caregiver, or patient may notice

Should prompt provider to evaluate cognition

Cognitive screen: Mini-Cog

A Screening Tool; does not diagnose dementia

1. Get the patient's attention then say, ***I am going to say three words that I want you to remember now and later.***

The words are: Banana, Sunrise, Chair. Please say them for me now.

Give the patient 3 tries to repeat the words. If unable after 3 tries, go to next item.

2. Say all the following phrases in order, ***Please draw a clock in the space below. 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).***

If subject has not finished clock drawing in 3 minutes, discontinue and ask for recall items.

3. ***What were the three words I asked you to remember?***

→ Unscored

→ 2 pts for a clock without errors, 0 for any error

→ 1 pt per word (max 3)

Scoring: 0-5 possible

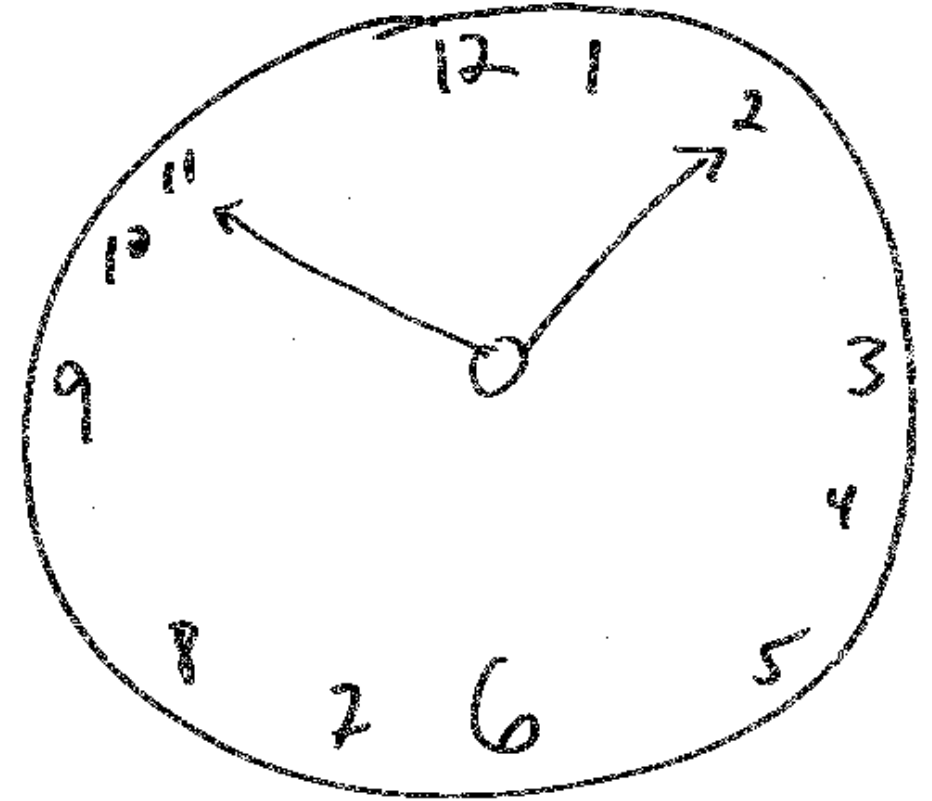
0-2 = possible impairment

3-5 = suggests no impairment

Mini-Cog Clock

Normal clock is 2 points; abnormal clock is 0 points.

- A normal clock has all of the following elements: all numbers 1-12, each only once, present in the correct order and direction (clockwise).
- Two hands are present, one pointing to 11 and one pointing to 2.
- Any clock missing any of these elements is scored abnormal.
- Refusal to draw a clock is scored abnormal.



Brief Cognitive Tests

- SLUMS or MoCA are good 30pt examples
- Blessed - BOMC
- M-ACE or ACE-III (Addenbrooke, US versions)

Name
Is the

___/1
___/1
___/1
___/3
___/3
___/5
___/2
___/4
___/2
___/8

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
							<input type="checkbox"/> Contour <input type="checkbox"/> Numbers <input type="checkbox"/> Hands	___/5
NAMING							<input type="checkbox"/>	___/3
							<input type="checkbox"/>	
							<input type="checkbox"/>	
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. Subject has to repeat them in the backward order.	<input type="checkbox"/> 2 1 8 5 4 <input type="checkbox"/> 7 4 2					___/2	
	Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors.	<input type="checkbox"/> FBACMNAAJKLBAFAKDEAAAJAMOF AAB					___/1	
	Serial 7 subtraction starting at 100	<input type="checkbox"/> 93 4 or 5 correct subtractions: 3 pts. 2 or 3 correct: 2 pts. 1 correct: 1 pt. 0 correct: 0 pt	<input type="checkbox"/> 86	<input type="checkbox"/> 79	<input type="checkbox"/> 72	<input type="checkbox"/> 65	___/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.	<input type="checkbox"/>					___/2	
	Fluency / Name maximum number of words in one minute that begin with the letter F	<input type="checkbox"/> _____ (N ≥ 11 words)					___/1	
ABSTRACTION	Similarity between e.g. banana - orange = fruit	<input type="checkbox"/> train - bicycle <input type="checkbox"/> watch - ruler					___/2	
DELAYED RECALL	Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUED recall only	
	Category cue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Multiple choice cue							
ORIENTATION	[] 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 edu	

CLINIC
SH Tan
(SLUM
Mental

Montreal Cognitive Assessment (MoCA):

<http://www.mocatest.org/>

- More sensitive than MMSE
- WELL-RESEARCHED

<http://www.mocatest.org/references.asp>

- Multiple English versions and >25 other languages
- Blind/Telephone version
- Telemedicine version
- Training/certification required

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
Suggested cut-off score	≥26	<26	<26ψ
ψ 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.			

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

St. Louis University Mental Status examination (SLUMS)

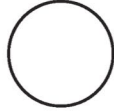


Far from perfect, but perfectly acceptable for many populations

- Use the standard instructions
- Good news/Bad news situation:
 - It's free (yay) and no training required (sort of yay)
 - Spanish version (PR Spanish) and Canadian version (province and Toronto)
 - Small limited research sample and very little f/u research
 - Bias: cultural and SES, etc
 - No official adaptation for telephone or telemedicine
 - Telephone: total score = 26
 - Telemedicine: easily adaptable

**VAMC
SLUMS EXAMINATION**
Questions about this assessment tool? E-mail aging@slu.edu

Name _____ Age _____

Is the 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 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.
_ / 2	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. 0 87 1 648 2 8537
_ / 4	9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock. 
_ / 2	2 Hour markers okay 2 Time correct 
_ / 8	1 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 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. 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 _____

HIGH SCHOOL EDUCATION		SCORING		LESS THAN HIGH SCHOOL EDUCATION	
27-30	NORMAL	25-30			
21-26	MILD NEUROCOGNITIVE DISORDER	20-24			
1-20	DEMENTIA	1-19			

CLINICIAN'S SIGNATURE _____ DATE _____ TIME _____

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. 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. *Am J Geriatr Psych* 14:900-10, 2006.

Utility of brief cognitive tests?

The background of the slide features a variety of glowing light bulbs hanging from above. The bulbs are in different shapes and sizes, including standard incandescent bulbs, a tall cylindrical one, and a textured spherical one. They are all illuminated, creating a warm, golden glow. A solid green horizontal line is drawn across the middle of the image, passing behind the bulbs.

- To obtain a quick sense of global function
- To identify cognitive decline early
- Is there any reason to question whether the patient has decision-making capacity?

Cognitive Screening – Meaning

- Interpretation and appropriate populations?
 - Limited detection for individuals who are outside the average range (either higher or lower)
 - Learning disability or low education?
 - Hearing or vision problems?
 - Limited hand function?
- Poor as stand-alone measures
 - Recommend informant/collateral input
 - Consider other risk factors and context

Joseph's MOCA
was 25

Functional Activities Questionnaire

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

Joseph's FAQ
score was 3

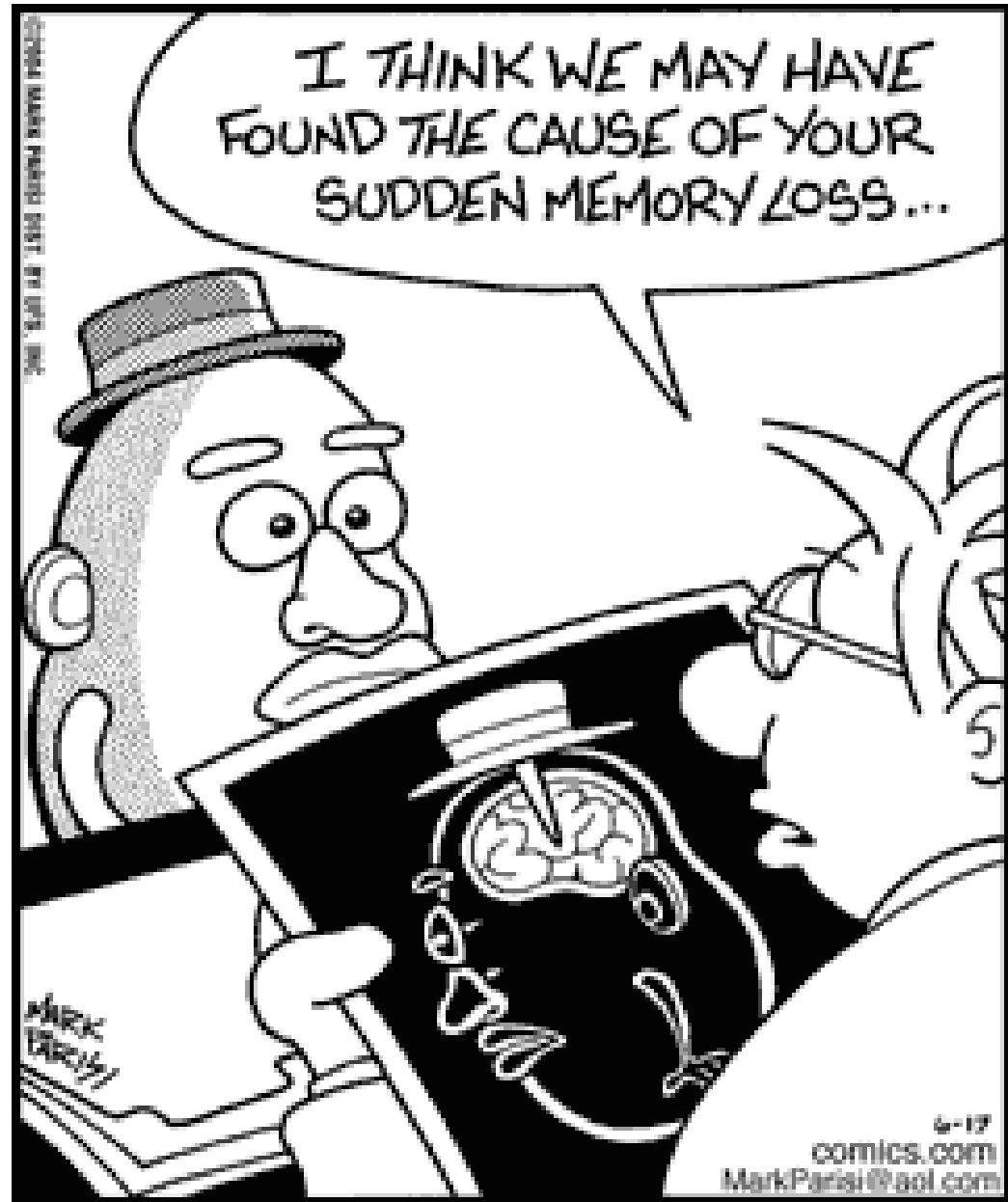
Scoring for each item:

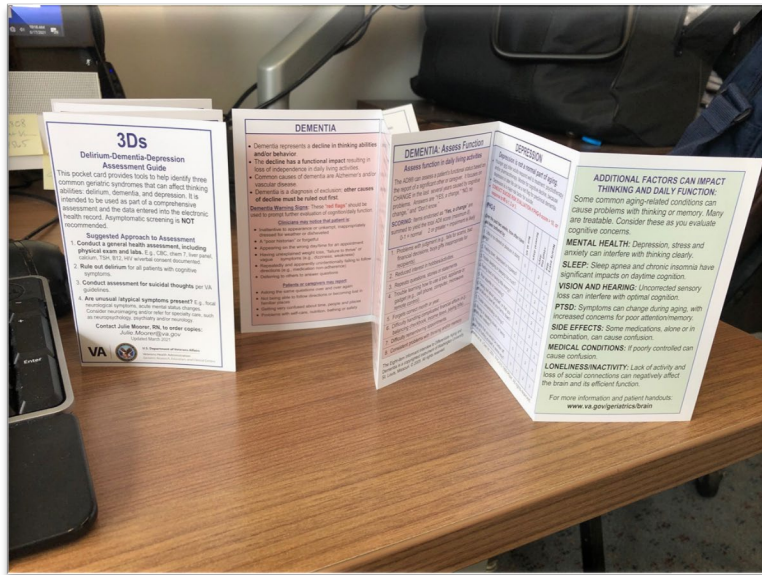
Dependent = **3** Requires assistance = **2**
Has difficulty, but does by self = **1** Normal = **0**
Never did (the activity), but could do now = **0**
Never did, but would have difficulty now = **1**

Sum scores to obtain total, which ranges from 0-30. Cut-off point of **9** (dependent in 3+ activities) suggests impaired function/possible cognition dysfunction

Pfeffer, R.I., et al, 1982. *Measurement of functional activities in older adults in the community*. J Gerontology, 37(3), 323-329.

Dementia is a
diagnosis of
EXCLUSION





ADDITIONAL FACTORS CAN IMPACT THINKING AND DAILY FUNCTION:

Some common aging-related conditions can cause problems with thinking or memory. Many are treatable. Consider these as you evaluate cognitive concerns.

MENTAL HEALTH: Depression, stress and anxiety can interfere with thinking clearly.

SLEEP: Sleep apnea and chronic insomnia have significant impacts on daytime cognition.

VISION AND HEARING: Uncorrected sensory loss can interfere with optimal cognition.

PTSD: Symptoms can change during aging, with increased concerns for poor attention/memory.

SIDE EFFECTS: Some medications, alone or in combination, can cause confusion.

MEDICAL CONDITIONS: If poorly controlled can cause confusion.

LONELINESS/INACTIVITY: Lack of activity and loss of social connections can negatively affect the brain and its efficient function.

For more information and patient handouts:
www.va.gov/geriatrics/brain

Healthy Brain Aging:

Risk factors to manage and/or avoid

Medical Conditions

- High Blood Pressure
- High Cholesterol
- Type II Diabetes
- Sleep Apnea

Behavioral Factors

- Nutrition / Diet
- Alcohol / Tobacco
- Exercise
- Stress
- Socialization

3 Ds: Action Plan



Step 1 – Rule-Out

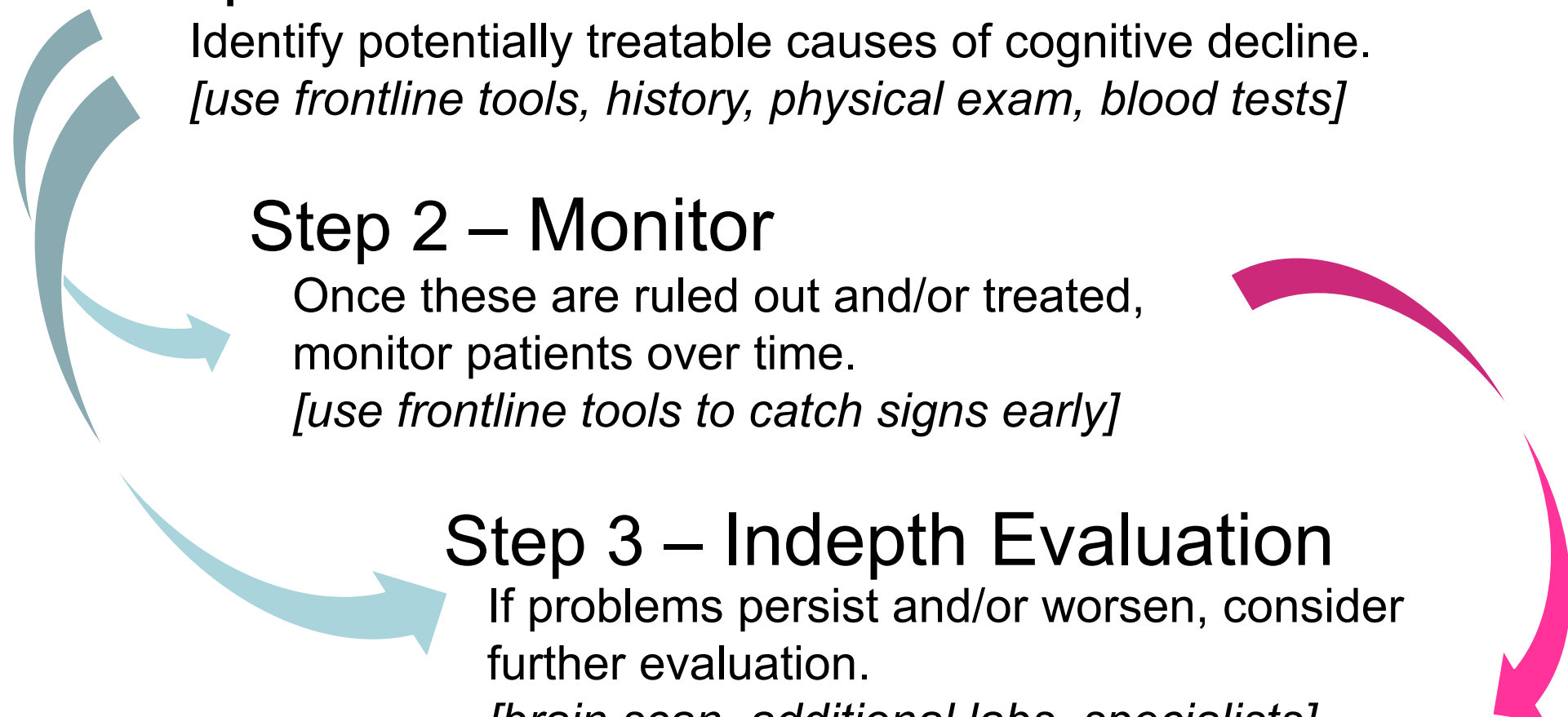
Identify potentially treatable causes of cognitive decline.
[use frontline tools, history, physical exam, blood tests]

Step 2 – Monitor

Once these are ruled out and/or treated, monitor patients over time.
[use frontline tools to catch signs early]

Step 3 – Indepth Evaluation

If problems persist and/or worsen, consider further evaluation.
[brain scan, additional labs, specialists]



Case - Joseph

- 66 year old male Veteran, living in an apt
- Divorced x 2 years from 2nd wife (<5 year marriage)
- New to clinic; moved here to be closer to daughter
- Daughter is concerned
- PMHx: diabetes, HTN – historically good control, but now vitals and labs don't look so great
- Is he taking his medications/insulin as prescribed?
- Doesn't seem cognitively sharp; disengaged at visit
- Delirium ruled out
- **Depression tx initiated**
- **Dementia is tbd**



Dementia?

Delirium?

Depression?

Dang! . . .
Now where
was I going?



Superman in his later years

Thank you

Questions?

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- etritt@uw.edu
- emily.trittschuh@va.gov

3Ds & Delirium card contact information:

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