Frontline Tools:

Delirium, Dementia, & Depression in Older Adults

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UW Medicine SCHOOL OF MEDICINE

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

Disclosure

- Nothing to disclose
- 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.

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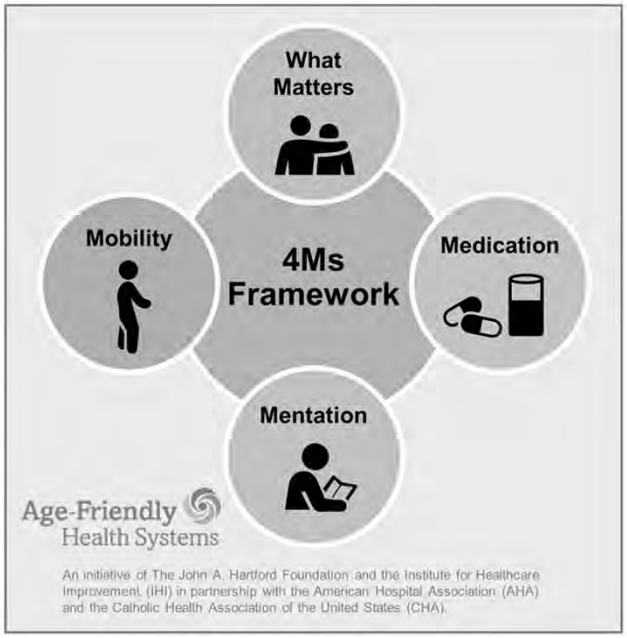

What Matters

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.

Learning Objectives

- Characterize dementia, delirium, and depression
- Identify key similarities and differences between these clinical syndromes
- Recognize warning signs and initiate diagnostic work-up
- Utilize data to guide treatment and care planning

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Clinical Relevance: The Aging Population

- In 2021, the oldest baby boomers are turning age 75
  - By 2029, all baby boomers will be at least 65 years old
- The number of Americans age 65+ is expected to grow from 53 million in 2018 to 88 million by 2050
- Older adults constitute:
  - 26% percent of physician office visits
  - A third of all hospital stays and of all prescriptions
  - Almost 40% of all emergency medical responses
  - 90% of nursing home residents

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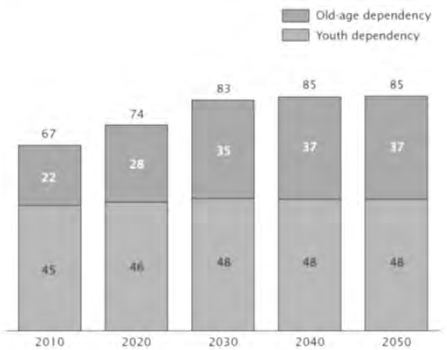
Facts & Figures: Alzheimer's Association

THE NEXT FOUR DECADES

The Older Population in the United States: 2010 to 2050

Population Estimates and Projections

Figure 2.
Dependency Ratios for the United States: 2010 to 2050



Note: Total dependency = ((Population under age 20 + Population aged 65 years and over) / (Population aged 20 to 64 years)) * 100.

Old-age dependency = (Population aged 65 years and over / Population aged 20 to 64 years) * 100.

Youth dependency = (Population under age 20 / Population aged 20 to 64 years) * 100.

Source: U.S. Census Bureau, 2008.

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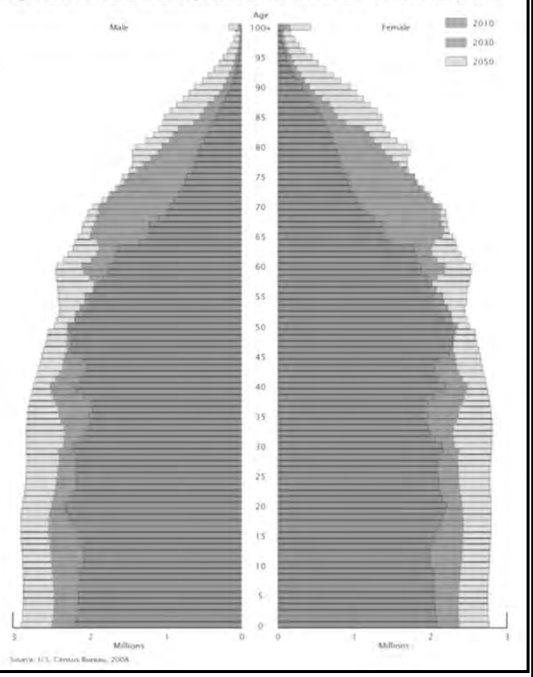
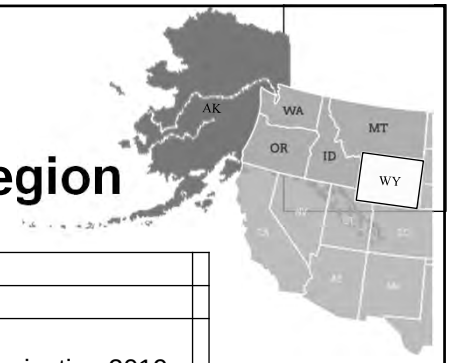
Figure 1.
Age and Sex Structure of the Population for the United States: 2010, 2030, and 2050



Northwest Geriatrics Region



Aging Population by State			
Number of Persons 65 and over			
State	Census 2010	Projection 2015	Projection 2019
AK	54,938	73,938	91,588
ID	194,668	241,154	290,670
MT	146,742	176,034	206,437
OR	533,533	653,968	766,080
WA	827,677	1,028,520	1,209,723
WY	70,090	84,699	99,179
Data Source: US Census Bureau			

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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 untreated delirium, depression, and dementia there needs to be a paradigm shift such that these disorders are a regular part of the workup and diagnostic differential for our aging patients
- Healthcare **team** approach is best

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Changes in thinking in older age

LET'S TALK MENTATION

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

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"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

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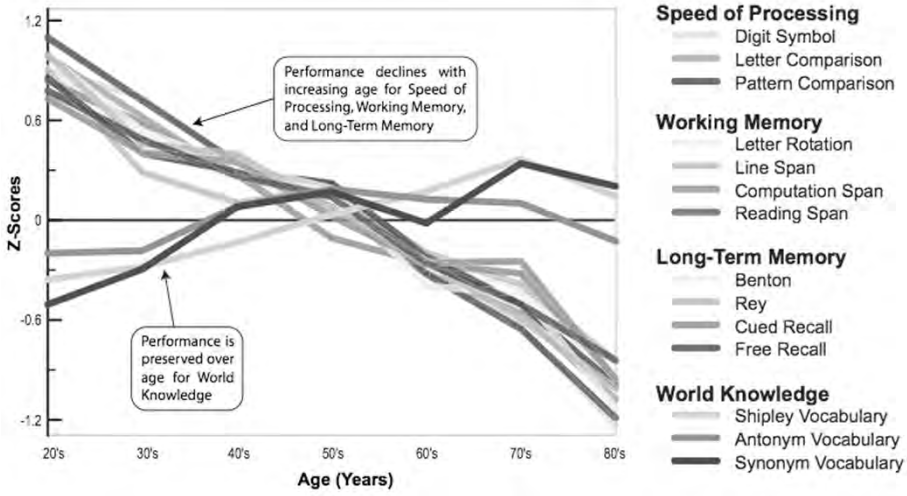
More “typical” cognitive aging



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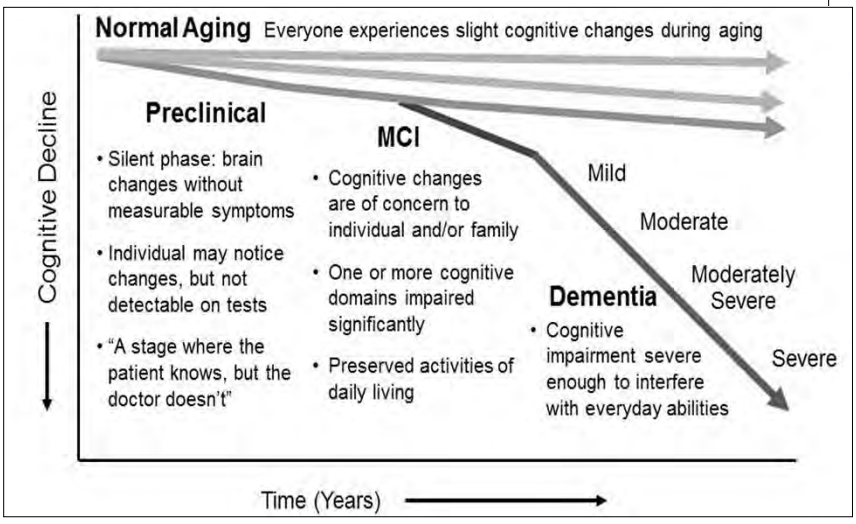
Park, et al, P*sychology & Aging,* 2002

Not all changes are “typical”



From S. McCurry who credits: http://health.mashangel.com

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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

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. . . 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

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Types of Dementia

- ☑ Alzheimer's Disease
- ❑ Vascular Dementia (cerebrovascular disease)
- ❑ Lewy Body Disease
- ❑ Parkinson's disease with dementia
- ❑ Frontotemporal Dementia (FTD)

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Causes that Mimic Dementia

Toxic/metabolic	Medications, B_{12} deficiency, hypothyroidism, impaired liver/kidney function, poisoning
Systemic illnesses	Infections (UTI to meningitis), pulmonary disease, cardiovascular disease
Other	Depression/PTSD, sleep apnea, stress, subdural hematoma, ETOH/drugs

Treatment may improve, but not fully reverse, symptoms

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What Delirium Is . . .

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

A <u>medical</u> 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)

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. . . 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

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Risk Factors for Delirium

- Hospitalization – delirium affects up to 40%
- Review & Meta-analysis (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

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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

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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 or feeling paranoid)

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. . . 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**

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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

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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 treatment[3]
- Younger and older adults respond equally well to treatment: psychotherapy and/or pharmacotherapy
  - Consider Medical Comorbidity for best treatment options
- Suicide rates: higher in the elderly
  - Also higher in Veterans, males, and Whites/Native Americans
- Monitor for cognitive decline because depression in later life could be a red flag for preclinical dementia[4]

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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. Singh-Manoux, et al. *JAMA Psychiatry* 2017.

Dementia, Delirium, and Depression

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

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Overlap in Syndromes

- Rates of depression in dementia range from 0-86% of cases (Wright & Persad, 2007)
- Delirium superimposed on dementia (DSD) = 57.7% (Mosk, et al, 2017)
- Older hospitalized patients, n=459, age 70+
  - 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**
    - Givens, Jones, & Inouye (2009)

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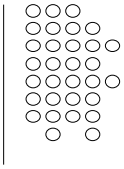
Case - Joseph



- 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
- Her concern is: “He just sits around all day and forgets what I tell him”
- PMHx: diabetes, HTN – historically good control

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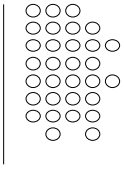
Case - Joseph



- 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

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Next steps?

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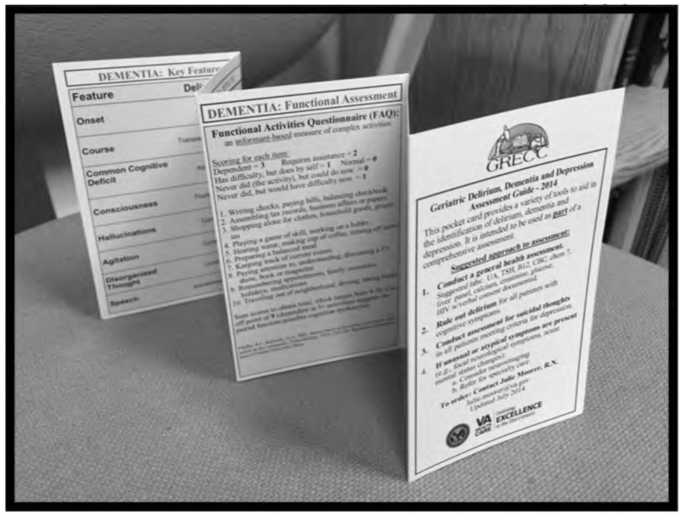
Initiate Work Up

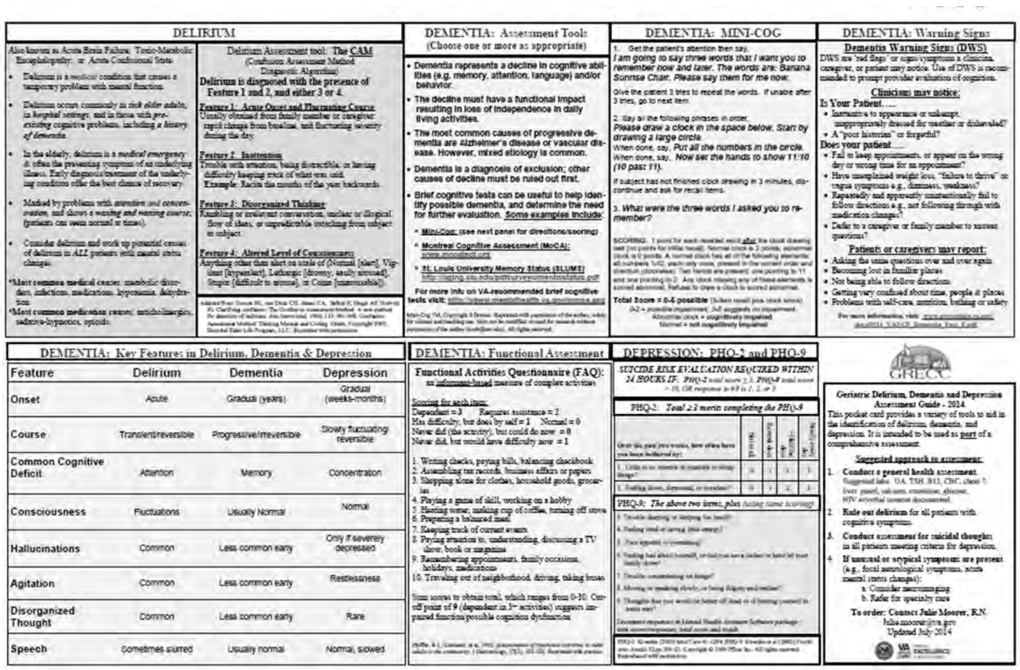
What are the available

SCREENING MEASURES?



3Ds: Assessment Guide

GERIATRIC DEMENTIA DELIRIUM AND DEPRESSION



DELIRIUM

Also known as Acute Brain Failure, Toxic-Metabolic Encephalopathy, or Acute Confusional State.

- 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, including *a history of dementia*.
- In the elderly, delirium is a *medical emergency* & often the presenting symptom of an underlying illness. Early diagnosis/treatment of the underlying condition offer 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, hyponatremia, dehydration.
*Most common medication causes: anticholinergics, sedative-hypnotics, opioids.

Delirium Assessment tool: The CAM
(Confusion Assessment Method Diagnostic Algorithm)

Delirium is diagnosed with the presence of Feature 1 and 2, and either 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]).

DEMENTIA: Assessment Tools
(Choose one or more as appropriate)

- Dementia represents a decline in cognitive abilities (e.g. memory, attention, language) and/or behavior.
- The decline must have a functional impact resulting in loss of independence in daily living activities.
- The most common causes of progressive dementia are Alzheimer's disease or vascular disease. However, mixed etiology is common.
- Dementia is a diagnosis of exclusion; other causes of decline must be ruled out first.
- Brief cognitive tests can be useful to help identify possible dementia, and determine the need for further evaluation. Some examples include:
  - Mini-Cog: (see next panel for directions/scoring)
  - Montreal Cognitive Assessment (MoCA): www.mocatest.org
  - St. Louis University Memory Status (SLUMS)

For more info on VA-recommended brief cognitive tests visit:

DEMENTIA: MINI-COG

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?*

Total Score = 0-5 possible
Abnormal clock = cognitively impaired
Normal = not cognitively impaired

DEMENTIA: Warning Signs

Dementia Warning Signs (DWS)
DWS are "red flags" or signs/symptoms a clinician, caregiver, or patient may notice. Use of DWS is recommended to prompt provider evaluation of cognition.

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: Key Features in Delirium, Dementia & Depression

Feature	Delirium	Dementia	Depression
Onset	Acute	Gradual (years)	Gradual (weeks-months)
Course	Transient/reversible	Progressive/irreversible	Slowly fluctuating; reversible
Common Cognitive Deficit	Attention	Memory	Concentration
Consciousness	Fluctuations	Usually Normal	Normal
Hallucinations	Common	Less common early	Only if severely depressed
Agitation	Common	Less common early	Restlessness
Disorganized Thought	Common	Less common early	Rare
Speech	Sometimes slurred	Usually normal	Normal, slowed

DEMENTIA: Functional Assessment

Functional Activities Questionnaire (FAQ):
an informant-based measure of complex activities

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

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

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.

DEPRESSION: PHQ-2 and PHQ-9

SUICIDE RISK EVALUATION REQUIRED WITHIN 24 HOURS IF:

PHQ-2: *Total ≥3 merits completing the PHQ-9*

PHQ-9: *The above two items, plus*

Geriatric Delirium, Dementia and Depression Assessment Guide - 2014
This pocket card provides a variety of tools to aid in the identification of delirium, dementia, and depression. It is intended to be used as part of a comprehensive assessment.

Suggested approach to assessment:
1. **Conduct a general health assessment.**
2. **Rule out delirium** for all patients with cognitive symptoms.
3. **Conduct assessment for suicidal thoughts** in all patients meeting criteria for depression.
4. **If unusual or atypical symptoms are present** (e.g., focal neurological symptoms, acute mental status changes):
   a. Consider neuroimaging
   b. Refer for specialty care

To order: Contact Julie Moorer, R.N.
Updated July 2014

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Delirium

DELIRIUM

Also known as "Acute Brain Failure", "Toxic-Metabolic Encephalopathy", or "Acute Confusional State"

Delirium commonly ***occurs in a patient with a history of dementia.***

Occurs commonly in ***sick older adults*** and in ***hospital settings***, and in those with ***pre-existing*** cognitive problems.

Marked by problems with ***attention*** *and* ***concentration.***

Shows a ***waxing and waning*** course; patients can seem normal at times.

- Consider delirium in ALL cases of mental status change.
- 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**: anticholinergics, sedative-hypnotics, opioids.

Use this assessment tool: The CAM (Confusion Assessment Method Diagnostic Algorithm)

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Adapted from: Inouye SK, vanDyck CH, Alessi CA, Balkin S, Siegal AP, Horwitz RI. Clarifying confusion: The Confusion Assessment Method. A new method for detection of delirium. *Ann Intern Med.* 1990; 113: 941-948. Confusion Assessment Method: Training Manual and Coding Guide, Copyright 2003, Hospital Elder Life Program, LLC. Reprinted with permission.

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Working Up Delirium

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

I nfections
W ithdrawal
A cute metabolic
T rauma
C NS pathology
H ypoxia
D eficiencies
E ndocrinopathies
A cute vascular
T oxins or drugs
H eavy metals

Joseph's work up was negative

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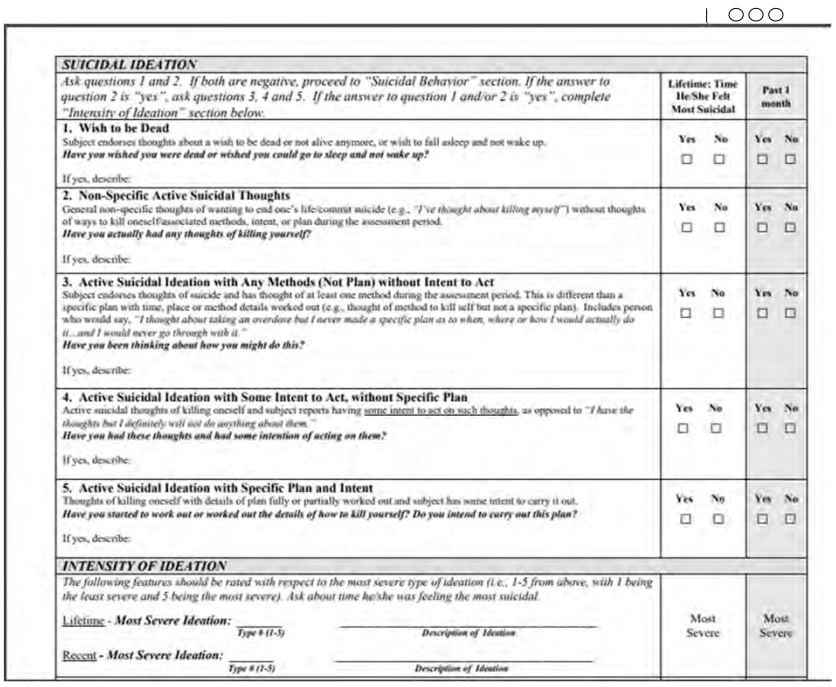
Depression

- <u>You do not need to be a mental health professional to ask about symptoms of depression</u>
  - Use recommended tools to guide you and have a plan for how to triage when you get a positive
- PHQ-2, and the PHQ-9, are free and common
- VHA has been shifting to the Columbia-Suicide Severity Rating Scale (C-SSRS)
  - https://www.hrsa.gov/behavioral-health/columbia-suicide-severity-rating-scale-c-ssrs

C-SSRS



SUICIDAL IDEATION		
Ask questions 1 and 2. If both are negative, proceed to "Suicidal Behavior" section. If the answer to question 2 is "yes", ask questions 3, 4 and 5. If the answer to question 1 and/or 2 is "yes", complete "Intensity of Ideation" section below.	**Lifetime: Time He/She Felt Most Suicidal**	**Past 1 month**
1. Wish to be Dead Subject endorses thoughts about a wish to be dead or not alive anymore, or wish to fall asleep and not wake up. ***Have you wished you were dead or wished you could go to sleep and not wake up?*** If yes, describe:	Yes ☐ No ☐	Yes ☐ No ☐
2. Non-Specific Active Suicidal Thoughts General non-specific thoughts of wanting to end one's life/commit suicide (e.g., *"I've thought about killing myself"*) without thoughts of ways to kill oneself/associated methods, intent, or plan during the assessment period. ***Have you actually had any thoughts of killing yourself?*** If yes, describe:	Yes ☐ No ☐	Yes ☐ No ☐
3. Active Suicidal Ideation with Any Methods (Not Plan) without Intent to Act Subject endorses thoughts of suicide and has thought of at least one method during the assessment period. This is different than a specific plan with time, place or method details worked out (e.g., thought of method to kill self but not a specific plan). Includes person who would say, *"I thought about taking an overdose but I never made a specific plan as to when, where or how I would actually do it…and I would never go through with it."* ***Have you been thinking about how you might do this?*** If yes, describe:	Yes ☐ No ☐	Yes ☐ No ☐
4. Active Suicidal Ideation with Some Intent to Act, without Specific Plan Active suicidal thoughts of killing oneself and subject reports having some intent to act on such thoughts, as opposed to *"I have the thoughts but I definitely will not do anything about them."* ***Have you had these thoughts and had some intention of acting on them?*** If yes, describe:	Yes ☐ No ☐	Yes ☐ No ☐
5. Active Suicidal Ideation with Specific Plan and Intent Thoughts of killing oneself with details of plan fully or partially worked out and subject has some intent to carry it out. ***Have you started to work out or worked out the details of how to kill yourself? Do you intend to carry out this plan?*** If yes, describe:	Yes ☐ No ☐	Yes ☐ No ☐
INTENSITY OF IDEATION		
The following features should be rated with respect to the most severe type of ideation (i.e., 1-5 from above, with 1 being the least severe and 5 being the most severe). Ask about time he/she was feeling the most suicidal. Lifetime - ***Most Severe Ideation:*** ___ *Type # (1-5)* ___ *Description of Ideation* Recent - ***Most Severe Ideation:*** ___ *Type # (1-5)* ___ *Description of Ideation*	Most Severe	Most Severe

PHQ-2

- An uber 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.				

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PHQ-9

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?

All questions use 0 – 3 scale (as on PHQ-2)

Depression is likely if the total score is greater than 10

A suicide risk evaluation is recommended immediately if:

Total Score is greater than 10 and/or response to question #9 is 1, 2 or 3.

Joseph's work up was positive

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Dementia

Signs/symptoms a clinician, caregiver, or patient may notice; should prompt provider to evaluate cognition

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

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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. ⇨ Unscored

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. ⇨ 2 pts for a clock without errors, 0 for **any** error

3. ***What were the three words I asked you to remember?*** ⇨ 1 pt per word (max 3)

Scoring: 0-5 possible
0-2 = possible impairment
3-5 = suggests no impairment

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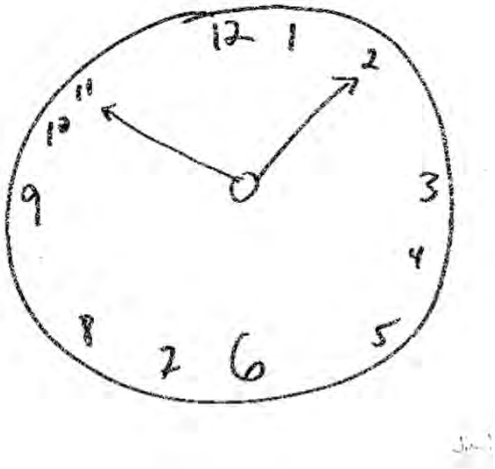
Mini-Cog Clock



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.

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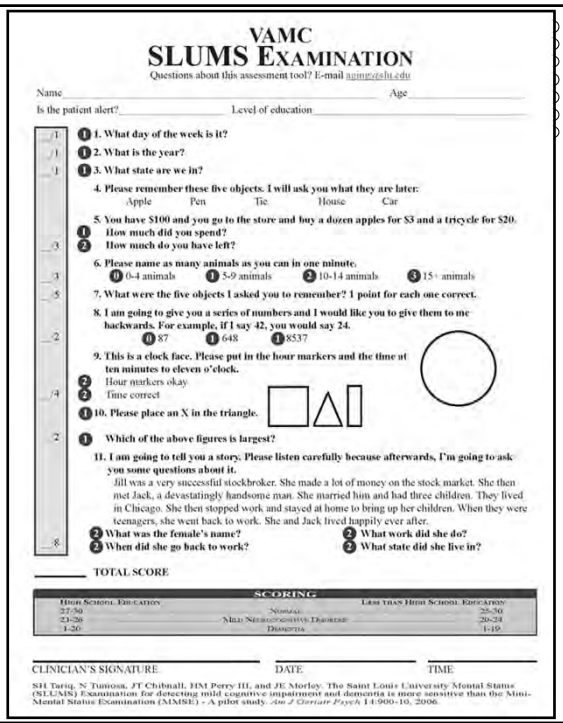
Many brief cognitive measures exist:

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



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

Name _____ Age _____
Is the patient alert? _____ Level of education _____

1. What day of the week is it? (1)
2. What is the year? (1)
3. What state are we in? (1)
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.
   How much did you spend? (1)
   How much do you have left? (2)
6. Please name as many animals as you can in one minute. (3)
   0 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. (5)
8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24. (2)
   0 87 1 648 1 8537
9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock. (4)
   2 Hour markers okay
   2 Time correct
10. Please place an X in the triangle. (1)
11. Which of the above figures is largest? (1) (2)
    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.
    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? (2)

(8) _____ TOTAL SCORE

SCORING		
High School Education		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.

Trittschuh, E. January 2021

Many brief cognitive measures exist:

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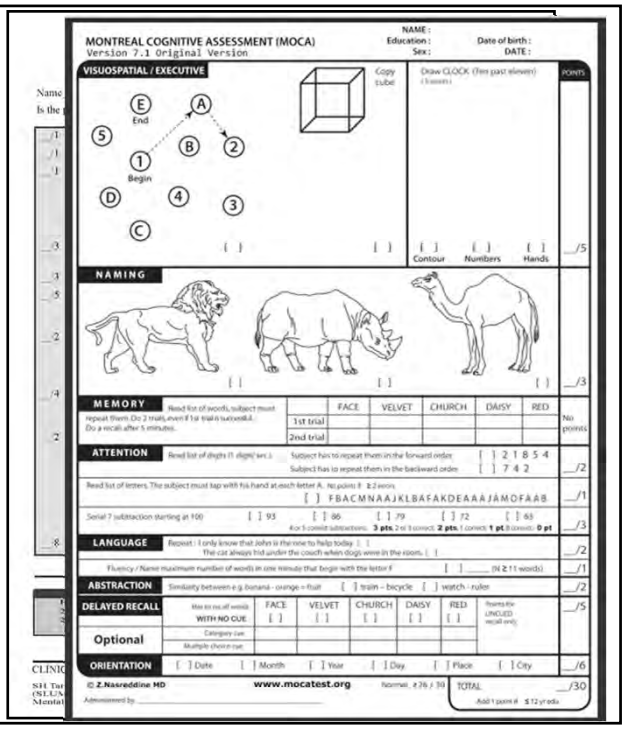

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Montreal Cognitive Assessment (MoCA):

http://www.mocatest.org/

- More sensitive than MMSE
- WELL-RESEARCHED
  - http://www.mocatest.org/references.asp
- Comes in multiple English versions and >25 other languages
- Blind/Telephone version
- Telemedicine version
- February 1: training 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

Nasreddine, et al. (2005) J Am Geriatr Soc 53: 695-699.

Trittschuh, E. January 2021

Why use brief cognitive tests?

- To obtain a quick sense of global function
  - To identify if there are deficits
  - To follow someone with identified deficits over time
- Is there any reason to question whether the patient has decision-making capacity?
- To identify cognitive decline early
  - Benefits may include: early introduction of cholinesterase inhibitors, addressing any reversible influences, assist with care planning, to motivate patients toward positive behavioral change

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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

Trittschuh, E. January 2021

Functional Activities Questionnaire

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**

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

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**

Trittschuh, E. January 2021

Healthy Brain Aging

Risk Factors: 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

Trittschuh, E. January 2021

The 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

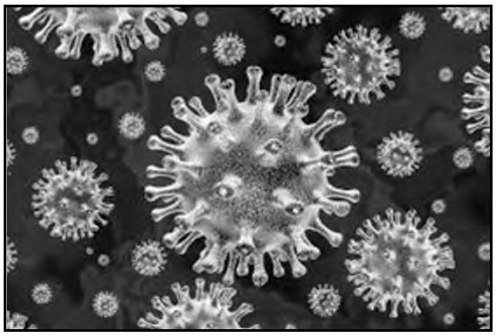
If problems persist and/or worsen, consider further evaluation.
[brain scan, additional labs, specialists.]

Trittschuh, E. January 2021

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**

Trittschuh, E. October 2020



The 3Ds

COVID-19 CONSIDERATIONS

The Lancet Neurology

RAPID REVIEW| VOLUME 19, ISSUE 9, P767-783, SEPTEMBER 01, 2020
Neurological associations of COVID-19
Ellul, Benjamin, Singh, Lant, et al.

- A growing number of case reports and series describe a wide array of neurological manifestations in 901 patients, but many have insufficient detail, reflecting the challenge of studying such patients. **Encephalopathy** has been reported for 93 patients in total, including 16 (7%) of 214 hospitalised patients with COVID-19 in Wuhan, China, and 40 (69%) of 58 patients in intensive care with COVID-19 in France. **Encephalitis** has been described in eight patients to date, and **Guillain-Barré syndrome** in 19 patients. SARS-CoV-2 has been detected in the CSF of some patients. Anosmia and ageusia are common, and can occur in the absence of other clinical features. Unexpectedly, **acute cerebrovascular disease** is also emerging as an important complication, with cohort studies reporting stroke in 2–6% of patients hospitalised with COVID-19. So far, 96 patients with stroke have been described, who frequently had vascular events in the context of a pro-inflammatory hypercoagulable state with elevated C-reactive protein, D-dimer, and ferritin.

Trittschuh, E. January 2021

Dementia?

Delirium?

Depression?

Superman in his later years

Thank you!

Questions? Email:
emily.trittschuh@va.gov

3Ds card contact information:
julie.moorer@va.gov

Brief Cognitive Testing Using Tele-methods

- Informed Consent
- Evidence base
- Normative data
- Ethical and legal considerations
- Logistical and practical issues

Trittschuh, E. January 2021

Blind/Telephone MoCA

- Adapted version, it assesses attention and concentration, memory, language, conceptual thinking, calculations, and orientation.
- Same items as the original MoCA except those requiring visual abilities have been removed.
- Time to administer the MoCA- BLIND is approximately 5-10 minutes.
- The total possible score is 22 points; a score of 18 or above is considered normal. This cutoff score is <u>suggestive; not yet **validated**</u>.
- **TOTAL SCORE:** Sum subscores listed on the right-hand side. Add 1point for 12 years or fewer of formal education, for a possible maximum of 22 points.
- Opinion: use tMOCA or phoneMOCA in chart documentation

MONTREAL COGNITIVE ASSESSMENT / MoCA-BLIND
Version 7.1 Original Version

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

MEMORY		FACE	VELVET	CHURCH	DAISY	RED	POINTS
Read list of words, subject must repeat them. Do 2 trials even if 1st trial is successful. Do a recall after 5 minutes.	1st trial						No points
	2nd trial						

ATTENTION

Read list of digits (1 digit/sec.) Subject has to repeat them in the forward order [ ] 2 1 8 5 4 __/ 2
Subject has to repeat them in the backward order [ ] 7 4 2

Read list of letters. The subject must tap with his hand at each letter A. No point if ≥ 2 errors. __/ 1
[ ] 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

Serial 7 subtraction starting at 100 __/ 3
[ ] 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

LANGUAGE

Repeat: I only know that John is the one to help today. [ ] __/ 2
The cat always hid under the couch when dogs were in the room. [ ]

Fluency / Name maximum number of words in one minute that begin with the letter F: [ ] _____ (N ≥ 11 words) __/ 1

ABSTRACTION __/ 2
Similarity between e.g. banana - orange = fruit [ ] train - bicycle
[ ] watch - ruler

DELAYED RECALL	Has to recall words	FACE	VELVET	CHURCH	DAISY	RED	
	With no cue	[ ]	[ ]	[ ]	[ ]	[ ]	Points for UNCUED recall only
Optional	Category cue						__/ 5
	Multiple choice cue						

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

© Z. Nasreddine MD www.mocatest.org Normal ≥ 18 / 22 TOTAL __/ 22
Add 1 point if ≤ 12 yr edu

Administered by: _____

Trittschuh, E. January 2021

Telemedicine MoCA

- Use Standard MoCA form but <u>document admin methods</u>;
  - opinion - use eMOCA or videoMOCA
- Ahead of time:
  - Have the visual stimuli available to show the patient via downloadable pdf file.
  - Patient will need a white sheet of paper, a pencil and eraser, and to isolate themselves in a quiet room. Ask them to **not** have a watch or clock in the room, or a calendar.
  - Data capture: score on the fly or screen shot or take a picture?
- Show the Trail and say: "*This line is going from a number to a letter in ascending order. It begins here and goes from 1 then to A then to 2 and so on. Please tell me where the arrow should go next to respect the pattern I'm showing you. End here at E (point to E).*" Prompt *"Keep going"* as needed.
- Show the Cube and ask them to copy it and then show their work. *"Please hold your paper up in front of your face so I can see it [take a picture of it.]"*
- Similarly, read the Clock instructions and ask them to show their work.
- Show the animals and ask them to name them.
- Vigilance: *"I am going to read a sequence of letters. Every time I say the letter A, clap your hands once. If I say a different letter, do not clap."*
- Date: "*Look straight at the camera and tell me today's date, day of the week, month, and year."*
- Place: *"From what clinic/institution am I calling you from?"*
- City: *"What is the city in which our clinic/institution is located?"*

Trittschuh, E. January 2021