Mentation: the 3Ds
Delirium, Dementia, & Depression in Older Adults

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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.
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

Clinical Relevance: The Aging Population

- In 2020, the oldest baby boomers are turning age 74
  - 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
The Older Population in the United States: 2010 to 2050

Population Estimates and Projections

Pacific Northwest and Alaska

State Projections of Population Aged 65 +

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<td>54,938</td>
<td>73,938</td>
<td>91,588</td>
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<td>ID</td>
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<td>290,670</td>
<td>361,033</td>
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<td>MT</td>
<td>146,742</td>
<td>176,034</td>
<td>206,437</td>
<td>269,558</td>
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<tr>
<td>OR</td>
<td>533,533</td>
<td>653,968</td>
<td>766,080</td>
<td>881,957</td>
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<td>WA</td>
<td>827,677</td>
<td>1,028,520</td>
<td>1,209,723</td>
<td>1,563,901</td>
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</table>

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 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

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

“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

Not all changes are “typical”
Dementia Is . . .
A decline in some aspect of cognitive function and/or behavior

- 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 Disease
- Vascular Dementia
- Lewy Body Disease
- Parkinson’s disease with dementia
- Frontotemporal Dementia (FTD)

Causes that Mimic Dementia

- Toxic/metabolic
  - Medications, B₁₂ 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*
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, et al, 2001)

. . . What Delirium Is Not

- 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 (Ahmed, Leurent, & Sampson, 2014)
  - Pooled analysis risk factors: dementia, illness severity, visual impairment, urinary catheterization, low albumin, and length of hospital stay
  - 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
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)

. . . 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
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 the Elderly

- As many as 10% of adults age 65+ seen in primary care settings have clinically significant depression\(^1,2\)
- Younger and older adults respond equally well to treatment: psychotherapy and/or pharmacotherapy
  - However, only ~10% of older adults with depression receive treatment\(^3\)
- Always consider Medical Comorbidity
- 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\(^4\)

Dementia, Delirium, and Depression

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

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)
Case - Joseph

- 66 year old male Veteran
- Divorced x 2 years from 2\textsuperscript{nd} 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

Next steps?

- 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
Initiate Work Up

What are the available SCREENING MEASURES?

3Ds: Assessment Guide
GERIATRIC DEMENTIA DELIRIUM AND DEPRESSION
Delirium

Delirium is a medical emergency that occurs in older adults and hospital settings, and in those with pre-existing cognitive problems. Marked by problems with attention and concentration, it can be diagnosed using the Confusion Assessment Method (CAM) Diagnostic Algorithm.

**DELIRIUM:**

**DELIRIUM:** Acepted Definition

Delirium is diagnosed with the presence of one or more of the following:

- Acute onset and fluctuating course
- Altered level of consciousness
- Inappropriate attention and concentration
- Physical examination shows a waxing and waning course

**DELIRIUM:** Delirium: Acepted Definition

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, patients can become agitated and restless.

- 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, hypoxia, hypoglycemia.
- Most common medication causes: anticholinergics, sedatives/hypnotics, opioids.

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

**DELIRIUM:** Delirium: Acepted Definition

Delirium is diagnosed when a patient shows signs of confusion, agitation, and inattention, compared to their baseline. The CAM diagnostic algorithm requires:

1. Acute onset and fluctuating course
2. Altered level of consciousness
3. Inappropriate attention and concentration
4. Physical examination shows a waxing and waning course

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Working Up Delirium

- It’s not just a “bad day”
- 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

Joseph’s work up was negative

Depression

- PHQ-2 is a quick and dirty screen
- Self-report

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

<table>
<thead>
<tr>
<th>1. Little or no interest or pleasure in doing things?</th>
<th>Not at all</th>
<th>Several days</th>
<th>&gt; Half of the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</table>

<table>
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<tr>
<th>2. Feeling down, depressed, or hopeless?</th>
<th>Not at all</th>
<th>Several days</th>
<th>&gt; Half of the days</th>
<th>Nearly every day</th>
</tr>
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<tbody>
<tr>
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A score of 3 or greater merits completing the PHQ-9, AND a suicide risk evaluation should be completed within 24 hours
**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.

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**Dementia**

‘Red flags’ 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

Trittschuh, E. October 2020
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?*

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

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Mini-Cog TM For clinical and teaching use. May not be modified or used for research without permission of the author (soob@uw.edu). All rights reserved. © S Borson

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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.
Many brief cognitive measures exist:

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

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
- December 1: training required

Brief Cognitive Testing Using Tele-methods

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

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 suggestive; not yet validated.
- TOTAL SCORE: Sum subscores listed on the right-hand side. Add 1 point for 12 years or fewer of formal education, for a possible maximum of 22 points.
- Opinion: use tMOCA or phoneMOCA in chart documentation.
Telemedicine MoCA
- Use Standard MoCA form but document admin methods.
- 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?”

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 include: early introduction of cholinesterase inhibitors, addressing any reversible influences, assist with care planning, to motivate patients toward positive behavioral change
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

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


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Dementia is a diagnosis of EXCLUSION

... And remember to communicate diagnostic information to your patients
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

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
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.]

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

The 3Ds

COVID-19 CONSIDERATIONS
COVID-19

Some Coronavirus Patients Show Signs of Brain Ailments

- April 1, 2020 New York Times
- Doctors have observed neurological symptoms, including confusion, stroke and seizures, in a small subset of Covid-19 patients.
- Be aware of high delirium risk
- Additionally ongoing monitoring for depression and dementia

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.
Thank you!

Questions? Email: emily.trittschuh@va.gov
3Ds card contact information: julie.moorer@va.gov