Delirium in Age-Friendly Care: Implementing Rapid Delirium Screening & 4Ms Interventions at the Bedside

Donna Fick, APRN-BC, PhD, FGSA, AGSF, FAAN
Penn State College of Nursing & Geriatric Center of Excellence

NICHE + Nebraska Methodist Hospital Regional Geriatric Nursing Conference

1

Disclosures

Donna M. Fick

Disclosure: Dr. Fick has funding from the National Institute of Health and is a faculty advisor for Institute for Healthcare Improvement.

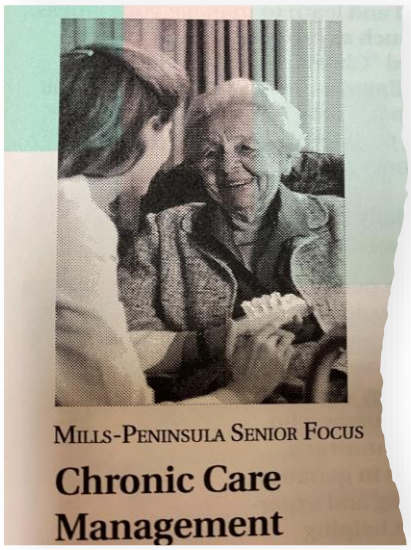
None of the planners for this activity have relevant financial relationships to disclose with ineligible companies.

2

Today's Talk

- Brief overview of delirium, UB-CAM, *"but first a story".*
- What to do if a patients screens positive for delirium?
- Delirium Management & Our Research

3



4

Case Study: Mrs. M

Mrs. M is an 88 year old female who you are rounding on.

She lives independently in low-income housing. She is a widow and is estranged from her son (unrepresented). While in her home, she fell and sustained a left hip fracture. Her past medical history is significant for arthritis, hearing loss, and mixed urinary incontinence. Her home medication list includes:

- oxybutynin 5mg three times daily
- multi-vitamin once daily
- acetaminophen extended release 650mg – 2 tablets (1300mg) PO Q8H PRN arthritis pain

She is admitted to the hospital and undergoes surgical repair the next day for her hip fracture. During the surgical procedure, she receives spinal anaesthesia without complications. Her mental status is not documented.

Mrs. M's niece visits her POD1 and expresses concern stating that her aunt is "not acting like herself", mentioning that "she is not all there", and that she is restless and that she wants to go home immediately. Nursing reports indicate that she has been sitting up in bed and is in no obvious distress. The nurse caring for Mrs. M tells her niece that this is the first time caring for her but that she "seems fine, maybe a little inappropriate".

5

What's unusual about this case?

A. There were no delusions, hallucinations, or behaviors (agitation)
B. Delirium or Dementia was never recognized or documented in the record
C. Delirium did not resolve quickly and was followed by a prolonged SNF stay
D. Delirium was followed by long term cognitive and functional decline
E. None of the above

6

What's unusual about this case?

A. There were no delusions, hallucinations, or behaviors (agitation)
B. Delirium was never recognized or documented in the medical record
C. Delirium did not resolve quickly and was followed by a prolonged SNF stay
D. Delirium was followed by long term cognitive and functional decline
E. None of the above

7

What are some indications she should be screened for delirium?

A. Friend saying she "is not acting like herself"
B. She is over 65 years old and post surgery
C. She is progressing poorly with rehab and eating poorly
D. She has hearing loss
E. All of the above

Answer—E—Listen to CG to understand baseline, age and surgery is a risk factor for delirium, hypoactive delirium can present silently, hearing loss is an independent risk factor for delirium and dementia. Age-friendly care initiative and most major organizations recommend every 12 hours screening for 65 and older in acute care

8

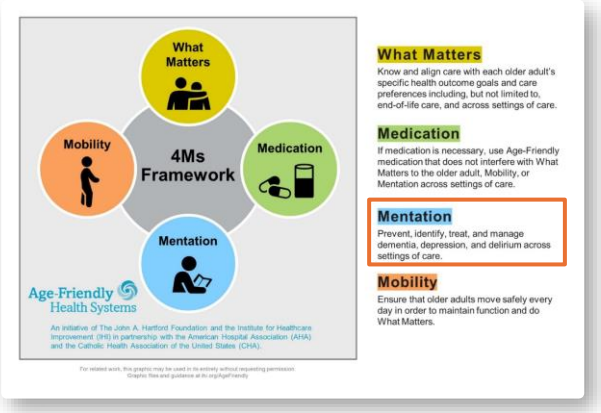
Common (mis)beliefs about delirium

Caveats:

- Not an exhaustive list
- Picked because subjectively meaningful to me

- Delirium is an “epiphenomenon” that will go away with no impact on outcomes
- Delusions and hyperactive delirium are common (only 10%) hypoactive most common
- Delirium can not be detected or treated in persons with dementia
- Only “experts” can identify delirium
- Once delirium develops, there is nothing you can do about it

9



The 4Ms Framework

Age-Friendly Health Systems

10

Why should we care about Delirium?

A brief overview

11

Delirium is Common

Population	Prevalence or Incidence	Rate (%)
Medical Inpatients >70 yrs	Mixed (50:50)	30-40%
Surgery > 70 yrs	Incidence	15-50%
Community/Home Health*	Mixed	10-60%

A large hospital may have over **100 patients** actively delirious at any given time. *Paucity of home data but about 40% of persons with dementia coming into the hospital from home have delirium.

Inouye et. al., Ann Int Med, 1993; Marcantonio et. al., JAMA, 1994; Marcantonio et. al., JAGS, 2000; Ely et. al., JAMA, 2004; Marcantonio et. al., JAGS, 2010

12

Delirium is Morbid, Costly

After adjusting for confounders…

- Short term: ↑death, ↑complications, ↑hospital LOS, ↓discharge to home
- Long term: ↑death, ↑NH placement, ↑dementia
- Costs of delirium:
  - $60K over 1 year after episode
  - Translates to $164 billion annually in U.S.

Witlox et. al., JAMA, 2010; Marcantonio et. al., Ann Int Med 2011; Leslie et. al. Arch Int Med, 2008, JAGS, 2011

13

N=139, DSD Fick et.al, J Hosp Med, 2013

- •Delirium incidence (medical service): 32%
- •Length of Stay:
  - Delirium: 9.2 days
  - No delirium: 5.6 days
- •1-month mortality rate: 25%
- •1-month function: ↓ADLs, ↓IADLs

14

CONTINUE TO SEE AN INCREASE IN ANTIPSYCHOTIC USE & DECLINE IN NON-DRUG TEAM APPROACHES

The Epidemic Within the Pandemic: Delirium

Delirium is leaving many older patients more vulnerable. They need caregivers, despite no-visitor rules.

May 10, 2020

Nurses tend to a COVID-19 patient in a Stamford Hospital intensive care unit (ICU) in Stamford, Connecticut. John Moore/Getty Images

Original Investigation | Geriatrics

February 17, 2023

Antipsychotic Medication Use Among Older Adults Following Infection-Related Hospitalization

Yichi Zhang, MS[1,2], James M. Wilkins, MD[3], Lily Gui Bessette, MS[3], et al

> Author Affiliations | Article Information

JAMA Netw Open. 2023;6(2):e230063. doi:10.1001/jamanetworkopen.2023.0063

Key Points

Question What are the rates and associated patient characteristics of discontinuation of antipsychotic medications (APMs) among older adults following infection-related hospitalization?

Findings In this cohort study of 5835 patients in the US, we observed discontinuation rates of only 11% for new atypical APM users and 52% for new haloperidol users by 30 days after initiation following infection-related hospitalization. Dementia and prolonged hospitalization were inversely associated with haloperidol and atypical APM discontinuation.

Meaning These findings suggest that contrary to clinical recommendations, APM discontinuation rates following infection-related hospitalization are low and are lower for atypical APMs than for haloperidol.

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ajgponline.org

ELSEVIER

Editorial

Knowing the Older Adult With Delirium Superimposed on Dementia

Donna Marie Fick, Ph.D., RN, GCNS-BC, FAAN

Research

JAMA Psychiatry | Original Investigation

Rates of Antipsychotic Drug Prescribing Among People Living With Dementia During the COVID-19 Pandemic

Hao Luo, PhD; Wallis C. Y. Lau, PhD; Yi Chai, PhD; Carmen Olga Torre, MSc; Robert Howard, MD; Kathy Y. Liu, PhD; Xiaoyu Lin, MSc; Can Yin, MSc; Stephen Fortin, PharmD; David M. Kern, PhD; Dong Yun Lee, MD; Rae Woong Park, PhD; Jae-Won Jang, MD; Celine S. L. Chui, PhD; Jing Li, MSc; Christian Reich, PhD; Kenneth K. C. Man, PhD; Ian C. K. Wong, PhD

IMPORTANCE Concerns have been raised that the use of antipsychotic medication for people living with dementia might have increased during the COVID-19 pandemic.

OBJECTIVE To examine multinational trends in antipsychotic drug prescribing for people living with dementia before and during the COVID-19 pandemic.

DESIGN, SETTING, AND PARTICIPANTS This multinational network cohort study used electronic health records and claims data from 8 databases in 6 countries (France, Germany, Italy, South Korea, the UK, and the US) for individuals aged 65 years or older between January 1, 2016, and November 30, 2021. Two databases each were included for South Korea and the US.

EXPOSURES The introduction of population-wide COVID-19 restrictions from April 2020 to the latest available date of each database.

MAIN OUTCOMES AND MEASURES The main outcomes were yearly and monthly incidence of dementia diagnosis and prevalence of people living with dementia who were prescribed antipsychotic drugs in each database. Interrupted time series analyses were used

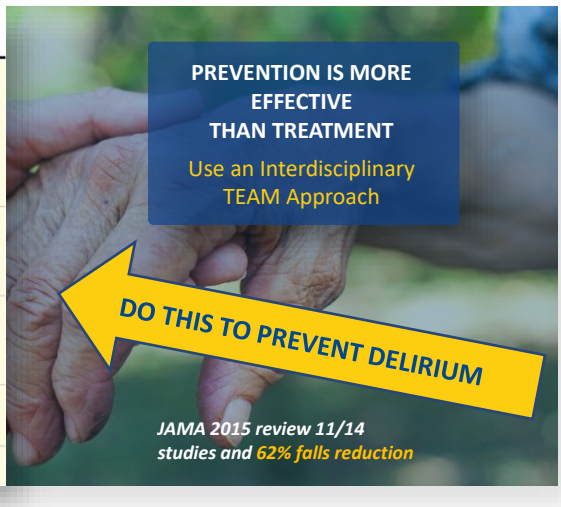
PennState Ross and Carol Nese College of Nursing | Tressa Nese and Helen Diskevich Center of Geriatric Nursing Excellence

15

DELIRIUM IS PREVENTABLE & TREATABLE!

Nonpharmacologic Approaches for Delirium Prevention and Support Using the 4Ms of Age-Friendly Care*

Orientation and cognitive stimulation activities	▪ Provide lighting, signs, calendars, clocks ▪ Reorient the patient to time, place, person ▪ Use validation if they have dementia and consider use of an "All About Me Board" ▪ Introduce cognitively stimulating activities (e.g., reminiscing, familiar phrases) ▪ Assess and document "What Matters" ▪ Facilitate regular visits from family, friends ▪ Consider a video from familiar friends or family
Fluid repletion and nutrition	▪ Encourage patients to drink; consider parenteral fluids if necessary and have an easy-to-hold drink container with markings so older adults can see their intake ▪ Seek advice regarding fluid balance in patients with comorbidities (heart failure, renal disease)
Medications	▪ Avoid inappropriate and central-nervous system medications that may cause or worsen delirium (see AGS Beers Criteria®) ▪ Review the type and number of medications ▪ Consider deprescribing (taper) if needed and offer non-drug or safer alternatives
Early mobilization	▪ Encourage early mobilization (every older adult/everyday) ▪ Keep walking aids (canes, walkers) nearby at all times ▪ Ensure all older adults have a daily mobility goal
Vision and hearing/sensory enhancement	▪ Resolve reversible cause of the impairment ▪ Ensure working hearing and visual aids are available and used by patients



PennState Ross and Carol Nese College of Nursing | Tressa Nese and Helen Diskevich Center of Geriatric Nursing Excellence

16

CAM Diagnostic Algorithm

- Feature 1: Acute change, fluctuating course
- Feature 2: Inattention
- Feature 3: Disorganized thinking
- Feature 4: Altered level of consciousness

Diagnosis of Delirium: requires presence of Features 1 and 2 and *either* 3 or 4.

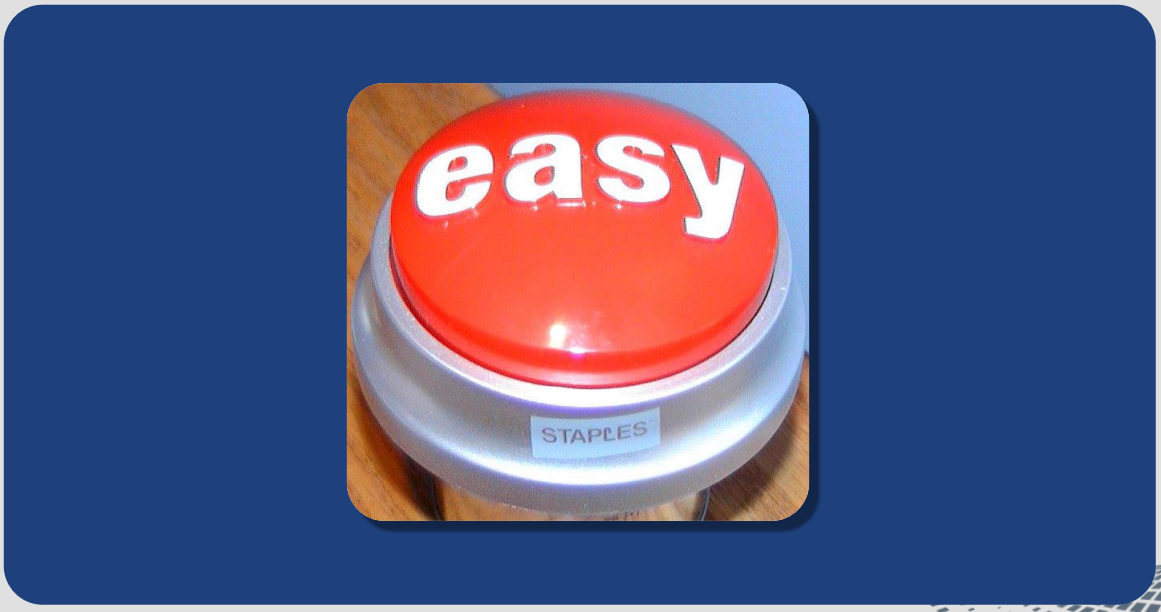
Inouye et. al., Ann Int Med, 1990.

17

Clinician Challenges-CAM

- Most clinicians do not know:
  - What questions to ask
  - How to map errors on cognitive testing to specific CAM features
  - The threshold of “errors” at which a CAM feature is present
  - How to put it all together to make a diagnosis of delirium
  - Clinicians not trained in assess mental constructs like inattention

18



PennState
Ross and Carol Nese
College of Nursing

19

Developing UB-2

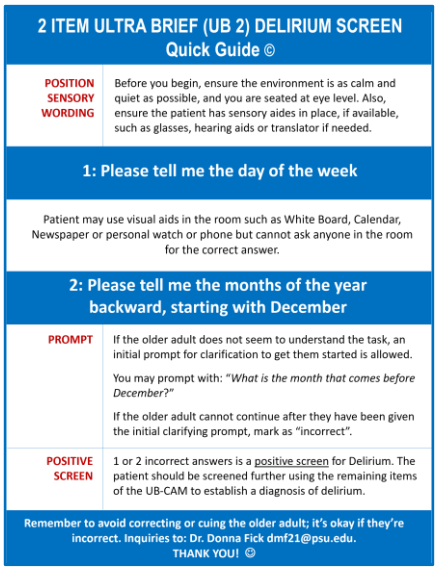
- **Can we get it shorter?** → Ultra-brief screens
  - Initial screen to rule out delirium **quickly**
  - CAM has clinician challenges—of how to operationalize, what questions to ask and how to put them together for a positive delirium

- **Can we make it easy and smart (app)?**

Fick et. al., J Hosp Med, 2015

20

Developing UB-2 to UB-CAM



2 ITEM ULTRA BRIEF (UB 2) DELIRIUM SCREEN
Quick Guide ©

POSITION SENSORY WORDING	Before you begin, ensure the environment is as calm and quiet as possible, and you are seated at eye level. Also, ensure the patient has sensory aides in place, if available, such as glasses, hearing aids or translator if needed.

1: Please tell me the day of the week

Patient may use visual aids in the room such as White Board, Calendar, Newspaper or personal watch or phone but cannot ask anyone in the room for the correct answer.

2: Please tell me the months of the year backward, starting with December

PROMPT	If the older adult does not seem to understand the task, an initial prompt for clarification to get them started is allowed. You may prompt with: "*What is the month that comes before December?*" If the older adult cannot continue after they have been given the initial clarifying prompt, mark as "incorrect".
POSITIVE SCREEN	1 or 2 incorrect answers is a positive screen for Delirium. The patient should be screened further using the remaining items of the UB-CAM to establish a diagnosis of delirium.

Remember to avoid correcting or cuing the older adult; it's okay if they're incorrect. Inquiries to: Dr. Donna Fick dmf21@psu.edu.
THANK YOU! ☺

QUICK 40 seconds!

Due to lower specificity (false positives) needs to do a **2-step process-follow with UB-CAM or other CAM tool**. This was our next step in our research!

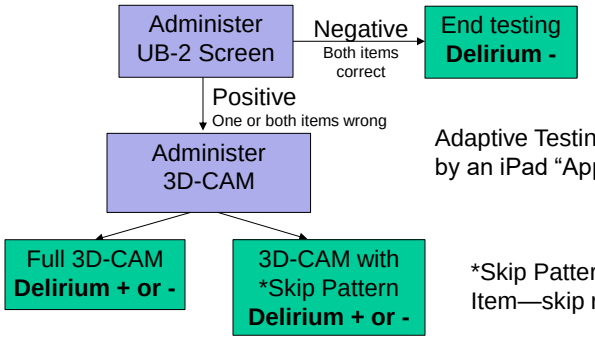
Nursing assistants do this well with over 90% sensitivity ! (n = 110)

UB-CAM has additional questions but will **"skip"** feature questions once the feature is triggered positive which makes it a **QUICK** delirium tool!

LINK TO full UB-CAM
https://deliriumnetwork.org/measurement/ub-cam/

21

UB-CAM: Two Step Delirium Identification Protocol



Adaptive Testing facilitated by an iPad "App"

*Skip Pattern: One positive Item—skip rest of Feature

22

READI Main Results-UB-CAM

- 527 hospitalized older adults, 924 days
  - BIDMC & MNMC
  - Over 1/3 with dementia/AD
  - 399 MDs, RNs, CNAs vs. Reference (gold) Standard
- Main findings:
  - UB-CAM completed > 97%
  - Avg. completion time: 1 min 15 secs
  - Overall accuracy = 89%
  - RNs = MDs, CNAs can administer UB-2
  - Skip pattern ↓ admin time, no ↓ accuracy
  - Over sampled PWD--80% accuracy even in moderate stage (see Qualitative results too)

Marcantonio, Fick, et. al, Ann Int Med 2022

23

Lets Try It!

Download the UB-CAM App
onto your Phone (FREE)

For iPhone (iOS)

SCAN ME

UB-CAM Delirium Screen App

For Android

24

Training Videos

- Developed by Kerry Palihnich
- 2 Assessments on Same Day
- Follow along with the App
  - Code: “Present” or “Not Present” OR
  - Code: “Correct” or “Incorrect”
  - Hit “Next” to move onto the next question

25

Day 1

26

Day 2

27

What is Next?
We need better evidence treatment works

- Prevention isn't the only answer:
  - Best preventive interventions are ~40% effective
  - Over half of delirium on the medical service is present on admission
  - Can't prevent something that's already happened
- Antipsychotics reduce agitation but do not "treat" delirium: convert hyperactive → hypoactive, cover up what is happening, lead to decline in function and greatly prolong LOS

28

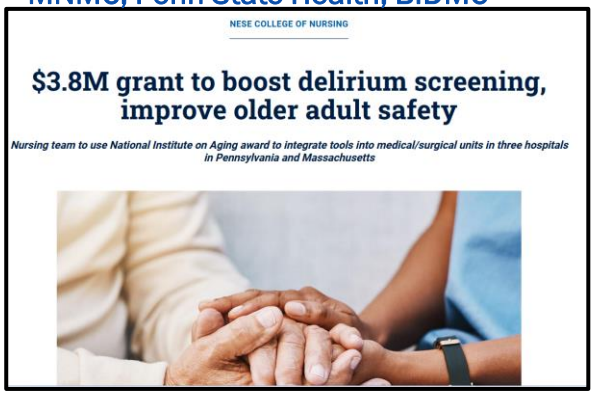
How do we bring delirium screening to all? READI-SET-GO !

Implement systematic delirium case identification and management with UB-CAM

2023 – 2028 NIH funding

Fick, PENN STATE; Marcantonio, HARVARD

MNMC, Penn State Health, BIDMC



SCAN ME

- hospitalized older adults aged 70+
- EHR integration, stepped-wedge design
- 6 acute med-surg units, 3 hospitals

Aim #1: accuracy of delirium detection

Aim #2: patient, family and staff outcomes

Aim #3: rate of complications from delirium

29

Delirium Management
Four Key Steps

Step 1: Identify delirium (early)

Step 2: Assess/treat contributing factors

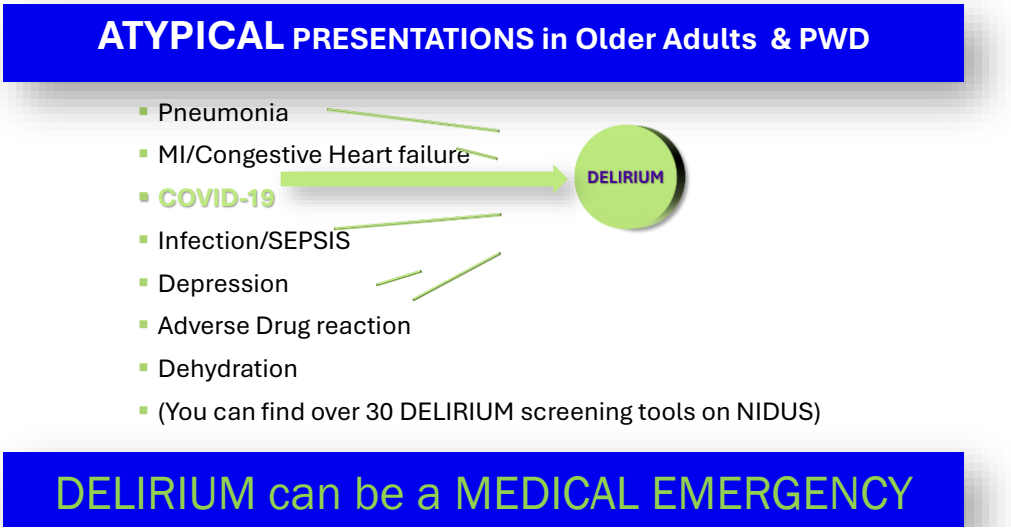
Step 3: Prevent complications

Step 4: Restore function

Bergmann et. al., JAGS. 2005, Marcantonio et. al., JAGS. 2010, Marcantonio, NEJM, 2017.

30

"Think Delirium FIRST"



31

Step 2: Correct reversible factors

- **D** RUGS: esp. high risk
- **E** lectrolyte imbalance (dehydration)
- **L** ack of drugs (withdrawal, uncontr. pain)
- **I** nfection
- **R** educed sensory input (vision, hearing)
- **I** ntracranial (CVA, subdural, etc.--rare)
- **U** rinary retention/fecal impaction
- **M** yocardial/Pulmonary

Marcantonio, NEJM, 2017

32

AGS Beers Criteria: Drugs That Worsen Mentation

Antihistamines	Antipsychotics	Benzodiazepines
Nonbenzodiazepine benzodiazepine receptor agonist hypnotics	Opioids and meperidine	Skeletal muscle relaxants
Corticosteroids	H2-receptor antagonists	Medications with anticholinergic properties

By the 2023 American Geriatrics Society Beers Criteria® Update Expert Panel. American Geriatrics Society 2023 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults. *J Am Geriatr Soc*. 2023;71(7):2052-2081. doi:10.1111/jgs.18372.

33

Step 3: Prevent Complications- DELIRIUM TOOL KIT

- Immobility and falls
- Urinary incontinence
- Pressure injury
- Sleep disturbance
- Feeding disorders
- Escalation of behaviors from lack of knowledge of behavior management

Marcantonio, NEJM, 2017

34

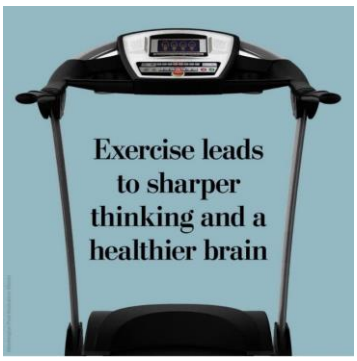
Step 4: Restore Function

- Hospital environmental modifications
- Cognitive reconditioning
- Behavior support
- Rehabilitate activities of daily living
- Family education, support, and participation
- Discharge planning and education

Marcantonio, NEJM, 2017

35

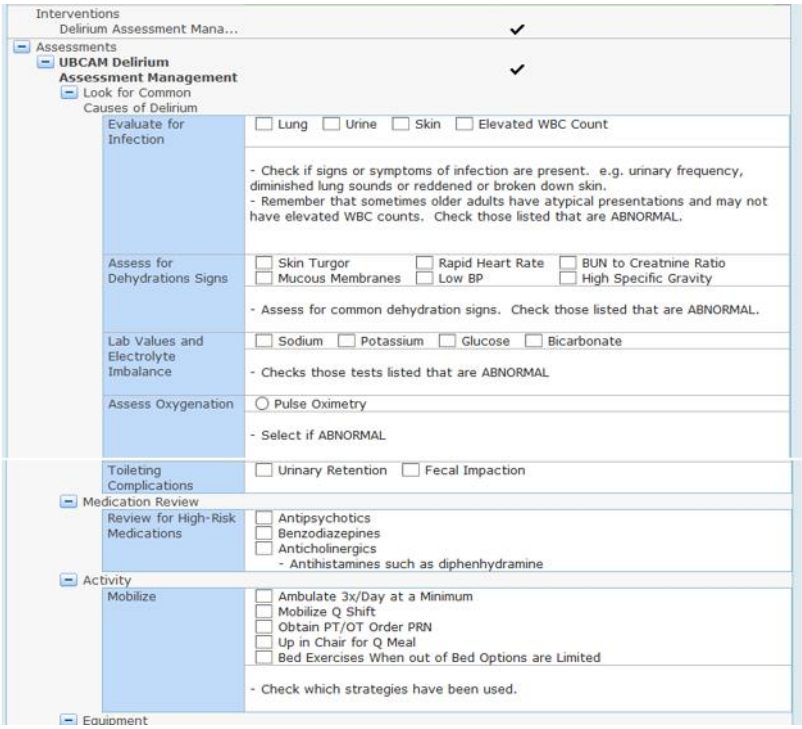
Activity has an **immediate and lasting** impact on attention, mood, memory– make a daily goal (Wendy Suzuki, 2017)



- Walking
- Bed exercises
- Band resistance
- Light weights
- W/C mobility
- Cardio Drum
- DAILY ACTIVITY goal
- Mobilization Protocol& HELP program

https://help.agscocare.org/search result/mobilization%20protocol

36



37

Step 5: Maintain patient comfort and safety

- Behavioral interventions:
  - De-escalation techniques for patients who have hyperactive or agitated delirium
  - Encourage family visitation
  - ALL ABOUT ME BOARD or PAPER (What Matters)
- Pharmacologic interventions
  - RCTs of antipsychotics for delirium treatment have shown **no benefit**
  - Does not rule out use in select cases

Marcantonio, NEJM, 2017
Marcantonio, Ann Int Med, 2019

38

APPROACH for Staff <u>in the Moment</u>

"TA-DAA"– T (Tolerate), A (Anticipate), D (Distract), A (Do Not Agitate), A (Ambulate) by Joe Flaherty

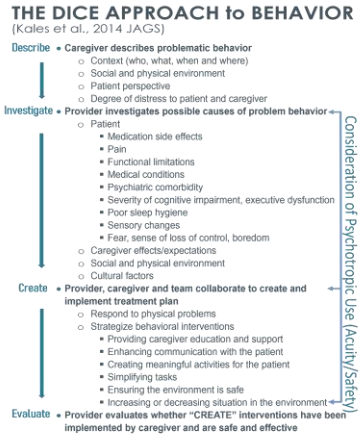
"All Behavior Has Meaning"

TADAA: Quick Bed-side Behavioral Management

- **Tolerate Non-Harmful Behaviors**: Determine whether immediate intervention is needed or if the behavior can be safely tolerated, ensuring close supervision to maintain patient safety and avoid unnecessary stress. For instance, a patient may try to get out of bed or pull on intravenous lines or oxygen tubing, often indicating discomfort or an unmet need, such as needing to use the bathroom, pain, fear, misinterpreting stimuli, etc.
- **Anticipate Potential Triggers**: Identify and plan for potential triggers like fatigue, past trauma or triggers or sensory overload to prevent incidents. (**SEE DICE**)
- **Don't Agitate:** Stay calm, avoid confrontations, and pay attention to non-verbal cues that indicate escalating behavior. Redirect attention towards calming, engaging activities that resonate with the person's interests, but only if they are receptive to avoid worsening agitation. For instance, playing recorded messages from family members or their favorite music. DO NOT USE THE WORD AGITATION!
- **Activity and Ambulation**: Encourage appropriate physical activities to improve mood and overall health while ensuring patient safety. For instance, gentle walks, chair exercises & stretching, art projects, music, etc.

39

DICE



MODIFIABLE FACTOR	INTERVENTION EXAMPLE
PATIENT	
Unmet needs	• Make sure the person with dementia is getting enough sleep and rest • Deal with fear, hunger, toilet needs
Acute medical problems	Talk to the person's doctor about whether symptoms could have physical (e.g., urinary tract infection or pain) causes or be the result of a drug interaction or side effect.
Sensory deficits	Encourage use of eyeglasses or hearing aids; have vision and hearing assessed
CARE GIVER	
Care giver stress, burden, depression	Care givers need to care for themselves by exercising regularly, getting help with care responsibilities, attending their own doctor's appointments, and using stress reduction techniques
Education	Understand that behaviors and not intentional or "on purpose" but are the consequence of a brain disease
Communications	• Use a calm voice • Do not use open ended questions • Keep it simple – do not over explain or discuss what events will be happening in the future • Limit the number of choices offered
ENVIRONMENT	
Overstimulating or under-stimulating environment	Regulate the amount of stimulation in the home by decluttering the environment, limiting the number of people in the home, and reducing noise by turning off radios and television sets
Unsafe environment	Make sure the person does not have access to anything (e.g., sharp objects) that could cause harm to themselves or others
Lack of activity	• Keep the person engaged in activities that match interests and capabilities • Relax the rules – there is no right or wrong way to perform an activity if the person is safe
Lack of structure or established routines	• Establish daily routines • Changing the time, location, or sequence of daily activities can trigger outbursts • Allow enough time for activities • Trying to rush activities can also trigger behaviors

Kales HC, Gitlin LN, Lyketsos CG; Detroit Expert Panel on Assessment and Management of Neuropsychiatric Symptoms of Dementia. Management of neuropsychiatric symptoms of dementia in clinical settings: recommendations from a multidisciplinary expert panel. J Am Geriatr Soc. 2014 Apr;62(4):762-9. doi: 10.1111/jgs.12730. Epub 2014 Mar 17. PMID: 24635665; PMCID: PMC4146407.

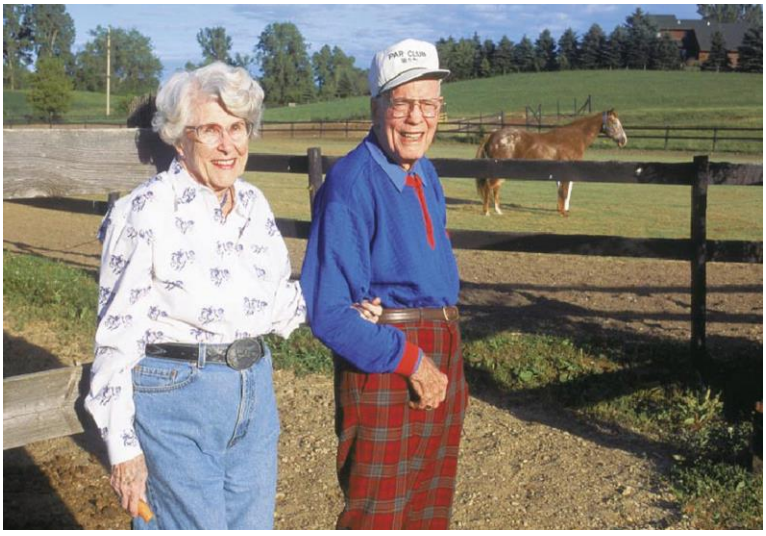
40

Case Study Rewritten: Mrs. M

- 88 year old female, sustained left hip fracture
  - Surgical repair—spinal anaesthesia
- UB-CAM screen detects delirium POD1
  - Reversible causes addressed
  - High risk medications deprescribed
  - Family notified, educated, encouraged to visit
  - Targeted treatment administered
- In hospital 3 days—"progressing well with rehab"
  - Returns directly home—continued outpatient PT/OT
  - Annual screening for dementia, depression
  - Reconnected with family & aging services supports
- 3 months later—back to baseline
  - Continues to live independently for another 5 years
  - PCP addresses 4Ms every visit
  - Annual screening for dementia, depression, social isolation, substance abuse

41

Back on the Horse Again



42

Barriers and Solutions Delirium Assess & Care

BARRIERS	UNIT STRATEGIES
Time, staffing challenges and shortages-to engage in education & to screen (you are asking me to do more!)	Create ownership/stories, **SHORT** education ON the unit (engage nurses in education). Part of workflow/co-design-not an add on. Integrate QUICK tools into EHR. **LINK it to WHAT MATTERS TO STAFF-nursing burden**
Attitudes that it can't be assessed (Delirium & DSD)	Reflect on biases, tell stories, destigmatize, humanize living WITH dementia. **OBJECTIVE TOOLS-BRAIN as a VITAL SIGN**—like B/P
Lack of knowledge & education	Integrate into orientation & annual competencies, tip sheets, bulletin boards, short education and huddles
Communicating Results & Acting Best Practices	Rounding daily, integration into EMR, bedside toolkits-hydration cups, cog stim, hearing amplifier, music, one minute video of family/friend
Dementia behaviors lead to medication & delirium	Link to what matters/knowing the OA boards, music, one minute video of family/friend, reflect on bias & attitudes
Spreading & Sustainability	**Recognition/Celebration**, Champion Pins, Clinical ladder. Start with PDSA, Peer to peer-units/start simple

43

Take home points

- **Delirium is an acute, reversible state of confusion**
  - There are NO medications approved for the treatment of delirium
    - Often medications will do ***more*** harm
  - There are proven techniques to treat delirium to restore cognitive function and limit the risk of falls

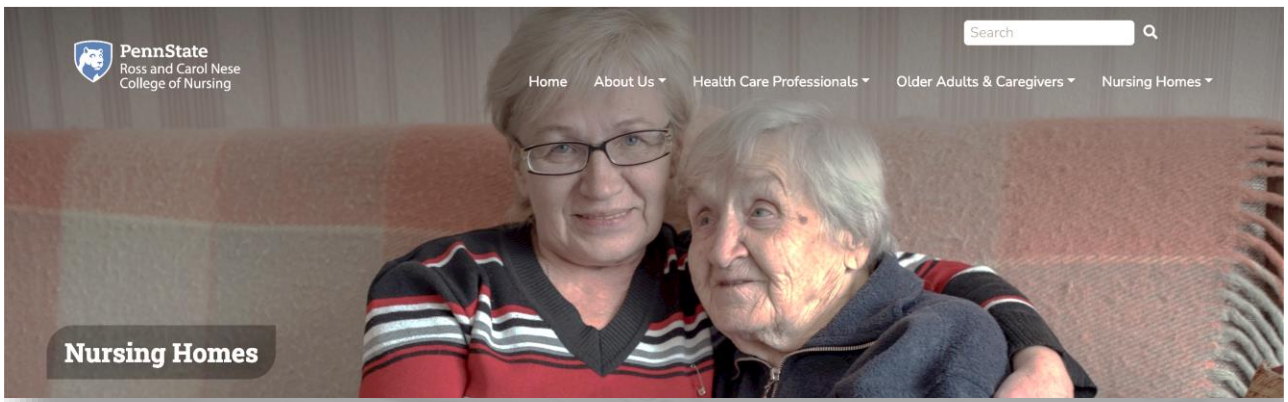
- **UB-CAM:**
  - 2 questions followed by smart skip pattern design (if needed)
  - More than 60% of patients will be done in ~ 40 seconds
  - NIDUS has over 30 validated screening tools on their site

- **If Delirium is identified:**
  - Assess/treat contributing factors (D.E.L.I.R.I.U.M)
    - Evaluate medications!
  - Prevent complication
    - TADA
    - DICE
  - Restore function
    - Brain health/delirium toolkit

44

Questions

45



WWW.AGEFRIENDLYCARE.PSU.EDU/NURSING-HOMES

ONLINE MODULES

- Nursing Homes

PennState Ross and Carol Nese College of Nursing | Tressa Nese and Helen Diskevich Center of Geriatric Nursing Excellence

46