
DELIRIUM IN THE ACUTE SETTING

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WHAT IT IS:

- Delirium: an **acute** state of confusion, further characterized by disturbances of **cognition, attention, consciousness, and perception**. This disruption of confusion often **fluctuates** throughout the day.
- DSM-IV criteria:
 - *Disturbance of consciousness (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention.*
 - *A change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established, or evolving dementia.*
 - *The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.*

CLINICAL EXAMPLE BEHAVIORS:

- Symptoms come and go over 24 hours
- Difficulty focusing, sustaining, or shifting attention
- Disorganized or incoherent speech, rambling
- Global cognition deficits (orientation, memory, lang.)
- Illusions or hallucinations
- Agitation and vigilance (hyperactive)
- Lethargy, global decrease in motor activity (hypoactive)
- Daytime drowsiness
- Intermittent and labile symptoms of fear, paranoia, anxiety, depression, irritability, apathy, anger, or euphoria

TYPES OF DELIRIUM

HYPERACTIVE

- Easily recognized
- Restlessness (pacing)
- Agitation (high RASS)
- Rapid mood changes
- Hallucinations & delusions
- Vigilance
- Refusal to cooperate

HYPOACTIVE

- Often missed
- Inactivity
- Reduced motor activity
- Sluggishness/lethargy
- Drowsiness
- Daze
- Respond slowly

MIXED

- Patients may switch back and forth between types

WHAT IT IS NOT: DELIRIUM VS. DEMENTIA

FEATURE	DELIRIUM	DEMENTIA
Onset	Acute, sudden, often in response to stress (body or emotional)	Gradual, slow, no known start day
Throughout the Day	Fluctuates, almost always worse at night	Other than slow progression, constant, can be worse at night
Attention	Greatly impaired	Unimpaired until severe
Level of Consciousness	Variably impaired	Unimpaired until severe
Orientation	Variably impaired	Impaired
Language	Slow, often incoherent, inappropriate	Difficulty finding the right word
Memory	Varies	Impaired (especially short term)

WHO IS AT RISK

RISK FACTORS

- Age 65+
- Male
- Cognitive status: dementia, impairment, hx, depression
- Functional dependence, low mobility, hx of falls
- Sensory impairment
- Decreased intake
- Drugs/alcohol
- Severe illness, multiple conditions, hepatic disease, stroke, metabolic derangements, trauma, terminal illness, HIV
- Social isolation
- Low albumin

PRECIPITATING FACTORS

- Drugs: sedative narcotics, anticholinergics, polypharmacy, withdrawal
- Neurologic disease: stroke, ICH, meningitis, encephalitis
- Illness: infection, hypoxia, shock, fever or hypothermia, anemia, dehydration, poor nutrition
- Surgery
- Environmental: ICU, restraints, catheter, pain, emotional stress
- Sleep deprivation

HOSPITAL-RELATED OUTCOMES:

- Elderly patients who developed delirium during hospital stay:
 - Increased risk of **death** (38% vs. 27.5% at avg 22.7 month follow-up)⁸
 - Increased risk of **institutionalization** (33.4% vs. 10.7% at avg follow-up of 14.6 months)⁸
 - Increased risk of **dementia** (62.5% vs. 8.1% at average follow-up 4.1 years)⁸
 - Longer **durations of mechanical ventilation** and **lengths of stay** in the intensive care unit and in hospital⁹

Cardiac Surgery: 103/225 patients (46%) developed delirium postoperatively.¹⁰

Lower MMSE pre-operatively¹⁰

Lower MMSE even in models adjusted for baseline differences between groups at two days and one month post-op.¹⁰

Higher percentage of patients who had not reached their pre-op baseline at 6 months.¹⁰

8. Witlox et al. 2010

9. Salluh JI et al. 2015

10. Saczynski JS et al. 2012

INCIDENCE:

- “Leading complication of hospitalization for older adults with **prevalence ranging from 11% to 42% in acute care settings**”¹¹
- “Delirium has a **prevalence of up to 60% in frail elderly patients... 10-30% of admissions to a general hospital develop delirium**”⁷
- Among elderly patients admitted to an intensive care unit (ICU) the delirium **incidence can reach 70-87%**.³

Medical ICU:
71.8% in those 65+
(112/156) and 57.4% in
those under 65
(263/458)⁷

Cardiac Surgery:
46% in patients aged
60+ getting CABG or
valve replacement
(103/225)⁴

Orthopedic Surgery:
post-bilateral TKA: 41%,
post-hip fracture: 43-
61%⁷

Cancer:
oncology ward: 18%⁷

11. Rosenblom-Brunton et al. 2010

7. Siddiqi et al. 2016

3. Fong et al. 2009

4. Peterson et al. 2006

STAFF ROLES

- Screening
 - RASS – level of consciousness¹²
 - CAM (CAM-short) – indicates presence of delirium¹³
 - MMSE – indicates cognitive function^{14, 15}
 - MD CALC
- Documentation & Communication
- Treatment

12. Sessler CN et al. 2002

13. Guenther U et al. 2009

14. O'Bryant SE et al. 2008

15. Tombaugh TN et al. 1992

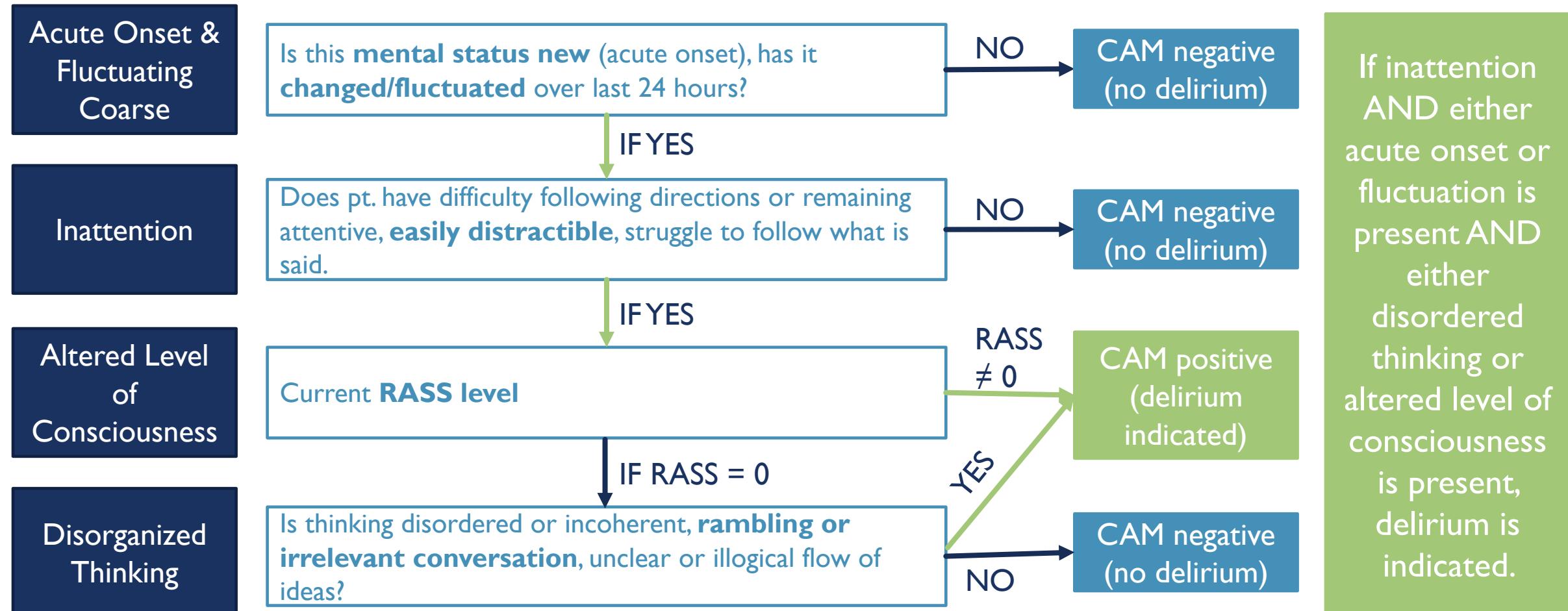
RASS LEVEL OF CONSCIOUSNESS

+ 4	COMBATIVE	Combative, violent, immediate danger to staff
+ 3	VERY AGITATED	Pulls to remove lines, tubes, catheters; aggressive
+ 2	AGITATED	Frequent non-purposeful movement, fights ventilator
+ 1	RESTLESS	Anxious, apprehensive, movements not aggressive
0	ALERT & CALM	Spontaneously pays attention to caregiver
- 1	DROWSY	Not fully alert, has sustained awakening to voice (eye opening and eye contact for >10 sec)
- 2	LIGHT SEDATION	Briefly awakens to voice (eyes open and contact < 10 sec)
- 3	MODERATE SEDATION	Movement or eye opening to voice (no eye contact)
- 4	DEEP SEDATION	No response to voice, movement or eye opening with physical stimulation
- 5	UNAROUSABLE	No response to voice or physical stimulation

TOUCH VOICE

If RASS is above -3, carry on with the CAM-short assessment, if -3, -4, or -5, hold on CAM until more arousable

CONFUSION ASSESSMENT METHOD (CAM-SHORT)



MINI MENTAL STATE EXAM

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

MMSE

SCORING

Method	Score	Interpretation
Single Cutoff	<24	Abnormal
Range	<21	Increased odds of dementia
	>25	Decreased odds of dementia
Education	21	Abnormal for 8 th grade education
	<23	Abnormal for high school education
	<24	Abnormal for college education
Severity	24-30	No cognitive impairment
	18-23	Mild cognitive impairment
	0-17	Severe cognitive impairment

TIPS FOR MORE EFFECTIVE TREATMENT

- Minimize Sleep Deprivation
 - Suggest alternatives for medications and educate family/patient on importance of sleeping at night, room. lights
- Minimize Sensation Impairments
 - hearing aids and eye-glasses
- Advocate for Patient Mobility
 - Catheter removal, non-PT mobilization, minimize pain and constipation
- Avoid Overstimulation
- Know High-Risk Medications
 - Increased risk with opioids (OR 2.5, 95% CI 1.2 – 5.2), benzodiazepines (3.0, 1.3 – 6.8), dihydropyridines (2.4, 1.0 – 5.8) and possibly antihistamines (1.8, 0.7 – 4.5).
- Avoid Dehydration

RESOURCES

Hospital Elder Life Program (HELP)

“A comprehensive patient-care program that ensures optimal care for older adults in the hospital. HELP prevents delirium (a sudden state of confusion or change in mental state) and loss of functioning.”

- Our hospital is one of the selected sites for this national program, there are 2 RNs who screen charts for patients at risk, assign volunteers to visit and interact with the patients.
- Free online resource for clinicians for delirium and confusion screenings, resources for families, general information

**HELP saves >\$7.3 million per year in hospital costs for 7,000 patients;
>\$1,000 savings per patient**

HELP saves \$831 per person-year in hospital costs



OVERVIEW: OUR ROLE

- Know how to identify risk factors and screen patients who are at higher risks. (CAM-ICU, RASS)
- Document using objective measures and communicate this with other staff (cognition section or treatment team sticky notes)
- Continue to advocate for patient mobility (d/c foley cath when possible, ambulation with RN) and use the room to our advantage (lights, chair, clocks, doors and curtains for noise and chaos reduction)
- Use hospital resources (HELP) and refer patients as necessary.
 - Mandi Steed (910) 904-3382 asteed@firsthealth.org

PREVENTION WORKS?

Preventing Delirium in non-ICU patients (Cochrane Review) –39 trials, 16,082 patients. **RESULTS: multi-component interventions reduced incidence compared to usual care by about 30%:**
RR=0.68⁷

For older patients undergoing abdominal surgery who received the multifactorial intervention as outlined by HELP, the odds of delirium were reduced by 56% and LOS was reduced by 2 days.¹⁷

COSTS:

In one study the total cost of the intervention, including staff time spent in intervention activities, equipment, supplies, and consultant costs, was \$139,506, or an average of \$327 per patient in the intervention group. (n=426)¹⁶

7. Siddiqi N et al. 2016

17. Chen et al. 2017

16. Inouye et al. 1999

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