Delirium an Acute Problematic in Long-Term Care Settings

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OBJECTIVES

- Illustrate the issue of delirium in the Long Term Care setting and the different sub types of delirium.
- Point out serious negative outcomes of delirium and effects on cognition.
- Summarize different screening tools that may be implemented in the Long Term Care setting to recognize delirium.
- Review treatments of delirium to effect change in outcomes.

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Case Report: Mrs. Jones

- 82 y.o. woman. Sent to ED at 6:00 PM by the staff of her Nursing Home for changes in behavior. She has been a resident there for 2 years.
- 4 days history of becoming more confused. She is having hallucinations and talking to people who are not there.
- Usually she is happy and participates in activities at the Nursing Home. She normally is social and eats in the dining room.
- Yesterday and today she started to be argumentative and yelling at her friends who she eats with every day, and not recognizing them.

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Case Report: Mrs. Jones

- PMHx: HTN, Afib, DM2, UTIs, CAD, OA, HLD
- Soc Hx: Widowed, lives in Nursing home for 2 years, former smoker (quit 40 years ago), rare alcohol, Children visit once per week.
- Independent with most ADLs but has been incontinent of urine in the last 2 weeks, and stool in the last week.
- She is dependent for all IADLs.

- Meds: Metoprolol, Warfarin, Metformin, Lisinopril, Simvastatin, and Acetaminophen.

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Case Report: Mrs. Jones

- Exam:
  - General: Angry, Tremulous, difficult to redirect
  - Vitals: P=112, BP=160/94, RR=22, T=99.5
  - ENT: Mucous Membranes are Dry
  - CV: Irreg/Irreg, no murmur
  - Respiratory: Poor effort, no rales
  - GI: +BS, tenderness in supra pubic area
  - Neuro: Intact motor and sensory
  - Psych: Confused, easily distracted, tries to walk away.
- CXR: No consolidation or infiltrate.
- Labs: WBC=19.0, Hgb/HCT=12.4/37, Plts=200. BMP=normal
  - UA-PH=10.7, WBC=21, LeukEst-Pos, Nitrite-Positive

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Case Report: Mrs. Jones

- Plan:
  - Admit to medicine service
  - Foley catheter placed
  - Start IV antibiotics, levofloxacin
  - Continues all medications and the addition of:
    - Famotidine 20 mg bid
    - Haloperidol IV 5mg q4hrs prn agitation
    - Lorazepam IV 2mg q 4hrs prn anxiety
- Admitted for Altered Mental Status and a UTI at 3:30 AM

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Case Report: Mrs. Jones

- Noted at 3:10 AM to be confused in the ED by ER nurse.
- Nursing notes on admission to the floor at 5:30 AM reports "disoriented, rambling speech"
- Admission H&P by medical team at 8:15 AM notes "Patient is pleasant and appropriate"
- Later in the afternoon ~4:00 PM she is more confused and falls (unwitnessed) getting out of bed. Nurses note "no injury, but confused."

MD is not contacted.

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Case Report: Mrs. Jones

- After supper the patient is noted on nurses' change of shift report to be:
  - "confused earlier, cleared, but getting confused now."
- She is given a dose of Lorazepam, to *"help her relax."*
- She becomes more agitated and is given another dose with in 1 hour.
- She is also given a dose of Haloperidol.
- Nursing notes her to be sleeping 2 hours later at shift change.

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Case Report: Mrs. Jones

- She is lethargic for most of the next two days as she is given multiple doses of haloperidol and lorazepam.
- She continues to hallucinate and be lethargic.
- She remains in bed and is not able to perform her ADLs.
- Her WBC count returns to normal on Day 4.
- She is afebrile for 48 hours.
- She is disoriented and falls asleep while talking.
- She is changed to oral Levofloxacin and discharged back to the Nursing Home.

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Case Report: Mrs. Jones

- Patient is re-admitted to the Nursing Home.
- Continues to be lethargic and sleeps most of the time.
- She is coughing more and is thought to aspirate on her secretions.
- Family is called and decision for comfort measures is made.
- She is given Morphine and Haloperidol for perceived pain and agitation.
- She dies two days later without regaining consciousness.

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So, What is Delirium?

- When an acute change in mental status occurs in a patient.

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Delirium by any other name…

- Acute confusional state
- Altered mental status
- Acute brain syndrome
- Toxic or metabolic encephalopathy
- Confusion
- Acute Lethargic State
- Acting Goofy

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Definition of Delirium

DEFINITION AND TERMINOLOGY — The American psychiatric Association's Diagnostic and Statistical Manual, 5th edition (DSM-V) lists the key features that characterize delirium:

- A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).
- B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.
- C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception).

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Definition of Delirium

- D. The disturbances in Criteria A and C are not better explained by another preexisting, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.
- E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e., due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple etiologies.

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Delirium – Common Definition

- Characterized by:
  - a fluctuating course
  - inattention
- and either
  - disorganized thinking
  - or altered level of consciousness

(This is the CAM Criteria; Inouye 2001)

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Scope of the Problem

- Delirium occurs in up to 56% of older medical patients in the hospital
- Up to 70% in patients admitted to Long Term Care.
  - 34% Hypoactive
  - 24% Hyperactive
  - 42% Mixed type
- Substantially worsens outcomes in a population who are already burdened by functional decline

+ Costs over $150 billion each year
+ Delirium in older adults is poorly recognized and poorly noted on discharge
+ Over 80% were on central nervous system active drugs
+ Length of stay was significantly higher in patients with delirium

Inouye SK. Delirium in older persons. N Engl J Med 2006; 354:1157-1165.
deLange E, et al. Int. Jrnl. Geri. Psychiatry 2013; 28; 127-134
Fick D. J Hosp Med. 2013 Sep;8(9):500-5.

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Long Term Care Issues Associated with Delirium

- Patient refusing medications, activity, food
- Patient angry, paranoid, yelling at nurses, therapists
- Patient getting up: "Trying to do more than they are ABLE"
- Resistance to daily care: Bathing, oral care

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Risk Factors for Delirium: Multi-factorial

- Advanced Age
- Dementia
- Medical Illness
- Multiple Medications
- Alcohol Abuse
- Male Gender
- Functional autonomy deficits
- Dehydration
- Pain and Depression
- Immobility
- Sensory Impairment

deLange E, et al. Int. Jrnl. Geri. Psychiatry 2013; 28; 127-134

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Clinical Presentation

- **Recognizing the disorder:**
  - Clinicians often fail to recognize delirium
    - This happens in more than 70 percent of cases.
    - Behavioral problems or cognitive impairment may be wrongly attributed to the patient's age, to dementia, or to other mental disorders.
  - Determining that cognitive impairment is not due to a prior dementia requires knowledge of the patient's baseline level of functioning.

Inouye, et al., 1999

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Delirium is Poorly Recognized

- When tested only 21% of nurses recognized hypo-active delirium in case vignettes (Fick, et al., 2007)
- In the Post-Acute setting delirium is noted in only 9% of charts. (Morandi, Solberg 2009) (1.4% by MDS on admission) (Flaherty, Morley 2013)
- In 1/3 of patients noted to be delirious, nurses did not alert physicians. (Morandi, Solberg 2009)
- Nurses identified only 10.6% of delirium compared to research assistants' 21.3% prospective assessment (Voyer, et al. 2012)
- Age, dementia status, and vision impairment also lead to poor recognition of delirium (Inouye, et al., 2001)

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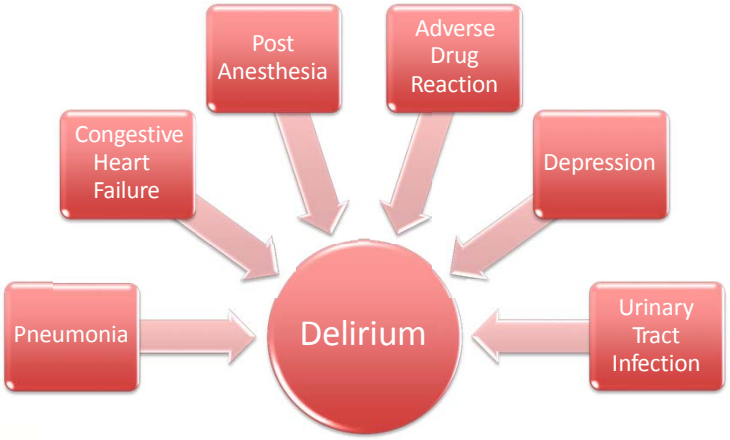
Why is it hard to recognize Delirium?

Atypical Presentations in the Elderly:



Pathophysiology

- Imbalance of neurotransmitter system affecting abnormalities i dopamine, norepinephrine, serotonin, acetylcholine, glutamate and GABA
- Reduced CNS cholinergic activity
- Inflammatory response with increased cytokines
- Changes in the blood-brain barrier permeability
  - Widespread reduction of cerebral oxidative metabolism
- Increased activity of hypothalamic-pituitary adrenal axis
- Intrinsic damage to neurons
- Physiologic stress

Lyons W, "Delirium in Postacute and Long-term care" JAMDA May 2006

Psychomotor Types of Delirium

	• Characterized by restlessness, hypervigilence, and aggressiveness
	• Characterized by lethargy, slowed motor reaction, and reduced interaction with environment
Mixed	• A combination of hyperactive and hypoactive delirium, with a fluctuating course or pattern of activity

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Additional features

- Psychomotor behavioral disturbances
  - Hypoactivity or hyperactivity
  - impairment in sleep duration and architecture.
- Variable emotional disturbances:
  - Fear
  - depression
  - euphoria
  - perplexity

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Cole, McCusker et al. Int. Jrnl. Geri. Psychiatry 2012

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Outcomes of Delirium

- Delirium has an enormous impact upon the health of older persons.
- Increased rates of re-hospitalization within 30 days
- Mortality rates were increased for LTC residents with delirium within 90 days after hospital discharge.
- Mortality at 1 year was 31.4 - 41.9%
- Mortality at 2 years was 57.8 - 65.1%
- Hypoactive delirium carried higher risk of death in demented patients than hyperactive delirium.

Cole, McCusker, Voyer J; JAGS 2012
Dosa et al. 2007, Yang et al. 2009

Effects of Delirium on Cognition

- Incident delirium accelerates trajectory of cognitive decline.
- Delirium associated with increased risk of dementia.
- Neurodegenerative and inflammatory processes increased after delirium.
- Decreased cognition after acute illness with delirium in Nursing Home residents.

Boockvar K, et al. 2013 Popp J. 2013
Martins S, Fernandes L; 2012

Why is it hard to recognize Delirium?

Lack of Formal Assessment

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Approach to Improved Recognition of Delirium

- **ASSESS** cognitive status subjectively
- Search for and treat potential **CAUSES** of delirium
- Maintain physical **FUNCTION**
- Promote **SAFETY**

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Screening Testing

Tool	# of items	Time required	Purpose
DOS	25 items	15-20 min	**Delirium**
Mini-Cog	4 items	3-5 min	**cognitive impairment**
Nu-DESC	5 items	1-2 min	**Delirium Hypoactive delirium**
RASS	1 item	1 min	**Attention**
CDT	1 item	2-10 min	**executive function in patients with dementia**

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Institute on Aging UNIVERSITY OF FLORIDA

Screening Tests: RASS

UFHealth UNIVERSITY OF FLORIDA HEALTH

- Well-validated and highly reliable 10-point scale
- +1 to +4 scores assigned for levels of agitation through combativeness
- '0' score assigned for alert and calm state
- -1 to -5 score assigned for successive levels of depressed arousal, sedation/coma

The Richmond Agitation-Sedation Scale (RASS)

Score	Term	Descriptor
+4	Combative	Overtly combative, violent, immediate danger to staff
+3	Very Agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent non-purposeful movement, fights ventilator
+1	Restless	Anxious but movements not aggressive vigorous
0	Alert and Calm	
-1	Drowsy	Drowsy, Not fully alert, but has sustained awakening (eye opening/ eye contact) to voice (>10 seconds)
-2	Light Sedation	Briefly awakens with eye contact to voice (<10 seconds)
-3	Moderate Sedation	Movement or eye contact to voice (no eye contact)
-4	Deep Sedation	No response to voice, but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

Screening Testing:

The Nursing Delirium Screening Scale (Nu-DESC)

- I. **Disorientation**
  - Verbal or behavioral manifestation of not being oriented to time or place or misperceiving persons in the environment
- II. **Inappropriate behavior**
  - Behavior inappropriate to place and/or for the person; e.g., pulling at tubes or dressings, attempting to get out of bed when that is contraindicated, and the like.
- III. **Inappropriate communication**
  - Communication inappropriate to place and/or for the person; e.g., incoherence, non-communicativeness, nonsensical or unintelligible speech.

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Screening Testing:

The Nursing Delirium Screening Scale (Nu-DESC)

- IV. **Illusions/Hallucinations**
  - Seeing or hearing things that are not there; distortions of visual objects.
- V. **Psychomotor retardation**
  - Delayed responsiveness, few or no spontaneous actions/words; e.g., when the patient is prodded, reaction is deferred and/or the patient is unarousable.
- ***Score range from:***
  - absent (score = 0) to present and mild (score = 1) to present and pronounced (score = 2).
  - Score of 2 or more is positive for an increased risk of delirium.

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Gaudreau JD, Gagnon P, Harel F, et al. 2005; 29: 368-375.

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Diagnostic Testing

Tool	# of items	Time required	Purpose
CAM	9 or 4 items	15-20 min	**delirium**
CAM-ICU	4 items	2-7 min	**delirium in nonverbal or mechanically ventilated patients**
CAM-B	4 items	2-7 min	**Delirium (subjective nursing assessment)**

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Diagnostic Testing:

Confusion Assessment Method-B (CAM-B)

- 1. Acute onset and fluctuating course **[yes] [no]**
  - (Is there evidence of an acute change in mental status from the patient's baseline? Did this behavior fluctuate during the past day, that is, tend to come and go or increase and decrease in severity?)
- 2. Inattention **[yes] [no]**
  - (Does the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what is being said?)
- 3. Disorganized Thinking **[yes] [no]**
  - (Is the patient's speech disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?)
- 4. Altered level of consciousness **[yes] [no]**
  - Overall, how would you rate this patient's level of consciousness? Alert (normal), Vigilant (hyperalert), Lethargic (drowsy, easily aroused), Stupor (difficult to arouse), Coma (unarousable)

Diagnosis of Delirium requires a "yes" answer for criteria 1 and 2 and either 3 or 4.

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Causes of Delirium in Long Term Care

- Drug toxicity accounts for approximately 18% of all cases of delirium.
  - Use the updated Beer's Criteria to avoid potential delirium.
- Most important initial step is a medication review.
  - Avoid deliriogenic medications including H2 blockers, anti-histamines, benzos, opiates, and anticholinergics.
- Infection accounts for 58%.
  - Pneumonia is most common
  - UTI is second most common
- Dehydration is responsible for 36%.

deLange E, et al. Int. Jrnl. Geri. Psychiatry 2013; 28; 127-134

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Managing Delirium in Older Long Term Care Patients

Photo by Annie Levy

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What are healthcare providers doing in practice?

- Recent studies showed that when asked about management strategies for delirium 32% of the nurses stated they would call the physician for medication for a patient with hypoactive delirium, and 63% would call for hyperactive delirium

Fick et al., 2005, Jnl Gerontology

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Treatments

- MANAGING BEHAVIORS
  - Managing disruptive behavior is the most challenging aspect of delirium therapy.
  - Mild confusion and agitation may respond to interpersonal and environmental manipulations
  - Frequent reassurance, touch, and verbal orientation from familiar persons lessen disruptive behaviors.
  - Mobilize if able to do this safely.

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Treatments

- Physical restraints should be used only as a last resort.
  - Lead to increased agitation and create additional morbidity.
  - Constant observation, preferably by someone familiar to the patient, is less traumatic.
  - Constant observation, by avoiding further complications, may be more cost-effective in the long run than restraining or sedating the patient.

Cotter VT, Keio J, 2005

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Treatments

- **PSYCHOTROPIC MEDICATIONS:**
  - Prompt symptom control is occasionally necessary to prevent harm or allow evaluation and treatment.
  - A cautious trial of psychotropic medication is warranted in these circumstances.
  - The newer atypical antipsychotic agents, quetiapine, risperidone, and olanzapine have fewer extrapyramidal side effects.
  - They appear to have similar efficacy to haloperidol.
  - **Benzodiazepines have a more rapid onset of action (five minutes after parenteral administration) than the antipsychotics, but they commonly worsen confusion with sedation and/or agitation due to the change in GABA receptors.**

Flaherty JH 2011

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Improving Delirium Care

- Early recognition of delirium is crucial in Long Term Care residents.
- Efficient and effective education of nurses and staff on recognizing delirium is important.
- Also important is the communication of delirium detection to physicians.
- Standardized process reporting positive screens resulted in:
  - significantly higher nurse notification of delirium
  - increased physician work up and treatment of delirium.

Solberg LM, et al. 2012

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General Principles of Patient Care

- Adjust interaction and **COMMUNICATION** style
  - Verbal and non-verbal cues, slow down, make eye contact, shorter sentences, demonstrate, tolerate behaviors
- Be aware of **REACTIONS** and **RESPONSES** to behavior
- Monitor and adjust the **ENVIRONMENT**
  - Structure, routine, clock and calendar, orienting signs, familiar objects (photos, pillow, blanket), glasses, hearing aides, etc…

Flaherty JH 2011

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Alternate Case Report: Mrs. Jones

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- Soc Hx: Widowed, lives in Nursing home for 2 years, former smoker (quit 40 years ago), rare alcohol, Children visit once per week.
- ROS:
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  - She is dependent for all IADLs at baseline.
- Meds: Metoprolol, Warfarin, Metformin, Lisinopril, Simvastatin, and Acetaminophen.

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Alternate Case Report: Mrs. Jones

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  - Neuro: Intact motor and sensory
  - Psych: Confused, easily distracted, tries to walk away.
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Alternative Case Report: Mrs. Jones

- Plan:
  - Admitted to medicine service
  - A Foley catheter is placed
  - Start IV antibiotics, Ceftriaxone
  - Continues all medications and the addition of:
    - ***Haloperidol IV 0.5-1 mg q4hrs prn Hallucinations***
    - ***Olanzapine 2.5 mg q12hrs prn delusions***
    - ***Ambulate patient on floor prn anxiety***
- Admitted for Altered Mental Status and a UTI at 3:30 AM
- Noted at 3:10 AM to be confused in the ED by ER nurse.
- Nursing notes on admission to the floor at 5:30 AM reports "disoriented"
- ***Documents Nu-DESC as positive and notifies medical team***
- ***Med Team comes and assesses patient at 5:45 and enacts a delirium order set***
- ***Non-pharmacologic treatments are started with a 1:1 sitter***

Alternative Case Report: Mrs. Jones

- Later in the afternoon ~4:00 PM she is more confused and delusional
- ***She is treated with low dose olanzapine and she calms down talking to the sitter***
- After supper the patient is noted on nurses' change of shift report to be "confused earlier, but clear now."
- At 8:30 PM she becomes agitated ***and is ambulated with the nurse and care partner***
- She returns to bed and sleeps through the night
- The next day she is oriented and able to participate in therapy
- The Foley catheter is discontinued.
- She is changed to oral antibiotics and is d/c'd back to LTC the following day.
- ***Upon readmission to the Nursing Home she is screened for delirium twice daily.***
- ***She is reoriented frequently and reassured. Her UA is rechecked and is clean.***
- ***She is ambulated, with an aide assisting, to the dining room and she returns to her activities of dining with friends in the Nursing Home.***

Summary

- Delirium in Long Term Care is common and associated with poor clinical and economic outcomes.
- Serious cognitive decline and dementia are associated with delirium.
- Effective nursing assessment tools help to recognize delirium.
- When nurses tell doctors there is delirium they are prompted to investigate.
- Using non-pharmacologic methods is preferred but pharmacologic treatments are used when indicated.

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Questions

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