



Management of Delirium

Travis Fisher, MD

Associate Professor

Medical College of Wisconsin



Learning Objectives

Identification
of delirium and
it's subtypes

Prevention
strategies

Prognosis

Supporting
Family and
Friends

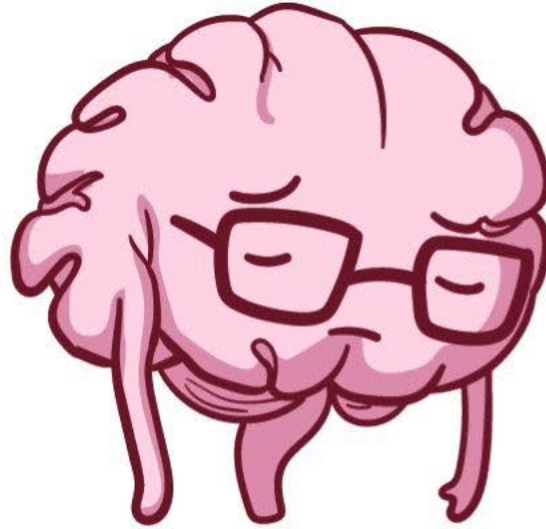
Pharmacology

DELIRIUM

SUDDEN, WAXING & WANING DECLINE in VARIOUS MENTAL FUNCTIONS



MEMORY



THINKING



LANGUAGE



BEHAVIOR



MOOD &
PERSONALITY

Identification of Delirium

DSM-V

- A disturbance in attention accompanied by reduced awareness
- It develops over a short period of time, and fluctuates in severity
 - Hours to days, over the course of a day
- Accompanied by an additional disturbance in cognition
 - Memory, orientation, language, perception, etc
- Not better explained by another disorder
- Evidence suggests a direct physiologic cause

Delirium

Symptoms of delirium include:

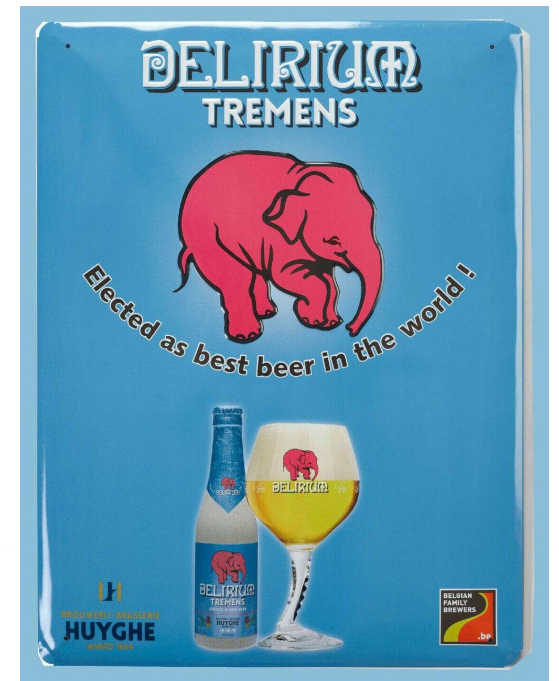
 Difficulty focusing	 Being awake at night and tired during day	 Confusion
 Trouble with memory	 Difficulty processing what you see	 Mood swings
 Having hallucinations	 Feeling restless or slowed activity	 Trouble concentrating
 Believing things that aren't proven to be true		 Loss of awareness of your surroundings
 Trouble speaking clearly, answering questions or understanding what others are saying		

 Cleveland Clinic

Identification of Delirium

Specifiers:

- Acute – few hours, days
- Persistent – weeks or months
- Hyperactive – mood lability, agitation, refusal to cooperate with care
- Hypoactive – sluggishness, lethargy, stupor
- Mixed level of activity
- Substance Intoxication
- Substance Withdrawal
- Medication-induced



Identification of Delirium

- 42 delirium instruments have been used in published studies!
- Core principle:
 - “Baseline” vs now (history)
 - Cognitive deficit (bedside test)
 - Increased surveillance/ suspicion with
 - Medication changes
 - New infections
 - New illness
 - Illness severity
 - ~20% of hospital admissions
 - ~35% of hospice admissions
 - 50-81% prevalence in the ICU environment
 - Up to 88% prevalence in terminal illness/ end of life

Identification of Delirium

What about Terminal Delirium?

- Not a DSM or ICD “subtype”
- Clinical definition:
 - delirium in a patient in the final days/weeks of life, where treatment of the underlying cause is impossible, impractical, or not consistent with the goals of care
- Very little specific research
 - non-pharmacological strategies have frequently excluded patients in need of palliative care, or not subdivided reported results
 - The most recent Cochrane review of drug therapy for delirium in terminally ill adults (2020) included only four studies, and concluded “there is no high-quality evidence supporting or refuting the use of pharmacological therapies for delirium in terminally ill adults”

DELIRIUM

HARMS BRAIN HEALTH



Prevention of Delirium

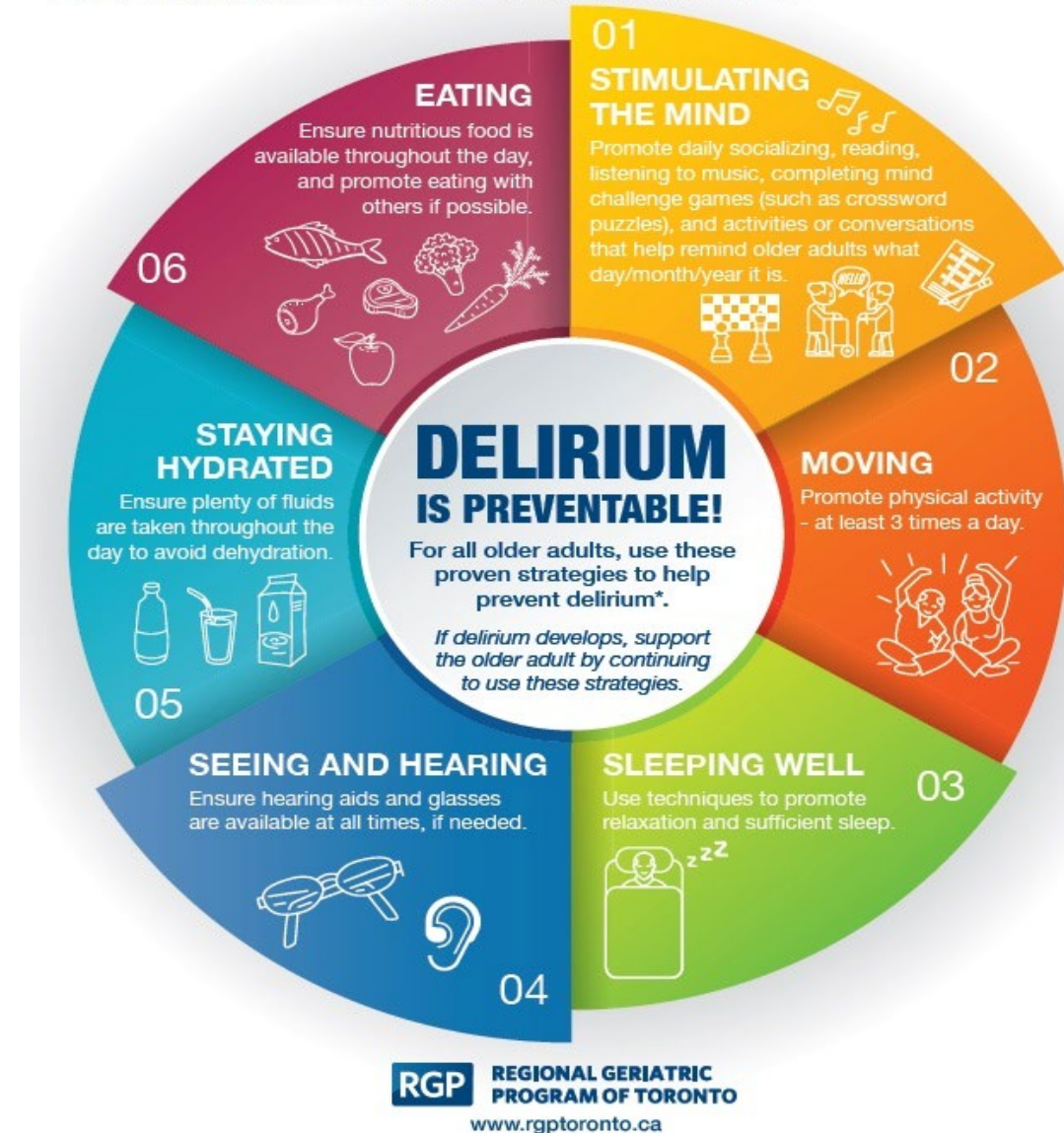
Avoid high risk medications if possible

- Sedative-hypnotic drugs: 3 to 12-fold increased risk of delirium
- Narcotics: 3-fold increased risk of delirium
- Anti-cholinergic drugs: 5 to 12- fold increased risk of delirium
- Anti-histamines and corticosteroids are also associated with increased risk of delirium
- Avoid general anesthesia when possible
 - And minimize depth and duration when it isn't

Prevention of Delirium

- No convincing, reproducible evidence supporting pharmacologic prevention
 - Mixed data for antipsychotics
 - Dexmedetomidine
- Non-pharmacologic approaches are first-line
 - Reorientation
 - Family presence
 - Consistent and compassionate staff
 - Collaborative decision making
 - Correct sensory deficits

6 PROVEN STRATEGIES TO PREVENT DELIRIUM IN OLDER ADULTS



*Adapted with permission from: A Multicomponent Intervention to Prevent Delirium in Hospitalized Older Patients (Inouye et al., 1999)

Prognosis



Prognosis

The presence of delirium, regardless of diagnosis, is associated with

- ✓ Increased length of hospital stay
- ✓ Hospital-acquired complications
- ✓ Institutional placement at discharge
- ✓ Mortality
- ✓ Future diagnosis of Dementia (6 times as likely in the next 3 years!)

Prognosis

Increased duration of delirium (generally ~ 2 weeks) is associated with...

- ✓ Further increased length of hospital stay
- ✓ Further mortality risk
- ✓ Functional decline

Delirium severity further worsens mortality risk.

Prognosis

What makes delirium/ patient factors seem to be more “severe”?

- ✓ hypoactive motor
- ✓ missed diagnosis of delirium
- ✓ psychiatric comorbidity (particularly dementia or depression)
- ✓ Frailty/ poor baseline functioning
- ✓ organ failure
 - ✓ Hypoxia
 - ✓ Acute kidney injury



What to Tell Friends and Family

What is delirium?

- ❑ Delirium is the brain reacting to an illness somewhere in the body.
- ❑ It is a sudden confusion that can happen when someone is sick.
- ❑ It can cause big changes in how they think, act, and move.
- ❑ It can sometimes be prevented; if it occurs, it can be treated.

What to Tell Friends and Family

Is it serious?

- ❑ It is a sign that a person is “sicker” than their other illness(es) alone
- ❑ The longer a delirium lasts, the greater the chance that a person loses some functioning or even dies.

What to Tell Family and Friends

What can we do?

- If a person doesn't yet have delirium...
 - Remind them what's happening
 - Bring in familiar objects
 - Encourage mobility, healthy eating and enough sleep
 - Help the healthcare team learn their likes/ dislikes
 - Bring in glasses and hearing aids, if needed

What to Tell Family and Friends

What can we do?

- If a person has developed delirium...
 - Talk in simple sentences about family things
 - Remind them where they are and what is happening around them
 - If they find it difficult to talk, ask “yes/no” questions
 - Let them know they are safe, cared for and loved
 - Respond to delusions/hallucinations with kindness and reassurance
 - Avoid correcting them.
 - Use distraction and talk about something else.
 - Use One-on-one conversation whenever possible

What to Tell Family and Friends

Make sure they take care of themselves!

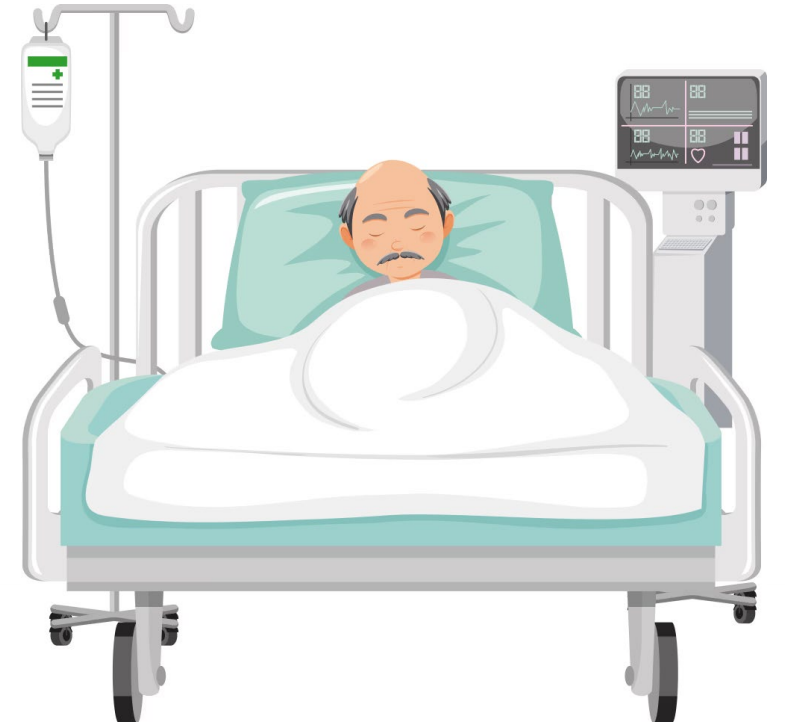
- ❖ Share visiting with other family members or friends.
- ❖ Take breaks and eat regularly.
- ❖ Try not to take any negative comments from your loved one personally.
- ❖ Consider writing or recording a loving message for the patient to have when the family member is away.

“Some lose their senses and take no notice when spoken to; some have a wild look; in some the eyes move from side to side as if they were out of control; generally, on the third- or fifth-day delirium supervenes; many have also spasm of sinews. Again, before death many tear off the bandages with which their head has been bound up, and expose the bared wound to cold.”

Aulus Cornelius Celsus (circa 25 B.C.–circa 50 A.D.), *De Medicina*, Book V, Chapter 26

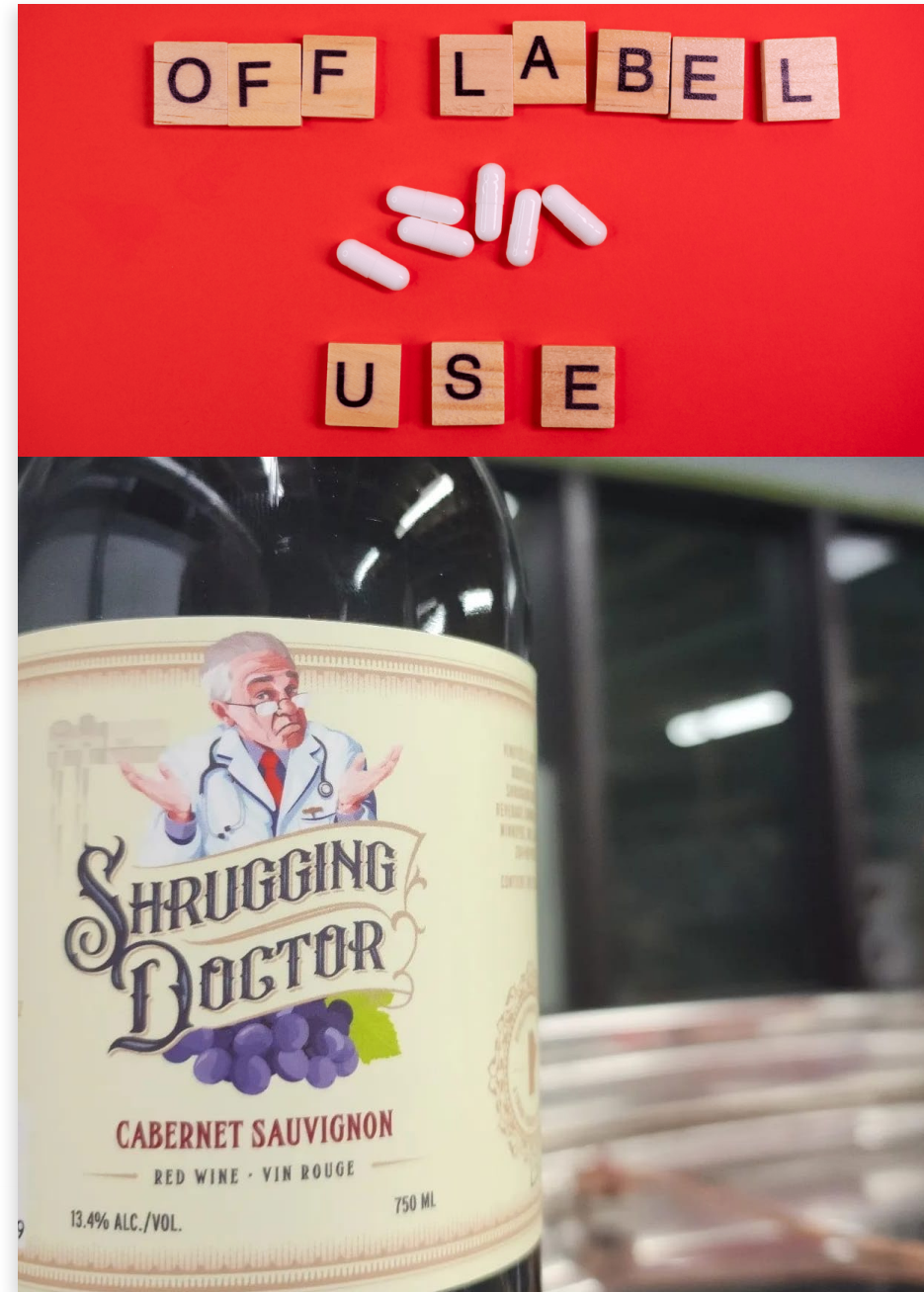
Treatment of Delirium

- Correct or Improve the underlying medical problem
- Continue “prevention” strategies plus...
 - Redirection
 - Minimize restraints
 - Support an appropriate day-night cycle
 - Uninterrupted sleep



Treatment of Delirium

- Elevated cortisol levels
 - High levels of pro-inflammatory cytokines
 - Reduced cholinergic function
 - Excess dopaminergic activity
-
- And probably some γ -aminobutyric acid [GABA]ergic, glutamatergic and adrenergic role we haven't figured out yet.



Treatment of Delirium

Data on pharmacological management of delirium is both controversial and inconsistent. Best support for short term (≤ 5 days) use. Research has been limited by small sample sizes and few placebo-controlled trials.

No medications are FDA approved for treatment of delirium.

The lowest dose of medication should be prescribed for the shortest time.

The usual goal of medication management is an alert and manageable patient.

Psychopharmacology



First Generation
Antipsychotics



Second Generation
Antipsychotics



Benzodiazepines



NMDA agonists



α_2 -adrenergic agonist



“Potpourri”

First-Generation Antipsychotics



Haloperidol (tablet, suspension, intramuscular, intravenous, cream)

- 0.25-2 mg PO/IM/IV every 4-6 hours as needed
- 0.5-2 mg PO twice or three times daily
- Most patients will respond ≤ 3 mg total daily dose; generally, should switch agents rather than exceed 10 mg daily

First-Generation Antipsychotics



Haloperidol

- Adverse Effects
 - Involuntary movements (extrapyramidal symptoms)
 - QT prolongation
 - Low blood pressure

- Avoid/ caution in
 - Parkinson's disease

Second-Generation Antipsychotics



Quetiapine (tablet)

- 12.5-25 mg PO every 4-6 hours as needed
- 12.5-25 mg PO twice or three times daily
- Most patients will respond \leq 100 mg total daily dose

- Adverse Effects
 - Sedation
 - orthostatic hypotension
 - Weight gain/ blood sugar elevations

Second-Generation Antipsychotics



Olanzapine (tablet, oral disintegrating tablet, intramuscular, intravenous*)

- 2.5 mg PO/IM/IV every 4-6 hours as needed
- 2.5-5 mg PO twice daily
- Most patients will respond \leq 15 mg total daily dose

- Adverse Effects
 - Sedation
 - Orthostatic hypotension
 - Constipation
 - Weight gain/ blood sugar elevations

Second-Generation Antipsychotics



Ziprasidone (capsule, intramuscular)

- 20 mg PO/ 10 mg IM every 4-6 hours as needed
- 20 mg PO twice daily with meals
- Most patients will respond \leq 80 mg total daily dose

- Adverse Effects
 - QT prolongation
 - Less sedating than other atypicals
 - Minimal metabolic side effects

Second Generation Antipsychotics



Risperidone (tablet)

- 0.5 - 1 mg every 6 hours as needed
- 0.5 - 1 mg twice daily
- Usual max dose would be 3 mg daily

- Adverse effects
 - Extrapyramidal symptoms risk (close to haloperidol)
 - Orthostatic hypotension
 - Hyperprolactinemia

Second Generation Antipsychotics



Brexpiprazole (tablet)

- FDA approved for agitation! BUT- only when associated with dementia *due to* Alzheimer disease.
- No current research support using it for delirium
- 0.5 mg daily for 7 days, then increase to 1 mg daily.
- Max dose: 3 mg daily
- Adverse effects
 - Increased triglycerides
 - Restlessness

Benzodiazepines



Lorazepam (tablet, intramuscular, intravenous)

- 0.5-1 mg PO every 4 hours as needed
- First line for sedative or alcohol withdrawal; usually linked to a standardized symptom assessment protocol
- Second line for Parkinson's related delirium, or if antipsychotics need to be avoided (catatonia, hx of NMS)

- Adverse Effects
 - Increased confusion
 - Worsened agitation
 - Sedation
 - Respiratory depression

NMDA receptor agonists



Memantine (tablet)

- 5 mg PO BID
- No obvious value when given “as needed”
- Second line if catatonia is considered, comorbid major neurocognitive disorder is present; third line if failures with other agents

- Adverse Effects
 - Nausea
 - Diarrhea

α_2 -adrenergic agonist



Dexmedetomidine (IV infusion)

- 0.2- 0.7 mcg/kg/hr
- No realistic way to give “as needed”
- 3rd- 4th line agent for severe hyperactive delirium not responding to other agents

- Adverse Effects
 - Bradycardia
 - Hypotension
 - Respiratory depression -> Intubation

α_2 -adrenergic agonist



Guanfacine (tablet)

- 0.5 – 1 mg daily
- Caution with doses over 1.5 mg daily

- Adverse effects:
 - Hypotension
 - Bradycardia
 - Constipation
 - Dizziness

“Potpourri”



Trazodone (tablets)

- Post “boxed warning” research supports use in both dementia and delirium related agitation
- 25 - 50 mg dinnertime/nightly
- Max dose generally between 100 and 150 mg, divided 2-3 times daily

- Adverse effects:
 - Sedation
 - Orthostatic hypotension
 - Dry mouth
 - Dizziness

“Potpourri”



Valproic acid derivatives (tablet, oral suspension, sprinkles, intravenous)

- 125-250 mg every 6 hours as needed
- 125-250 mg 2 or 3 times daily
- Adverse Effects
 - Sedation
 - Tremor
 - Nausea
 - Vomiting

- Avoid in:
 - Hepatic impairment, reduced excretion

“Potpourri”



Donepezil (tablet)

- Likely minimal effect/ benefit (primarily case reports)
- 5 mg nightly

- Adverse effects:
 - Bradycardia and/or arrhythmias
 - Nausea
 - Diarrhea

“Potpourri”



Pimavanserin (10 mg tablet, 34 mg capsule)

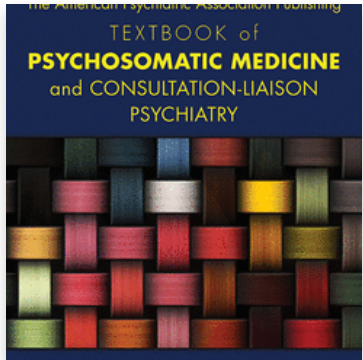
- Approved for Parkinson’s related psychosis ONLY, not agitation
- Case report for use in delirium
- 10 mg 1-2 times daily

- Adverse effects:
 - Peripheral edema
 - Nausea

Questions?

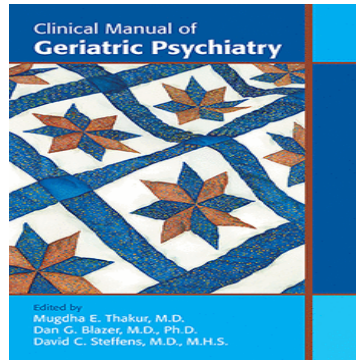
Comments?

Resources



American Psychiatric Association

Textbook of Psychosomatic Medicine and Consultation-Liaison Psychiatry



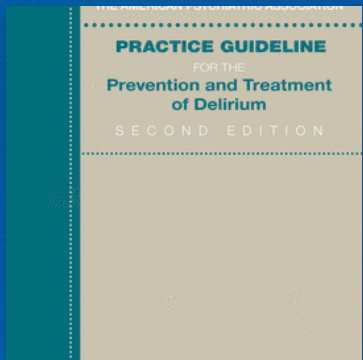
American Psychiatric Association

Clinical Manual of Geriatric Psychiatry



American Delirium Society

americandeliriumsociety.org



American Psychiatric Association

Practice Guideline for the Prevention and Treatment of Delirium



Marie Curie

[Delirium in palliative care | Information for professionals |](#)



South Central VA collaboration

[Delirium Information for Families & Caregivers](#)