
Occupational Therapy Impacting ICU

Acquired Delirium

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Our Story



What was OT's role with delirium?

Acute care OTs typically feel pressured into making a quick discharge plan and oftentimes don't have the staff to develop a treatment plan that lasts more than 1-2 sessions due to the average length of stay

Early Rehab changed our therapeutic point of view!

Meet Rickey...







Progressing the program



Meet Anita...



What is Delirium?

Delirium: serious disturbance in mental abilities that results in confused thinking and reduced awareness of the environment. The start of delirium is usually rapid — within hours or a few days.

Hallmark signs:

- Rapid onset of confusion
- Disorganization
- Inattention

*Septic
Encephalopathy*

Metabolic derangement

Encephalopathy

hysteria

Delirium

Acute confusional
state

ICU syndrome

*Acute brain
failure*

ICU Psychosis

Who is more at risk ?

- History of dementia
- Advanced age
- Surgical patients
- Take certain high-risk medicines
- Have poor eyesight or hearing
- Have an infection or sepsis
- Have heart failure
- High medical acuity (restraints, invasive lines)



How has delirium impacted your patients?

Did you know?



$\frac{1}{3}$ of patients remain delirious @ 6 months

$\frac{2}{3}$ of patients at 1 year function at the same level of a moderate TBI

Patients with persistent delirium are 2.9 % more likely to die within the year

35-40% of delirium is PREVENTABLE!

**80% of ventilated patients will
experience some level of delirium
during their hospital stay**

What does the research show?

- Nationally, delirium related complications costs \$143 Billion each year
- At least 20% of the 12.5 million patients over 65 years of age hospitalized each year in the US experience complications during hospitalization because of delirium
- Delirium affects an estimated 14-56% of all hospitalized elderly patients
- Mortality Rate increases by 11% for every 48 hrs of delirium

**60% of patients go
undiagnosed!**

Contributing Factors

Immobility

Pain

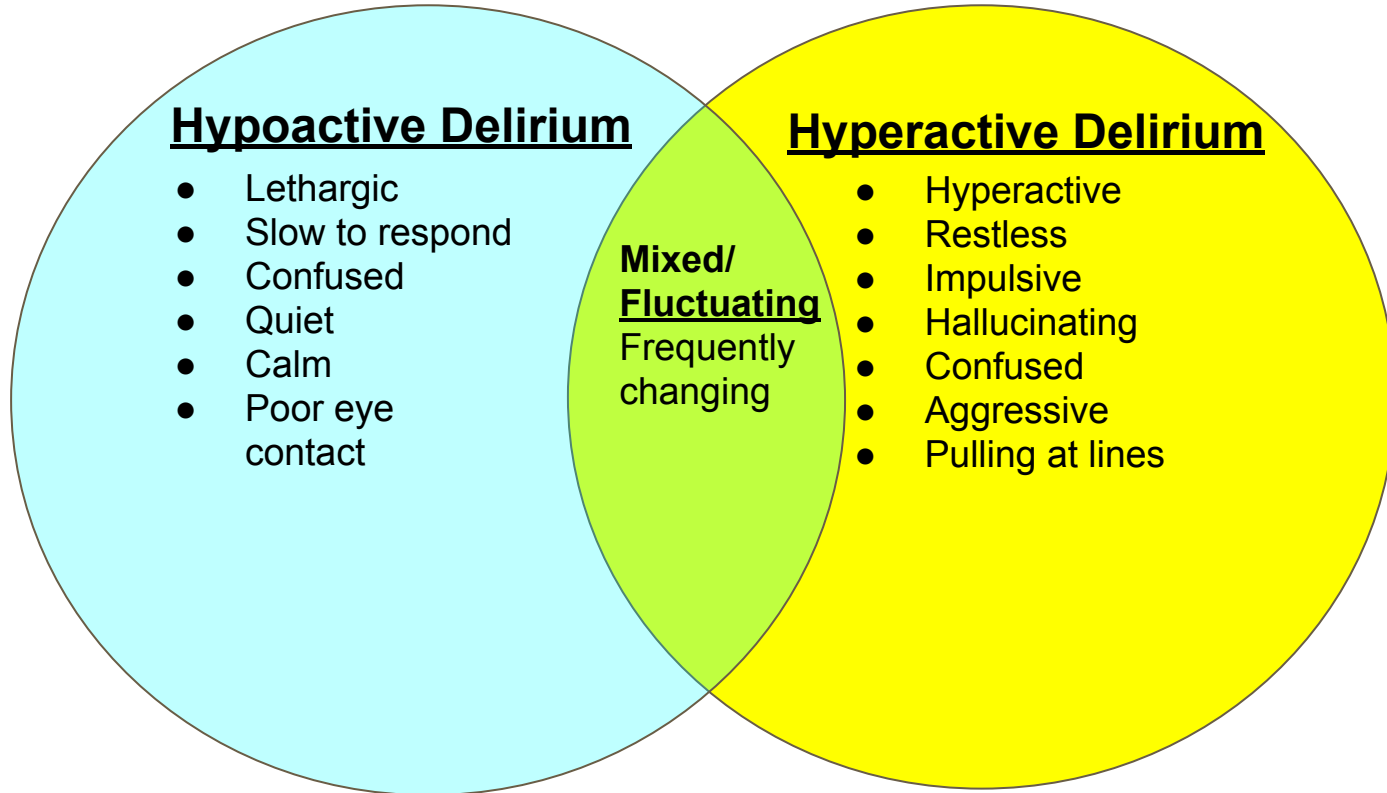
Metabolic imbalances: DKA, hyponatremia, thyroid dysfunction

Medications/drug toxicity: benzodiazepines, narcotics

Sleep deprivation/disturbances

Infection/Sepsis

Types of Delirium



Hyperactive Delirium

You can identify this from the hallway. This patient is unsafe, very restless and fearful. They are typically pulling at their lines.

“I felt so angry. I was sure someone was trying to kill me. I thought I was being raped.”

Hypoactive Delirium

These patients are typically sleeping when you see them and sometimes need cues to maintain alertness. They are pleasantly confused and the nurses favorite patient!

"I am very embarrassed regarding the people who cared for me. I was such a bad egg. I really feel guilty."



Short-term effects

Difficulty progressing with therapy

Increased need for SBA

Fall risk

Depression/anxiety

Poor insight/safety

Impulsive

Personality changes

Anger/Agitation

Lethargy

Inattention/sequencing

Panic

May cause decreased cognitive functioning, increased time on mechanical vent, increased mortality, increased hospital LOS

Long-term functional deficits

Decreased social engagement

Poor stress management

Difficulty managing finances/ medication

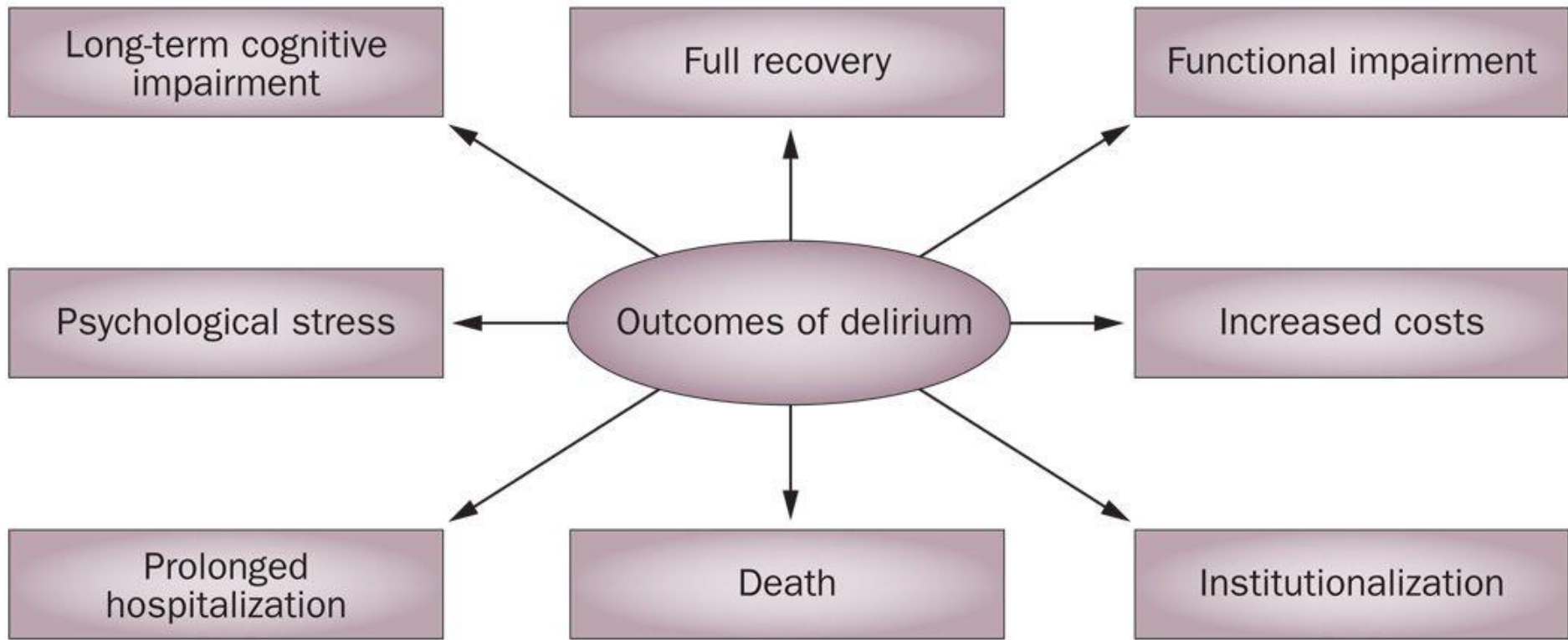
Difficulty managing appointments

Grocery shopping/ meal planning

Depression

Decreased quality of interpersonal relationships

PTSD



Delirium Prognosis

- 12 % of delirium cases are rapidly-resolving typically due to sedation medication
- 35 to 40% of hospitalized patients with delirium die within 1 year

Testing for Delirium

CAM ICU

4 A's Test for Delirium Screening

NEECHAM Confusion Scale

Intensive Care Delirium Screening Checklist

Nursing Delirium Screening scale

CAM ICU

STEP 1 Sedation Assessment

RICHMOND AGITATION-SEDATION SCALE (RASS)

Scale	Label	Description
+4	COMBATIVE	Combative, violent, immediate danger to staff
+3	VERY AGITATED	Pulls to remove tubes or 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, but has sustained awakening to voice (eye opening & contact >10 sec)
-2	LIGHT SEDATION	Briefly awakens to voice (eyes open & contact <10 sec)
-3	MODERATE SEDATION	Movement or eye opening to voice (no eye contact)
If RASS is ≥ -3 proceed to CAM-ICU (Is patient CAM-ICU positive or negative?)		
-4	DEEP SEDATION	No response to voice, but movement or eye opening to physical stimulation
-5	UNAROUSEABLE	No response to voice or physical stimulation
If RASS is -4 or -5 $\rightarrow$ STOP (patient unconscious), RECHECK later		

VOICE TOUCH

Sessler, et al., Am J Respir Crit Care Med 2002; 166: 1338-1344

Ely, et al., JAMA 2003; 286: 2983-2991

<https://www.youtube.com/watch?v=1hSDNOVHMs>

STEP 2 DELIRIUM ASSESSMENT

Confusion Assessment Method for the ICU (CAM-ICU)

1. Acute Change or Fluctuating Course of Mental Status:

- Is there an acute change from mental status baseline? OR
- Has the patient's mental status fluctuated during the past 24 hours?

NO

CAM-ICU negative
NO DELIRIUM

YES

2. Inattention:

- "Squeeze my hand when I say the letter 'A'."
Read the following sequence of letters: S A V E A H A R T
ERRORS: No squeeze with 'A' & Squeeze on letter other than 'A'
- If unable to complete Letters $\rightarrow$ Pictures

0 - 2 Errors

CAM-ICU negative
NO DELIRIUM

> 2 Errors

3. Altered Level of Consciousness

Current RASS level (think back to sedation assessment in Step 1)

RASS other than zero

CAM-ICU positive
DELIRIUM Present

RASS = zero

4. Disorganized Thinking:

- Will a stone float on water?
- Are there fish in the sea?
- Does one pound weigh more than two?
- Can you use a hammer to pound a nail?

> 1 Error

CAM-ICU negative
NO DELIRIUM

0 - 1 Error

Command: "Hold up this many fingers" (Hold up 2 fingers)
"Now do the same thing with the other hand" (Do not demonstrate)
OR
"Add one more finger" (If patient unable to move both arms)

Our program

CAM ICU test completed on every MICU patient daily

CAM-Positive patients received 1 extra unit of cognitive based intervention daily in addition to regularly scheduled OT

CAM positive patients tracked until discharge

Data collected throughout

Consistent communication with nursing and physicians

Implementing Cognitive Based Interventions by Category:

What deficits would we expect to see?

- Attention
- Sequencing
- Abstraction
- Orientation
- Problem solving
- Visual perception
- Memory
- Recall

Attention

Bingo

Catch

Go-fish

Coloring



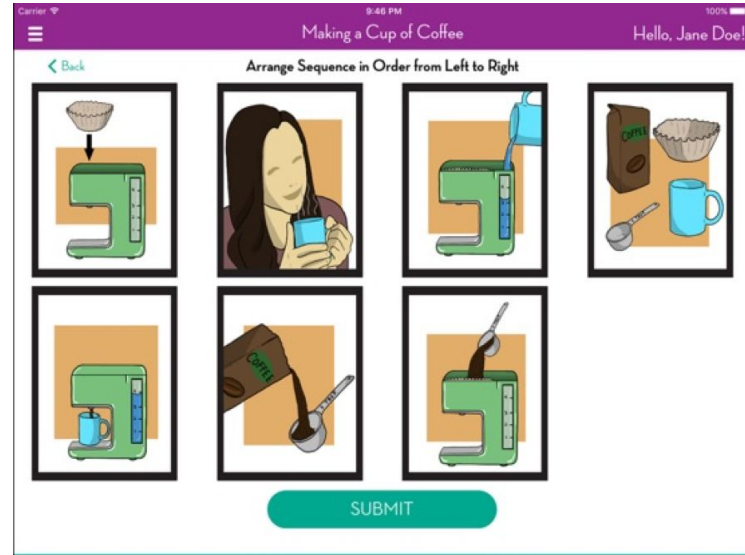
Sequencing

Sequencing cards

ADLs

Connect the dots

Story Sequencing



Abstraction

Scattergories

Categorizing

Spot the difference

Where's Waldo

"Shopping"

Yahtzee

Orientation

"Where am I" game

Calendar

Discussing current events

Journaling/ICU Diary

Standing to fill out communication board

Henry Ford Early Rehab Program

I Enjoy: **Music & coloring** Patient Initials: **K.L.**

I like the Following Music: **Motown**

I like the Following Television Shows: **food network**

Prior to My Hospitalization My Activity Level Was: **①, working**

Based on my Physical and/or Occupational Therapy Evaluation My

Current Mobility Level is: **2** Some of the Activities I Can Assist with Include: **grooming, bed mobility**

Daily Activity

Today I Accomplished: **sitting up!**

I worked with PT and or OT for **45** minutes today!

My Current Physical Therapy Goal is: **Walk 50' min Assist**

My Current Occupational Therapy Goal is: **Complete grooming standing at sink min ①**

Date	Day of Week	Activity Today
1/3	M	exercised, activities in bed
1/4	T	grooming in bed exercised
1/5	W	Sat BOB; grooming

Problem Solving

Safety scenarios

Mazes

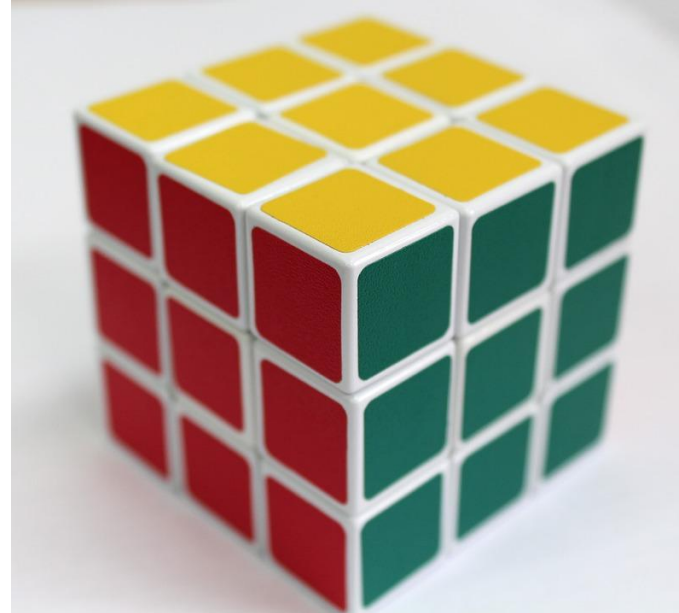
Checkers

Puzzles

Crosswords

Sudoku

Tic Tac Toe



Visuoperception

Mazes

Word searches

Scrabble

Pictionary

Checkers



Memory and Recall

Memory game

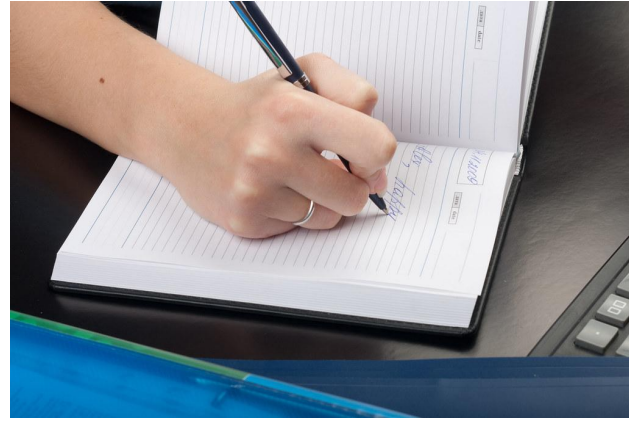
Story telling

Discussing events

Journaling

Music

Simon



Multisensory Treatment Ideas

- Music
- Lighting
- TV/movies
- Personal objects
- Pictures
- Recordings of family's voices
- Positioning
- Talking to patients
- Essential oils



Case Study- Mrs. Johnson

Mrs. Johnson is a 86 yr old female who presents from home with lethargy and altered mental status. Family report she was in her usual state of health two days ago but has been sleeping more and last night was difficult to wake up and only oriented to her name. After testing in the ED patient was found to have low sodium level of 125 and urine cultures positive for UTI. She has a history of hypertension and COPD. She is admitted to the MICU for hyponatremia and monitoring. OT evaluates Mrs. Johnson the next day.

What might we expect in terms of cognition?

What do you think are the contributing factors to her delirium?

Mrs. Johnson Continued....

Mrs. Johnson was confused and oriented to name and place during the OT evaluation. She followed most 1 step commands with repeated verbal cues and tests CAM-ICU positive. She was able to sit edge of bed for 10 minutes and work on a grooming and dressing task with moderate assist with verbal cues for redirection throughout.

- **What specific tasks or activities would you want to work on during your follow up session to help improve her cognition/improve her altered mental status?**
- **What things could you do or change in the hospital room to help her delirium from worsening?**

Case study- Ms. Adams

Ms. Adams is a 41 year old female who was admitted after being found down by family. She has a known history of ETOH abuse and she tested positive for cocaine. She has been in the MICU for 3 days. She is currently intubated and on sedation meds (Propofol and Fentanyl). OT initiated evaluation on day 3 when patient still intubated but sedation had been turned down and she was awake enough to participate. She has been experiencing delirium tremens due to withdrawal.

- **What might we expect in terms of cognition?**
- **What do you think are the contributing factors to her delirium?**

Ms. Adams Continued...

During OT evaluation Ms. Adams was able to open her eyes and follow ~ 50 % of commands with increased time and repeated verbal cues. Since she was still on sedation she was sleepy and needed VCs to keep her eyes open. She presented restless and was attempting to pull at lines. She was able to participate in ROM and sit EOB with max assist for 5 minutes. She was not able to fully participate in ADL tasks due to sedation requiring total assist for dressing, grooming and unable to write. She tests CAM-ICU positive.

- **What specific tasks or activities would you want to work on during your follow up session?**
- **What things could you do or change in the room/environment to reduce her delirium from worsening?**

Case study- Mr. Edwards

Mr. Edwards is a 75 year old male admitted for distal femur fx s/p fall and ORIF two days ago. He has past medical of DM, arthritis, and dementia per the chart. You have orders for an OT evaluation. During your evaluation you notice Mr. Edwards is sleepy and confused. His family reports he has not slept well the past four days he has been in the hospital because of his loud and disruptive roommate and his post-surgical pain. Patient is CAM-ICU positive.

What are some contributing factors to his delirium?

What strategies can you implement to help his delirium from worsening?

What questions might be important to ask his family?

What questions might be helpful to ask nursing prior to evaluating him?

CHALLENGES!

Staff Buy-In

- Identify a need
- Pilot a program and get results to share
- Identify key players
- Requires consistency for carry over
- Frequent refreshers on CAM ICU scoring and treatment ideas
- Discuss and share successful treatment outcomes for increasing staff morale even when long term benefits are not immediately recognized

Time management: Our biggest challenge!

- Choose the best interventions
- Complete delirium screening in the morning
- Utilize rehab tech/volunteers

Culture Change

Culture change needs to be at the forefront of any change with actual and perceived barriers

Negative behavior needs to be identified and dealt with swiftly

Open communication with delirium concerns

Provide educational opportunities

Improved team engagement with assist from team champions

Highlight successes ALWAYS

Through trust and teamwork, culture change is possible!

What Type of Delirium?

Mr. Shepard is an 81 year old male admitted to the ICU from outside hospital (3 hours away) with respiratory distress, pneumonia and sepsis. He was intubated due to hypoxia, restrained and medically sedated on Propofol for 3 days. Today, he has been weaned from sedation and extubated. Pt tested CAM-ICU Positive.

Baseline: Living indep with help from daughter for IADLs

From the door he is noted to be sleeping soundly. He wakes upon tactile cues momentarily. During the session he is perseverating on his daughter taking him home and drinking water (despite being NPO). He is smiling intermittently, but with very limited eye contact and limited verbalization.

What Type of Delirium ?

Ms. S. is a 29 year old female admitted s/p accidental overdose of heroin, aspiration pneumonia, respiratory failure and sepsis. Pt was intubated for 10 days, on heavy sedation but alert throughout. During first OT session, pt was irritable and often swatting at therapist when OT tried to untangle lines. The RN informed us that she was hitting and kicking overnight nurses. Pt is CAM-ICU positive.

1st Session: Pt pulling at lines, attempting to hit OT and becoming very angry.

2nd Session: Now extubated. Pt throwing pillows at staff, yelling and refusing to participate.

3rd Session: Pt still grumpy, but verbally more cooperative. Pt falling asleep throughout session.

How Family/Friends Can Help ICU Patients:

- Speak calmly and use simple words or phrases
- Remind the patient of the date, time and place
- Encourage sleep/wake cycles - open blinds in morning
- Talk about family and friends
- Bring up positive current events
- Bring glasses, hearing aids, dentures
- Decorate the room with calendars, posters, family pictures, familiar blanket/pillow. These items might be simple reminders of home
- Provide the patient with favorite music or TV shows
- If your loved one has delirium, you might be asked to sit and help calm them
- Encourage out of bed for meals if able/appropriate to do so
- Utilize dry erase boards to communicate to hospital staff important things about patient (interests/hobbies, if they are HOH or have poor vision, if they have grandchildren) More likely to start pleasant conversation and reorient them to reality.

Our OT Role in delirium prevention

- Encourage sleep/wake cycles
- Address lighting
- Constant cognitive assessments
- Strongly encourage early mobility
 - Especially with mechanically ventilated patients
- Hearing aids, glasses, dentures
- Change of scenery
- Relaxing/familiar auditory stimulation
- Encourage out of bed for meals if appropriate
- Educate family or delirium and ways to assist

30-40% of delirium is preventable! Let's do our part

Resources

ICUdelirium.org

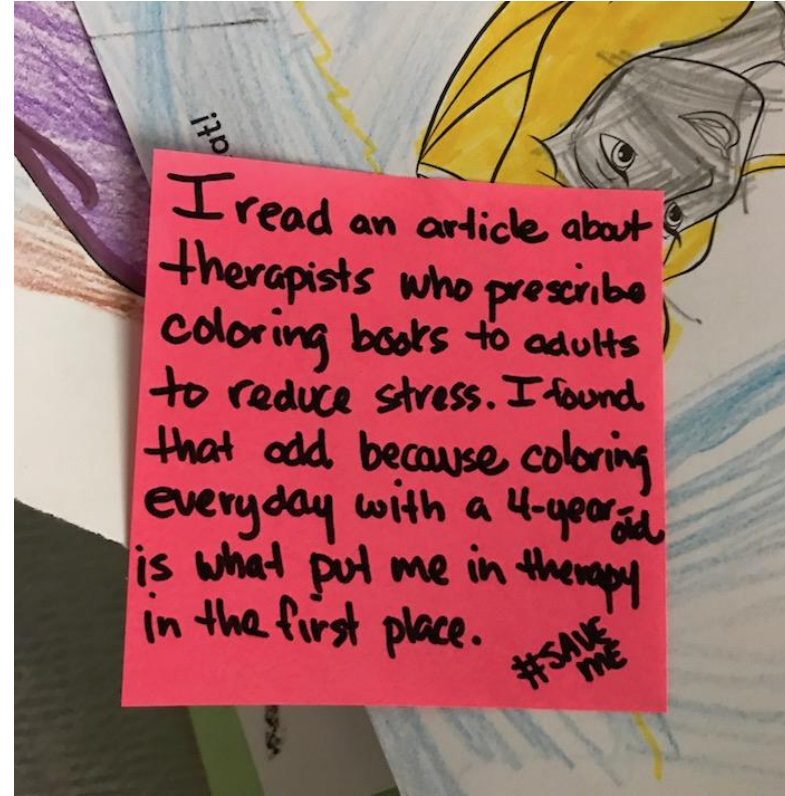
Print free coloring pages

<https://amessagewithabottle.com/free-coloring-pages/>

Dollar store reusable finds

Pinterest

<https://www.icudelirium.org/medical-professionals/videos>



CHRIS ILLUMINATI: a message with a bottle

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<https://www.youtube.com/watch?v=yEwBzKTbJEk> (CAM ICU)

<https://www.youtube.com/watch?v=FstSYkold5c> (Delirium)