If you are viewing this course as a recorded course after the live webinar, you can use the scroll bar at the bottom of the player window to pause and navigate the course.

This handout is for reference only. Non-essential images have been removed for your convenience. Any links included in the handout are current at the time of the live webinar, but are subject to change and may not be current at a later date.
Technical issues with the Recording?

- Clear browser cache using these instructions
- Switch to another browser
- Use a hardwired Internet connection
- Restart your computer/device

Still having issues?

- Call 866-782-9924 (M-F, 8 AM-8 PM ET)
- Email customerservice@OccupationalTherapy.com
Occupational Therapy's Role in Delirium Assessment, Prevention, & Management within the Intensive Care Unit

Lyndsay Laxton, OTR/L
Meghan Morrow, OTR/L

Learning Outcomes

1. Identify characteristics of delirium and a screening tool with high validity and specificity to identify the presence of delirium.

2. Identify neurocognitive and health outcomes of patients experiencing delirium.

3. Implement 3-5 targeted interventions to prevent and manage delirium.
Overview

- What is Delirium?
- Clinical Relevance
- Assessing for Delirium
- Intervention Strategies
- Case Studies

What is Delirium?

- A disturbance in attention and awareness (ability to direct, focus, and sustain attention).
- A disturbance in cognition (memory, orientation, language, visuospatial ability, or perception).
- The disturbance develops over a short period of time (usually hours to days), represents a change from baseline, and tends to fluctuate during the course of the day.
- The disturbance is not better explained by another pre-existing, evolving, or established neurocognitive disorder.
Delirium Sub-Types

**Hypoactive**
- Decreased level of arousal
- Slowed speech
- Slowed or absent motor movement

**Hyperactive**
- Restlessness
- Agitation
- Increased motor movement and speech
- Impulsivity
- Delusions or hallucinations

**Mixed**

---

Clinical Relevance

- **Prevalence**
  - ~35% of patients within the ICU experience delirium
  - ~80% of patients requiring mechanical ventilation

- **Vulnerable Populations**
  - Advanced age (>65 years old)
  - Post-surgical
  - Pre-morbid depression
  - Pre-existing cognitive impairment
  - Ex.) CVA, TBI
  - Poor eyesight or hearing
  - Presence of infection or sepsis
Clinical Relevance

Clinical Implications

- Time receiving mechanical ventilation
- ICU length of stay
- Hospital length of stay
- Mortality at 6 months & 1 year post ICU stay
- Post-discharge anxiety and depression

Long-term global cognition & executive function
- Independence with ADL performance

Post-Intensive Care Syndrome

“New or worsening impairments in physical, cognitive, and/or mental health in ICU survivors.”

Parker, Stohranschen, & Newtham, 2013
### ABCDE Bundle for reducing PICS risk in a mechanically ventilated patient

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Airway management using light sedation to promote awakening</td>
</tr>
<tr>
<td>B</td>
<td>Breathing trials assessing respiratory function as early as possible to wean the patient off the ventilator</td>
</tr>
<tr>
<td>C</td>
<td>Coordination of care and communication with family members helps to minimize adverse outcomes</td>
</tr>
<tr>
<td>D</td>
<td>Delirium assessment and prevention by avoiding benzodiazepines when possible and orienting the patient to person, place, and time with assistance from the family</td>
</tr>
<tr>
<td>E</td>
<td>Early mobilization to reduce the incidence of delirium and improve patient outcomes</td>
</tr>
</tbody>
</table>

---

### ABCDE + FGH Bundle for reducing PICS Risk

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Family involvement, follow-up referrals, and functional reconciliation</td>
</tr>
<tr>
<td>G</td>
<td>Good handoff communication to patient and family regarding progress and medical course</td>
</tr>
<tr>
<td>H</td>
<td>Handout material on PICS and PICS-F</td>
</tr>
</tbody>
</table>
Delirium Assessment & Other Measures

- Confusion Assessment Method-ICU (CAM-ICU)
- CAM Severity (CAM-S)
- Richmond Agitation- Sedation Scale (RASS)
- Intensive Care Delirium Screening Checklist (ICDSC)
- Orientation Log (O-Log)

Confusion Assessment Method-ICU (CAM-ICU)

- Intended to assist with identifying the symptoms of confusion or delirium
- Administration time: 2-3 minutes
- Sensitivity rating: 95 to 100%
- Specificity: 93 to 98%

*Most heavily researched*
Confusion Assessment Method - Severity (CAM-S)

- Assess severity of delirium through observation of symptoms.
- Increased severity correlates to increased LOS, mortality, and nursing home residence.

### Table 1

<table>
<thead>
<tr>
<th>CAM-ICU</th>
<th>Grading</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Onset or Fluctuations of Mental Status</td>
<td>6 above</td>
<td>4 present</td>
</tr>
<tr>
<td>Is the patient different than his/her baseline mental status? OR Has the patient had any fluctuation in mental status in the past 24 hours as evidenced by fluctuation on a sedation level of consciousness score (RASS, VAS, GCS) or previous delirium assessment?</td>
<td>6 above (correct 10)</td>
<td>4 for fluctuation (correct 6)</td>
</tr>
<tr>
<td>Disturbance</td>
<td>6 above</td>
<td>4 present</td>
</tr>
<tr>
<td>Say to the patient: “I am going to read you a list of 10 letters. Whenever you hear the letter ‘A’ indicate by raising your hand.” Read the following letters for an abnormal time: A - and if the patient squints on any letter other than ‘A’</td>
<td>6 above</td>
<td>4 present</td>
</tr>
<tr>
<td>Alerted Level of Consciousness</td>
<td>6 above (RASS 5)</td>
<td>4 for altered level (RASS 1 - 4)</td>
</tr>
<tr>
<td>Present if the Actual RASS score is anything other than alert and calm (zero)</td>
<td>6 above</td>
<td>4 present</td>
</tr>
<tr>
<td>4. Disorganized Thinking</td>
<td>Yes/No Questions</td>
<td>6 above (RASS 4)</td>
</tr>
<tr>
<td>1. Why’s the patient in here?</td>
<td>6 above (RASS 4)</td>
<td></td>
</tr>
<tr>
<td>2. Are they feeling sad?</td>
<td>2 for severe disorganized thinking (RASS 0, -3)</td>
<td></td>
</tr>
<tr>
<td>3. Does one pound weigh more than two pounds?</td>
<td>2 for severe disorganized thinking (RASS 0, -3)</td>
<td></td>
</tr>
<tr>
<td>4. Can you use a hammer to pound a nail?</td>
<td>2 for severe disorganized thinking (RASS 0, -3)</td>
<td></td>
</tr>
<tr>
<td>Errors are counted when the patient incorrectly answers a question.</td>
<td>Command: Say to patient “Hold up this many fingers” (hold two fingers in front of patient). Now do the same with the other hand” (Do not count number of fingers)</td>
<td>6 above (RASS 4)</td>
</tr>
<tr>
<td>An error is counted if patient is unable to complete the entire command.</td>
<td>6 above</td>
<td>4 present</td>
</tr>
</tbody>
</table>

Total Score

CAM-ICU: Confusion Assessment Method for the Intensive Care Unit; RASS: Richmond Agitation Sedation Scale; SAS: Sedation-Agitation Scale; GCS: Glasgow Coma Scale

---

Additional Measures

**Richmond Agitation & Sedation Scale (RASS)**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>COMATOSE</td>
<td>Comatose, unable to open eyes, no spontaneous eye opening</td>
</tr>
<tr>
<td>5</td>
<td>VERY AGITATED</td>
<td>Frequent purposeful movement, fights ventilator</td>
</tr>
<tr>
<td>4</td>
<td>AGITATED</td>
<td>Frequent non-purposeful movement, fights ventilator</td>
</tr>
<tr>
<td>3</td>
<td>RESTLESS</td>
<td>Disturbed, agitated, restless, uneven respirations</td>
</tr>
<tr>
<td>2</td>
<td>ALERT &amp; CALM</td>
<td>Spontaneously pays attention to caregiver</td>
</tr>
<tr>
<td>1</td>
<td>DROWSY</td>
<td>Not fully awake, level of consciousness awakening to voice (eyes open &amp; contact -10 sec)</td>
</tr>
<tr>
<td>0</td>
<td>LIGHT SEDATION</td>
<td>Briefly aware to voice (eyes open &amp; contact &lt;10 sec)</td>
</tr>
<tr>
<td>-1</td>
<td>MODERATE SEDATION</td>
<td>Movement or eye opening to voice (no eye contact)</td>
</tr>
<tr>
<td>-2</td>
<td>DEEP SEDATION</td>
<td>No response to voice, but movement or eye opening to physical stimulation</td>
</tr>
<tr>
<td>-3</td>
<td>UNREACHABLE</td>
<td>No response to voice or physical stimulation</td>
</tr>
</tbody>
</table>

If RASS is 0 to 3 proceed to CAM-ICU (no patient CAM-ICU positive or negative).

- Medical scale used to measure the agitation or sedation level of a patient
- Integral part of the CAM-ICU assessment
- Assists with initiating spontaneous awakening trials with nursing staff
- Correlates to delirium type
  - Hyperactive vs. hypoactive?
Intensive Care Delirium Screening Checklist (ICDSC)

- The current literature of delirium in the neuro population pertains to patients with mild to moderate illness severity.

- In the neuro-critically ill, delirium screening is challenged by limited feasibility.

- Recent literature has demonstrated that the ICDSC may be a valid tool & the CAM-ICU is less suitable for delirium detection for patients in the Neuro- ICU.

Additional Measures

The Orientation Log (O-Log)

- Quick, quantitative measure of orientation status

- Patient responses are scored according to the following criteria:
  - 3 = correct spontaneously or upon first free recall attempt
  - 2 = correct upon logical cueing
  - 1 = correct upon multiple choice or phonemic cuing
  - 0 = incorrect despite cueing, inappropriate response, or unable to respond.
Traditional OT Interventions

- Early Engagement
  - Mobilization
  - ADL Participation
  - Leisure Participation

- Sleep Hygiene
  - Cluster care at night
  - Mute alarms

- Cognitive Re-Training
  - Word Search
  - Crossword Puzzles

- Environmental Modifications
  - Lights on during the day
  - Clock present in the room
  - Calendar

- Polysensory Stimulation
  - Glasses
  - Hearing aids
  - Dentures
  - *overstimulation vs under stimulation

- Communication
  - Modified communication strategies

Cutting Edge Evidence Based OT Interventions

- ICU Diary
- Music Therapy
- Spontaneous Awakening Trial
- Family Education
ICU Diary

- **Definition**
- "Following a timeline design, they provide a background to the cause of the patient’s ICU admission and an ongoing narrative outlining day-to-day activities."

- **Purpose**
  - Assist to fill memory gaps
  - Recreate biographical account of factual events
  - Validate emotions/experiences in reality
  - Establish realistic goals for functional recovery
  - Reduction of anxiety/depression
  - A platform for family to express emotions, share experiences
  - Cognitive intervention (STM, orientation)

---

Music Therapy

- With various pathophysiological models for delirium, implicating neuro-inflammation, neurotransmitter imbalances and an aberrant stress reaction....

- Music has a calming effect.

- **Why?**
  - Due to entrainment of the ANS, reduction of sympathetic activation and damping of the inflammatory state.

- Music Therapy seems like a promising tx. intervention

- Music listening has been shown to activate areas of the brain involved with:
  - memory
  - cognitive function
  - emotion
Spontaneous Awakening Trials

- Daily sedative interruptions initiated by the medical team.
- One of the recommended titration methods in the recent Pain, Agitation and Delirium (PAD) guidelines.
- Increasing OTs presence and role in assessment of delirium during SATs
  - Assess delirium via CAM-ICU
  - Provide recommendations for non-pharmacological delirium management/prevention

Family Education

- Education starts on day one of admission!
  - Family Menu & Get to know me.
- Resources/ Handouts
  - Instruct on strategies.

Get To Know Me...
You Can Call Me...

<table>
<thead>
<tr>
<th>Important People (Family, Friends, Pets)</th>
<th>I Can’t Wait To…</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Some of My Favorite Things… (Hobbies, Sports, Food, Music, Books, TV shows)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I work/ am retired/ on disability (circle one) (yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At Home I Use… (Please Circle) Walker Canes Wheelchair</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glasses Contact Lenses Hearing Aid Dentures Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Things That Cheer Me Up</th>
<th>Things That Stress Me Out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Things I’d Like You to Know About Me…</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Delirium Prevention Strategies:

- Use calm, short, concise instructions and explanations.
- Address weather outside and time of day
- Re orient as needed
- Encourage family pictures and familiar objects in room
- Supply current calendar and clock in room
- Maintain normal schedules and routines
- Provide adequate lighting
- Encourage friends and family to visit regularly
- Keep window blinds open during the day and closed during the night.
Case Study: Mike

- HPI: 58yo M, s/p elective ostomy reversal, with intraoperative course complicated by a bowel perforation, admitted to the ICU for concern of developing sepsis.

- **Objective Measures**
  - CAM-ICU positive x4 days - hallucinations, globally disoriented, tangential speech
  - CAM-S: 4/7
  - O-Log: 8/30 – poor orientation of location, etiology & pathology of deficits

- **Interventions**
  - Environmental modifications – introduced natural light, changed TV channel
  - Re-orientation: calendar, sign with name of the hospital
  - Family education and engagement with his daughter

Case Study: Bonnie

- HPI: 89yo F, s/p T10 - S1 PSF with intra-operative course complicated by a dural tear, admitted to the ICU for hemodynamic monitoring and pain management. Pt developed an incisional infection, requiring return to OR for I&D x3.

- **Objective Measures**
  - CAM-ICU positive x5 days – lethargic, motor slowing, minimal speech
  - CAM-S: 5/7

- **Interventions**
  - Environmental modifications – lights on, TV on, music playing, hearing aids
  - Progressive mobility and ADL engagement
  - Family education and engagement with her husband
Case Study: Pema

- **HPI:** 47 y.o. female no significant PMH with HH1F3 subarachnoid hemorrhage in a distribution consistent with ruptured Acomm aneurysm. LOS: 24 days.

- **Objective Measures**
  - CAM –ICU negative day 1-4 of admission. CAM-ICU positive day 5-24. Presented with mixed delirium – fluctuating between lethargic and impulsive.
  - CAM-S: 6/7
  - RASS: 0
  - O-Log: 0 to 4/30 – poor orientation of location, reason for admission, month, date and year.

- **Interventions**
  - OOB for all meals 3x daily with chair alarm on at all times when OOB.
  - Poly stimulation: glasses on and dentures in during the day/ all meal times.
  - Bedside table with clock, current calendar, ICU diary and basic "you are here" handout.
  - RN staff to ambulate patient 2x daily and re-orient per Q1 neuro check
  - Music “Therapy” 2 hours a day: 1 hour in am; 1 hour in pm.

Case Study: Daniel

- **HPI:** 58 y.o. male admitted on 10/23/2018 with hydrocephalus/ VPS malfunction. LOS: 23 days.

- **Objective Measures**
  - CAM-ICU negative for all 23 days of admission.
  - CAM-S: 0/7
  - RASS: 0
  - O-Log: 28/30- disorientation to time.

- **Interventions**
  - Supply current calendar and clock in room.
  - Maintain normal schedules and routines.
  - Engage in meaningful conversation to simulate memory and logic
  - Offer mirror for grooming
  - Encourage self care activity at appropriate times (Self feeding, grooming)
Critical Care Culture is Changing … Is Your Practice?

- Assess for delirium during each session & implement necessary prevention or treatment strategies according to your findings.
- Incorporate family into your prevention and treatment through education and training.
- Occupational therapist have significant value in maintaining delirious patient’s quality of life and overall outcomes.
- We hope you now feel empowered to assess and treat your delirious patients more confidently and effectively.

Resources

- Hospital Elder Life Program (HELP) for Prevention of Delirium
  - [https://www.hospitalelderlifeprogram.org](https://www.hospitalelderlifeprogram.org)

- Vanderbilt University Medical Center: ICU Delirium and cognitive impairment study group
  - [http://www.icudelirium.org/index.html](http://www.icudelirium.org/index.html)

- American Delirium Society
  - [https://americandeliriumsociety.org/](https://americandeliriumsociety.org/)

- CAM Assessment
  - [https://www.youtube.com/watch?v=yEwBzK TbJEk](https://www.youtube.com/watch?v=yEwBzK TbJEk)
Contact Us:
Lyndsay.Laxton@uchealth.org
Meghan.Morrow@uchealth.org

References