



Delirium in the ICU: More Common Than We Think

2 Contact Hours

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Purpose

Due to the poor outcomes and increased cost of care for patients with delirium, there has been an increased focus of both the medical and nursing society on early identification, screening, and treatment of delirium. It is estimated that a patient diagnosed with delirium costs \$2,500 per patient or \$6.9 billion annually to Medicare (O'Mahony, Murthy, Akunne & Young, 2011). The purpose of this course is to inform the healthcare provider about the risk factors, causes, screening tools, and treatment options.

Objectives

After successful completion of this continuing education course, you will be able to:

- Define delirium and list five risk factors for delirium.
- Explain the difference between delirium and dementia.
- Describe the theories and reversible causes of delirium.
- List the characteristics and symptomatology of the three types of delirium.
- List the medications that frequently cause delirium.
- Interpret findings of various delirium screening tools.
- Describe four types of interventions used to treat patients with delirium.

Introduction

Delirium is more common in the ICU than we think, and there are poor outcomes when compared with patients who do not develop delirium while hospitalized. According to Holroyd-Leduc, Khandwala, and Sink (2010), delirium increases the patient's risk of death, longer hospital stays, and cognitive deficits. Another study showed that the patient with delirium had an increase in the number of ventilator days, length of stay, and mortality (Flagg, Cox, McDowell, Mwose, & Buelow, 2010). Another poor outcome is that the patient with delirium is more frequently discharged to long-term care facilities (Holroyd-Leduc, Khandwala, & Sink, 2010).

According to Flagg, Cox, McDowell, Mwose, & Buelow (2010), in the inpatient setting, patients with delirium have a higher rate of functional decline and typically exhibit unsafe behaviors that require greater intensity of nursing care. Patients experiencing delirium in an intensive care setting can continue to experience a decrease in function up to six months after discharge (Flagg et al., 2010).

Understanding the link between delirium in the ICU and poor outcomes supports the need for a prompt identification, knowledge of high risk individuals, understanding of the early intervention strategies to reduce risk whenever possible, treatment, and goals of therapy. This course will educate the healthcare provider on the latest research regarding delirium in ICU setting.

Outcomes Associated with Delirium in the Intensive Care Unit (ICU)

Balas, Rice, Chaperon, Smith, Disbot, & Fuchs (2012) state that the outcomes associated with delirium in the ICU setting are:

- Higher ICU and hospital costs
- Longer ICU and hospital length of stay
- Greater use of continuous sedation and physical restraints
- Increased unintended self-removal of catheters and self-extubation
- Higher ICU, hospital, and 6-month mortality rates

Epidemiology

As stated previously, delirium is more common than we think.

- The incidence of delirium in the community is about 1%-2% (Faught, 2014)
- The incidence of delirium in general hospital admissions related to alteration in mental status is 14%-24% (Faught, 2014)
- For patients over age 65 in the intensive care setting, the incidence of delirium increases to 87% (Fong, 2009)

Definition of Delirium

Delirium is an acute, transient, and usually reversible change in mental status typically caused by a medical condition, which has potentially life-threatening consequences for patients (Faught, 2014). Delirium is basically inattention and confusion that represents the brain temporarily failing. A person who is delirious is unable to think clearly and can't make sense of what is going on around him (ICU Delirium and Cognitive Impairment Study Group, 2015).

It is NOT... a normal response to illness

It is NOT... dementia

Delirium can be confused with signs of early dementia in older patients. Delirium has an acute onset and fluctuates over hours or even minutes, with disrupted sleep patterns and possible hallucinations. Dementia develops over years, with a relatively stable yet chronic course; affected patients typically have a normal attention span and perceptions. However, subjective memory complaints similar to those found in newly diagnosed dementia can be found in delirium (Fong, 2009).

Comparison Between Dementia & Delirium

Parameter	Delirium	Dementia
Onset	Short, rapid, hours/days	Insidious & gradual
Presentation	Disoriented, fluctuating moods, may fluctuate over the day and sometimes dramatically	Vague symptoms, loss of intellect, agitated, aggressive
Course	Hours, weeks, or longer	Slow and continuous, slowly evident over months or years
Sleep/Wake	Worse at night in darkness and on awakening, insomnia	Worse in the evening, sundowning, reversed sleep
Duration	Hours to < month	Month to years
Affect	Labile variable fear/panic, euphoria, disturbed	Easily distracted, inappropriate anxiety, labile to apathy

Comparison Between Dementia & Delirium

Parameter	Delirium	Dementia
Judgment	Impaired; difficulty separating facts and hallucinations	Impaired, inappropriate decisions, denies problems
Psychotic Symptoms	Delusions	Misperceives people and events as threatening; late delusions, hallucinations
Level of Consciousness	Disturbed	Intact
Recent Memory	Impaired, but remote memory is intact	Short term memory deficit in early course, progresses to long-term deficits, confabulation, preservation

Test Yourself

A patient admitted to the ICU has had a slow mental decline over the past two years. The family states that it is worse in the evening, and they have noticed both short-term and long-term memory loss. On assessment, the patient is easily distracted and denies any problems. The patient most likely has:

- A. Dementia - Correct
- B. Delirium
- C. ICU Psychosis

Delirium Clinical Risk Factors

According to Fong (2009), Faught (2014), & Alzheimer's Association (2015), there are clinical risk factors for delirium:

- Age > 70
- Transfer from a nursing home
- Prior history of depression, dementia, CHF, stroke, & epilepsy
- Alcohol abuse within a month
- Sleep deprivation
- Administration of psychoactive medications
- Drug overdose or illicit drug use within the week
- Hypo/hyperglycemia
- Hypothermia or fever
- BUN/Creat ratio >18
- Poorly managed pain
- Age > 70
- Transfer from a nursing home
- Prior history of depression, dementia, CHF, stroke, & epilepsy
- Alcohol abuse within a month
- Sleep deprivation
- Administration of psychoactive medications
- Drug overdose or illicit drug use within the week
- Hypo/hyperglycemia
- Hypothermia or fever
- BUN/Creat ratio >18
- Poorly managed pain
- Renal failure (Cr >2.0mg/dl)
- Liver disease (bilirubin >2.0 mg/dl)
- Cardiogenic or septic shock
- HIV

- Use of IV lines, bladder catheters, or physical restraints
- Visual or hearing impairment
- Malnutrition
- Severe medical illness: Infections, hip fractures, hyperthermia, hypothermia, hypotension, hypoperfusion, hypoxia or anoxia, malnutrition and nutritional deficiencies, metabolic disorders, and more

Test Yourself

Sleep deprivation is a risk factor for delirium.

- A. True - Correct
- B. False

Theories of Delirium

After a review of the causes of delirium two theories exist (Olson, 2012):

1. Poorly understood throughout history
Despite decades of research, the exact pathophysiological processes that contribute to the formation of delirium remain poorly understood.
2. Reduced cholinergic activity is the common pathway
A number of causative theories are discussed in the literature including imbalances of neurotransmitters in the brain (e.g., acetylcholine, dopamine, serotonin and gammaaminobutyric acid), sepsis and severe inflammatory processes causing disruption of the blood brain barrier, medications and inadequate oxygen supply to the brain causing inadequate oxidative metabolism.

Identification of Causes of Delirium

THINK acronym

The Society of Critical Care Medicine suggests identification of causes as the first step in delirium management. The THINK acronym may be helpful in determining the cause when delirium is found to be present in ICU patients (Barr et al., 2013).

T- Toxic situations (congestive heart failure, shock, dehydration; deliriogenic meds [tight titration of sedatives]; new organ failure [e.g., liver, kidney])

H - Hypoxemia

I - Infection/sepsis (nosocomial), Immobilization

N - Nonpharmacologic interventions (Are these being neglected?) (Hearing aids, glasses, sleep protocols, music, noise control, ambulation)

K - K+ or electrolyte problems

Reversible Cause of Delirium

Another algorithm used when reviewing the reversible causes of delirium are outlined by the acronym DELIRIUM.

D - Drugs, including any new medications, increased dosages, drug interactions, over-the-counter drugs, alcohol, etc.

E - Electrolyte disturbances, especially dehydration, and thyroid problems

L - Lack of drugs, such as when long-term sedatives (including alcohol and sleeping pills) are stopped, or when pain drugs are not being given adequately

I - Infection, commonly urinary or respiratory tract infection

R - Reduced sensory input, which happens when vision or hearing are poor

I - Intracranial (referring to processes within the skull) such as a brain infection, hemorrhage, stroke, or tumor (rare)

U - Urinary problems or intestinal problems, such as inability to urinate or constipation

M - Myocardial (heart) and lungs, e.g. heart attack, problems with heart rhythm (arrhythmia), worsening of heart failure or chronic obstructive lung disease (Healthy Aging, 2015)

Barriers to Identification

The variable definitions and terminology used to describe delirium inhibit effective communication and research on this condition. Delirium continues to be overlooked, misdiagnosed as dementia (a more chronic form of cognitive dysfunction), psychiatric illnesses such as depression, and decline attributed to normal aging. A lack of familiarity with valid and reliable screening tools used to diagnose delirium in the ICU may also contribute to either missed diagnosis or under-diagnosis.

Delirium in the critical care setting often is referred to as:

- ICU psychosis
- ICU syndrome
- Sundowning

(Fong, 2009)

According to Faught (2014) some barriers to identification include:

- Personal philosophies about aging
- Lack of routine, systematic screening
- Variable clinical presentations
- Time constraints
- Lack of physician support

Signs & Symptoms of Delirium

For most patients, symptoms of delirium last for at least 7 days, with some having symptoms for 6-8 weeks; while symptoms are typically gone by discharge from the hospital, as many as

15% of patients remain symptomatic of delirium for up to 6 months (Sweet, 2009). Common signs and symptoms of delirium include:

- Acute onset of global impairment
- Anxiety & internal tension
- Clouded consciousness
- Decreased attention span
- Distractibility
- Disorientation (to person, place, time)
- Disturbed sleep-wake cycle
- Fluctuating course
- Hallucinations
- Memory impairment
- Restlessness & irritability
- Perceptual disturbances
- Rambling incoherent speech

Test Yourself

Common symptom presentation, onset, and duration of delirium are: (Select all that apply)

- A. Last for at least 7 days - Correct
- B. Last for at least 24 hours
- C. Some have symptoms for 6-8 weeks - Correct
- D. Symptoms are typically gone by discharge from the hospital - Correct
- E. 15% of patients remain symptomatic of delirium for up to 6 months - Correct
- F. 40% of patients remain symptomatic of delirium for up to 1 month

Three Types of Delirium

There are three types of delirium that will be discussed further:

Hypoactive:

- Hypoactive delirium characteristics and symptomology include:
- Difficult to identify and diagnose because of the similarity to depression
- Identification of affected patients requires careful assessment to detect changes in concentration, reduced mobility or motor activity, changes in appetite, or social withdrawal
- Because nurses provide around-the clock care for the patient, they are key resources for identifying early changes in the patient's mental status in the medical-surgical setting
- Changes may be rapid and fluctuate over time, with alteration in concentration, attention, and wakefulness
- As a result of the less disruptive nature of hypoactive delirium, this condition more commonly goes undiagnosed in as many as 66% to 84% of cases

- Higher mortality

Signs & Symptoms: Lethargic, withdrawn, poor self-care/ADLs, somnolent, decline therapies, mistaken for depression

Hyperactive

Hyperactive delirium characteristics and symptomatology include:

- Purely hyperactive delirium is rarely observed in the ICU (1.6% of all delirium episodes)
- Hyperactive delirium is characterized by agitation, restlessness, attempts to remove necessary medical equipment from the body and emotional lability
- In the past, hyperactive delirium in the ICU was labeled "ICU psychosis" due to the outwardly visible symptoms of restlessness and agitation
- Agitation can also be accompanied by hallucinations, delusions, and paranoia, which can result in patients becoming combative and potentially harmful to themselves or those around them including staff and family
- Due to its more outwardly visible manifestations, hyperactive delirium is more readily diagnosed and is associated with an overall better prognosis (Pun & Ely, 2007)

Signs & Symptoms: Agitated, climbing out of bed, poor self-care, up all night, too agitated for therapy, and mistaken for dementia or mania or personality disorder

Hyperactive delirium can be devastating for the patient if life-saving equipment is removed in outbursts of agitation or if the patient becomes confused and resistant to care being provided. This state can also be devastating for family-to watch as their loved one often acts very differently than what is normal for him or her (Olson, 2012).

Mixed

A third type of delirium is that of mixed-type delirium. The characteristics and symptomatology of mixed-type delirium include:

- Olson (2012) define mixed-type delirium as the concurrent or sequential appearance of some features of both hyperactive and hypoactive delirium, which describes its fluctuating nature
- Symptoms of one type of delirium may appear initially only to resolve and reveal symptoms of the opposite type
- Mixed-type delirium accounted for 54.9% of all delirium episodes, making it the most commonly occurring subtype of delirium (Olson, 2012)

Characteristic Comparison of the Types of Delirium

Subtype	Characteristics
Hyperactive	Agitation Restlessness Attempts to remove catheters or tubes Hitting Biting Emotional lability
Hypoactive	Withdrawal Flat affect Apathy Lethargy Decreased responsiveness
Mixed	Concurrent or sequential appearance of some features of both hyperactive and hypoactive delirium

Test Yourself

A 78-year-old patient with COPD, asthma, and drug abuse was admitted seven days ago with urosepsis complicated by respiratory failure and pleural effusions. The patient required intubation, and vasopressors for hemodynamic instability. The patient was on high doses of Versed and fentanyl drips, but has weaned down to only a low dose of fentanyl for pain control. The family is worried that he seems very despondent. The patient has had fluctuations with concentration, attention, and wakefulness. He seems withdrawn and depressed. This patient is diagnosed with delirium. Which type of delirium does this patient have?

- A. Hyperactive Delirium
- B. Hypoactive Delirium - Correct
- C. Mixed-Type: Hyperactive & Hypoactive Delirium
- D. Mixed-Type: Hyperactive & Hypoactive Delirium

Work-up for Delirium

Step One

The first step is to review the history and to identify the time of cognitive changes.

The identification of a cluster of nonspecific signs and symptoms within an acute time frame that links the onset or exacerbation of a general medical condition (and/or substance use) to a change in mental status will help with diagnosing and prompt treatment (Cerejeira & Mukaetova-Ladinska, 2011).

- This includes looking at:
- Prescription medications
- OTC medications
- Drugs
- Alcohol use
- History of smoking

Step Two

The second step is to perform a thorough physical examination.

Look at vital signs, oxygen saturation, and a general medical evaluation. A neurological exam often includes the mental status examination such as Mini-Mental State Exam (MMSE). This is difficult and sometimes impossible to do with the intubated ICU patient.

Step Three

The last step is to review the laboratory testing to identify treatable conditions.

Labs such as:

- CBC
- Electrolytes
- Renal function tests
- Ammonia
- Albumin

Other lab tests include:

- UA
- cultures
- LFTs
- serum drug levels if appropriate
- ABGs

Summary

Imaging is often required. Chest x-rays are commonly ordered. Cerebral imaging is rarely helpful, except with head trauma or new focal neurological findings. EEG and CSF rarely yield helpful results, except with associated seizure activity or signs of meningitis.

Testing to identify a cause should be individualized and limited initially to a blood chemistry (assess electrolyte, glucose, calcium, renal, or hepatic abnormality) and a complete blood count to assess for leukocytosis, possible infection, or anemia (Sweet, 2009).

Diagnosis & Treatment

The diagnosis and treatment of delirium require a multidisciplinary effort to identify at-risk patients, implement prevention strategies, diagnose the disorder, identify and treat the cause, and maintain patient safety (Faught, 2014). According to O'Mahony et al. (2011), the team should include:

- Healthcare provider
- Nurse
- Pharmacist
- Case manager/social worker
- Patient representative
- Physical therapist
- Occupational therapist
- Dietitian
- Some hospitals involve a Geriatrician and Psychiatrist

Common Delirium-Inducing Medications

According to Balas, Rice, Chaperon, Smith, Disbot, & Fuchs (2012), the following is a list of common delirium-inducing medications:

- Anesthetics
- Analgesics
- Antiasthmatic agents
- Anticonvulsants
- Antihistamines
- Antihypertensive and cardiovascular medications
- Antimicrobials
- Antiparkinsonian medications
- Benzodiazepines
- Corticosteroids
- Gastrointestinal medications
- Muscle relaxants
- Immunosuppressive agents
- Lithium
- Psychotropic medications with anticholinergic properties

Screening Tools

Screening tools are available which can be used to screen for delirium in the acute care setting. The 2013 clinical practice guidelines for Pain, Agitation, and Delirium (PAD) recommend that ICU patients be regularly (at least once per shift) assessed for delirium (Barr et al., 2013). The screening tools reviewed in this course are:

- RASS: sedation and agitation scale
- CAM-ICU: assessment for delirium
- ICDSC: assessment for delirium

Richmond Agitation-Sedation Scale (RASS)

- 10 point scale
- Rate in 3 steps
- Level of sedation and agitation
- Excellent inter-rater reliability, criterion, construct and face validity

View RASS Scale here: <http://www.icudelirium.org/docs/RASS.pdf>

CAM-ICU

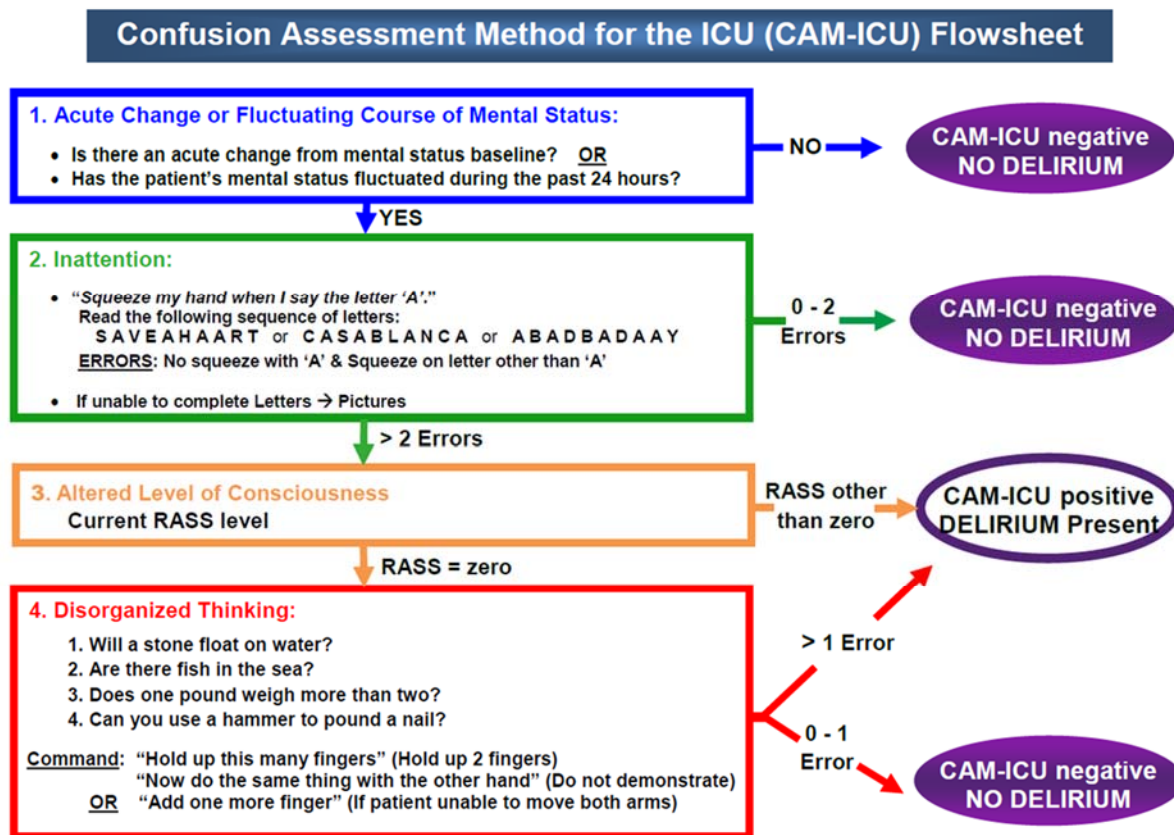
The Society of Critical Care Medicine (SCCM) has outlined clinical practice guidelines for the assessment of delirium in the ICU (Barr et al., 2013). The SCCM recommends the use of the Confusion Assessment Method for the ICU (CAM-ICU). The CAM-ICU is a modified version of the original confusion assessment model, and has been developed for use in the ICU setting with nonverbal intubated and ventilated critically ill patients (Bruno & Warren, 2010). This tool is a valid and reliable tool for bedside clinicians, such as critical care nurses, to perform a quick and thorough assessment of the patient based on the DSM-IV definition and criteria for delirium (Guenther et al., 2010; Pun et al., 2005).

Four key features of delirium are assessed including fluctuating change in mental status, inattention, disorganized thinking and the presence of an altered level of consciousness. A positive delirium diagnosis results when three out of four features exist.

Using the CAM-ICU, critical care nurses can quickly and accurately assess and detect the presence of delirium. Prompt assessment of delirium with a reduction in risk factors can prevent adverse short-term and long-term complications that occur as a result of delirium (Olson, 2012).

The ICU Delirium and Cognitive Impairment Study Group has the complete CAM-ICU Training Manual including: Using the CAM-ICU, CAM-ICU demonstrations with 3 patients, 10 key points related to delirium in the ICU, and CAM-ICU delirium assessment with Dr. Valerie on their website: <http://www.icudelirium.org/delirium/monitoring.html>

CAM-ICU Flowsheet



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Test Yourself

Using the CAM-ICU flowsheet, determine whether the following patient is CAM-ICU positive, CAM-ICU negative, or unable to assess (UTA).

Patient A has an acute change from mental status baseline. When assessing for inattention, the patient has >2 errors while reading SAVEAHAART with a current RASS of +3. Patient is:

- CAM-ICU Positive - Correct
- CAM-ICU Negative
- Unable to assess until patient is checked for disorganized thinking

Intensive Care Delirium Screening Checklist (ICDSC)

Intensive care delirium screening checklist (ICDSC) is an eight-point questionnaire that uses the DSM-IV criteria for delirium combined with key features of delirium to detect its presence (Olson, 2012). They provide quick assessments that will alert the critical care nurse to the development of delirium symptoms and allow for diagnosis and interventions to be implemented.

Each symptom present receives a score of 1 for a total score out of 8, and a score > 4 suggests a diagnosis of delirium.

The checklist assesses for:

- Altered level of consciousness
- Inattentiveness
- Disorientation
- Psychomotor agitation or retardation
- Inappropriate speech or mood
- Sleep/wake disturbance
- Symptom fluctuation
- Hallucinations/delusions

Intensive Care Delirium Screening Checklist (ICDSC)



Intensive Care Delirium Screening Checklist Worksheet (ICDSC)

- Score your patient over the entire shift. Components don't all need to be present at the same time.
- Components #1 through #4 require a focused bedside patient assessment. This cannot be completed when the patient is deeply sedated or comatose (ie. SAS = 1 or 2; RASS = -4 or -5).
- Components #5 through #8 are based on observations throughout the entire shift. Information from the prior 24 hrs (ie, from prior 1-2 nursing shifts) should be obtained for components #7 and #8.

1. Altered Level of Consciousness		NO	0	1 Yes
Deep sedation/coma over entire shift [SAS= 1, 2; RASS = -4,-5]	= Not assessable			
Agitation [SAS = 5, 6, or 7; RASS= 1-4] at any point	= 1 point			
Normal wakefulness [SAS = 4; RASS = 0] over the entire shift	= 0 points			
Light sedation [SAS = 3; RASS= -1, -2, -3]:	= 1 point (if no recent sedatives)			
	= 0 points (if recent sedatives)			
2. Inattention		NO	0	1 Yes
Difficulty following instructions or conversation, patient easily distracted by external stimuli.				
Will not reliably squeeze hands to spoken letter A: S A V E A H A A R T				
3. Disorientation		NO	0	1 Yes
In addition to name, place, and date, does the patient recognize ICU caregivers?				
Does patient know what kind of place they are in?				
(list examples: dentist's office, home, work, hospital)				
4. Hallucination, delusion, or psychosis		NO	0	1 Yes
Ask the patient if they are having hallucinations or delusions.				
(e.g. trying to catch an object that isn't there).				
Are they afraid of the people or things around them?				
5. Psychomotor agitation or retardation		NO	0	1 Yes
Either: a) Hyperactivity requiring the use of sedative drugs or restraints in order to control potentially dangerous behavior (e.g. pulling IV lines out or hitting staff)				
OR b) Hypoactive or clinically noticeable psychomotor slowing or retardation				
6. Inappropriate speech or mood		NO	0	1 Yes
Patient displays: inappropriate emotion; disorganized or incoherent speech; sexual or inappropriate interactions; is either apathetic or overly demanding				
7. Sleep-wake cycle disturbance		NO	0	1 Yes
Either: frequent awakening/< 4 hours sleep at night OR sleeping during much of the day				
8. Symptom Fluctuation		NO	0	1 Yes
Fluctuation of any of the above symptoms over a 24 hr period.				

TOTAL SHIFT SCORE:
(0 – 8)

<u>Score</u>	<u>Classification</u>
0	Normal
1-3	Subsyndromal Delirium
4-8	Delirium

Adapted from: Bergeron et al. *Intens Care Med* 2001;27:859-64; Ouimet et al. *Intens Care Med* 2007;33:1007-13.

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Test Yourself

When assessing a patient for delirium using the ICDSC, the patient has the following symptoms: altered level of consciousness, disorientation, sleep/wake disturbances, symptom fluctuation, and hallucinations. Does this patient have delirium?

- Yes - Correct
- No

Interventions

Pharmacological Treatment

An overview of the research concludes that:

1. No drug has been approved by the FDA to treat delirium. In fact, the FDA has issued an alert that atypical antipsychotic medications are associated with mortality risk among older patients.
2. Clinical practice guidelines traditionally recommended antipsychotics as the medication class of choice for delirium, yet very little evidence exists to support this internationally adopted treatment.
3. If patients are treated with antipsychotics (haloperidol or any of the atypical antipsychotics) they should be routinely and systematically monitored for adverse side effects, especially QT prolongation.
4. Rivastigmine, a cholinesterase inhibitor, has not been shown to be superior to placebo for the treatment of ICU delirium.

According to Fong (2009), treatment of agitation and confusion is based on the subtype of delirium present in the ICU remembering that the goal of psychopharmacological treatment is to return the patients mental state to as close to their baseline as quickly as possible without increasing sedation. Recommendations for pharmacological treatment include:

- Any drug chosen to treat delirium should be started at the lowest possible dose. Begin with a single antipsychotic.
- Use the dosage which decreases the agitation & confusion without causing sedation. (Older patients require lower dose and slower titration.)
- Symptomatic treatment for agitation might include haloperidol 0.5-1mg by mouth or intramuscular injection. Other options include risperidone 0.5 mg by mouth twice daily, olanzapine 2.5-5 mg by mouth daily, or other atypical antipsychotics. Occasionally benzodiazepines, such as lorazepam 0.5 mg-1 mg by mouth or intravenous injection, may be used as a last resort for severe agitation as it works more quickly. However, these drugs should be used with caution, especially in older adults, as they can worsen confusion causing sedation, complicating treatment, and increasing the risk of falls.

Physiological Treatment

The following are physiological treatments for ICU delirium (Alagiakrishnan et al., 2009), (Sweet, 2009):

- Provide early mobilization when possible to all patients. Get the patient out of bed, even if just to the chair. Perform range-of motion exercises for those who are unable to get out of bed. Many patients would benefit from physical therapy and occupational therapy.
- Monitor the patient's nutrition status and fluid intake. Promote nutritional status by encouraging appropriate use of dentures, providing good mouth care, and using supplements as indicated.

- Assess patient's pain level. Adequate assessment and treatment of pain will improve mobility and enables patients to participate actively in their care.
- Monitor the patient's electrolytes and treat appropriately.
- Encourage the use of eye glasses and hearing aids. Ensure that the batteries are charged, if available.
- It is important to protect invasive lines (e.g., indwelling urinary catheter, intravenous lines). The nurse should seek the least confining method of restraint to meet patients' medical needs and improve independence. Assess frequently the ability to eliminate restraining devices. This includes early removal of Foley catheters and IV fluids.
- Other factors, like decrease in functional status and emotional stress, can be reduced by engaging family when possible to help with the care of their loved ones.
- Provide good skin care, prevent urinary tract infections and other infections, monitor elimination and prevent constipation, provide appropriate anticoagulation therapy, and provide oxygen as indicated.

Environmental Treatment

The following are environmental treatments for ICU delirium (Alagiakrishnan et al., 2009), (Balas, Rice, Chaperon, Smith, Disbot, & Fuchs, 2012), (Schreier, 2010):

- Encouraging a normal sleep-wake cycle and providing access to natural light also helps patients with orientation and reduces confusion. Open the blinds & turn on the lights during the day and make the room dark and quiet during the night. Make all efforts to reduce noise at night.
- Have a visible 24-hour clock and provide easy-to-read calendars.
- The call bell, personal items, glasses, and hearing aids must be within reach at all times.
- Limit room changes. Avoiding bed and room changes also can help reduce the risk of delirium.
- Clear the room of all unnecessary clutter: The work environment has tubes, tables, linen, trash, needles & IV poles that pose potential injury for the patient.
- Limit the number of people caring for patient. Consistent familiar faces and routines are comforting for a patient with delirium. Efforts to provide consistent routines and continuity of staffing help the patient by having familiar nurses who can identify changes more easily.
- Use the least restrictive measure to maintain safety.
- Use of volunteer sitters when indicated can help provide for patient safety.
- Involvement of the family could promote a sense of well-being. However, if the delirium is of the hyperactive type and family visits increase patient agitation, visits should be limited. Provide patients with their own personal possessions.

Communication: Including Family Involvement

The following are communication techniques and interventions for patients with ICU delirium (Alagiakrishnan et al., 2009):

- Reorient the patient to person, place, & time. Tips for reorientation: use reality orientation, repeat information as necessary, explain the situation, environment, and equipment, and listen and observe the patient's behavior.
- Having family involvement when a patient has delirium in the ICU helps healthcare providers to have an understanding of the patient's baseline and also helps the patient with reorientation.
 1. Ask the family to describe baseline level of functioning & document in chart. Have them bring in familiar objects from home
 2. Encourage the family to visit and participate in care. Ask them to sit quietly with patient at night to encourage sleep
 3. Educate the family about etiology, treatment and approach to caring for patient. Provide the family with reassurance that this is an acute event and not dementia.
 - If a patient tells you they see something or someone in the room that you don't see or hear. Respond with "I don't see that... but I know it's real to you." Don't tell the patient you see or hear it to placate them, it will increase their fear and anxiety.
 - Provide reassurance. "You're safe in the hospital, we're here to help you" or "Your family knows you're here at the hospital."
 - Communicate that you will be treating them. "I'm going to get some medication to help you."

Delirium Bundles

ABCDEF's of Prevention and Safety

ABCDEF is a standard bundle of ICU measures that includes:

- Spontaneous Assess for and manage pain
- Both Spontaneous Awakening Trials (SAT) & Spontaneous Breathing Trials (SBT)
- Attention to the Choice of sedation and analgesia
- Delirium monitoring and management
- Early mobility
- Family engagement

(ICU Delirium and Cognitive Impairment Study Group, 2015)

ABCDE Bundle

The ABCDE bundle (AACN, 2015) is a helpful paradigm for critical care nurses to consider when focusing on implementing strategies to improve patient care and reduce the impact of modifiable delirium risk factors. The ABCDE bundle is:

- Awakening and Breathing trial coordination (the Wake Up and Breathe Protocol)
- Choice of sedative
- Delirium detection
- Early progressive mobility and exercise

AACN Practice Alert: Assessment & Management of Delirium

AACN issued a practice alert in 2011 stating:

- Ensure that your unit has a policy for delirium assessment that includes a minimum of a once per shift assessment for all critically ill patients, using a validated tool (e.g., CAM-ICU or ICDSC).
- Perform, document, and communicate delirium assessments at least once per shift.
- Evaluate patients for potential risk factors for delirium, including a review of medications.
- Consider strategies to decrease benzodiazepine usage, including titration strategies (eg, sedation scale, targeted sedation protocols, and daily awakening trials) or an alternative sedative (eg, dexmedetomidine or propofol).
- Develop a protocol that incorporates early progressive mobility and exercise for all critically ill patients.
- Evaluate patients for causes of delirium—including medications (especially benzodiazepines)—using the THINK acronym.

Conclusion

Delirium is truly more common than we think and can lead to poor outcomes and increased costs. Understanding the risk factors and correctly using the screening tools can help to identify patients with delirium. Nurses are in an ideal position to improve detection rates, manage delirium, and provide necessary care to patients with delirium (Cerejeira & Mukaetova-Ladinska, 2011).

Resources

ICU Delirium and Cognitive Impairment Study Group: Resources for a complete training manual for the use of the CAM-ICU, a CAM-ICU algorithm flow sheet that can be used during bedside assessment by critical care nurses, and the ICDSC. <http://www.icudelirium.org/index.html>

American Association of Critical Care Nurses (AACN) for a review of delirium assessment and expected practice while caring for critically ill patients/
<http://www.aacn.org/wd/practice/content/practicealerts/delirium-practice-alert.pcms?menu=practice>

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