

# IATROGENIC DELIRIUM



PREVENTING AND MANAGING IATROGENIC DELIRIUM *CHANGE PACKAGE*



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# TABLE OF CONTENTS

<i>PART 1:</i>	<b>Adverse Event Area (AEA) Definition and Scope</b>	<b>2</b>
<i>PART 2:</i>	<b>Measurement</b>	<b>4</b>
<i>PART 3:</i>	<b>Approaching your AEA</b>	<b>5</b>
<i>PART 4:</i>	<b>Conclusion and Action Planning</b>	<b>21</b>
<i>PART 5:</i>	<b>Appendices</b>	<b>22</b>
<i>PART 6:</i>	<b>References</b>	<b>26</b>

## How to Use this Change Package

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This change package is intended for hospitals participating in the Hospital Improvement Innovation Network (HIIN) project led by the Centers for Medicare & Medicaid Services (CMS) and Partnership for Patients (PPF); it is meant to be a tool to help you make patient care safer and improve care transitions. This change package is a summary of themes from the successful practices of high performing health organizations across the country. It was developed through clinical practice sharing, organization site visits and subject matter expert contributions. This change package includes a menu of strategies, change concepts and specific actionable items that any hospital can implement based on need or for purposes of improving patient quality of life and care. This change package is intended to be complementary to literature reviews and other evidence-based tools and resources.

## PART 1: ADVERSE EVENT AREA (AEA) DEFINITION AND SCOPE

The Diagnostic and Statistical Manual of Mental Disorders (DSM IV) officially defines delirium as “a disturbance of consciousness with inattention accompanied by a change in cognition or perceptual disturbance that develops over a short period of time (hours to days) and fluctuates over time.”<sup>1</sup> Delirium often presents as a result of acute medical illness or medication. However, delirium in most patients is likely to have multiple causes. These causes are often very difficult to determine with clinical precision, even in the intensive care unit (ICU).<sup>2</sup> Within iatrogenic delirium, there are three motoric subtypes of delirium. The first is hyperactive, often called ICU psychosis; the second is hypoactive, also called quiet delirium; and the third is mixed, which manifests as a fluctuation between hypo and hyper. Of the three types, hypoactive delirium is the most frequently under-diagnosed.<sup>3</sup> The Vanderbilt ICU Delirium and Cognitive Impairment Study Group offers several mnemonics to facilitate identification of potential causes.<sup>4</sup>

### Magnitude of the Problem and Why this Matters

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Delirium may be the most common acute disorder affecting adults in general hospitals, affecting 10 percent to 20 percent of all hospitalized adults, 14 percent to 56 percent of elderly hospitalized patients and up to 80 percent of ICU patients.<sup>5,6</sup> Delirium is deemed preventable 30 percent to 40 percent of the time, promoting the need for a primary prevention strategy using non-pharmacologic, multicomponent approaches targeted broadly at high-risk patients.<sup>7,8</sup> Delirium increases hospital length of stay, length of time on ventilators, as well as death and long-term cognitive impairment up to one year after discharge.<sup>9,10</sup> The increased stays and higher levels of care required for patients diagnosed with delirium results in 2.5 times greater costs per day than patients without delirium.<sup>11</sup> National health care costs associated with delirium management are estimated to be \$38 billion to \$152 billion each year.<sup>12</sup> Delirium does not end at discharge, but continues to affect the patient and their caregivers for years to come through functional decline, higher health care costs and increased morbidity and/or mortality.<sup>13</sup>

#### > HIIN Reduction Goals:

- Reduce the incidence of harm due to adverse drug events by 20 percent by September 27, 2018.

## PART 2: MEASUREMENT

A key component to making patient care safer in your hospital is to track your progress toward improvement. This section outlines the nationally recognized process and outcome measures on which you will be collecting and submitting data as part of HRET HIIN. Collecting these monthly data points at your hospital will guide your quality improvement efforts as part of the Plan-Do-Study-Act (PDSA) process. Tracking your data in this manner will provide valuable information needed to study your data across time and will reveal the effects your improvement strategies are having in reducing patient harm. Furthermore, collecting these standardized metrics will allow the HRET HIIN to aggregate, analyze and report its progress toward reaching the project's 20/20 goals across all AEAs by September 2018.

### Nationally Recognized Measures: Process and Outcome

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#### > Suggested Process Measures

- **Opioid Risk Assessment:** percentage of patients receiving opioids who receive an opioid risk assessment prior to first opioid dose
- **Formal Assessment During Opioid Therapy:** percentage of patients receiving opioids who regularly receive a formal assessment (e.g., Pasero Opioid-Induced Sedation Scale (POSS) or Richmond Agitation Sedation Scale (RASS) during therapy)

## PART 3: APPROACHING YOUR AEA

### > Suggested Bundles and Toolkits

- Hospital Elder Life Program (HELP). Retrieved at: <http://www.hospitalelderlifeprogram.org/for-clinicians/>
- Society of Critical Care Medicine ICU Liberation. Retrieved at: [www.iculiberation.org](http://www.iculiberation.org)
- Vanderbilt ICU Delirium and Cognitive Impairment Study Group. Retrieved at: [www.icudelirium.org](http://www.icudelirium.org)
- Ventilator Associated Events (VAE) Change Package from HRET HIIN. Retrieved at: [http://www.hret-hiin.org/topics/iatrogenic\\_delirium/index.shtml](http://www.hret-hiin.org/topics/iatrogenic_delirium/index.shtml)
- For key tools and resources related to preventing and reducing iatrogenic delirium, visit [www.hret-hiin.org](http://www.hret-hiin.org)

## Investigate Your Problem and Implement Best Practices

**DRIVER DIAGRAMS:** A driver diagram visually demonstrates the causal relationship between your change ideas, secondary drivers, primary drivers and your overall aim. A description of each of these components is outlined in the table below. This change package reviews the components of the driver diagram to help you and your care team identify potential change ideas to implement at your facility and to show how this quality improvement tool can be used by your team to tackle new process problems.

AIM	PRIMARY DRIVER	SECONDARY DRIVER	Change Idea
		SECONDARY DRIVER	Change Idea
	PRIMARY DRIVER	SECONDARY DRIVER	Change Idea

**AIM:** A clearly articulated goal or objective describing the desired outcome. It should be specific, measurable and time-bound.

**PRIMARY DRIVER:** System components or factors that contribute directly to achieving the aim.

**SECONDARY DRIVER:** Action, interventions or lower-level components necessary to achieve the primary driver.

**CHANGE IDEAS:** Specific change ideas which will support or achieve the secondary driver.

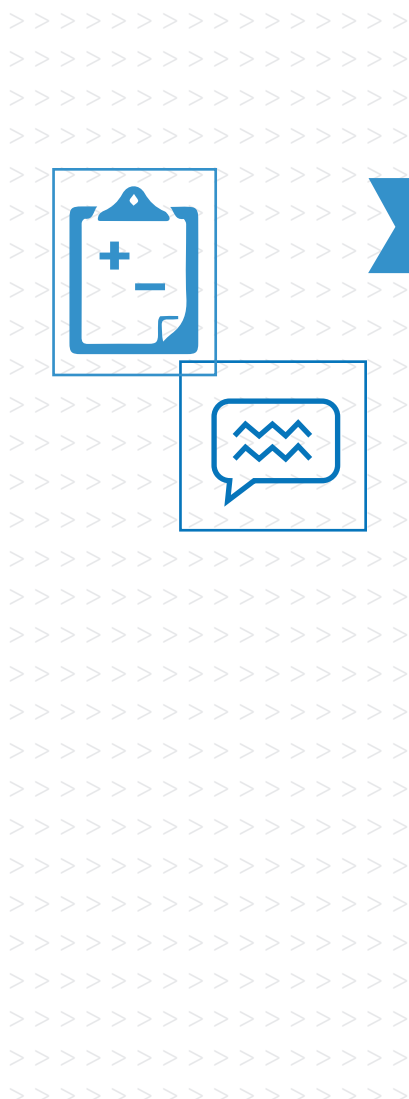
# Drivers in This Change Package

PREVENT IATROGENIC DELIRIUM	DELIRIUM MONITORING	IDENTIFY PATIENTS AT HIGH RISK FOR DELIRIUM	Change Idea
		IMPLEMENT A DELIRIUM ASSESSMENT TOOL	Change Idea
	OPTIMIZE MEDICATIONS	USE GOAL-ORIENTED SEDATION PROTOCOL DESIGNED TO REDUCE SEDATION	Change Idea
		ASSESS PATIENTS' MEDICATION LISTS FOR AGENTS THAT MAY BE CAUSING OR EXACERBATING	Change Idea
	DELIRIUM MANAGEMENT AND PREVENTION	REPEATEDLY REORIENT PATIENTS	Change Idea
		PROVIDE COGNITIVELY STIMULATING ACTIVITIES OFTEN	Change Idea
		IMPLEMENT EARLY PROGRESSIVE MOBILITY	Change Idea
		REMOVE CATHETERS AND OTHER PHYSICAL RESTRAINTS IN A TIMELY MANNER	Change Idea
		ENSURE ADEQUATE NUTRITION	Change Idea
		IMPLEMENT A NON-PHARMACOLOGICAL SLEEP PROTOCOL	Change Idea

Primary Driver:

**DELIRIUM MONITORING**

The first step in reducing iatrogenic delirium is to identify patients at high risk for developing delirium by implementing an assessment designed specifically for the targeted population.



**Secondary Driver > IDENTIFY PATIENTS AT HIGH RISK FOR DELIRIUM**

A risk assessment tool will aid in identifying patients at high risk for delirium, making patient care decisions around sedative use and dosage, promoting increased monitoring and vigilance and implementing targeted delirium prevention strategies. Institutions can adopt a validated risk assessment tool or use their own data to determine risk factors from their specific patient data sets.

**Change Ideas**

- > Adapt and adopt a risk assessment tool that examines the following risk factors: age, dementia, metabolic imbalance, hypertension, alcohol abuse, severity of illness, coma and benzodiazepine administration.
- > Assess the risk for delirium upon hospital admission, transfer within hospital or change in patient behavior.
- > Develop prompts to promote the completion of the assessment and include the assessment on the admission checklist or in charge nurse rounds.

**Secondary Driver > IMPLEMENT A DELIRIUM ASSESSMENT TOOL**

Use a validated delirium assessment tool designed specifically for each setting of care. The Confusion Assessment Method (CAM) is the most widely used tool in non-ICU settings. The CAM-ICU and the Intensive Care Delirium Screening Checklist (ICDSC) are two validated tools for use in the ICU. The Delirium Triage Screen and the brief-Confusion Assessment Method (bCAM) are designed for use in the emergency room or other high-volume settings.<sup>14</sup>

**Change Ideas**

- > Assess patients for delirium at least daily, and as needed, using a validated tool designed for the specific setting (e.g., CAM-ICU, ICDSC, CAM, bCAM).<sup>15</sup> (See Appendix II and Appendix III)
- > Use designated peer experts to spot check delirium screening to assess performance, enhance reliability and promote learning opportunities.
- > Include Richmond Agitation Sedation Scale (RASS)<sup>16</sup> /delirium screening results in multidisciplinary rounds and hand-off communications.
- > Assess all patients in the ICU at least twice daily, before and after the Spontaneous Awakening Trial (SAT)<sup>17</sup> and as needed for changes in patient behavior.
- > Use a nurse champion to communicate the reasons for and importance of the initiative to the nursing staff.
- > Determine whether to document overall assessment (+ or -) score or individual screening elements.
- > Document in a highly visible location e.g., the nursing flow sheet.

**Suggested Process Measures for Your Test of Change**

- The percentage of patients assessed for risk of delirium
- The percentage of delirium assessments that were performed accurately — use a delirium assessment expert to sample a small number of patients each month (see Appendix IV for a sample spot checking tool)



### Hardwire the Process

Add the delirium assessment and RASS/Riker Sedation-Agitation Scale (SAS)<sup>18</sup> documentation to the checklist for regularly scheduled documentation compliance reviews. Spot-checking that confirms assessment performance and chart review that demonstrates reliability and accuracy will determine if the process is successfully hardwired. If the results are not as expected, provide additional focused education to the relevant staff. Review risk and incident reports for harm related to delirium to ensure all cases are detected and areas of improvement are identified.

### Primary Driver:

### OPTIMIZE MEDICATIONS

There is an association between commonly prescribed sedative medications and delirium.

To avoid over-sedation, the Pain, Agitation, Delirium (PAD) clinical practice guidelines of the Society of Critical Care Medicine emphasize management of pain first, encouraging integrated evidence-based and patient-centered protocols focused on preventing and treating pain. Goal-directed delivery of psychoactive medications is then considered as needed for a light level of sedation.<sup>19</sup>

### Secondary Driver > USE GOAL-ORIENTED SEDATION PROTOCOL DESIGNED TO REDUCE SEDATION

In patients that require sedatives, light sedation (RASS -2 to 0, SAS 3 to 4) is the target.<sup>20</sup> Because many commonly prescribed sedatives are associated with delirium, an established sedation protocol designed to minimize the levels of sedatives administered will reduce the risk of patients developing iatrogenic delirium.<sup>21</sup>

### Change Ideas

- > Use valid and reliable pain monitoring instruments, and treat pain first prior to sedation.
- > Promote leadership safety rounds focused on pain and delirium management.
- > Administer sedation as ordered by the physician using a target outcome guided by a scale such as the RASS or SAS.<sup>22</sup>
- > If possible, attempt to reduce or discontinue sedation on a daily basis.
- > Use a physician champion to communicate the reasons for and importance of this initiative to the medical staff.

### Secondary Driver > ASSESS PATIENTS' MEDICATION LISTS FOR AGENTS THAT MAY BE CAUSING OR EXACERBATING DELIRIUM

The use of sedatives or analgesics may exacerbate delirium symptoms. In fact, benzodiazepines and narcotics that are often used in the ICU to treat confusion (delirium) actually worsen cognition and exacerbate the problem.<sup>23</sup> A regular and thorough review of patients' medication lists will help identify any sedatives, analgesics, and/or anticholinergic drugs that may be discontinued or decreased in dose (as medically appropriate). Because of the lack of high-quality data, no recommendations have been provided regarding the use of any antipsychotics (haloperidol or atypicals) to treat delirium.<sup>20</sup>

### Change Ideas

- > Implement a pharmacist review of patients' medication lists to help identify any sedatives, analgesics and/or anticholinergic drugs that may be discontinued or decreased in dose.
- > Remove benzodiazepines from standard order sets.
- > Avoid using benzodiazepines in patients at high risk for delirium.
- > Implement an alert when an order for a benzodiazepine is entered.
- > Use a physician champion to communicate the reasons for and importance of the initiative to medical staff.

### Suggested Process Measures for Your Test of Change

- > Percentage of patients receiving benzodiazepines that were screened and found to be at high risk for delirium
- > Percentage of agitation and sedation assessments that were performed accurately
- > Percentage of patients whose level of agitation and sedation assessed using SAS/RASS match the targets set forth by the ordering physicians
- > Percentage of patients whose sedative support is reduced or removed on a daily basis, if appropriate

### Hardwire the Process

Assist the physician champion by arming him or her with the most up-to-date research on delirium. Ask the physician champion to present and discuss the research and current recommendations for prevention and treatment at medical staff meetings and via newsletters. Have the physician champion address concerns from the medical staff and mentor his or her colleagues in this area. A physician champion does not need to be a physician who holds a title, such as department chair or department director. Foster pharmacist engagement to ensure continual collaboration for optimal medication management, consultation and reinforcement. Create a communication system to provide feedback to individual physicians regarding their prescribing practices for high-risk medications.

## Primary Driver:

### DELIRIUM MANAGEMENT AND PREVENTION

An algorithm or protocol for preventing and treating delirium has not yet been established. In fact, many of the non-pharmacological interventions designed to prevent delirium are also used in the treatment of delirium.<sup>20</sup> Few studies have focused on the treatment of delirium (inside and outside of the ICU) with medication.

### Secondary Driver > REPEATEDLY REORIENT PATIENTS

The hospital environment can play a significant role in the management of delirium.<sup>20</sup> To maximize patients' ability to perceive their environment accurately, reorient patients to their surroundings frequently. Reorientation helps to maintain safety and achieve familiarity and consistency for the patient.

#### Change Ideas

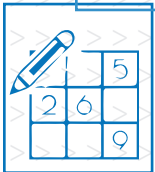
- > Familiarize patients with their surroundings and the date and time.
- > Encourage use of patients' eye glasses and hearing aids.
- > Incorporate reorientation into patient care activities.
- > Use care boards, a large clock and calendars to aid in reorientation.
- > Involve family members in reorientation efforts.
- > Encourage family and friends to furnish some familiar objects, such as photos or a favorite blanket, to help reorient the patient and make the patient feel more secure.

### Secondary Driver > PROVIDE COGNITIVELY STIMULATING ACTIVITIES OFTEN

Inattention is the primary neuropsychological deficit in delirium.<sup>20</sup> To prevent and/or treat delirium, provide cognitive stimulation and daytime activities.

#### Change Ideas

- > Utilize puzzle books, Sudoku, magazines or video games to stimulate patients.
- > Provide stimulating conversation during routine tasks.
- > Update patients on current events and associated materials including newspapers.



### Secondary Driver > IMPLEMENT EARLY PROGRESSIVE MOBILITY

Mobility can illustrate a decreased need for sedation, improve sleep and reduce the incidence and duration of delirium. Some studies suggest that early mobilization in the ICU can decrease delirium duration by 50 percent, decrease ICU length of stay by 25 percent and increase the likelihood of returning to independence by the time of discharge by nearly 75 percent.<sup>24,25,26</sup> Progressive mobility consists of activities from passive range-of-motion to ambulation, “beginning at a patient’s current mobility states/levels with the goal of returning the patient to his/her baseline.”<sup>27</sup> The initial level of activity for each patient can be determined by the patient’s RASS score. Improving mobility standards outside of the ICU and making activity a key component of care is also essential in an effort to prevent delirium and weakness. (See Appendix V, VI, and VII for sample early progressive mobility protocols.)

#### Change Ideas

- > Develop a progressive early-mobilization program, including screening for safety and criteria for progression (See Appendix V, VI, VII, for sample early progressive mobility protocols).
- > Modify default activity orders from bed rest to “as tolerated” or to a specific structured activity schedule.
- > When applicable involve respiratory therapists, physical therapists or nursing assistants to mobilize patients.
- > Establish and disseminate simple guidelines for physical and occupational therapy consultations.
- > Incorporate the early progressive mobility protocol into admission or ICU orders; provide opt-outs with requested documentation for physicians to choose if the program is contraindicated.
- > Develop a mobility standard for patients outside of the ICU making activity a key component of care.
- > Foster family encouragement and support for increased activity levels and allow family to assist as appropriate.

### Secondary Driver > REMOVE CATHETERS AND OTHER PHYSICAL RESTRAINTS IN A TIMELY MANNER

Physical interventions to prevent and manage delirium include the timely removal of urinary catheters, central lines and other restraining devices.

#### Change Ideas

- > Conduct daily assessments of the necessity of maintaining a urinary catheter and/or central line.
- > Reassess the need for restraints Q4/Q2/Q1 hour (based on patient’s age).

### Secondary Driver > ENSURE ADEQUATE NUTRITION

Poor nutrition, dehydration and electrolyte imbalance are causes of delirium.<sup>5</sup> Assessing for dehydration and electrolyte imbalance is a first step in managing delirium.

#### Change Ideas

- > Ensure early correction of dehydration and electrolyte imbalances.
- > Provide feeding assistance if necessary.
- > Incorporate early consult by registered dietician to assess nutritional status and make dietary recommendations.



**Secondary Driver > IMPLEMENT A NON-PHARMACOLOGICAL SLEEP PROTOCOL**

Patients with delirium often present with disturbances in their normal sleep-wake cycle, experiencing restlessness at night and subsequent lack of energy to participate in activities during the day. Factors that disturb sleep among patients include pain, inability to rest comfortably, inability to perform bedtime routines, noise from nursing stations or overhead pagers and intrusion by staff doing patient care duties. Implement a non-pharmacological sleep protocol to prevent and manage delirium.<sup>20</sup>

**Change Ideas**

- > Cluster patient care activities to avoid sleep disruption.
- > Minimize unnecessary noise, light and other stimulation.
- > Decrease nocturnal stimuli; introduce quiet hours.
- > Document number of hours patient slept.
- > Develop an environmental checklist to decrease noise and minimize sleep interruptions.
- > Open blinds during the day to promote daytime alertness and a regular sleep-wake cycle.

**Suggested Process Measures for Your Test of Change**

- Percentage of patients at high risk of delirium that were provided cognitive-stimulating activities
- Percentage of patients receiving early mobilization
- Percentage of patients with a catheter that receive a daily assessment of catheter necessity
- Audit patient care areas at night for noise and unnecessary stimulation

**Hardwire the Process**

Clearly define an early progressive-mobility protocol, including roles and responsibilities of staff and safety screens for patients. Involve the relevant disciplines in the development of the mobility protocol. Provide the necessary resources to accomplish mobility. Monitor length of stay to establish a return on the investment for equipment and staff time required to implement the mobility program. Report delirium outcomes regularly to stakeholders to demonstrate the effectiveness of mobility and other management strategies.

Family engagement is critical in providing a comfortable environment for patients with delirium. Provide families with education regarding delirium so they understand changes in their loved ones' behavior. Provide families information to promote understanding of patient's routines and how best to minimize distraction and environmental noise to further minimize effects of delirium. (See Appendix VIII)



# PDSA in Action | Tips on How to Use the Model for Improvement

## Choice of Tests and Interventions for Iatrogenic Delirium Reduction:

There are many potentially effective interventions to reduce the risks of delirium. Improvement teams should begin their efforts by asking: “What is the greatest need at our facility? Where can we have the greatest impact?”

- > When establishing sedation protocols, encourage voluntary physician participation by using the method of “asking for help to improve, not approve.” This approach will often generate engagement and momentum leading to rapid improvement of a process.
- > Create a multi-disciplinary team including nurses, physician(s), respiratory therapists, physical/occupational therapists, pharmacists and dieticians.
- > Pilot early mobilization programs on one unit.
- > Test exercise safety screens in each population, revising them as needed.
- > Develop a mechanism to debrief regarding issues and concerns about mobilizing patients.

Do not wait for “new ventilators” or “more staff” to arrive to implement prevention strategies. Do small tests of change using the resources available and then upgrade the processes, equipment and technology over time.

## IMPLEMENT SMALL TESTS OF CHANGE

<b>PLAN</b>	Choose an established evidenced-based practice tool such as the SAS or RASS. Test and solicit staff feedback on ease-of-use and effectiveness.
<b>DO</b>	Keep the scale of an initial test small. Begin with one nurse, one shift. As you study the results of the first cycle, continue to incorporate more nurses of varying experience levels and a small number of patients as additional cycles are planned.
<b>STUDY</b>	Evaluate tool ease-of-use and effectiveness with the staff members that tested the tool. Which tool was easiest to use and provided assessment findings that could be incorporated into the care plan?
<b>ACT</b>	Review risk-assessment results for all patients diagnosed with iatrogenic delirium; all or most patients should have been captured by the process. If not, revise the risk assessment tool, incorporating the knowledge gained from the review. Enlist/train delirium assessment experts to a) train others; b) conduct spot checks; and c) serve as resources and consultants.

## Identify Potential Barriers

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- > Delirium monitoring requires that nursing staff absorb a large amount of new knowledge and learn new skills. Providing nursing staff with adequate training and helpful resources, such as pocket reminder cards and access to staff expert consultants can improve compliance with and accuracy of delirium assessments. Utilize a gap analysis tool to identify opportunities for the greatest improvement. (see Appendix I and IX)
- > Implementing an early progressive-mobility program requires the investment of significant resources in both equipment and staff time. Piloting a trial program on one unit, increasing executive awareness about the potential net financial savings and highlighting positive patient-based outcomes may reduce resistance among staff and senior leaders to broader program implementation. Lord, et al. published a financial modeling of cost savings associated with an ICU early mobility program.<sup>28</sup>

### Enlist administrative leadership as sponsors to help remove or mitigate barriers

- > A management executive sponsor, recognizing the value to the patients and the value to the organization of preventing delirium, can help brainstorm solutions to what may appear to be added work or provide resources to mitigate that additional work.
- > An executive sponsor can also help to see the “big picture” on how this may impact patients and staff organization-wide as well as champion requests for equipment, workflow changes and staffing requests. Executive sponsors can help educate, lead and provide solutions to staffing barriers.
- > A senior physician or opinion leader is crucial to accomplish the goal of organization-wide adoption of sedation protocols and delirium management strategies. Focused leadership safety rounds encourage adherence to established protocols and strategies.

### Change not only “The Practice,” but also “The Culture”

- > Implementing a sedation protocol to maintain light sedation, particularly in an ICU setting, may be a culture change for physicians, nurses and other patient care practitioners. Increasing awareness about the link between over-sedation, delirium and negative long-term cognitive outcomes may increase staff buy-in.
- > Successful early progressive mobility requires a team-based approach. Communication and coordination among disciplines is essential to successful implementation.
- > Reducing iatrogenic delirium is an example of an innovation that will require beginning with small tests of change before then spreading the successful best practices throughout the organization.

## PART 4: CONCLUSION AND ACTION PLANNING

Delirium has an enormous impact upon the health of hospitalized patients. Patients who develop delirium experience prolonged hospitalizations, a decreased ability to function independently and are at high risk for requiring care in a long-term care facility.<sup>29,30</sup> Understand your organization's data, identify gaps in your current delirium prevention and management and begin to test improvement. The first steps to decrease the risk for delirium are early treatment of the potential causes of delirium—dehydration, sepsis, metabolic imbalance, immobilization, sensory impairment and sleep disturbance—and reliably screen patients at high risk for delirium. Change the culture of your organization, moving from a “sedated patient is happy patient” mindset to one that prioritizes goal-directed sedation after appropriate pain management to minimize the potential for delirium. Create an environment that prioritizes early mobility with coordination of care across multiple disciplines. Leverage technology to provide alerts and best practice prompts when patient conditions warrant intervention or assessment. Together, these strategies will promote a reduction in the incidence of iatrogenic delirium and its long-term effects.

# PART 5: APPENDICES

## APPENDIX I: IATROGENIC DELIRIUM TOP TEN CHECKLIST

**Associated Hospital/Organization:** HRET HIIN

**Purpose of Tool:** Checklist to review current or initiate new interventions for iatrogenic delirium prevention in your facility

**Reference:** [www.hret-hiin.org](http://www.hret-hiin.org)

### 2018 Iatrogenic Delirium Top Ten Checklist

PROCESS CHANGE	IN PLACE	NOT DONE	WILL ADOPT	NOTES <i>(Responsible and By When?)</i>
1. Use a validated tool to regularly assess patients for delirium.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Include Richmond Agitation Sedation Scale (RASS)/delirium screening (or a validated agitation scale) in multidisciplinary rounds and hand-off communication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Treat pain before agitation using scheduled pain management protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Avoid using benzodiazepines in patients at high risk for delirium.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Administer sedation using a goal according to a scale such as RASS or Modified Ramsey Score as ordered by a physician.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Develop a process that ensures daily reduction or removal of sedative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Implement an early, progressive mobilization program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Provide cognitively stimulating activities multiple times per day and enlist family engagement to provide a calm, familiar environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Implement a non-pharmacological sleep protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Monitor incident reports for possible cases in which delirium may have been a factor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



## APPENDIX II: SAMPLE DELIRIUM ASSESSMENT FLOWSHEET

**Associated Hospital/Organization:** Vanderbilt University, Tennessee

**Purpose of Tool:** Used by bedside RN to guide the assessment of delirium.

**Reference:** [http://www.icudelirium.org/docs/CAM\\_ICU\\_worksheet.pdf](http://www.icudelirium.org/docs/CAM_ICU_worksheet.pdf)

### Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

#### 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 A R T  
ERRORS: No squeeze with 'A' & Squeeze on letter other than 'A'
- If unable to complete Letters → Pictures

0 - 2  
Errors →

CAM-ICU negative  
NO DELIRIUM

↓ > 2 Errors

#### 3. Altered Level of Consciousness

Current RASS level

RASS other  
than zero →

CAM-ICU positive  
DELIRIUM Present

↓ RASS = zero

#### 4. Disorganized Thinking:

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

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)

> 1 Error →

CAM-ICU positive  
DELIRIUM Present

0 - 1  
Error →

CAM-ICU negative  
NO DELIRIUM

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## APPENDIX II: SAMPLE DELIRIUM ASSESSMENT FLOWSHEET (continued)

**Associated Hospital/Organization:** Vanderbilt University, Tennessee

**Purpose of Tool:** Used by bedside RN to guide the assessment of delirium.

**Reference:** [http://www.icudelirium.org/docs/CAM\\_ICU\\_worksheet.pdf](http://www.icudelirium.org/docs/CAM_ICU_worksheet.pdf)

### CAM-ICU Worksheet

Feature 1: Acute Onset or Fluctuating Course	Score	Check here if Present
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 scale (i.e., RASS/SAS), GCS, or previous delirium assessment?	Either question Yes →	<input type="checkbox"/>
<b>Feature 2: Inattention</b>		
<b>Letters Attention Test</b> (See training manual for alternate Pictures)		
Directions: Say to the patient, "I am going to read you a series of 10 letters. Whenever you hear the letter 'A,' indicate by squeezing my hand." Read letters from the following letter list in a normal tone 3 seconds apart. <b>SAVEAHAART or CASABLANCA or ABADBADAAY</b> Errors are counted when patient fails to squeeze on the letter "A" and when the patient squeezes on any letter other than "A."	Number of Errors >2 →	<input type="checkbox"/>
<b>Feature 3: Altered Level of Consciousness</b>		
Present if the Actual RASS score is anything other than alert and calm (zero)	RASS anything other than zero →	<input type="checkbox"/>
<b>Feature 4: Disorganized Thinking</b>		
<b>Yes/No Questions</b> (See training manual for alternate set of questions)		
1. Will a stone float on water? 2. Are there fish in the sea? 3. Does one pound weigh more than two pounds? 4. Can you use a hammer to pound a nail?  <b>Errors are counted when the patient incorrectly answers a question.</b>  <b>Command</b> Say to patient: "Hold up this many fingers" (Hold 2 fingers in front of patient) "Now do the same thing with the other hand" (Do not repeat number of fingers) *If the patient is unable to move both arms, for 2 <sup>nd</sup> part of command ask patient to "Add one more finger"  <b>An error is counted if patient is unable to complete the entire command.</b>	Combined number of errors >1 →	<input type="checkbox"/>
<b>Overall CAM-ICU</b>	Criteria Met →	<input type="checkbox"/> <b>CAM-ICU Positive</b> (Delirium Present)
	Criteria Not Met →	<input type="checkbox"/> <b>CAM-ICU Negative</b> (No Delirium)

## APPENDIX IV: SAMPLE DELIRIUM SCREENING SPOT-CHECKING TOOL

**Associated Hospital/Organization:** Vanderbilt University, Tennessee

**Purpose of Tool:** Aids the auditing process of CAM-ICU delirium assessment

**Reference:** <http://www.icudelirium.org/docs/Spotchecking.pdf> (adapted)

MR #	Date	Shift	EXPERT SPOT-CHECKER					BEDSIDE RN					Comments
			RASS	CAM-ICU 1	CAM-ICU 2	CAM-ICU 3	CAM-ICU 4	RASS	CAM-ICU 1	CAM-ICU 2	CAM-ICU 3	CAM-ICU 4	

## APPENDIX V: SAMPLE EARLY PROGRESSIVE MOBILITY PROTOCOL

**Associated Hospital/Organization:** ValleyCare Health System, California

**Purpose of Tool:** Provides a guide for early mobility for patients in the ICU

**Reference:** ValleyCare Health System, <http://www.valleycare.com/>

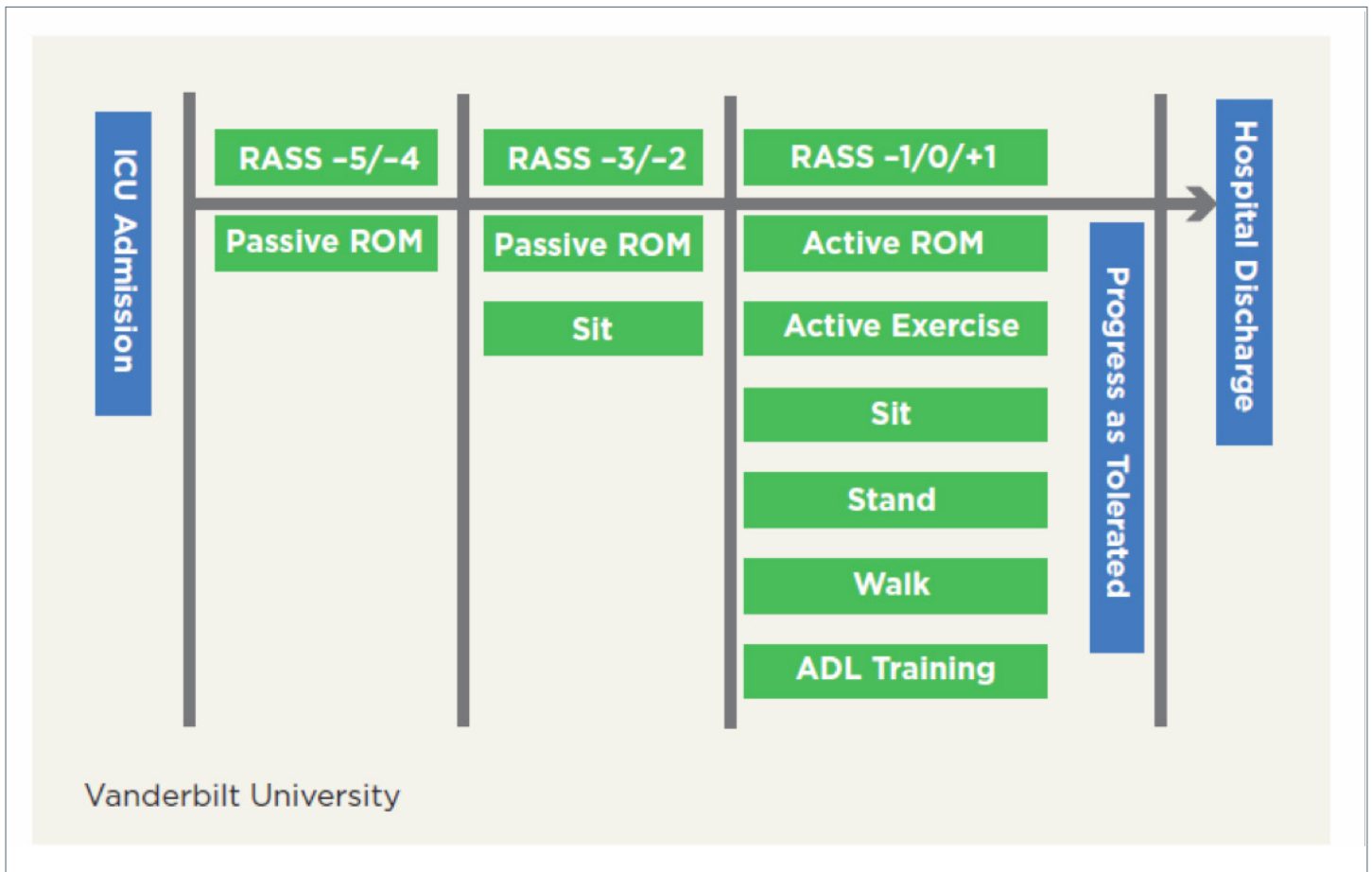
Progressive Mobility Grid (PMG)						
Level 1 Mobility in Bed						
Activity Level	Responsible Discipline	Frequency	Duration	Patient Consideration	Documentation	Caregiver Consideration
Reposition and Turn	RN	Every 2H	CCU stay while in bed	Explain procedure and encourage participation	Every 2H and which sides	Request order to progress mobility if no contraindications.
Active Range of Motion (AROM)	RN	3X per shift	CCU stay while in bed	Explain procedure and encourage participation	3X per shift	
Passive Range of Motion (PROM) -if AROM not possible	RN	Every 2H	CCU stay while in bed	Explain procedure	3X per shift	
HOB elevated at 30°	RN	At all times	CCU stay while in bed	Explain procedure	Every routine assessment	
Level 2 Mobility to Chair						
Activity Level	Responsible Discipline	Frequency	Duration	Patient Consideration	Documentation	Caregiver Consideration
Exclusion Criteria Assessment	RN - discussion with RCP and PT recommended	Minimum of twice daily	As long as order to progress is in effect	NA	Twice daily	Exclude from progression if answer "yes" on 1 criterium
HOB elevated to 45°-65°	RN	Minimum of twice daily prior to sitting	5-10 minutes minimum. OK to extend contingent on patient request.	Explain procedure. Encourage patient to report tolerance to activity.	Vital signs and tolerance to activity at 10 minutes- monitor for orthostatic hypotension	If orthostatic hypotension present, place patient in reverse trendelenberg, notify provider if BP does not normalize in 15 min for further intervention, reassess in 12 hours
Sitting on side of bed with feet dangling (for non-intubated patients)	RN or PT	Twice daily following HOB elevation to 45°-65°	5-10 minutes minimum. OK to extend contingent on patient request.	Explain procedure and encourage participation. Encourage patient to report tolerance to activity.		
Standing and pivoting to chair/ sitting on chair	RN or PT	Minimum of twice daily following sitting on side of bed. May be bypassed in lieu of ambulation	Total chair time of two (2) hours or more as tolerated.	Explain procedure and encourage participation. Encourage patient to report tolerance to activity.	Duration of time in chair and patient tolerance	Reposition in chair every 30 minutes
Cardiac chair (chair out/beach chair) position (for intubated patients)	RN - discussion with RCP and PT recommended	Minimum of twice daily following HOB elevation to 45°-65°	Total chair time of 1 hour or more as tolerated. May be less than 1 hour if ambulation planned to follow	Explain procedure and encourage participation.	Duration of time in chair and patient tolerance.	
Level 3 Mobility to Ambulation						
Activity Level	Responsible Discipline	Frequency	Duration	Patient Consideration	Documentation	Caregiver Consideration
Ambulation Non-Intubated Patients	RN or PT	Minimum of twice daily following 1 successful completion of sitting up on a chair	As tolerated by the patient	Explain procedure and encourage participation. Encourage patient to report tolerance to activity.	Estimated distance of walk	Privacy, IV lines and tubings secure. Anti-slip footwear is worn at all times
Pre-Ambulation Time Out and Checklist Completion of Intubated Patients	Ambulation Team	Prior to every ambulation.	As long as order to progress is in effect	Explain procedure, ambulation route and encourage participation.	Checklist completed.	Focus. Insure patient and staff safety.
Ambulation of Intubated patients	Ambulation Team	Minimum of twice daily following 1 successful completion of sitting up on a cardiac chair	As tolerated by the patient	Continued encouragement and monitoring of patient	Estimated distance of walk and tolerance	Focus on the patient and the ambulation path as well as the monitors and ventilator

## APPENDIX VI: SAMPLE EARLY PROGRESSIVE MOBILITY PROTOCOL

**Associated Hospital/Organization:** Vanderbilt University, Tennessee

**Purpose of Tool:** Provides a guide for early mobility for patients in the ICU

**Reference:** <http://www.icudelirium.org/earlymobility.html>



## APPENDIX VII: SAMPLE EARLY PROGRESSIVE MOBILITY PROTOCOL

**Associated Hospital/Organization:** American Association of Critical-Care Nurses (AACN)

**Purpose of Tool:** Provides a guide for early mobility for patients in the ICU

**Reference:** <http://www.aacn.org/dm/practice/actionpakdetail.aspx?itemid=28328>



### Early Progressive Mobility Protocol

#### Step 1 – Safety Screening

Evaluate  
Daily

(Patient must meet all criteria)

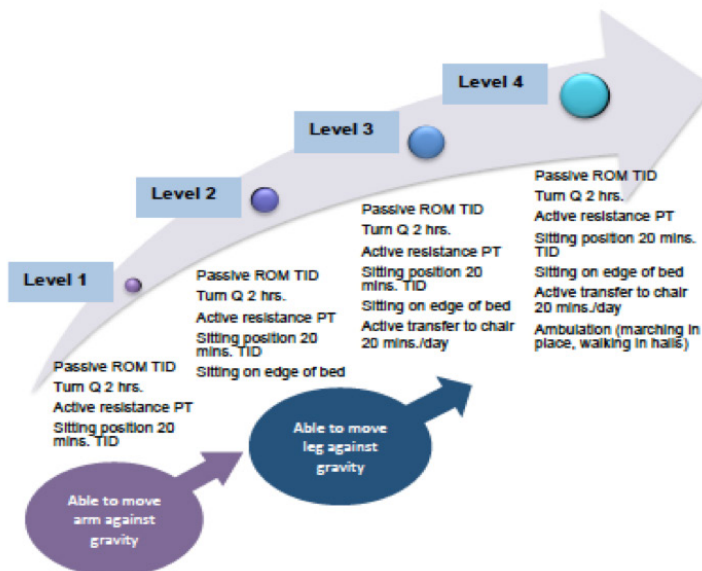
- M** – Myocardial stability
  - No evidence of active myocardial ischemia x 24 hrs.
  - No dysrhythmia requiring new antidysrhythmic agent x 24 hrs.
- O** – Oxygenation adequate on:
  - $FiO_2 \leq 0.6$
  - $PEEP < 10$  cm H<sub>2</sub>O
- V** – Vasopressor(s) minimal
  - No increase of any vasopressor x 2 hrs.
- E** – Engages to voice
  - Patient responds to verbal stimulation

Fails

Re-evaluate  
in 24 hours

Passes

#### Step 2 – Progressive Mobility



## APPENDIX VIII: FAMILY EDUCATIONAL BROCHURE FOR DELIRIUM

**Associated Hospital/Organization:** Vanderbilt University, Tennessee

**Purpose of Tool:** Provides information and education to families and patients about delirium

**Reference:** [http://www.icudelirium.org/docs/delirium\\_education\\_brochure.pdf](http://www.icudelirium.org/docs/delirium_education_brochure.pdf)

### Delirium is different from dementia

#### DELIRIUM

- Delirium comes on quickly, in hours or days. Signs of delirium can change from one day to the next.
- Delirium can make memory and thinking problems worse.
- Delirium usually clears up after a few days or even a week.

#### DEMENTIA

- Usually dementia is a permanent condition.
- Dementia is a disturbance of thinking. It comes on over months or even years.
- Patients with dementia are more likely to develop delirium.

### Does delirium cause thinking problems after a patient leaves the hospital?

- Research shows that patients who develop delirium might have dementia-like thinking problems that can last for months.
- At this time we cannot predict who might develop dementia-like thinking problems.

### How you can help

- Speak softly and use simple words or phrases
- Remind the patient of the day and date.
- Talk about family and friends.
- Bring glasses, hearing aids.
- Decorate the room with calendars, posters, or family pictures. These familiar items might be reminders of home.
- Provide the patient with favorite music or TV shows.
- If your loved one has delirium, we might ask you to sit and help calm them.

ICU Delirium &  
Cognitive Impairment  
Study Group

[www.ICUdelirium.org](http://www.ICUdelirium.org)

for questions, please email  
[delirium@vanderbilt.edu](mailto:delirium@vanderbilt.edu)

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In the Intensive Care Unit

## Delirium

*A guide for families  
and patients*



[www.ICUdelirium.org](http://www.ICUdelirium.org)

### What is delirium?

The word “delirium” is used to describe a severe state of confusion.

People with delirium

- cannot think clearly
- have trouble paying attention
- have a hard time understanding what is going on around them
- may see or hear things that are not there. These things seem very real to them.

### Delirium is common

- About 2 out of 3 patients in ICUs get delirium.
- Seven out of 10 patients get delirium while they are on a breathing machine or soon after.



### Causes of delirium

Experts think delirium is caused by a change in the way the brain is working. This can be caused by:

- less oxygen to the brain
- the brain’s inability to use oxygen
- chemical changes in the brain
- certain medicines
- infections
- severe pain
- medical illnesses
- alcohol, sedatives, or pain killers
- withdrawal from alcohol, nicotine

### People most likely to get delirium

People who

- have dementia
- are advanced in age
- have surgery, especially hip or heart
- have depression
- take certain high-risk medicines
- have poor eyesight or hearing
- have an infection or sepsis
- have heart failure

### Signs of delirium

Your family member may

- appear agitated or even quiet
- be confused
- be aggressive
- use inappropriate words
- not be able to pay attention or follow directions
- be unsure about where they are
- be unsure about the time of day
- see things that are not there
- act different from usual
- have changes in sleeping habits
- have emotional changes
- have movements that are not normal, like tremors or picking at clothes
- have memory problems





## APPENDIX IX: SAMPLE ABCDEF BUNDLE PROCESS REVIEW TOOL

**Associated Hospital/Organization:** Cynosure Health Solutions

**Purpose of Tool:** Used to assess current practices and gaps in implementation of the ABCDEF bundle

**Reference:** ICU Clinical Impact Interest Group, ABCDEF Gap Analysis, Cynosure Health 2012 (Updated 2016)

### Process Questions

<b>ASSESS, PREVENT AND MANAGE PAIN</b>	<b>Policies and Procedures</b>	<b>Training Materials</b>	<b>Actual Practice</b>	<b>Monitoring</b>
<ul style="list-style-type: none"> <li>&gt; Is pain routinely monitored for all patients?</li> <li>&gt; For patients that are unable to communicate, is a valid and reliable pain assessment tool used (e.g., BPS, CPOT)?</li> <li>&gt; Where are the results of the pain score documented?</li> <li>&gt; BPS: Behavioral Pain Scale CPOT: Critical-Care Pain Observation Tool</li> </ul>	<p>List and review all associated policies and procedures. Any changes needed?</p>	<p>List and review all associated training materials. Any changes needed?</p>	<p>Observe through chart review, staff interview or unit observation. Does practice match policy?</p>	<p>List measures collected and frequency. Who collects/aggregates data? Where do findings go?</p>
<p><b>BOTH SPONTANEOUS AWAKENING TRIAL AND SPONTANEOUS BREATHING TRIAL</b></p> <ul style="list-style-type: none"> <li>&gt; Do all patients receive an SAT Safety Screen daily? (Opt Out)</li> <li>&gt; Do all patients who pass the SAT Safety Screen proceed through SAT?</li> <li>&gt; Are the steps of the SAT clearly defined?</li> <li>&gt; Where are the results of the SAT Safety Screen/SAT documented?</li> <li>&gt; Are actual RASS/sedation scores compared with targets? When they differ, is an action triggered?</li> <li>&gt; Do all patients who pass the SAT receive an SBT Safety Screen? (Opt Out)</li> <li>&gt; Do all patients who pass the SBT Safety Screen proceed through SBT?</li> <li>&gt; Are the steps of the SBT clearly defined?</li> <li>&gt; SAT: Spontaneous Awakening Trial SBT: Spontaneous Breathing Trial</li> </ul>				

Who is responsible for the monitoring process (e.g., NP, CNS, charge nurses, champions, unit managers, Quality Management)?  
How/when are the results communicated to staff?

## APPENDIX IX: SAMPLE ABCDEF BUNDLE PROCESS REVIEW TOOL (CONTINUED)

### Process Questions

<b>COORDINATION</b>	<b>Policies and Procedures</b>	<b>Training Materials</b>	<b>Actual Practice</b>	<b>Monitoring</b>
<p>List and review all associated policies and procedures. Any changes needed?</p> <ul style="list-style-type: none"> <li>&gt; Are the results of the SAT communicated to the RT in a timely fashion?</li> <li>&gt; Are the SAT and SBT coordinated (scheduled together)?</li> <li>&gt; If a patient passes the SBT, is his/her physician notified in a timely fashion?</li> </ul>		<p>List and review all associated training materials. Any changes needed?</p>	<p>Observe through chart review, staff interview or unit observation. Does practice match policy?</p>	<p>List measures collected and frequency. Who collects/aggregates data? Where do findings go?</p>
<b>CHOICE OF ANALGESIA AND SEDATION</b>				
<ul style="list-style-type: none"> <li>&gt; Is there an Analgesia/Sedation protocol for mechanically ventilated patients?</li> <li>&gt; Does the Analgesia/Sedation protocol provide guidelines to minimize and direct the use of benzodiazepines, opioids and haloperidol (see 2013 PAD SCCM/ACCP Guidelines)?</li> <li>&gt; Does the Analgesia/ Sedation protocol provide guidelines to minimize the use of continuous drips for pain?</li> </ul>				

## APPENDIX IX: SAMPLE ABCDEF BUNDLE PROCESS REVIEW TOOL (CONTINUED)

### Process Questions

<b>DELIRIUM: ASSESS PREVENT AND MANAGE</b>	<b>Policies and Procedures</b>	<b>Training Materials</b>	<b>Actual Practice</b>	<b>Monitoring</b>
<ul style="list-style-type: none"> <li>&gt; Is every patient on a sedative assessed Q shift for arousal using sedation scales (Ramsay, RASS or SAS)?</li> <li>&gt; Is every patient assessed for delirium Q shift (and with every change in RN provider) using either the CAM-ICU, ICDSC or CAM?</li> <li>&gt; How do you evaluate staff competency to perform CAM-ICU, ICDSC or CAM?</li> <li>&gt; Where are the results from arousal and delirium assessments documented?</li> <li>&gt; Are target sedation levels, actual sedation levels, CAM status (+/-) and lists of meds communicated to attending physician(s) during patient rounds?</li> <li>&gt; Are possible non-pharmacological interventions implemented for patients who are positively assessed for delirium?</li> <li>&gt; CAM: Confusion Assessment Method ICDSC: Intensive Care Delirium Screening Checklist RASS: Richmond Agitation Sedation Scale SAS: Riker Sedation-Agitation Scale</li> </ul>	<p>List and review all associated policies and procedures. Any changes needed?</p>	<p>List and review all associated training materials. Any changes needed?</p>	<p>Observe through chart review, staff interview or unit observation. Does practice match policy?</p>	<p>List measures collected and frequency. Who collects/aggregates data? Where do findings go?</p>

Who is responsible for the monitoring process (e.g., NP, CNS, charge nurses, champions, unit managers, Quality Management)?  
How/when are the results communicated to staff?

<b>EARLY MOBILITY AND EXERCISE</b>	<b>Policies and Procedures</b>	<b>Training Materials</b>	<b>Actual Practice</b>	<b>Monitoring</b>
<ul style="list-style-type: none"> <li>&gt; Do all patients receive a Mobility Safety Screen daily?</li> <li>&gt; Are the results of the Mobility Safety Screen communicated to physical therapy?</li> <li>&gt; Do all patients who pass the Mobility Safety Screen receive individualized exercise therapy?</li> <li>&gt; Is the proper equipment available for mobilizing patients?</li> <li>&gt; Is there adequate staffing for mobilizing all patients who pass Mobility Safety Screen?</li> <li>&gt; Where are the results of the Mobility Safety Screen and level of therapy received documented?</li> </ul>	<p>List and review all associated policies and procedures.</p> <p>Any changes needed?</p>	<p>List and review all associated training materials.</p> <p>Any changes needed?</p>	<p>Observe through chart review, staff interview or unit observation. Does practice match policy?</p>	<p>List measures collected and frequency. Who collects/aggregates data? Where do findings go?</p>

Who is responsible for the monitoring process (e.g., NP, CNS, charge nurses, champions, unit managers, Quality Management)?  
How/when are the results communicated to staff?

<b>FAMILY ENGAGEMENT AND EMPOWERMENT</b>	<b>Policies and Procedures</b>	<b>Training Materials</b>	<b>Actual Practice</b>	<b>Monitoring</b>
<ul style="list-style-type: none"> <li>&gt; Is there a standardized communication approach between providers and patients support system?</li> <li>&gt; Does the standardized communication approach establish rapport, set expectations and provide education to caregivers?</li> <li>&gt; Is there a policy to incorporate families of ICU patients into the care?</li> <li>&gt; Does this policy include thoughtful and early recognition of family member distress, use of support groups and helping to prevent caregiver burnout?</li> </ul>	<p>List and review all associated policies and procedures.</p> <p>Any changes needed?</p>	<p>List and review all associated training materials.</p> <p>Any changes needed?</p>	<p>Observe through chart review, staff interview or unit observation. Does practice match policy?</p>	<p>List measures collected and frequency. Who collects/aggregates data? Where do findings go?</p>

Who is responsible for the monitoring process (e.g., NP, CNS, charge nurses, champions, unit managers, Quality Management)?  
How/when are the results communicated to staff?

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