



POLICIES AND PROCEDURES MANUAL

System Department

Supersedes:

Section: CLINICAL PROTOCOLS (CP)
Awakening and Breathing Coordination, Delirium
Monitoring/Management and Early Mobility
(ABCDE) Bundle
Subject: (ABCDE) Bundle
Number: CP_SP10
Attachments:
Date Effective: 09/2011
Date Reviewed:

Awakening and Breathing Coordination, Delirium Monitoring/Management and Early Mobility (ABCDE) Bundle

I. Purpose

To reduce the frequency of intensive care unit (ICU) acquired delirium and weakness in the adult population.

II. Policy

A. The ABCDE protocol is to be applied to every adult patient in the following locations:

1. Adult Intensive Care Unit (AICU)
2. 800 Intensive Care Unit (800)
3. 850 Intensive Care Unit (850)
4. Adult Progressive Care Unit (APCU)
5. Patients receiving ICU level of care in the Burn Unit
6. Patients receiving ICU level of care in the Oncology-Hematology Special Care Unit (OHSCU)

B. If a licensed prescriber chooses to have a patient not participate in certain components of the ABCDE protocol, they will need to write an order stating this request.

C. The ABCDE protocol is comprised of three distinct, yet highly interconnected, components including:

1. Awakening and breathing trial coordination
2. Delirium monitoring and management
3. Early mobility

III. Procedure-Awakening and Breathing Trial Coordination

- A. Every mechanically ventilated patient will undergo a spontaneous breathing trial daily during his or her ICU stay.
- B. Every mechanically ventilated patient receiving a continuous sedative infusion will receive both a spontaneous awakening trial (SAT) and spontaneous breathing trial (SBT) daily during his/her ICU stay.
- C. A Registered Nurse (RN) will perform the awakening trial. A Respiratory Therapist (RT) will perform the breathing trial. A licensed prescriber will make the decision to extubate the patient. Effective, frequent communication among professionals is necessary for successful implementation of a spontaneous awakening and breathing trial.
- D. There are four major steps in the Awakening and Breathing Trial Coordination process which are outlined below.

1. Step 1 –SAT Safety Screen-RN Driven

- a) *The RN will determine if it is safe to interrupt sedation by responding to the following questions:*
 - (1) Is patient receiving a sedative infusion for active seizures?
 - (2) Is patient receiving a sedative infusion for alcohol withdrawal?
 - (3) Is patient receiving a paralytic agent (neuromuscular blockade)?
 - (4) Is patient's Richmond Agitation and Sedation (RASS) score ≥ 2 ?
 - (5) Is there documentation of myocardial ischemia in the past 24 hours?
 - (6) Is patient's intracranial pressure (ICP) ≥ 20 ?
 - (7) Is patient receiving sedative medications in an attempt to control intracranial pressure?
 - (8) Is patient currently receiving **Extracorporeal Membrane Oxygenation (ECMO)**?
- b) *If any of the above questions are answered **YES**, the RN will conclude it is **NOT SAFE** to shut off patient's continuous analgesic or sedative infusions. The RN will continue the patient's regimen and reassess in 24 hours. The interdisciplinary team will discuss the patient's condition during rounds.*
- c) *If all of the above questions are answered **NO**, the RN will conclude it is **SAFE** to perform a SAT and proceed to step 2.*

2. Step 2-Perform SAT

- a) *If the patient passes the SAT Safety Screen, the RN will turn off all continuous sedative infusions. The RN will also hold all sedative boluses.*
- b) *If the patient should complain or demonstrate signs/symptoms of pain while the continuous sedative infusion is shut off, the RN will administer bolus doses of analgesics as needed/ordered.*
- c) *Continuous analgesic infusions will be maintained only if needed for active pain.*
- d) *The RN will determine if the patient tolerated interruption of sedation by assessing if the patient demonstrates any of the following SAT failure criteria:*
 - (1) RASS score ≥ 2 for 5 minutes or longer
 - (2) Pulse oximetry reading of $< 88\%$ for 5 minutes or longer
 - (3) Respirations >35 breaths per minute for 5 minutes or longer
 - (4) New Acute Cardiac Arrhythmia

- (5) ICP \geq 20
- (6) 2 or more of the following symptoms of respiratory distress
 - (a) Heart rate increase 20 or more beats per minute
 - (b) Heart rate less than 55 beats per minute
 - (c) Use of accessory muscles
 - (d) Abdominal paradox
 - (e) Diaphoresis
 - (f) Dyspnea

e) *If the patient displays any of the above symptoms, the RN will conclude the patient has **failed** the SAT. The RN will restart the patient's sedation at ½ the previous dose, then titrate to sedation target. The RN will repeat Step 1 in 24 hours. The interdisciplinary team will determine possible causes of the SAT failure during rounds.*

f) *If the patient is able to open his/her eyes to verbal stimulation without failure criteria (regardless of trial length) or does not display any of the failure criteria after 4 hours of shutting off sedation, the RN will conclude the patient has passed the SAT. The RN will ask the RT to immediately perform a SBT safety screen.*

3. Step 3-SBT Safety Screen

a) *The RT will determine if is safe to perform a SBT by responding to the following questions:*

- (1) Is patient a chronic/ventilator dependent patient?
- (2) Is patient's pulse oximetry reading <88%?
- (3) Is patient's fraction of inspired oxygen (FiO₂) \geq 50%?
- (4) Is patient's set positive end expiratory pressure (PEEP) >7?
- (5) Is there documentation of myocardial ischemia in the past 24 hours?
- (6) Is patient's ICP \geq 20?
- (7) Is patient receiving mechanical ventilation in an attempt to control ICP?
- (8) Is the patient currently on vasopressor medications?
- (9) Does the patient lack inspiratory effort?

b) *If any of the above questions are answered **YES**, the RT will conclude it is **NOT SAFE** to perform a SBT. The RT will continue mechanical ventilation and repeat step 3 in 24 hours. The RT will ask the RN to restart sedatives at ½ the previous dose only if needed. The interdisciplinary team will discuss the patient's condition during rounds.*

c) *If all of the above questions are answered **NO**, the RT will conclude it is **SAFE** to perform a SBT and proceed to step 4.*

4. Step 4-Perform SBT

- a) *If the patient passes the SBT Safety Screen, the RT will perform a SBT (e.g., CPAP pressure support-5, PEEP 5, please refer to SBT policy and procedure)*
- b) *The RT will determine if the patient tolerated the spontaneous breathing trial by assessing if the patient demonstrates any of the following spontaneous breathing trial failure criteria:*
 - (1) Respiratory rate >35 breaths per minute for 5 minutes or longer
 - (2) Respiratory rate <8
 - (3) Pulse oximetry reading of <88%
 - (4) ICP \geq 20
 - (5) *2 or more of the following symptoms of respiratory distress*
 - (a) *Use of accessory muscles*
 - (b) *Abdominal paradox*
 - (c) *Diaphoresis*
 - (d) *Dyspnea*
 - (6) Mental status changes
 - (7) Acute cardiac arrhythmia
- c) *If the patient displays **any** of the above symptoms, the RT will conclude the patient has **failed** the SBT. The RT will restart mechanical ventilation at previous settings. The RT will repeat step 3 in 24 hours and ask the RN to restart sedatives at ½ the previous dose only if needed. The interdisciplinary team will determine possible causes of the spontaneous breathing trial failure during rounds.*
- d) *If the patient tolerates spontaneous breathing for \geq 120 minutes without failure criteria, the RT will inform the RN and physician that the patient has passed their SBT. A collective task force facilitated by the American College of Chest Physicians, the American Association for Respiratory Care, and the American College of Critical Care Medicine suggests SBTs should go no longer than two hours. At this time, the physician should consider extubation.*

IV. Procedure-Delirium Monitoring and Management

- A. Every patient admitted to an adult ICU will undergo routine sedation and delirium assessment using standardized, validated assessment tools.
- B. A RN will perform and record the results of the Richmond Agitation and Sedation Scale (RASS) every 2 hours with Vital Signs.
- C. A RN will perform and record the results of the Confusion Assessment Method-ICU (CAM-ICU) every eight hours (0600, 1400, 2200) and whenever a patient experiences a change in mental status.
- D. Each day during interdisciplinary rounds, the team will set a “target” RASS score for the patient to be maintained at for the following 24 hours.
- E. Each day during interdisciplinary rounds, the RN will inform the team of the:
 1. Patient’s “target” RASS score
 2. Patient’s actual RASS score
 3. Patients CAM-ICU status (CAM positive=delirious; CAM negative=not delirious)
 4. Sedative and analgesic medications the patient is currently receiving

- F. Each day during interdisciplinary rounds, the team will use the acronym “**THINK**” if a patient is CAM positive (delirious).
1. **T**oxic situations and medications: congestive heart failure, shock, dehydration, new organ failure (e.g., liver, kidney), deliriogenic medications
 - a) *Examples of deliriogenic medications include benzodiazepines, anticholinergic medications, and steroids*
 2. **H**ypoxemia
 3. **I**nfection/sepsis (nosocomial), inflammation, immobilization
 4. **N**on-pharmacological interventions (see below)
 5. **K+** or other electrolyte interventions.

G. The interdisciplinary team will employ the following non-pharmacologic interventions when treating a delirious patient:

1. Eliminate or minimize risk factors
 - a) *Administer medications judiciously; avoid high-risk medications*
 - b) *Prevent/promptly and appropriately, treat infections*
 - c) *Prevent/promptly treat dehydration and electrolyte disturbances*
 - d) *Provide adequate pain control*
 - e) *Maximize oxygen delivery (supplemental oxygen, blood, and blood pressure support as needed)*
 - f) *Use sensory aids as appropriate*
 - g) *Regulate bowel/bladder function*
 - h) *Provide adequate nutrition*
2. Provide a therapeutic environment
 - a) *Foster orientation: frequently reassure and reorient patient; utilize easily visible calendars, clocks, caregiver identification; carefully explain all activities; communicate clearly*
 - b) *Provide appropriate sensory stimulation: quiet room; adequate light; one task at a time; noise-reduction strategies*
 - c) *Facilitate sleep: back massage; relaxation music/tapes; noise-reduction measures; avoid awakening patient unless necessary*
 - d) *Foster familiarity: encourage family/friends to stay at bedside; bring familiar objects from home; maintain consistency of caregivers; minimize relocations*
 - e) *Maximize mobility: avoid physical and chemical restraints and urinary catheters; ambulate or mobilize patient early and often*
 - f) *Communicate clearly, provide explanations*
 - g) *Reassure and educate family*
 - h) *Minimize invasive interventions*
 - i) *Consider psychotropic medication only as a last resort*

V. Procedure-Early mobility

A. Patients are candidates for mobilization when the following (minimum) criteria are met:

1. N – Neurologic

a) *Patient responds to verbal stimulation (i.e. RASS \geq -3)*

(1) *Activity not started in comatose patients (RASS -4 or -5)*

2. R – Respiratory

a) *FIO₂ \leq 0.6*

b) *PEEP \leq 10 cm H₂O*

3. C – Circulatory/Central lines/Contraindications*

a) *No increase dose of any vasopressor infusion for at least 2 hours*

b) *No evidence of active myocardial ischemia*

c) *No arrhythmia requiring the administration of a new antiarrhythmic agent*

d) *Not receiving therapies that restrict mobility (extracorporeal membrane oxygenation, open-abdomen, intracranial monitoring/drainage, femoral arterial line)*

e) *No injuries in which mobility is contraindicated (e.g., unstable fractures)*

B. Any other justification for not implementing the protocol must be written specifically by a licensed prescriber (for example, skin integrity issues).

C. The interdisciplinary care team assesses the patient's readiness for mobility. The team includes a physical therapist who assesses the patient's physical ability to participate; a nurse who assesses physiologic stability; and a respiratory therapist who is responsible for maintaining the patient's airway. In addition, a critical care physician confirms that there are no clinical contraindications to physical activity.

D. Each patient is assessed upon admission to the unit, and those who qualify immediately begin on the protocol. Those who are not eligible are reassessed during daily rounds. If activity has been halted due to an acute event (see below) the patient is reevaluated each day until the protocol can be reinstated.

1. Criteria for halting therapy include:

a) Symptomatic drop in mean arterial pressure

b) Heart rate \leq 50 or \geq 130 beats per minute x 5 minutes

c) Respiratory rate \leq 5 or \geq 40 breaths per minute x 5 minutes

d) Systolic blood pressure \geq 180 mmHg x 5 minutes

e) Pulse oximetry reading of $<$ 88% x 5 minutes

f) Marked ventilator dysynchrony

g) Patient distress

h) New arrhythmia

i) Concern for myocardial ischemia

j) Concern for airway device integrity

k) Fall to knees

l) Endotracheal tube removal

- E. Each eligible patient is encouraged to be mobile at least once a day, with the specific level of activity geared to his or her readiness. Patients progress through a three-step process, embarking on the highest level of physical activity they can tolerate, as outlined below:
1. **Sitting on edge of bed:** As a first step, the care team helps patients sit at the edge of the bed with their feet planted on the floor or on a platform. This step is appropriate for patients who are still on sedation and/or critically ill, and for others for whom it is risky to leave the bed. Care team members stay with patients for as long as they can tolerate the position, monitoring the patients for physiological signs and symptoms of distress such as fatigue and/or changes in blood pressure, heart rate, respiratory rate, and oxygen saturation level. A caregiver may support the patient from behind, but the position is discontinued after a few minutes if the patient cannot hold his or her torso upright. The goal is to maintain this position for 10 minutes with minimal support. The patient moves to the second step after accomplishing this goal twice.
 2. **Standing at bedside and sitting in chair:** As a next step, the care team helps the patient stand at the bedside, bear some weight (by lifting each leg), and pivot into a chair by the bed. The patient is encouraged to sit in the chair for as long as he/she can tolerate it, up to 2 hours. If the patient is stable and awake, the care team departs after approximately 15 minutes, but checks in periodically; equipment allows all patients to be monitored from a central station. If the patient becomes disconnected or declines physiologically, the care team returns immediately. If the care team is concerned about the patient's ability to tolerate the sitting position, they remain with the patient. The patient moves to the next step after accomplishing this step twice. PT and/or the RN will contact the RT to coordinate a time for the first ambulation session the following day. The RT will enter an order as "Patient Ambulation by RCS" in the Hospital Information System (HIS), including the frequency of ambulation.
 3. **Walking a short distance:** The final step is for the care team to help the patient walk, beginning with a few steps (e.g., to the doorway) and ultimately reaching 200 feet. The PT, RT and the RN will verify optimal time for ambulation. The healthcare team will inform the patient (and family/caregivers) the ambulation schedule/activity for the day. The RT will assemble the equipment necessary for patient ambulation and ensure the patient's artificial airway is secure throughout ambulation. The RT will adjust ventilator settings and/or provide manual resuscitation based on patient's tolerance during ambulation and reconnect or return the patient to the ventilator at the previously ordered settings after completion of the activity. The RT will also document in the medical record: tolerance, complications, and adjustments in ventilator settings, etc. The RN will monitor the patient's vital signs. The RN and PT support the patient; canes and walkers may be used as needed. A patient care technician will follow the patient with a wheelchair in case of fatigue or medical need and assists with other equipment as needed. For ventilated patients in contact isolation caregivers will wear clean appropriate isolation barriers (gowns, gloves, etc.) when ambulating the patient in the hallway. The RN will ensure the patient's drainage is contained. The team will dedicate the equipment for the activity whenever practical and if reusable equipment is used, clean with low level disinfectant solution after use. The team will maintain a "no-touch" technique of all environmental surfaces when outside of the patient's room.
- F. Use of the protocol ends when the patient is discharged from the ICU. Readiness for ICU discharge depends on clinical considerations, not the patient's ability to walk 200 feet.

References

AHRQ Innovations Exchange. (2011). Team-Administered Protocol Encourages Mobility in Respiratory Intensive Care Unit Patients, Leading to Shorter Length of Stay. Available at <http://www.innovations.ahrq.gov/content.aspx?id=2442#a5>

Bailey, P., Thomsen, G.E., Spuhler, V.J., Blair, R., Jewkes, J., Bezdjian, L., Veale, K., Rodriguez, L., Hopkins, R.O. (2007). Early activity is feasible and safe in respiratory failure patients. *Critical Care Medicine*; 35(1):139-45.

Girard TD, Kress JP, Fuchs BD, et al. Efficacy and safety of a paired sedation and ventilator weaning protocol for mechanically ventilated patients in intensive care (Awakening and Breathing Controlled trial): a randomised controlled trial. *Lancet*; 371(9607):126-134.

ICU Delirium and Cognitive Impairment Study Group. (2011). Available at <http://www.icudelirium.org>

Morris, P.E., Goad A, Thompson C, Taylor K, Harry B, Passmore L, Ross A, Anderson L, Baker S, Sanchez M, Penley L, Howard A, Dixon L, Leach S, Small R, Hite RD, Haponik E. (2008). Early intensive care unit mobility therapy in the treatment of acute respiratory failure. *Critical Care Medicine*; 36(8), 2238-2243.

National Guideline Clearinghouse: Delirium: prevention, early recognition, and treatment. In: Evidence-based geriatric nursing protocols for best practice. Tullmann DF, Mion LC, Fletcher K, Foreman MD. Delirium: prevention, early recognition, and treatment. In: Capezuti E, Zwicker D, Mezey M, Fulmer T, editor(s). Evidence-based geriatric nursing protocols for best practice. 3rd ed. New York (NY): Springer Publishing Company; 2008 Jan. p. 111-25.

Needham, D.M., Korupolu, R., Zanni, J.M., Pradhan, P., Colantuoni, E., Palmer, J.B., Brower, R.G., Fan, E.(2010).Early physical medicine and rehabilitation for patients with acute respiratory failure: a quality improvement project. *Archives Physical Medicine Rehabilitation*; 91(4) 536-542.

Thomsen, G.E., Snow, G.L., Rodriguez, L., Hopkins, R.O. (2008). Patients with respiratory failure increase ambulation after transfer to an intensive care unit where early activity is a priority. *Critical Care Medicine*; 36(4):1119-24.

Accountability:

Special Cares Committee 8/22/11

Medical Staff Executive Committee 9/13/11

Department Approval

Signed | s |: Julie Lazure, MSN, RN

Title: Executive Director

Department: Critical Care, Emergency, Trauma

Administrative Approval

Signed | s |: Dr. David Gannon

Title: Critical Care Medical Director