

DIVISION OF ACUTE CARE SURGERY

Surgical Intensive Care Unit Pain, Agitation, Sedation, and Delirium Practice Management Guideline

I. Purpose

To provide appropriate analgesia and sedation to our critically ill patients while reducing the risk of and managing delirium.

II. Background

Critically ill mechanically ventilated patients require analgesia and frequently sedation, to tolerate mechanical ventilation, medical procedures, reduce stress response and decrease oxygen consumption. Unfortunately continuous sedative use is also associated with worsened patient outcomes including longer duration of mechanical ventilation, ICU LOS and higher rates of delirium. Delirium is a manifestation of brain organ dysfunction and is associated with worse clinical outcomes including risk of death and cognitive impairment.

III. Recommendation

The Society of Critical Care Medicine's (SCCM) Pain, Agitation and Delirium (PAD) Guidelines recommend a focus on analgesia and a reduction in use of sedative medications along with routine delirium monitoring.

IV. Management of Pain

- 1. Assess for pain with the Critical Care Pain Observation Tool (CPOT) in non-verbal patients and with a numeric scale in verbal patients at least every two hours
- 2. Titrate opioid and/or non-opioid analgesics to goal pain score

Medication	Mechanism of	Recommend Dose	Caution (s)	
	Action			
Opioids (IV)				
Fentanyl	Mu opioid receptor	Intermittent dosing • 50 mcg IV q2 hr prn Continuous IV infusion • 0-400 mcg/hr	TachyphylaxisAccumulation in obese patients	
Hydromorphone	Several opioid receptors	0.25-0.5 mg IV q2 hr prn	Over sedation	
Morphine	Mu opioid receptor	2 mg IV q2hr prn	Histamine release causing flushingRenal impairment	
Methadone	Mu opioid receptor, NMDA antagonism	2.5-10 mg IV q8-12hr	 QTc prolongation Variable equianalgesic conversion ratios with other opioids 	

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Oxycodone	Mu opioid receptor	5-10mg PO q4-6hr prn	Do not exceed 3g of acetaminophen per day with combination tablets	
Hydromorphone	Mu opioid receptor	2-4 mg PO q4-6hr prn	Over sedation	
Methadone	Mu opioid receptor, NMDA antagonism	5-15 mg PO q8-12 hr	 QTc prolongation Variable equianalgesic conversion ratios with other opioids 	
Non-Opioids (Oral)				
Acetaminophen	Selective COX- 2 inhibitor	2-3g/day divided every 6- 8hrs	Hepatotoxic – use caution in liver impairment	
Robaxin	Unknown, CNS depression	500-1000mg IV/PO q8hr prn	 IV formulation – limit use to ≤3 days in mild renal impairment. Contraindicated in severe renal impairment 	
Flexeril	Nicotinic receptors	5-10mg PO TID	Over sedation	
Gabapentin	Inhibits Ca channel a2d-1 subunit	100-900mg PO TID	Renal dose adjustments	
Ketorolac	Non-selective COX-1 and COX-2 inhibitor	15-30mg IV q6hr for max of 5 days	ThrombocytopeniaBleedingAcute kidney injury	

Opioids (Oral)

V. Management of Agitation and Sedation (when mechanically ventilated)

- 1. Assess for level of agitation-sedation with the Richmond Agitation-Sedation Scale at least every 4 hours
- 2. Reassess RASS target level at least once every 24 hours
- 3. If patients are under sedated despite an analgesia first approach, consider a nonbenzodiazepine sedative (e.g. propofol, dexmedetomidine)
- 4. Midazolam may be considered for patients who do not tolerate propofol/dexmedetomidine, those with active seizures, and those with alcohol withdrawal symptoms
- 5. Screen patients daily for readiness for spontaneous awakening trials
- 6. If a patient passes the safety screen, pause pain and sedation infusions to perform coupled awakening and breathing trials
- 7. If a patient fails the SAT/SBT, resume the pain and sedation infusions at half the prior infusion rate

VI. Management of Delirium

- 1. Assess for delirium at least every 4 hours with the Confusion Assessment Method for the ICU (CAM-ICU)
- 2. Treat pain since pain itself can predispose patients for delirium

Non-pharmacological approach (utilize first)

- a. Re-orient patient
- b. Provide reading glasses, hearing aids if applicable
- c. Improve sleep architecture
- d. Encourage early mobilization
- e. Remove restraints, foley catheters etc. if possible
- f. Reduce exposure to deliriogenic medications such as benzodiazepines, anticholinergic medications, steroids when applicable

Pharmacological approach

- a. For severe hyperactive delirium (CAM-ICU positive and RASS +3 or +4): consider bolus propofol (if mechanically ventilated) or intravenous haloperidol to control delirium that would endanger the patient
- b. For hyperactive delirium (CAM-ICU positive and RASS +1 or +2): consider scheduled or as needed (prn) intravenous haloperidol. If enteral access is appropriate, consider oral or per tube olanzapine or quetiapine and if one does not work, consider the other.
- c. Dexmedetomidine should be considered for patients requiring sedation in whom weaning from mechanical ventilation is hampered by hyperactive delirium
- d. For hypoactive delirium (CAM-ICU positive and RASS 0 to -3): consider reducing sedative and other deliriogenic medications

References

- 1. Barr J, Fraser G, Ely EW, et al. Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit. Crit Care Med. 2013 Jan;41(1):263-306.
- 2. Devlin JW, Skrobik Y, Gélinas C, et al. Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. Crit Care Med. 2018 Sep;46(9):e825-e873.
- 3. Hughes CG, Mailloux PT, Devlin JW, et al. Dexmedetomidine or Propofol for Sedation in Mechanically Ventilated Adults with Sepsis. N Engl J Med. 2021 Apr 15;384(15):1424-1436.
- 4. Lewis K, Balas MC, Stollings JL, et al. A Focused Update to the Clinical Practice Guidelines for the Prevention and Management of Pain, Anxiety, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. Crit Care Med. 2025 Mar 1;53(3):e711-e727.
- 5. Mart MF, Boehm LM, Kiehl AL, et al. Long-term outcomes after treatment of delirium during critical illness with antipsychotics (MIND-USA): a randomised, placebo-controlled, phase 3 trial. Lancet Respir Med. 2024 Aug;12(8):599-607.
- 6. Reade MC, Eastwood GM, Bellomo R, et al. Effect of Dexmedetomidine Added to Standard Care on Ventilator-Free Time in Patients with Agitated Delirium: A Randomized Clinical Trial. JAMA. 2016 Apr 12;315(14):1460-8.

Authors

Rachel D. Appelbaum, MD Kelli Rumbaugh, PharmD

Revised August 18, 2025

Appendix

1. Spontaneous Awakening Trial Safety Screen

DAILY EVALUATION OF PATIENT FOR SPONTANEOUS AWAKENING TRIAL

Assess patient with SAT Safety Screen

- 1. No hemodynamic instability*
- 2. SpO₂ \geq 88% and FiO₂ \leq 0.70
- 3. Not on paralytics/ no ordered RASS -4 or -5
- 4. No ongoing agitation (RASS scores of +2 to +4 in last 4 hours)
- 5. No active myocardial ischemia ‡
- 6. No active seizures or active ETOH withdrawal
- 7. Normal ICP (<20 mm Hg)
- 8. No contraindication for wake up (unsecured cerebral aneurysm, comfort care orders etc.)

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SAT SCREEN PASSED if "Yes" to all above

- · Stop sedative and analgesic infusions for SAT trial
- · May use prn analgesics for pain
- · Nurse informs RT that SAT has begun
- Successful SAT if patient RASS 0 to -2 and following simple commands



SAT TRIAL PASSED (no signs of SAT failure)

- RT will do SBT if the patient has passed SBT screen
- If no SBT planned continue with SAT only
- Restart analgesics and sedatives only if indicated
- •RASS target may need to be adjusted if patient is tolerating SAT

FAILED SCREEN

- Do not change analgesic/sedative doses
- Document reason for
- SAT screen failure
- · Reassess daily

FAILED SAT trial (Any one of)

- Anxiety, agitation, or pain not managed by prn bolus dosing
- 2. Respiratory distress or RR >35
- 3. SpO₂<88%
- Acute cardiac arrhythmia New ST segment changes



- Restart analgesic/sedative at half of starting dose, titrate to achieve target RASS
- Document reason for SAT failure

2. ICU Sedation Order Set

