Sedation and Analgesic Management in the Intensive Care Unit (ICU), Adult

Edmonton Zone Guideline

Version 2.0

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Critical Care Strategic Clinical Network™

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Important Information Before You Begin

The recommendations contained in this guideline have been adjudicated and are based on best practice and available evidence. Clinicians applying these recommendations should, in consultation with the patient or the patient's family, use independent clinical judgment in the context of individual clinical circumstances to direct care. This guideline will be reviewed and updated as best practice and evidence change.

The information in this guideline strives to adhere to Institute for Safe Medication Practices (ISMP) safety standards and align with Quality and Safety initiatives and accreditation requirements including Required Organizational Practices, as well as the Critical Care Strategic Clinical Network (CC SCN) Intensive Care Unit (ICU) Delirium Framework.

Keywords

- Pain
- Analgesia
- Sedation
- Agitation
- Delirium
- Intensive Care
- Critical Care
- ROSA (Reducing the use Of Sedation and Analgesia)
- SAT (Spontaneous Awakening Trial)

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Target Audience

Physicians, Nurse Practitioners, Registered Nurses, Pharmacists, Registered Respiratory Therapists

In Scope

Sturgeon Community Hospital Intensive Care Unit
Royal Alexandra Hospital Intensive Care Unit
University of Alberta General Systems Intensive Care Unit & Burns
Misericordia Community Hospital Intensive Care Unit
Grey Nun's Hospital Intensive Care Unit
Adults (Age 18 and older)

Out of Scope

Traumatic Brain Injury/Neurological Insult Diagnosis
End of life palliation, e.g. C2 GOC (Goals of Care)
Patients receiving neuromuscular blocking agent (NMBA) infusions
Pediatric patients (Age 17 and younger)

Background

Choosing Wisely Canada Critical Care recommends "don't prolong mechanical ventilation by over-use of sedatives and bed rest."[1] Critically ill patients frequently receive analgesia and sedation during their stay. These therapies are prescribed to treat pain, anxiety, and to improve tolerance to therapies.[1] Maintaining critically ill patients in an immobile or minimally mobile state can contribute to deconditioning and neuromuscular weakness. This can be associated with complications including delirium, prolonged mechanical ventilation, ventilator associated events (i.e. pneumonia), pressure injury formation, venous thromboembolism, increased incidence of tracheostomies, and increased use of diagnostic imaging for coma.[2–6] These complications lead to increased length of stay (LOS) and costs (Figure 1).

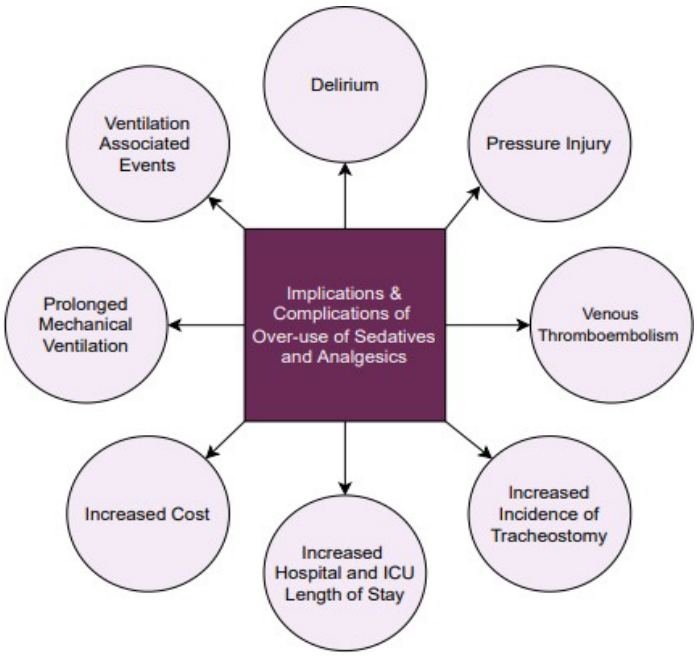

Figure 1 *– Complications from over-use of sedatives and analgesics*

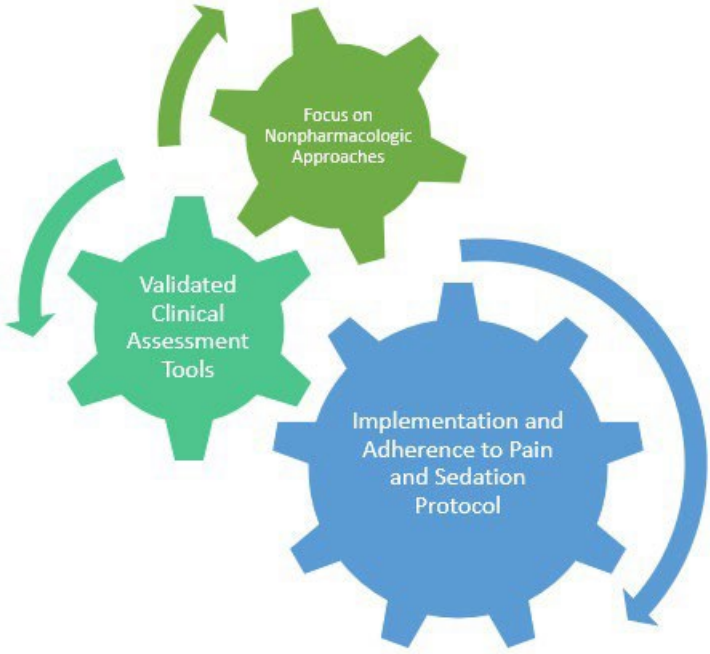

Figure 2 *– Components of an effective pain and sedation management strategy (modified from Palakshappa et al[7]).*

This guideline follows key recommendations made by the 2018 Society of Critical Care Medicine (SCCM) pain, agitation/sedation, delirium, immobility, and sleep disruption guidelines.[1] These include (1) implementation and adherence to pain and sedation protocols, (2) use of validated clinical tools for the assessment of pain, agitation, and delirium in critically ill patients, and (3) emphasis placed on multiple pharmacologic and non-pharmacologic approaches to the ICU patient (Figure 2).[1,7] All pain, agitation, and delirium management should be initiated based on physical assessment of the patient and implemented and evaluated in a stepwise approach (see Appendix 1a).

Pain

Pain management is challenging in the critical care environment. Patients experience different pain patterns, such as acute, chronic, and acute-on-chronic. Pain experienced by patients may include somatic, visceral, and neuropathic sources, and have variable tolerance to pain.

Routine pain assessment should occur using a validated tool in the ICU every four hours and as needed.[8] Patients who can communicate reliably can use a Numeric Rating Scale (NRS) or 0-10 scale. Patients who are unable to self-report pain should have behaviors observed and a Critical-Care Pain Observation Tool (CPOT) used for monitoring pain (see Appendix 2a). Family can also contribute to the patient's pain assessment process through collaboration with the multi-disciplinary team[9]. Vital signs are not valid indicators of pain in critically ill patients.[8]

Management of pain should be assessed and treated before a sedative agent is considered.[1] A multi-modal analgesia approach should be considered to improve pain control and reduce opioid use (see Appendix 3). Non-opioid analgesics include acetaminophen, non-steroidal anti-inflammatory agents, ketamine, and lidocaine should be considered. Gabapentinoids (gabapentin and pregabalin) can be considered for both neuropathic pain and multimodal analgesia. Opioids should be used in a stepwise approach, starting with bolus dosing as needed opioids (i.e. via intravenous push). If this is not effective, escalation to scheduled bolus dosing (i.e. subcutaneous, oral and/or intravenous) and finally opioid infusion can be considered. An as needed bolus dose of opioid should always be available for acute pain. Toxicity related to opioid use in the ICU can present as sedation, delirium, respiratory depression, ileus, and immunosuppression. Prolonged use may be associated with opioid tolerance, withdrawal signs after discontinuation, hyperalgesia, and chronic pain syndromes. De-escalation of opioids when safe to is essential. This should also follow a stepwise approach, with careful monitoring for opioid withdrawal.

Agitation

Agitation in critically ill patients may be secondary to pain, anxiety, delirium, or other pathophysiological etiologies and untreated can cause adverse events such as unintended line or tube removals, including unplanned extubation. Sedation may be desired for critically ill patients to reduce anxiety, improve ventilator synchrony, and prevent agitation related harm.

A specific Richmond Agitation Sedation Scale (RASS) target/goal should be determined by the multi-disciplinary team daily to support the clinical needs of the patient and order placed by the most responsible practitioner (MRP). Sedation level should be assessed routinely every 4 hours and as needed by the bedside registered nurse (RN).[8] The RASS is a validated subjective scale that should be used (see Appendix 2b).[10,11]

Management of sedation should start with optimization of pain control. If analgosedation is insufficient for a desired level of sedation, additional medications can be considered. Strong evidence indicates that benzodiazepine use is associated with delirium in critically ill adults.[1]

Benzodiazepine use in the ICU is associated with increased length of time in deep sedation and increased duration of mechanical ventilation.[1] The SCCM guideline recommends using either propofol or dexmedetomidine over benzodiazepines for sedation in critically ill, mechanically ventilated adults.[1] The ProDex study compared propofol and dexmedetomidine and showed a decreased incidence of delirium with dexmedetomidine at 48 hours after sedation cessation.[12] Propofol and dexmedetomidine are first line sedative agents, and choice between the two agents will depend on patient specific factors and target level of sedation (see Appendix 2).

Spontaneous Awakening Trial

The SCCM guidelines recommend light sedation rather than deep sedation in critically ill, mechanically ventilated patients.[1] Key components to achieving and maintaining light sedation include daily spontaneous awakening trial (SAT) and nurse driven, protocolized, targeted sedation (see Appendix 1a and 1b). A daily sedation interruption or SAT is a scheduled period of time where patient's sedative medication is discontinued, and patients are allowed wakefulness, arousal, and alertness. If the SAT is successful, the patient should be cooperative, able to open their eyes in response to voice, follow simple commands and/or achieve a RASS score of -1 to +1. If the SAT is successful, the sedative infusions should not be restarted, and the ICU team should set a new target level of sedation with supporting order. Failure of a SAT includes any of the following: development of hemodynamic instability, cardiac arrhythmia, respiratory distress, RASS greater than +1, and/or ventilator dysynchrony that is not corrected by ventilator setting adjustment. If a patient demonstrates failure criteria for a SAT, the RN may restart sedation and analgesic infusions at half the previous dose and consider administering as needed or PRN bolus analgesic or sedative medications to treat agitation. When consistently implemented into practice, SATs are associated with shorter duration of mechanical ventilation, ICU stay, hospital stay, reduced adverse events and total cost of treatment.[13]

Delirium

Delirium is acute brain dysfunction characterized by fluctuations in mentation, inattention, disorganized thinking or altered level of consciousness (LOC).[7] Delirium is distressing for patients and families, is associated with worse outcomes, increased LOS, and increased cost.[7] Delirium in critically ill adults is strongly associated with long term cognitive impairment after ICU discharge.[7]

Assessment and monitoring of patients for delirium should occur routinely every 12 hours in the ICU, with increased frequency if ICDSC >/= 4.[8] The Intensive Care Delirium Screening Checklist (ICDSC) is a validated tool that should be used (see Appendix 2c).[14]

The cornerstone of delirium management is nonpharmacologic.[1,7] The SCCM guidelines recommend against using a pharmacologic agent for prevention or routine treatment of delirium in critically ill patients.[1,7] Multicomponent, nonpharmacologic interventions that reduce modifiable risk factors for delirium, improve cognition, and optimize sleep, mobility, hearing, and vision in critically ill adults should be used (see Appendix 4a and 4b).[1,7]

Rehabilitation and mobilization should be performed in critically ill adults.[1,7] Patients who experience significant distress secondary to symptoms of delirium or who are at risk of harming themselves or others may benefit from short term use of antipsychotics until symptoms resolve.[7] Dexmedetomidine is recommended for delirium in mechanically ventilated adults where agitation prevents weaning/extubation.[7,12]

Special Considerations

Acute Respiratory Distress Syndrome

Patients with Acute Respiratory Distress Syndrome (ARDS) are particularly challenging to manage respiratory drive with analgesia and sedation. An analgesia first, minimized sedation strategy to avoid ICU complications including delirium and expedite ventilator liberation may not be feasible for the entire patient course, but should remain the goal[3]. Consideration of ventilator management to treat ventilator asynchrony (such as breath stacking, deep inspiratory efforts) is an essential component of therapy.[15] Some patients with ARDS require deep sedation and/or neuromuscular blockade to maintain a lung-protective strategy and reduce the risk of Ventilator Induced Lung Injury (VILI). Careful attention to ventilation and oxygenation goals along with frequent assessments of the patient is key to optimize lung protective ventilation and may prevent the overuse of sedation and paralytics. Appropriateness for Safety Screen SAT Exclusion Criteria (Figure 4) should be reviewed daily and discussed with the MRHP in multidisciplinary rounds. Patients with ARDS may be excluded from a SAT based on the RASS goal or acuity of respiratory illness. Refer to the Venting Wisely pathway for Hypoxemic Respiratory Failure (HRF) and ARDS management.

Alcohol Use Disorder

Patients with alcohol related disease can be more difficult to maintain in a calm and cooperative state, may develop alcohol withdrawal syndrome (AWS) and have poorer long-term outcomes.[16] They are at significantly increased risk of agitation, delirium and suboptimal sedation.[16] AWS typically occurs 6-12 hours following cessation or decrease of alcohol intake depending upon a patient's level of dependence.[17] Moderate symptoms of AWS, including seizures, can present 12-48 hours following cessation of alcohol intake and severe symptoms (i.e. delirium tremens) may present and persist on days 3-7.[17] There is overlap between AWS and delirium, as both can present with similar symptoms: hallucinations, agitation and disorientation.[16] It is important to recognize the etiology of the patient's symptoms as AWS, as AWS is treated primarily with benzodiazepines, whereas delirium is multifactorial and treatment may focus on non-pharmacological interventions where possible.[7,16] Patients requiring ICU admission for AWS often have severe withdrawal, and may develop refractory delirium tremens despite treatment with high-dose benzodiazepines. Options for therapeutic escalation include use of phenobarbital[18], propofol, or dexmedetomidine[19].

In considering the analgesic and sedation needs of patients with alcohol use disorder (AUD), it is important to consider concomitant liver dysfunction and its effects on drug metabolism.[20] Benzodiazepines with shorter half-life and absence of active metabolites such as lorazepam are preferred. Analgesic agents such as acetaminophen, NSAIDs and opioids are largely metabolized by the liver and may require dosage adjustments.[21] Dexmedetomidine is predominantly eliminated by the liver and dosing should be reduced.[21]

Opioid Use Disorder

Opioid use disorder (OUD) is a problematic pattern of opioid use leading to clinically significant impairment or distress. OUD can involve prescription or diverted opioid medications, or illicitly obtained heroin. Patients with OUD can experience acute pain, which can be under recognized and requires specialized management.[22]

It is essential that an opioid tolerance or dependence is identified as early as possible in a patient's ICU admission to support balancing their opioid requirements with the potential for adverse effects.[23] Under treatment of the acute pain that accompanies critical illness is distressing.[22] Under treatment of acute pain in opioid tolerant and/or dependent patients is common secondary to a fear of causing harm with the higher doses of opioids required and the difficultly of assessment of the patients.[23] Treatment of pain should begin with estimating and administering the amount of opioids used daily before the onset of new pain and supplementing with short acting opioids to address acute pain.[23] Multimodal analgesia can be used in combination with opioids to produce additive and synergistic effects, including ketamine, lidocaine, clonidine, dexmedetomidine, gabapentinoids, acetaminophen and NSAIDs.[22] Patients receiving pharmacotherapy for OUD require careful consideration of home medications. In patients receiving methadone or buprenorphine chronically, acute pain should be managed while continuing the baseline opioid.[22] Treatment of patients with OUD should ideally include coordination with substance use disorder treatment specialists, if available.

Analytics

Baseline Analytics – Outcome Measure #1

Measure	Cumulative duration of sedative and analgesic infusions per patient day
Definition	Numerator: Total cumulative hours of infusions [non-bolus dosing] for day 0 to day 7 inclusive for all patients ○ Each individual agent can have a max of 24 hours infusions in 24-hour period ○ Cumulatively agents can exceed 24 hours of infusions Denominator: Total length of stay in hours of all patients for day 0 to day 7 inclusive Filters: Ever Mechanically Ventilated (Yes/No) Total infusion hours over length of stay of all patients in hours Inclusion Criteria ○ Adult ICU Edmonton zone Exclusion Criteria ○ Proned (patient day) ○ NMBA infusion (patient day) ○ Patient days with C2 GOC ○ Patient days after time of death (donor patients) ○ Time off unit (>1 hour) Infusions ○ Ketamine ○ Hydromorphone ○ Fentanyl ○ Morphine ○ Dexmedetomidine ○ Propofol ○ Midazolam

Baseline Analytics – Outcome Measure #2

Measure	Total dosage of infusion by sedative and analgesic infusion per patient day
Definition	Numerator: Total cumulative dose of sedative and analgesic infusions [non-bolus dosing] for day 0 to day 7 inclusive for all patients Denominator: Total length of stay for day 0 to day 7 inclusive

Baseline Analytics – Outcome Measure #3

Measure	Frequency of completed SAT by Infused Patient Day
Definition	Spontaneous Awakening Trial (SAT) safety screen completion SAT completion and documentation of result Sedative use post SAT pass/fail

Baseline Analytics – Process Measure #1

Measure	RASS goal documentation
Definition	Per admission Per patient day on sedative/analgesic infusion

Baseline Analytics – Balancing Measure #1

Measure	Unplanned extubation
Definition	Per patient day

Baseline Analytics – Balancing Measure #2

Measure	Unplanned central line removal
Definition	Per patient day

Appendices

Appendix 1a

Pain, Agitation, and Delirium (PAD) Decision Tool

Appendix 1b

Spontaneous Awakening Trial (SAT) Decision Tool

Appendix 2a

Clinical Assessment Tools – Critical Care Pain Observation Tool (CPOT)[24]

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, Neutral	0
	Presence of frowning, brow lowering, orbit tightening, levator contraction	Tense	1
	All the above facial movements plus eyelids tightly closed	Grimacing	2
Body Movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
OR			
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2
Total, range			**0-8**

Aim for total score of 0 – 2. If total score > 2, treat with analgesic as ordered.

Definition: Significant pain refers to CPOT greater than or equal to 3

Appendix 2b

Clinical Assessment Tools – Richmond Agitation Sedation Scale (RASS)[10,11]

Score	Term	Description
+4	Combative	Overtly combative, violent, immediate danger to staff
+3	Very Agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent non-purposeful movement, fights ventilator
+1	Restless	Anxious but movements not aggressive
0	Alert and Calm	
-1	Drowsy	Not fully alert, but has sustained awakening (eye-opening/eye contact) to voice >10)
-2	Light sedation	Briefly awakens with eye contact to voice (< 10 seconds)
-3	Moderate sedation	Movement or eye opening to voice (but no eye contact)
-4	Deep sedation	No response to voice, but movement or eye opening
-5	Unarousable	No response to voice or physical stimulation

Process for RASS Assessment[10,11]

1. Observe patient
   a. Patient is alert, restless, or agitated (score 0 to +4)

2. If not alert, state patient's name and say to open eyes and look at speaker
   a. Patient awakens with sustained eye opening and eye contact (score –1)
   b. Patient awakens with eye opening and eye contact, but not sustained (score –2)
   c. Patient has any movement in response to voice but no eye contact (score –3)

3. When no response to verbal stimulation, physically stimulate patient by shaking shoulder and/or rubbing sternum
   a. Patient has any movement to physical stimulation (score –4)
   b. Patient has no response to any stimulation (score –5)

Appendix 2c

Clinical Assessment Tools – Intensive Care Delirium Screening Checklist (ICDSC)[14]

Adapted from the CCSCN Delirium initiative[8]

Intensive Care Delirium Screening Checklist

For any component of the checklist, if you are unable to assess, answer No = Score 0
A total ICDSC score greater or equal to 4 has a 99% sensitivity for a psychiatric diagnosis of delirium.

Score at time of assessment

Altered level of consciousness			**Assessment Considerations**
RASS = +1 to +4	Exaggerated response	Score = 1	Assess level of consciousness at the time of ICDSC scoring. May need to delay assessment if prn analgesic/sedation recently administered. For continuous sedation/long acting sedatives, score for patient's current condition.
RASS = 0	Normal wakefulness / calm / cooperative	Score = 0	
RASS = -1 to -2	Responds to mild stimulation	Score = 1	
RASS = -3	Responds to moderate stimulation	Score = 1	
RASS = -4 to -5	Responds only to intense repeated stimulation **OR** No response to noxious stimulation	**STOP ASSESSMENT**	

Inattention		**Assessment Considerations**
Difficulty following simple commands	Yes = Score 1	Attention needs to be held for a minimum of 10 seconds. Does the patient have the ability to organize their thoughts? Does the patient have difficulty focusing attention or difficulty tracking you? Ask the patient to hold up two fingers…and then ask them to hold up two more fingers. While spelling out "HAVE A HAART" get the patient to squeeze your hand on every "A", the patient needs to have 8/10 correct. Have the patient recite the months of the year backwards.
Attentive and focused	No = Score 0	
Unable to assess	No = Score 0	

Disorientation		**Assessment Considerations**
Disorientated to person, place or time	Yes = Score 1	For intubated patients use easy yes/no questions. Can the patient recognize family/caregivers? Do they know what kind of place they are in (hospital)?
Oriented or unable to assess	No = Score 0	

Hallucination, delusion or psychosis		**Assessment Considerations**
Visual, auditory or tactile hallucinations	Yes = Score 1	Hallucinations: Perception of something in the absence of stimuli. Delusions: False beliefs with no feasible/reasonable reason. Psychosis: Difficulty telling what is real and what is not. Do you hear someone speaking to you other than me? Do you see anything or anyone other than me? Do you believe someone is trying to harm you?
Delusions	Yes = Score 1	
Psychosis	Yes = Score 1	
No apparent hallucinations, delusion or psychosis or unable to assess	No = Score 0	

Observe throughout shift

Psychomotor agitation or retardation		**Assessment Considerations**
Agitation or retardation	Yes = Score 1	Hyperactivity: Heightened arousal. Can be restless, agitated or aggressive. Hypoactivity: Flat affect, withdrawn, decreased responsiveness, slowed speech, and/or apathetic.
Relaxed and cooperative or unable to assess	No = Score 0	

Inappropriate mood or speech		**Assessment Considerations**
Inappropriate mood, disorganized thoughts or inappropriate shouting	Yes = Score 1	Is the patient's speech or mood appropriate to the current situation? Is the patient inappropriately demanding? Consider asking family/friends if this is typical for the patient.
Appropriate speech/mood or unable to assess	No = Score 0	

Sleep wake cycle disturbance		**Assessment Considerations**
Slept more than 4 hours total during the day	Yes = Score 1	Based on primary caregiver assessment within the past 24hrs.
Slept less than 4 hours total during the night or frequent waking	Yes = Score 1	
Sleeping **at least 4 hours** at night or unable to assess	No = Score 0	

Fluctuations		**Assessment Considerations**
WORSENING of any indicators in the **last 24 hours** (see previous shift)	Yes = Score 1	Worsening of an indicator which is not related to an intervention. For example, patient is less rousable due to sedative for procedure.
No change or IMPROVEMENT of delirium indicators	No = Score 0	

Source: Bergeron N et al. Intensive Care Med 2001; 27: 869-64 Last Revised: June 2018 by CCSCN Delirium Initiative- ICDSC Working Group

Appendix 3

Comparison of Analgesic and Sedative Medications

Adapted from Chanques et al.[25]

Agent	Time to Onset (min)	Time to Offset	Analgesic Effect	Provides Deep Sedation	Reduces Respiratory Drive	Risk for Delirium	Risk for Withdrawal	Dosing	Comments
Opioids									
Hydromorphone	10-20	2-6 h	+++	N	Y	+	++	0.2-0.5 mg IVP +/- 0-2 mg/h	Consider PRN or scheduled bolus dose before initiating a continuous infusion
Fentanyl *Contact sensitive half life	1-2	1-4 h	+++	N	Y	+	++	0.3-0.5 mcg/kg IVP Q1-2h +/- 0.7-5 mcg/kg/h	
Non-opioid analgesics									
Acetaminophen	30	4-6 h	+	N	N	-	-	650 mg PO Q6H	
Ketamine (lower dose)	15-20	20-30 min	++	N	N	+	+	0.1-1 mg/kg/h	Dose >1mg/kg/h produces pronounced sedation
Ketamine (higher dose)	15-20	30-60 min	+++	Y	N	++	+	1-3 mg/kg/h	Hypotension and decreased cardiac output reported with higher doses
Sedatives									
Dexmedetomidine	15-20	60-90 min	+	N	N	-	+	0.2-1.5 mcg/kg/h	Dose >1.5 mcg/kg/h increases cardiac toxicity, unlikely to add clinical benefit
Propofol	0.5-1	5-10 min	-	Y	Y	+	-	0-50 mcg/kg/min	Time to offset increased in older adults and infusions longer that 72 h. Monitor for PRIS and elevated triglyceride levels
Midazolam *Contact sensitive half life	2-5	1-72 h	-	Y	Y	+++	++	1-10 mg/h	Consider PRN or scheduled bolus dose before initiating a continuous infusion

Appendix 4a

ABCDEF Bundle

Adapted from the CCSCN Delirium Initiative[8]

Care Bundle	Recommendations

A - Assess, Prevent and Manage Pain	• Pain is assessed and documented using validated tool (CPOT and NRS/0-10)
	• Self-reporting of pain is the gold standard
	• Provincial guidance aligns with SCCM pain, agitation, and delirium (PAD) recommendations and emphasizes:
	  ○ Treat pain before sedation
	  ○ Pre-procedural pain management strategies
	  ○ Non-pharmacological pain management strategies as an adjunctive therapy

B - Both Awakening and Breathing Trials	• Depth and quality of sedation should be routinely assessed and documented on all ICU patients every 4 hrs using validated tool (RASS)
	• Set daily targeted level of sedation for each patient at least once per day
	• Target the lightest possible sedation and/or use daily SAT
	• Goal of light sedation is to adequately sedate patients, and still be able to adequately assess pain
	• Provincial guidance aligns with SCCM PAD recommendations and emphasizes:
	  ○ Analgesia before sedation
	  ○ Sedation is titrated to a targeted level
	  ○ Minimal use of benzodiazepines
	• Spontaneous breathing trial (SBT) eligibility discussed daily on all ventilated patients and document whether eligibility criteria met or not
	• SBT ordered and completed on all ventilated patients daily
	• After successful SBT, potential for extubation is discussed

C - Choice of analgesia and sedation	• Determine target RASS daily
	• Provincial guidance emphasizes:
	  ○ Assessment and treatment of pain first
	  ○ Use of pre-emptive pain management strategies
	  ○ Consideration of as needed (PRN) analgesia or sedation prior to using infusions
	  ○ Targeting the lightest possible sedation
	  ○ Avoidance of benzodiazepines *unless specifically indicated* (i.e. alcohol or benzodiazepine withdrawal)

D - Delirium Screening and Management	• Delirium is assessed and documented using the Intensive Care Delirium Screening Checklist (ICDSC)
	• Routinely discuss ICDSC score and risk factors with multi- disciplinary team
	• Collaboratively implement appropriate delirium prevention and/or management strategies
	• Provincial guidance aligns with SCCM PAD recommendations and emphasizes:
	  ○ Early mobility
	  ○ Sleep promotion
	  ○ Analgesia and sedation
	  ○ Early discussion and proactive approach to all patients at risk of delirium

E - Early mobility and exercise	• Mobility guidance *adapted to unit and patient specific considerations* should be recognized and endorsed by all members of the multidisciplinary team • Consistent approach/assessment of patient's ability to mobilize • Patients should receive appropriate mobility (mobility events should be appropriate for patient's ability and acuity) • Early mobilization should start on first day of admission unless there are absolute contradictions to doing so • Twice daily assessment – patient's ability to mobilize is assessed and re-assessed continuously through the ICU stay to maximize progression of mobility • Patients should receive multiple mobility events every day • Recognize all barriers to mobility early and address
F - Family's role	• Help familiarize family members about delirium and the ABCDEF bundle and their role in helping to prevent and manage delirium

Appendix 4b

Sleep Promotion Strategies

Adapted from the CCSCN Delirium Initiative[8]

Light Reduction	Noise Reduction	Coordination of Care	Comfort Measures
• Dim lights • Offer eye masks to patients to block light • Ensure equipment display screens visible from outside of the room • Close curtains if safe to do so • Pull down blinds	• Turn cardiac monitor to sleep mode if the patient is a Q shift assessment • Offer ear plugs to patients • Close doors to patient room • Keep noise and hallway conversations at low volume • Use overheard pages sparingly • Assess alarm limits and silence alarms prior to performing a procedure (i.e. suctioning, turning) • Decrease IV pump alarm volume • Yankauer suction to be turned off	• Mobility event between 1900-2200 • Bed bath completed prior to 2200 • Coordinate and cluster overnight care with respiratory therapist (RRT) and family to minimize interruptions • Adjust medication administration times (bid, tid, qid) to minimize interruptions ○ Consult with MRP/Pharmacy in rounds if unsure of certain medications • Create care plan for patients with LOS > 7 days	• Complete frequent pain assessments and provide analgesia as required • Communicate with family regarding patient preferences (sleep positions, pillow placement, etc.) to maximize patient comfort • Use personal blankets for long stay patients • Position changes q2h while awake unless patient condition dictates otherwise (i.e. quadriplegic, pressure injuries)

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Please contact criticalcare.scn@ahs.ca for any questions, concerns or requests pertaining to this guideline or the ROSA initiative.