

Provincial Clinical Knowledge Topic

Delirium, Adult – Critical Care

Version 1.0

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Important Information before You Begin

The recommendations contained in this knowledge topic have been provincially 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 medical judgment in the context of individual clinical circumstances to direct care. This knowledge topic will be reviewed periodically and updated as best practice evidence and practice change.

The information in this topic strives to adhere to Institute for Safe Medication Practices (ISMP) safety standards and align with Quality and Safety initiatives and accreditation requirements such as the Required Organizational Practices. Some examples of these initiatives or groups are: Health Quality Council Alberta (HQCA), Choosing Wisely campaign, Safer Healthcare Now campaign etc.

Guidelines

This Clinical Knowledge Topic is based on the following guidelines:

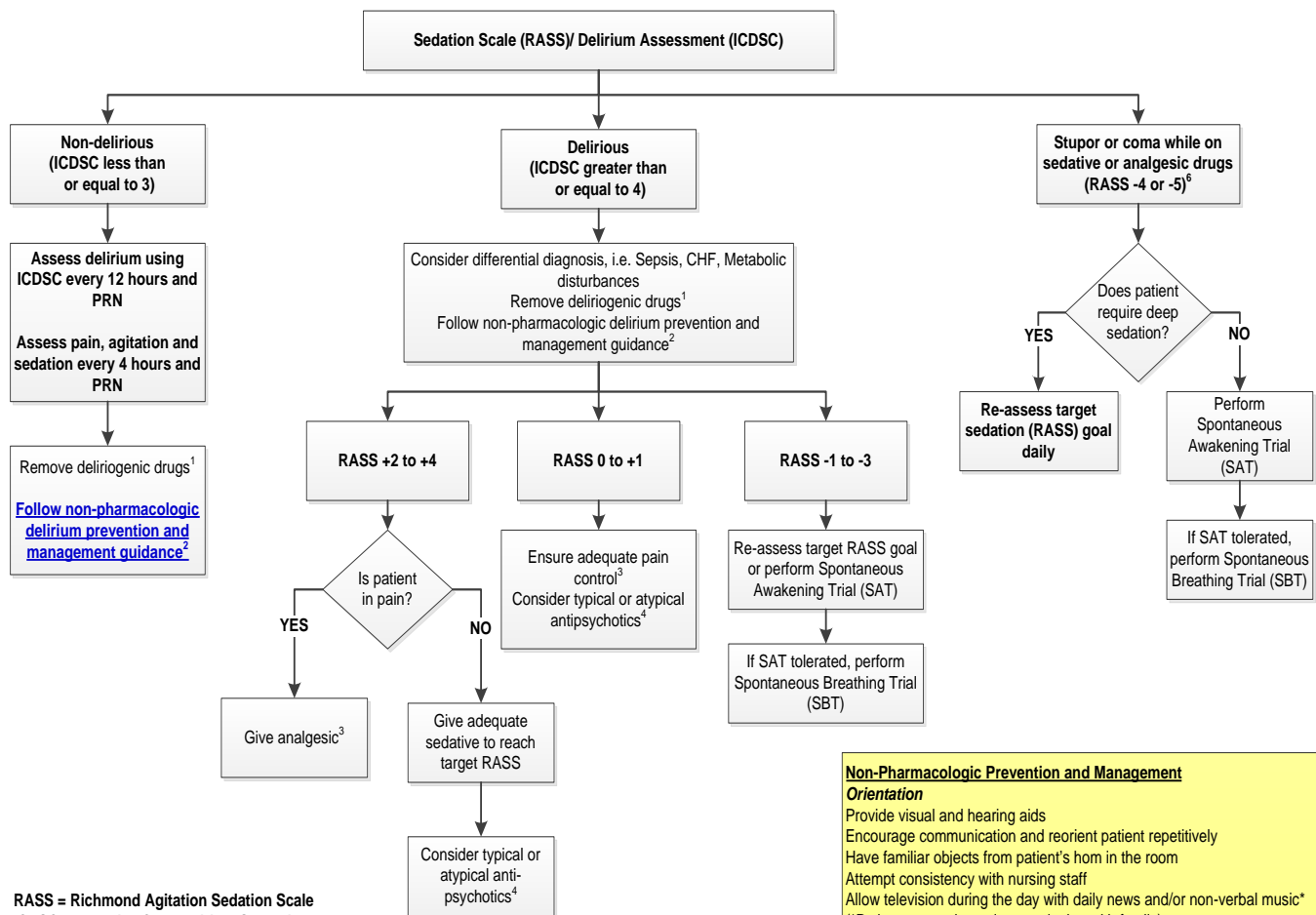
- *Critical Care SCN ICU Delirium Framework 2016 - 2017*
- *Calgary Zone – Adult ICU: Delirium Assessment, Prevention and Management Clinical Practice Guideline*
- *Calgary Zone – Sunrise Clinical Manager Delirium Order Set (Draft)*
- *ICU Pain/Agitation/Delirium (PAD) Bundle for Mechanically Ventilated Patients (SZ)*
- *Chinook Respiratory Services Daily Screening and Spontaneous Breathing Trial (SBT)*
- *Misericordia Hospital ICU Critical Care Pain Observation Tool (adapted from Am J Crit Care, 2006)*
- *ICU Delirium Screening Checklist (Revised from Skrobik & Bergeron, 2001)*
- *Misericordia Hospital ICU Monitoring Protocols (Scherr, 2016)*
- *Misericordia ICU Early Mobilization Patient Steps for Improvement*
- *Noise Reduction and Non-Pharmacological Strategies in the ICU as a Quality Initiative for Delirium Prevention: Information for Patients and Families (Covenant Health/AHS)*
- *RAH ICU PAIN, AGITATION, DELIRIUM GUIDELINES*
- *ICU Assessment Protocols (RAH, 2016)*
- *In the Intensive Care Unit: Delirium, A guide for patients and families (Vanderbilt University, 2010)*
- *Adult ICU Admission Orders – Misericordia Community Hospital, CV Version*
- *AHS GSICU Firefighters' Burn Unit Delirium Protocol v 2012.5*
- *AHS Edmonton Zone Cardiology Delirium Protocol 2015*
- *Chinook Respiratory Services Daily Screening and Spontaneous Breathing Trial*

Keywords

- Delirium
- Critical Care
- Intensive Care
- Confusion
- ICDSC

Decision Making

Management Algorithm



RASS = Richmond Agitation Sedation Scale
ICDSC = Intensive Care Delirium Screening
SAT = Spontaneous Awakening Trial
SBT = Spontaneous Breathing Trial

1. Consider stopping or substituting for deliriogenic medications such as benzodiazepines, anticholinergic medications, diphenhydramine, steroids
2. [Follow non-pharmacologic delirium prevention and management guidance.](#)
3. **Analgesia: Adequate pain control may decrease delirium. Consider non-narcotic approach first. For example: scheduled acetaminophen or consider NSAID if appropriate. Next consider enteral or intermittent IV narcotics**
4. **Typical or atypical antipsychotics: While tapering or discontinuing sedatives, consider using any of the atypical antipsychotics (i.e. quetiapine or olanzapine) May consider using, as needed, haloperidol IV**
5. Discontinue antipsychotics if high fever, QTc prolonged, or drug induced rigidity
6. Recommended sedatives and analgesics include: propofol, dexmedetomidine, fentanyl, morphine, hydromorphone, acetaminophen and NSAIDs.

Adapted from: Vanderbilt University Medical Center. Delirium Protocol. <http://www.icudelirium.org/docs/Delirium-Protocol.pdf>

Non-Pharmacologic Prevention and Management

Orientation

Provide visual and hearing aids
Encourage communication and reorient patient repetitively
Have familiar objects from patient's home in the room
Attempt consistency with nursing staff
Allow television during the day with daily news and/or non-verbal music*
(*Patient appropriate – in consultation with family)

Environment

Sleep hygiene: lights off at night, on during day. Sleep aids appropriate for patient in consultation with patient and family
Control excess noise, light, blue light (staff, visitors, equipment, screens) at night

Ambulate/Mobilize

Mobilize patient early and often

Clinical Parameters

Treat underlying metabolic derangements and infections
(**May be superseded by Physician order)

Delirium, Adult Critical Care Order Set

Order Set Restrictions: History of neuroleptic malignant syndrome; Allergy, hypersensitivity or contraindication to quetiapine; QTc greater than or equal to 500 ms (unless approved by MD)

Order Set Keywords: Delirium, Agitation, Sedation, Intensive Care, Critical Care

Order Set Requirements: Weight, Allergies

Risk Assessment / Scoring Tools / Screening: ICDSC, CPOT (critical care pain observation tool)

General

Consider opening and merging any appropriate diagnosis based order sets

Admission

- Admit to _____ under _____ Admitting Diagnosis _____
- Notify Primary Care physician and other clinicians in the active circle of care regarding patient admission

~Start of Goals of Care Designation Order Panel~

Goals of Care

Conversations leading to the ordering of a Goals of Care Designation (GCD), should take place as early as possible in a patient's course of care. The Goals of Care Designation is created, or the previous GCD is affirmed or changed resulting from this conversation with the patient or, where appropriate, the Alternate Decision-Maker. Select a GCD order below and document the content of conversations and/or decisions on the ACP GCD Tracking Record.

Specify on the GCD order, if there are specific clarification to this GCD Order. Document these clarifications on the ACP/GCD Tracking Record as well.

- R1
- R2
- R3
- M1
- M2
- C1
- C2

~ End of Goals of Care Designation Order Panel~

Patient Care

Activity

- Assess daily mobility goals
- Mobility level every shift
- Implement 3 mobility incidences per 24 hours** and PRN
- Implement Day / Night Routine – refer to [Care Bundle D](#)
- Implement “Mobility Guidelines” – refer to [Care Bundle E](#)

Patient Care Assessment

- Perform Richmond Agitation and Sedation Scale (RASS) refer to [Care Bundle C](#), every 4 hours and PRN with change in level of consciousness.
- May decrease RASS assessment to every 6 hours at HS to support sleep promotion.
- ICDSC every 12 hours – refer to [Care Bundle D](#)
- Perform CPOT, refer to [Care Bundle A](#) or verbal pain scale assessment every 4 hours
- Other:
 - Perform Spontaneous Awakening Trial (SAT) refer to [Care Bundle B](#) daily and *PRN* if patient meets established safety criteria and inclusion criteria, or as per guidelines
 - Re-orientate patient to person, place, and time every 4 hours and PRN while awake
 - Ensure appropriate use of glasses and hearing aids where applicable
 - Assess for and provide appropriate cognitive stimulation when awake

Laboratory Investigations Routine

If ICDSC > 3: Initiate metabolic evaluation for delirium, by selecting the clinically appropriate investigations below – refer to [Care Bundle D](#)

Hematology

When clinically indicated as determined by MD or NP:

- Complete Blood Count (CBC) with differential
- Blood Culture

Chemistry

When clinically indicated as determined by MD or NP:

- ALT
- Alkaline Phosphatase (ALP)
- Lactate
- Electrolytes (Na, K, Cl, CO₂)
- Urea
- Creatinine
- Bilirubin Total
- Glucose Random

Blood Gas

- Blood Gas Arterial

Urine

- Urine Culture
- Urinalysis Random

Diagnostic Imaging

General Radiology

Where clinically indicated

- Chest X-ray 2 projections: Posterior-anterior & Lateral (CR Chest, 2 Projections)
- Abdominal flat plate
- Other: _____

Computed Tomography

Where clinically indicated

- CT head
- Other: _____

Medications

- Clinical Comment - Medication assessment for cause of delirium
- Medication reconciliation review for omitted medications

Analgesics and Antipyretics

Non-Opioid

- acetaminophen 325 mg orally Q6H (*do not exceed 4G per 24 hours, 3G in older patients with hepatic impairment or history of alcohol abuse*).

OR

- acetaminophen 650 mg PO/NG/SBFT/OG Q6H (*do not exceed 4G per 24 hours, 3G in older patients with hepatic impairment or history of alcohol abuse*).

Both ibuprofen and naproxen contraindicated when CrCl below 30mL/min

- Ibuprofen 400 mg orally Q6H as needed x 72 hours (*maximum 2400 mg daily*)

OR

- Naproxen 375 mg orally twice daily x 72 hours

Opioid

- HYDROmorphine 0.2 to 1 mg IV Q2H as needed for breakthrough pain

OR

- Morphine 2 to 5 mg IV Q1H as needed for breakthrough pain

OR

- FentaNYL 25 to 100 mcg IV Q1H as needed for breakthrough pain or for procedural sedation **AND** HYDROmorphine 1 to 2 mg PO Q4H as needed

Sedative & hypnotics

Choose one

- Haloperidol 2.5 to 5 mg IV Q1H as needed (*max 30 mg in 12 hours*)

If ICDS greater than 3

- Haloperidol 5 mg IV Q15 min as needed until patient settled **then** 2.5 to 5 mg IV Q1H as needed (*max 30mg in 12 hours*).
- Haloperidol 2.5 to 5 mg IV Q4H as needed

AND/OR

- OLANzapine 2.5 to 5 mg PO/NG/SBFT/OG/SL at bedtime
- QUETiapine 25 mg PO/NG/SBFT/OG twice daily
- Zopiclone 3.75 mg PO/NG/SBFT/OG at bedtime

- Clinical Communication - Call MD to advise regarding medication dosing if patient excessively sedated, if QTC greater than or equal to 500ms, 20% increase from baseline QTC or if patient exhibiting extra-pyramidal symptoms.

Discharge

- Clinical Communication - Ensure clear communication via chart documentation and medication reconciliation as what the intensive care team intends for the receiving team/unit to do with (weaning) for any analgesic, neuroleptic or sedatives that has been started or continued in the intensive care.

- Follow tapering of neuroleptics sedatives and analgesics as per transfer order set.

- Patient and Family education/discharge instructions
 - <https://myhealth.alberta.ca/Alberta/Pages/what-is-icu-delirium.aspx>
 - Education to be provided to patients and families neuroleptics vs sedatives

Analytics

Baseline Analytics – Outcome Measure #1

Name of Measure	Frequency of the following medications ordered. <ul style="list-style-type: none"> • haloperidol • Quetiapine • Olanzapine
Definition	For all patients who are admitted to the Adult ICU and where the Order Set Delirium is used how often is each of the above medications ordered on a patient during their ICU admission.

Baseline Analytics – Outcome Measure #2

Name of Measure	Frequency of benzodiazepines being ordered.
Definition	For all patients who are admitted to the Adult ICU and where the Order Set Delirium is used what is the frequency of benzodiazepines being ordered for a patient?

Baseline Analytics – Outcome Measure #3

Name of Measure	Frequency of continuous sedation being ordered.
Definition	For all patients who are admitted to the Adult ICU and where the Order Set Delirium is used what is the frequency of continuous sedation being ordered? Continuous sedation being that one of the following medications are ordered: <ul style="list-style-type: none"> • Propofol • Dexmedetomidine • Midazolam • Narcotics

Baseline Analytics – Outcome Measure #4

Name of Measure	Frequency of patients with an ICDSC > 3 scored.
Definition	For all patients who are admitted to the Adult ICU and where the Order Set Delirium is used what is the frequency of patients with an ICDSC > 3 score pre and post initiation of the Delirium Order Set?

ABCDEF Bundle Provincial Recommendations

Provincial guidance may be adapted to address to unit specific considerations, such as clinician workflow, while still adhering to provincial clinical practice expectations.

Clinical practice expectations, which are the provincial recommendations translated into clinical activities to implement, are provided in the provincial tool kit.

Care Bundle	Recommendations
A - Assess, Prevent and Manage Pain	<ul style="list-style-type: none"> • Pain is assessed and documented using validated tool (CPOT and NRS) • Self-reporting of pain is the gold standard • Provincial guidance aligns with Society of Critical Care Medicine PAD recommendations and emphasizes⁷: <ul style="list-style-type: none"> ○ Treat pain before sedation ○ Pre-procedural pain management strategies ○ Non-pharmacological pain management strategies as an adjunctive therapy
B - Both Awakening and Breathing Trials	<ul style="list-style-type: none"> • Depth and quality of sedation should be routinely assessed and documented on all ICU patients every 4 hrs using validated tool Richmond agitation-sedation scale (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 Society of Critical Care Medicine PAD recommendations and emphasizes: <ul style="list-style-type: none"> ○ Analgesia before sedation ○ Sedation is titrated to a targeted level ○ Minimal use of benzodiazepines • 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	<ul style="list-style-type: none"> • Determine target RASS daily • Provincial guidance emphasizes: <ul style="list-style-type: none"> • Assessment and treatment of pain first • Use of pre-emptive pain management strategies

	<ul style="list-style-type: none"> • Consideration of PRN analgesia or sedation prior to using infusions • Targeting the lightest possible sedation • Avoidance of benzodiazepines <i>unless specifically indicated</i> (i.e. alcohol or benzodiazepine withdrawal)
D - Delirium Screening and Management	<ul style="list-style-type: none"> • 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 Society of Critical Care Medicine PAD recommendations and emphasizes: <ul style="list-style-type: none"> ○ Early mobility ○ Sleep promotion ○ Analgesia and sedation ○ Early discussion and proactive approach to all patients at risk of delirium
E - Early mobility and exercise	<ul style="list-style-type: none"> • Mobility guidance <i>adapted to unit specific considerations</i> should be recognized and endorsed by all members of the interdisciplinary 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	<ul style="list-style-type: none"> • Help familiarize family members about delirium and the ABCDEF bundle and their role in helping to prevent and manage delirium

Adapted from: Alberta Health Services Critical Care Strategic Clinical Network Provincial Clinical Best Practices (Delirium) 2016

Care Bundle: A - Assess, Prevent and Manage Pain

Clinical Practice Expectations

- Pain is assessed and documented every 4 hours and as needed
- Critical Care Pain Observation Tool (CPOT) is to be used for patients not able to verbalize;
- Numeric Rating Scale (NRS) to be used for patients able to verbalize.
- Pain and pain management should be reviewed daily within multidisciplinary team

Key Clinical Considerations

Review analgesia and sedation needs and orders daily. Avoid use of continuous analgesia and infusions if possible.

1. IV Opioids should be considered as the first line drug class of choice to treat non-neuropathic pain in critically ill patients. Opioids are first line medication for endo-tracheal tube (ETT) tolerance once non-pharmacologic strategies are insufficient. Opioids can be used for management of dyspnea.
2. Enterally administered Gabapentin or Carbamazepine, in addition to IV Opioids, should be considered for treatment of neuropathic pain.
3. Non-opioid analgesics (i.e. NSAIDS and acetaminophen) should be considered to decrease the quantity of opioids administered and to decrease opioid-related side effects.
4. Patients should be pre-treated with opioids prior to potentially painful procedures/interventions i.e. chest, tube insertion/removal; line insertion.
5. Vital signs are unreliable as pain assessment surrogates.
6. Pain is often attributable to immobilization, therefore early mobility is important for prevention and treatment of pain.
7. Complimentary non-pharmacologic interventions for pain management, such as music therapy and relaxation techniques may be opioid-sparing, and analgesia-enhancing choices which are low cost, easy to provide, and safe (SCCM, 2012).

Clinical Assessment Tools

Critical Care Pain Observation Tool (CCPOT)

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, Neutral	0
	Presence of frowning, brow lowering, orbit tightening, levator contraction	Tense	1
	All of 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 NRS greater than or equal to 4, or CPOT greater than or equal to 3

Care Bundle B: Spontaneous Awakening and Breathing Trials

Clinical Practice Expectations

- Assess and document agitation (RASS) and sedation every 4 hours & PRN
- Unless contraindicated, aim for Goal RASS of -2 to +2
- Discuss and document targeted level of sedation at least once per day
- Spontaneous Breathing Trial (SBT) eligibility assessed and documented daily on all ventilated patients
- Daily SBT performed on eligible patients and documented daily
- Target extubation within 2 hours after successful SBT unless contraindicated

Key Clinical Considerations

Refer to:

- Bundle A: Key Clinical Considerations
- Bundle C: Key Clinical Considerations

Resources

Spontaneous Breathing Trial

Note - Provincial creation of an algorithm and guidance (i.e. inclusion criteria) for **SAT/SBT** is in development and will be added once complete and reviewed by the appropriate provincial critical care sub-committee

<https://www.ncbi.nlm.nih.gov/pubmed/18191684>

<https://www.ncbi.nlm.nih.gov/pubmed/30113379>

Care Bundle: C – Choice of Analgesia and Sedation

Clinical Practice Expectations

- a. Agitation and depth and quality of sedation is assessed and documented every 4 hours and PRN using Richmond Agitation Sedation Scale (RASS)
- b. Pain assessed and documented q4h and PRN using the Numeric Rating Scale or CPOT
- c. Pain and pain management should be reviewed daily within multidisciplinary team

Key Clinical Considerations

Review analgesia and sedation needs and orders daily. Avoid use of continuous analgesia and infusions if possible.

1. IV Opioids should be considered as the first line drug class of choice to treat non-neuropathic pain in critically ill patients. Opioids are first line medication for ETT tolerance once non-pharmacologic strategies are insufficient. Opioids can be used for management of dyspnea.
2. Enterally administered Gabapentin or Carbamazepine, in addition to IV Opioids, should be considered for treatment of neuropathic pain.
3. Non-opioid analgesics (i.e. NSAIDS and acetaminophen) should be considered to decrease the quantity of opioids administered and to decrease opioid-related side effects.
4. Patients should be pre-treated with opioids prior to potentially painful procedures/interventions i.e. chest, tube insertion/removal; line insertion.
5. Vital signs are unreliable as pain assessment surrogates.
6. Pain is often attributable to immobilization, therefore early mobility is important for prevention and treatment of pain.
7. Complimentary non-pharmacologic interventions for pain management, such as music therapy and relaxation techniques may be opioid-sparing, and analgesia-enhancing choices which are low cost, easy to provide, and safe (SCCM, 2012).

Clinical Assessment Tools

Richmond Agitation Sedation Scale (RASS)^{1,2}

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

Procedure for RASS Assessment^{1,2}

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.
 - b. Patient awakens with sustained eye opening and eye contact. **(score -1)**
 - c. Patient awakens with eye opening and eye contact, but not sustained. **(score -2)**
 - d. 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.
 - e. Patient has any movement to physical stimulation. **(score -4)**
 - f. Patient has no response to any stimulation. **(score -5)**

Care Bundle D: Delirium – Assess, Prevent and Manage

Clinical Practice Expectations

- a. Assess delirium using intensive care delirium screening checklist (ICDSC) every 12 hours & PRN
- b. Daily discussion of ICDSC score, risk factors, and prevention and delirium management strategies within multidisciplinary team

Key Clinical Considerations

Non-Pharmacologic Management

- *Emphasize non-pharmacological treatment of delirium.* Delirium prevention and management should align with SCCM PAD recommendations, and should emphasize:
 - early mobility
 - sleep promotion
 - Share information on sleep history
 - Quality of sleep when well?
 - What helps sleep at home? (I.e. ear plugs, sleep mask, music?)
 - Usual sleep and wake times?
 - Minimize visiting after 10:00pm
 - Lower conversation volume adjacent to patient
 - early discussion of and proactive approach to all patients at risk of delirium
- Assess and determine mobility goals daily, including type of mobility and associated restrictions. Mobility goals will be implemented daily and progression will be monitored.

Pharmacologic Management

- The need for pain management and sedation will be reassessed and documented daily.
- Assess and Treat Pain first before administering sedatives.
- Common causes of agitation and anxiety in ICU patients include untreated pain, delirium, hypoxemia, hypoglycemia, hypotension, or withdrawal from alcohol and other drugs.
- Maintain light level of sedation that allows ICU patients to interact in a meaningful way, without agitation. This is associated with numerous improved clinical outcomes
- Benzodiazepines are associated with worse ICU outcomes than sedation with non-benzodiazepines (propofol or dexmedetomidine). Benzodiazepines, however, are first line therapy for ETOH and drug withdrawal, seizure activity, and can be used for anxiolytic properties.
- Anti-psychotics (haloperidol) may be used in delirium, with conflicting evidence at present whether they prevent delirium or shorten its duration. Atypical anti-psychotics (quetiapine) may shorten delirium in the ICU.

Clinical Assessment Tools

ICDSC Scoring System

The scale is completed based on information collected **every 12 hours and PRN**.

If ICDSC Score negative (i.e. 3 or less), complete ICDSC every 12 hours

If ICDSC Score positive (i.e. 4 or greater), complete ICDSC every 6 hours

- Obvious manifestations of an item score 1 point
- No manifestation or no assessment possible scores 0 points

Delirium is present if the total score is 4 or more points.

Source: Bergeron N et al. Intensive Care Med 2001; 27: 869-64

Last Revised: May 2018 by CCSCN Delirium Initiative- ICDSC Working Group

Resources

Daily Discussion (Rounds) Checklist

- RASS target / goal
 - Definition - Richmond Agitation Sedation Scale. Likert scale from -5 to 4 rating the level of sedation and agitation of a patient. Is to be scored every 6 hours and prior to the use of narcotics or sedatives
- Pain management strategy
 - Definition - Presence and absence of pain and if pain management is effective
- Sleep strategy
 - Definition - A strategy to promote sleep by improving sleep hygiene: dimming lights, decreasing noise, use of sleep aids such as ear plugs and sleep masks. Pharmaceutical aids may be considered when non-pharmaceutical measures are unsuccessful
- SAT Strategy
 - Definition - Spontaneous awakening trial: all sedation is stopped daily to allow the patient to waken for assessment of appropriateness for weaning to extubation
- SBT Strategy
 - Definition - Spontaneous breathing trial: after all sedation is held the patient is placed on minimal ventilatory support using either a unit specific or provincially vetted protocol to determine appropriateness of extubation. If passed, the patient is to be extubated expeditiously.
- Mobility Strategy
 - Definition - The plan, as discussed on daily rounds, for mobilizing the patient to the full extent that the patient is capable.
- Restraint Use discussion
 - Definition - As per provincial mandate, minimal use of restraints.
- Family present at rounds
 - Definition - Whether the family is present during the rounds on their family member. The goal is a family and patient centered care plan where the family is present when the plan is formulated and have the opportunity to ask questions and contribute to the discussion. At the time of rounds, family education will also occur.

Non Pharmacologic Delirium Prevention and Management

Each patient and situation is unique, therefore adaptations may be required as determined by the interdisciplinary team. Samples of non-pharmacologic delirium prevention and management protocols:

LEVEL		1	2	3	4
Criteria	RASS Score	-5 to -2	-2 to -1	-1 to +1	+2 to +4 ⁷
Bed Mobility		Turns Q2H Encourage patient participation in repositioning	Turns Q2H As per Level 1, add in scooting or bridging	Turns Q2H As per Level 2, focus on patient participation and independence	Attempt to find a comfortable resting position
Mobilization Refer to exclusion criteria		HOB ≥ 45° for 30-60 minutes BID Support patient as needed to achieve midline positioning of head and trunk	HOB ≥ 60° or full bed-chair position for 30-60 minutes, BID-TID <i>Dangle or use tilt table as directed by PT</i>	As per Level 2, plus: Daily dangles Sitting in W/C up to 2hrs <i>Not able to lift legs vs. gravity → Consider use of lift and sling⁵</i> Able to lift legs vs. gravity → Progress to standing, transfers to chair or W/C and ambulation with appropriate aids	Discuss risks versus benefits of mobilization as a team
Exercise program		PROM daily Coordinate treatment time for Patient to be in a more upright position	As per level 2, progress to AAROM as able <i>Consider including breathing, stretching or other exercises as directed by PT</i>	As per Level 2, plus: AROM/resisted exercises <i>Sitting balance exercises</i> <i>Standing balance activities</i> <i>Consider trips off unit or to rehabilitation department</i>	N/A
Environment		Reduce noise at night (22:00-06:00 hrs) Lights ON during the day Lights OFF at night (22:00-06:00 hrs)	As per level 1, plus: Promote normal sleep patterns Apply earplugs if noise is disruptive to sleep	As per level 1 & 2, plus: Provide Patient with access to environmental controls (ex: remote)	As per level 1 & 2
Cognitive/Sensory Stimulation		Increase stimulation during the day to promote wakefulness (ex: music, visitors)	As per level 1, plus: 1-2 familiar items and pictures visible in room Non-verbal music Movies	<i>Adaptive writing aids</i> Stimulating activities ⁶ Patient preferred music/ movies Transfer the patient into wheelchair for off-unit trips (use lift and sling as needed ⁵)	Familiar items Music for relaxation
Orientation		Calendars in room ² Provide and apply visual and/or hearing aids if appropriate	As per level 1, plus: <i>Orient to communication devices³</i>	As per level 2, plus: Provide daily schedule	As per level 1 & 2
Activities of Daily Living		N/A	Collaborate to establish routine ⁴	Follows commands → ADLs in bed/bed chair with set-up and supervision Sits unsupported → ADLs at edge of bed with set-up and supervision If weight bearing → Transfer to commode for toileting <i>ADLs adapted as needed</i>	N/A

RASS = Richmond Agitation Sedation Scale; ROM = Range of Motion; Q2H = Every 2 hours; HOB = Head of bed; BID = Twice daily; N/A = not appropriate; PROM = Passive range of motion; ADLs = Activities of daily living; TID = Three times daily; W/C = wheelchair; PT = Physiotherapist; AAROM = Assisted active range of motion; AROM = Active range of motion; OT = Occupational Therapy *italicized* is a rehab (OT, SLP or PT) specific role

Sleep Promotion Strategies

Light Reduction	Noise Reduction	Coordination of Care	Comfort Measures
<ul style="list-style-type: none"> ◆ 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 	<ul style="list-style-type: none"> ◆ Turn cardiac monitor to sleep mode if the patient is a Q Shift assessment <ul style="list-style-type: none"> ○ Except for rooms 13/14/25/26/28 as the central monitor is too far from the patients room ◆ Offer earplugs for patients ◆ Close doors to patient room ◆ Keep noise and hallway conversations at low volume ◆ Use overhead pages sparingly ◆ Assess alarm limits and silence alarms prior to performing a procedure (e.g. suctioning, turning) ◆ Decrease IV pump alarm volume ◆ Discontinue EVAC tube suction from 2200-0600h ◆ Yankauer suction to be turned off 	<ul style="list-style-type: none"> ◆ Mobility event between 1900-2200h ◆ Bed bath completed prior to 2200h ◆ Coordinate and cluster overnight care with RT and family to minimize interruptions ◆ Adjust medication administration times (bid, tid, qid) to minimize interruptions <ul style="list-style-type: none"> ○ Consult with Physicians/ NP/Pharmacist in next rounds if unsure about adjusting certain meds ◆ Create care plan for patients with LOS > 7 days 	<ul style="list-style-type: none"> ◆ 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 (e.g. quadriplegic, ulcers)

Care Bundle E: Early Mobility and Exercise

Clinical Practice Expectations

- a. Each unit should establish their own specific relative and absolute contraindications to mobilization:

Examples:
Neuro-critical care unit – Increasing intracranial pressure
Cardiac critical care unit – Sternal precautions
- b. Daily discussion of ICDSC score, risk factors, and prevention and delirium management strategies within multidisciplinary team
- c. Patient's current level of mobility, attempts at progression and barriers to mobilization should be discussed each day at rounds
- d. Default activity for patients should be Activity As Tolerated unless otherwise ordered
- e. Target 3 mobility events in 24hrs; two mobility events ideally should occur during the daytime and one in late evening

Definition:

(Mobility= PROM, AROM, BADLs, chair bed, dangle, sit, stand, march, walk, cycle, etc.)

Sample mobility protocols are provided, see **Resources**

Key Clinical Considerations

- Early mobilization of all critically ill patients is essential to facilitate patients in returning to their pre-hospital function. Early mobility benefits patients by reducing ICU length of stay, decreasing delirium days, decreasing ventilator days, and improving overall physical and mental function. The primary goal of early mobility is to maintain a patient's functional ability and prevent complications as much as possible while in ICU.
- Mobility guidance is designed to facilitate mobilization of ICU patients as early as possible after admission. It outlines expectations for progression, delivery and evaluation of mobility activities, and assists the ICU inter-professional teams to consistently and safely, deliver mobility to all patients in the ICU.
- Mobility guidance should be applicable to all patients and tailored specifically to meet the needs of the patient.
- Only patients having absolute/relative contraindications to mobility should be excluded.
- Each unit should establish their own specific relative and absolute contraindications.
 - I.e. Mobilization of patients on sternal precautions
 - I.e. Mobilization of neuro patients to avoid increasing intracranial pressure (ICP)

- Mobilization should start on admission unless there are absolute contraindications to doing so. Screening and assessment for appropriate mobilization should be started as soon as possible.
- Do not wait for the patient to become conscious to initiate early mobilization. Passive ROM exercises may be initiated very early after admission and do not require active participation of the ICU patient.
- Attempts to get the patient in a chair position (in or out of bed) should be made as soon as clinically possible for core strength maintenance.
- Every day, a patient's strength, ability and mobility level should be assessed early in the day and a mobility plan developed collaboratively by the RN, PT/OT, and RT (where applicable).
- Goal is a minimum of 3 mobility events every 24 hours, during waking hours and appropriate for each patient's functional mobility. Two mobility events ideally should occur during the daytime and one in late evening.
- This reflects normal ADLs, tires the patient thereby improving sleep patterns, and may decrease need for nightly PRN sedation.
- Mobility resources on day shift should be maximized to "challenge" the patient to the next level of mobility.
- Goal attempts are made every day to progress patients further in mobility.
- Where possible, patients should be encouraged to take active role in their own ADLs/AM/PM care and q2h turns. Be creative!
- Early mobilization requires the collaborative efforts of many disciplines, working together each day to continuously assess, challenge and remove barriers to mobility. Essential partners in early mobility include: Physiotherapists, Occupational Therapists, Respiratory Therapists, Registered Nurses, Nursing Attendants/Mobility team, Nurse Practitioners, and Intensivists. Early consultation of PT/OT team members where applicable is essential to successful mobility.
- Patients and family engagement and participation in mobility are essential. Family should be encouraged to take an active role in helping the patient perform ADL's, mobility events, and patient reorientation.
- It is not the amount of time a patient sits in a chair that's important, but the transfer activities, ambulation and movement to and from the chair that counts the most.

Mobility events may include:

In Bed Mobility

- Range of Motion (ROM) - passive or active, strengthening exercises
- Basic activities of daily living (BADL) - functional & meaningful tasks
- Sitting position- in bed (Chair bed position)

Out of Bed Mobility

- Dangle (sitting on edge of bed)
- Sitting position- out of bed
 - (Stretcher chair, regular chair, wheelchair or other specialty chair)
- Transfer out of bed activities
 - (Use of lift, 1vs 2 person)
- Standing the patient Marching in place at bedside
- Ambulation (walking with aids/assistance or independently)

Consider:

- Can the patient bridge?
- How can the patient help with turns?
- What did the patient do yesterday?
- How and what can we do to progress the patient further today?
- What are the barriers to mobilization?
- How can we overcome these barriers?

Safety Considerations for Mobilization

Vital signs and oxygen levels are monitored throughout mobilization to ensure patient stability and to guide safe progression of mobility activities.

HR (including cardiac rhythm)

RR

Blood Pressure (MAP, SBP, and DBP)

O₂ saturation

FiO₂ and PEEP requirements

Example:

- Take preventative measures to minimize hypoxic events.
- Daily consultation with Respiratory Therapy when creating the daily mobility plan and how to best prevent decreased SaO₂ during mobility.
- Consider providing supplemental oxygen prior to and post early mobilization to ensure safe and successful mobilization.
- If patient is on a spontaneous mode of ventilation (ex. CPAP), consider providing a rest period of AC ventilation before and after early mobility, or increasing amount of pressure support if on PS ventilation.
- Reposition regularly when patients are sitting up in a chair for longer periods of time and use appropriate seat cushions to maintain good skin integrity.
- Each unit should use the provincial mobilization tool or establish their own unit

specific safety parameters for early mobility (relative or absolute contraindications)

- Cognition (sedation, delirium, sleep)
 - Pain Management
 - Foot wear (shoes, slippers, socks with rubber grip)
 - Psychosocial (depression, anxiety)
- The primary RN should begin/initiate daily coordination of the inter-professional team as early in the day as possible to establish a safe mobility plan.
 - Daily mobilization will require the collaborative efforts of all members of the multidisciplinary team, but especially RN's, RT's, PT and other mobility resources.
 - Effective and regular communication of the team will ensure mobility events are
 - Accomplished as well as all the other essential activities (upcoming procedures, DI exams, q2h turns, OR's).
 - Use communication tools such as whiteboards inside patient's room to communicate daily mobility plans and mobility progression to all members of the multidisciplinary team, patient and family members.

Include information such as:

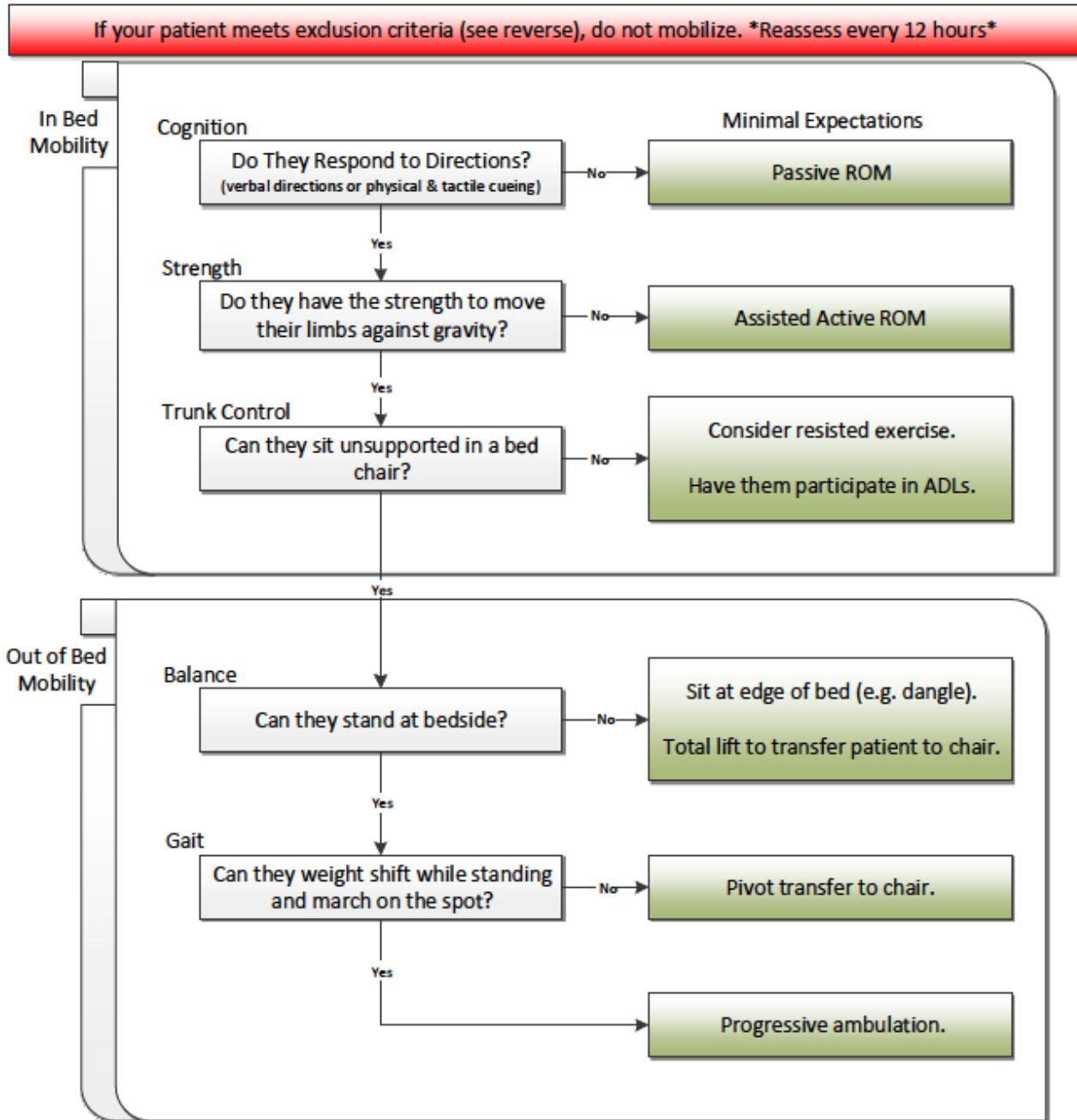
- Date
- Names of RN/RT/OT/PT/SLP
- Mobility plan

Also consider communicating:

- Mobility level if applicable
- Patient tolerance of mobility (how long it took; and how many people it took to complete the event).
- Mobility restrictions. (e.g. weight bearing to leg/arm; post joint replacements (hips, knees, shoulders)
- Other important instructions

Clinical Assessment Tools

Readiness for Safe Mobilization



Targets

- Assess mobility ASAP after patient admission (PT/OT/RN shared responsibility)
- Optimize patient to target RASS to enhance readiness to mobilize.
- **Goal is 3 mobility events per day (morning, afternoon, evening)**
- **Coordinate with multidisciplinary team – create and communicate goal. Discuss daily.**
- **Falls Risk Management strategies should be implemented on all patients, with a falls risk assessment completed daily and prior to any out of bed mobilization events.**
- Consult PT and/or OT for assistance with complex mobility scenarios (gait aides, mobility concerns, etc.)
- Re-evaluate daily and establish plan for progression.
- Document assessment, goal and mobilization appropriately.

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Mobility Contraindications

Contraindications for In Bed Mobility

- requires significant and / or escalating doses of vasopressors for hemodynamic stability
- is experiencing acute cardiac event (unstable dysrhythmia, ischemia)
- requires significant and /or escalating respiratory support.
- is experiencing acute agitation posing an extreme safety risk
- is experiencing major active bleeding

Contraindications for Out of Bed Mobility

- *meets any contraindications for in bed mobility*
- has an unstable or high risk airway
- requires neuromuscular paralytic agents has an acute neurologic event (e.g. stroke, intracerebral hemorrhage)
- is experiencing uncontrolled pain despite intervention
- has an unstable spine or extremity fracture
- has a grave prognosis and is transitioning to comfort care
- has an open abdomen with a risk for dehiscence
- has an open chest
- has an order for “bedrest” with specific rationale

Any of the above will require reassessment for mobility every 12 hours

Contraindications to general ICU mobilization may pertain to in bed or out of bed mobilization activities, or both. These exclusion criteria may be used in conjunction with individual site specific contraindications and will not supersede the use of sound clinical judgement.

Definitions/Examples

Passive Range of Motion (ROM): means you move their limbs for comfort, skin and joint health. You do all the work. Example: Usually this is manual. Flex and extend elbows, hips and ankles as appropriate. PTs can provide advanced options such as functional electrical stimulation (FES) or continuous passive mobilization (CPM).

Notes: Be gentle with shoulders (rotator cuffs) and be cautious with patients on paralytics (joint protection).

Assisted Active ROM: means you help with movements but the patient is using their muscles. You're the helper. Example: The patient pulls their knees toward their chest ... you help take some of the weight of the leg and control the movement. Options such as pulleys, FES, eBike, and others can be used at this stage.

Notes: The focus is on active patient participation. Consider trying basic ADLs such as face washing as an exercise.

Resisted Exercise: means the patient does all the work and we add resistance to enhance the effort required. Example: The patient performs exercise against the resistance (e.g. therabands, a yard stick, putty, saline bags, dumbbells). Important functional activities such as bridging and core strength exercises can be helpful.

Notes: Tailor the exercise to the tolerance of the patient and encourage successes/progression.

Pivot Transfer means the patient carries their weight as they shift to a chair or bed without moving their feet. Example: The patient may place their hands on your shoulders and rotate from the bed to a chair beside the bed. Notes: Provide assistance and use equipment (e.g. sling and track) as the patient needs.

Progressive ambulation means the patient starts with steps in a safe environment and advances toward walking. Example: The patient takes some steps supported by an overhead sling. Eventually when they can carry their weight, their balance is sufficient, and they can advance their feet, they may walk with a transfer belt and a walker on the unit.

Notes: Work with your team (PTs, OTs, RTs, others). That said mobility in the ICU falls within the RN's scope of care.

Be aware of falls risk management strategies.

References

1. Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation- Sedation Scale: validity and reliability in adult intensive care patients. *Am J Respir Crit Care Med* 2002; 166:1338-1344.
2. Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S et al. Monitoring sedation status over time in ICU patients: the reliability and validity of the Richmond Agitation Sedation Scale (RASS). *JAMA* 2003; 289:2983-2991.
3. Early Mobility Minimum Expectations Final November, 2015 D. Dyjur RN, J. Devries PT, W.Tung PT, S.Slater RN, Dr. A Sobey; A. Cunningham OT
4. Engel H, Needham D, Morris P, Gropper M. ICU Early Mobilization: From Recommendation to Implementation at Three Medical Centers. *Crit Care Med.* 2013;41(9);S69-S80
5. Ely W. The ABCDEF Bundle: Science and Philosophy of How ICU Liberation Serves Patients and Families. *CCM* 2017;45(2); 321-330.

Acknowledgements

We would like to acknowledge the contributions of the clinicians who participated in the development of this topic. Your expertise and time spent are appreciated.

Name	Title	Zone
<i>Knowledge Lead</i>		
Dr. A Sobey	Physician	Provincial
<i>Topic Lead</i>		
Dr. A. Sobey	Physician	Provincial
<i>Working Group Members</i>		
	Provincial Delirium Working Group	Provincial
<i>Clinical Support Services</i>		
Margaret Ackman	<i>Pharmacy Information Management Governance Committee (PIM-GC) on behalf of Pharmacy Services</i>	Provincial
James Wesenberg	<i>on behalf of</i> Laboratory Services - Provincial Networks	Provincial
Bernice Lau	<i>on behalf of</i> Diagnostic Imaging Services	Provincial
Carlota Basualdo-Hammond & Marlis Atkins	<i>on behalf of</i> Nutrition & Food Services	Provincial
<i>SCN or Provincial Committee</i>		
	<i>Critical Care Strategic Clinical Network Core Committee</i>	Provincial
<i>Clinical Informatics Lead</i>		
Ja-Neen Simmie	<i>Registered Nurse</i>	Provincial