

Provincial Clinical Knowledge Topic

Delirium, Seniors – Inpatient

V 1.1

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Document History

Version	Date	Description of Revision	Revised By
1.0	September 2017	Document complete	Heidi Schmaltz
1.1	December 2017	Small revisions to acetaminophen dosing, infusion and DI orders.	Heidi Schmaltz Frances Carr

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 for seniors (typically aged 65 years and older, with some exceptions) in acute care. Clinicians applying these recommendations should, in consultation with the patient, exert independent professional 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, Appropriate Use of Antipsychotics initiative etc.

This topic is based on the following guideline(s) with consideration of newer data where relevant (please see full list of references at the end of this document):

1. [2014 CCSMH Guideline Update: The Assessment and Treatment of Delirium](#)
(The 2014 CCSMH guideline update specifically addressed the new evidence [and limitations thereof] for pharmacotherapy for the prevention and treatment of delirium. The 2014 update did not revise the entire 2006 guideline [e.g. with respect to non-pharmacological management] and thus is intended as a companion document.)
2. [National Guidelines for Seniors' Mental Health: The Assessment and Treatment of Delirium \(2006\)](#)
3. [The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults](#)
4. [Delirium Clinical Care Standard \(2016\)](#) from Australia

Rationale

What is Delirium? – see **CAM (Confusion Assessment Method)** which operationalizes DSM5 criteria

- Acute (hours to days) change in cognition and inattention with fluctuating severity throughout the day, with disorganized thinking and/or altered level of consciousness.
- Change in status must also not be better explained by a pre-existing condition.
- Often supported by evidence from history, physical examination and laboratory findings of another medical condition and/or intoxication/withdrawal from a toxic substance (illicit drug/medication).¹
- Can be considered an “acute brain injury”¹ or “acute brain failure”, a multifactorial syndrome analogous to acute heart failure.²

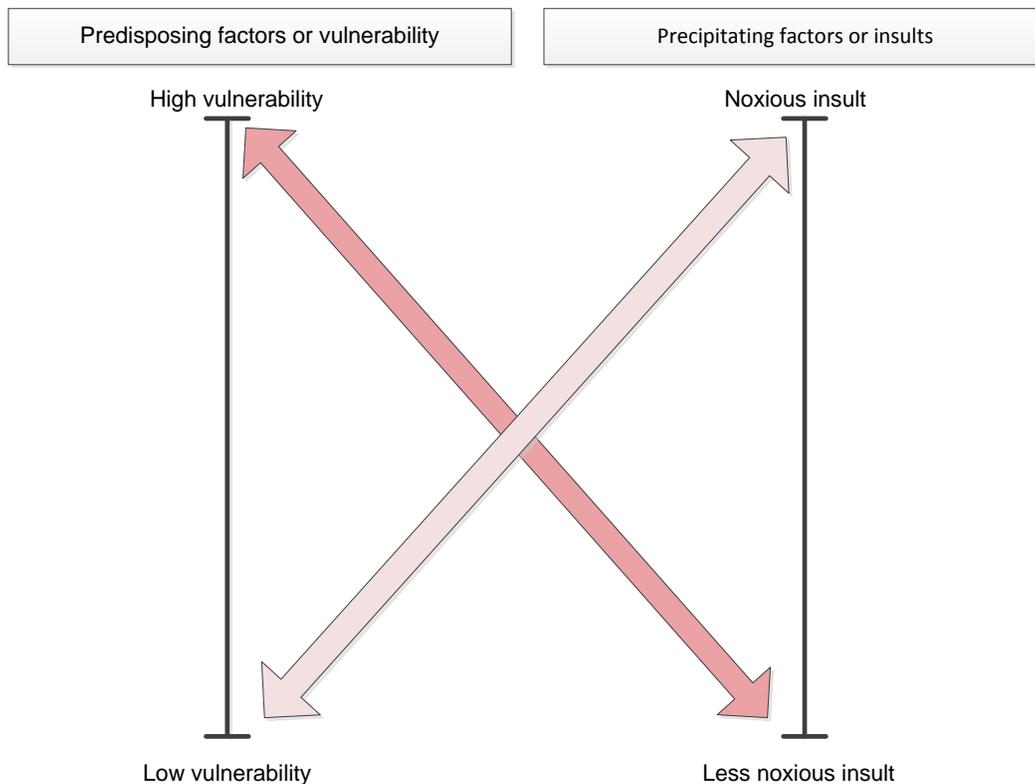
How common is Delirium?

- Up to 50% of hospitalized older patients.^{3,4}
- Up to 80% of older ICU patients experience delirium.^{5,6}
- Approximately 80% develop delirium in the terminal phase of life.⁷
- Delirium onset may occur prior to hospital and/or emergency room presentation with an estimated prevalence of 8-17% among all older adults, and 40% of nursing home residents in emergency departments.²

Who is at risk for Delirium?

- Delirium risk increases with age; all older adults over the age of 65 are considered at risk.
- The greater the underlying vulnerability from increased number/severity of predisposing risk factors, the smaller the precipitant required to trigger delirium (graphically represented in [Figure 1](#)),
 - Predisposing risk factors or vulnerabilities include: age, dementia or other causes of cognitive impairment, depression or other mental illness, complex medical comorbidities, polypharmacy, anticholinergic burden of medications, functional and/or sensory impairments and frailty (see [Table 1](#)).
 - Frailty is a concept used to describe an older adult’s vulnerability or resilience (see also [Frailty, Seniors – Acute Care Clinical Knowledge Topic](#) [in development] for additional information).
 - Precipitating factors or insults can include: acute illness, surgery, certain medications, dehydration, malnutrition, and iatrogenic events like urinary catheterization and restraint use. (see [Table 1](#))

Figure 1. Multifactorial Model of Delirium in Older People



Onset of delirium is dependent on a complex interaction between the patient's baseline vulnerability (predisposing factors) and precipitating factors or noxious insults occurring prior to or during hospital admission. The greater the underlying vulnerability from predisposing risk factors, the smaller the precipitant required to trigger delirium.

Adapted from Inouye SK et al, Lancet ²

Table 1. Predisposing and Precipitating Risk Factors for Delirium^{8,9,10,11}

	Patient Characteristics	Environmental Factors	Medical interventions
Predisposing Risk Factors	<ul style="list-style-type: none"> • Age (greater than 65) • Male sex • Impaired functional status • Vulnerable brain (dementia, pre-existing cognitive impairment, prior stroke/TIA [transient ischemic attack], psychiatric illness, substance abuse, previous delirium, previous head injury) • Medical comorbidity • Functional and/or Sensory impairment (decreased vision, hearing) • Elevated blood urea nitrogen • Depression or other mental illness • Frailty 	<ul style="list-style-type: none"> • Unfamiliar or changing environment • Stressful environment (noisy, inappropriate lighting, interrupted sleep) • Isolation, windowless rooms, sensory deprivation 	<ul style="list-style-type: none"> • Polypharmacy (greater than three medications) • Psychotropic, or sedating medications • Anticholinergic medications and total anticholinergic burden

Precipitating Factors	<ul style="list-style-type: none"> • Trauma/fracture • Acute illness (including infections, ischemia, metabolic disturbances structural changes, seizure), especially if illness is severe/terminal • Poor oral intake (malnutrition, dehydration) • Alcohol / drug withdrawal / intoxication. 	<ul style="list-style-type: none"> • Use of physical restraints 	<ul style="list-style-type: none"> • Any iatrogenic event (including medications, catheters, restraint use, IVs) • Surgery
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What is the mechanism or pathophysiology of Delirium?

- The exact mechanisms and pathophysiology is not entirely clear.
- There is evidence supporting acetylcholine deficiency^{12,13} in addition to probable imbalances in other neurotransmitters (e.g. melatonin, dopamine, serotonin, cortisol, norepinephrine, glutamate and GABA).⁴

What is the clinical presentation and course of Delirium?

- Delirium is often missed because of its fluctuating nature.
- Delirium may be the only presenting symptom of an underlying illness.
- Delirium can present as hypoactive, hyperactive, or mixed.
 - Hyperactive delirium is the most recognized form, presenting with psychomotor agitation, heightened anxiety, increased vigilance and/or hallucinations.
 - Hypoactive delirium may be under-recognized, since patients may have reduced psychomotor functioning, appear lethargic or have low affect.
 - The mixed form fluctuates between hyper- and hypo-active delirium.¹⁴
- Delirium has a spectrum of severity.¹⁵
 - Patients with one or more of the symptoms of delirium who do not meet full DSM-defined criteria (not Confusion Assessment Method positive) for delirium are at the milder end of the spectrum, often referred to as subsyndromal delirium (SSD).
 - SSD has outcomes that lie between those of delirious and non-delirious patients.^{16,17}
 - Uncertainty remains about SSD diagnosis, usefulness, and management.¹⁸
- Many patients recover, but delirium increases the risk of new or worsening cognitive impairment, functional decline, institutionalization and death, particularly in patients with co-morbid depression and/or dementia.^{19,20}
- The speed and trajectory of recovery may vary, resolving within the same admission, or taking months to fully resolve.
 - A longer duration of delirium is associated with pre-existing dementia, multiple morbidity, increasing delirium severity, hypoactive symptoms, and hypoxia.²¹
 - A longer duration of delirium increases the risk of bad outcomes, including a new cognitive baseline, adding to the urgency to diagnose and treat the underlying causes.⁷

How does Delirium differ from Dementia and Depression? (see Table 2)

- In older individuals, the symptoms and signs of dementia and/or depression may overlap with delirium.
- When in doubt, for example, when baseline cognition is unclear and/or if there is an acute change in level of consciousness, it is always safer to assume delirium is present and treat the patient accordingly.¹

Table 2. Comparison of Depression, Delirium and Dementia²²

	Depression	Delirium	Dementia
Definition	A change in mood which lasts at least 2 weeks and includes sadness, negativity, loss of interest, pleasure and/or decline in functioning.	An acute or sudden onset of mental confusion as a result of a medical, social, and/or environmental condition.	Progressive loss of brain cells resulting in decline of day-to-day cognition and functioning. A terminal condition.
Duration	At least 6 weeks, but can last several months to years, especially if not treated.	Hours to months, depending on the number and reversibility of predisposing/precipitating factors, and the speed of diagnosis.	Years (usually 8 to 20).
Thinking	May be indecisive and thoughts highlight failures and a sense of hopelessness.	Fluctuates between rational state and disorganized, distorted thinking with incoherent speech.	Gradual loss of cognition and ability to problem solve and function independently.
Mental Status Testing	Capable of giving correct answers, however often may state "I don't know."	Testing may vary from poor to good depending on time of day and fluctuation in cognition. Impaired attention is a key feature.	Will attempt to answer and will not be aware of mistakes. Fluctuations in Lewy Body Dementia is a unique feature.
Memory	Generally intact, though may be selective. Highlights negativity.	Recent and immediate memory impaired.	Inability to learn new information or to recall previously learned information. Long term memories may be intact late into the disease.
Sleep-wake Cycle	Disturbed, usually early morning awakening.	Disturbed. Fluctuating level of consciousness.	Normal to fragmented.
Hallucinations and Delusions	Can be present in a severe depression. Themes of guilt and self-loathing.	Often of a frightening or paranoid nature.	Can be present. May misperceive. In Lewy Body dementia, visual hallucinations are present earlier.
Diagnosis	May deny being depressed but often exhibit anxiety. Others may notice symptoms first. Increased complaints of physical illness. Social withdrawal is common.	Diagnosis based on rapid onset of fluctuating symptoms. Can be mistaken for progression of the dementia.	Usually diagnosed on average 3 years after onset of symptoms. Must rule out other causes of cognitive decline, e.g., depression or delirium.

Adapted from *The 3 D's*. Island Health; 2014. Available at: <http://www.viha.ca/NR/ronlyres/4B26D86A-80A9-4F73-AE0D-D39B0610FCF6/0/3d.pdf> . Accessed June 27, 2017.

What are the consequences of Delirium?

A longer duration of delirium increases the risk of bad outcomes, adding to the urgency to diagnose and treat the underlying causes.⁷

Patient outcomes:

- Increased morbidity and mortality; mortality risks post-delirium are comparable to that post-acute myocardial infarction.^{13,23,24,25}
- Increased risks of complications including falls, aspiration, pressure ulcers, deconditioning.²⁶
- Distress for patients, family, and caregivers.²⁷
- Consequences of delirium may persist even after it has resolved, with an increased risk of future delirium, cognitive decline or dementia, and/or acceleration of an underlying cognitive disorder.²⁸
 - In some cases, delirium can become chronic, or the patient may be left with subsyndromal delirium, and/or a new cognitive baseline.

Healthcare utilization:

- Increased length of stay in acute care²⁹
- Some seniors do not return to their pre-hospital level of functioning and may develop more intensive care needs and/or admission to higher levels of care (e.g. supported living/long-term care).³⁰
 - American patients with delirium incurred average daily costs over 2.5 times the cost of patients without delirium.²⁶
 - The annual direct healthcare system costs attributed to caring for patients with delirium is estimated in the tens of billions of dollars nationally, potentially as much as \$150 billion in the United States.²⁶

What is the treatment for Delirium?

- No currently known treatment for delirium itself; the focus of treatment should be towards treating the underlying precipitating factors of the delirium.
- Delirium management involves treating precipitating factors and preventing complications. (see [Delirium Investigation and Management Orders](#))
- Prevention is more effective than treatment of delirium. (see [Delirium Prevention Orders](#))

How can delirium be prevented?

- Delirium is preventable in 30-40% of cases.²
- In patients with hip fractures, the use of a multicomponent prevention strategy showed a significant reduction in delirium, with a number needed to treat of 7 to prevent one case of delirium (95% CI 4–20).³¹
 - This is significantly lower than other more common preventative measures, such as the use of statins to prevent fatal/non-fatal coronary events, which require much higher numbers of patients to be treated to achieve the desired results (NNT 12-49).³²
- The most effective preventative interventions are inter-disciplinary, and include multiple components aimed at reducing predisposing risk factors and avoiding precipitating factors. (see [Table 1](#))
- Successful interventions include: orientation and early mobilization strategies, optimizing sleep, minimizing use of high-risk medications (such as sedatives and antipsychotics), ensuring patients have access to adaptive equipment (glasses, hearing aids, dentures etc), providing a calm environment with avoidance of over and understimulation/noise, and adequate hydration.^{13,20,24,31}
- Interventions to prevent delirium are also considered "elder friendly care" and generally considered best practice in the care of older adults.

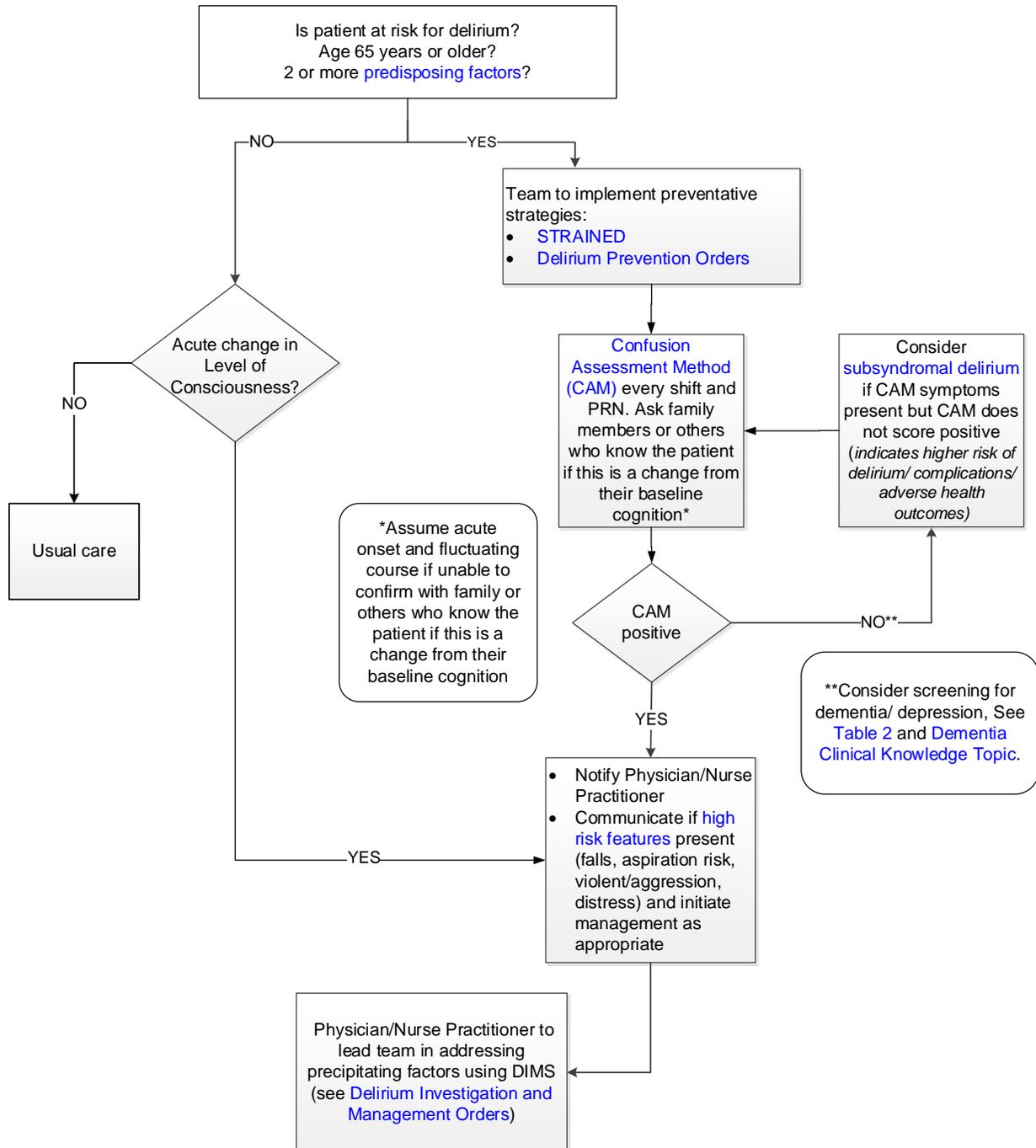
Goals of Management

1. To encourage the implementation of elder friendly care practices in acute care facilities, including patient and family-centered communication and education, to assist in preventing, coping with and recovering from delirium.
2. To increase awareness of delirium among patients, caregivers, and health care providers.
3. To screen patients at risk of delirium and implement preventive measures.
4. To optimize underlying predisposing risk factors of delirium as per current guidelines.
5. To identify and mitigate precipitating factors that are known to commonly cause delirium.
6. To proactively diagnose those that manifest signs and patient-specific symptoms of delirium.
7. To appropriately add investigations for less common precipitating factors of delirium when the initial screen is non-contributory and/or there is clinical suspicion.
8. To prevent and/or optimally manage the imminent complications of delirium including:
 - a. Patient suffering
 - b. Risk of dysphagia, aspiration, and nutritional risks
 - c. Deconditioning
 - d. Pressure injuries
 - e. Falls
 - f. Risk of harm to themselves or others
9. To ensure that a patient's discharge plan includes measures for:
 - a. Prevention and/or early intervention for patients at risk of delirium recurrence.
 - b. Management of delirium sequelae (e.g. safety plan, monitoring cognition and functional capacity for development of dementia).
 - c. Educating the caregivers and families that as delirium can be a poor prognostic factor, it justifies further discussions about future planning, advance care planning and goals of care.

Decision Making

Figure 2. Delirium: Screening, Prevention and Intervention

Further details of actions depicted in algorithm below are provided in links below and in additional supporting text (see after the CAM, STRAINED and DIMS tools).



Screening Tool: Confusion Assessment Method (CAM)

Table 3. The Confusion Assessment Method (CAM)³³

(1) Acute onset and fluctuating course

Is there an acute change from the patient's baseline as reported by family/caregiver/healthcare provider? Does the changed behavior alternate in clarity and confusion, come and go over time, increase or decrease in severity over time?

(2) Inattention

Does the patient have difficulty focusing on topic? Can the patient not count back from 10, recite months of year backward or spell WORLD backward?

(3) Disorganized thinking

Does the patient have rambling or incoherent speech? Do they unpredictably switch from subject to subject?

(4) Altered level of consciousness

Is the patient's level of consciousness hyperalert (agitated), drowsy, stuporous or comatose?

A diagnosis of delirium requires the presence of features 1, 2, and either 3 or 4

Adapted from: Inouye SK, van Dyck CH, Alessi CA, Balkin S, Siegel AP, Horwitz RI. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med* 1990; 113(12):941-8

Why use the CAM? ³⁴

- Easy to administer (5 minutes or less).
- Accurate
 - 86% Sensitive
 - 93% Specific
- High inter-observer reliability (Kappa >0.8) so can be done by any healthcare provider.
- Helpful at both ruling-in and ruling-out delirium:
 - +LR 9.6 (95% CI: 5.8-16)
 - LR 0.16 (95% CI: 0.08-0.29)

Use of the CAM

For optimal use, individuals should be trained on how to administer and interpret the CAM.³⁵

Table 4. STRAINED Acronym: For a team approach to primary delirium prevention and optimization of predisposing factors^{36,37}

Additional information is provided in [supporting text](#) (after the DIMS tool).

S	Surroundings	<p><i>Is patient's environment optimized to encourage self-care and reduce potential stressors?</i></p> <ul style="list-style-type: none"> • Provide calm & safe environment. • Ensure call bell and needed items are in reach. • Bed in low position; minimal bedrail use; avoid restraints. • Provide clocks and calendars and a readable white board (where available).
	Sensory	<p><i>Is patient's ability to understand their environment optimized?</i></p> <ul style="list-style-type: none"> • Ensure eyeglasses, hearing aids & dentures are working and used. • Consider pocket talker to assist with communication & assessment. • Optimize lighting to ensure diurnal variation.
	Sleep	<p><i>Is the team facilitating a normal day/night routine?</i></p> <ul style="list-style-type: none"> • Assess baseline day/night routine. • Assess current sleep patterns (consider sleep log or behaviour map). • During the day: encourage activity, minimize napping and keep lights on. • At night: implement non-pharmacological sleep promotion measures (warm milk; warm blankets; hand rub/comforting touch; low light/minimize noise).
T	Team	<p><i>Is continuity of care and familiarity of healthcare team maximized?</i> <i>Is the whole healthcare team involved in optimizing STRAINED within their scope of practice?</i></p> <ul style="list-style-type: none"> • Consistent staff as much as possible. • Encourage family/support persons to provide support.
R	Remove restraints	<p><i>Does the patient have physical and/or pharmacological restraints?</i></p> <ul style="list-style-type: none"> • Aim to remove unintentional restraints (e.g. indwelling catheters, IVs, monitors). • Explore alternatives to restraints. See AHS Restraint as a Last Resort policy. • Maximize functional status and safety. • Involve family members/support persons. • Consider behavioral mapping. • Initiate individualized care planning (see Dementia, Seniors Inpatient).
A	Activity	<p><i>Is the patient being encouraged to ambulate and perform activities of daily living?</i></p> <ul style="list-style-type: none"> • Use interdisciplinary interventions to support restoration of normal activity (e.g. volunteers/family; mobility/activities; familiar items/routines; calendar). • Maintain pre-hospital mobility. Unless otherwise ordered, get patient out of bed for meals. Progress to walk in hall three times a day. Encourage range of motion exercises.
I	Interaction	<p><i>Is the patient exposed to positive social interactions?</i></p> <ul style="list-style-type: none"> • Orient patient. • Comfort Rounds. • Encourage positive visits with friends and family. • Consider referrals to recreation therapy or friendly/volunteer visitors where appropriate (and available).
N	Nutrition	<p><i>Does the patient have features of poor nutrition/hydration? (albumin level is not an accurate reflection of nutritional status)</i></p> <ul style="list-style-type: none"> • Signs of dehydration. • Poor oral intake. • Fat and muscle wasting. • Swallowing difficulties. • Electrolyte abnormality. • Poor glycemic management (hypo or hyperglycemia present). • Weight on admission and weekly.

		<p>Is the team facilitating optimal nutrition and hydration strategies?</p> <ul style="list-style-type: none"> • Fluid intake at least 1500 mL in 24 hours (unless fluid restricted). • Assist patients who need help with meals as required. • Prepare patients to eat by sitting at 90 degrees and ideally up in chair. Ensure glasses and dentures in place. • See also Tips for getting patients ready for meals. • See also Tips to promote eating well in hospital. • Family to bring food that patient prefers. • Dietitian consult and ensure physician/nurse practitioner notified if: <ul style="list-style-type: none"> ○ Unintentional weight loss in last 6 months AND eating less than usual for more than a week pre-admission ○ Eating less than 50% of meals for greater than 24 hours in hospital • Refer for swallowing assessment if swallowing difficulties.
E	Elimination	<p>Does the patient have normal bladder function?</p> <ul style="list-style-type: none"> • Assess for urinary retention (post-void residual (PVR); use bladder scanner). <ul style="list-style-type: none"> ○ In/out catheterization if PVR greater than 250 ○ Notify physician/nurse practitioner if in urinary retention or poor urine output • Avoid in-dwelling catheter whenever possible and if present remove as soon as possible. • Evaluate fluid balance/output. • Promote regular toileting schedule (minimize use of incontinence products). • Ensure person is hydrated; offer fluids with every encounter.
		<p>Does the patient have normal bowel function?</p> <ul style="list-style-type: none"> • Assess Bowel Function: <ul style="list-style-type: none"> ○ Determine baseline bowel pattern ○ Determine last bowel movement ○ Look for abdominal distention • Treat abnormal bowel function: <ul style="list-style-type: none"> ○ For constipation initiate bowel regimen; aim for bowel movement every 48 hours ○ For diarrhea, hold bowel routine and discuss with physician/nurse practitioner
D	Distress	<p>Is the patient in pain?</p> <ul style="list-style-type: none"> • Assess for pain using scales (visual, numerical, Edmonton Symptom assessment system [ESAS] or PAINAD for non-communicative/severely cognitively impaired patients). • Use non-pharmacologic methods of pain control (e.g. repositioning, warm blankets/ compresses, ice). • Suggest regularly scheduled acetaminophen if not ordered. • Ensure breakthrough analgesia is given as needed. Assess the effect of as needed doses and ensure scheduled around the clock if using 3 or more doses per day. <p>Does the patient have psychological discomfort (e.g. anxiety/fear)?</p> <ul style="list-style-type: none"> • Reassess to ensure other aspects of STRAINED are addressed. • Arrange for social supports to spend time with patient (e.g. volunteer, family, spiritual care etc...).
	Drugs	<p>Could the patient have side effects, interactions or withdrawal from medications?</p> <ul style="list-style-type: none"> • Medication reconciliation on admission, at transfers of care and prior to discharge and watch for recent increases, decreases, or discontinuation of medications. • Medication review (consider pharmacy consult) to assess for high risk medications (opioids, benzodiazepines, antihistamines, anticholinergics), drug to drug interactions, drug to disease interactions and drug dosages. • Clarify alcohol and other substance use pattern prior to admission.

Table 5. DIMS Acronym: For assessment of precipitating factors in patients diagnosed with delirium
Although there is some overlap with STRAINED, DIMS outlines an approach for the physician/nurse practitioner to investigate and manage delirium. Further details provided in accompanying text [below](#).

D	Drugs	<p>Assess for side effects, interactions, intoxication or withdrawal from medications and/or other substances:</p> <p><i>*see points under drugs in STRAINED</i></p>
	Dehydration	<p>Assess: (*see also points under nutrition in STRAINED)</p> <ul style="list-style-type: none"> • Oral intake. • Risks for dehydration (thickened fluids, diuretics, inability to access water). • Consider medical factors affecting intake. See Tips for getting patients ready for meals.
I	Infection	<p>Ongoing monitoring for localizing signs and symptoms of infection:</p> <ul style="list-style-type: none"> • Consider Complete Blood Count • Monitor vital signs and compare to baseline (note: seniors may not get a fever or may have low temperature). <ul style="list-style-type: none"> ◦ An increase of 1.1 degree on 2 separate occasions may be significant.³⁸ • Assess pressure points for injury/ulcers. • Only request urinalysis/urine culture if there are localizing urinary symptoms or signs. <ul style="list-style-type: none"> ◦ Consider this algorithm from long term care: http://www.dobugsneeddrugs.org/wp-content/uploads/uti-checklist.pdf <p>Absence of pyuria by microscopic urinalysis makes urinary tract infection very unlikely.³⁹</p> <ul style="list-style-type: none"> • If there is clinical suspicion of chest infection, request a chest x-ray and blood cultures. • If there is clinical suspicion of meningitis, perform a lumbar puncture after ruling out raised intracranial pressure/space occupying lesion with head imaging. • Consider other sources of infection including feet or oral/dental.
	Ischemia	<p>Consider states of ischemia, hypoxia, or hypercarbia as contributors to delirium:</p> <ul style="list-style-type: none"> • Consider ECG • If history and physical exam consistent with potential myocardial infarction, pulmonary embolism, or respiratory dysfunction order appropriate investigations.
M	Metabolic	<p>Assess endocrine function:</p> <ul style="list-style-type: none"> • Check capillary blood glucose, TSH (unless normal result in past year and no signs/symptoms suggesting change in thyroid function) <p>Assess renal/metabolic function</p> <ul style="list-style-type: none"> • Check electrolytes, extended electrolytes (and albumin to correct calcium), creatinine, urea, Vitamin B12 (unless normal result in past year without significant new risk of deficiency) <p>Assess hepatobiliary function</p> <ul style="list-style-type: none"> • Check liver enzymes, liver function, lipase
S	Structural	<p>Assess for intracranial pathology (e.g. stroke, tumor, hemorrhage):</p> <ul style="list-style-type: none"> • Perform neurological exam to rule out focal findings. • If focal findings present, or prolonged delirium not yet diagnosed, consider CT head.
	Seizure	<p>Assess for signs/symptoms of seizures:</p> <ul style="list-style-type: none"> • History (convulsions, reduce level of consciousness, incontinence). • Physical examination (tongue biting, urine incontinence, post-ictal confusion). • If suspicion of seizures, perform EEG <p>Note: Rarely, patients may have subclinical seizures that present as inattention and/or confusion. If other causes of delirium have been ruled out, you may consider an EEG to rule out subclinical seizures.</p>
	Systemic Illness	<p>Assess for systemic illness that could contribute to an inflammatory response (e.g. hematologic disorders, rheumatologic disorders)</p>

Delirium Approach

1. Delirium screening:

- a. Screen all patients greater or equal to 65 years of age.
- b. Consider screening other patients with 2 or more predisposing risk factors. (see [Table 1](#))
- c. Use the [Confusion Assessment Method \(CAM\)](#) to screen for delirium.
 - i. It is crucial to obtain collateral information to accurately determine whether the patient's current state deviates from their **baseline** pre-admission cognitive function.^{33,40}
 - ii. If unable to verify baseline (pre-admission) cognition, assume acute onset and fluctuating course and follow the [Delirium: Screening, Prevention and Intervention](#) algorithm.
- d. For patients not meeting diagnostic criteria for delirium, continue to screen every shift until concerns subside.

Note: Any patient (even those without risk factors) that present with acute change in level of consciousness (LOC), whether hyper or hypo active, should be treated as CAM positive and managed according to the [Delirium: Screening, Prevention and Intervention](#) algorithm.

2. Team approach to preventing delirium in patients at risk:

- a. See [Delirium Prevention Orders](#).
- b. Optimize predisposing and mitigate precipitating factors as much as possible. (see [Table 1](#))
- c. Implement [Elder friendly care](#) initiatives into routine practice to create an environment suited to caring for vulnerable elders and less likely to cause delirium.⁴¹ (e.g. [Comfort rounds](#))
- d. Medication reconciliation on admission, discharge and transitions in care (see [AHS Medication Reconciliation Policy](#)) to review appropriateness of all current/past medications.
- e. Utilize the STRAINED acronym ^{36,37} (see [Table 4](#) for details: Surroundings, Sensory, Sleep, Team, Remove restraints, Activity, Interaction, Nutrition, Elimination, Distress).
- f. Consider specific measures to prevent critical care delirium. For example, Lighter sedation (see [Delirium, Adult - Critical Care Clinical Knowledge Topic \[in development\]](#)) and [The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults](#)).

3. Additional physician/nurse practitioner optimization of predisposing AND precipitating factors;

- a. Identify and mitigate precipitating AND predisposing risk factors for delirium as part of interdisciplinary team. (see STRAINED [[Table 4](#)] and DIMS [[Table 5](#)])
- b. Review and optimize medications **BEFORE** adding additional new medications:
 - i. Complete medication reconciliation, including reviewing appropriateness of past and current medications (if not already done).
 - ii. If adherence is uncertain, and/or in the presence of multiple over the counter medications, consider a Paper Bag Test (e.g. have someone bring all the containers of medications/supplements the patient would have had access to prior to admission for review).
 - iii. 3 or more new medications **OR** 5 or more medications in total increase the risk of delirium; determine whether they are all necessary at this time.
 - iv. Minimize the use of psychotropic, sedating, and/or anticholinergic medications.⁴²

- v. Watch for withdrawal of chronically used sedating, psychotropic and/or anticholinergic medications (e.g. alcohol, benzodiazepines, tricyclics) that may have been discontinued or tapered too quickly.
 - vi. Watch for drug-to-drug and drug-to-disease interactions, particularly with new medications added, patients who may not have been adherent prior to admission, or have changing renal/liver function.
 - vii. Monitor the use of as needed medications, particularly opioids, psychotropic, sedating and/or anticholinergic medications; optimize pain and other symptom control using maximum supportive measures and other less CNS active medications to minimize the use of opioids, psychotropic and anticholinergic medications.
4. General management of delirium:
- a. Manage reversible conditions and any precipitating factors contributing to delirium (see [Delirium Investigation and Management Orders](#)).
 - b. Identify the presence of high risk features (see below) and manage accordingly.
 - c. Avoid physical restraints and psychotropic medications as much as possible. (see further strategies below)
5. Management of irreversible, terminal or delirium in context of expected death:
- a. Consider whether the patient has an irreversible delirium, terminal delirium and/or delirium in the context of an expected death, in which case the emphasis becomes maximal symptom control rather than reversal of underlying causes.
Delirium becomes irreversible when:
 - i. A time-limited diagnostic and adequate therapeutic trial to reverse the delirium
 - Is inconsistent with patient and family goals of care, or
 - Fails to discover underlying etiologies of the delirium, or
 - Fails to reverse the delirium, even with the help of expert consultants

OR

 - ii. The underlying physiological processes are irreversible, e.g., end-stage organ failure or with imminent death (prognosis of hours to days).
6. Proactively screen and address the following **High risk features** of delirium as a team:
- a. **Risk of aspiration:** If signs or symptoms of dysphagia or decreased LOC
 - i. If patient has symptoms or signs of dysphagia (such as coughing/choking with food and/or beverages, froggy voice with intake), consider switching to a texture-modified diet until a swallowing assessment can be performed.
 - ii. Reassess administration of oral medications with responsible physician/nurse practitioner.
 - iii. Encourage appropriate hydration/nutrition, **but only allow oral intake if/when alert, upright and able to safely swallow** as level of consciousness will typically fluctuate in delirium.
 - iv. Notify responsible physician/nurse practitioner if level of consciousness and/or confusion is significantly interfering with safe oral intake of food, fluids and/or medications.
 - b. **Risk of falls:**
 - i. Perform a falls risk assessment and implement safety measures (such as scheduled toileting every 2-3 hours) to prevent a fall.
 - ii. Encourage patients to get out of bed as much as tolerated/allowed by their condition to maintain their mobility, aiming for walks in the hallway every day.

- iii. Avoid physical restraints including high bed positions and keeping all bed rails upright; instead, use other measures to prevent falls. (See [AHS Falls Risk Management Universal Falls Precautions](#))
 - iv. Avoid sedating medications, including atypical antipsychotics, as they increase the risk of falls.
- c. Violent/aggressive behaviours:**
- i. Avoid physical restraints as much as possible given the risk of increased morbidity and mortality.
 - ii. Optimize and utilize non-pharmacological behavior management strategies as a first line approach. (See [Appropriate Use of Antipsychotics \(AUA\) Toolkit, Dementia, Seniors – Inpatient](#) Clinical Knowledge Topic – section on behavior mapping and behavior management).
 - iii. If the risk of harm to the patient and/or others CANNOT be mitigated with non-pharmacological methods, AND by removal of potential offending medications or other reversible factors, ONLY THEN consider a short course of low dose of antipsychotic medications temporarily for aggressive behaviours.
 - Ensure the patient does not already take an antipsychotic medication and that there are no drug-to-drug interactions, no prolonged QTC etc.
 - Discuss the risks (including potential increased mortality and stroke) and limited benefits of these interventions with the patient’s decision-maker. (See [Appropriate Use of Antipsychotics \(AUA\) Toolkit](#) and managing aggressive behavior in [Dementia, Seniors – Inpatient](#) Clinical Knowledge Topic and AHS [Restraint as a Last Resort](#) policy)
 - iv. Do NOT add benzodiazepines (especially parenteral benzodiazepines) for aggressive behaviour as they can worsen delirium; the only clear indication for benzodiazepines is for prevention or treatment of benzodiazepine withdrawal (if chronic use) OR symptomatic alcohol withdrawal.
- d. Severe Distress:**
- i. Optimize non-pharmacological interventions, including collaborating with the patient’s family, friends and caregivers wherever possible for patient-specific interventions.
 - ii. Avoid restraints given their greater risks of morbidity, mortality and increased distress.
 - iii. Consider behavior mapping to facilitate care planning.
 - iv. ONLY consider a low dose of antipsychotic medication to temporarily ease suffering IF appropriate after other interventions fail AND **after** discussion of the risks and benefits of these medications with the patient’s decision-maker. This should be reassessed every 48 hours to ensure it is still required. (See AHS [Restraint as a Last Resort](#) policy and behaviour mapping in [Dementia, Seniors – Inpatient](#) Clinical Knowledge Topic).
 - Note: Black box warning of class effect of atypical antipsychotics causing increased risk of mortality and stroke in dementia; increasing evidence of cardiac risk of antipsychotics regardless of indication.⁴³
- e. Minimize antipsychotic use:**
- i. Antipsychotic medications used for off-label uses (including aggressive behaviour) should be discontinued prior to patient transfer to another service and/or discharge from hospital. If this is not possible, clearly indicate the need for ongoing reassessment of their use.⁴³

- ii. Patients with parkinsonism (including Parkinson's disease, Lewy Body dementia and other Parkinson-plus syndromes) who require a brief course of antipsychotics should cautiously use low dose quetiapine preferentially, as it is associated with lower risk of extrapyramidal symptoms when compared to haloperidol/typical antipsychotics as well as risperidone or olanzapine.^{31,32}
- iii. Parenteral antipsychotics (IM or IV formulations) carry additional cardiac risks and should be avoided; try other formulations instead (liquid risperidone, rapidly disintegrating risperidone or olanzapine, or PO doses mixed in food/ beverage).
- iv. Intravenous antipsychotics should not be used outside of a monitored setting - Refer also to Delirium, Adult - Critical Care Clinical Knowledge Topic (in development) document for specifics of delirium in that setting; note that the type and dosage of medications used in critical care units may be quite different from that appropriate in other settings.

Order Set: Delirium Prevention Orders

Order Set Components

Order Set Keywords: elder friendly, senior, confusion, older adult, geriatric

****Until further Elder friendly order sets are implemented, these orders are recommended for all older patients as well as other patients at risk of delirium (2 or more predisposing factors)**

Patient Care

- Diet order
 - Regular Diet
If significant weight loss, consider liberalizing diet and consult dietitian
 - High Protein High Calorie Diet
Order modifications for signs or symptoms of possible dysphagia and consider swallowing assessment by Speech Language Pathology or other site appropriate service.
 - Pureed Diet
 - Thick Fluids: Honey
 - Other _____

- Nutrition Communication
 - Eating:
 - Assist as needed
 - Goal: out of bed for meal
 - If less than 50% of meals eaten times 24 hours notify physician/nurse practitioner
 - Offer fluids with every patient interaction. Goal:1.5-2 L/day
 - Ensure patient is upright and fully alert during all oral intake and for 30 minutes afterwards
 - Notify physician/nurse practitioner if level of consciousness is limiting oral intake or medication administration
 - Swallowing Screen – Nursing
 - Other _____

- Activity
 - Weight bearing as tolerated
 - Ambulate at least daily progressing to at least _____ times daily (recommended three times per day) in hallway. Goal is to maintain pre-hospital mobility.
 - Encourage range of motion exercises

Monitoring and Fall Prevention

*****AVOID restraint use whenever possible *****

- Fall Risk Assessment and Fall Prevention
 - Fall Prevention Risk Assessment. Complete ON ADMISSION, after a fall and with status change.
 - Fall Risk Monitoring every 4 hours
 - Bed in low position
 - Minimize rail use
 - Call bell/personal items/walking aids/footwear in reach

- Remind patient to call for help verbally and by writing on patient's white board if available
- Comfort rounds every 2-3 hours: toilet; reposition, drink/snack. Pain? Warm enough?
- AVOID RESTRAINTS – use bed alarm

- Weigh patient
 - On admission
 - Daily
 - Weekly
 - Notify physician/nurse practitioner if weight loss greater than 5% within the last 6 months including during hospital admission

- Vital Signs (including respiratory rate, pulse, blood pressure, temperature, and oxygen saturation) **as much as possible, please try to avoid ordering vital signs that disrupt patient sleep at night**
 - TID while awake and PRN
 - Daily and PRN
 - every ___ hour(s) and PRN; call physician/nurse practitioner to re-evaluate after _____hours

- Intake and output
 - Monitor Intake - Oral (including amount of fluids and percentage of meals consumed) every shift

- Bladder assessment and management
 - Toileting/ Elimination. Goal: Maintain patient's pre-hospital toileting function. Scheduled toileting every 2 to 3 hours to keep bladder empty. Bedside commode only if necessary. Up to bathroom preferred.
 - Discontinue indwelling catheter. *Indwelling catheters are only recommended for patients with obstruction AND difficulty catheterizing, strict ins and outs, to protect serious perineal/sacral wound and for patient comfort at end of life.*
 - Bladder scan if no urine output in 8 hours. Notify physician/nurse practitioner of results.
 - Bladder Scan-Post Void Residual until 3 consecutive scans are less than 250 mL. Perform within 30 minutes of voiding to determine residual volume.
 - In-and-Out Catheter if bladder scan shows volume great than 250 mL and notify physician/nurse practitioner.

Delirium monitoring and preventative measures

- Confusion Assessment Method (CAM) every shift and PRN. If CAM positive, notify physician/nurse practitioner and discontinue regular CAM.
- Notify physician/nurse practitioner if patient has acute change in their level of consciousness or arousal and/or cognition and/or behaviour.
- Delirium prevention measures:
 - Orient patient to place/time each morning and PRN (as appropriate to baseline cognition); ensure updated calendar visible; glasses on, hearing aids in while awake. Optimize environment (low noise, light during the day, low light at night)

- Encourage patient to do own self-care (hygiene, grooming) to maintain independence.
- Ensure patients have access to sensory aids (glasses, hearing aids, dentures)
- Implement non-pharmacological sleep promotion measures (warm milk; warm blankets; hand rub; low light/minimize noise; calm approach; avoid caffeinated beverages)

Consider behaviour mapping in patients with dementia or delirium who have concerning behaviours.

- Clinical Communication: Complete Behaviour Mapping Tool

*****Best practice and AHS policy is to avoid physical restraints as they increase the risk of morbidity and mortality. Restraints should NEVER be ordered PRN (see AHS [Restraint as a Last Resort](#) policy). Consider close supervision/ 1:1 staff ratio for safety instead.*

- Monitor patient with 1:1 nursing to patient ratio

Allied Health Referrals

Consider Pharmacy referral for medication review, paper bag test where home medication use/adherence uncertain, assistance with deprescribing if high risk medications.

- Pharmacy Referral. Reason for referral _____

- Speech Language Pathology. Reason for referral _____

Consider a dietitian referral and notify physician/nurse practitioner when there has been unintentional weight loss in last 6 months AND eating less than usual for more than a week pre-admission or patient is eating less than 50% of meals for greater than 24 hours in hospital.

- Dietitian Referral. Reason for referral _____

Consider Physical Therapy referral for maintaining mobility and/or concerns about gait, endurance, balance or recurrent falls

- Physical Therapy Referral. Reason for referral _____

Consider delaying Occupational Therapy referrals for cognitive assessments until after patient has had sufficient opportunity to adequately recover/plateau from acute issues; note: delirium can take weeks to months to completely resolve

- Occupational Therapy Referral. Reason for referral _____

Physician Consults

Avoid unnecessary duplication of services. In most cases, geriatric medicine and general internal medicine, and/or (geriatric) psychiatry are not needed simultaneously.

- Consult Geriatric Medicine. Reason for referral _____.

- Consult Psychiatry (Geriatric if available). Reason for referral _____.

- Consult General Internal Medicine. Reason for referral _____.

- Consult Neurology. Reason for referral _____.

- Consult Pain service. Reason for referral _____.

- Consult Palliative care. Reason for referral _____.

- Consult Other service. Reason for referral _____.

Infusions

- Saline lock between medications

- IV Bolus: 0.9% NaCl IV _____ mL over _____ hour(s)

- IV Bolus (other): _____ IV _____ mL over _____ hour(s)

- IV Maintenance: 0.9% NaCl IV _____ mL/hour, to stop on _____ (date) at _____ (time)

- IV Fluids (other): _____ IV at _____ mL/hour, to stop on _____(date) at _____(time)

If IV not an option:

- Subcutaneous Cannula (Hypodermoclysis)- Insert
 dextrose 5% in water - 0.9% sodium chloride subcutaneous infusion at 60 mL/hour, to stop on _____(date) at _____(time)

OR

- Other _____subcutaneous infusion at _____mL/hour, to stop on _____(date) at _____(time)

OR

- 0.45% NaCl subcutaneous infusion at ____ mL/hour, to stop on _____(date) at _____(time)

Medications

Vitamins and Minerals

Consider in patients known or suspected of micronutrient deficiencies e.g. malnutrition, massive unintentional weight loss, alcohol misuse

- vitamins multiple with minerals 1 tab PO daily

If history of B12 deficiency or measured B12 level less than 220

- cyanocobalamin 1000 mcg PO daily

For prevention and/or treatment of osteoporosis unless another dose/formulation indicated

- vitamin D tab 2000 units PO daily

For chronically malnourished alcoholics to prevent Wernicke's

- thiamine 200 mg IV every 24 hours

OR

- thiamine 100 mg IV/PO every 24 hours *(may give orally once patient tolerating regular diet)*

Analgesia/Pain Management

- Assess for "discomfort" at rest and with ACTIVITY; assess body language especially if patient confused or agitated. Use appropriate pain assessment tools (e.g. visual, numerical, Edmonton Symptom assessment system (ESAS) or PAINAD for non-communicative/ severely cognitively impaired patients)
- Clinical Communication: Optimize non-pharmacologic pain management, including use of cold or heat, massage, positive distraction and repositioning.
- Monitor and document response to pharmacological/ non-pharmacological strategies for pain; use appropriate pain assessment tool. Notify physician/ nurse practitioner if pain control sub-optimal or adverse effects noted.

Order non-oral routes if difficulty administering orally BUT be careful to adjust for increased potency as appropriate (e.g. parenteral HYDRomorphone can be up to 5 times as potent as the equivalent oral dose).

Consider scheduled dose (with parameters to hold or delay scheduled dose if sedated) if significant cognitive impairment or communication barrier may prevent patient from asking for PRN dose.

- acetaminophen 650 mg PO four times per day for pain (maximum dose 3 g per 24 hours for seniors over age 65, and 4 g for generally healthy individuals under age 65)

OR

- acetaminophen 325-650 mg PO every 4 hours PRN for pain (maximum dose 3 g per 24 hours for seniors over age 65, and 4 g for generally healthy individuals under age 65)

- diclofenac gel 2.32% BID PRN to affected area specify_____

*Caution with opioids as a potential precipitating factor of delirium, cognitive and other side effects however untreated pain is also a precipitating factor of delirium. Avoid morphine in older adults; caution with codeine in renal insufficiency. Use lower starting doses in older adults, particularly if opioid naïve and/or vulnerable brain***

- HYDROmorphone 0.25mg PO every 8 hours PRN for pain
- Other_____

Bowel Routine

- Stool chart
- Clinical communication: Maintain usual bowel habits. If no routine, aim for bowel movement daily/every other day. If no bowel movement on Day 1 then give PRN laxative at bedtime; Day 2 escalate use of laxatives (increase frequency or add suppository)
- Notify physician/nurse practitioner if patient has not had a bowel movement for 48 hours
- polyethylene glycol 3350 powder for oral solution 17 g PO daily
- sennosides 1-2 tab PO QHS PRN
- lactulose liquid 15-30 mL PO TID PRN
- glycerin adult 1 supp RECTALLY daily PRN
- Notify physician/nurse practitioner if diarrhea develops and hold bowel routine. *Consider seepage or overflow diarrhea may occur with severe constipation.*
- **avoid use of mineral oil and phosphate enema (FLEET) in older adults given increased risk of adverse effects; if an enema is required, try a tap water enema as a safer alternative*
- tap water enema RECTALLY daily PRN until adequate elimination if glycerin suppository ineffective after 24 hours

Antinausea Management

- Clinical Communication: Use non-pharmacologic approaches to manage nausea: small meals throughout the day, bland foods, avoid acidic, fatty and spicy foods, consider peppermint tea or (diet) ginger ale; dimenhydrinate is contraindicated in the older patient – ondansetron is best practice and cost-effective for antinausea treatment, particularly post-operatively
- ondansetron 4mg PO/IV every 8 hours PRN

Order Set: Delirium Investigation and Management Orders

Order Set Components

Order Set Keywords: elder friendly, senior, confusion, older adult, geriatric

Restrictions for use of this set of orders: ****[Delirium Prevention Order Set](#) is recommended for use prior to/with these orders as not all relevant items are repeated here. Review selections made under existing Delirium Prevention Order set to ensure no modifications required in the presence of delirium****

Delirium non-pharmacological interventions

****see also [Delirium Prevention Order Set](#)****

In patients with dementia or delirium who have concerning behaviours consider behaviour mapping.

- Clinical Communication: Complete Behaviour Mapping Tool

******Best practice and AHS policy is to avoid physical restraints as they increase the risk of morbidity and mortality. Restraints should NEVER be ordered PRN (see [Restraint as a Last Resort](#) policy). Consider close supervision/ 1:1 staff ratio for safety instead.**

- Monitor patient with 1 to 1 nursing to patient ratio

Routine laboratory investigations

Hematology

- Complete Blood Count (CBC)

Chemistry

- Electrolytes (Na, K, Cl, CO₂)
- Creatinine and eGFR
- Glucose Random
- Urea
- Calcium
- Phosphate
- Magnesium
- ALT
- Alkaline Phosphatase (ALP)
- Bilirubin TOTAL
- Albumin (*include for calcium correction, not a valid nutritional marker*)
- Thyroid Stimulating Hormone (TSH) (*omit if normal result in the last 12 months unless clinical suspicion of abnormality*)
- Urinalysis (*absence of microscopic pyuria excludes infection; only order if 1 or more symptoms/signs of potential infection in addition to delirium*)
- Vitamin B12 LEVEL (*omit if normal result in the last 12 months unless clinical suspicion of change in status*)

Non- Routine Laboratory Investigations (Based on Clinical Suspicion)

Hematology

- INR

Chemistry

- Troponin
- Repeat Troponin(s) ___time(s) every ____ hours
- BNP
- CRP

Microbiology

- Urine Bacterial Culture (****NOTE: infection unlikely in the absence of pyuria****)
- Blood cultures x 2, one from central line if present
- Syphilis serology
- Sputum Bacterial Culture
- Wound culture, site: _____
- Cerebrospinal fluid from lumbar puncture (*for clinical suspicion of meningitis, perform after CT Head*)
 - CSF Glucose
 - CSF Protein
 - CSF Bacterial culture
 - CSF Infection Panel (Viral)
 - HSV serology
 - Mycobacteria (AFB) Smear and Culture
 - CSF Syphilis Serology
 - Other: _____
 - Clinical Communication: Save ___mls of CSF for future testing

Toxicology

- Digoxin LEVEL specify random or trough; consider pharmacy consult
- Lithium (Li) LEVEL specify random, peak or trough; consider pharmacy consult
- Phenytoin LEVEL specify random, peak or trough; consider pharmacy consult
- Valproate LEVEL specify random, peak or trough; consider pharmacy consult
- Other: _____ LEVEL (consult laboratory as to availability)

Non-Routine Diagnostic Imaging (based on clinical suspicion)

- Electrocardiogram- 12 lead
- GR Chest, 2 Projections (Chest X-ray PA and Lateral)
- GR Chest, 1 Projection Portable (Chest X-ray Portable)
- GR abdomen, 3 projections (Abdominal X-Ray 3 views)
- GR abdomen, flat plate (Abdominal X-Ray 1 view)
- CT Head unenhanced: Indication _____ (*consider enhanced only in appropriate clinical circumstances e.g. ruling out small metastases and [near-]normal renal function*)
- Other _____

Medications

**** BEFORE adding new medications to treat behaviour, review medication reconciliation, watch for recent changes, potential withdrawal and remove potential culprit medications****

****Benzodiazepines should only be used when delirium is attributed to alcohol or benzodiazepine withdrawal or the patient used chronically; follow local practice for alcohol withdrawal management (e.g. CIWA protocol).**

Antipsychotics

***** Antipsychotics are associated with increased risk of mortality and should be reserved for patients with severe and dangerous agitation and/or behaviours; minimize use by reassessing need frequently and stopping as soon as possible. Avoid parenteral antipsychotics, particularly IV formulations; instead use liquid, rapid-disintegrating forms or suggest mix with food/beverage; low doses IM haloperidol or olanzapine can be used as last resort****

Due to the risk of adverse reactions choose only **one** antipsychotic:

- risperidone 0.125-0.25 mg PO BID PRN for severe distressing psychosis or aggression with significant risk of harm to self or other NOT responsive to non-pharmacologic interventions times 48 hours then reassess. (*caution in patients with renal failure*)
OR
- olanzapine 2.5 mg PO daily PRN for severe distressing psychosis or aggression with significant risk of harm to self or other NOT responsive to non-pharmacologic interventions times 48 hours then reassess.
OR
- quetiapine 6.25-12.5 mg PO QHS PRN for severe distressing psychosis or aggression with significant risk of harm to self or other NOT responsive to non-pharmacologic interventions times 48 hours then reassess. (*recommended for patients with pre-existing Parkinson Disease, Lewy Body Dementia or parkinsonism*)
OR
- haloperidol 0.25-0.5 mg PO every 8 hours PRN for severe distressing psychosis or aggression with significant risk of harm to self or other NOT responsive to non-pharmacologic interventions times 48 hours then reassess. (*avoid in patients with Parkinson Disease or Lewy Body Dementia*)

Antipsychotic Medication Monitoring

- Electrocardiogram- 12 lead prior to administration of antipsychotic medications to assess for QT prolongation if not already performed during admission. Notify physician/nurse practitioner when ECG complete.
- Electrocardiogram- 12 lead after _____ days of antipsychotic medications to assess for QT prolongation. Notify physician/nurse practitioner when ECG complete.
- Document response to each dose of antipsychotic and monitor for adverse effects (e.g. CNS depression/sedation, anticholinergic effects, dizziness, postural hypotension, parkinsonism/extra-pyramidal symptoms, falls).
- Postural vitals (supine to standing or if not possible then supine to sit/legs dangling) every morning times 3 days

Clinical Decision Support

- Alert
 - Description of alert: Restraint Alert
 - Text to display: Best practice is to avoid physical restraints as they increase the risk of morbidity and mortality. Restraints should NEVER be ordered PRN. Consider close supervision/ 1:1 staff ratio for safety instead.
 - Trigger(s) for Alert:
 - When a physician/nurse practitioner places an order for physical restraint(s) on an adult over the age of 65.

- Alert
 - Description of alert: Benzodiazepine Alert in Older Adults
 - Text to display: Best practice is to avoid starting benzodiazepines in older adults as they increase the risk of falling, cognitive impairment, delirium and can cause dependence. Patients on benzodiazepines chronically should be carefully tapered to avoid the risk of withdrawal. In these cases, consider consulting Pharmacy for assistance. Consider an algorithm to guide PRN use of benzodiazepines in patients who are either at risk of alcohol and/or benzodiazepine withdrawal. Benzodiazepines typically have a longer half-life in older adults; long-acting agents (e.g. diazepam [Valium], chlordiazapoxide [Librium]) are best avoided in favour of medium to short-acting agents (e.g. lorazepam [Ativan]) when necessary to prevent withdrawal. **Benzodiazepines should NEVER be ordered IV in older adults outside of carefully monitored settings (e.g. OR, ICU, procedures).**
 - Trigger(s) for Alert:
 - When a physician/nurse practitioner places an order for benzodiazepine(s) on an adult over the age of 65.

- Alert
 - Description of alert: IV Antipsychotic Alert
 - Text to display: Increased risk of adverse effects and cardiac arrhythmia with IV antipsychotics. Dose conversion from PO to IV antipsychotics is uncertain, further increasing the risk. Consider easy to administer oral formulations of antipsychotics (e.g. rapidly disintegrating, liquid), mixing in food, or as a last resort if PO administration unsuccessful and the risk of imminent harm to patient/others is high then consider low dose SC/IM dose (e.g. Haloperidol 0.5mg IM). NEVER order IV antipsychotics PRN.
 - Trigger(s) for Alert:
 - When a physician/nurse practitioner places an order for haloperidol PO/IV OR haloperidol IV on an adult over the age of 65.

- Alert
 - Description of alert: Antinausea Alert in Older Adults
 - Text to display: dimenhyDRINATE (Gravol) is contraindicated in the older patient. dimenhyDRINATE has anticholinergic properties and affects the Central Nervous System increasing the risk of drowsiness, cognitive impairment and may precipitate delirium. Ondansetron is best practice and cost effective for antinausea treatment, particularly post-operatively. Consider also non-pharmacological measures to reduce nausea.
 - Trigger(s) for Alert:
 - When a physician/nurse practitioner places an order for dimenhyDRINATE in an adult over the age of 65.

Relevant Guidelines, Procedures, Protocols and Clinical Knowledge Topics

Policy/ Procedures

- [AHS Restraint as a Last Resort Policy](#)

Guideline

- [AHS Falls Risk Management Universal Falls Precautions](#)

Clinical Knowledge Topics

- [Dementia, Seniors – Inpatient](#)
- Delirium, Critical Care (in development)
- Frailty, Seniors – Acute Care (in development)
- Antipsychotics and Monitoring, Adult – Inpatient (in development)

Other Resources

- [Appropriate Use of Antipsychotics \(AUA\) Toolkit](#)
- Elder Friendly Care (EFC) Toolkit (in development)
- [The Confusion Assessment Method \(CAM\) Training Manual and Coding Guide](#)
- [Confusion Assessment Method \(CAM\) - Tool for Assessment with the Elderly Population](#) (Video Presentation)

Disposition Planning

Prior to any transition in care setting; including admission, transfer between care providers or care settings and discharge

1. Medication reconciliation/review:

- Reassess any medications that were held for acute concerns to see if they need to be restarted prior to transitions; if not, clearly indicate which medications were stopped and why.
- Ensure the patient is only on medications that are: clearly indicated, the safest and most effective option available, at the correct dose for age and/or organ function, and in a feasible regimen.
- Watch for potentially inappropriate medications including: drug to drug or drug to illness interactions, duplications, medications not compatible with goals of care or prognosis or potentially inappropriate medications. Consider using deprescribing tools such as those found at <http://deprescribing.org>
- Try to avoid major medication changes within 48 hours prior to discharge.
- Wean and ideally discontinue antipsychotic medications started for delirium PRIOR to discharge, given the increased risk of morbidity and mortality associated with these medications. If antipsychotic medication is still required upon discharge, specify parameters and a period of time for the primary care provider(s) to review this prescription.
- Share the medication reconciliation with the patient's primary care providers.
- Include a rationale and clear instructions for any medications that require weaning in lay terms for the patient, and in medical terms for the primary care provider(s) (e.g. In the discharge summary).

2. Functional assessment/rehabilitation:

- Aim to return the patient to their mobility/functional/cognitive baseline prior to discharge. Give the patient sufficient opportunity to adequately recover or plateau from delirium AFTER precipitating factors are optimized and PRIOR to beginning the discharge planning process as delirium can take weeks to months to completely resolve.
- Determine whether the patient is back to their baseline in terms of mobility, functioning (basic and instrumental Activities of Daily Living); new functional impairment increases the risk of poor discharge outcomes.
- Consider an Occupational Therapy (OT) functional assessment prior to discharge and an OT home environment assessment immediately following discharge if available.
- Consider a Physical Therapy mobility assessment prior to discharge if not clear whether back to baseline mobility.
- If the patient is not ready to be discharged to their home environment, consider a referral for further assessment and management on another unit as clinically indicated; if ongoing rehabilitation or multidisciplinary care is required consider transfer to an acute geriatric unit or rehabilitation program. If the patient is medically optimized but not appropriate for returning to their home environment then consider involving transfer to a transitional unit.

3. Discharge planning

- Ensure the patient is deemed safe for home by the inter-disciplinary team and determine which added supports are required for discharge.
- Include family members/other caregivers, health care professionals (as needed), Transition Services and the community services that will be called upon to support the older person

after discharge in the discharge process.

- Consider a family meeting with key members of the health care team, the patient and the patient's key supports to improve communication and assist with the discharge planning process, particularly if disagreements, a change in living situation recommended, and/or complex discharge plan is expected.
- Consider tools such as the [Blaylock Risk Assessment Score \(BRASS\)](#) combined with clinicians' judgement which may be helpful in identifying patients at higher risk of difficult discharge, although there are limits to its sensitivity and specificity.
- Assess medical fitness to drive prior to discharge from delirium when appropriate; if uncertain or not medically fit to drive, recommend TEMPORARY driving cessation to the patient pending outpatient reassessment in 3 months and provide information on transportation options.

4. Goals of care:

- Clarify goals of care in the event of future illness. (See AHS [Advance Care Planning and Goals of Care Designation](#) Procedure)
- Document all conversations about goals of care using the Advance Care Planning tracking record and placed in the green sleeve, along with the goals of care designation order.
- Give the patient their green sleeve; it goes with the patient on discharge.
- Provide information about goals of care on the discharge summary.

5. Alternate decision-makers:

- Clarify whether the patient has already completed a personal directive and/or enduring power of attorney; if not, recommend that patients complete the legal documentation for personal directive and/or enduring power of attorney during or after leaving the hospital AFTER delirium resolution.
- Avoid capacity assessment in patients with/immediately post-delirium given reversible impact on cognition, and potentially capacity, which may take weeks to months to fully resolve.

6. Outpatient follow-up (please include in the discharge summary):

- Provide some form of the discharge summary to the primary care team, home care and/or other care providers in a timely fashion.
- Recommend patient follow-up with their primary care team within 1-2 weeks post-discharge for post-discharge assessment, and review of any recommendations made while in hospital.
- Arrange and clearly communicate to the patient/caregiver and in the discharge summary any additional specialist follow up as indicated.
- Remind patients/families of Health Link support.
- Ask patient's caregivers/family to track any cognitive, functional or behavioural concerns and if present, seek medical attention.
- Consider cognitive testing after 3 months post-delirium resolution if cognitive impairment persists after discharge.
- Consider referral to a community-based clinician with expertise in geriatrics if cognitive, functional and/or behavior concerns persist, and the diagnosis and/or management is uncertain.
- Recommend patient/caregivers seek urgent medical attention if symptoms potentially consistent with delirium return (acute onset cognitive changes, fluctuating course, decreased attention plus incoherent thought or psychotic symptoms or altered level of consciousness).

7. Patient and Family education/discharge instructions

- Include information about delirium for patients/families who have experienced delirium in acute care; potential resources include:
 - Patient Care Handout from My Health Alberta [Learning About Delirium](#)
 - Delirium resources on the external Alberta Health Services Website [Delirium](#)
 - Canadian Coalition for Seniors' Mental Health Brochure [Delirium Prevention and Care with Older Adults](#)
 - [Appropriate Use of Antipsychotics \(AUA\) Toolkit for Care Teams](#) (Seniors Health Strategic Clinical Network) – much of this information also applies to managing responsive behaviours/optimizing care for cognitively impaired adults as well as avoiding antipsychotics and physical restraints in patients with delirium.
 - If patient and/or substitute decision-makers need more information on goals of care and advance care planning, refer them to the [Conversations Matter website](#).
 - For additional information on dementia, see [Dementia, Seniors - Inpatient Clinical Knowledge Topic](#).

Analytics

Baseline Analytic

Name of Measure	Rate of Baseline Delirium Screening
Definition	Percentage of patients (65 and older) receiving delirium screening using the Confusion Assessment Method (CAM) within 24 hours of admission to hospital. Overall, by region, by sites, and by units
Rationale	Intended to measure an improvement in delirium screening rates.
Notes for Interpretation	Numerator: # of patients (65 and older) receiving at least one delirium screen using CAM within 24 hours of admission. Denominator: # of patients (65 and older) discharged from the hospital over the specified time period.
Cited References	<ol style="list-style-type: none"> 1. Inouye SK, van Dyck CH, Alessi CA, Balkin S, Siegel AP, Horwitz RI. Clarifying confusion: the Confusion Assessment Method: a new method for detection of delirium. <i>Ann Intern Med</i> 1990; 113(12):941-8. 2. Inouye SK et. al. Short Confusion Assessment Method (Short CAM) Worksheet. Hospital Elder Life Program, LLC., Hebrew SeniorLife. Available at: http://www.hospitalelderlifeprogram.org/uploads/disclaimers/Short_CAM_Instrument_8-29-2014.pdf. Accessed Oct 10, 2016. 3. Wong CL, Holroyd-Leduc J, Simel DL and Straus SE. Does this patient have delirium? Value of bedside instruments. <i>JAMA</i>. 2010; 304(7): 779-786.

Name of Measure	Delirium Prevention Orders usage
Definition	For all patients age 65 and over admitted to the hospital, number of times Delirium Prevention Order Set is used. Overall, by region, by sites, and by units
Rationale	Intended to measure if and how frequently the order set cited in the knowledge topic is being used for the indicated population. Results may indicate areas with adoption issues or gaps in topics.
Notes for Interpretation	Numerator: # of patients (65 and older) who have Delirium Prevention Order Set utilized. Denominator: # of patients (65 and older) admitted to the hospital over the specified time period. Site capacity, rural considerations, roll out of provincial CIS

Name of Measure	Delirium Investigation and Management Orders usage
Definition	For all patients age 65 and over admitted to the hospital with delirium, number of times Delirium Investigation and Management Order Set is used. Overall, by region, by sites, and by units
Rationale	Intended to measure if the order set cited in the knowledge topic is being used and what % of time for the indicated population. May indicate areas with adoption issues or gaps in topics.
Notes for Interpretation	Numerator: # of patients (65 and older) with at least 1 positive CAM who have Delirium Management Order Set utilized. Denominator: # of patients (65 and older) admitted to the hospital who have at least 1 positive CAM during their admission over the specified time period Site capacity, rural considerations, roll out of provincial CIS

Name of Measure	Patient Care Handout from My Health Alberta Learning About Delirium usage
Definition	For all patients age 65 and over admitted to the hospital, number of times Patient Care Handout from My Health Alberta Learning About Delirium is accessed. Overall, by region, by sites, and by units
Rationale	Intended to measure if the resource sheet cited in the knowledge topic is being used and what % of time for the indicated population. May indicate areas with adoption issues or gaps in topics.
Notes for Interpretation	Numerator: # of patients (65 and older) who have Patient Care Handout from My Health Alberta Learning About Delirium : (if not able to link to specific patients, then the # of times the handout is downloaded) Denominator: # of patients (65 and older) admitted to the hospital with at least 1 positive CAM over the specified time period Site capacity, rural considerations, roll out of provincial CIS

Clinical Analytics – Outcome Measure #1

Name of Measure	Rate of Hospital Acquired Delirium
Definition	Incidence of delirium in patients (65 and older) acquired over the course of hospital admission as identified with positive Confusion Assessment Method (CAM) or with acute change in level of consciousness.
Rationale	To monitor improvement in prevention of hospital acquired delirium in this population.
Notes for Interpretation	Numerator: # of discharged patients (65 and older) who screen positive for delirium at any point during hospitalization after a negative screen on admission.

	<p>Denominator: # of patients (65 and older) discharged from hospital with a negative baseline screen for delirium on admission over the specified time period.</p> <p>Implementation of the CAM tool may initially show an increase in the incidence of delirium due to proactive identification of high risks patients. However, as preventative strategies are implemented a decrease in the incidence of delirium may indicate an improvement in quality of care for this population.</p>
<p>Cited References</p>	<ol style="list-style-type: none"> 1. Inouye SK, van Dyck CH, Alessi CA, Balkin S, Siegal AP, Horwitz RI. Clarifying confusion: the Confusion Assessment Method: a new method for detection of delirium. <i>Ann Intern Med</i> 1990; 113(12):941-8. 2. Inouye SK et. al. Short Confusion Assessment Method (Short CAM) Worksheet. Hospital Elder Life Program, LLC., Hebrew SeniorLife. Available at: http://www.hospitalelderlifeprogram.org/uploads/disclaimers/Short_CAM_Instrument_8-29-2014.pdf. Accessed Oct 10, 2016. 3. Wong CL, Holroyd-Leduc J, Simel DL and Straus SE. Does this patient have delirium? Value of bedside instruments. <i>JAMA</i>. 2010; 304(7): 779-786.

Keywords

- delirium
- acute confusion
- elderly
- senior(s)
- older adult(s)
- aged
- geriatric
- level of consciousness
- elder friendly care

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