Assessment to determine the cause(s) of delirium:

- Careful history with collateral information and a complete physical examination.
- Special attention should be paid to those conditions and treatments (including medications) that might be contributing to delirium.
- Routine investigations should be conducted unless there are specific reasons not to perform them.

Investigations usually indicated in persons with delirium:

- Complete blood count (CBC)
- Biochemistry – calcium, albumin, magnesium, phosphate, creatinine, urea, electrolytes, liver function tests (ALT, AST, bilirubin, alkaline phosphatase), glucose
- Thyroid function tests (e.g., TSH)
- Blood culture
- Oxygen saturation or arterial blood gases
- Urine culture
- Chest X-ray
- Electrocardiogram (ECG)

Non-pharmacological management:

1 Treat underlying predisposing/precipitating causes

- Treat all correctable contributing causes.
- Withdraw all drugs (or taper when necessary) contributing to delirium whenever possible (or use lowest possible dose). See "High-Risk Meds" table.
- If infection is suspected, start antibiotics promptly.
- Ensure cardiovascular stability, adequate oxygenation and electrolyte balance.
- Ensure hydration; monitor fluid intake and urinary output.
- Monitor elimination patterns; rule out impaction or urinary retention.
- Assess and monitor nutrition and skin integrity.
- Identify and correct sensory deficits (e.g., hearing aids, eyeglasses).
- Assess and manage pain using safest interventions.
- Support normal sleep patterns and avoid the routine use of sedatives.

Monitor the older person's physiological condition/mental status. Evaluate response to care provided and modify as indicated.

Select high-risk medications contributing to delirium:

Drug Class	Examples
Sedative - hypnotics	• Benzodiazepines • Barbiturates • Antihistamines (e.g., diphenhydramine)
Narcotics	• Meperidine is particularly likely to precipitate delirium, but any opioid can be implicated
Drugs with anticholinergic effects	• Oxybutynin • Tolterodine • Antinauseants (antihistamines, antipsychotics) • Promotility agents (e.g., metoclopramide) • Tricyclic antidepressants (especially tertiary amine tricyclics agents such as amitriptyline, imipramine and doxepin) • Antipsychotics (e.g., low potency neuroleptics such as chlorpromazine) • Codeine • Cumulative effects of multiple medications with anticholinergic effects
Histamine-2 blocking agents	• Cimetidine
Anticonvulsants	• Mysoline • Phenobarbitone • Phenytoin
Antiparkinsonian medications	• Dopamine agonists • Levodopa-carbidopa • Amantadine • Anticholinergics (e.g., benztropine)

2 Communication/behavioural management

- To reduce the patient's agitation, use behavioural management strategies to identify triggers and to modify the person's environment and/or delivery of care.
- Provide for safety using the least restrictive measures. The use of restraints to control wandering or prevent falls is not justified.
- Encourage the presence of a family member/friend (or consider a sitter) to help calm and provide comfort to the patient.
- Mobilize the patient as appropriate.
- Consider the need for language interpreters.
- Use clear and simple communication. Avoid confrontation and use distraction to minimize agitation.
- Provide the older person and family with ongoing information about delirium.

3 Environmental considerations

- Avoid unnecessary room transfers and have consistency in staffing.
- Use re-orientation strategies (e.g., clocks, calendars).
- Provide appropriate lighting to reduce misinterpretations and promote sleep.
- Provide objects familiar to the older person to reduce disorientation.
- Ensure the environment is safe for the patient and for others.

Pharmacological management of the symptoms of delirium:

1 The use of psychotropic medications to treat the symptoms of delirium should be reserved:
   a) for patients in significant distress due to agitation or psychotic symptoms;
   b) in order to carry out essential investigations or treatment; and/or
   c) to prevent older delirious persons from endangering themselves or others.

2 When using psychotropic medications aim for monotherapy, the lowest effective dose and tapering as soon as possible.

3 Antipsychotics are the treatment of choice. Haloperidol, when used appropriately, is a reasonable choice for most patients.

4 Atypical antipsychotics are alternative agents to haloperidol, and are preferred for patients who also have Parkinson's Disease or Lewy Body Dementia.

5 Baseline and follow up ECG recommended with antipsychotics. For prolongation of QTc intervals to >450 msec or a >25% increase over baseline, consider cardiology consultation and antipsychotic discontinuation.

6 Benzodiazepines can exacerbate delirium. Their use should be reserved for older persons with delirium caused by withdrawal from alcohol/sedative-hypnotics.

Antipsychotics commonly used in treating the symptoms of delirium:

Medication	Suggested initial dosage
Haloperidol	0.25 mg - 0.5 mg po od-bid
Risperidone	0.25 mg po od-bid
Olanzapine	1.25 mg - 2.5 mg po od
Quetiapine	12.5 mg - 50 mg po od

Canadian Coalition for Seniors' Mental Health
www.ccsmh.ca

Download free copies of the National Guideline on the Assessment and Treatment of Delirium and other evidence-based delirium resources.

DELIRIUM
Assessment and Treatment for Older Adults

Based on:
Canadian Coalition for Seniors' Mental Health (CCSMH) National Guidelines:
The Assessment and Treatment of Delirium

Production of this pocket card has been made possible through a financial contribution from the Public Health Agency of Canada.

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Canadian Coalition for Seniors' Mental Health
To promote seniors' mental health by connecting people, ideas and resources.
Coalition Canadienne pour la Santé Mentale des Personnes Âgées
Promouvoir la santé mentale des personnes âgées en reliant les personnes, les idées et les ressources.

Core features of delirium based on the DSM-IV criteria are:

1. Disturbance of consciousness (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention;
2. Change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established or evolving dementia; and
3. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.

Delirium can occur as a consequence of a general medical condition, substance intoxication, substance withdrawal, due to multiple etiologies, or from other causes (e.g., sensory deprivation). It is not always possible to establish the specific etiology in an older person.

Delirium subtypes:

- **Hyperactive:** patients with this subtype are restless, agitated, hyperalert, often psychotic (delusions, hallucinations), and can be aggressive.
- **Hypoactive:** patients with this subtype appear lethargic, drowsy, sluggish, apathetic, quiet, respond slowly to questions, have decreased spontaneous movement and seem sedated.
- **Mixed:** patients with this subtype present with a mixture of hyperactive and hypoactive characteristics.

Subsyndromal Delirium (SSD):

This is a condition in which a person has one or more of the symptoms of delirium but does not meet the full criteria of a DSM-defined delirium. Their outcomes are intermediate between those with delirium and those without delirium. Research suggests that patients with subsyndromal delirium require careful monitoring.

Interventions to prevent delirium:

1. Avoid/discontinue inappropriate or unnecessary medications.
2. Use a standardized and staged approach to control pain, with judicious analgesic prescription.
3. Support normal sleep patterns and avoid the routine use of sedatives.
4. Regulate bowel/bladder function; avoid indwelling catheters.
5. Promote early detection and management of post-operative complications.
6. Follow a least restraint approach to minimize the use of restraints.
7. Encourage mobility.
8. Promote early recognition of dehydration coupled with efforts to maintain hydration.
9. Provide supplemental oxygen for hypoxia.
10. Ensure adequate nutritional intake.
11. Provide reorientation and/or cognitively stimulating activities.
12. Identify the need for sensory aids (e.g., eyeglasses, hearing aids) and ensure their availability.

Screening instruments:

- The Confusion Assessment Method (CAM) is recommended as a delirium screening instrument and diagnostic aid (see CAM table). Other suggested assessment tools that can be used by health care providers with appropriate training include:
- To provide information to help inform the completion of the CAM:
  - Mini-Mental Status Examination (MMSE)
  - Delirium Symptom Interview
- To measure the severity of delirium or to monitor its course:
  - Delirium Rating Scale R-98
  - Delirium Index (DI)
- To help assess alcohol withdrawal delirium:
  - The Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)
- To help collect collateral information on baseline cognitive impairment:
  - The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE)

The results from screening tools must be interpreted within a clinical context and do not in themselves result in a diagnosis of delirium. In more complex cases, practitioners should consider additional measures to evaluate neurocognitive status and referral to a specialist.

Confusion Assessment Method (CAM): Screening Tool for Delirium (a summary)

The diagnosis of delirium by CAM requires the presence of **BOTH** features **A and B**

A ☐ Acute onset and fluctuating course	**Is there evidence of an acute change in mental status from patient baseline? Does the abnormal behaviour:** • Come and go? • Fluctuate during the day? • Increase/decrease in severity?
B ☐ Inattention	**Does the patient:** • Have difficulty focusing attention? • Become easily distracted? • Have difficulty keeping track of what is said?

AND the presence of **EITHER** feature **C or D**

C ☐ Disorganized thinking	**Is the patient's thinking:** • Disorganized • Incoherent • For example, does the patient have: ▪ Rambling speech/irrelevant conversation? ▪ Unpredictable switching of subjects? ▪ Unclear or illogical flow of ideas?
D ☐ Altered level of consciousness	**Overall, what is the patient's level of consciousness:** • Alert (normal) • Vigilant (hyper-alert) • Lethargic (drowsy but easily roused) • Stuporous (difficult to rouse) • Comatose (unrousable)

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Common Causes of Delirium	Examples
Drug-induced	(see "High-Risk Meds" table on reverse)
Alcohol and drug withdrawal	Alcohol, sedative-hypnotics (see "High-Risk Meds" table on reverse)
Post-operative delirium	Cardiac surgery, orthopaedic surgery
Infections	Lower respiratory tract infection, urinary tract infection
Fluid-electrolyte disturbance	Dehydration/hypovolemia
Metabolic endocrine	Uremia, hepatic encephalopathy, hypo/hyperglycemia, hypo/hyperthyroidism, adrenal insufficiency, hypercalcemia
Cardiopulmonary-hypopertusion and/or hypoxia	Congestive heart failure/pulmonary edema, shock, respiratory failure
Intracranial	Stroke, closed head injury, cerebral edema, subdural hematoma, meningitis, seizures
Sensory/environmental	Visual/hearing impairment, physical restraint use, bladder catheter use, settings (acute care, especially ICU)

Vulnerable patients (e.g., those with dementia or severe underlying illness) may develop delirium with a relatively benign insult. Those at low vulnerabilty would require a more noxious insult.

1. Delirium is a common and serious condition encountered in older persons. It is a **medical emergency** that needs to be identified and managed quickly.
2. Delirium often has multifactorial etiology with predisposing, precipitating and perpetuating factors.
3. **Delirium can often be prevented**. Awareness of its potentially modifiable risk factors is key to prevention.
4. **Delirium is often not recognized or is misdiagnosed as dementia or depression**. Systematic screening and/or prompt assessment of suggestive symptoms in populations at risk could increase the rate of detection and the timely management of delirious older persons.
5. **Delirium can often be reversed** with proper assessment and treatment.
6. An interdisciplinary approach is required for the effective management of an older delirious person.
7. Established effective care of the older person with delirium includes:
   - addressing the underlying cause(s);
   - anticipating, planning and taking steps to prevent common complications;
   - assessing and managing behavioural symptoms;
   - alleviating patient distress;
   - ensuring safety; and
   - making every effort to preserve functional abilities and mobility.
8. The use of physical restraints should be minimized as they can increase agitation and precipitate delirium in those at risk.