What is Delirium?

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM) – IV, delirium is described by the following criteria[1]:

1. Disturbance of consciousness with reduced ability to focus, sustain, or shift attention
2. A change in cognition (memory, language, or orientation) or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established, or evolving dementia
3. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day
4. There is evidence from the history, physical, or laboratory findings that the disturbance is caused by direct physiological consequences of a general medical condition

Delirium may be classified under three "sub-types"

Hyperactive	• characterized by increased motor activity, restlessness, agitation, verbalization, hallucination, delusion, and inappropriate behaviour
Hypoactive	• characterized by lethargy, drowsiness, withdrawal, indifference, and decreased motor activity
Mixed	• characterized by fluctuations in the features of the above two sub-types

Why is Delirium an important issue in hospitals?

1. **Delirium is common in older people admitted to hospital:**

- 10-15% of older people admitted to acute care are delirious at the time of admission[2]
- 31% of older people admitted to ICU are delirious at the time of admission[3]

2. **Delirium occurs frequently in older people over the course of their hospital stay:**

- 10-40% of older patients in acute care develop new episodes of delirium[4]
- 41-56% of patients 60 years and over develop delirium after hip fracture surgery[5,6]
- 15% of patients 60 years and over develop delirium after elective hip surgery[5]
- 32% of patients 65 years and over develop delirium after coronary artery bypass surgery[7]
- 31% develop delirium while in the intensive care unit[2]
- 83% develop delirium when mechanically ventilated[8]

3. **Delirium may persist for weeks or months, and is associated with negative outcomes:**

- Increased mortality, post-operative complications, functional decline, and long-term cognitive impairment[4,9,10]
- Increased hospital length of stay and need for admission to long term care[4,9,11]
- Increased health care costs[12]

4. **Delirium is frequently overlooked or under-diagnosed due to limited staff knowledge about delirium**[13,14]
5. **Delirium may be prevented by screening high-risk patients and by working together as an inter-professional team to implement multi-component interventions**[15]

What are foreseeable outcomes when Delirium is appropriately addressed?

1. **For the patient**

- Decreased number of episodes, duration, or severity of delirium
- Improved cognitive and physical function
- Improved rate of return to pre-hospital living environment

2. **For hospital staff**

- Improved ability to detect and reduce delirium
- Improved inter-professional collaboration
- Empowerment and improved satisfaction when caring for older adults

3. **For the healthcare system**

- Decreased morbidity and mortality
- Decreased institutionalization
- Decreased length of stay and ALC rates
- Decreased costs of health care[16]
- Improved patient and family satisfaction

What can be done across the organization to address Delirium?

Processes of Care – DELIRIUM
SCREEN AND DETECT Screen older patients early in admission for risk of delirium. Early detection of delirium when it occurs.
PREVENT AND MANAGE Link screening and early detection strategies to evidence-informed prevention and management protocols adapted for local context.
MONITOR AND EVALUATE Comply with delirium indicators defined by the Ontario Senior Friendly Hospital Strategy. Regular review and reporting to quality and safety committees.

Senior Friendly Hospital Framework Recommendations – Activities to Support Delirium Program	
Organizational Support	
(1) Board of Director Commitment	• Senior executive lead reports to board • Senior executive leads working group responsible for implementing delirium program • Representation on quality and safety committee
(2) Senior Executive Lead	
(3) Geriatrics Champions	• Serve as peer-to-peer resource and coach in support of delirium protocols • Reinforce formal knowledge-to-practice activities
(4) HR Development	• Formal education on delirium
Emotional & Behavioural Environment	
(7) Seniors Sensitivity Training	• Orientation and refresher sensitivity training for all staff, clinical and non-clinical, on aging, person-focused care, and cultural competency integrated with performance appraisal processes
(8) Senior Friendly Person-Centred and Diversity Practices	
Ethics in Clinical Care and Research	
(9) Ethicist Services Available	• Ensure the availability of ethicist or ethics committee to assist clinical teams, patients, and families in complex decision making
(10) Policies for Autonomy and Consent/Capacity	
Physical Environment	
(11) Senior Friendly Design Resources Used in Addition to Accessibility Guidelines (AODA)	• Review ward set up to create an environment that minimizes delirium • Review equipment purchasing to support those at risk of delirium
(12) Physical Environment Audit and Improvements	

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Screening and Detecting Delirium

1. Delirium is common in vulnerable older adults in hospital and is frequently under-recognized. A high degree of vigilance should be maintained, particularly over patients who demonstrate any number of risk factors for delirium. A sudden change in cognition, attention, alertness, behaviour, or functional status should raise suspicion of delirium and should always be investigated.[1]

Evidence-Informed Risk Factors for Delirium[1,2,3] (Table adapted from Michaud et al, 2007)

PREDISPOSING FACTORS (PRESENT ON ADMISSION)	PRECIPITATING FACTORS (OCCUR DURING HOSPITALIZATION)
PATIENT RELATED FACTORS	
• Age greater than 70 years • Severity of illness • Pre-existing cognitive impairment • Depression • Vision/hearing impairment • Previous stroke • Multiple co-morbidities • Electrolyte disturbance • Dehydration • Alcohol abuse • Number of prescription drugs taken before admission • Psychotropic drugs taken before admission	• New fracture • New stroke • Central nervous system pathology • Metabolic, electrolyte, and endocrine disturbances • Fever • Infection • Pain • Trauma • Hypoperfusion, hypoxia, and cardiac or pulmonary failure • Organ failure • Drug or toxic withdrawal
PC PROCESS OF CARE RELATED FACTORS	
	• Psychotropic drug use • Anticholinergic drug use • Opiod drug use • Bladder catheter use
Phys EQUIPMENT AND PHYSICAL ENVIRONMENT RELATED FACTORS	
	• Sensory deprivation or overload • Use of physical restraints • Stay in intensive care unit • Large number of room changes • Absence of a clock • Absence of visual and hearing aids

2. It is important to educate all inter-professional staff on delirium, so that a team effort in recognizing this acute change in mental status can be achieved.

3. Delirium can be detected more easily when a structured and routine process to screen for delirium and cognitive function during hospitalization is established, using standardized

instruments where possible. This facilitates detection of delirium and also helps to differentiate its symptoms from chronic or slower onset syndromes like dementia or depression.[1,2,4]

1 Clinical Epidemiology and Health Service Evaluation Unit (2006). *Guidelines for the Management of Delirium in Older People.* Melbourne, Australia: Victorian Government Department of Human Services, 103p.
2 Michaud L, C Bula, A Berney, V Camus, R Voellinger, F Stiefel, B Burnand, and the Delirium Guidelines Development Group (2007). Delirium: Guidelines for general hospitals. *Journal of Psychosomatic Research* 62: 371-383.
3 National Clinical Guideline Centre (2010). *Delirium: diagnosis, prevention, and management*. London, UK: National Clinical Guideline Centre, 662p.
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Preventing and Managing Delirium

1. The evidence in the prevention of delirium favours multi-dimensional approaches that combine a number of component interventions (see below). This is ideally suited to an inter-professional team approach. It is also important to recognize that optimizing non-clinical hospital operations such as purchasing and environmental design processes can play a key role in an organization-wide delirium strategy.

Examples of Interventions within Evidence-Informed Prevention and Management Strategies[1,2,3,4,5]
OS ORGANIZATIONAL SUPPORT STRATEGIES
• Provide staff with education on delirium • Allocate adequate staff • Develop policies and guidelines over harmful procedures (e.g. physical restraints, polypharmacy, unnecessary indwelling catheters)
PC PROCESSES OF CARE STRATEGIES
• Routinely screen for delirium and changes in cognitive function • Encourage or provide assistance with eating and drinking to ensure adequate intake, including use of dentures, proper positioning, nutrition supplements as needed • Provide regular bowel routines to avoid constipation • Minimize use of indwelling catheters • Provide oxygen therapy and chest physiotherapy as needed • Ensure availability and use of vision and hearing aids • Avoid use of physical restraints • Encourage or assist with regular mobilization, physiotherapist/occupational therapist involvement as needed • Encourage independence in activities of daily living • Screen and treat infections appropriately and judiciously

- Obtain Best Possible Medication History (BPMH), reconcile, review, and optimize medications
- Avoid psychoactive drugs when possible
- Correct fluid and electrolyte imbalances – serum sodium, potassium, and glucose; monitor and treat dehydration or fluid overload
- Promote relaxation and sleep – e.g. regular mobilization during the day, encourage wakefulness during the day, massage and/or warm drink prior to sleep, schedule medications/procedures to allow sleep
- Manage pain and discomfort

EBEMOTIONAL AND BEHAVIOURAL ENVIRONMENT STRATEGIES

- Provide orienting information, including name and role of staff members
- Use interpreters/communication aids as necessary
- Provide information about delirium to family and caregivers
- Encourage family/caregiver visits and involvement in care
- Encourage the family/caregiver to bring in patient's personal and familiar objects

Eth ETHICS IN CLINICAL CARE AND RESEARCH STRATEGIES

- Inform proxies and substitute decision makers regarding delirium and involve them in clinical decision making where appropriate

Phys PHYSICAL ENVIRONMENT STRATEGIES

- Lighting to match time of day – windows for outdoor exposure, curtains/blinds open during the day, minimal lighting at night
- Avoid room changes
- Single rooms for patients at risk – reduces disturbance when staff visit other patients in same room
- Maintain a quiet environment especially during rest times with noise reduction strategies – flooring and wall materials, use vibrating pagers rather than call bells and overhead paging,
- Place a large clock and calendar in client's view to help with orientation

2. In some settings, it may be possible to recruit and train volunteers to assist the inter-professional team with some of the components of delirium prevention. Successful outcomes have been demonstrated in multi-component protocols utilizing volunteers[6] as well as programs integrated into the daily practice of regular hospital staff.[7]

3. There is evidence that pre-operative assessment of older orthopaedic surgery patients by a geriatrician or geriatrics team can reduce the incidence of delirium.[8]

4. When delirium is diagnosed or suspected, management involves prompt assessment and correction of its underlying cause(s), in addition to incorporating multi-component interventions in the care plan.[2]

5. There is insufficient evidence to support pharmacologic intervention for the prevention or management of delirium.[4] Guidelines that have been developed reserve the judicious use of

anti-psychotic medications, combined with non-pharmacologic approaches, to manage severe behavioural disturbances due to delirium.[2]

1 Michaud L, C Bula, A Berney, V Camus, R Voellinger, F Stiefel, B Burnand, and the Delirium Guidelines Development Group (2007). Delirium: Guidelines for general hospitals. *Journal of Psychosomatic Research* 62: 371-383.
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Monitoring and Evaluating Delirium Programs

Indicators for Hospital Quality Improvement in Delirium

The provincial LHIN-led Senior Friendly Hospital Indicators working group, co-chaired by the Regional Geriatric Program and Baycrest, was tasked with identifying accountability indicators to support the ongoing monitoring and evaluation of practices addressing hospital-acquired delirium in older patients.

A literature search and an environmental scan of existing metrics in Ontario identified a large array of potential indicators. Thirty-three subject matter experts across the province participated in a Delphi-panel and consensus meetings to select the process and outcome indicators shown below.

Process	Rate of Baseline Delirium Screening
Description	**Percentage of patients (65 and older) receiving delirium screening using a validated tool upon admission to hospital**
Numerator	# of patients (65 and older) receiving at least one delirium screen within 48h of admission to hospital
Denominator	# of patients (65 and older) discharged/separated from hospital
Improvement Noted As	An increase in delirium screening rates
Data Source and/or Tool	Inpatient Units: Confusion Assessment Method (CAM) Intensive/Critical Care Units: CAM-ICU or Intensive Care Delirium Screening Checklist (ICDSC)
Exclusions	(1) Patients whose level of consciousness is (a) unresponsive or (b) requiring vigorous stimulation for a response

Outcome	Rate of Hospital Acquired Delirium
Description	**Incidence of delirium in patients (65 and older) acquired over the course of hospital admission**
Numerator	# of discharged patients (65 and older) who screen positive for delirium at any point during hospitalization after a negative baseline screen on admission
Denominator	# of patients (65 and older) discharged/separated from hospital with a negative baseline screen for delirium on admission
Improvement Noted As	A decrease in delirium incidence
Data Source and/or Tool	Inpatient Units: Confusion Assessment Method (CAM) Intensive/Critical Care Units: CAM-ICU or Intensive Care Delirium Screening Checklist (ICDSC)
Exclusions	(1) Patients whose level of consciousness is (a) unresponsive or (b) requiring vigorous stimulation for a response
Considerations	Minimum frequency of screening to capture incidence – at least daily after the initial baseline screen

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