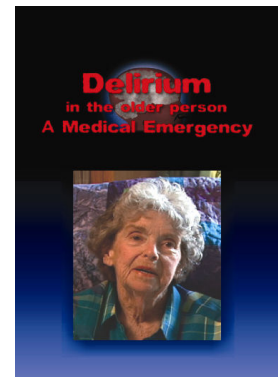


## DELIRIUM IN THE OLDER PERSON: A MEDICAL EMERGENCY



*“Mad in patches full of lucid intervals.”*

Cervantes, 16<sup>th</sup> Century

*“Everyman’s psychosis.”*

Aita, JA (1968)

**“Delirium is a change in mental state, which comes on suddenly, fluctuates over 24 hours, alters consciousness, disturbs thinking and attention, and results in changed behaviour”** (Bater, 2006; Ignatavicius, 1999; Lipowski, 1989; VIHA, 2006).

Delirium is a life-threatening, medical emergency, especially for older persons. It often goes unrecognized by health care providers. Older people are four times more likely to experience delirium than younger people because they have co-morbid conditions that put them at risk. If treated promptly, delirium may be reversed but if it persists it can result in permanent disability or even death. Early recognition and treatment are essential.

Mental confusion is not a normal part of aging. It is an indication that something is wrong in the brain. When a mental status assessment is done during a delirium, the results may be misinterpreted as dementia. This can have a devastating outcome for the older person. It is therefore essential to get collateral background history on the older person and assess them for delirium. “The diagnosis of delirium is primarily clinical and is based on careful bedside observations of key features” (Inouye, 2006, p. 1157). Recognizing the symptoms of delirium is the first step.

Follow the Canadian National Guidelines for Assessment and Treatment of Delirium (March 2006) to ensure Best Practice. They can be found at <http://www.ccsmh.ca/en/natlGuidelines/delirium.cfm>

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*Follow the hyperlinks in this document to find additional information and tools for the recognition, assessment and treatment of delirium in the older person.*



See **Delirium Resources** at [www.viha.ca/mhas/resources/delirium/](http://www.viha.ca/mhas/resources/delirium/)

## Part 1

### RECOGNITION

#### Delirium Epidemiology

Despite the fact that **delirium** is treatable,

“Delirium complicates hospital stays for at least 20% of the 12.5 million patients 65 years of age or older who are hospitalized each year, and increases hospital costs by \$2,500 per patient (USD-2004)” (Inouye, 2006, p. 1157).

“The mortality rates among hospitalized patients with delirium range from 22 to 76 percent, as high as the rates among patients with acute myocardial infarction or sepsis. The one-year mortality rate associated with cases of delirium is 35 to 40 percent” (Inouye, 2006, p. 1157).

“In patients with dementia, delirium leads to poor outcomes, including prolonged hospitalization, hospital readmission in less than 30 days, further cognitive and physical decline, nursing home placement, and death” (Fick, et.al, 2008).

Delirium after hip fracture increases the risk of poor functional outcome, decline in ambulation, nursing home admission, or death by nearly three times (Marcantonio, Flacker & Michaels, 2000).

#### Hallmarks of Delirium

“Delirium is a syndrome, a constellation of symptoms that occur together as a result of a physiological insult to a body. All of us can become delirious if we have a big enough insult. The hallmark of delirium is that of altered attention: easy distractibility, e.g., inability to pay attention; or perseveration, e.g., inability to release attention and move on to something else” (Bater, in VIHA, 2006).

Not merely a description of behaviour, **delirium** is a medical diagnosis with specific diagnostic features, and with significant morbidity and mortality. The Diagnostic and Statistical Manual IV (DSM IV-TR, 2000) is used to diagnose the core features of delirium:

- A Disturbance of consciousness (reduced clarity of awareness of the environment with reduced ability to focus sustain or shift attention)
- B A change in cognition (memory deficit, disorientation, language disturbance)  
or  
Development of a perceptual disturbance (not part of a pre-existing condition such as dementia)
- C Acute onset (hours to days) and fluctuating during the course of the day
- D **Evidence** from the personal history, physical examination or laboratory findings that the disturbance is caused by the direct physiological consequences of a general medical condition

## Predisposing Factors

Older adults are more at risk of experiencing delirium because they have:

- reduced physical reserves
- one or more chronic illness
- possible brain chemistry changes related to dementia or depression
- complex medication regimes
- compromised liver and kidney function
- greater amount of body fat and less body water (Foreman, 1993)

In order to detect delirium, health care providers need to be knowledgeable about the normal changes that occur in the older person, as many of these changes precipitate delirium. An Elder Friendly (Parke & Brand, 2004) health care system ensures that all staff interacting with older persons are familiar with age related changes which in themselves predispose the older person to delirium. See [AGE RELATED CHANGES](#) and [PHYSIOLOGICAL AGING CHANGES](#).

## Pathophysiology of Delirium

Since the 1940's we have known that delirium causes a widespread disruption of higher cortical functions (Trzepacz, 1999, p.132), and these changes can be observed in EEG waves (Monks, in VIHA, 2006). While the pathophysiology of delirium is not well understood, "the leading hypotheses for the pathogenesis of delirium focus on the roles of neurotransmission, inflammation, and chronic stress" (Inouye, 2006, p.1158). A relative deficiency of acetylcholine and/or excess of dopamine play a role, although other neurotransmitters such as noradrenaline, GABA and 5 HT, may be involved.

"Given the clinical heterogeneity and multi-factorial nature of delirium, it is likely that multiple pathogenic mechanisms contribute to the development of delirium" (Inouye, 2006, p.1158).

## Preventing Delirium

Delirium represents one of the most common, preventable, adverse events among older persons during hospitalization (Rothschild, et al., Gillick, et al., in Inouye, 2006). It meets Williamson's criteria for an indicator of the quality of health care (Williamson, in Inouye, 2006): the condition is common, frequently iatrogenic and integrally linked to processes of care.

The Yale Delirium Prevention Trial (Inouye, et al., 1999) demonstrated the effectiveness of intervention protocols for six risk factors:

- orientation and therapeutic activities for cognitive impairment
- early mobilization to avert immobilization
- non-pharmacologic approaches to minimize the use of psychoactive drugs
- interventions to prevent sleep deprivation
- communication methods and adaptive equipment (vision and hearing impairments)
- early intervention for volume depletion

Delirium is best managed by a multidisciplinary team, utilizing comprehensive geriatric assessment in an appropriate environment with adequate staffing levels (Inouye, et al, 1999). Elder Friendly hospitals would allow awareness of delirium, training of staff on the principles of geriatric care, and enhancement of delirium research (Flaherty, et al., 2003).

See the [DELIRIUM PREVENTION POSTER](#).

## Baseline Picture

One of the crucial elements of recognizing delirium is “knowing the person”, their **previous** (baseline) level of functioning, cognitive status and physical health. Often we assume a person has dementia when in fact they have delirium. In a person with dementia, the delirium will make them look more cognitively impaired – a state known as “excess disability” (Brody, et al., 1971). With early treatment, the delirium-related cognitive impairment is usually reversible; therefore knowing the **baseline picture** is crucial for successful outcomes. That picture can be gleaned from family members, the general practitioner, or other health care providers.

## Clinical Features

Prodromal symptoms of delirium can occur 1-3 days prior to onset. Persons may appear irritable, bewildered or evasive. Delirium develops over hours to days and fluctuates, causing impaired attention and distractibility.

Disorientation to time and short-term memory impairment are common. Thinking is disordered and evidenced by rambling, incoherent speech. Persons may exhibit obvious distress, misperceptions and visual illusions or hallucinations. Altered consciousness is reflected by impaired clarity of awareness, with alertness ranging from vigilant through to coma.

Meagher, O’Hanlon and O’Mahoney (1996) describe three forms of delirium:

1. *Hyperactive* delirium, which is easily recognized and occurs in approximately 30% of cases. Persons present with repetitive behaviours such as plucking at sheets, picking, wandering, or perceptual disturbances such as illusions or hallucinations.
2. *Hypoactive* delirium, which is easily missed and occurs in about 25% of cases. Persons appear quiet and withdrawn and may be misdiagnosed with depression.
3. A *mixed pattern* of hypoactive and hyperactive symptoms that fluctuate, and includes lucid periods. This presentation occurs in about 45% of people with delirium.

## Screening Tools

***“Cognition is regarded as a vital sign, and the CAM is the ‘gold standard’ instrument for assessing delirium” (Inouye, 1994, p. 287).***

Inouye (2006), Johansson (2002), Hanly (2004), Laurila (2002), Sorensen-Duppils (2003), and the Canadian National Guidelines for Delirium (2006) recommend that cognitive assessments should be routinely performed on all older persons being admitted to hospital and any abnormal results should trigger further assessment. Inouye (2001) recommends that the “Confusion Assessment Method” or [CAM](#) be used as part of a standardized mental status assessment. If cognitive impairment is identified on a Mini Mental Status Exam (Folstein, or MMSE), the CAM is then used to screen for delirium.

Please note: “The validity of using the CAM in un-standardized observations (routine clinical care) is poor” (Inouye, et al., 2001). Please see these detailed [TRAINING INSTRUCTIONS](#) for filling out the CAM.

A positive score for delirium on the CAM needs to trigger further assessment, including detailed functional and social history, physical examination and appropriate lab and clinical investigations.

## Part 2

### ASSESSMENT

***“There’s no cookbook, really, for delirium: it’s just plain old-fashioned history taking and physical exam and careful attention to detail”*** (Bater, in VIHA, 2006).

#### Distinguishing Delirium and Dementia

“Persons with dementia are at higher risk of delirium because they already have a fragile brain” (Bater, in VIHA, 2006). When a person with dementia has a delirium, it can persist for a much longer time, months to years, and may mistakenly be identified as part of the dementia and not addressed (Inouye, 2006). Even when delirium is treated in a person with dementia, they often do not return to their previous level of functioning and this may result in earlier institutionalization.

It is critical that we investigate for delirium in a person with dementia, especially when there are sudden changes in their cognitive and functional performance. Distinguishing between dementia and delirium can be difficult. Dementia presents insidiously with a gradual course of decline, while delirium presents as a sudden loss of global cognitive function. Dementia and delirium are not mutually exclusive. A person with dementia can have a superimposed delirium, and recognizing delirium superimposed on dementia requires knowledge of the person’s prior cognitive and functional abilities. The delirious person with a prior dementia demonstrates a sudden decline in their usual cognitive dysfunction (e.g., could eat on their own and now they cannot). Inattention remains the key identifier, even in dementia: the person with dementia can pay attention until late in the disease process; a person with delirium will fall asleep in the middle of a sentence (Bater, in VIHA, 2006). See [THE 3Ds](#).

#### Sundowning Syndrome

Persons with dementia often exhibit increased agitation and wandering later in the day (1500 hrs - 1900 hrs). This has been labeled as Sundowning Syndrome and is associated with fatigue and sensory deprivation in dementia. Sundowning may mimic the symptoms of hyperactive delirium. It is important to look for other symptoms of delirium and if there is any suspicion of delirium then it is best to investigate. The symptoms of Sundowning Syndrome in dementia are often chronic and occur every day around the same time. However, if there is a mimicking of Sundowning in a delirium, these symptoms may fluctuate from day to day, both in timing and severity (Monks, in VIHA, 2006; Bater, in VIHA, 2006).

#### Distinguishing Hypoactive Delirium and Depression

A hypoactive delirium occurs in 25% of cases and is most likely missed either because the behaviour does not disturb others (as with hyperactive delirium), or because it is mistakenly identified as a depression. There must be a clinical diagnosis of depression prior to initiating an antidepressant medication. Antidepressant therapy is not the correct treatment for a hypoactive delirium (Bater, in VIHA, 2006). See the [Nursing Best Practice Guidelines: Caregiver Strategies for Older Adults with Delirium](#), Registered Nurses Association of Ontario.

## Searching for Cause

As there are many potential causes of delirium it is important to do a methodical assessment. Begin with the causes that seem to “fit” the situation, e.g., post operatively you might start with infection, pain control and drug side effects. Continue to explore each potential cause. See [SEARCHING FOR CAUSE](#).

## Medication Alert

Medications contribute to about 40% of causes of delirium (Flacker & Marcantonio, 1998). Older persons have diminished renal excretion and hepatic metabolism and are more likely to experience adverse drug effects even at lower doses. Psychoactive drugs and those that cross the blood brain barrier are most likely to cause delirium. Drugs with anticholinergic properties are particularly likely to cause delirium and metabolites of some common drugs have anticholinergic properties that add to the total “anticholinergic burden” (Han, McCusker & Cole, 2001). See [DRUGS THAT CAN CAUSE DELIRIUM](#).

See the [National Guidelines for Delirium](#) for pharmacologic recommendations, Section 4.4, page 41.

## Recommended Lab Work-up

Establishing previous functional and cognitive status as baseline data will assist in making the diagnosis of Delirium.

Laboratory testing for persons with a suspected delirium should include: complete blood count, electrolyte panel, metabolic panel, thyroid function tests, urinalysis, electrocardiogram, and chest x-ray. See [RECOMMENDED LAB INVESTIGATIONS](#).

## Part 3

### INTERVENTIONS

“The first thing a health care provider must do is [to] reassure the patient and family that this is a medical condition and we are going to identify and treat the cause” (Amdam, in VIHA, 2006; Henry, in VIHA, 2006).

See [FAMILY INFORMATION PAMPHLET](#) and [HEALTH CARE PROVIDER PAMPHLET](#)

In the meantime, the symptoms of delirium need to be minimized. Begin with environmental interventions. See [SEARCHING FOR SOLUTIONS](#).

#### To begin:

1. Treat the specific underlying illness.
2. Support nutrition and fluid intake to maintain electrolyte balance
3. Return the person to their normal sleep pattern as soon as possible. Use environmental and natural approaches first (e.g., music, warm milk), and medication only when absolutely necessary and only for a short period of time.
4. Attend to environment: provide of hearing aides, glasses etc.; orient to date, time and place, use therapeutic communication (reassurance and simple, repetitive instructions regarding tests and other procedures), familiar items, undisturbed sleep, encourage self care and mobility, avoid the use of restraints or immobilizing devices (catheters, intravenous), limit room and staff changes (Meagher, 1996).
5. Follow a structured routine and provide familiar personal items. If there is agitation through the night, ask a family member or a volunteer to sit with the person to allay their fears. Assist the person to mobilize.
6. Utilize Assessment flow sheets to objectively collect behavioural data and assess interventions (see [Behaviour Monitoring Chart](#), [Sleep Hygiene Log](#), [Sleep-Wake Monitoring](#)).
7. Keep use of psychotropic medications to a minimum. If the person is not distressed by their hallucinations or delusions and can be distracted, do not use medication. Medications with anticholinergic effects should be avoided if at all possible because of the cholinergic deficits present in delirium.

All unnecessary medications, especially those with potential adverse effects on the central nervous system, should be discontinued. However, be aware that some medications, e.g., benzodiazepines, narcotics, must be tapered to avoid withdrawal symptoms.

Infections, which frequently precipitate delirium, may require treatment with antibiotics. The person's fluid intake and electrolytes should be monitored carefully.

See also: [QUICK REFERENCE GUIDE TO DELIRIUM](#)

### The Course of Delirium

Delirium can be persistent. In a study by O'Keefe & Lavin (1997), delirium was present for up to one week in 60% of persons, two weeks in 20% of persons, four weeks in 15% and more than four weeks in 5%. Inattention, memory impairment and disorientation may be present up to 12 months and associated with poorer functional and cognitive outcomes (Levkoff, Evans & Liptzin, 1992). This may be due to persistent chronic illness, irreversible neuronal dysfunction or delirium becoming a chronic disorder in some persons (McCusker, Cole, & Dendukuri, 2001; Inouye, 2006).

### Outcomes

Delirium increases the risk of morbidity and mortality. The cognitive and functional decline caused by a delirium may lead to premature facility placement, and death.

Timely treatment of delirium can prevent serious negative outcomes:

- Increased hospital stays
- Risk for a recurrence of delirium
- Increased risk of falls, incontinence and skin breakdown
- Cognitive decline is evident in persons who have survived a delirious episode (McCusker, Cole, & Dendukuri, 2003).
  
- Delirium after hip fracture increases the risk of poor functional outcome, decline in ambulation, nursing home admission, or death by nearly three times (Marcantonio, Flacker & Michaels, 2000).

“Prevention, early recognition and accurate treatment of delirium, is and will continue to be of major importance in the rapidly enlarging global population of hospitalized older people” (Milisen, et. al. (2005).

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