Dementia and Delirium

Tracy Danylyshen-Laycock, B.S.P.E., M.S.W., R.S.W., Ph.D.
Candidate
Behavioural Consultant
Seniors’ Health and Continuing Care
Dementia or neurocognitive disorder (new term in the DSM-5) is a cognitive decline in one or more areas of cognitive functioning.

Health care providers may still utilize the term dementia.

Neurocognitive disorders/dementia is not a single disease but an overall “umbrella” term that describes specific medical conditions.

Neurocognitive disorders/dementia may affect: memory, attention, learning, language, perception, and social cognition.

A neurocognitive disorder/dementia may be classified as mild or major.
Mild neurocognitive disorder (MNCD) is cognitive decline that is not a part of normal part of aging.

- The cognitive impairment is greater than normal age related changes.
Symptoms of Mild Neurocognitive Disorder:

- Typically presents as a **noticeable decline** in cognitive functioning and performance. For example, family members/caregivers may notice a change in memory, the ability to perform everyday tasks, language, and/or social skills.
- Mood disturbances (i.e., anxiety, depression, agitation, apathy) are often the earliest noticeable symptom of mild neurocognitive disorder.
- Sleeps disturbances (i.e., insomnia, hypersomnia) are also common in mild neurocognitive disorder.
A. Evidence of modest cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive functioning, learning and memory, language, perceptual motor, or social cognition) based on:

1. Concern of the individual, a knowledge informant, or the clinician that there has been a mild decline in cognitive function; and
2. A modest impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment.

B. The cognitive deficits do not interfere with capacity for independence in everyday activities
### DSM-5 Major Neurocognitive Disorder

<table>
<thead>
<tr>
<th>Significant cognitive decline in ≥ 1 of:</th>
<th>DSM-IV-TR Dementia: ≥ 2 of</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Complex attention</td>
<td></td>
</tr>
<tr>
<td>• Executive function</td>
<td>✓</td>
</tr>
<tr>
<td>• Learning and memory</td>
<td>Essential</td>
</tr>
<tr>
<td>• Language</td>
<td>✓</td>
</tr>
<tr>
<td>• Perceptual-motor</td>
<td>✓ Apraxia</td>
</tr>
<tr>
<td></td>
<td>✓ Agnosia</td>
</tr>
<tr>
<td>• Social cognition</td>
<td></td>
</tr>
</tbody>
</table>

**Concern plus “substantial” impairment on objective assessment**

 ADVISED independence

**Not due to delirium or another mental disorder**

**DSM-5: substantial = > 2 SD below norms (< 3rd percentile)**

A. Evidence of significant cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:
   1. Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function; and
   2. A substantial impairment in cognitive performance, preferably documents by standardized neuropsychological testing or, in its absence, another quantified clinical assessment

B. The cognitive deficits interfere with independence in everyday activities

C. The cognitive deficits do not occur exclusively in the context of a delirium.

D. The cognitive deficits are not better explained by another mental disorder (e.g. major depressive disorder, schizophrenia)
Major neurocognitive disorders can happen:

- with behavioral disturbances or without behavioural disturbances.

Clinicians may also specify the severity of the major neurocognitive disorder from mild to severe.

- Mild: difficulties with instrumental activities of daily living (e.g. housework, managing money)
- Moderate: difficulties with basic activities of daily living (feeding and dressing)
- Severe: fully dependent
Major and Mild Neurocognitive Disorders can be specified as a result of the following:

- Alzheimer’s Disease
- Frontotemporal Dementia
- Lewy Body Disease
- Vascular Disease
- Mixed Dementia
- Substance/medication use
- Traumatic Brain Injury
- Parkinson’s Disease
- Huntington’s Disease
- Others
Delirium Overview
Alzheimer’s Disease (AD) is the most common form of dementia in Canada (Alzheimer’s Society of Canada, 2014).

Impairment related to AD is related to changes in the brain called plaques and tangles and brain shrinkage (Davidson, Thorpe, & Bareham, 2014).

This impairment is most likely related to genetics and the environment (Davidson, Thorpe, & Bareham, 2014).

Progression of AD is often slow and irreversible.
Alzheimer’s Dementia

- Gradual, progressive
- Prominent memory loss
- Also results in impaired language, judgment, mood and behavior
- Delusions present in moderate stages
- Parietotemporal atrophy (hippocampus)
- \( \downarrow \) Acetylcholine
Symptoms of AD include:

- Memory loss that affects daily functioning
- Difficulty completing tasks
- Issues with language/word finding
- Disorientation
- Problems with abstract thinking
- Misplacing things
- Changes in mood and behaviour
- Apathetic
- Spatial awareness

(Alzheimer’s Society of Saskatchewan, 2014)
Frontotemporal Dementia (FTD)

- Impairment in FTD is limited to the frontal and the temporal lobes of the brain.
- Affects individuals earlier in life than other types of dementias (typically in the 40s and 50s).
- Has a stronger genetic component than AD or vascular dementia.
- Is progressive in nature.

(Davidson, Thorpe, & Bareham, 2014)
Frontotemporal Lobar Degeneration

* FTD: Behavioral variant (70%)
  * Early onset - in 50’s
  * Profound alteration in character and conduct
  * Personality changes precede memory loss
    * Loss of judgment/insight into behavior, disinhibition, hyper sexuality, hyperorality, and apathy
  * Early executive impairment

* Semantic Dementia
  * Lose ability to name/understand words

* Primary Progressive aphasia
  * Severe problems of word retrieval
Impairment in the frontal lobe and the temporal lobe will lead to changes in behaviour and speech (language).

Two main types of variants of FTD include:
- frontotemporal behaviour variant (FTD-bv)
- primary progressive aphasia variant (PPA) (Alzheimer's Association, 2011)
Symptoms of FTD-bv include:
- Early age of onset
- Changes in personality (often early in the disease)
- Disinhibition
- Loss of restraint in personal/social interactions
- Poor judgment
- Little to no understanding of consequences
- Memory problems later in the disease

FTD-bv is often difficult to differentiate between other psychiatric problems.

(Alzheimer’s Association, 2011; Davidson, Thorpe, & Bareham, 2014)
Symptoms of Primary Progressive Aphasia (PPA) include:

* Language is affected in the earlier stages of the disease but behaviour is impacted as the disease progresses.

* Two forms of (PPA):
  * Semantic dementia: individuals are able to speak easy but the words carry little meaning.
  * Progressive nonfluent aphasia: individuals struggle to generate words easily. Speech sounds choppy and ungrammatical.

(Alzheimer’s Association, 2011)
Lewy Body Dementia (LBD)

* Lewy Body Dementia is caused by a protein deposits (called Lewy bodies) in nerve cells in the brain.
* LBD may occur on its own or together with AD or Parkinson’s Disease (Alzheimer Society of Saskatchewan, 2014).
* LBD accounts for 5-15% of dementias in Canada (Alzheimer’s Society of Saskatchewan, 2014).
Lewy Body Dementia

**Core Features:**
- Marked fluctuations in cognition
- Visual hallucinations
- Parkinsonism (rigidity > tremor)

*Sensitive to neuroleptics*
- Memory impairment is not always the presenting feature
- Prone to falls
- Destruction of Ach and DA systems
- Cholinesterase inhibitors may treat the psychosis
Symptoms of Lewy Body Dementia (LBD)

- Symptoms of LBD include:
  - Visual hallucinations
  - Earlier onset of short term memory loss compared to AD
  - Impairment in attention, executive functioning, and visuospatial skills earlier than in AD.
  - Parkinsonism type features (tremor, balance, walking problems, and stiffness) later in the disease progression
  - Depression and anxiety
  - Apathy
  - Sleep disturbances
  - Falls

(Alzheimers Association, 2011; Davidson, Thorpe, & Bareham, 2014)
Vascular Dementia (VaD)

- Vascular Dementia is caused by a lack of blood flow (strokes) to parts of the brain causing cells to die.
- It is the second most common form of dementia in Canada.
- Deficits exhibited by the individual with VaD will depend on which part of the brain was damaged.
- The onset of VaD may be rapid, but may also be gradual (depending on the number and intensity of the strokes).

(Alzheimers Association, 2011)
Vascular Dementia

- Caused by problems with small or large blood vessels
- Evidence of vascular disease on brain imaging
- **Vascular risk factors** (CAD, HTN, ↑ chol, DM, smoking)
- Can follow a stepwise progression with periods of stability
- Associated with **non-cognitive** features (depression, apathy, emotional lability, disinhibition, agitation, aggression, psychosis)
- Dysexecutive syndrome
Symptoms of Vascular Dementia (VaD)

- Symptoms of VaD include:
  - Executive impairment
  - Abstract reasoning
  - Attention
  - Mood changes
  - Depression
  - Apathy
  - Disinhibition
  - Agitation, aggression
  - Memory may be intact in earlier stages of the disease
Mixed dementia is a combination of any two types of dementia.

The most common type of mixed dementia is AD and VaD.

AD may also co-exist with LBD.

With mixed dementia, the symptoms may range depending on the area of the brain that is affected.

In many cases, symptoms may be similar to — or even indistinguishable from — those of Alzheimer’s or another specific type of dementia. In other cases, a person’s symptoms may suggest that more than one type of dementia is present (Alzheimer’s Association, 2011).
Behavioral and Psychological Symptoms of Dementia (BPSD)

* Non-cognitive symptoms associated with dementia
  * “Signs and symptoms of disturbed perception, thought content, mood, or behavior that frequently occur in patients with dementia” (International Psychogeriatric Association, 1996)
  * Also known as neuropsychiatric symptoms

What are the Behavioral and Psychological Symptoms of Dementia?

**Behavioral**
- Agitation
- Aggression
- Screaming*
- Cursing*
- Frequent repetition*
- Restlessness
- Wandering*
- Sexual disinhibition
- Hoarding*
- Urination/defecation*
- Requests for help or repetitive questioning

**Psychological**
- Personality change
- Anxiety
- Depression
- Pathological crying
- Hallucinations
- Delusions
- Apathy
- Elevated mood
- Irritability

*Unlikely to respond to medications
* Although cognitive impairment is the main feature of dementia, non-cognitive symptoms are common and can dominate the picture¹
  * 60% of community-dwelling patients with dementia¹
  * > 80% of patients living in nursing homes with dementia¹
* 90% of people with dementia develop a neuropsychiatric or behavioural symptom during the course of the disease²

1. Yaffe, K. NEJM 2007; 357:1441-1443
Peak Frequency of Behavioural Symptoms as Alzheimer’s Disease Progresses

(Jost, 1996)
Common Triggers of BPSD

CLIENT in Nursing Home

- Sensory loss (vision/hearing)
- Depression/Anxiety
- Physical decline
- Loss of Control
- Loss of Independence
- Care staff related issues
- Psychosis
- Pain
- Reduced communication abilities
- Delirium
- Unmet needs (Thirst, Hunger, Toilet)
- Advanced Dementia
- Overstimulation/Under stimulation
- Loss of insight
- Medications
- Sleep Deprivation
- Boredom
- Complex personal/life history
Algorithm for the Management of BPSD

1. Identify and document target cluster(s)/symptom(s)
   Consider BVS tool

2. Rule out new medical and psychiatric causes
   New-onset behavioural problem = delirium until proven otherwise

3. Implement caregiver-led non-pharmacological interventions and monitor closely

4. Initiate pharmacological treatment if target symptom(s)
   severe, persistent and disturbing or dangerous

5. Start appropriate initial and maintenance pharmacotherapy
   Monitor effectiveness and adverse effects
   If not meeting therapeutic goals, consider switching agents, adjunctive therapy or consultation with geriatric psychiatry service
Key Principles in Non-Pharmacological Management of BPSD

- Correct physical and sensory handicaps, treat pain, and promote independence
- Create opportunities for social interaction and meaningful activity
- Match activities to people’s backgrounds, interests, and skills
- Ensure that levels of stimulation are neither too high nor too low
- Family and caregivers are key individuals and need to be involved in treatment planning.

IPA BPSD Guide, Module 5, 2012
Non-Pharmacological Interventions: Evidence

* Training Caregivers or staff in behavioral management strategies and communication
* Participation in pleasant events
* Validation Therapy
* Exercise
* Music
* Sensory Stimulation
  * Snoezelen (multisensory stimulation), aromatherapy, therapeutic touch or gentle massage

Delirium and Dementia

* There is a difference between delirium and dementia.
* Delirium is very common in the elderly.
* It is often left untreated and often mislabelled as “sundowning” especially in people who have been diagnosed with dementia.
Delirium

* Delirium is a **sudden, fluctuating**, and typically **reversible** occurrence of a person’s mental functioning.
* It will develop quickly over a period of hours or days.
* Delirium is characterized by:
  * The inability to pay attention.
  * Disorientation and the inability to think clearly.
  * Difficulty concentrating and not being oriented to time and place.
  * Rambling speech or speaking incoherently.
Delirium is also characterized by:

- Having misperceptions and illusions.
- Disturbed sleep which varies from night to night.
- Fluctuation in emotions.
In Adults aged 65+

<table>
<thead>
<tr>
<th></th>
<th>Community</th>
<th>Long-Term Care</th>
<th>Acute Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia</td>
<td>0.7%-8%</td>
<td>12%-67%</td>
<td>7%-69%</td>
</tr>
<tr>
<td>Delirium</td>
<td>0.5%-35%</td>
<td>10%-89%</td>
<td>10%-60%</td>
</tr>
<tr>
<td>Depression</td>
<td>1%-20%</td>
<td>15%-50%</td>
<td>12%-45%</td>
</tr>
</tbody>
</table>

Voyer et al., 2008; Bernstein et al., 2007; Andrew et al., 2006; Buchanan et al., 2006; Conn et al., 2006; Cole et al., 2002; CSHA, 1994; Rovner et al., 1990)
Risk Factors Precipitating Delirium

Risk Factors of delirium include:

- Urinary tract infection
- Dehydration/Malnutrition
- Physical restraints
- Pneumonia
- Sensory deprivation
- Pain
- Hospitalization
- Surgery
- Anesthetics used during surgery
- Pain relievers after surgery
What are Risk Factors for Delirium in the Elderly?

- Advanced age
- Male sex
- Residence in an Institution
- Cognitive impairment
  - Dementia
- Functional impairment
- Depression
- Severe medical illness
- Medication use
  - Narcotics
  - Psychotropics
- Fracture on admission
- Fever
- Hypotension
- Electrolyte abnormalities
- High urea/creatinine ratios
  - Dehydration
- Hypoxia
- Sensory impairment
- Surgery
  - Especially unplanned
- Alcohol abuse

CCSMH Delirium Guidelines p 24-26 (Table 2.1)
Risk factors of delirium may also include:

- Medications
- Stoppage of a medication.
- Sudden alcohol withdrawal.
- Abnormal blood levels
- Under or active thyroid
- Use of bladder catheter
An easy way to remember the risk factors precipitating delirium:

- I = infections;
- W = withdrawal;
- A = Acute metabolic;
- T = toxins;
- C = CNS pathology;
- H = hypoxia;
- D = deficiencies;
- E = endocrine;
- A = acute vascular;
- T = trauma,
- H = heavy metals.
Risk Factors Precipitating Delirium

- Or by the acronym DELIRIUM
  - D: Drug intoxication and withdrawal
  - E: Emotional (agitated, depression, mania)
  - L: Low oxygenation (MI, COPD, CHF, Pulmonary Embolism)
  - I: Infection (UTI, Pneumonia)
  - R: Reduced sensory input (blindness, darkness, change in surroundings)
  - I: Intracranial problems (stroke, meningitis, subdural bleeding)
  - U: Urinary retention and fecal impaction
  - M: Metabolic (organ failure, electrolyte abnormalities, dehydration)
1. Hyperactive delirium (15-47% of cases)
   - Patients with this subtype are restless, agitated, hyperalert, often psychotic (delusions, hallucinations), and can be aggressive

2. Hypoactive delirium (19-71% of cases)
   - Patients with this subtype appear lethargic, drowsy, sluggish, apathetic, quiet, respond slowly to questions, have decreased spontaneous movement and seem sedated
   - Often escapes diagnosis and is often mistaken for depression

3. Mixed delirium (43-56% of cases)
   - Patients with this subtype present with a mixture of hyperactive and hypoactive characteristics

(Cole 2004; CCSMH Delirium guidelines p 23)
Delirium Subtypes
Delirium and Medical Conditions

* Older people with the following conditions may be more susceptible to delirium:
  * Stroke
  * Dementia
  * Parkinson’s
  * Use of three or more medications
  * Immobility
The Confusion Assessment Method (CAM) Screening Tool is an algorithm used to screen for delirium:

Screen for delirium is positive if the person has features 1 & 2 plus either 3 or 4 as listed below.

1. Presence of acute onset and fluctuating course AND
2. Inattention AND Either
3. Disorganized thinking OR
4. Altered level of consciousness
The Confusion Assessment Method (CAM) is recommended as a delirium screening instrument and diagnostic aid.

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| A. Acute onset and Fluctuating course | Is there evidence of an acute change in mental status from patient baseline? Does the abnormal behavior:  
- 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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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) |

Adapted from:
“Delirium Workup”

- Complete Blood Count (CBC)
- Electrolytes
- BUN/Creatinine
- Calcium, Magnesium, phosphate
- Albumin
- Liver function Tests (AST, ALT, bilirubin, alkaline phosphatase)
- TSH
- Urinalysis

If clinically indicated:
- Chest x-ray
- ECG
- Blood Culture
- Blood gases

Adapted from the CCSMH Delirium Guidelines p 33
IF you witness a sudden change in a person’s behaviour, please notify the physician to have the patient evaluated.
Key Messages Delirium

* Delirium is a confusional state that develops quickly and symptoms may fluctuate throughout the day.
* It is an urgent medical situation that needs to be identified and managed quickly.
* Delirium presents in different ways and it is important to distinguish from primary psychiatric disorders.
* Delirium has multifactorial causes.

Adapted from the CCSMH “Delirium: Assessment and Treatment for Older Adults-Clinician Pocket Card”
The first step in managing delirium is to attempt to identify the underlying cause. Management includes both non-pharmacologic and pharmacologic treatments. Antipsychotic medications are useful in the management of the symptoms of delirium. Benzodiazepines are useful only in cases of alcohol or benzodiazepine withdrawal.
## Delirium vs Dementia

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia (Mild to Moderate)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical course</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode of onset</td>
<td>Acute or subacute (hours or days)</td>
<td>Chronic (usually several years)</td>
</tr>
<tr>
<td>Fluctuations</td>
<td>Frequent and rapid (in hours)</td>
<td>Slow changes (months)</td>
</tr>
<tr>
<td><strong>Conscious level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention</td>
<td>Markedly reduced</td>
<td>Reduced in severe cases</td>
</tr>
<tr>
<td>Arousal</td>
<td>Increased or decreased</td>
<td>Usually normal</td>
</tr>
<tr>
<td>Alertness</td>
<td>Reduced in severer cases</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Cognitive changes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delusions</td>
<td>Fleeting, poorly systematized</td>
<td>If present, often consistent</td>
</tr>
<tr>
<td>Hallucination</td>
<td>Common (usually visual)</td>
<td>Infrequent (both visual and verbal)</td>
</tr>
<tr>
<td>Orientation</td>
<td>Usually impaired</td>
<td>Impaired in proportion to severity</td>
</tr>
<tr>
<td><strong>Motor features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal movements</td>
<td>Tremor and myoclonus</td>
<td>Usually absent</td>
</tr>
<tr>
<td>Psychomotor activity</td>
<td>Usually abnormal; increased or decreased</td>
<td>Usually normal</td>
</tr>
<tr>
<td>Dysgraphia</td>
<td>Usually present</td>
<td>Absent in mild cases</td>
</tr>
<tr>
<td>Autonomic features</td>
<td>Abnormalities often present</td>
<td>Normal (except that postural hypotension is common)</td>
</tr>
</tbody>
</table>
Questions

* Thank you!