Prevention of Delirium in Dementia

Appropriate Use of Antipsychotics Project
Seniors Health Strategic Clinical Network (SCN)
In collaboration with Addiction & Mental Health SCN
Team Introductions

- **Introduce your team/family member**
  - Names and roles

- **Provide a quick overview**
  - Current antipsychotic use
  - Successes/Stories: Supporting Sleep
  - Challenges
  - Why is delirium a topic of interest for you?
  - What do you hope to learn about delirium?

Confidentiality reminder
What does Delirium look like?

Confusion Assessment Method (CAM):
- Acute onset and/or fluctuating course
- Inattention
- Plus at least one of the following:
  - Disorganized thinking
  - Altered level of consciousness

You may see sudden changes in:
- Thinking/cognition
- Perception/senses
- Activity/physical function
- Social behaviour
Nearly everything but the – kitchen sink!

**What Causes Delirium?**

**Causes of Delirium:**

- THINK
- ICUDELIRIUMS
- IWATCHDEATH(E)
- BURPEDME

Roughly 94 possible causes included in the above acronyms
Key Causes of Delirium in Dementia

A vulnerable brain

Added stressors such as:

- Too many medications
- Dehydration
- Malnutrition
- Stress
- Infection
Why is Delirium a Problem?

60%
Delirium occurs in up to 60% of patients in nursing homes or post–acute care settings

49%
Care of older patients with delirium accounts for more than 49% of all hospital days

- Distress
- Cognitive Loss
- Hospitalization
- Death

Care of older patients with delirium accounts for more than 49% of all hospital days.
Can you Spot the Delirium?

Symptoms changes in:

- Cognition: more confused, more trouble paying attention, slower responses
- Depression: see or hear things that aren’t there
- Ineffective Approach: less, agitated, or hungry, sleeping
- Pain:
- Sleep Interference
- Constipation:
- Social behaviour: changes in mood, attitude, communication, acceptance of care
- Sedation
- Euphoria
- Boredom
- Delirium
- Overstimulation

Antipsychotic Side Effects
Can you Spot the Delirium?

Sudden changes in:

- **Cognition**: more confused, more trouble paying attention, slower responses
- **Perception**: See or hear things that aren’t there
- **Activity/physical function**: less movement or mobility, restless, agitated, not hungry, sleeping less
- **Social behaviour**: changes in mood, attitude, communication, acceptance of care

**Depression**

**Dementia**

**DEHYDRATION**

**Pill Side Effects**
Delirium - share your experience

- **Family members:** Do you have an experience with delirium to share?

- **Care Teams:** What has experience taught you about delirium?

- **HCAs:** What changes do you notice when delirium starts?

**Stop and Watch Early Warning Tool**

If you have identified a change while caring for or observing a resident, please circle the change and notify a nurse. Either give the nurse a copy of this tool or review it with her/him as soon as you can.

- Seems different than usual
- Talks or communicates less
- Overall needs more help
- Pain – new or worsening; Participated less in activities
- Ate less
- No bowel movement in 3 days; or diarrhea
- Drank less
- Weight change
- Agitated or nervous more than usual
- Tired, weak, confused, or drowsy
- Change in skin color or condition
- Help with walking, transferring, toileting more than usual

Complete Stop and Watch Early Warning Tool: available from Med-Pass.com
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Delirium and Brain Neurotransmitters

- Imbalances of neurotransmitters
- Blocking of acetylcholine can effect:
  - Learning and memory
  - REM sleep cycle regulation
  - Neuroendocrine function
  - Smooth muscle (intestines, bladder, arteries)
  - Heart rate and contraction strength
  - Sweat glands
  - Movement (muscle contraction)
Acetylcholine and Delirium

- Acetylcholine “powers up” activity in the brain, bowel, bladder, heart, muscles, lungs, etc.

- Acetylcholine levels are already lower in older adults (90% lower in Alzheimer's)

- Stress causes increased demand for acetylcholine

- Many medications block the actions of acetylcholine
Anticholinergic Cognitive Burden (ACB)

<table>
<thead>
<tr>
<th>Medication</th>
<th>ACB</th>
</tr>
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<tbody>
<tr>
<td>Metoprolol (Lopressor) 100 mg ER daily</td>
<td>1</td>
</tr>
<tr>
<td>Captopril (Capoten) 50 mg TID</td>
<td>1</td>
</tr>
<tr>
<td>Furosemide (Lasix) 40 mg daily</td>
<td>1</td>
</tr>
<tr>
<td>Trazodone (Desyrel) 50 mg hs</td>
<td>1</td>
</tr>
<tr>
<td>Paroxetine (Paxil) 20 mg daily</td>
<td>3</td>
</tr>
<tr>
<td>Oxybutynin (Ditropan ER) 10 mg</td>
<td>3</td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl) 25 mg QID</td>
<td>3</td>
</tr>
<tr>
<td>Quetiapine (Seroquel) 25 mg TID</td>
<td>3</td>
</tr>
<tr>
<td>Alprazolam (Xanax) 0.5 mg TID</td>
<td>1</td>
</tr>
</tbody>
</table>

**Anticholinergic cognitive burden**: 17
Dehydration:

- Lower blood pressure decreases blood flow to the brain – increases risk of delirium
- Damages brain cells
- Increases risk of falls
- Increases risk of urinary tract infections and constipation

Risks for Dehydration with Aging & Dementia

- Decreased thirst, confusion, impaired swallow
Dehydration can be caused by:

• Diuretics

• Sedatives and antipsychotics

• Drug induced diarrhea  
  e.g. laxatives, acid-blocking drugs, metformin, motility drugs, antibiotics, digoxin (at toxic levels)

• Drugs for bone density  
  (Esophageal swelling and ulceration from incomplete swallowing)
Nutrition and Delirium

- Healthy brain function requires many essential nutrients
- Acetylcholine production requires choline, which is found in eggs, meat, fish, cruciferous vegetables (e.g. broccoli), milk, peanuts
- Delirium risk increases with malnutrition: e.g. lower levels of Vitamin B 12, iron, proteins
Malnutrition, Drugs and Delirium

- Pill Burden: nausea, loss of appetite, feel full, agitation
- Anticholinergic burden: sedation, decreased gastrointestinal motility
- Olfactory disturbances with many common medications
- Impaired nutrient absorption
Infection and Delirium

• The battle against an invading organism that takes its toll on:
  o Brain neurotransmitters
  o Nutrition reserves
  o Ability to drink fluids
  o Energy

• Antibiotics kill good bacteria, increase re-infection risk (e.g. gut, bladder)
Urinary tract infections frequently misdiagnosed in the elderly

Treatment with antibiotics has many unwanted side-effects

Misdiagnosis means underlying cause of delirium is missed

PUSH FLUIDS for 24 hours

See [www.dobugsneeddrugs.org](http://www.dobugsneeddrugs.org) for:

- CHECKLIST for clinical assessment and management of UTI
- SLIDE SET with SPEAKING NOTES for staff education
- INFORMATION SHEET for healthcare aides and families
- Clinical Practice Guideline for UTI in LTCF from Toward Optimized Practice
Stress and Delirium

- **Choline** is required to make **acetylcholine**
- More **choline** is needed in the cells during stress - less **choline** available for the brain
- Stress increases adrenaline and cortisol
- These neurotransmitter imbalances can cause:
  - Anxiety
  - Paranoia
  - Crying
  - Aggression
  - Confusion
  - Seeing and hearing things
What if…

• Your bladder was full and you couldn’t empty it?
• You had a dental abscess and couldn’t tell anyone?
• You had constant pain in your legs from your statin?
• The pain of osteoarthritis wouldn’t let you rest?
• Gall stones caused agony after every meal?
Restraints and Stress

Use of physical restraints ...

- Was the factor most associated with the likelihood of delirium (Voyer 2009)

- Is associated with a 3-fold increase in chance of delirium persistence at time of discharge (Inouye 2007)
Stress Prevention Strategies

- Assess for discomfort
e.g. pain, urinary retention
- Avoid physical restraints
- Support sleep
- Reduce noise and overstimulation
- Consistent caregivers
- Meaningful activities
- Therapeutic napping
Summary

• Those with dementia are already at increased risk of delirium

• Delirium risk increases with:
  o Too many medications
  o Dehydration
  o Malnutrition
  o Stress
  o Infection

While delirium is a multifactorial process, it is estimated that medications alone may account for 12%-39% of all cases of delirium.

(Alagiakrishnan and Wiens 2004)
Delirium/Acute Confusion Reduction

Quality Improvement Project in Acute Care

50% reduction of medications known to cause confusion led to:

- 62% reduction in falls
- 100% decrease in sitter usage
- 25% decrease in physical restraints
- 22% decreased nursing workload on the night shift
Delirium Reduction Studies in LTC

• One large study
  - reduced use of medications that may contribute to delirium and saw a large reduction in delirium incidence

• A small study on hydration
  - it was very difficult to achieve target fluid intake in care-home residents
Hydration Strategies

- What have you tried that has improved hydration of residents?
- What is your experience with hypodermoclysis?
- What could you measure to know hydration strategies are working?
- Thickened fluids and dehydration
Delirium Risk Assessment

Goals:
• Protect physical and cognitive function
• Protect comfort
• Identify anticholinergic and pill burden
• Identify and reduce delirium risk

Consider:
• Interdisciplinary team observations
• Family/client concerns
• Factors that may increase risk of delirium, dehydration, malnutrition, infection or stress
How might a delirium assessment enhance medication reviews?
- On admission
- Monthly antipsychotic med reviews
- Quarterly
- Yearly

How/when would you bring input from the care team and families/alternate decision makers?
Delirium Diagnosis: CAM

1. Acute onset and fluctuating course
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness

A diagnosis of delirium requires the presence of features 1 & 2, plus either 3 or 4
Delirium Treatment
When are antipsychotics appropriate?

• Antipsychotics: Not a treatment for delirium, may cause/worsen delirium

• Appropriate use of antipsychotics in delirium:
  o Distressing psychosis endangering resident/others and non-pharmacologic strategies are ineffective
  o Psychosis is an obstacle to treatment
  o Short term (less than 1 week) while treating underlying causes

• Consider one time dose order with re-evaluation
Delirium and Parkinson’s Disease

- Main area of brain that manufactures the neurotransmitter dopamine dies
- Dopamine stimulates or inhibits activity in other neurons, including those that release acetylcholine, leading to imbalances
- Dopamine is involved in starting movement
- Medications that increase dopamine are one of the treatments for Parkinson’s Disease
- Too much dopamine can result in anxiety, paranoia and sexually inappropriate behaviour
• What are you already doing well?
• Where do you have room for improvement?
• What are your priorities and next steps?
Motivating the Resistant

Inform
Consult
Involve
Collaborate
Empower

Adapted from International Association of Public Participation