

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

What Causes Delirium?

Causes of Delirium:

- THINK
- ICUDELIRIUMS
- IWATCHDEATH(E)
- BURPEDME

Roughly 94 possible causes included in the above acronyms



**Nearly everything but the
– kitchen sink!**

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



Can you Spot the Delirium?

Symptoms changes in:

Depression

- **Cognition:** more confused, more trouble paying attention, slower response

- **Perception:** see or hear things that aren't there

Activity/physical: tired, weak, loss of interest

Mood: restless, agitated, not hungry, sleeping less

Social behaviour: changes in mood, attitude, communication, acceptance of care

Boredom

Can you Spot the Delirium?

Sudden changes in: **Depression**

- **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

Pill Side Effects

Dementia
DEHYDRATION

Delirium - share your experience

- **Family members:** Do you have an experience with delirium to share?
- **Care Teams:** What has experience taught you about delirium?
- **HCA's:** What changes do you notice when delirium starts?

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

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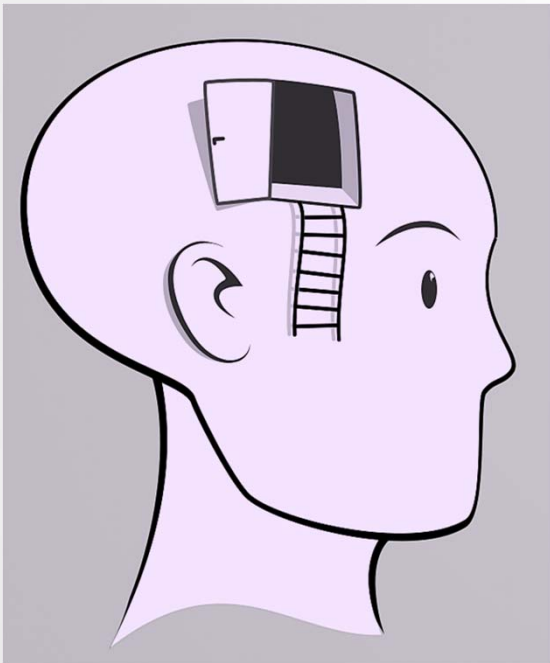
Stop and Watch Early Warning Tool



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.

S	Seems different than usual
T	Talks or communicates less
O	Overall needs more help
P	Pain – new or worsening; Participated less in activities
a	Ate less
n	No bowel movement in 3 days; or diarrhea
d	Drank less
W	Weight change
A	Agitated or nervous more than usual
T	Tired, weak, confused, or drowsy
C	Change in skin color or condition
H	Help with walking, transferring, toileting more than usual

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)

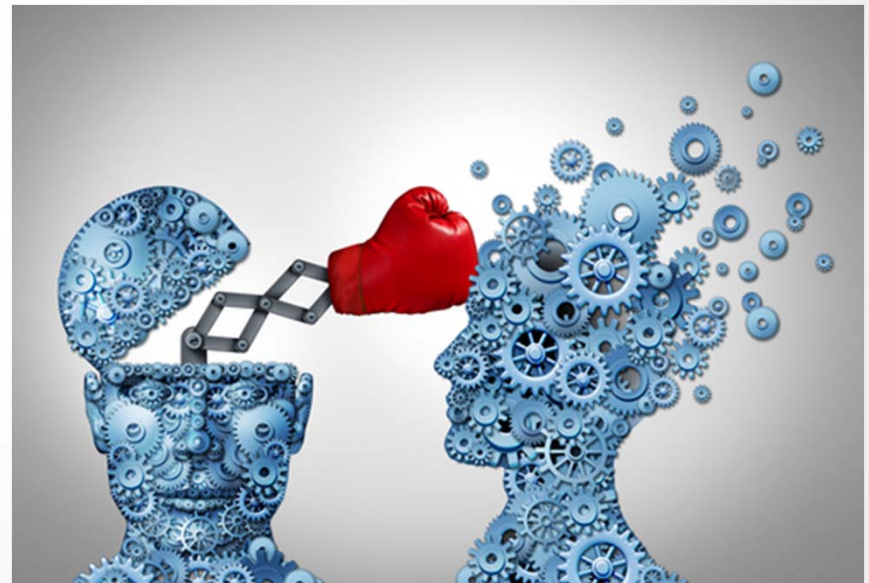
Acetylcholine and Delirium



- 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)

Medication	ACB
Metoprolol (Lopressor) 100 mg ER daily	1
Captopril (Capoten) 50 mg TID	1
Furosemide (Lasix) 40 mg daily	1
Trazodone (Desyrel) 50 mg hs	1
Paroxetine(Paxil) 20 mg daily	3
Oxybutynin (Ditropan ER) 10 mg	3
Diphenhydramine (Benadryl) 25 mg QID	3
Quetiapine (Seroquel) 25 mg TID	3
Alprazolam (Xanax) 0.5 mg TID	1
Anticholinergic cognitive burden	17



Dehydration and Delirium

How do you feel when you're dehydrated?



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, **Drugs** and Delirium

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:
 - Brain neurotransmitters
 - Nutrition reserves
 - Ability to drink fluids
 - Energy
- Antibiotics kill good bacteria, increase re-infection risk (e.g. gut, bladder)



A program of AHS
And BC Centre for
Disease Control

See 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

- 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**

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



Pain and Stress

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?



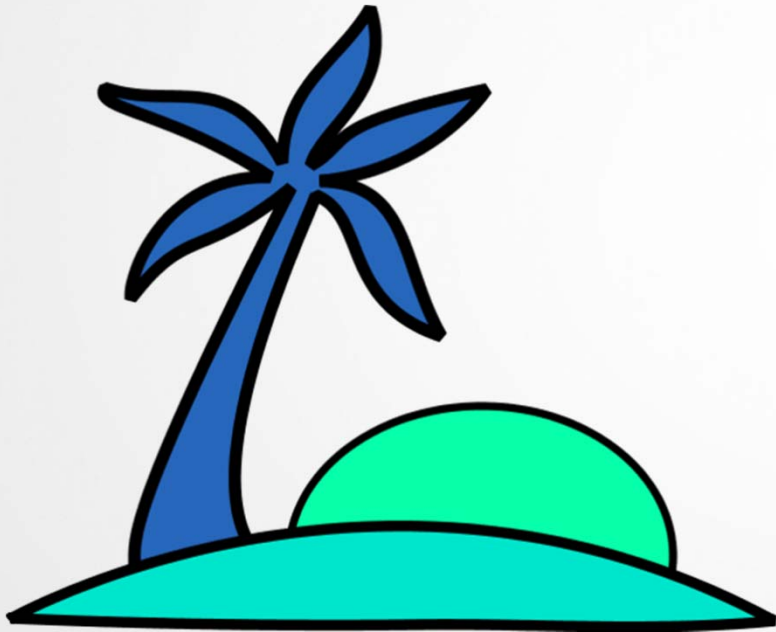
Restraints and Stress

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:
 - Too many medications
 - Dehydration
 - Malnutrition
 - Stress
 - 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



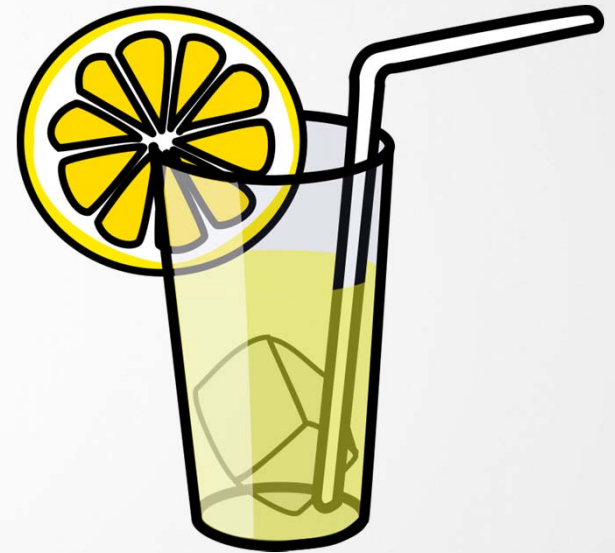
Delirium Reduction Studies in LTC

- 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

Delirium Risks/Potential Symptoms of Delirium		Comments, Strategies for Delirium Risk reduction
<input type="checkbox"/> Diagnosis of dementia <input type="checkbox"/> Confusion comes and goes e.g. sundowning <input type="checkbox"/> Awake at night/insomnia; day time drowsiness <input type="checkbox"/> Worsening memory loss, not recognizing others <input type="checkbox"/> Agitated, irritable, nervous, aggressive <input type="checkbox"/> Worsening calling out, confusion, disorientation <input type="checkbox"/> Inability to concentrate, disorganized thinking <input type="checkbox"/> New/distressing hallucinations or paranoia <input type="checkbox"/> Vision or hearing loss, language barrier		
Dehydration, hypotension, electrolyte disturbances: <input type="checkbox"/> Dehydration: dry lips/ tongue <input type="checkbox"/> Difficulty swallowing <input type="checkbox"/> Refuses / dislikes fluids <input type="checkbox"/> Diarrhea <input type="checkbox"/> Constipation <input type="checkbox"/> Dizzy e.g. when standing up, after meals <input type="checkbox"/> Falls, weakness		
Malnutrition: <input type="checkbox"/> Nausea & vomiting <input type="checkbox"/> Poor appetite/decreased food intake		
Stressors: <input type="checkbox"/> Restraints <input type="checkbox"/> Pain <input type="checkbox"/> Difficulty emptying the bladder <input type="checkbox"/> Difficulty breathing <input type="checkbox"/> Sleep interrupted e.g. pain, pills, continence care <input type="checkbox"/> Environmental stressors e.g. noise, odors <input type="checkbox"/> Distressed by blood tests, monitoring, medication administration, interventions <input type="checkbox"/> Changes: new admission, grief/loss, personal space		
Infection: <input type="checkbox"/> New/recurring infection e.g. UTI, pneumonia, virus		<input type="checkbox"/> Push fluids for 24 hours
Medications: Anticholinergic Cognitive Burden Score _____ <input type="checkbox"/> Recent Medication change: Medication Burden: # pills per day _____		<input type="checkbox"/> Medication Review
Other considerations		
Goals of Care		<input type="checkbox"/> Previous delirium
Cognitive Performance (CPS)		Frailty indicators (e.g. RAI CHES)
Blood sugar range		Change in weight
Changes in vital signs from baseline		Blood Pressure:
Temperature:	Pulse:	Respiratory Rate:
Comments: Care Provider, Client and Family/Alternate Decision Maker		
Name: _____ Signature: _____ Date: _____		

Medication Review

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

**Confusion
Assessment
Method**

Delirium Treatment

When are antipsychotics appropriate?

- Antipsychotics: Not a treatment for delirium, may cause/worsen delirium
- Appropriate use of antipsychotics in delirium:
 - Distressing psychosis endangering resident/others *and* non-pharmacologic strategies are ineffective
 - Psychosis is an obstacle to treatment
 - 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



Team Planning & Report Back

- What are you already doing well?
- Where do you have room for improvement?
- What are your priorities and next steps?

Team Action Plan for Delirium Prevention

1. Rate your facility/unit.

How is your facility doing in the following areas?	Poor	Average	Great
Appropriate use of Antipsychotics			
Support sleep, reduce sedatives			
Medication review to reduce pill and anticholinergic burden			
Appropriate use of Drugs for Bugs			
Reduced stress: pain			
Reduced stress of overstimulation (e.g. call bells, bed alarms, dining room noise)			
Reduced stress: consistent care providers			
Reduced stress: minimal use of physical restraints			
Support of hydration			
Support of nutrition			
Other			

2. Compare results as a team.

3. What are you doing well as a facility/unit? Celebrate!

4. Decide as a team what to focus on to reduce delirium in your facility/unit.

5. Determine next steps (see reverse)

6. Share your next steps!

We plan to focus on:

Steps to Culture Change	Action Plan: Who will do what, by when?
Stakeholders: Who can help you? Who needs to be part of the change?	
Awareness: How will you raise awareness of the problem?	
Desire: What are your obstacles? How can you create desire for change?	
Knowledge: What information do staff need to understand? How/when will you share it?	
Ability: What new skills/habits need to be developed? What resources can help?	
Reinforcement: How will you make it easier to change? How will you make it harder to stay the same?	

Motivating the Resistant

Inform

Consult

Involve

Collaborate

Empower

Adapted from International Association of Public Participation