Implementing Delirium Best Practices: Strategies, Tools, and Results of a QI project

Barry Ress, RN, ANP
Steven Freedman, MD

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Objectives

- Review best practices for prevention, diagnosis, treatment of delirium in hospitalized patients
- Describe Oakland Medical Center QI project and its findings
- Offer tools for provider and facility implementation of delirium best practices
Definition of Delirium

- Acute confusional state
- Acute decline in **attention** and **cognition**
Key Points

- Delirium kills
- Usually NOT diagnosed
- Often preventable
- Generally, an emergency
- Treatment: environmental & nursing protocols, judicious use of anti-psychotics
Common presentation

- 83 yo male, rectal fistula, opioid dose increased in hospital
- Day 2: agitated, confused
- Diagnosis of dementia subsequent
Cascade of Decline

- Delirium during hospitalization
  - Medical complications
  - Loss of independence
  - SNF
  - Death
Delirium incidence in hospital

- 4-29%
  - Most studies: ~20%

- In addition, 10-31% prevalence on admission
  - Most studies: ~13%

- Large variances due to patient characteristics, setting, detection method

Siddiqi, N, Age Ageing, 2006; 35:350.
Postoperative Delirium

- 15-53% of patients age > 70
- 50% elderly patients post hip fracture
- 10-30% post CABG

What % of ICU patients develop delirium?

- 10%
- 25%
- 50%
- 75%

In-hospital mortality rate

For patients who develop delirium:

- 14-37%
- Similar to sepsis, AMI

Siddiqi, N, Age Ageing, 2006; 35:350
Adverse Consequences

- Aspiration pneumonia
- Decubiti
- Functional decline
- Prolonged hospitalization, surgical recovery
- SNF placement RR 3.0 - 7.0
  - One month post discharged, 46% placed
<30% Delirium diagnosed

- Fluctuating course
- Overlap with dementia
- No definitive test
- Lack of formal cognitive assessment
- Hypoactive subtype
- Consequences underestimated
CAM: Confusion Assessment Method

1. Acute and fluctuating course
   • Change in mental status?
   • Come and go, increase/decrease in severity?

2. Inattention
   • Trouble focusing attention, easily distractible

3. Disorganized thinking
   • Rambling, incoherent, switching subjects unpredictably

4. Altered LOC
   • Hyperalert, drowsy, difficult to arouse, unarousable
   • Vigilant, lethargic, stupor, coma

1+2, either 3 or 4
Delirium

Acute mental status change, fluctuating course

&

Inattention

&

Or

Disorganized Thinking

Or

Altered Level of Consciousness
CAM: Confusion Assessment Method

- Sensitivity 94%
- Specificity 89%
- Inter-observer agreement 0.7 to 1.0
- CAM training manual:
  - [http://hospitalelderlifeprogram.org/pdf/The_Confusion_Assessment_Method.pdf](http://hospitalelderlifeprogram.org/pdf/The_Confusion_Assessment_Method.pdf)

Wei, L, Inouye, S et al JAGS, 2008; 56: 823.
Delirium-Dementia Connection

- Dementia leading risk factor
- Up to 2/3 delirium occurs in patients with dementia
- Hastens loss of function, cognition in demented patients
## Delirium vs. Dementia

<table>
<thead>
<tr>
<th></th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Onset</strong></td>
<td>Abrupt</td>
<td>Insidious</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Days to months</td>
<td>Gradually</td>
</tr>
<tr>
<td><strong>Attention</strong></td>
<td>Impaired</td>
<td>Normal, unless very severe</td>
</tr>
<tr>
<td><strong>Consciousness</strong></td>
<td>Fluctuating, reduced</td>
<td>Clear</td>
</tr>
<tr>
<td><strong>Speech</strong></td>
<td>Incoherent, disorganized</td>
<td>Ordered, anomic, aphasic</td>
</tr>
</tbody>
</table>
Mini-Cog: Quickest dementia screen
Additional features of delirium

- **Cognitive deficits**: disorientation, memory, language. *LUCID INTERVALS CHARACTERISTIC*
- **Perceptual disturbances**: 30%, illusions, hallucinations
- **Altered sleep-wake cycle**

- **Emotional disturbances**: fear, anxiety, depression, irritability, apathy, anger, euphoria
- **Psychomotor disturbances**
Delirium Subtypes

Hyperactive:
- Agitated, with restlessness,
- Picking at clothing,
- Frequent position changes, vigilant, hallucinating

Hypoactive:
- Sluggish, staring off into space, passive
- May be mistaken for opioid sedation or EOL obtundation

Mixed: Alternating
Hypoactive presentation

- 80 y.o male, cervical spine surgery, uneventful.
- Day 2, “apathetic, uncooperative”
Triggers to Suspect Delirium: Language

- Difficulty remembering recent events
- Forgets names of close family members or friends
- Speech difficulties
- Screaming, calling out, cursing, muttering, moaning
Triggers to Suspect Delirium: Behavior

- Cannot follow command
- Difficulties w/call button, remote, bed
- Requires assistance or total care with ADLs, not due to physical impairment or pain
- Attempting to get out of one’s environment
- Removing medical equipment (IV, catheters)
Duration

- 10-12 days, but can be < 1 week or > 2 months
- 15% last > 1 month, especially elderly
- Full recovery in elderly by discharge 4 - 40%
- Median onset hospital day 2-4 (range days 2 - 18)
ICU Delirium risk factors

Rompaey, B et al, Inten Crit Care Nurs, 2008; 24: 98
Delirium Model

Patient

Environment

Predisposing Factors

Precipitating Factors
Predisposing Factors

- Multifactorial is most common, > 50% have 2 - 6 risk factors
- Dementia is strongly associated (>50%)
- Age 65+, especially 80+
- Multiple conditions
- Low functional status
- Sensory and functional impairment
- Alcohol usage
- Polypharmacy (≥ 4 meds)
- Terminal illness
Precipitating = Exacerbating factors

- Acute medical illness
- MEDICATIONS
- Surgery
- Change in environment (hospitalization, room changes)
- Immobilization: 26% days bedrest, 31% bed to chair
- Restraints or restraint-like devices
- Sleep deprivation
- Metabolic derangements
Etiology: DELIRIUM

Dementia
Electrolytes
Lungs, liver, heart, kidney, brain
Infection
Rx (drugs), withdrawal
Injury, pain, stress, lack of sleep
Unfamiliar environment: ICU, restraints, Foley, leads, noise
Metabolic
Drugs Associated with Elderly Delirium

- **Anti’s:** Anticholinergics, antihistamines, antispasmodics, antidepressants, antiparkinsonians
- **Gastrointestinal:** H2 antagonists, metoclopramide
- **Sedative hypnotics:** benzodiazepines
- **Cardiac:** digoxin, antiarrhythmics, calcium channel blockers
- **Narcotics:** Meperidine (demerol)
- **Miscellaneous:** Steroids, NSAID’s, anticonvulsants
Ubiquitous Anticholinergics

- Amitriptyline, Doxepin
- CTM, Benadryl, Atarax, Meclizine, Promethazine
- Bentyl, Lomotil, Levsin
- Cystospaz, Ditropan
Diagnostic Difficulties

- **Depression**
  - Psychomotor retardation or agitation
  - LOC and attention normal
  - 1/3 consults for “depression” were hypoactive delirium

- **Acute psychosis**
  - No fluctuation

- **Partial Delirium**
  - Generally turns into delirium
  - Similar prognosis.
Diagnostic difficulties: Pain

- Untreated pain causes agitation, can be mistaken for delirium
- Over-treatment of pain with opioids can cause delirium (and hyperalgesia)
- Clue: worse after dose escalation, or short acting opioids
Opioid Neurotoxicity

- Myoclonus the hallmark
- + Delirium
- Morphine most common offender

Strategies:
- Reduce dose, adjuvants
- Opioid rotation
- Anti-psychotics
Terminal delirium

- 1-2 weeks before death
- Spiritual/existential/emotional crises contribute
- Incidence up to 85%
- Issue of “terminal restlessness”
  - Consider anti-psychotic akathesia
- Environmental measures
- Palliative sedation an option
Work-up

- Acute change?
- If uncertain, assume delirium
- All vulnerable patients should have formal cognitive assessment (CAM +/- MMSE, Mini-Cog)
Screening Tests*

- CBC, infection and severe anemia
- Lytes, esp. sodium
- BUN, Creat—dehydration
- Glucose
- Urine

- CXR if fever or lung findings
- LFT’s if suspect liver failure
- EKG
- O2 sat, ABG if COPD

Rarely helpful: tox screen, CT, MRI, LP, EEG

*ACP Pier review, 2003
Management

- Remove causes
- Environmental/nursing measures
- Prevent complications
- Treat behavioral symptoms
Use drugs *only* for agitation

- Avoid sedating agents, esp. benzodiazepines, often worsen or prolong delirium
- No medications beneficial in hypoactive delirium
<table>
<thead>
<tr>
<th><strong>Pros</strong></th>
<th><strong>Cons</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ PO/IV/IM</td>
<td>☐ Extrapyramidal (&gt; 3 mg/d), seen less with IV</td>
</tr>
<tr>
<td>☐ Large therapeutic window</td>
<td>☐ QT prolongation</td>
</tr>
<tr>
<td>☐ Lack of sedation</td>
<td>☐ Neuroleptic malignant syndrome</td>
</tr>
<tr>
<td>☐ Lack of resp. depression,</td>
<td></td>
</tr>
<tr>
<td>hypotension, hypotension,</td>
<td></td>
</tr>
<tr>
<td>cardiotoxicity</td>
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</table>
Drug Treatment: Haldooeridol

- 1-2 mg q 2-4 hours
- Elderly: 0.25-0.5 mg q2-4 hours
- Peak effect
  - PO 4-6 hours
  - IM 20-40 min
  - IV 10-20 min
- Titrate 2-5 mg IV q 1 hour until daily dose determined
Drug Treatment: Newer Antipsychotics

- Decrease in delirium scores same for low dose haloperidol (<3 mg/d) & olanzapine, risperidone
- Same incidence side-effects
- High dose haloperidol (>4.5 mg/d) higher incidence EPS than olanzapine

Risperidone 0.5-1.0 mg qhs (Risperdal)
Olanzapine 1.25-2.5 mg daily (Zyprexa)
Quitapine 25 bid (Seroquel). Not as well-studied

Antipsychotics for Delirium, Cochrane Review 2008. (3 studies)
# Antipsychotic dose ranges

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose range (hrs)</th>
<th>Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloperidol</td>
<td>0.5-2.0 mg q 2-12</td>
<td>PO, IV, SC, IM</td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>12.5-50 mg q 4-12</td>
<td>PO, IV, IM</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>2.5-10 mg q 12-24</td>
<td>PO, ODT</td>
</tr>
<tr>
<td>Risperidone</td>
<td>0.5 – 2 mg q 12-24</td>
<td>PO</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>12.5-200 q 12-24</td>
<td>PO</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>10-40 q 12-24</td>
<td>PO</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>10-30 q 24</td>
<td>PO, ODT</td>
</tr>
</tbody>
</table>

Drug Treatment: Benzo’s, Trazodone

- **RCT:** Benzo’s led to more agitation, worse cognition, oversedation, disinhibition
- **Indication:** Withdrawal, alcohol, sedative, hypnotic, Parkinson’s disease

**Trazadone**
- 25-150 @hs
- Uncontrolled studies

**Quetiapine** *(Seroquel)*
- 25-50 mg
- For already delirious
Delirium Prevention
40% Reduction in Delirium

<table>
<thead>
<tr>
<th>Targeted Risk Factor</th>
<th>Intervention Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cognitive impairment</td>
<td>Orientation protocol, therapeutic activities</td>
</tr>
<tr>
<td>2. Sleep deprivation</td>
<td>Nonpharmacologic sleep protocol</td>
</tr>
<tr>
<td>3. Immobility</td>
<td>Early mobilization protocol</td>
</tr>
<tr>
<td>4. Visual impairment</td>
<td>Vision protocol</td>
</tr>
<tr>
<td>5. Hearing impairment</td>
<td>Hearing protocol</td>
</tr>
<tr>
<td>6. Dehydration</td>
<td>Dehydration protocol</td>
</tr>
</tbody>
</table>

*Inouye SK, et al NEJM, 1999; 340: 669*
Nonpharmacologic Sleep Protocol

Δ Body Composition, Drug Metabolism → Toxicity

- **Toxicity:** delirium, falls, respiratory depression, daytime sedation, memory impairment
- **Environmental:** noise reduction, quiet hallways, no waking for VS, or early labs/procedures
- **Non-pharm measures:** 5 minute backrub, warm milk or other, relaxation tape
- **Hypnotics reduction:** 54% to 31%

Good sleep reported proportional to number of sleep elements administered
Nursing & Staff Interventions

- Gentle reorientation reminders: intro team members, review daily routine and schedule
- Promote physical comfort, pain assessment
- Schedule mobility sessions, increase daytime activities, sleep enhancement
- Hearing aides, glasses
- Daylight activity during day
- Verbal reassurance, touch
- Family education, support, encourage involvement
- Restraint avoidance
- Fluid and nutritional intake: dentures from home
Prophylactic low dose haloperidol

- 430 hip surgery patients
- Haloperidol 0.5 mg TID
- Reduction in severity and duration of delirium episode
- Reduce LOS

Kalisvaart et al JAGS 2005; 53: 1658
Two of the Most Effective Interventions

Hospitalization precipitates delirium, and worsens it, therefore:

1. Discharge

2. Bring “home” to the patient, i.e., have family stay, bring in familiar objects, etc.
Follow-up for patients with delirium

- Clinic provider role
- Regular, till clear
- Increased 1 year mortality may be impacted by this
Oakland Medical Center
Cognitive Impairment Project

Lessons Learned
Project Overview

- **History**:  
  - Delirium recognition and treatment initially recognized as opportunity for quality improvement at OMC in 2003 by Dr. Freedman  
  - Planned implementation of best practices  
  - Project delayed due to major regulatory visit
Resurrection in 2005

- Another window of opportunity in 2005 with new Director of Adult Inpatient Services
- NP hired to work part-time on implementation
Reconfiguring resurrected project

- Reconfigured as ‘cognitive impairment project’ to address the wider range of issues:
  - Demented patients at highest risk for delirium
  - Often at least initial difficulty in sorting-out type of cognitive impairment
  - Multiple impairments often present in same patient
  - Many measures work in many kinds of impairment
Components of Cognitive Impairment Project

- Inpatient care should be multidisciplinary, and so should project. Elements include:
  - Nursing (including staff, management, educators, APNs, UAs and ‘sitters’)
  - Medicine (with input from Psych and Geriatrics)
  - Social Work
  - Assist from Pharmacy
Goals

- Prevention, early identification and appropriate treatment of cognitive impairment should lead to:
  - Safer patients
  - Shorter LOS
  - Less sitter use
  - Less discharge to higher level of care
  - Better involvement and education of loved ones
Strategies

- Improve systems of care to guide caregivers to do the right thing
  - Pharmacy audit of high risk drugs and development of reminder system when high risk drugs ordered
  - Order sets to guide appropriate physician ordering
  - Nursing care pathway to guide nursing assessment, care and notification of physicians of positive screening
Strategies, cont.

Emphasize appropriate patient stimuli:
- Quiet on the units (staff reminders)
- Appropriate activities
- Appropriate use of electronics (TV, etc)
- Daylight
Strategies, cont.

- Involvement of family
- Sensory issues
  - Guide appropriate use
  - NOT LOSING glasses, hearing aides
And There They Went

- Multidisciplinary Committee formed
  - Nursing, medicine and social work
  - Regular meetings
  - Work plan
- Based on information from literature and internal experts
  - Deb Francis
  - CNS
  - MD experts
Where to Pilot

- MS ward (9th floor) chosen with preponderance of patients with advanced age and other risk factors for delirium
- Audit of census showed 36 bed unit generally had 2-3 patients at any one time NOT at risk for cognitive impairment
- Unit staff demoralized due to ‘feeling like they worked in a SNF’
- As nearly all patients at risk, and no measures perceived as harmful to non-high risk, decision made to target all patients on unit
Nursing Strategies

- Develop standard of care for at risk population
- Develop cognitive flow sheet to guide care, include Mini-Cog on admit and regular CAM’s
- Develop sitter standard
- Focus on geriatrics as a specialty
  - Rather than “dumping ground”
Nursing Strategies (cont.)

- Identify key staff (‘front-line leaders’ (FLL’s) on all shifts and weekends)
- Incentives to involve and maintain interest of FLL’s
- Provide expanded education of FLL’s and assistant managers
Nursing Strategies (cont.)

- Provide expanded education to FLLs and assistant managers
- Education of RN staff
- Education of all new graduates
- Education of CNAs and Unit Assistants (UA’s)
Nursing Strategies, cont.

- Make up ‘activity boxes’ for sitters to use
- Develop ways to help keep hearing aides and glasses from getting lost
Nursing Strategies, cont.

- Audit for use of flow sheet, accuracy of assessments, and reporting of positive screens
- Spot checks of sitter activity
- Checks of whether forms are in charts
Medicine Strategies

- Develop cog order sheet with brief educational info on it
- Educate on cog impairment and use of cog order sheet
- Work to move ‘upstream’ to at least get high risk meds off other adult admit standard order sets
- Pharmacy program for notifying when high risk med ordered.
Social Work Strategies

- SW assessment form to include baseline functional assessment and historical information especially re: recent decline in function
- Monitor for discharge level of care
  - Good cog care should decrease need to higher level of care
Monitoring for effect

- Indicators:
  - Falls
  - Restraints
  - Sitter use
  - LOS for specific DRG’s
So what actually happened?

- Project moved slower than many expected
  - Now in its 3rd year!
- Some things got done
- Some barriers identified
- Strategies evolving
Accomplishments

- Orders for at-risk patients developed, approved
Check box to activate order

Vital signs:
- Follow VS on most recent orders
- To maintain optimal rest/sleep cycle, HOLD BP and T when asleep from 10 p.m. to 6 a.m. while asleep; continue to monitor RR and P every 2–4 hours while asleep.

Activity:
- Implement all activity orders below
- Implement only those activity orders checked below:
  - Obtain patient's glasses and hearing aids, if used
  - Notify AM rounding physician on 3rd hospital day to consider discontinuation of Foley catheter, if inserted on admission
  - Walker and bedside commode as indicated, keep at bedside
  - If ambulatory, ambulate q.d., with assistance if unsteady or mentation abnormal
  - Out of bed to chair for all meals, starting hospital day #
  - ROM exercises or Bedside strengthening exercises
  - Lights off at 10 p.m., on during day while patient awake
  - TV and Radio off after 10 p.m.
  - Encourage families/caregivers to bring in familiar items (pictures, comfort items, etc)
  - Encourage family to stay with patient as much as possible to improve orientation

Nutrition Interventions
- Implement all nutrition interventions below
- Implement only those nutrition interventions checked below:
  - No caffeinated beverages after lunch
  - Prune juice, stewed prunes, or bran cereal daily once daily if taking medication
  - When taking greater than 1 liter per day of oral liquids, saline lock IV
  - For patients who do not have Foley and are taking orals, no liquids after 8 p.m.

Medications for agitation due to delirium:
- Haloperidol (Haldol) 0.5 mg PO or SL (0.25 ml of 2 mg/ml oral concentrate) if patient unable or unwilling to take PO form every 4 hours as needed for agitation related to delirium. May repeat every hour x 3 doses if agitation not relieved. Notify physician immediately if more than 2 doses needed. Notify physician if patient unable/unwilling to take PO/SL form.
- Haloperidol (Haldol) 1 mg PO or SL (0.5 ml of 2 mg/ml oral concentrate) if patient unable or unwilling to take PO form every 4 hours as needed for agitation due to delirium resulting in actual or imminent harm of self or others. May repeat every hour x 3 doses if agitation not relieved. Notify physician immediately after first dose given. Notify physician if patient unable/unwilling to take PO/SL form.

Medication for sleep: select one
- Trazadone 25 mg PO at bedtime PRN for insomnia, MR in one hour x 1 dose if not effective.
  (for patients without active delirium)
- Quetiapine (Seroquel) 25 mg PO at bedtime PRN for insomnia, MR in one hour x 1 dose if not effective.
  (for patients with active delirium)

Physician Reminder: Evaluate all medications that may contribute to delirium (see reverse)
Discontinue following medications:
## Risk Factors for Delirium (Informational)

<table>
<thead>
<tr>
<th>Predisposing</th>
<th>Precipitating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age greater than 65, esp. greater than 80</td>
<td>Greater than 6 total medications</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td>Greater than 3 new inpatient medications</td>
</tr>
<tr>
<td>Male</td>
<td>Dehydration</td>
</tr>
<tr>
<td>Depression</td>
<td>Psychotropic medication</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>Environmental change</td>
</tr>
<tr>
<td>Sensory Impairment</td>
<td>Restraint use</td>
</tr>
</tbody>
</table>

## Medications That May Contribute to Delirium (Informational)

<table>
<thead>
<tr>
<th>Class/Medications</th>
<th>Possible Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzodiazepines: esp. long-acting, diazepam, chlordiazepoxide, flurazepam</td>
<td>Non-pharmacologic sleep management, intermediate agents (lorazepam, temazepam).</td>
</tr>
<tr>
<td>Benzodiazepines: ultra short-acting: triazolam, alprazolam</td>
<td>Non-pharmacologic sleep management, intermediate agents (lorazepam, temazepam).</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Avoid inadvertent discontinuation, or substitute benzodiazepine.</td>
</tr>
<tr>
<td>Alcohol—take alcohol history</td>
<td>If history of heavy intake, careful monitoring and benzodiazepines if withdrawal symptoms.</td>
</tr>
<tr>
<td>Antidepressants, especially tertiary amine tricyclic agents: amitriptyline, imipramine, doxepin</td>
<td>Secondary amine tricyclics: nortriptyline, desipramine (as good for chronic pain). SSRI or other agents.</td>
</tr>
<tr>
<td>Antihistamines, including Diphenhydramine, Hydroxyzine, chlorpheniramine.</td>
<td>Non-pharmacological protocol for sleep. Pseudoephedrine for colds.</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Taper if warranted.</td>
</tr>
<tr>
<td>Anticholinergics: oxybutinin, Benztropine (Cogentin), Diphenoxylate with Atropine (Lomotil)</td>
<td>Lower dose</td>
</tr>
<tr>
<td>Opioid analgesics: especially meperidine</td>
<td>Local measures and non-psychoactive pain medications. Save opioids for moderate to severe pain. Must titrate risks from drugs vs increased risk delirium due to pain.</td>
</tr>
<tr>
<td>Antipsychotics: especially low potency, anticholinergic agents</td>
<td>Eliminate, or if necessary, use low dose high potency agents.</td>
</tr>
<tr>
<td>Anticonvulsants, especially primidone (mysoline), phenobarbital, phenytoin</td>
<td>Consider need for agent. Alternative agent. Toxic reactions can occur despite &quot;therapeutic&quot; drug levels.</td>
</tr>
<tr>
<td>Histamine-2 blocking agents</td>
<td>Lower dosage. Consider antacids or proton pump inhibitors.</td>
</tr>
<tr>
<td>Antiparkinsonian agents: levodopa-carbidopa, dopamine agonists, amantidine</td>
<td>Lower dose. Adjust dosing schedule.</td>
</tr>
<tr>
<td>Almost any medication if recently started, increased, or stopped.</td>
<td>Consider risks and benefits of all medications in the elderly.</td>
</tr>
</tbody>
</table>
Accomplishments

- Nursing flow sheet developed and tried
  - Modified to slimmed-down duofold
  - No longer using Mini-Cog, only CAM
**BEHAVIOR DESCRIPTION AND SUGGESTED INTERVENTION**

**CATEGORIZATION:**

**Behavior:** Larva.

**Description:** Attempted to get out of bed without supervision and pushed the button to call for assistance. (Correlation to Category 1: No issue.)

**Suggested Intervention:**

- **Behavioral Management:**
  - Keep call light and all necessary items within reach.
  - Encourage patient to stay in bed and find comfort in the environment.
  - Maintain consistent routines.
  - Increase supervision of behaviors.

- **Pharmacological Management:**
  - Medication management.
  - Monitoring for side effects.

**Category 1:**

**Behavior:** Larva.

**Description:** Patient attempted to get out of bed without supervision and pushed the button to call for assistance.

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---

**CATEGORIES**

**Category 1:**

- **Infusion:** IV medication.
  - Encourage patient to stay in bed and find comfort in the environment.
  - Maintain consistent routines.
  - Increase supervision of behaviors.

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**Category 2:**

- **Behavioral Management:**
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- **Pharmacological Management:**
  - Medication management.
  - Monitoring for side effects.

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**CATEGORIZATION:**

**Behavior:** Larva.

**Description:** Attempted to get out of bed without supervision and pushed the button to call for assistance. (Correlation to Category 1: No issue.)

**Suggested Intervention:**

- **Behavioral Management:**
  - Keep call light and all necessary items within reach.
  - Encourage patient to stay in bed and find comfort in the environment.
  - Maintain consistent routines.
  - Increase supervision of behaviors.

- **Pharmacological Management:**
  - Medication management.
  - Monitoring for side effects.
### Cognitive Assessment FLOWSCHEET

#### 1. Acute confusion
- Patient will return to baseline level of mental status or orientation.

#### 2. High risk for disturbed sleep pattern
- Patient will establish adequate sleep pattern.

#### 3. High risk for disturbed sensory perception
- Patient will demonstrate improved response to stimuli.

#### Procedure:
- **CAM** screening is to be performed at least once daily for the first three consecutive days, then every Wednesday to monitor cognitive status.
- **CAM** positive for Delirium when there is a "Yes" response to feature 1 and 2 and either 3 or 4.
- Activate the Cognitive Impairment standard of care and inform the physician when CAM is positive.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Feature 1: Acute onset of mental status change with fluctuating course</th>
<th>Feature 2: Inattention, difficulty focusing, irritability</th>
<th>Feature 3: Disorganized thinking</th>
<th>Feature 4: Altered level of consciousness</th>
<th>Delirium present?</th>
<th>Delirium present, MD notified</th>
<th>IN SIGNATURE</th>
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**Confusion Assessment Method Instrument**

1. Acute onset: Is there evidence of acute change in mental status from the patient's baseline?
2a. Inattention: Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?
2b. If present or abnormal: Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?
3. Disorganized thinking: Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
4. Altered level of consciousness: Overall, how would you rate this patient's level of consciousness? (Alert [normal], Vigilant [hyperalert, overly sensitive to environmental stimuli, startled very easily], Lethargic [drowsy, easily aroused], Drowsy [difficult to arouse], Coma [unarousable], Uncertain)
Accomplishments (cont.)

- Input into regional agitation standard
- Our experience helped with input on agitation standard
- Helped demonstrate need for delirium-prevention standard
Accomplishments (cont.)

- Yakker Trackers
- Findings from audits (following slides)
- Net bag trial
NP Audit results

- 36 pts evaluated
- NP screened: 20+ Mini-Cog, 8+ CAM
- RN screened: 10/36 Mini-Cog, 8/36 CAM
- 8 Mini-Cog RN/NP matches, 2 variances
- 6 CAM RN/NP matches, 2 variances
- 12 undone RN Mini-cogs screened + by NP
- 5 undone RN CAMS screened + by NP
NP audit Results cont.

- 8/36 bilateral cerumen
- 18/36 uni- or bilateral cerumen
- 10/36 had hearing loss in one or both ears matching impaction
- None picked up prior to audit
NP Audit Results cont.

- Multiple patients and family members expressed great enthusiasm for cognitive measures when they were explained to them.
Other Audits

- **Audits by RN Educator:**
  - Bed alarm use increased dramatically with audits and education

- **Audits by Assistant Managers:**
  - Utilization of forms was inconsistent at best
  - Supply of Nursing trifolds disappeared at one point
Staff Input:

- Focused meetings with RN staff:
  - Detailed tri-fold too much when added to burden of documentation already in place- *pointed out need to make charting more efficient overall*
  - Original cog care plan too detailed, includes much from standard care plan
  - Nurses found Mini-Cog problematic, admitted patients often with may issues and concurrent distress, Cog not really appropriate here
Staff Input cont.

- Nurses wanted more education
- Sitter resources an issue: CNA pulled from general ward work to be sitter—*this could be seen as incentive for nurses to do good cog care to decrease sitter need!*
Barriers Identified

- Staff turnover
  - Especially affected trained front-line leaders
- Management turnover
  - Manager and all but one assistant left during project
- Multiple initiatives (some Regional) make it hard for staff to concentrate on any of them
- IV haldoperidol issues
  - Extra 6 months to redo orders approved (only change deletion of IV route)
  - Affected viability of project not having these as part of pilot
Barriers Identified (cont.)

- Culture of ‘ignore it and it will go away.’
  - Experienced staff pass on to new staff
- Lack of committed time for project
  - Everyone doing as one extra thing
  - No carved out time for any participant, including NP
- Short attention span of institution
Barriers identified (cont.)

- Lack of staff level motivation to get small tests of change done
  - Not part of institutional culture
- Sitter issues
  - Need guidance and protocols
Barriers identified (cont.)

- Constant change in SW staff
- Turnover of core cog planning group
- Lack of APN committed to this care on unit
- Hard to get data
Barriers identified (cont.)

- Paperwork for nursing very onerous in general
- Suboptimal senior leadership buy-in
  - Other orders developed with at-risk medications
  - Lack of priority for this project
  - Lack of time for personnel
Barriers identified (cont.)

- New Stroke Center and ward reconfiguration initiatives may be lethal blow ("maybe we can do this in 6 months....")
- HealthConnect becoming a barrier in some institutions in current phase
  - More difficult to conduct local initiatives
# 1 contradiction

- IHI recommends ‘small tests of change’
- A multidisciplinary project like this is hard to implement in small bits
- Culture of change implemented from the top
IHI PDSA Model

- **Setting Aims**
  Improvement requires setting aims. The aim should be time-specific and measurable; it should also define the specific population of patients that will be affected.

- **Establishing Measures**
  Teams use quantitative measures to determine if a specific change actually leads to an improvement.

- **Selecting Changes**
  All improvement requires making changes, but not all changes result in improvement. Organizations therefore must identify the changes that are most likely to result in improvement.
IHI PDSA Model (cont.)

- **Testing Changes**
  The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change in the real work setting — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning.
IHI PDSA Model (cont.)

- **Implementing Changes**
  After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, the team can implement the change on a broader scale — for example, for an entire pilot population or on an entire unit.

- **Spreading Changes**
  After successful implementation of a change or package of changes for a pilot population or an entire unit, the team can spread the changes to other parts of the organization or in other organizations.
On the way up again: Implementing lessons learned

- Reconfigured project with small interdisciplinary planning group
- Manager on tele/surg ward expressed interest in appropriate identification and treatment of cog impairment
- -> Starting with small tests of change (multiple steps in putting cog orders in place for subset of patients on 8th floor)
On the way up again: Implementing lessons learned (cont.)

As we see how order set implementation proceeds, can move forward with materials developed for nursing and involve social work but do with eye to ‘small test of change’ strategy
On the way up again: Implementing lessons learned (cont.)

- Education content already developed
- Importance of this may get more ‘airtime’ with senior leadership now that CMS may be focusing on delirium/ potential for non-reimbursement.
- Need to get good practices built into regional standards
Lessons learned

- Staff and middle management motivation key
- Staff input
- Consistency
- Need for RN experts at bedside (CNS/APN)
Lessons learned

- Keep it simple
- Try to do in small bits
  - Acknowledging system barriers to this approach
Lessons learned

- Be flexible
- Consistent senior leadership buy in needed
- **Patience!!!!!**
Implementing delirium QI at your medical center

- Standardized admission orders, focused on prevention
- Nursing education re: diagnosis and environmental measures
- Physician education re: prevention, diagnosis, environmental and medication therapies
Questions/comments
Thank you for your attention!

If you want more info

Contact Barry Ress @
barry.ress@kp.org

Contact Steven Freedman @
steven.freedman@kp.org