Online Connect Webinars

“Elevating Nursing Awareness of Delirium through EMR Redesign and Team Education”
Elevating Nursing Awareness of Delirium through EMR Redesign and Team Education

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BACKGROUND
Stanford Health Care

613 licensed beds
49 operating rooms
2,466 doctors
2,908 RNs
Geriatric Clinical Services At Stanford Health Care

• Acute
  – NICHE program
  – Geriatric Medicine Consult Service (APP, MD)

• Post-acute
  – Medical Directorship in four Skilled Nursing Facilities

• Clinic
  – Primary care for Seniors 85 years and older

• Home
  – Care Transitions Program for Stanford Senior Care
  – Aging and Adult Services
Aging and Adult Services was created in 2004 by Rita Ghatak, PhD

Integrated, coordinated care for seniors/aging adults

Aging and Adult Services applied for NICHE status in 2012.

GRN model now on 14 units

“The face of the population we serve is aging and Stanford Health Care will be prepared to care for seniors and NICHE recognition represents our preparedness.” Nancy Lee, Chief Nursing Officer, Vice President, Patient Care Services
DELIRIUM
What is Delirium?

Delirium is a sudden change in mental status, which develops over hours to days.

It is different from dementia, which is a chronic confusional state that develops and progresses over a longer period of time.

Clinical Features:

- Disorganized thinking
- Altered sleep-wake cycle
- Increased or decreased psychomotor activity
- Perceptual disturbance: misinterpretations, illusions, hallucinations
- Reduced ability to maintain attention – questions must be repeated
- Clinical features fluctuate, so at times patient will appear normal

1 The Hospital Elder Life Program (HELP). © 2007 by Sharon K. Inouye.
Subtypes of Delirium

**Hyperactive Delirium**
- Easily startled
- Easily distracted
- Fast/loud speech
- Agitated
- Wandering
- Combative

**Hypoactive Delirium**
- Unawareness
- Lethargy
- Decreased alertness
- Staring
- Slow speech
- Apathy
- Decreased motor activity

**Mixed type**
Recognition of Delirium

- 65% unrecognized by physicians
- 43% unrecognized by nurses
- 41.8% of psychiatry consult service referral for depression have component of hypoactive delirium
- 40% of cognitively impaired individuals will develop delirium when hospitalized

What is Delirium?

Educational Video courtesy of University of Rochester Medical Center
Why is Delirium bad?

- **Increased mortality/morbidity**
  - Six month mortality 34% v. 15%
- **Longer hospital stay**
  - Up to 10 days longer
- **Higher Incidence of Chronic Cognitive Impairment**
  - 48% likely not to return to baseline
- **Additional post-hospital costs**
  - Placement
  - Home Care
  - Caregiver burden

Delirium is common

• In the hospital, outside the ICU, rates of delirium are 29–64%
• Prevalence of delirium in the community setting is relatively low (1–2%)
• On presentation to the emergency department, delirium is present in 8–17% of all seniors and 40% of nursing home residents.

INITIAL PLANNING PROCESS
Delirium Management Project Team

**Multidisciplinary Process Excellence**

Aging Adult Services

Psychiatry

Quality Improvement And Patient Safety

Guest Services

Physicians

Case Management/Social Work

Nursing
Delirium Project Goals

• Improve early identification for patients at high risk for delirium as well as those with delirium
• Implement evidence-based practices to minimize delirium-related symptoms
• Improve clinical outcomes
• Reduce sitter hours
• Streamline Medicine and Psychiatry consultation process
Initial Education Roll Outs

- **SHC EBP Fellowship** (Joanne Chien, MS, RN) evaluated best practices for teaching delirium screening

- **2008 Grand Rounds**, “What to Do When the Fog Rolls In: Early Recognition and Intervention Options for Delirium.”

- **2009 Confusion Assessment Method (CAM) Competency, Train-the-trainer** (Unit Educators)


- **2010 Annual Geriatric Conferences**- 3 Part Series (P. Schreiber )

- **NICHE team** launched with Geriatric Champions as teachers (Advisor, Diana Dela Cruz, CNS in Geriatrics)
SH 08-09 Delirium - Confusion Assessment Method Competency

Objectives:
1. State two nursing interventions to prevent / reduce the incidence of delirium.
2. State two pharmacologic interventions to prevent / reduce delirium.
3. Discuss the support services you can activate for patients with delirium at Stanford.
4. Perform a Confusion Assessment Method (CAM) or CAM-ICU.

Description:
These two 15 minute learning activities will review signs and symptoms of delirium. Nursing care to prevent and manage delirium will be outlined including specialty referral resources. A special posttest is designed to confirm knowledge of CAM screening vocabulary.
Early Identification of Patients

Age 65 or older, at risk for Delirium:
- Risk Assessment Tool on admission
- Ask family and caregivers for cognitive baseline
- Implement Delirium Prevention Nursing Care Plan
- Use delirium screening tool, CAM every shift

Age 65 or older, with Delirium:
- Use the CAM every shift
- CAM positive:
  - Contact the primary team physician. (MD confirms diagnosis of delirium; coordinates care with RN, Geriatric APN, and/or Psychiatry Consult Services; identifies underlying causes; initiates treatment.)
  - Implement Delirium Intervention Nursing Care Plan
  - Submit referral for Geriatric APN

For patients under age 65, the RN uses CAM on any patient who exhibits a change in cognition or mental status.

-- Primary MD team considers Psychiatry Consult.
Increased need for delirium support program for RNs

- Unit Educators/CNSs
  - Unaware of Delirium Consult Service
  - Lack of follow-up/education

- SHC nurses
  - Lack of education, care plans
  - Nurses not understanding how/when to use CAM

- EPIC
  - Screening tool-CAM has to be “wrenched in”
  - Unaware of consult service/program

- CAM
  - Promotion of services

- Aging Adult Service
  - Not referred appropriately

- Delirium cases in hospital
  - Not identified

- Best Practice Alert for patients with Delirium

Fishbone Diagram by (D. Dela Cruz, CNS)
ROLL OUT AT THE BEDSIDE
1. Nurse involvement in creating policy and procedure for preventing and managing delirium.

2. Goal to share nursing tools for delirium that increased nurse knowledge and skills about delirium.
• Stanford did not have a delirium prevention and/or management policy.

• Due to the high risk of delirium in elderly patients, Geriatric Nurses were actively involved in the development of the Delirium Prevention and Management Policy.
Using an interdisciplinary approach a policy was created.

Input was given about the assessment, prevention, management, and interventions for delirium.

Policy was approved hospital-wide and across disciplines and added to Stanford Healthcare intranet.
Choice of Confusion Assessment Method

• Based on evidence-based practice, Confusion Assessment Method was chosen and added to EMR.
• To be done every admission, every nursing shift, and/or any change in mental status.
• Included high risk criteria, like age, certain medication, history of cognitive impairment.
Rationale for Selecting CAM

• Can be used within RN scope of practice
• Utilized for screening purposes, not for diagnosis
• Does not require specialty training
• Briefer than other tools, with excellent sensitivity and specificity (five minutes)
• Easy to translate (must use exact words) for non-English speaking patients
BEST PRACTICES FOR DELIRIUM MANAGEMENT
Re-design CAM tool that was originally provided by EMR vendor (easier to follow, less rows)

- Replaced a row with “Delirium Interventions”
- Note: Row information is the “detail box”
High Risk Screening Criteria
(non-ICU patient units)

Patient is high risk if ≥2 of these criteria present: -
a) Age ≥65 years
b) Cognitive Impairment (current admission or prior history)
c) History of Delirium
d) History of Parkinson’s disease
e) Current admission for Stroke or Traumatic Brain Injury
f) Patient receiving any of these medications this admission: Opiates, Benzodiazepines (eg. Valium/Ativan), Corticosteroids, or Diphenhydramine (Benadryl)
g) Hearing or Vision Impairment
h) Language Barrier
i) History of Bipolar disorder, Depression, PTSD, or Schizophrenia
j) History of substance abuse
Best Practice Alert

- **Purple banner**: flags RN to do CAM screen Qshift for any High Risk patient
- Changes to “CAM positive, defer High Risk Assessment” when patient delirious
**DELIRIUM ALGORITHM**

**Confusion Assessment Method (CAM)**
*Found under Safety/Quality Flowsheet*
*Do Every Patient, Every Shift*
*Do at Admission or Change in Mental Status*
*If there is an acute change in at least 1 of the 4 features, suspect early delirium*

Feature 1: Acute Onset and/or Fluctuating
Feature 2: Inattention
Feature 3: Disorganized Thinking
Feature 4: Altered Level of Consciousness

**POSITIVE = Features 1 and 2 plus either 3 or 4**

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**NEGATIVE CAM**

Assess DELIRIUM RISK: By 9am
Does patient meet 2 or more of the criteria below?
- a. 65 years or older
- b. Current or History Cognitive Impairment/Dementia
- c. History of Delirium
- d. History of Parkinson’s Disease
- e. Current admission for Stroke/Traumatic Brain Injury
- f. Medication: Opiates, Benzodiazepines, Corticosteroids, Benadryl
- g. Hearing or Vision Impairment
- h. Language Barrier
- i. History of Bipolar, Depression, PTSD, Schizophrenia
- j. History of substance abuse

**No to Delirium Risk**
Continue CAM every shift

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**POSITIVE CAM**

*Continue CAM every shift and as needed*
*Notify Primary MD*
*Initiate Neuro, Psych Consults*
*Start Delirium Care Plan (in EPIC)*
*Show Skylight Delirium Video under Safety*
*Start Nursing Interventions using R*E*M*I*N*D*E*R*S*

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**Yes to Delirium Risk**

Continue CAM every shift and as needed
Start Delirium Care Plan (in Epic)
Show Skylight Delirium Video under Safety
If applicable, start Nursing Interventions using R*E*M*I*N*D*E*R*S

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Side effects</th>
<th>Considerations &amp; Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam (Xanax)</td>
<td>Confusion, prolongs delirium, falls</td>
<td>Avoid if possible. Consider non-pharmacologic TX for agitation, anxiety (i.e. redirecting, re-orientation). Check pt 1hr after dosing</td>
</tr>
<tr>
<td>Amitriptyline (Elavil)</td>
<td>*Anti-cholinergic (Ach) effects</td>
<td>Anti-cholinergic (ach) precautions **(see below)</td>
</tr>
<tr>
<td>Anti-psychotics (1^st &amp; 2^nd generation)</td>
<td>Increased risk for cerebrovascular accident (stroke) and mortality in persons with dementia. Extrapyramidal symptoms (EPS).</td>
<td>Avoid use for behavioral problems of dementia unless non-pharmacologic options have failed and patient is threat to self or others. Avoid in Parkinson's patients due to risk of worsening Parkinsonian symptoms. Consult Psychiatry.</td>
</tr>
<tr>
<td>Baclofen (Lioresal)</td>
<td>*Anti-cholinergic effects, sedation</td>
<td>Hot compress, PT/OT/stretching for spasms; Ach precautions**</td>
</tr>
<tr>
<td>Chlomazepam (Klonopin)</td>
<td>See lorazepam</td>
<td></td>
</tr>
<tr>
<td>Celecoxib (Celebrex)</td>
<td>See lorazepam</td>
<td></td>
</tr>
<tr>
<td>Dapoxetine (Pfizer)</td>
<td>See lorazepam</td>
<td></td>
</tr>
<tr>
<td>Diltiazem (Cardizem)</td>
<td>See lorazepam</td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>Strong anti-cholinergic*</td>
<td>AVOID if possible. Have patient lie down x1hr after dose; use topical agent for itching. Ach precautions**</td>
</tr>
<tr>
<td>Famotidine (Pepcid)</td>
<td>Confusion, often in patient with CKD/ESRD</td>
<td>Inform MD if patient is confused. Try protonix.</td>
</tr>
<tr>
<td>Hydrocortisone (Cortef)</td>
<td>Emotionally labile; aggression; possible psychosis</td>
<td>Give lowest dose possible. Avoid dosing after 6 p.m.</td>
</tr>
<tr>
<td>Hydromorphone (Hdyromine)</td>
<td>*Anti-cholinergic (Ach) effects</td>
<td>AVOID if possible. Have patient lie down x1hr after dose; use topical agent for itching. Ach precautions**</td>
</tr>
<tr>
<td>Ibuprofen (Motrin, Advil)</td>
<td>Increase risk of GI bleed, acute renal failure in elderly</td>
<td>Consider Tylenol as alternative Dose any NSAID with food</td>
</tr>
<tr>
<td>Indomethacin (Indocin)</td>
<td>High risk for GI bleed/Peptic Ulcer Disease</td>
<td>Avoid. Use other alternatives.</td>
</tr>
<tr>
<td>Lorazepam (Ativan)</td>
<td>Confusion, prolongs delirium, strong FALLS risk factor</td>
<td>Avoid if possible. Consider non-pharmacologic tx for agitation, anxiety (i.e. redirecting, re-orientation). Check pt 1hr after dosing</td>
</tr>
<tr>
<td>Meperidine (Demerol)</td>
<td>Anti-cholinergic effects.</td>
<td>Nephrotoxic Do not use. Safer alternatives available.</td>
</tr>
<tr>
<td>Meroclopramide (Reglan)</td>
<td>Tardive dyskinesia, confusion, stiffness, abnormal movements.</td>
<td>Avoid, unless for gastroparesis. Can cause EPS. Use Zofran for nausea.</td>
</tr>
<tr>
<td>Opioids/Narcotics</td>
<td>Sedation, constipation, confusion, N/V, itching, dizziness</td>
<td>Avoid if possible. Start with low doses. Discuss with primary MD, Pharmacy. Tylenol as an alternative.</td>
</tr>
<tr>
<td>Paroxetine (Paxil)</td>
<td>Most anti-cholinergic in class</td>
<td>Anti-cholinergic precautions**</td>
</tr>
<tr>
<td>Prednisone</td>
<td>See hydrocortisone</td>
<td></td>
</tr>
<tr>
<td>Prochlorperazine (Compazine)</td>
<td><em>Anti-cholinergic effects</em>, stiffness, abnormal movements</td>
<td>Avoid in Parkinson's patients. Use Zofran instead for nausea</td>
</tr>
<tr>
<td>Promethazine (Phenergan)</td>
<td>See Prochlorperazine</td>
<td>Avoid in Parkinson’s patients</td>
</tr>
<tr>
<td>Scopolamine</td>
<td>*Anti-cholinergic effects</td>
<td>Avoid. Unless in short term palliative care to decrease oral secretions.</td>
</tr>
<tr>
<td>Temazepam (Restoril)</td>
<td>See Lorazepam</td>
<td></td>
</tr>
<tr>
<td>Zolpidem (Ambien)</td>
<td>Fails, Delirium</td>
<td>Avoid. Use non-pharmacologic approaches. Recommend low dose Melatonin or Trazadone</td>
</tr>
</tbody>
</table>
Nursing non-pharmacologic interventions: R*E*M*I*N*D*E*R*S

- **Routine:** Maintain sleep-wake cycle: **Daytime**-open blinds, keep room well-lit, keep patient awake, limit daytime naps; **Night time**- close blinds, dim lights, earplugs, eye mask, promote uninterrupted sleep, bundle care; ↓ noise/interruptions

- **Education:** Educate patient, caregivers, sitter/PC; Resources-Delirium Micromedex Care Notes; Delirium Brochure

- **Mobility:** Physical and/or Occupational Therapy, Out of Bed for meals 3x/day, Ambulate with assist

- **Interaction:** Calm tone of voice; Glasses and Hearing aids/Pocket talker in use; Engage with patient. Music Therapy

- **Neuro Assessments:** Frequent Neuro Checks, Procedures (i.e., MRI, CT Scan, EEG); Labs (i.e., ammonia, electrolytes, infection workup)

- **Drugs:** GO LOW AND SLOW; Review MAR check w/ MD/PharmD. Refer to “Geriatric High Alert Medication List”

- **Experts:** Family members/caregivers, Consult with Geriatrics CNS, Neurology, Psychiatry, Hospitalist

- **Reorient:** Frequent reorientation; Cognitive/Social stimulation (talk to patient, puzzles, art, music, massage, aromatherapy, reading); Encourage familiar faces/objects. Visible clock & calendar

- **Safety:** Falls precautions; Bed alarm; Use of sitter  Remove unnecessary lines; Pressure ulcer prevention; Restraints as last resort; Limit clutter; Aspiration Precautions
**Delirium: Prevention and Management**

**DELIRIUM PREVENTION AND MANAGEMENT**

- Minimize delirium
  - Notify MD if CAM positive
  - Obtain patient’s baseline mental status
  - Mobilize early and promote daytime activity
  - Re-orient every 2 hours
  - Promote night time sleep
  - Manage pain
  - Manage toileting and provide bowel care
  - Educate and involve family

**Knowledge Deficit: Delirium Prevention and Management**

- Patient/Family understands delirium/involvement in pt care
  - Education, reassure family/caregivers about delirium
  - Education, show delirium video in skylight
  - Education, provide delirium materials
  - Education, family/caregiver presence at bedside
  - Monitor for effect of family visitation
  - Education, mementos from home can help
RESULTS
Delirium Incidence

Hospital-Acquired Delirium by ICD code
PROVIDER EDUCATION
• MD order set for Delirium includes pharmacological and non-pharmacological interventions, recommendations for hypoactive delirium and hyperactive delirium. Non-ICU only

• Collaboration: Hospital Medicine, Neurology, PM&R, Psychiatry, Nursing
MANAGEMENT OF ACUTE DELIRIUM (on floors)
(Nidhi Rohatgi, MD MS, Jose’ Maldonado, MD, FAPM, Yelizaveta Sher, MD, Nirali Vora, MD, Maarten Lansberg, MD PhD, Kara Flavin, MD)

**DELIRIUM HIGH-RISK PATIENTS**

If ≥2 of these criteria present:
- Age ≥65 years
- Cognitive Impairment (current admission or prior history)
- History of Delirium
- History of Parkinson’s disease
- Current admission for Stroke or Traumatic Brain Injury
- Patient receiving any of these medications this admission: Opiates, Benzodiazepines (eg. Valium/Ativan), Corticosteroids, or Diphenhydramine (Benadryl)
- Hearing or Vision Impairment
- Language Barrier
- History of Bipolar disorder, Depression, PTSD, or Schizophrenia
- History of substance abuse

**HYPOACTIVE DELIRIUM**
If ≥4 of these criteria present & based on clinical assessment:
- Unawareness
- Lethargy
- Sparse/Slow speech
- Staring
- Decreased alertness
- Lack of enthusiasm
- Decreased/Slow movement

**HYPERACTIVE DELIRIUM**
If patient meets below description:
Acute fluctuating change from baseline cognitive function with restlessness, agitation, hypervigilance, hallucinations, or delusions

- Minimize deliriogenic medications
- Non-pharmacological measures (By nursing)
- Work up precipitating cause of delirium
- Melatonin 6 mg PO qPM (at 2000 hrs)
- Sleep aid (Trazodone 25 mg or Zolpidem 2.5 mg qhs PRN)
- Antipsychotic (see next slide for dosing algorithm)
  - 1st line: Quetiapine (Sedating)
  - 2nd line: Haloperidol

**HYPERACTIVE DELIRIUM: Antipsychotic algorithm**

1. Avoid antipsychotics
2. Remove QT prolonging drugs and reassess QT
3. Consider Neurology / Psychiatry consult

- **QTc > 500 ms**
  - Yes
    - Parkinson’s disease or Traumatic Brain Injury
      - Yes
        - Consult Psych/Neuro
      - No
        - **PO QUETIAPINE**
  - No
    - **Patient able to swallow**
      - Yes
        - **PO QUETIAPINE**
      - No
        - Consult Psych/Neuro
    - **NO**
      - **PO QUETIAPINE**
      - **IV HALOPERIDOL**

**PO QUETIAPINE (Seroquel)**
- (1st choice - sedating)
- 12.5 mg q6h PRN
- 0.25-0.5 mg q6h PRN

**IV HALOPERIDOL (Haldol)**
- (2nd choice)
- 1-2 mg qHS + 0.5-1 mg q6h PRN
- 2-4 mg qHS + 1-3 mg q4h PRN

**MILD AGITATION**
- (easily redirectable patient: RASS 1)
- 12.5 mg q6h PRN

**MODERATE AGITATION**
- (Restless, impulsive, poor safety awareness, not easily redirectable: RASS 2)
- 25 mg qHS + 12.5 mg q6h PRN

**SEVERE AGITATION**
- (Pulling lines/tubes, combative: RASS 3 or 4)
- 25-50 mg qHS + 12.5-25 mg q6h PRN

*Avoid antipsychotics in patients with Lewy Body dementia OR QTc > 500 ms*

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SHC Provider and Family Resources

• Consults:
  – **Neurology** if concern for seizure, stroke, dementia, other comorbid neurological disease
  – **Psychiatry** if underlying psychiatric illness and/or patient not responding to current antipsychotic regimen.
  – **Geriatric Medicine** if patient over 65 with cognitive impairment

• Family Support:
  – Skylight Video (under “Safety”)
  – Delirium brochure (available in Chinese, Korean, Russian, Spanish and English)
  – CNS in Geriatrics: Astrid Block, MS, RN; phone: 650-683-5065
Next Steps

• Update Patient Companion guidelines and increase Nursing Assistant education
• Pre-surgery Risk Assessment
• Establish prominent location and standardized tool in EMR for baseline cognitive assessment
• Automatic Pharmacy referral for CAM positive patients
1. Delirium is a common and life-altering
2. Multiple education strategies must be employed to spread practice change in a large institution
3. EMR redesign and auto-triggers for best practices are key to sustaining improvements in delirium identification and management
4. The work is never done!


References (cont)


