# 1 Opioid & Sedation Management

ADE  Failure to Rescue  Delirium  Falls  Airway Safety  VTE  VAE

W A K E - U P

March 20, 2018

IHAconnect.org/Quality-Patient-Safety
Indiana’s Bold Aim

To make Indiana the safest place to receive health care in the United States... *if not the world*
# 1 Opioid & Sedation Management

ADE | Failure to Rescue | Delirium | Falls | Airway Safety | VTE | VAE

W A K E - U P
Wake Up Webinars

**State of the State: State & National Opioid Stats and Emergency Department Point Program**
- January 23, 3-4pm ET: Kaitlyn Boller, MHA & Krista Brucker, MD
- **Audience:** Emergency Dept personnel, LCSW, pharmacy, discharge planners, care coordinators, quality, educators

**Obstructive Sleep Apnea & STOP BANG Assessment**
- February 20, 3-4pm ET: Abhinav Singh, MD & Debby Hentz
- **Audience:** Medical Surgical Staff, Respiratory, Educators

**Sedation Management and Opioid Practices & the ABCDEF Bundle**
- March 6, 3-4pm ET: Opioid & Sedation Management Best Practices & ABCDEF Bundle
  - Maryanne Whitney, Cynosure Health & Jennifer Hittle, IU Health Arnette
- **Audience:** ICU/Medical/Surgical/Procedural Staff & Managers, Pharmacy, Respiratory, Educators

**Delirium Assessment, Prevention, & Treatment**
- March 20, 3-4pm ET: Malaz Boustani, MD
- **Audience:** Quality, ICU/Medical/Surgical Staff & Managers, Pharmacy, Educators

Use the following to join each installment in the series:

**Dial in number:** (888) 390-3967  
**Participant link:** [https://join.onstreammedia.com](https://join.onstreammedia.com)
WAKE UP promotes opioid and sedation management to reduce unnecessary sleepiness and sedation.

- Informational State Survey
- Educational Webinars
- Online Resources
  - Webinar recordings, resource sheet, webinar information sheet and pre-written WAKE UP social media are available here on the IHAconnect.org website: https://www.ihaconnect.org/patientsafety/Initiatives/Pages/UP-Campaign.aspx
Wake-Up Resources

- **Social Media**
- **Resource Sheet**
- **Webinar Information**
  - (click hyperlink above to access—also accessible on IHA website-Patient Safety Up Campaign)
- **HIIN Wake UP Self-Assessment & Monitoring Tool**
MULTIMODAL PAIN MANAGEMENT

• **Combination of opioid and one or more other drugs**
  - acetaminophen (Tylenol, others)
  - ibuprofen (Advil, Motrin IB, others)
  - celecoxib (Celebrex)
  - ketamine (Ketalar)
  - gabapentin (Gralise, Neurontin)

• **Non-pharmacological interventions**

[www.mayoclinic.org/pain-medications/art-20046452](http://www.mayoclinic.org/pain-medications/art-20046452)
CAN WE MANAGE PAIN WITH NON-PHARMACOLOGIC METHODS?

What do we do at home?

**Comfort measures:**
- Aromatherapy
- Massage
- Herbal tea
- Stress ball
- Music
- Pet therapy
- Warm compresses, blankets
- Ice packs
- Extra pillows
Q2 We use a standardized delirium screening tool for assessing and monitoring delirium or confusion.

Answered: 20    Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75.00%</td>
</tr>
<tr>
<td>No</td>
<td>25.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q3 If yes, please select which of the following tools are in place:

Answered: 15  Skipped: 5

- Delirium Triage Screen
- Confusion Assessment
- 4 'A's Test
- Modified Early Warning Score
- Other (please specify)

Other: RASS, CAM-ICU & bCam, POSS

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium Triage Screen (DTS)</td>
<td>0.00%</td>
</tr>
<tr>
<td>Confusion Assessment Method (CAM)</td>
<td>80.00%</td>
</tr>
<tr>
<td>4 'A's Test</td>
<td>0.00%</td>
</tr>
<tr>
<td>Modified Early Warning Score</td>
<td>13.33%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>33.33%</td>
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<tr>
<td>Total Respondents: 15</td>
<td></td>
</tr>
</tbody>
</table>
Q4 Do you use a standardized delirium or confusion screening tool in the following areas? (Check all that apply)

Answered: 16  Skipped: 4

**Answer Choices** | **Responses**
---|---
Medical-Surgical Units | 31.25% 5
Post-Anesthesia Care Units | 6.25% 1
ICU's | 81.25% 13
Psychiatric Units | 6.25% 1
Emergency Department | 0.00% 0
Other (please specify) | 0.00% 0

Total Respondents: 16
Q5 Do you have standard nursing policies for interventions to prevent delirium?

Answered: 19  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47.37%</td>
</tr>
<tr>
<td>No</td>
<td>52.63%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
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</tbody>
</table>
Indiana Hospital Association (IHA) HIIN WAKE Up Survey

Q6 Do you have specific standardized physician-ordered interventions to prevent delirium?

Answered: 20    Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>35.00%</td>
</tr>
<tr>
<td>No</td>
<td>65.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Other interventions your organization has implemented related to delirium prevention?

- **Staff education**
- **PCA Management to monitor respiratory rates and EtCO2**
- **Nursing Care Plan for delirium prevention**
- **ICU processes and geriatrics experts are working**
- **RASS to score ICU patients when sedated**
Polling Question #1

• What is your primary role within your organization?
  ▪ Infection Prevention
  ▪ Nursing Professional
  ▪ Laboratory Professional
  ▪ Medical Staff
  ▪ Environment Services / Housekeeping
  ▪ Social Worker
  ▪ Mental Health Professional
  ▪ Other
Delirium: The Brain Reaction to Acute Illnesses

Malaz Boustani, MD, MPH
Richard M Fairbanks Professor of Aging Research, Chief Innovation & Implementation Officer, Center for Health Innovation and Implementation Science Indiana University, CTSI, School of Medicine; Regenstrief Institute, Inc Past President, American Delirium Society
Funding Sources:

- National Institute on Aging
- National Institute on Mental Health
- John A Hartford Foundation
- American Federation of Aging Research
- The Atlantic Philanthropy.
- Center for Medicare and Medicaid Innovation
Significant Financial Conflict of Interest Disclosure (over the past year)

Equity Ownership in
- PPHM, LLC
- RestUp, LLC
Objectives

• Increase awareness of the negative impact of delirium on cognitive health, hospital acquired complications, and the cost of hospital care of acute illnesses.
• Identify hospitalized patients who are at high risk of developing delirium
• Utilize a standardized delirium detection approach.
• Recognize the efficacy of multicomponent non-pharmacological interventions in preventing delirium.
• Utilize evidence based approach to manage delirium induced agitation.
Cognitive Impairment (CI) During Acute Illness

- Acute Brain Injury:
  - **Delirium**
  - Subsyndromal Delirium

- Chronic Brain Injury:
  - Dementia (Alzheimer, Vascular,…)
  - Mild Cognitive Impairment (MCI)

*Khan et al, JHM 2012; Boustani et al, Health & Aging 2008; Campbell et al, JCIA 2009; Boustani et al, JHM 2010*
Definition: Delirium

- Acute onset,
- Altered level of **consciousness**, 
- **Fluctuating** course and
- Disturbances in
  - orientation,
  - memory,
  - **Attention**, 
  - Thinking, 
  - perception and
  - behavior

*Inouye 1990; APA 1994*
Delirium Pathogenesis

- Infection
- Inflammation
- Anticholinergic Drugs

Insult → Interaction → Vulnerability

Final common pathway:
- Neurotransmitter imbalance
  - ↓Ach ↑Dop ↑GABA

Delirium severity & duration

- ↓IGF-1
- ↑APOE-4
- ↑CRP
- ↑Cortisol
- ↑SAA
- ↑IL-6
- ↑CRP
- ↑IL-8

APOE-4
- ↓IGF-1
- ↑S100β
- ↑NSE

Khan et al, JAGS 2011
Do you need to care?
Prevalence and Recognition in the 21st Century! Emergency Department

<table>
<thead>
<tr>
<th>Delirium (CAM +)</th>
<th>7% to 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognized Delirium</td>
<td>16% to 35%</td>
</tr>
</tbody>
</table>

LaMantia M et al, Ann Emerg Med 2014
## Prevalence and Recognition in the 21st Century!

<table>
<thead>
<tr>
<th>Cognitive Impairment within 48 hrs of Hospital Admission of Elderly (SPMSQ ≤ 8)</th>
<th>43%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognized Cognitive Impairment</td>
<td>39%</td>
</tr>
<tr>
<td>Delirium within 48 hrs of Admission (CAM +)</td>
<td>16%</td>
</tr>
<tr>
<td>Recognized Delirium</td>
<td>44%</td>
</tr>
</tbody>
</table>

*SPMSQ: Short Portable Mental Status Questionnaire; CAM: Confusion Assessment Method*

*Boustani et al JHM 2010*
## Delirium Impact in the 21st Century Hospital

<table>
<thead>
<tr>
<th></th>
<th>Delirium+*</th>
<th>Delirium−</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>163 (38)</td>
<td>261 (62)</td>
<td>n/a</td>
</tr>
<tr>
<td>Age, mean (SD)</td>
<td>78.4 (8.5)</td>
<td>76.5 (7.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>Female (%)</td>
<td>60.1</td>
<td>69.7</td>
<td>0.05</td>
</tr>
<tr>
<td>African American (%)</td>
<td>64.4</td>
<td>56.3</td>
<td>0.10</td>
</tr>
<tr>
<td>Charlson comorbidity index, mean (SD)</td>
<td>1.8 (1.9)</td>
<td>2.3 (2.1)</td>
<td>0.01</td>
</tr>
<tr>
<td>Length of hospital stay, mean (SD)</td>
<td>9.2 (7.9)</td>
<td>5.9 (4.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Survived at 30-day postdischarge (%)</td>
<td>91.4</td>
<td>95.8</td>
<td>0.09</td>
</tr>
<tr>
<td>Discharged home (%)</td>
<td>24.5</td>
<td>49.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Readmission within 30 days after discharge home (%)</td>
<td>22.5</td>
<td>17.8</td>
<td>0.50</td>
</tr>
<tr>
<td>Observed with Foley catheter (%)</td>
<td>51.5</td>
<td>22.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Observed with physical restraint (%)</td>
<td>4.3</td>
<td>0.0</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Observed with tethers (%)</td>
<td>89.0</td>
<td>69.4</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Boustani et al JHM 2010
# ICU Delirium in the 21st Century

<table>
<thead>
<tr>
<th></th>
<th>Mechanically Ventilated &gt; 17 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium Prevalence</td>
<td>59%</td>
</tr>
<tr>
<td>Delirium Incidence</td>
<td>21%</td>
</tr>
<tr>
<td>Prevalence of Acute Brain Dysfunction (Coma or Delirium)</td>
<td>87%</td>
</tr>
</tbody>
</table>
## 21st Century ICU Delirium Care

<table>
<thead>
<tr>
<th></th>
<th>Discharged Dead</th>
<th>Discharged to non Home setting</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Delirium</strong></td>
<td>6%</td>
<td>18%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Any Delirium</strong></td>
<td>25%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td><strong>No Intubation</strong></td>
<td>4%</td>
<td>17%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Any Intubation</strong></td>
<td>24%</td>
<td>33%</td>
<td></td>
</tr>
</tbody>
</table>

Khan et al, ADS conference 2011
Delirium Simple Facts

- 7 million hospitalized Americans suffer from delirium.
  - 27% of ICU patients ≥ 18 years
  - 49% of ICU patients ≥ 60 years
  - Recognition Rate < 40%

- High mortality rates at
  - One month (14% vs. 5%)
  - 6 months (22% vs. 11%)
  - 23 Month (38% vs. 28%)

- $152 billion in health care cost
  - Double the length of Hospital Stay
  - Double the odds of institutionalization
  - Double the odds of developing dementia

Boustani et al JHM 2010; Khan et al. JHM 2012; Witlox et al. JAMA 2010; Rudolph et al. JAGS 2011;
Delirium Prevention & Management

• Three Systematic Evidence Reviews (SER)
  - Campbell et al, Pharmacological Management of Delirium in Hospitalized Adults, JGIM 2009
  - Khan et al, Delirium In Hospitalized Patients, JHM 2012
Delirium Management Algorithm

Khan et al, JHM 2012

*APACHE: Acute Physiology and Chronic Health Evaluation.
Delirium Risk Assessment

Vulnerability
- Age
- Anticholinergics
- Respiratory Disease
- ETOH abuse
- Dementia
- Depression

Insult
- Infection
- APACHE II high score
- Hyper/Hypotension
- Hyperbilirubinemia
- Hyperamylasemia
- Hypercalcemia
- Hyponatremia
- Morphine, lorazeame, Dopamine
- Fever
- Anemia

Khan et al, JHM 2012
• Pro-active Geriatric Consult
• High Quality Sleep
• Avoid psychotropics, Anticholinergics, Benzodiazepine & Opioids
• Prevent Electrolytes disturbance and dehydration
• Adequate lightning and hearing aids
• Avoid restraints and Foley catheterization
• Improve communication and orientation
• Low dose Risperidone preoperatively?

# Delirium Diagnosis

<table>
<thead>
<tr>
<th>Acute and fluctuating changes in mental status</th>
<th>Attention deficit</th>
<th>Disorganized thinking</th>
<th>Hypo-alert or hyper-alert status</th>
</tr>
</thead>
<tbody>
<tr>
<td>As demonstrated by one of the following:</td>
<td>As demonstrated by one of the following:</td>
<td>As demonstrated by one of the following:</td>
<td>As demonstrated by one of the following:</td>
</tr>
<tr>
<td>• family member interview</td>
<td>• nurse interview</td>
<td>• nurse interview</td>
<td>• nurse interview</td>
</tr>
<tr>
<td>• nurse interview</td>
<td>• patient inability to spell first name backward</td>
<td>• patient inability to spell first name backward</td>
<td>• chart review</td>
</tr>
<tr>
<td>• chart review</td>
<td>• patients inability to repeat a phone number</td>
<td>• patients inability to repeat a phone number</td>
<td>• patient sleepiness</td>
</tr>
<tr>
<td>• ≥ 2 points acute drops in MMSE score during the hospitalization</td>
<td>• patient inability to count backward from 20 to 1</td>
<td>• patient inability to count backward from 20 to 1</td>
<td>• patient restlessness</td>
</tr>
<tr>
<td>• discrepancy between different examiners regarding patient’s mental status</td>
<td></td>
<td>• patient incoherent speech</td>
<td></td>
</tr>
</tbody>
</table>

| Yes or No | Yes or No | Yes or No | Yes or No |

Delirium is present if patient has: Acute and fluctuating changes in mental status and attention deficit + One of the following: Disorganized thinking or Hypo/ hyper alert status
**Delirium Management**

**Nursing Care**
- Pain
- Constipation
- Dehydration
- Sleep Deprivation
- Visual & Hearing Aids
- Orientation

**Drugs**
- Low Dose haloperidol
- Stop Anticholinergics
- Taper Benzodiazepine

*Campbell et al, JGIM 2009; Khan et al, JHM 2012*
Manage Delirium-Induced Agitation

- √ Vital signs, Pulse O2, Chemistry, and CBC
- Focus on Aggression towards others
- Focus on non-aggressive physical agitation that seriously interferes with the management of underlying medical conditions
- Hospital based CNA/RN Delirium management skills development program
- Use of
  - Sitter
  - Delirium room
  - Pharmacological restraint for refractory aggression PRN
- No Benz except for ETOH related delirium

Khan et al, 2012; Campbell et al, JGIM 2009; Boustani &Buttar, Chapter 15, Primary Care Geriatrics 2007
Delirium’s room

**Reassurance.**
- Decorate the room with familiar items
- Short but frequent professional and family visits
- Provide eyeglasses and hearing aids if needed

**Reorientation:**
  - Calendar,
  - Clock, and
  - Frequently remind the pt of the day and the date

**Maintaining Circadian Rhythm:**
  - Adequate use of lights, especially at night
  - Appropriate stimulation

Boustani & Buttar, Chapter 15, Primary Care Geriatrics 2007
When to use Medications

• Safety and medical care are in jeopardy
• D/C all Anticholinergic medications

• Crisis time:
  ➢ Haloperidol (B evidence): 0.25-0.5 mg PO 5-15 minutes for max dose of 2-3 mg in 24 hours.

Khan et al, 2012; Wang et al, Crit Care med 2012; Campbell et al, JGIM 2009; Boustani &Buttar, Chapter 15, Primary Care Geriatrics 2007
Questions & Answers?

Contact & Resources

• [www.americandeliriumsociety.org](http://www.americandeliriumsociety.org)

➢ June 2018, San Francisco, Annual Conference

• mboustan@iupui.edu
Know your patient’s baseline...

• The single biggest problem with communication is the illusion that it has taken place – George Bernard Shaw
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