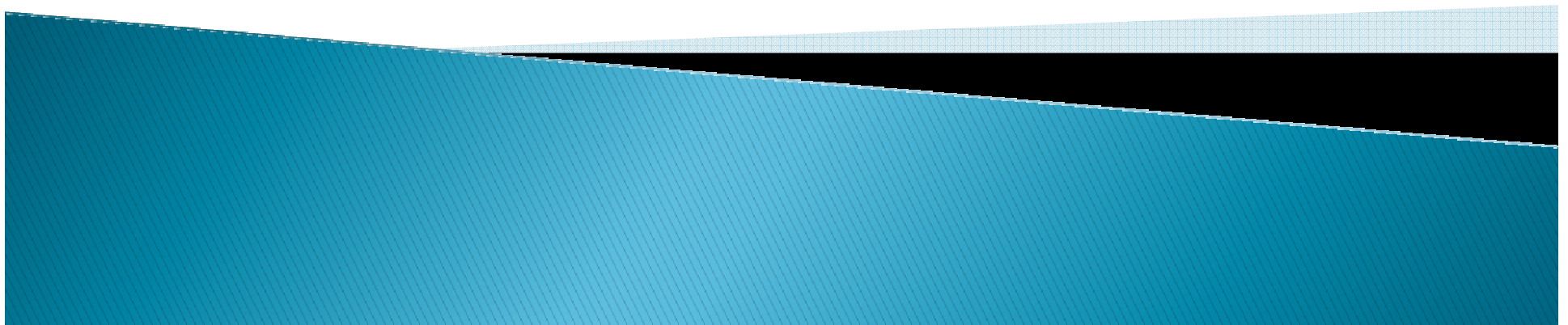


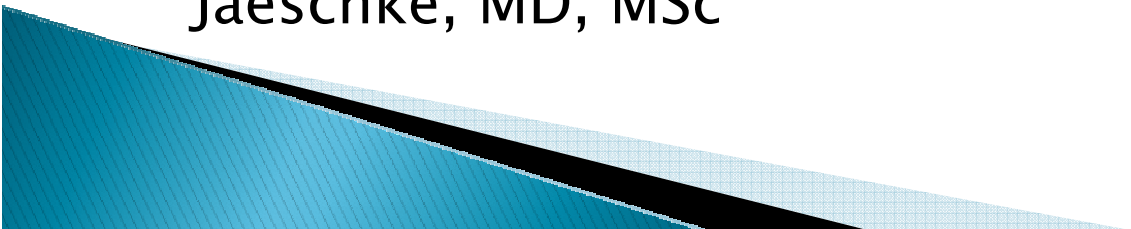
# Overview of ACCM's 2013 ICU PAD Guidelines

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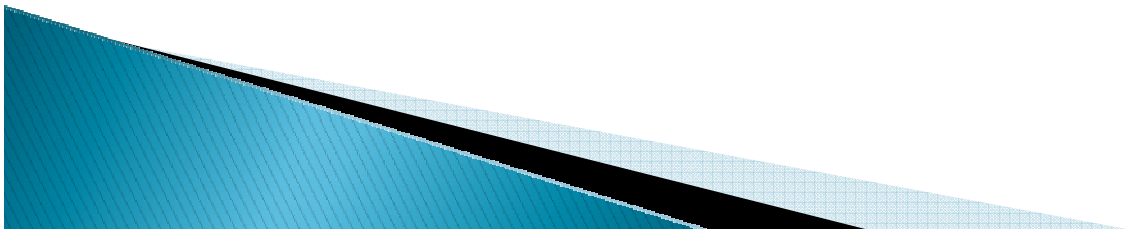
# Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit

Authors: Juliana Barr, MD, FCCM; Gilles L. Fraser, PharmD, FCCM; Kathleen Puntillo, RN, DNSc, FAAN; E. Wesley Ely, MD, MPH, FACP, FCCM; Céline Gélinas, RN, PhD; Joseph F. Dasta, MSc; Judy E. Davidson, DNP, RN; John W. Devlin, PharmD, FCCM; John P. Kress, MD; Aaron M. Joffe, DO; Douglas B. Coursin, MD; Daniel L. Herr, MD, MS, FCCM; Avery Tung, MD; Bryce R. Robinson, MD, FACS; Dorrie K. Fontaine, PhD, RN, FAAN; Michael A. Ramsay, MD; Richard R. Riker, MD, FCCM; Curtis N. Sessler, MD, FCCP, FCCM; Brenda Pun, RN, MSN, ACNP; Yoanna Skrobik, MD, FRCP; Roman Jaeschke, MD, MSc



# Objectives

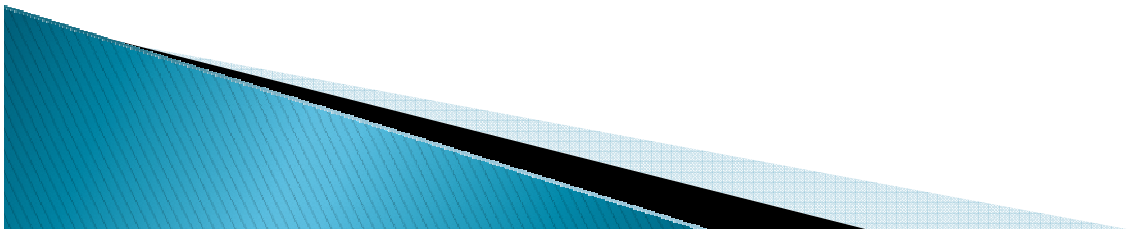
- ▶ Highlight differences between the new PAD guidelines versus previous published guidelines
- ▶ Review current recommendations
- ▶ Review the PAD Care Bundle



# What's Different in this Version of the PAD Guidelines?


## ▶ Methods

- GRADE Methodology
- More rigorous, transparent process – minimizes COI
- Strength of recommendations = strength of evidence + relative risks, benefits of interventions – more practical, applicable
- Expert opinion not used as a substitute for making recommendations without evidence – more robust
- Electronic database with > 19,000 references
- Anonymous voting – all statements, recommendations



# What's Different in this Version of the PAD Guidelines?

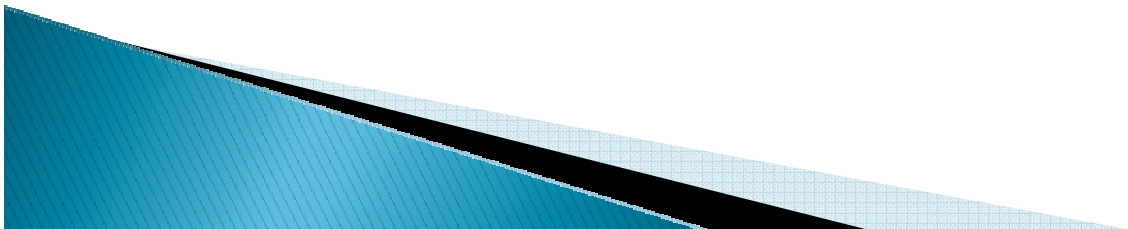
## ▶ Content

- Psychometric assessments comparing pain, sedation and delirium monitoring tools (defines the most valid, reliable, and feasible tools to use in ICU patients)
  - More patient-centered, integrated, and interdisciplinary approach to managing pain, agitation, and delirium (less emphasis on pharmacotherapy)
  - Greater emphasis on the pathophysiology, risks, and management of delirium
- 

# What's Different in this Version of the PAD Guidelines?

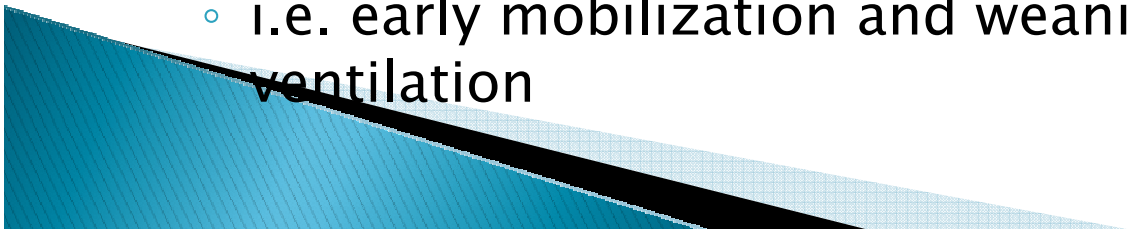
## ▶ Scope

- Much larger – 53 statements and recommendations
- Versus 28 recommendations in the 2002 “Clinical Practice Guidelines for the Sustained Use of Sedatives and Analgesics in the Critically Ill Adult”
- Evidence based – literature gaps, identifies future research areas
- ICU PAD Care Bundle
  - Integrates PAD management in the ICU
  - Links PAD to SBT, early mobility, and sleep hygiene programs



# Pain and Analgesia

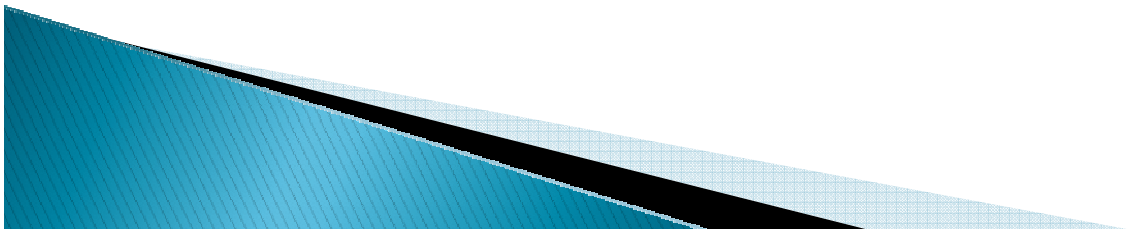
- ▶ “Unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”
- ▶ Subjective in nature
  - In ICU, ability to assess is the foundation for effective pain management
- ▶ Pain evokes a stress response
  - Increased circulating catecholamines = arteriolar vasoconstriction, impaired tissue perfusion, and reduced tissue–oxygen partial pressure
- ▶ Pain can preclude patient participation in care
  - i.e. early mobilization and weaning from mechanical ventilation



# Pain and Analgesia Recommendations

## ▶ Assessment

- Pain should be routinely monitored in all adult ICU patients
  - Behavioral Pain Scale (BPS)
  - Critical-Care Pain Observation Tool (CPOT)
- Vital signs should not be used alone
  - Used as a cue for further assessment
- Significantly associated with a reduction in the use of analgesics, ICU LOS, and duration of mechanical ventilation

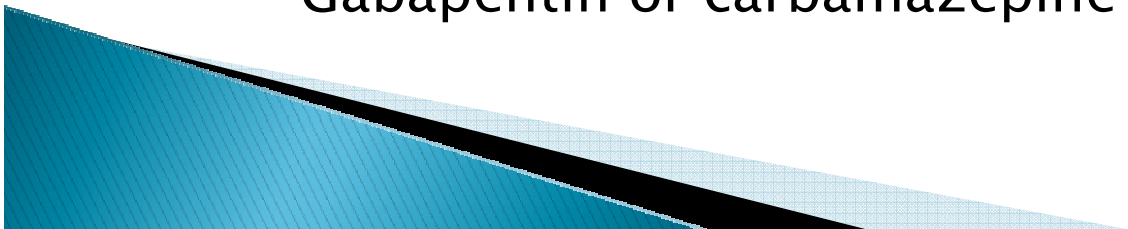




# Pain and Analgesia Recommendations

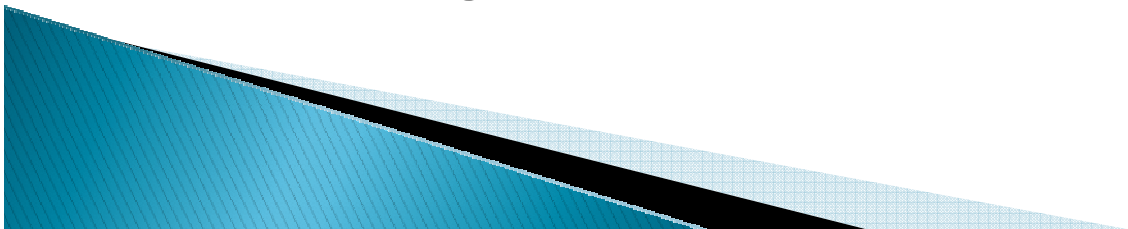
## ▶ Treatment

- Preemptive analgesia for invasive and potentially painful procedures
- IV opioids considered 1<sup>st</sup> line drug class of choice
  - Fentanyl, hydromorphone, morphine, methadone, remifentanyl
  - Equal efficacy and similar clinical outcomes when titrated to similar pain intensity endpoints
- Non-opioid analgesics to decrease amount of opioids administered and to decrease opioid-related SE's
  - Gabapentin or carbamazepine



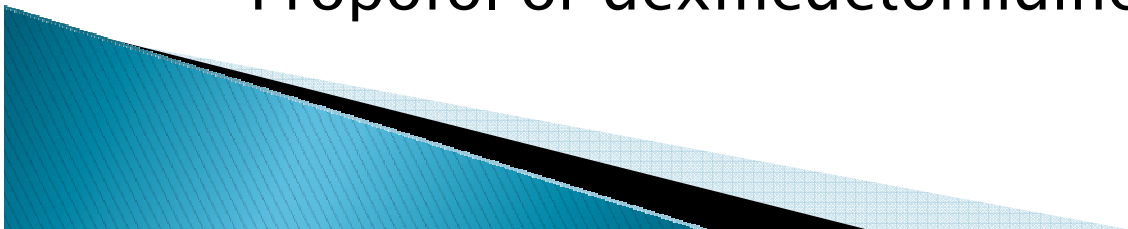
# Agitation and Sedation

- ▶ Agitation and anxiety occur frequently in critically ill patients and is associated with adverse clinical outcomes
- ▶ Sedatives are commonly administered to treat agitation
- ▶ Historically, benzodiazepines (midazolam and lorazepam) and propofol have been commonly used to sedate patients
- ▶ 2002 guidelines recommended midazolam only for short-term sedation, lorazepam for long-term sedation, and propofol for patients requiring intermittent awakenings



# Agitation and Sedation Recommendations

- ▶ Depth of sedation
  - Light sedation is associated with improved clinical outcomes
    - Shorter duration of mechanical ventilation
    - Shorter ICU LOS
- ▶ Sedation monitoring
  - Richmond Agitation–Sedation Scale (RASS)
  - Sedation–Agitation Scale (SAS)
- ▶ Choice of sedative
  - Non–benzodiazepine sedatives preferred
  - Propofol or dexmedetomidine



# Sedative Agents

## ▶ Midazolam and Lorazepam

- Lorazepam more potent
- Midazolam more lipid soluble = quicker onset of sedation and larger VOD
- Both associated with respiratory depression and systemic hypotension
  - More likely to occur with baseline respiratory insufficiency and/or cardiovascular instability

## ▶ Propofol

- Binds to multiple receptors in the CNS
- No analgesic effects
- High lipid solubility = rapid redistribution = rapid offset
  - Useful in frequent awakenings for neurologic assessments and may facilitate sedation vacations

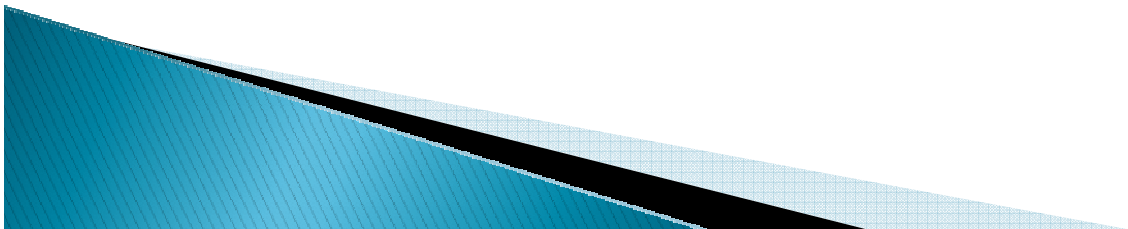
Dose-dependent respiratory depression and hypotension



# Sedative Agents Continued

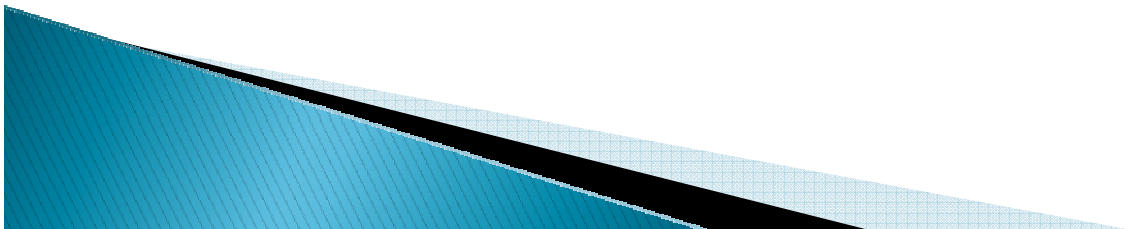
## ▶ Dexmedetomidine

- Selective alpha-2 receptor agonist
- Analgesic/opioid sparing effect
- Sedated patients more easily arousable and interactive with minimal respiratory depression
- Only FDA approved for short-term sedation (< 24 hours)
- Most common SE's are hypotension and bradycardia
- Only sedative approved in the U.S. for non-intubated ICU patients



# Delerium

- ▶ Affects up to 80% of mechanically ventilated patients
- ▶ Associated with an increased mortality, prolonged ICU admission, hospital LOS and post-ICU cognitive impairment
- ▶ Cardinal features:
  - Disturbed level of consciousness with a reduced ability to focus
  - Change in cognition or the development of perceptual disturbances



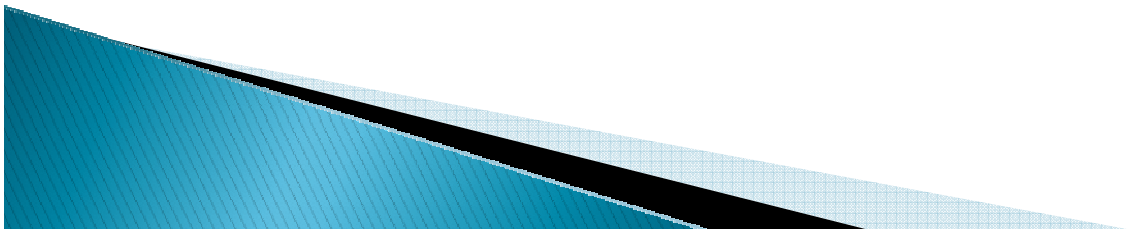
# Delirium Recommendations

## ▶ Monitoring

- The Confusion Assessment Method (CAM-ICU)
- Intensive Care Delirium Screening Checklist (ICDSC)

## ▶ Risk factors

- Baseline risk factors: Pre-existing dementia, h/o HTN and/or alcoholism, and a high severity of illness at admission
- Opioids, benzodiazepines and propofol?
- Dexmedetomidine preferred for sedation in intubated patients at risk of delirium vs. benzodiazepines



# Delirium Recommendations

## ▶ Prevention

- Early mobilization
- No recommendations for a pharmacologic delirium prevention protocol or dexmedetomidine
- Do not recommend using haloperidol or atypical antipsychotics

## ▶ Treatment

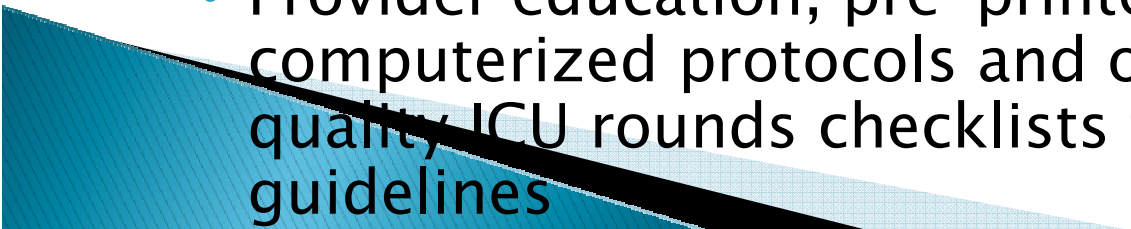
- Atypical antipsychotics
  - Not recommended in patients at risk for torsades de pointes
- Dexmedetomidine > benzodiazepines for sedation in patients with delirium unrelated to EtOH or benzo w/d

No recommendations for haloperidol

Rivastigmine not recommended

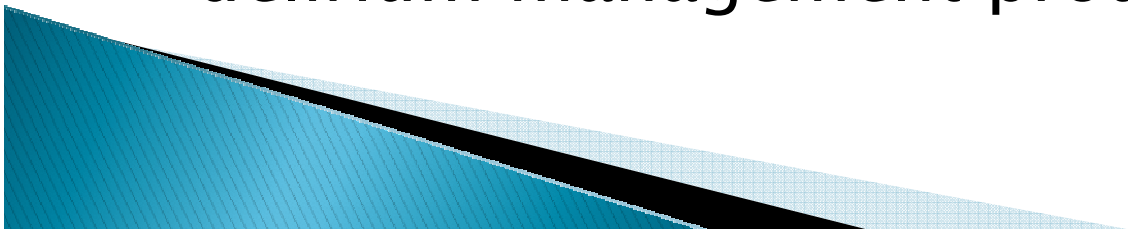


# Strategies for Managing Pain, Agitation and Delirium to Improve ICU Outcomes

- ▶ Daily sedation interruption or light level of sedation
  - ▶ Analgesia–first sedation
  - ▶ Promote sleep
    - Optimize patients’ environments, control light and noise, clustering patient care activities and decreasing stimuli at night
    - No recommendation for using specific modes of mechanical ventilation to promote sleep
  - ▶ Recommend using an interdisciplinary ICU team approach
    - Provider education, pre–printed and/or computerized protocols and order forms, and quality ICU rounds checklists to facilitate PAD guidelines
- 




# ICU PAD Care Bundle

- ▶ Step 1: Implement pain, agitation, and delirium assessment tools in the ICU
- ▶ Step 2: Incorporate PAD Assessments into daily ICU care plan
  - What is the patient's pain score and their current analgesia regimen?
  - What is the patient's current and target sedation scores, and their current sedation regimen?
  - What is the patient's delirium score and what are their delirium risk factors?
- ▶ Step 3: Apply ICU specific pain, agitation and delirium management protocols



# ICU PAD Care Bundle

Figure 1: The ICU PAD Care Bundle

	PAIN	AGITATION	DELIRIUM
 <b>ASSESS</b>	<p>Assess pain <math>\geq 4</math>x/shift &amp; prn Preferred pain assessment tools:</p> <ul style="list-style-type: none"> <li>• Patient able to self-report <math>\rightarrow</math> NRS (0-10)</li> <li>• Unable to self-report <math>\rightarrow</math> BPS (3-12) or CPOT (0-8)</li> </ul> <p>Patient is in significant pain if NRS <math>\geq 4</math>, BPS <math>\geq 6</math>, or CPOT <math>\geq 2</math></p>	<p>Assess agitation, sedation <math>\geq 4</math>x/shift &amp; prn Preferred sedation assessment tools:</p> <ul style="list-style-type: none"> <li>• RASS (-5 to +4) or SAS (1 to 7)</li> <li>• NMB <math>\rightarrow</math> suggest using brain function monitoring</li> </ul> <p>Depth of agitation, sedation defined as:</p> <ul style="list-style-type: none"> <li>• <i>agitated</i> if RASS = +1 to +4, or SAS = 5 to 7</li> <li>• <i>awake and calm</i> if RASS = 0, or SAS = 4</li> <li>• <i>lightly sedated</i> if RASS = -1 to -2, or SAS = 3</li> <li>• <i>deeply sedated</i> if RASS = -3 to -5, or SAS = 1 to 2</li> </ul>	<p>Assess delirium Q shift &amp; prn Preferred delirium assessment tools:</p> <ul style="list-style-type: none"> <li>• CAM-ICU (+ or -)</li> <li>• ICDSC (0 to 8)</li> </ul> <p>Delirium present if:</p> <ul style="list-style-type: none"> <li>• CAM-ICU is positive</li> <li>• ICDSC <math>\geq 4</math></li> </ul>
 <b>TREAT</b>	<p>Treat pain within 30" then reassess:</p> <ul style="list-style-type: none"> <li>• Non-pharmacologic treatment—relaxation therapy</li> <li>• Pharmacologic treatment: <ul style="list-style-type: none"> <li>– Non-neuropathic pain <math>\rightarrow</math> IV opioids +/- non-opioid analgesics</li> <li>– Neuropathic pain <math>\rightarrow</math> gabapentin or carbamazepine, + IV opioids</li> <li>– S/p AAA repair, rib fractures <math>\rightarrow</math> thoracic epidural</li> </ul> </li> </ul>	<p>Targeted sedation or DSI (<i>Goal: patient purposely follows commands without agitation</i>): RASS = -2 – 0, SAS = 3 - 4</p> <ul style="list-style-type: none"> <li>• If <i>under sedated</i> (RASS <math>&gt;0</math>, SAS <math>&gt;4</math>) assess/treat pain <math>\rightarrow</math> treat w/sedatives prn (non-benzodiazepines preferred, unless ETOH or benzodiazepine withdrawal is suspected)</li> <li>• If <i>over sedated</i> (RASS <math>&lt;-2</math>, SAS <math>&lt;3</math>) hold sedatives until at target, then restart at 50% of previous dose</li> </ul>	<ul style="list-style-type: none"> <li>• Treat pain as needed</li> <li>• Reorient patients; familiarize surroundings; use patient's eyeglasses, hearing aids if needed</li> <li>• Pharmacologic treatment of delirium: <ul style="list-style-type: none"> <li>– Avoid benzodiazepines unless ETOH or benzodiazepine withdrawal is suspected</li> <li>– Avoid rivastigmine</li> <li>– Avoid antipsychotics if <math>\uparrow</math> risk of Torsades de pointes</li> </ul> </li> </ul>
 <b>PREVENT</b>	<ul style="list-style-type: none"> <li>• Administer pre-procedural analgesia and/or non-pharmacologic interventions (e.g., relaxation therapy)</li> <li>• Treat pain first, then sedate</li> </ul>	<ul style="list-style-type: none"> <li>• Consider daily SBT, early mobility and exercise when patients are at goal sedation level, unless contraindicated</li> <li>• EEG monitoring if: <ul style="list-style-type: none"> <li>– at risk for seizures</li> <li>– burst suppression therapy is indicated for <math>\uparrow</math> ICP</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Identify delirium risk factors: dementia, HTN, ETOH abuse, high severity of illness, coma, benzodiazepine administration</li> <li>• Avoid benzodiazepine use in those at <math>\uparrow</math> risk for delirium</li> <li>• Mobilize and exercise patients early</li> <li>• Promote sleep (control light, noise; cluster patient care activities; decrease nocturnal stimuli)</li> <li>• Restart baseline psychiatric meds, if indicated</li> </ul>

# Questions?

