SCCM’s New ICU Pain, Agitation, and Delirium Clinical Practice Guidelines

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Learning Objectives

• Understand the key concepts of the 2013 SCCM PAD Guidelines.
• Understand the synergistic benefits of implementing the PAD Guidelines in an integrated fashion.
• Understand how to apply the ICU PAD Care Bundle in your ICU.

2002 SAG Guidelines

Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult

Judith Jacobs, PharmD, FCPM, BCRP; Gillis L. Fraser, PharmD, FCPM; Douglas B. Couzin, MD; Richard E. Fink, MD; Bonnie Fountain, RN, DNSc; Pan L. T. Weilich, PharmD; Donald R. Cadotte, MS, FCPM; Michael R. Watson, MD; H. Scott Hykes, MD; William M. Coplin, MD; David M. Crippen, MD; FCPM Barry D. Finkle, MD; Auto M. Kohler, Jr., MD; Paul F. Marks, MD; FCPM; Shelley A. Noumansie, Jr, MD; FCPM; Michael J. Murray, MD, PhD; FCPM; William T. Porrazo, MD; FCPM; Philip B. Lauter, MS, BS, FCPM; Developed through the Task Force of the American College of Critical Care Medicine (ACCCM), the Society of Critical Care Medicine (SCCM), in collaboration with the American Society of Health-System Pharmacists (ASHP), and in alliance with the American College of Chest Physicians, and approved by the Board of Regents of ACCM and the Council of SCCM and the ASHP Board of Directors.
EBM Strategies for Improving ICU PAD Management

PAD ASSESSMENT TOOLS

Pharmacology of Sedatives, Analgesics, Antipsychotics

Light Sedation

ICU Delirium

What's Different About the 2013 ICU PAD Guidelines?

• **Methods:**
  - GRADE Method - strength of evidence, risks, benefits
  - Professional Librarian - database management
  - Electronic Refworks™ Database - >19,000 refs
  - Anonymous Voting - all statements, recommendations

• **Content:**
  - Psychometric Analyses - pain, sedation, delirium monitoring
  - Patient-centered > Drug-centered
  - Integrated, Interdisciplinary
  - ↑ delirium emphasis

• **Scope:**
  - Bigger! - 2x '02 PAD CPG, >'13 Sepsis CPG
  - Evidence-based - literature gaps, identifies future research areas
  - ICU PAD Care Bundle - integrates PAD management, links PAD to SBT, Early Mobility, sleep hygiene programs

**Assess**

- Assess pain ≥ 4x/shift & prn
  - Preferred pain assessment tools:
    - Patient able to self-report → NRS (0-10)
    - Unable to self-report → BPS (3-12) or CPOT (0-8)
  - Patient is in significant pain if NRS ≥ 4, BPS ≥ 6, or CPOT ≥ 3

- Assess agitation, sedation ≥ 4x/shift & prn
  - Preferred sedation assessment tools:
    - RASS (-5 to +4) or SAS (1 to 7)
    - NMB → suggest using brain function monitoring
  - Depth of agitation, sedation defined as:
    - agitated if RASS = +1 to +4, or SAS = 5 to 7
    - awake and calm if RASS = 0, or SAS = 4
    - lightly sedated if RASS = -1 to -2, or SAS = 3
    - deeply sedated if RASS = -3 to -5, or SAS = 1 to 2

- Assess delirium Q shift & prn
  - Preferred delirium assessment tools:
    - CAM-ICU (+ or -)
    - ICDSC (0 to 8)
  - Delirium present if:
    - CAM-ICU is positive
    - ICDSC ≥ 4

**Treat**

- Administer pre-procedural analgesia and analgesia at precipitated pain
  - Oral if able
  - IV if needed

- Administer pre-procedural analgesia and sedation
  - Oral if able
  - IV if needed

- Administer pre-procedural analgesia and targeted sedation
  - Oral if able
  - IV if needed

- Administer targeted analgesia or IV (close patient monitoring)
  - Morphine 0.1 mg/kg/hour
  - Fentanyl 0.005 mcg/kg/min
  - Patient-controlled analgesia

- Administer targeted sedation
  - Propofol 80-100 mcg/kg/min
  - Midazolam 0.05-0.1 mg/kg/hour
  - Haloperidol 0.5-1 mg/hour

- Manage delirium with:
  - Cognitive behavioral therapy
  -非pharmacologic treatments
  - Pharmacologic treatments
    - Avoid benzodiazepines
    - Avoid antipsychotics if risk of Torsades de pointes

**Prevent**

- Consider daily SBT
- Mobilize and exercise
- Avoid benzodiazepines
- Avoid antipsychotics
- Avoid benzodiazepine use in those at risk for delirium
- Reduce stress
- Reduce noise
- Reduce stimuli

**2013 ICU PAD Guidelines**

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

Julianne Barri, MD, FCCM; Gilles L. Fraser, PharmD, FCCM; Kathleen Plunkett, RN, PhD, FAAN, FCCM; E. Walker Jr, MD, MPH, FACEP, FCCM; Caitlin Gallivan, RN, PhD; Joseph E. Dusz; Mar, FCCM, FCCP; Judy E. Davidson, DNS, RN; John W. Doran, PharmD, FCCM, FCCP; John F. Kress, MD; Aaron M. Jeffre, DO; Douglas R. Gerson, MD; David L. Hean, MD, MS, FCCM; Avery Tang, MD; Byron R. Robinson, MD, FCCM; Doriss E. Fontaine, PhD, RN, FAAN; Michael A. Ramsey, MD; Richard R. Riker, MA, FCCM; Curtis N. Swenson, MD, FCCP, FCCM; Brenda Pan, MSN, RN, ACNP; Yonaeta Shwedok, MD, FRCP; Roman Jaschke, MD;
**Step 1: Implement Pain, Agitation, and Delirium Assessment Tools in the ICU**

**Pain**

- **Behavioral Pain Scale** (BPS)
  - **Face expression**: Balanced 1, Partially (e.g., brow lowering) 2, Fully tightened (e.g., tooth clenching) 3, No movement 4
  - **Upper limbs**: Partially bent 1, Fully bent with finger flexion 2, Pronouncedly stretched 3
  - **Compliance with ventilation**: Tolerating movement 1, Coughing but tolerating ventilation for most of the time 2, Fighting ventilation 3, Unable to control ventilation 4

*BPS Range = 3-12, BPS ≥ 6 is significant*

**Numerical Rating Scale** (NRS)

- **Range** = 0-10
- **0**: No pain, **1-3**: Mild pain, **4-6**: Moderate pain, **7-10**: Severe pain

*NRS ≥ 4 is significant*

**Critical Care Pain Observation Tool** (CPOT)

- **Range** = 0-8
- **0**: No pain, **1-3**: Mild pain, **4-6**: Moderate pain, **7-8**: Severe pain

*CPOT range = 0–8, CPOT ≥ 3 is significant*

**Anxiety**

- **Behavioral Pain Scale** (BPS)
  - **Face expression**: Balanced 1, Partially (e.g., brow lowering) 2, Fully tightened (e.g., tooth clenching) 3, No movement 4
  - **Upper limbs**: Partially bent 1, Fully bent with finger flexion 2, Pronouncedly stretched 3
  - **Compliance with ventilation**: Tolerating movement 1, Coughing but tolerating ventilation for most of the time 2, Fighting ventilation 3, Unable to control ventilation 4

**Delirium**

- **Behavioral Pain Scale** (BPS)
  - **Face expression**: Balanced 1, Partially (e.g., brow lowering) 2, Fully tightened (e.g., tooth clenching) 3, No movement 4
  - **Upper limbs**: Partially bent 1, Fully bent with finger flexion 2, Pronouncedly stretched 3
  - **Compliance with ventilation**: Tolerating movement 1, Coughing but tolerating ventilation for most of the time 2, Fighting ventilation 3, Unable to control ventilation 4

**Pain Assessment**

- **Behavioral Pain Scale** (BPS)
  - **Critical Care Pain Observation Tool** (CPOT)

*CPOT range = 0–8, CPOT ≥ 3 is significant*

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**Pain Assessment**

- **Behavioral Pain Scale** (BPS)
  - **Critical Care Pain Observation Tool** (CPOT)
**Sedation Assessment**

**Richmond Agitation Sedation Scale** (RASS)

<table>
<thead>
<tr>
<th>Score</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Comatose, motionless, no response to pain</td>
</tr>
<tr>
<td>3</td>
<td>Comatose, motionless, no response to verbal stimuli</td>
</tr>
<tr>
<td>2</td>
<td>Comatose, motionless, responds only with eye opening</td>
</tr>
<tr>
<td>1</td>
<td>Comatose, motionless, responds only with eye opening to painful stimulus</td>
</tr>
<tr>
<td>0</td>
<td>Comatose, motionless, respond to verbal stimuli</td>
</tr>
<tr>
<td>-1</td>
<td>Comatose, motionless, respond to painful stimulus</td>
</tr>
<tr>
<td>-2</td>
<td>Comatose, motionless, respond to pain but not verbal stimuli</td>
</tr>
<tr>
<td>-3</td>
<td>Comatose, motionless, respond to pain stimulus</td>
</tr>
<tr>
<td>-4</td>
<td>Comatose, motionless, respond to painful stimulus</td>
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<tr>
<td>-5</td>
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<td>Comatose, motionless, respond to painful stimulus</td>
</tr>
<tr>
<td>-10</td>
<td>Comatose, motionless, respond to painful stimulus</td>
</tr>
</tbody>
</table>

*RASS range = -5 to +4, target RASS = 0 to -2*

**Delirium Assessment**

**CAM-ICU**

**Intensive Care Delirium Screening Checklist** (ICDSC)

*Delirium present if ICDSC > 4*
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

**Pain:**
- Assess and treat pain first, then sedate (analgo-sedation)
- Treat significant pain: NRS ≥ 4, BPS ≥ 6, or CPOT ≥ 3
- Use appropriate pain management strategies (patient-specific)
- Administer pre-procedural analgesia

**Agitation/Sedation:**
- Minimize sedative use, avoid over-sedation (DSI or TSS→SAT)
- Choose sedatives that minimize side effects (patient-specific)
- Sedation goals: patient is responsive, aware, and able to purposely follow commands* (RASS = 0 to -2, SAS = 3 to 4)
  - *Light Sedation: Performs 3 out of 5 commands - opens eyes, maintains eye contact, squeezes hand, sticks out tongue, wiggles toes.

**Delirium:**
- Optimize pain management
- Reorient patient
- D/C deliriogenic drugs
- Treat with antipsychotics (patient-specific)

Step 4: Link PAD to Other Strategies to Improve Clinical Outcomes

• Link spontaneous awakening trials (SAT) to spontaneous breathing trials (SBT) -- facilitate weaning from MV

• Link SAT to early mobility and exercise (EM) protocols -- reduce delirium, improve strength

• Implement environmental controls to protect patients’ sleep-wake cycles -- reduce delirium (D), improve sleep

Barriers to Implementing the ICU PAD Care Bundle

• Performing PAD assessments consistently, reliably

• Making PAD management less medication, MD dependent.

• Light sedation – GOOD! Deep sedation – BAD!

• Coordinating PAD management with SATs, SBT, and PT/OT activities.

• Getting ventilated ICU patients out of bed will not necessarily kill them!
PAD Implementation Strategies

Top Ten List*

1. Integrated PAD management – PAD Care Bundle
2. Interdisciplinary, team based approach – ICU clinician champion
3. Perform gap analysis – current practice vs. PAD Guidelines
4. ICU Staff education – increase buy-in, support for change
5. Start with PAD assessments – (i.e., NRS, CPOT or BPS, RASS or SAS, CAM-ICU or ICDSC)
6. Create institutional PAD protocols – adapted to formulary, ICU culture, individualize drugs to pts., allow for practice variation
7. Primary goals: optimal pain management, light sedation, delirium prevention/treatment
8. Link PAD protocols with SATs, SBTs, Early Mobility protocols
9. Take PAD to the bedside – ICU rounds discussions, goal sheets, checklists
10. Measure performance – identify process, outcome measures; share data with stakeholders frequently

*Puri, Balas, Davidson, SRCCM April 2013 (in press)
ICU PAD Care Bundle
Measuring Performance

How do you know if your ICU PAD Protocols are working?

ICU PAD Care Bundle – Metrics

PAIN

• % of time patients are monitored for pain ≥ 4x/shift
• Demonstrate local compliance and implementation integrity over time in the use of ICU pain scoring systems

AGITATION

• % of time ICU patients are in significant pain (ie, NRS ≥ 4, BPS ≥ 6, or CPOT ≥ 2)
• % of time pain treatment is initiated within 30" of detecting significant pain

DELIRIUM

• % of time ICU patients are under sedated (RASS > 0, SAS > 4)
• % of time ICU patients are either over sedated (non-therapeutic coma, RASS < -2, SAS < 3) or fail to undergo DSI trials

• % failed attempts at SBTs due to either over or under sedation

PREVENT

• % of time delirium assessments are performed ≥ 4x/shift
• Demonstrate local compliance and implementation integrity over time in the use of ICU delirium assessment tools

TREAT

• % of time patients receive pre-procedural analgesic therapy and/or non-pharmacologic interventions
• % compliance with institutional-specific ICU pain management protocols

ICU PAD-I Bundle Toolkit

So What’s in it for You?

2013 PAD Guidelines
Potential Benefits to PAD Integration

- SAT/TS
- SBT
- ABC

ABC:
- MV ↓ 3d
- LOS ↓ 4d
- Mort ↓ 32%
- Girard 2008

ABC+ E:
- ICU LOS ↓ 1.4d
- Hosp LOS ↓ 3.3d
- Morris 2008

EM:
- ↓ delirium
- ↑ FS @ d/c
- Schweickert 2009

Benefits of ICU Early Mobility Programs

- ↑ quality of life
- ↑ physical function
- ↑ peripheral, respiratory muscle strength
- ↓ ICU, hospital LOS
- ↓ MV duration


PAD Integration

ABCDE = Awakening and Breathing Coordination, Delirium prevention and monitoring, Early mobility and exercise (Vasilevskis, 2010)

ABCDE Bundle Implementation

- Mechanically ventilated ICU patients:
  - ↑ SAT, SBT incidence
  - ↑ ventilator-free days
  - self-extubation (no change)
  - ↓ duration of delirium

- Non-mechanically ventilated ICU patients:
  - ↓ duration and incidence of delirium

Expected Benefits of Implementing the ICU PAD Care Bundle

- ↓ Duration of MV
- ↓ ICU, hospital LOS
- ↑ ICU patient throughput, bed availability
- ↓ Health care costs per patient
- ↑ Long-term cognitive function, mobility
- ↑ Number of patients discharged to home!
- ↑ Lives saved!

But by how much?????

Integrated Approach to PAD

The 2013 ICU PAD Guidelines