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Managing Pain in Critically Ill Adults: A Holistic Approach

A review of best practices from the current clinical guidelines.

ABSTRACT: Nurses caring for critically ill adults are challenged to balance patient comfort with the risk of complications associated with analgesic therapy. Evidence gathered since 2013, when the Society of Critical Care Medicine (SCCM) published the Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit, known as the PAD guidelines, gave rise to the SCCM 2018 publication of the Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU, known as the PADIS guidelines. This article discusses how the PADIS guidelines go beyond the PAD guidelines, providing specific guidance related to risk factors for pain, the assessment and management of pain in critical illness, and the ways in which the experience of pain in critical illness is intertwined with that of agitation, delirium, immobility, and sleep disruption. Tables summarize the key points in the PADIS guidelines, clarify the distinctions between PADIS and PAD, and describe the implications for nurses.

Keywords: assessment, critical care nursing, pain, pain management

Critically ill adults experience fluctuating levels of pain intensity as a result of individual characteristics, procedural interventions, and underlying disease processes. By repeatedly assessing patients for pain, anticipating sources of discomfort, and adjusting pain management strategies, nurses can address patient needs while minimizing the risk of complications.

In 2018, the Society of Critical Care Medicine (SCCM) released Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU.[1] Known as the PADIS guidelines, this document was based on evidence gathered since the 2013 SCCM publication of the Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit, known as the PAD guidelines.[2] Both guidelines are based on extensive research and the consensus of expert opinion. The most significant difference between the two is that the 2018 guidelines added recommendations addressing immobility and sleep disruption, acknowledging that these aspects of critical illness affect and are affected by the experience of pain, the use of sedation, and the incidence of delirium.

A 2017 quality improvement study conducted by Barnes-Daly and colleagues demonstrated that compliance with the ABCDEF bundle of interventions, which addresses critical illness holistically, is associated with improved patient outcomes, including hospital survival.[3] Since the publication of that study, the ABCDEF bundle was updated to incorporate the following key components, which are reflected in the PADIS guidelines[4]:

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- Assess, prevent, and manage pain
- Both spontaneous awakening trials and spontaneous breathing trials
- Choice of analgesia and sedation
- Delirium: assess, prevent, and manage
- Early mobility and exercise
- Family engagement and empowerment

This article focuses on PADIS recommendations related to pain management in critically ill adults, though the guidelines emphasize that the five phenomena they address (pain, agitation/sedation, delirium, immobility, and sleep disruption) are interconnected.[1]

FROM PAD TO PADIS: WHAT'S NEW?

While the PADIS guidelines do not change the recommendations made in the PAD guidelines, they expand them, offering more specific guidance and additional recommendations on managing procedural pain and providing adjunctive pain management, as well as ungraded statements related to pain risk factors and assessment in critical illness (see Table 1[1,2]).[1] The guideline panel, which included 32 international content experts, four research methodologists, and four critical illness survivors, followed the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system for clinical practice guideline development.[1]

RISK FACTORS FOR PAIN IN CRITICAL ILLNESS

The PADIS panel identified recent research demonstrating that both pain at rest and procedural pain in critically ill patients are influenced by patient-specific psychological, demographic, and historical factors, such as depression and anxiety; age, sex, and ethnicity; comorbid conditions; and surgical history. The intensity of procedural pain is further affected by preprocedural pain intensity and the type of procedure.[1]

The most painful procedures. A multinational study of 3,851 critically ill adults undergoing one or more of 12 diagnostic or therapeutic procedures found that patients usually experienced mild preprocedural pain, which increased significantly during procedures, more than doubling during three such procedures: chest tube removal, wound drain removal, and arterial line insertion.[5] Positioning, wound care, and mobilization were also significantly associated with changes in pain intensity in this study.

Such findings provide strong evidence supporting preprocedural analgesia in critical illness. While the PAD guidelines had suggested treating pain before

Table 1. Comparing the PADIS and PAD Guidelines: Pain Risk Factors and Assessment in Critically Ill Adults[1, 2]

PADIS Key Points	Quality of Evidence	Changes from PAD	Application to Nursing Practice
Pain at rest is affected by both psychological factors, such as anxiety or depression, and demographic factors, such as age, comorbidities, and surgical history.	Ungraded statement	This statement expands on the PAD statement that critically ill adults regularly experience pain both at rest and with routine care.	Assess patients for pain risk factors and schedule routine assessments for pain at rest.
Procedural pain is affected by the nature of the procedure itself; preprocedural pain intensity; previous surgery or trauma; underlying diagnoses; and demographic factors, such as age, sex, and ethnicity.	Ungraded statement	This statement expands on the PAD statement that procedural pain is common among critically ill adults by more specifically describing influencing factors.	Assess patients for pain before and during procedures, providing preemptive treatment before procedures if indicated.
The "reference standard" for assessing pain in patients who face no communication barriers is self-report.	Ungraded statement	This statement echoes a discussion in the PAD guidelines, which refers to self-report as the "gold standard" for pain assessment and suggests clinicians ask patients to rate their own pain, if possible.	Assess pain in responsive patients by asking them to self-report its severity.
Both the 0–10 NRS-O and the 0–10 NRS-V are valid and feasible for assessing pain in critically ill adults who can self-report pain.	Ungraded statement	The PAD guidelines cited study findings supporting the validity and feasibility of a 0–10 numeric rating scale, though it did not suggest any specific scale.	In patients who can self-report, assess pain using either the NRS-O in those who can respond orally or the NRS-V in those who cannot respond orally.
For monitoring pain in patients who are unable to self-report pain, the most valid and reliable pain assessment tools are the BPS in intubated patients, the BPS-NI in nonintubated patients, and the CPOT.	Ungraded statement	The PAD guidelines advised that both the BPS and CPOT were valid and reliable tools in patients who are unable to self-report but did not include the BPS-NI.	In patients who cannot self-report, assess pain intensity using the BPS, BPS-NI, or CPOT, and document findings.
When patients are unable to self-report, clinicians can involve family members in the pain assessment process.	Ungraded statement	Family involvement in pain assessment was not discussed in the PAD guidelines.	When patients are unable to self-report pain, involving their family members in pain assessment may be helpful.
Vital signs are not valid indicators of pain in critically ill adults, though changes in vital signs can prompt pain assessment with an appropriate, validated pain assessment tool.	Ungraded statement	This statement is similar to but stronger than a suggestion in the PAD guidelines to not use vital signs or pain scales that include vital signs to assess pain in critically ill adults, though vital signs may prompt further pain assessment.	When a change in hemodynamic status is believed to be related to a change in pain intensity, ask the patient to report pain severity or use the BPS or CPOT if the patient is unable to self-report.

BPS = Behavioral Pain Scale; BPS-NI = Behavioral Pain Scale in Nonintubated Patients; CPOT = Critical-Care Pain Observation Tool; NRS-O = Numeric Rating Scale Oral; NRS-V = Numeric Rating Scale Visual; PAD = Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit; PADIS = Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU.

procedures, they acknowledged that the benefits were unclear.[2] By contrast, the PADIS guidelines specifically recommend the assessment and appropriate treatment of pain in advance of procedures to prevent pain escalation during procedures.[1]

ASSESSING CRITICALLY ILL ADULTS FOR PAIN

Critically ill adults are often unable to interact verbally because of a reduced level of consciousness or dependence on mechanical ventilation. Nurses may assess pain intensity in these patients using such standardized tools as the Critical-Care Pain Observation Tool (CPOT)[6] or the Behavioral Pain Scale (BPS),[7] which are both valid and reliable tools for measuring pain in nonverbal critically ill adults.[1] Both tools score specific observations about the patients' appearance and behavior in order to determine their pain intensity. Patients who are able to respond can report pain using the Numeric Rating Scale Oral (scored from 0 to 10) or the Numeric Rating Scale Visual (NRS-V; also scored from 0 to 10). The PADIS guideline panel concluded that the NRS-V is the best self-report pain scale to use in critically ill adults. The PADIS guidelines also note that family members of nonverbal patients may be helpful in providing input on the patient's level of comfort.[1]

The PADIS guidelines recommend against basing pain assessment on vital signs alone.[1] To date, no studies have found a consistent relationship between vital signs and pain presence or intensity. Vital sign changes should be used only to prompt further pain assessment using validated pain assessment tools.[8] In critically ill patients, factors such as comorbid conditions, acute hemodynamic instability, and vasoactive medications are likely to affect vital signs.

USE OF OPIOIDS IN CRITICAL ILLNESS

The PAD guidelines recommended the use of opioids as first-line therapy for nonneuropathic pain in critically ill adults.[2] Since 2013, concern about opioid use has increased dramatically, and current evidence suggests that other interventions associated with far fewer risks are equally effective in the outpatient management of chronic pain.[9] Despite widespread concerns about opioid use, the PADIS guidelines do not replace or change the PAD recommendation regarding opioid use during critical illness. They do, however, describe the advantages of minimizing the dosage and duration of opioid treatment, particularly in postoperative patients, through the application of multimodal pain management strategies.[1] As noted in the PAD guidelines, all IV opioids have similar efficacy when titrated appropriately, so no one opioid is generally preferred.[2] Certain clinical factors, however, may influence the choice. For example, in patients with renal impairment, critical care teams may administer fentanyl rather than morphine because the active metabolites of morphine are cleared through the kidneys.[10]

Adverse effects of opioids and of pain. All analgesics are associated with adverse effects. In opioid analgesics, these include oversedation, respiratory depression, bronchospasm, cough suppression, hypotension, nausea, constipation, urinary retention, and tolerance. However, uncontrolled acute pain also has negative consequences. In addition to its well-known association with agitation, immobility, and sleep disruption, uncontrolled acute pain in critical illness may transition to chronic pain after recovery.[11]

The PADIS guideline panel concluded that the NRS-V is the best self-report pain scale to use in critically ill adults.

Past use of opioids. Appropriate opioid use requires critical care nurses to gather information about patients' opioid history. Although low doses of an opioid often provide adequate analgesia to opioid-naive patients without causing oversedation, any previous opioid use, whether appropriate or not, can lead to opioid tolerance, causing low doses to be ineffective.[12] Since critically ill adults often face communication barriers and are subject to multiple sources of pain, such as surgical incisions, invasive devices, bedside procedures, transfer, and turning, these patients require close monitoring and repeated assessment with a valid, standardized pain assessment tool so that multimodal analgesic strategies may be administered as indicated.[12]

Table 2. Comparing the PADIS and PAD Guidelines: Managing Procedural Pain in Critically Ill Adults[1,2]

PADIS Key Points	Quality of Evidence	Changes from PAD	Application to Nursing Practice
Use the lowest effective opioid dose to manage procedural pain.	Conditional recommendation, moderate level of evidence	This recommendation expands on the strong PAD recommendation to preemptively manage pain when chest tube removal is planned and the weak suggestion to provide preemptive pharmacological or nonpharmacological analgesic interventions for other invasive or potentially painful procedures.	When potentially painful procedures are scheduled, anticipate an increase in pain and preemptively treat the patient with the lowest effective dose of an opioid or an IV, oral, or rectal NSAID.
For pain during discrete and infrequent procedures, use an IV, oral, or rectal NSAID as an analgesic alternative to opioids.	Conditional recommendation, low quality of evidence	This recommendation expands on the PAD guidelines in endorsing a specific class of analgesics to be used as an opioid alternative for discrete and infrequent procedures.	When potentially painful procedures are scheduled, anticipate an increase in pain and preemptively treat the patient with the lowest effective dose of an opioid or an IV, oral, or rectal NSAID.
Do not use either local analgesia or nitrous oxide to manage pain during chest tube removal.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	If local analgesia or nitrous oxide is ordered for chest tube removal, discuss alternative options with the ordering provider.
Do not use inhaled volatile anesthetics.	Strong recommendation, very low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	If volatile anesthetics are ordered for procedural pain, discuss alternative options with the ordering provider.
Do not use an NSAID topical gel.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	Wait for more evidence to emerge before integrating topical gel NSAIDs into the management of procedural pain.
Offer relaxation techniques.	Conditional recommendation, very low quality of evidence	The PAD guidelines recommended relaxation as one example of a nonpharmacological intervention that can be administered preemptively for procedural pain.	Encourage patients who are able to follow commands to use deep breathing or guided imagery during procedures and ask the patient or family about relaxation techniques the patient has used in the past.
Offer cold therapy.	Conditional recommendation, low quality of evidence	The PAD guidelines recommended nonpharmacological interventions for procedural pain but not specifically cold therapy.	Provide ice or cold compress when possible to relieve procedural pain.

NSAID = nonsteroidal antiinflammatory drug; PAD = Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit; PADIS = Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU.

Managing procedural pain. For procedural pain, the PADIS guidelines, and others, recommend administering the lowest effective bolus dose of an opioid.[1, 13, 14] For discrete and infrequent procedures, the guidelines suggest using a nonsteroidal antiinflammatory drug (NSAID) as an alternative to opioids—though NSAIDs are *not* recommended for routine use as an opioid adjunct for *nonprocedural* pain during critical illness. The risks of acute kidney injury and gastrointestinal bleeding as a result of NSAID use outweigh the potential benefits NSAIDs confer in terms of improved pain control.[1] The PADIS guidelines strongly recommend *against* using inhaled volatile anesthetics to treat procedural pain in critically ill adults and conditionally recommend *against* using local analgesia, nitrous oxide, or topical NSAID gels for this purpose in this population (see Table 2[1, 2]).[1]

THE USE OF ANALGOSEDATION

Analgosedation is a strategy that combines the goals of pain management and appropriate sedation through the use of agents such as opioids, which can achieve both effects.[15] The PADIS guidelines point out that analgosedation can refer both to analgesia-based sedation, in which analgesics, such as opioids, are used to treat pain and to achieve adequate sedation, and to analgesia-first sedation, in which sedatives such as propofol or dexmedetomidine are given after analgesics if the desired level of sedation is not achieved. As noted in the guidelines, the role of sedatives in an analgesic-first approach warrants further study.[1]

ADJUNCTIVE ANALGESIA

As an adjunct to opioid therapy, the PADIS guidelines recommend administering acetaminophen for nonneuropathic pain, unless contraindicated, to critically ill adults to improve pain control while reducing opioid consumption.[1] In addition, both the PADIS guidelines and the Guidelines on the Management of Postoperative Pain, commissioned by the American Pain Society (APS), cite evidence supporting the adjunctive use of a low-dose ketamine infusion to manage pain in critically ill postsurgical patients, qualifying the recommendation as conditional or weak because the evidence is considered of low or moderate quality.[1, 13]

Applying multiple strategies that affect pain perception in different ways is likely to be more effective than using a single modality.

The PADIS guidelines endorse the routine assessment and treatment of pain before sedation is considered. (Sedatives administered before analgesics can reduce a patient's level of consciousness, compromising pain assessment and resulting in poor pain control.[15]) The guidelines conditionally recommend that the management of pain and sedation in critically ill adults be based on assessment-driven protocols.[1] Such protocols would call for pain assessment at regular intervals with a valid tool, such as the BPS or CPOT, as well as specific interventions to be employed when scores indicate significant pain. Similarly, sedative agents can be titrated to scores on a standardized tool, measured after pain treatment. The recommendation is based on a review of five studies that correlated the use of assessment-based protocols with less exposure to sedative and analgesic medication, lower pain intensity scores, shorter duration of mechanical ventilation, and fewer adverse events.[1] In labeling this a conditional recommendation, the guideline authors note the need for more evidence to identify the following[1]:

- patient populations most likely to benefit from protocol-based analgosedation
- optimal analgesics to incorporate in the protocols
- potential patient benefits
- potential patient safety concerns

The PAD guidelines had listed acetaminophen, IV ketamine, and cyclooxygenase (COX) inhibitors as potential adjuncts to opioid therapy for managing nonneuropathic pain.[2] The PADIS guidelines, by contrast, recommend *against* the use of COX-1–selective NSAIDs in critically ill adults and suggest that the role of the COX-2–selective NSAID celecoxib in this population is unclear.[1] For neuropathic pain, the PAD guidelines recommended enteral administration of gabapentin and carbamazepine as adjuncts to opioid analgesia; the PADIS guidelines retained that recommendation, but added

Table 3. Comparing the PADIS and PAD Guidelines: Adjunctive Pain Management in Critically Ill Adults[1,2]

PADIS Key Points	Quality of Evidence	Changes from PAD	Application to Nursing Practice
Acetaminophen can be used as an adjunct to opioid therapy to reduce pain intensity and opioid consumption.	Conditional recommendation, very low quality of evidence	The PAD guidelines had similarly suggested that nonopioids, including acetaminophen, could be used in conjunction with opioids to manage nonneuropathic pain.	Unless contraindicated by the patient's condition or allergy profile, administer acetaminophen as ordered, along with an opioid for nonneuropathic pain.
If feasible, nefopam can be used as an adjunct to or a replacement for an opioid to reduce opioid consumption.	Conditional recommendation, very low quality of evidence	The PAD guidelines did not specifically suggest nefopam as an adjunct to or potential replacement for opioid therapy.	Unless contraindicated by the patient's condition or allergy profile, administer nefopam, if available, as ordered, along with or instead of an opioid.
To reduce opioid consumption in postsurgical patients, use low-dose ketamine (a bolus followed by a continuous infusion) as an adjunct to opioid therapy.	Conditional recommendation, very low quality of evidence	The PAD guidelines had included ketamine among the nonopioids that could be used as an adjunct to opioid therapy to manage nonneuropathic pain, though it wasn't a formal recommendation.	Administer a continuous ketamine infusion along with opioid therapy to postoperative patients, as ordered, titrating the opioid dose downward as the patient's comfort allows.
For neuropathic pain management, use a neuropathic pain medication, such as gabapentin, carbamazepine, or pregabalin, as an adjunct to opioid therapy.	Strong recommendation, moderate quality of evidence	This recommendation adds pregabalin to the list of adjunctive therapies, including gabapentin or carbamazepine, the PAD guidelines recommended to manage neuropathic pain.	Unless contraindicated by the patient's condition or allergy profile, use specific agents as ordered in patients with neuropathic pain.
Do not use IV lidocaine routinely as an adjunct to opioid therapy.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	If lidocaine is ordered as an adjunct to opioid therapy, discuss evidence-based alternatives with the ordering provider.
Do not routinely use COX-1–selective NSAIDs as an adjunct to opioid therapy in this population; the role of the COX-2–selective NSAID celecoxib is unclear.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013. The PAD guidelines had included oral, IV, and rectal COX-selective NSAIDs among the nonopioids they suggested could be used as adjuncts to opioid therapy.	If a COX-1–selective NSAID is routinely ordered as an adjunct to opioid therapy, discuss evidence-based alternatives with the ordering provider.
Do not offer cybertherapy (virtual reality technology) or hypnosis as nonpharmacological adjuncts to opioid therapy.	Conditional recommendation, very low quality of evidence	Although the PAD guidelines recommended the adjunctive use of nonpharmacological strategies for controlling pain, they did not specify any interventions to avoid.	Wait for further evidence to emerge before implementing cybertherapy or hypnosis as pain management strategies.

Table 3. Continued

PADIS Key Points	Quality of Evidence	Changes from PAD	Application to Nursing Practice
Offer massage as an adjunct to pharmacological pain management.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	Ask patients or family members about their preferences for massage and offer this as an adjunct to pharmacological and other nonpharmacological strategies.
Offer music therapy to relieve both nonprocedural and procedural pain.	Conditional recommendation, low quality of evidence	This is a new recommendation based on evidence gathered after 2013.	Play music and encourage family members and patients to select music based on their preferences to promote pain control at rest and during procedures.
Pain management should be guided by routine pain assessment, administering analgesics before considering a sedative.	Good practice statement	This is a new statement based on new evidence.	Assess pain and administer analgesics if needed before administering sedatives.
Use an assessment-driven, protocol-based, stepwise approach for pain and sedation management.	Conditional recommendation, moderate quality of evidence.	This is a new recommendation based on evidence gathered after 2013.	Collaborate with providers to develop pain management protocols. Gather data before and after protocol implementation.

COX = cyclooxygenase; NSAID = nonsteroidal antiinflammatory drug; PAD = Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit; PADIS = Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU.

pregabalin to the list of appropriate adjuncts for neuropathic pain management.[1,2]

NONPHARMACOLOGICAL INTERVENTIONS

There is a growing body of evidence that supports the use of nonpharmacological interventions as an adjunct to pharmacological interventions in managing pain in critically ill adults. The PAD guidelines did not recommend the use of specific nonpharmacological interventions but noted their use in the management of procedural pain.[2] Based on a review of clinical trials testing the efficacy of nonpharmacological interventions to reduce pain in critically ill adults, the PADIS guidelines conditionally recommend music therapy, massage, and such relaxation techniques as breathing exercises, though they point out that implementation across the studies that have tested these interventions has been inconsistent.[1]

The PADIS guideline panel also issued a conditional recommendation *against* both hypnosis and cybertherapy (an intervention that uses virtual reality technology to manage pain) because current evidence does not suggest that these therapies are sufficiently effective to warrant the significant investment required to implement them (see Table 3[1,2]).[1]

MULTIMODAL PAIN MANAGEMENT

The preferred strategy for addressing pain in critically ill adults and others is multimodal management, which includes both opioid and adjunctive nonopioid analgesic medications, as well as nonpharmacological strategies.[1,13,14] This approach is endorsed by the PADIS guidelines, the APS Guidelines on the Management of Postoperative Pain, the American Nurses Association, and the American Society for Pain Management Nursing.[1,13,16,17] Given the complexity and diversity of patients' pain experiences, applying multiple strategies that affect pain perception in different ways is likely to be more effective than using a single modality, possibly reducing the need for opioid medication and potential adverse effects.[12]

INTERDEPENDENT ASPECTS OF CRITICAL ILLNESS

Although this article has focused on the management of pain in critically ill adults, the perception and response to pain is not a singular phenomenon and is related to other aspects of critical illness. The authors of the PADIS guidelines emphasize that the five sections of the guideline—pain, agitation/sedation, delirium, immobility, and sleep disruption—address interdependent aspects of critical illness.[1] For instance, agitation and delirium affect patients' ability to report pain, and untreated pain worsens immobility and exacerbates sleep disruption. In addressing these five problems within a single guideline, PADIS underscores the need for multimodal strategies and recognizes that critical care teams don't focus on isolated conditions but rather address patients' pain in the context in which it occurs. Multimodal approaches to pain management present an opportunity to improve patients' experience of critical illness as well as patient outcomes. ▼

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REFERENCES

1. Devlin JW, et al. Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Crit Care Med* 2018;46(9):e825-e873.
2. Barr J, et al. Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit. *Crit Care Med* 2013;41(1):263-306.
3. Barnes-Daly MA, et al. Improving hospital survival and reducing brain dysfunction at seven California community hospitals: implementing PAD guidelines via the ABCDEF bundle in 6,064 patients. *Crit Care Med* 2017;45(2):171-8.
4. Critical Illness, Brain Dysfunction, and Survivorship (CIBS) Center. *For medical professionals. ABCDEF (A2F) overview*. 2020. https://www.icudelirium.org/medical-professionals/overview.
5. Puntillo KA, et al. Determinants of procedural pain intensity in the intensive care unit: the Europain study. *Am J Respir Crit Care Med* 2014;189(1):39-47.
6. Gelinas C, et al. Validation of the critical-care pain observation tool in adult patients. *Am J Crit Care* 2006;15(4):420-7.
7. Young J, et al. Use of a behavioural pain scale to assess pain in ventilated, unconscious and/or sedated patients. *Intensive Crit Care Nurs* 2006;22(1):32-9.
8. American Association of Critical-Care Nurses. Assessing pain in critically ill adults. *Crit Care Nurse* 2018;38(6):e13-e16.
9. Agency for Healthcare Research and Quality. *Noninvasive nonpharmacological treatment for chronic pain: a systematic review*. Rockville, MD; 2018 Jun. AHRQ Publication No. 18-EHC013-EF. Comparative effectiveness review, number 209; https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/nonpharma-chronic-pain-cer-209.pdf.
10. Gelot S, Nakhla E. Opioid dosing in renal and hepatic impairment. *US Pharm* 2014;39(8):34-8.
11. Kyranou M, Puntillo K. The transition from acute to chronic pain: might intensive care unit patients be at risk? *Ann Intensive Care* 2012;2(1):36.
12. Martyn JAJ, et al. Opioid tolerance in critical illness. *N Engl J Med* 2019;380(4):365-78.
13. Chou R, et al. Management of postoperative pain: a clinical practice guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' Committee on Regional Anesthesia, Executive Committee, and Administrative Council. *J Pain* 2016;17(2):131-57.
14. Herzig SJ, et al. Safe opioid prescribing for acute noncancer pain in hospitalized adults: a systematic review of existing guidelines. *J Hosp Med* 2018;13(4):256-62.
15. Wiatrowski R, et al. Analgosedation: improving patient outcomes in ICU sedation and pain management. *Pain Manag Nurs* 2016;17(3):204-17.
16. American Nurses Association. *The ethical responsibility to manage pain and the suffering it causes*. Silver Spring, MD; 2018 Feb 23. Position statement; https://www.nursingworld.org/~495e9b/globalassets/docs/ana/ethics/theethicalresponsibilitytomanagepainandthesufferingitcauses2018.pdf.
17. Pasero C, et al. American Society for Pain Management Nursing position statement: prescribing and administering opioid doses based solely on pain intensity. *Pain Manag Nurs* 2016;17(3):170-80.

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