

Supplemental Table 1. Myths, Realities and Recommendations for Pain Management in Critically Ill Patients

<b>Myth</b>	<b>Reality</b>	<b>Recommendation</b>
<p>1. The majority of critically ill patients receive adequate pain control.</p>	<ul style="list-style-type: none"> <li>• Nearly 50% of ICU patients rate pain intensity as moderate to severe.</li> <li>• The incidence of pain in medical and surgical ICUs is similar.</li> <li>• Routine ICU care is a significant source of pain.</li> <li>• Preexisting pain states are often underappreciated and can be exacerbated.</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritize pain management.<sup>7, 9, 39</sup></li> <li>• Educate providers on principles of pain assessment and treatment.<sup>7,39</sup></li> <li>• Implement quality improvement and accountability for pain control.<sup>7,51,53,54</sup></li> <li>• Encourage patients to report pain and regularly assess patients unable to report pain.<sup>9,39</sup></li> </ul>
<p>2. Pain does not affect short and long term outcomes.</p>	<ul style="list-style-type: none"> <li>• Untreated pain has negative physiologic and psychological effects.</li> <li>• Structured approaches to pain assessment and management are associated with reductions in mechanical ventilation, infection, length of stay, costs, and 30-day mortality.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a protocol-based approach to jointly assess and manage pain, agitation, and delirium.<sup>39</sup></li> </ul>
<p>3. Accurate pain assessment cannot be performed in ICU patients because pain is subjective.</p>	<ul style="list-style-type: none"> <li>• Self-reporting is the gold standard for pain assessment.</li> <li>• Pain assessment in the ICU is infrequently performed and consistently underestimates pain.</li> <li>• Vital signs lack specificity for pain.</li> <li>• Objective and validated pain assessment tools exist for patients who are unable to communicate.</li> <li>• Delirium should not preclude clinicians from evaluating pain.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess pain frequently since it is highly dynamic.<sup>39,51</sup></li> <li>• Do not use vital signs alone to assess pain.<sup>32,33,39</sup></li> <li>• Use the Numeric Rating Scale for patients able to self-report pain.<sup>38,39</sup></li> <li>• Use validated pain assessment tools (eg, Behavioral Pain Scale or Critical Care Pain Observation Tool) for patients unable to communicate.<sup>38,39</sup></li> <li>• Use surrogate reporters and/or analgesic trials when assessment tools are unsuitable.<sup>29</sup></li> </ul>

<p>4. Pain control in the ICU is primarily the nurse's responsibility.</p>	<ul style="list-style-type: none"> <li>• ICU physicians have been reported to under-evaluate pain compared with ICU nurses.</li> <li>• Increasing nursing demands challenge pain assessment and management.</li> <li>• Optimal pain management is best accomplished through the work of a multidisciplinary team.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a multidisciplinary team for pain management.<sup>7</sup></li> <li>• Evaluate the quality and safety of current pain management practices.<sup>7,53,54</sup></li> <li>• Use evidence-based approaches including guidelines, protocols, checklists, and daily pain goals.<sup>7,51</sup></li> <li>• Establish ongoing methods for process improvement.<sup>7,53,54</sup></li> <li>• Use an acute pain service to improve pain outcomes and reduce the burden for ICU clinicians.<sup>7,52</sup></li> </ul>
<p>5. Opioids are all that is needed for effective pain control in the ICU.</p>	<ul style="list-style-type: none"> <li>• Pain in ICU patients differs in origin, severity, and quality; therefore, individualized treatment is needed.</li> <li>• Nonopioid analgesics or regional anesthetic techniques may be particularly beneficial for the opioid-tolerant patient or the patient with neuropathic pain.</li> <li>• Multimodal analgesia can decrease opioid consumption, improve pain control, and reduce opioid-induced side effects.</li> <li>• Multimodal analgesia is underused in the ICU setting.</li> <li>• Potential toxicities and drug interactions must be considered, and an individualized risk-benefit evaluation should be performed.</li> </ul>	<ul style="list-style-type: none"> <li>• Consider a multimodal approach to pain management for all ICU patients and use such an approach when not contraindicated.<sup>9,60</sup></li> <li>• Perform a risk-benefit evaluation when considering the use of nonopioid analgesics or regional anesthetic techniques since toxicities, drug interactions, and contraindications may exist in the critically ill patient.<sup>9</sup></li> <li>• Consider non-pharmacological interventions to supplement analgesic medications.<sup>9,39,52</sup></li> </ul>

<p>6. There is a maximum dose of opioids that should be used to treat acute pain.</p>	<ul style="list-style-type: none"> <li>• There is no maximum or ceiling dose for opioids.</li> <li>• The appropriate dose is the amount that controls pain with the fewest side effects.</li> <li>• Opioid-dependent patients may have lower tolerance for painful stimuli, achieve less robust responses to opioids, or have substantially increased analgesic needs.</li> <li>• Abrupt cessation of chronically used analgesics can increase pain or precipitate withdrawal.</li> <li>• Opioid dose should not be limited because of a concern for addiction.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify patients with opioid dependence and continue preadmission opioid regimen or equivalent.<sup>9,77,81</sup></li> <li>• Consider opioid-induced hyperalgesia in addition to opioid tolerance when opioid dose escalation fails.<sup>58,59,80</sup></li> <li>• Implement multimodal management when possible; <i>N</i>-methyl-d-aspartate receptor antagonists may be especially beneficial.<sup>81-83</sup></li> </ul>
<p>7. Sedation is the same as analgesia.</p>	<ul style="list-style-type: none"> <li>• Oversedation is common in ICU patients despite use of protocols and daily interruption.</li> <li>• Strategies that manage pain first before providing sedation (analgo-sedation) result in decreased sedative use and improved analgesia as well as decreased duration of mechanical ventilation and ICU length of stay.</li> </ul>	<ul style="list-style-type: none"> <li>• Optimize analgesia prior to administration of hypnotics.<sup>39,87</sup></li> <li>• Select opioids based on patients' unique pain management needs, safety, and cost-effectiveness; short-acting opioids may offer an advantage.<sup>9,90</sup></li> <li>• Consider limitations and potential disadvantages of analgo-sedation (eg, hyperalgesia).<sup>87,94,95</sup></li> </ul>
<p>8. Procedural pain can be effectively managed after the intervention.</p>	<ul style="list-style-type: none"> <li>• Pain associated with procedures is widely underappreciated and undertreated.</li> <li>• Patients receiving opioid infusions may still require additional preprocedural analgesia.</li> <li>• Risk factors for procedural pain include the following: <ul style="list-style-type: none"> <li>– Procedure type (chest tube removal, wound drain removal, and arterial line insertion are the most painful).</li> <li>– Preprocedural pain intensity and distress</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Assess pain prior to, during, and after a procedure.<sup>51,97</sup></li> <li>• Pay attention to the timing and dose of the preprocedural analgesics.<sup>97</sup></li> <li>• Consider the use of nonopioid analgesics, which may effectively reduce procedural pain.<sup>97</sup></li> <li>• Consider nonpharmacological approaches as adjuncts.<sup>51,97</sup></li> </ul>

	<ul style="list-style-type: none"> <li>- Worst pain of the day.</li> <li>- Procedure not being performed by a nurse</li> </ul>	
9. Elderly patients experience less pain than nonelderly patients.	<ul style="list-style-type: none"> <li>• The pain experience may differ, but there is no evidence that advanced age dulls the sense of pain.</li> <li>• Failure to report pain must not be interpreted as the absence of pain.</li> <li>• The elderly population is heterogeneous and responds differently to analgesic medications.</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage elderly patients to report and frequently assess for pain.<sup>107</sup></li> <li>• Apply cautious and conservative escalation of analgesics.<sup>110</sup></li> </ul>
10. Development of chronic pain is uncommon in survivors of critical illness.	<ul style="list-style-type: none"> <li>• Pain commonly persists after ICU discharge.</li> <li>• Exposure to intense pain and stress during ICU stay may increase the risk for chronic pain.</li> <li>• Proinflammatory cytokine release and neuropathic processes may potentiate the development of chronic pain.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase awareness of the potential transition from acute pain in the ICU to chronic pain after ICU discharge.<sup>117,118</sup></li> <li>• Aggressively manage acute and chronic pain in the ICU.<sup>39</sup></li> <li>• Institute early mobilization and rehabilitation.<sup>118</sup></li> </ul>