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## AAEM Position Paper

### THE TREATMENT OF ACUTE PAIN IN THE EMERGENCY DEPARTMENT: A WHITE PAPER POSITION STATEMENT PREPARED FOR THE AMERICAN ACADEMY OF EMERGENCY MEDICINE

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**Abstract—Background:** Pain is one of the most common reasons patients present to the emergency department (ED). Emergency physicians should be aware of the numerous opioid and nonopioid alternatives available for the treatment of pain. **Objectives:** To provide expert consensus guidelines for the safe and effective treatment of acute pain in the ED. **Methods:** Multiple independent literature searches using PubMed were performed regarding treatment of acute pain. A multidisciplinary panel of experts in Pharmacology and Emergency Medicine reviewed and discussed the literature to develop consensus guidelines. **Recommendations:** The guidelines provide resources for the safe use of opioids in the ED as well as pharmacological and nonpharmacological alternatives to opioid analgesia. Care should be tailored to the patient based on their specific acute painful condition and underlying risk factors and comorbidities. **Conclusions:** Analgesia in the ED should be provided in the most safe and judicious manner, with the goals of relieving acute pain while decreasing the risk of

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#### INTRODUCTION

Pain is one of the most common reasons for patients to visit the emergency department (ED) (1). Due to the extensive number of visits to the ED related to pain, emergency physicians and midlevel providers should be aware of the various options, both pharmacological and non-pharmacological, available to treat patients with acute pain.

In the United States, awareness of the dangers of opioid abuse and dependence has begun to rise quickly among the lay population, and was already well known among clinicians. During the past 20 years, pro-opioid campaigns predominantly driven by pharmaceutical

companies and several regulatory agencies encouraged physicians to recognize pain as the “5<sup>th</sup> vital sign” and to treat pain aggressively with opioids across a variety of acute and chronic painful conditions. These initiatives and physicians-required Continuing Medical Education courses in the treatment of pain have contributed to the increased use of opioids as a first-line therapy for pain (2,3).

It is estimated that at least 30,000 people die in the United States as a direct result of the use of opioids each year (4). Although it seems that no specific specialty has been primarily responsible for the opioid epidemic, clinicians in the ED are uniquely positioned on the front lines to be able to combat the ongoing crisis (5). As the death toll from the opioid epidemic continues to grow, the use of opioids in the ED as a first-line treatment for analgesia is becoming increasingly controversial (6,7). Since 1990, opioid-related deaths in the United States have more than tripled, and they are now one of the leading causes of death in adult populations (8). An expanding body of research is beginning to emerge that suggests that nonopioid medications such as acetaminophen or nonsteroidal anti-inflammatories (NSAIDs) can provide adequate analgesia and decrease the reliance of emergency clinicians on opioids (9–11).

One of the cornerstones of patient care in the ED is providing safe, effective, and efficient pain management. Such practice is a defining skill in Emergency Medicine (EM) (12). For these reasons, the American Academy of Emergency Medicine (AAEM) recently released evidence-based consensus guidelines for the management of acute pain in the ED. We wish to present, expand upon, and discuss these guidelines to provide resources for the EM clinician. The AAEM endorsed these guidelines in the hopes that all patients in the ED would have access to appropriate, expeditious, and safe analgesia.

## MATERIALS AND METHODS

To provide recommendations on the treatment of acute pain in the ED, a multidisciplinary panel of experts in the fields of EM and Pharmacology was convened. Several independent medical literature searches were performed using PubMed (Medline) to review the literature published between 1987 and 2017 regarding the treatment of acute pain in the ED using different modalities including nonopioid analgesics, opioid analgesics, and nonpharmacological techniques. The abstracts of the articles were assessed by two authors to determine which papers should be reviewed in further detail based on relevance. Articles included in the detailed review were then discussed by the authors. Recommendations were

then made based on the review of the literature in consensus and agreement by the panel of experts.

## RECOMMENDATIONS

Management of acute pain in the ED should be patient centered and pain-syndrome targeted, and should utilize combinations of nonpharmacological and pharmacological analgesic modalities.

EM clinicians and associates who work in an ED should acknowledge and assess a patient’s pain in an empathetic manner by expressing an understanding of the patient’s suffering and a willingness to alleviate pain using a multimodal analgesic approach.

EM clinicians should communicate to patients that the goal of ED pain management, particularly in patients who are being discharged, includes restoration of functional ability, and is not simply reducing pain.

Emergency clinicians are charged with a provision of effective analgesia that is balanced against the potential for some pain medications to cause harm.

EM clinicians should engage patients in shared decision-making by providing patients with details about overall treatment goals and expectations, the natural trajectory of the specific painful condition, and analgesic options including short-term and long-term benefits and risks of adverse effects.

### *The Use of Nonopioid Analgesics*

Several nonopioid analgesic options are available to the emergency physician and mid-level provider. A growing body of literature suggests the ED may foster a role in the development of opioid addiction and dependence, so use of these nonopioid analgesic options may prevent harm down the road for the patient (13).

NSAIDs should be administered at their lowest effective analgesic doses both in the ED and upon discharge, and should be given for the shortest appropriate treatment course. Caution is strongly advised when NSAIDs are used in patients at risk for renal insufficiency, heart failure, and gastrointestinal hemorrhage, as well as in the elderly (14–16).

Patients who present with acute pain warranting NSAIDs can be given topical NSAID preparations (Diclofenac gel or patch) when there are contraindications to systemic use (17,18). Other considerations include topical preparations of lidocaine, which is available as both a gel and patch (19). Lidocaine comes available in a 5% patch formulation, which has shown to be both safe and effective for various neurologic and musculoskeletal conditions, including acute and chronic low back pain, diabetic neuropathy, postherpetic neuralgia, and carpal tunnel syndrome (20,21).

Acetaminophen is another option that can be provided for acute pain, either alone (pain of minor intensity) or in combination with other analgesics (for moderate or severe pain), and it is available in oral, rectal, and intravenous (i.v.) formulations. Patients with contraindications to oral or rectal acetaminophen can be given the i.v. formulation. Studies have found that although the i.v. formulations have a faster time of onset, the rectal and oral formulations still provide a similar degree of analgesia with significantly reduced acquisition cost (22).

Patients who present with localized painful conditions, either traumatic or nontraumatic, can be treated with regional or local nerve blocks alone or in combination with pharmacological and nonpharmacological treatment modalities (23).

Ketamine given in sub-dissociative doses either alone or in conjunction with other analgesics is an additional nonopioid analgesic available for treatment of acute pain in the ED (24–28). Emergency clinicians should counsel patients that there is a high likelihood of minor but bothersome psychoperceptual side effects. Sub-dissociative ketamine should be administered under the same policies as other analgesics.

Lidocaine and bupivacaine also provide potential analgesic options for certain conditions in the ED. There is a small body of literature that describes the use of i.v. lidocaine for specific conditions including renal colic, and herpetic and postherpetic neuralgia (29,30). Caution should be used if the patient has preexisting structural heart disease due to the risks of dysrhythmias. Lidocaine or bupivacaine can be used in trigger-point injections for patients with acute myofascial pain (31).

Lastly, nitrous oxide has been used safely and successfully in practice in the pediatric population (32). EM clinicians can consider the use of nitrous oxide as an adjunct or as a single agent in the treatment of acute painful conditions in adults as well (33,34).

### *The Use of Opioid Analgesics*

As the death toll from the opioid epidemic continues to rise, EM practitioners have the opportunity to help combat this public health crisis through thoughtful use of parenteral and oral opioids in the ED and upon discharge, as well as with their interactions with patients suffering from opioid use disorder in the ED. Given the known harms of opioid analgesia, EM clinicians should take every opportunity to utilize nonopioid and nonpharmacological modalities to treat acute pain in the ED, especially on discharge, and to use opioid analgesics only when the benefits outweigh the risks (35).

In the ED, parenteral opioids when used in a titratable fashion have been found to be safe, effective, and easily reversible analgesics that can quickly reduce

pain (36–40). Emergency clinicians should consider administering opioid analgesics for patients who have acute pain when the likelihood of benefit exceeds the likelihood of harm. Doses should be titrated regardless of the initial dosing regimen (i.e., weight-based, fixed, or nurse-initiated) at 10–20-min intervals (based on analgesic used) until pain is relieved to acceptable levels or side effects become intolerable. Frequent reassessments should be performed to evaluate for opioid-adverse effects (36–40). One reasonable approach is to begin with lower initial doses of opioid analgesics and titrate to higher doses as needed (39,40).

Opioids can cause respiratory depression at higher doses (41). Patients with acute pain who are opioid naïve or are administered higher doses of opioids should have their ventilatory status monitored (38). Hydromorphone, in particular, should be utilized with caution in the ED due to the potential for dosing errors leading to dangerous respiratory and central nervous system depression. Should hydromorphone be administered in higher than equianalgesic morphine milligram equivalents, close cardiopulmonary monitoring is strongly recommended (42,43).

When using parenteral opioids, the patient should be engaged in shared decision-making regarding the route of administration because repetitive attempts at i.v. cannulation and intramuscular (i.m.) injections are associated with pain and discomfort. Furthermore, i.m. injections are associated with unpredictable absorption rates and complications such as muscle necrosis, soft tissue infection, and the need for dose escalation.

When i.v. access is unobtainable, clinicians should consider intranasal fentanyl, nebulized fentanyl, or morphine, transmucosal (fentanyl lollipops) or transbuccal (rapidly dissolving fentanyl tablets) routes of analgesia for acute painful conditions (44–46). Oral opioid administration is effective for most patients in the ED. Although there is no appreciable difference in analgesia provided between different oral opioids (hydrocodone, oxycodone, morphine), immediate-release morphine sulfate tablets are associated with a lesser degree of euphoria, which may decrease their abuse potential compared with other oral opioids (47,48). Emergency practitioners and other acute care providers without clinic-based practices or expertise in pain management should not administer or prescribe long-acting, extended-release, or sustained-release opioid formulations including oral or transdermal fentanyl in the ED. These formulations (long-acting, extended-release, sustained-release) are not indicated for acute pain and carry a high risk of overdose, particularly in the opioid naïve patient (49).

EM clinicians should follow their states' regulatory requirements for accessing a prescription drug-monitoring

program when prescribing opioids from the ED for acute pain. If voluntary, emergency clinicians should consider routinely accessing this database. The information obtained should be used to practice informed prescribing, identify and counsel patients with aberrant drug-related behaviors, and to offer referral for addiction treatment (50–52).

#### *Upon Discharge from the Emergency Department*

Upon discharge from the ED, clinicians should involve patients in shared decision-making by discussing the benefits and harms, both short and long term, as well as with alternative analgesic modalities (35,53). If a patient's acute painful condition warrants opioid analgesics, EM clinicians should only prescribe immediate-release formulations at the lowest effective dose and for short duration, typically a 2–3 day supply (35). EM clinicians should also consider prescribing opioid and nonopioid analgesics at discharge whenever possible.

When prescribing combination medications containing acetaminophen, special caution should be taken to not exceed the maximum daily dose of acetaminophen, to decrease the risk of liver injury (54).

EM clinicians should evaluate the patient's medical history when opioids are considered as a discharge prescription. Patients who have, or are at risk for, obstructive sleep apnea or pulmonary disease, are at increased risk for ventilatory depression. Patients with a history of substance abuse and family history of addiction are at an increased risk for relapse of their use disorder (35). Patients discharged with an opioid prescription should be counseled regarding common adverse effects related to opioid use such as pruritus, constipation, and more serious adverse effects such as sedation, respiratory depression, the development of tolerance and dependence, and the risk of developing an opioid use disorder (35). Lastly, patients discharged with an opioid prescription should be counseled on safe opioid storage and disposal and the consequences of failure to do so (35).

When patients present to the ED with an exacerbation of chronic pain, the clinician should utilize nonpharmacological and nonopioid analgesic modalities, as opioids are more likely to cause harm than benefit in these cases. For patients with chronic pain, opioids should be prescribed by a physician who will provide ongoing care, and who can use opioids as part of an analgesic care plan that includes specific functional goals as well as an opioid contract. Emergency clinicians should attempt to contact a patient's principle opioid prescriber prior to prescribing an opioid analgesic for an exacerbation of chronic pain. However, should a patient require an opioid analgesic, a very short

course of 2–3 days of an immediate-release opioid may be prescribed at discharge (55).

#### *Nonpharmacological Management*

ED clinicians should consider applications of heat or cold as well as specific recommendations regarding activity and exercise. They may also consider early referral to physical therapy. The use of alternative and complementary therapies, such as acupuncture, guided imagery, cognitive-behavioral therapy, and hypnosis have not been systemically evaluated for use in the ED. In general, their application may be limited for an ED visit, but continued investigation in their safety and efficacy is strongly encouraged (56,57).

ED clinicians may also consider utilization of osteopathic manipulation techniques, such as high velocity, low amplitude techniques, muscle energy techniques, and soft tissue techniques for patients presenting to the ED with pain syndromes of skeletal, arthroidal, or myofascial origins (58–60).

## DISCUSSIONS AND CONCLUSIONS

The EM clinician is in the unique position not only to help provide safe, effective, and efficient analgesia, but to help educate the patient and help combat the opioid epidemic. Our hopes with these guidelines is that the EM clinician will have better resources to treat pain and prevent opioid misuse and abuse, as well as developing opioid use disorder through the use of nonopioid analgesics and judicious use of opioid analgesics when necessary.

#### *Key Points*

- NSAIDs should be given at their lowest effective doses for a limited period of time.
- Topical NSAIDs can be used when there are contraindications to the use of systemic therapy.
- Local and regional nerve blocks can be used in acute localized painful conditions.
- Sub-dissociative doses of ketamine can be used for acute painful conditions.
- Parenteral opioids should be used with caution at lower doses and titrated upwards as needed for pain.
- With the use of higher doses of opioids, cardiopulmonary monitoring is strongly encouraged.
- When oral opioids are used, morphine may be preferred, as it is associated with a lesser degree of euphoria compared with other opioids such as oxycodone and hydrocodone, and similar analgesic efficacy. This may limit abuse potential.

- Limit prescriptions of opioids to 2–3 days of an immediate-release formulation.
- Patients should be counseled on the risks of developing tolerance and dependence.

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