

An Education Day for Improving Pain Management and Opioid Use in the Emergency Department

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Introduction

Pain is the most common reason people visit emergency departments (EDs). Current literature suggests pain in the ED continues to be undertreated. Meanwhile, opioid use and abuse are at epidemic levels. Education is consistently presented as a practical means to improve analgesic practice and opioid safety in the ED. We developed an inter-professional, day-long educational intervention directed towards ED providers of all levels of training.

Needs Assessment

Abundant literature suggests pain management and opioid use are areas of improvement within the house Emergency Medicine. There is also evidence of institutional variability depending on educational exposure and awareness. Prior to developing our curriculum, we assessed our ED providers on their practice patterns and opinions. We sent out an online voluntary survey to ED providers ranging from attending level to advanced practice providers. Fifty-five providers completed the survey including 23 residents, 21 attending physicians, 6 fellows, and 4 advanced practice providers. The amount of formal training on pain management varied with most residents reporting 2-5 hours and most attending physicians reporting >10 hours. (Fig 1) Most participants reported that their previous training consisted of online CME modules. Providers felt that having additional formal training in pain management would be useful to their clinical practice (avg 4.1 on 1-5 scale). Providers also agreed that opioid abuse and addiction are major problems within our community (avg 4.7 on 1-5 scale).

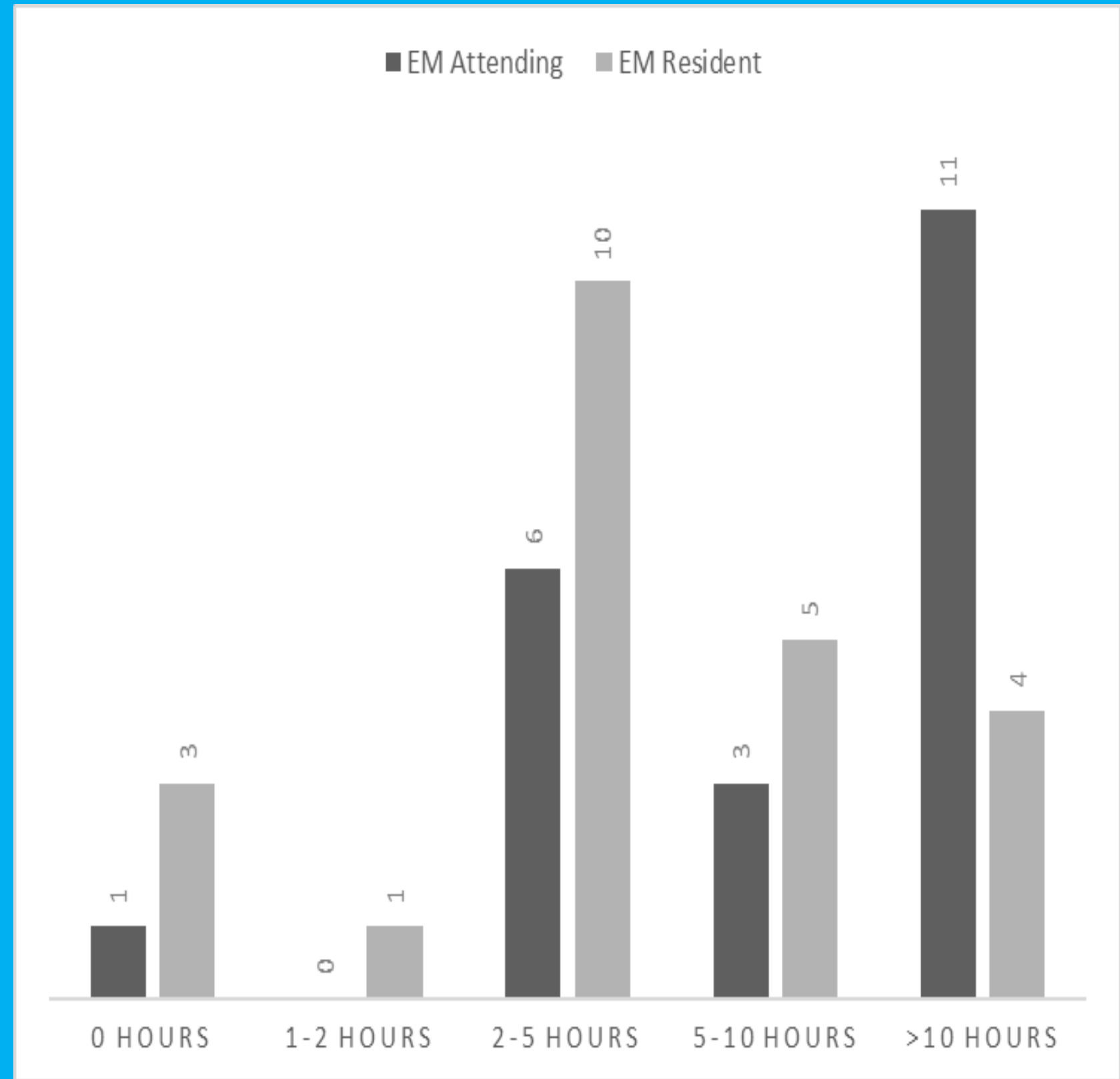


Fig 1. Hours of formal training on pain management reported by EM attendings and residents

Methods

We surveyed ED providers at our institution regarding their opinions on pain management and opioid use in the ED. Using survey responses, a literature review, and current professional organization recommendations, we created an education day to address educational needs. The program was piloted with 61 ED providers of various levels of training. Participants assessed the education day with post-activity surveys.

Curriculum Development

Based on the survey results and literature review, a curriculum was designed with the following components:

Ultrasound Guided Nerve Blocks (UGNB):

- Ultrasound guided nerve blocks (UGNB) may be an effective way to treat pain in ED while reducing utilization of opioid medications.
- Of surveyed providers, only 29% (6/21) of attending physicians and 22% (5/23) of residents reported previous training on UGNB.
- There is evidence that these blocks can be introduced in a limited time frame, so we decided to incorporate femoral and forearm UGNB in our education day.
- This included 1) 30 minute didactic session regarding indications, risks, and benefits of these UGNB; 2) two, 20 minute hands-on, small group session in location of relevant anatomy under ultrasound for forearm blocks and lower extremity blocks; 3) 20 minute hands-on, small group session practicing ultrasound guided needle advancement using phantom models; and 4) a 15 minute didactic session on lipid emulsion therapy for anesthetic toxicity.
- Hands-on sessions were led by ultrasound fellowship trained EM physicians and certified sonographers.
- The purpose of this section of the education day was not to credential participants in UGNB, but to introduce basic techniques and encourage the use of UGNBs when working with faculty comfortable with the procedure and willing to teach the learner.

Nitrous Oxide:

- Nitrous oxide has been widely used in multiple healthcare settings to effectively reduce pain and anxiety.
- It can be administered via simple, non-invasive means, which makes it an appealing analgesic option for emergency medicine.
- To improve the rate of use of this modality we included a 20-minute hands-on, small group session on clinical indications and review of our institution's established protocol with our nitrous oxide system.

Dental Pain Management:

- Prompt access to dental care can be difficult for patients and dental pain is a common presentation to EDs.
- A secondary analysis by Singer et al using the National Hospital Ambulatory Medical Care Survey (NHAMCS) database found that almost 2% of ED patients have dental pain and 31% of these patients were prescribed opioids while only 6% received local anesthesia.
- Local anesthesia can offer relief from dental pain for up to 11 hours, which is often enough to bridge the patient to an outpatient dental visit for tooth extraction or other interventions often not available in the ED.
- Encouraging the use of dental blocks and non-opioid analgesia for dental pain in the ED may reduce the number of prescribed opioids while improving pain control.
- We included a 20-minute hands-on, small group session on dental anesthesia led by our university's school of dentistry faculty and residents.
- This session included walking ED providers through the anatomy of dental blocks using anatomical skull models.

Prescription Monitoring Program (PMP):

- Drug seeking is a complex behavior that can be difficult to manage in a busy ED setting where prompt and effective treatment of pain is paramount.
- It appears the effect of a patient's behavioral and clinical factors on ED providers' opioid prescribing patterns is highly variable, suggesting the need for objective tools when addressing drug-seeking behavior.
- Literature is somewhat limited and proposed solutions are controversial, but there is some evidence that Prescription Monitoring Programs (PMP) are objective tools that may help reveal drug seeking behavior and guide prescribing of opioids.
- To help to reduce opioid abuse, diversion, and overdose we included a 30-minute lecture on accessing our state's PMP and prescriber requirements.
- The lecture was presented by an out-patient pharmacist and reviewed helpful PMP tools and the state requirements.

Management of Pain and Withdrawal in Chronic Opioid Users (COUs):

- Chronic opioid users (COU) have increased pain sensitivity and require higher opioid doses to achieve pain relief.
- In these patients there is also a risk of worsening an addiction disorder and increased side effects such as respiratory depression.
- ED providers surveyed had differing clinical practice patterns around dosing of opioids for pain treatment in COUs with 53% (31/58) reporting using higher doses, 40% (23/58) reporting no change and 7% (4/58) reporting lower doses.
- Variable practice patterns suggested a need for further education on pain management in COUs.
- Provided a 30-minute lecture focused on using evidence based practices such as calculating COU equivalent opioid requirement and opioid-sparing strategies.
- Withdrawal is another common presentation for COUs. To help our providers successfully address this clinical situation we included a 30-minute lecture on management techniques for opioid withdrawal, such as use of opioid agonists (buprenorphine) and non-opioid adjunctive medications (clonidine, benzodiazepines).
- These two 30-minute lectures were given by an Emergency Medicine physician that is also board certified in addiction medicine.
- In order to better understand the complex social and psychological aspects of opioid addiction we also invited a medical provider with a personal history of opioid addiction to give a 30-minute presentation on their experience and perspectives.

Alternative Analgesia:

- In agreement with current consensus-based recommendations, we dedicated 90-minutes of lecture time to address pharmacological alternatives to opioids when managing pain in particular clinical situations.
- To make the lecture more relatable to learners we presented information through clinical cases.
- Topics covered included headache, back pain, dyspepsia, neuropathic pain, muscular pain, gout pain, analgesia during pregnancy, and topical analgesia.
- To help guide this portion of the lecture we used many of the existing summary resources available regarding alternative analgesia to opioids.
- The lecture was primarily organized and presented by pharmacists who had completed Emergency Medicine residencies.

Large group/lecture

1. Alternatives to opiates for ED analgesia, 90 minutes
2. Use of prescription monitoring program (PMP), 30 minutes
3. Management of pain and withdrawal in chronic opioid users, 60 minutes
4. Overview of opioid addiction, 30 minutes
5. Ultrasound guided nerve block review, 30 minutes



Small groups- 8-10 learners, 20-30 min/station

1. Nitrous oxide simulation/review
2. Dental block station
3. Ultrasound guided nerve block station 1 –phantom model
4. Ultrasound guided nerve block station 2 –forearm block anatomy
5. Ultrasound guided nerve block station 3 –hip/lower extremity block anatomy

Fig 2. Topics covered during education day

Results

Post-education survey results from the 61 participants (56% response rate) showed:

- Improved understanding of pain management in the ED (mean score: 4.3 out of 5).
- Better understanding of issues related to opioid use (mean score: 4.4 out of 5).
- Anticipation that the education day would influence their clinical practice (mean score: 4.2 out of 5).

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