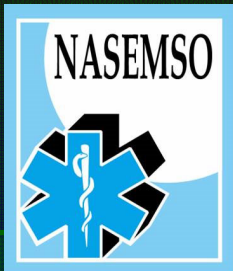


### Prehospital Pain Management

Evidence-Based Guidelines for the Pharmacologic Management of Acute Pain by Emergency Medical Services



By the National Association of State EMS Officials (NASEMSO), The American College of Emergency Physicians (ACEP®), and the National Association of EMS Physicians (NAEMSP®)

### Education Module

For the National Highway Transportation Safety Administration (NHTSA), Office of EMS

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### Disclaimer & Disclosure

This presentation was produced with support from the US Department of Transportation (DOT), National Highway Traffic Safety Administration (NHTSA) Office of Emergency Medical Services, and the US Department of Health and Human Services (DHHS) Maternal and Child Health Bureau's EMS for Children Program through cooperative agreement number 693JJ92050003.

The contents of this educational module are solely the responsibility of the authors and do not necessarily represent the official views of DOT or DHHS.

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### Collaborating Organizations

**PRINCIPAL INVESTIGATOR:**  
National Association of State EMS Officials (NASEMSO)

**CO-INVESTIGATORS:**  
American College of Emergency Physicians (ACEP®)  
National Association of EMS Physicians (NAEMSP®)  
For more information:  
<https://nasemso.org/projects/prehospital-pain-management-ebg>




ADVANCING EMERGENCY CARE

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EMS is charged with providing person-centered evidence-based, and cost effective quality care that improves practice and patient outcomes

It can take years to integrate evidence into practice – and when it comes to pain mgt in our current environment, we don't have years to figure it out!


<https://specialty.mims.com/>



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“It is easier to find men who will volunteer to die, than to find those who are willing to endure pain with patience.”

Julius Caesar

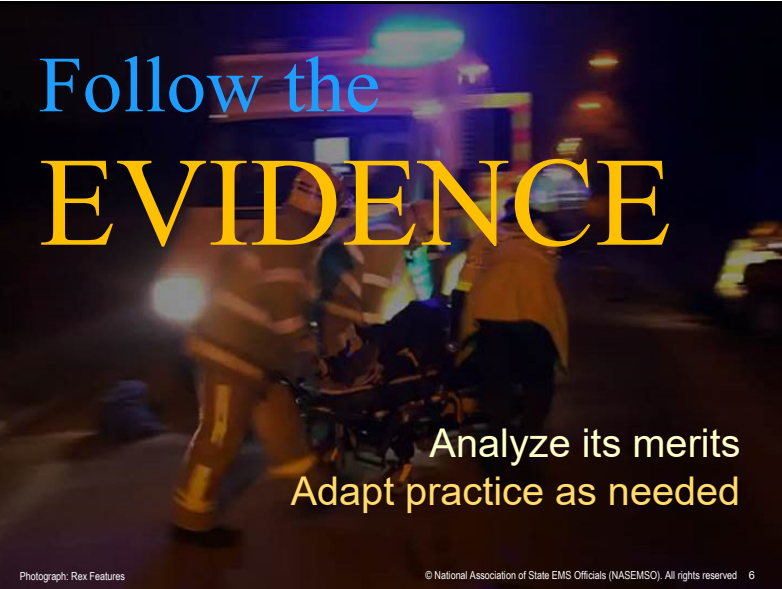


How can EMS best assess and manage pain to reduce **physical, psychological and emotional** suffering?

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Follow the

EVIDENCE




Analyze its merits  
Adapt practice as needed

Photograph: Rex Features

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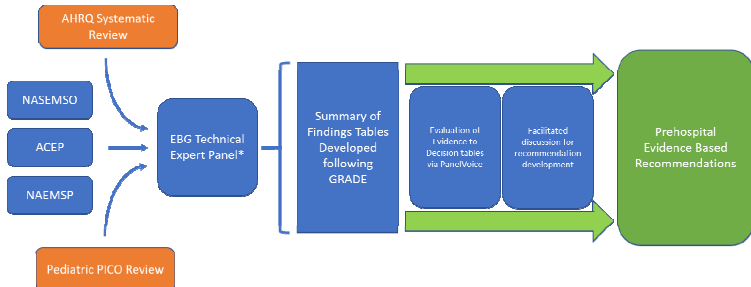
Introductory remarks



George Lindbeck, MD  
State EMS and Trauma  
Medical Director  
Virginia Department of Health  
Principal Investigator  
NASEMSO

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Overall project flow diagram




```
graph LR; AHRQ[AHRQ Systematic Review] --> EBP[EBG Technical Expert Panel*]; PICO[Pediatric PICO Review] --> EBP; EBP --> SFT[Summary of Findings Tables Developed following GRADE]; SFT --> Eval[Evaluation of Evidence to Decision Tables via Panel/voice]; Eval --> Fac[Facilitated discussion for recommendation development]; Fac --> PREB[Prehospital Evidence Based Recommendations];
```


\*EBG Technical Expert Panel consisted of pain management experts, EMS physicians, EMS clinicians, researchers, and educators, pediatric emergency medicine physicians, a pharmacologist, a patient advocate, and an evidence-based guideline methodologist

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### PROJECT GOALS



Develop a set of EBGs for EMS pain mgt building on the AHRQ findings



Develop performance measures for pain management and patient care guidelines



Develop educational materials for EMS clinicians to roll out the EBG and patient care guidelines

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### What is evidence-based practice?

Clinical Expertise

Best Research Evidence

Patient values & preferences

Evidence Based Practice

<https://guides.library.uq.edu.au/how-to-find/evidence-based-practice>

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### Agency for Healthcare Research and Quality (AHRQ) did a systematic review of comparative effectiveness of analgesics used by EMS

1 IDENTIFY Critical Needs

2 RESEARCH and Select Evidence-Based Strategies

3 PLAN for Implementation

4 IMPLEMENT and MONITOR

5 EXAMINE, Reflect, Adjust

<http://education.ohio.gov/Topics/District-and-School-Continuous-Improvement>

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### The TEP developed 9 PICO\* questions based on AHRQ review + 1 re: peds analgesia via fentanyl IN

\*Patient/population-intervention-comparison-outcome

Elements of a systematic review

Frame questions

- Involve stakeholders
- Define what is to be examined and how

Explicit questions

Rigorous review methods

- Transparent
- Repeatable

Systematic evaluation of evidence

To stakeholders and decision-makers using appropriate formats for different end users

Active dissemination of results

Commitment to update

[www.forestnews.cifor.org/19403/](http://www.forestnews.cifor.org/19403/)

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## GRADE methodology

- Grading of Recommendations, Assessment, Development, and Evaluation
- Detailed methodology, summary findings, evidence-to-decision tables presented in companion paper

### Strength of recommendation on a continuum

Strong against      Conditional      Strong for



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## Two papers published



PREHOSPITAL EMERGENCY CARE  
<https://doi.org/10.1080/10903127.2021.2018073>

 OPEN ACCESS  Check for updates

## Evidence-Based Guidelines for Prehospital Pain Management: Recommendations

George Lindbeck<sup>a</sup>, Manish I. Shah<sup>b</sup>, Sabina Braithwaite<sup>c</sup>, Jonathan R. Powell<sup>d</sup>, Ashish R. Panchal<sup>e</sup>, Lorin R. Browne<sup>f</sup>, Eddy S. Lang<sup>g</sup>, Brooke Burton<sup>h</sup>, Jeffrey Coughenour<sup>j</sup>, Remle P. Crowe<sup>j</sup>, Hannah Degn<sup>k</sup>, Mary Hedges<sup>k</sup>, James Gasper<sup>j</sup>, Kyle Guild<sup>m</sup>, Connie Mattera<sup>n</sup>, Sandra Nasca<sup>o</sup>, Peter Taillac<sup>p</sup>, and Mark Warth<sup>q</sup>

<sup>1</sup>Office of Emergency Medical Services, Virginia Department of Health, and the Department of Emergency Medicine, University of Virginia School of Medicine, Charlottesville, Virginia, USA; <sup>2</sup>Department of Pediatrics, Baylor College of Medicine, Houston, Texas, USA; <sup>3</sup>Missouri Department of Health and Senior Services, Washington University in St Louis School of Medicine, St. Louis, Missouri, USA; <sup>4</sup>National Registry of Emergency Medical Technicians (NREMT), Columbus, Ohio, USA; <sup>5</sup>National Registry of Emergency Medical Technicians (NREMT), The Ohio State University Wexner Medical Center, Columbus, Ohio, USA; <sup>6</sup>Milwaukee County EMS, Medical College of Wisconsin, Milwaukee, Wisconsin, USA; <sup>7</sup>Cumming School of Medicine, University of Calgary and Alberta Health Services, Calgary, Canada; <sup>8</sup>Falck Ambulance, Northridge, California, USA; <sup>9</sup>Frank Mitchell, Jr., MD, Trauma Center, University of Colorado Health Sciences Center, Aurora, Colorado, USA; <sup>10</sup>ISO, National Association of State EMS Officials (NASEMSO); <sup>11</sup>California Department of Health Care Services, Sacramento, California, USA; <sup>12</sup>Cumming School of Medicine, University of Calgary, Calgary, Canada; <sup>13</sup>Northwest Community Hospital and EMS System; <sup>14</sup>EMSC Family Advocacy Network; <sup>15</sup>University of Utah School of Medicine, Salt Lake City, Utah, USA; <sup>16</sup>Colorado Springs Fire Department, Colorado Springs, Colorado, USA.

PREHOSPITAL EMERGENCY CARE  
<https://doi.org/10.1080/10903127.2021.2018074>

 OPEN ACCESS  Check for updates

## Evidence-Based Guidelines for Prehospital Pain Management: Literature and Methods

Jonathan R. Powell<sup>a,b</sup>, Lorin R. Browne<sup>c</sup>, Kyle Guild<sup>d</sup>, Manish I. Shah<sup>e</sup>, Remle P. Crowe<sup>f</sup>, George Lindbeck<sup>g</sup>, Sabina Braithwaite<sup>h</sup>, Eddy S. Lang<sup>d</sup>, and Ashish R. Panchal<sup>a,b,i</sup>, On behalf of the Technical Expert Panel

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## Education offering objectives

Upon completion, each participant will do the following with a level of proficiency that meets the standards for their scope of practice:

Identify the major recommendations of the EMS Pain Mgt Guidelines and explain their rationales.

**Safely implement** EBG for pain management within their local protocols.

**Defend the need for** person-centered EMS  
pain management based on quality evidence.



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## PICO Questions & Recommendations



Ashish R. Panchal, MD, PhD  
NREMT  
The Ohio State University  
Wexner Medical Center

Each question will be presented individually with the strength of the evidence, guideline recommendation, rationales, and caveats

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PICO #1: Should **INTRANASAL FENTANYL** vs. **IV/IM OPIOIDS** be used for acute onset of moderate to severe pain in children in the prehospital setting?



**PICO #1 - Strong Recommendation**  
(Low certainty of evidence)

We recommend in **favor of IN fentanyl** over IM or IV opioids in the treatment moderate to severe pain in pediatric patients prior to vascular access or without (or no indications for) IV access



**Conditional recommendation:** Either **IN fentanyl** or **IV opioids** once IV access established

Pain mgt in peds challenging, priority of care  
**Advantages:** Effectiveness; ease of use

PICO #2: Should **IV ACETAMINOPHEN** vs. **IV OPIOIDS** be used to treat moderate to severe pain in the prehospital setting?



**PICO #2 - Conditional Recommendation**  
(Low certainty of evidence)

We suggest in favor of **IV acetaminophen** over IV opioids alone if APAP is available, affordable, & easy to give



**Rationale:** Equivalent pain control, better tolerability  
**Possible disadvantages:** Cost; given by infusion; EMS often prefers IVP or rapid delivery routes

Is this available where you work now?

Considerations re: nausea

APAP may produce less  
dizziness, nausea and/or  
vomiting than opioids  
May avoid concurrent use  
of antiemetic



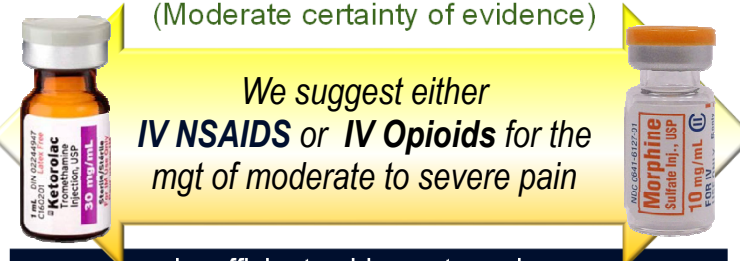
Etiologies of nausea:

- Pain; anxiety; GI disorders, infection, medications & toxins, CNS, endocrine & metabolic
- Opioids: direct stimulation medulla chemoreceptors
- Motion sickness in EMS vehicle (Weichenthal)

PICO #3: Should **IV NSAIDs** vs. **IV OPIOIDS**  
be used for treatment of moderate to severe pain  
in the prehospital setting?



PICO #3 – Conditional Recommendation  
(Moderate certainty of evidence)



Insufficient evidence to make a  
recommendation re: pain severity at 15 minutes,  
partial or full relief of pain, or time to analgesic effect

**Concerns:**  
Sub-therapeutic dose of ketorolac in limited data

PICO #3 -  
Considerations



- Cost differential: ketorolac more expensive
- Adverse events may be more common with opioid (morphine) (Rainer)
- IV NSAIDs attractive if patient is opioid tolerant or dependent, claims opioid allergy or intolerance, or prefers drug with lower risk profile

Which do you use now?

**PICO #4:** Should **IV ACETAMINOPHEN (APAP)** vs. **IV NSAIDs** be used to treat moderate to severe pain in the prehospital setting?



VS.



**PICO #4 - Conditional Recommendation**  
(Low certainty of evidence)

We suggest in **favor of IV NSAIDs** over IV APAP for the initial mgt of moderate to severe pain in the prehospital setting



We also recommend in **favor of either PO NSAIDs or ACETAMINOPHEN** for the Initial mgt of pain in the prehospital setting



**PICO #4 - Rationale**

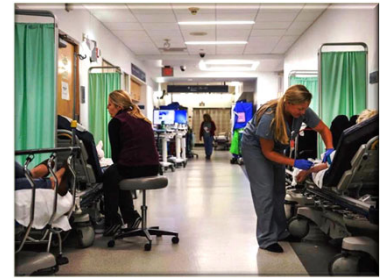


- **IV route:** Little difference in pain severity at 30 or 60 min or in partial or complete pain relief
- **Adverse events:** Comparable
- **Cost & feasibility:** Favors IV NSAIDs
- Consider oral, non-opioid analgesics

**All evidence:** Non-graded; ED based

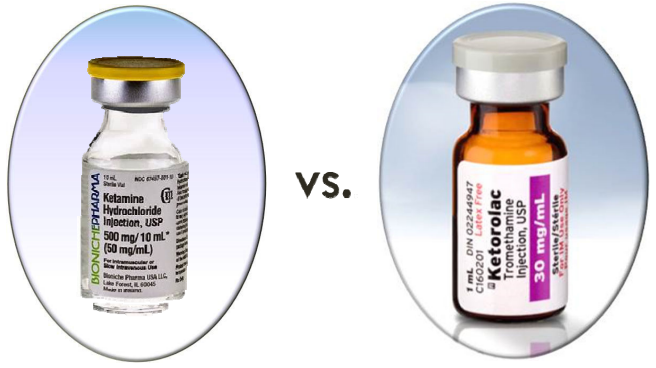
**PICO #4 – Caveats**

- All are candidates for pain mgt & comfort measures regardless of transport interval
- Do not assume fast analgesic Rx at ED - may have significant delays (Woolner, Patrick)
- Any EMS analgesics (including PO) may markedly improve pain relief well into ED stay

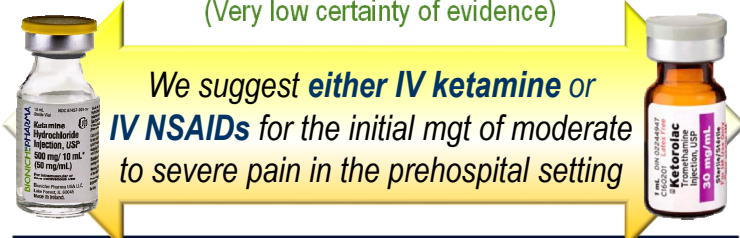




PICO #5: Should **IV KETAMINE** vs. **IV NSAIDs** be used to treat moderate to severe pain in the prehospital setting?



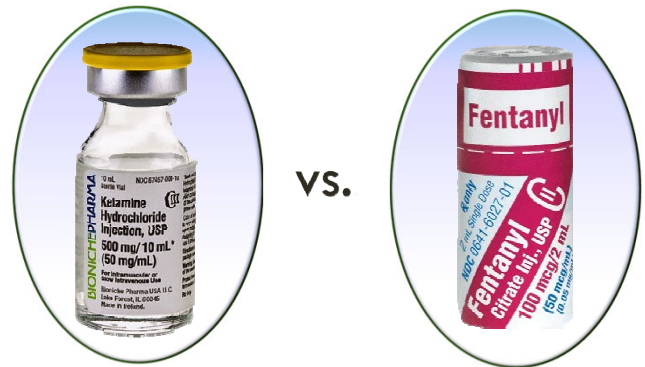
PICO #5 - Conditional Recommendation  
(Very low certainty of evidence)



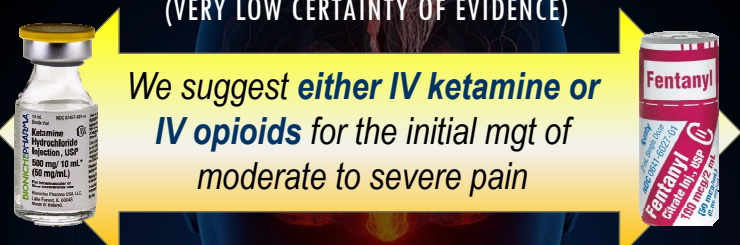
Single study found significant pain relief at 30 min after ketorolac compared to ketamine, but no significant differences at 15 or 60 min, time to analgesic effect, pain relief, or pain memory

SE higher with ketamine – not clinically significant

PICO #6: Should **IV KETAMINE** vs. **IV OPIOIDS** be used to treat moderate to severe pain in the prehospital setting?



PICO #6 - CONDITIONAL RECOMMENDATION  
(VERY LOW CERTAINTY OF EVIDENCE)



No clinically significant difference in pain at 15, 30, or 60 min, in partial or complete pain relief, or time to analgesia effect

Small sample size; difficult for pts to quantify



Pico #6 - Rationale

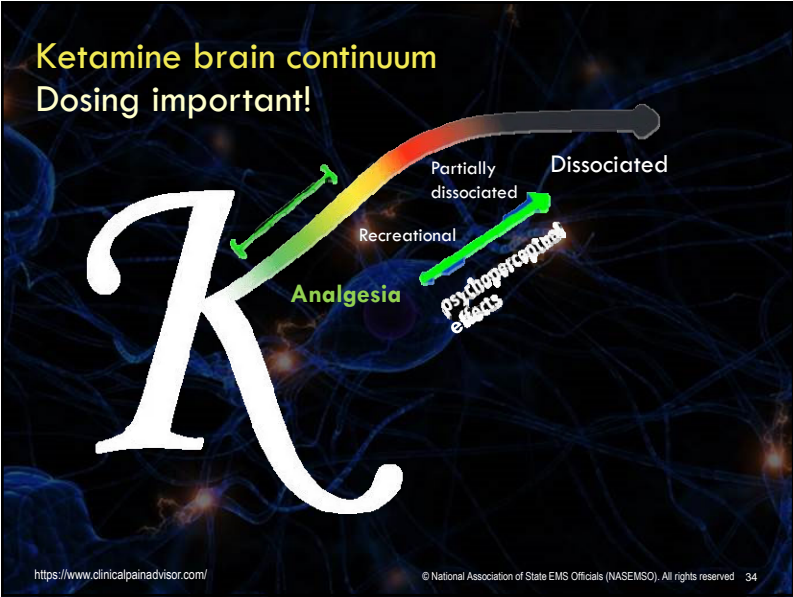
Ketamine provides inconsistent but potentially rapid onset of pain relief and currently has a wide range of dosing strategies (IVP, IVPB, IM, IN)

Number of pts experienced mild-to-moderate side effects (dizziness, dysphoria, confusion) (Ghate)

Do you use ketamine?



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<https://www.clinicalpainadvisor.com/>

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PICO #6 - Conclusions

- IV opioids used more commonly now, but both drugs likely acceptable to stakeholders
- **Ketamine**: Viable alternative for pain if patient is opioid tolerant or dependent, claims opioid allergy or intolerance, or has experienced adverse events with opioids
- Non-opioid option may increase health equity, but not addressed in this evidence base

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PICO Questions & Recommendations





Jonathan Powell, MPA, NRP  
NREMT Research Fellow

Continuing the discussion...

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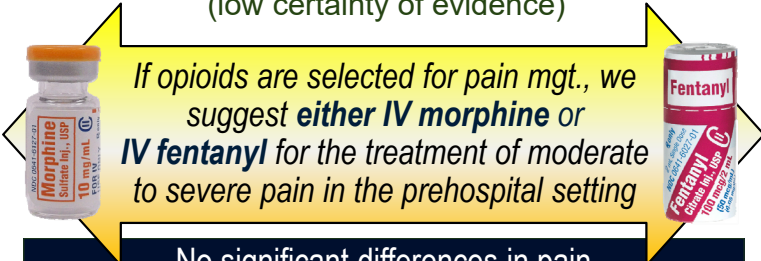
PICO #7: Should **IV morphine** vs. **IV fentanyl** be used to treat moderate to severe pain in the EMS setting?





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PICO #7 - Conditional recommendation  
(low certainty of evidence)



*If opioids are selected for pain mgt., we suggest **either IV morphine** or **IV fentanyl** for the treatment of moderate to severe pain in the prehospital setting*

No significant differences in pain scores, resolution of pain, or time to analgesia

- **Morphine**: Associated with higher rates of nausea
- **Fentanyl**: More route options (IN)

Conflicting results in EMS vs. hospital-based trials

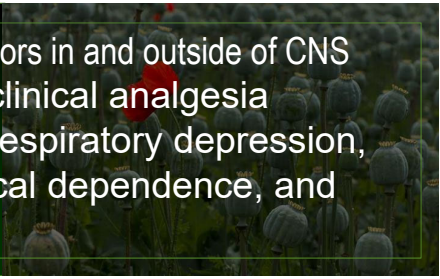
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PICO #7 – Rationale

Opiates have been the cornerstone of pain management for centuries

**Natural + Synthetic Agents**

Bind to opioid receptors in and outside of CNS  
“Mu-1” produce clinical analgesia  
“Mu-2” produce respiratory depression, euphoria, physical dependence, and constipation



Theoetherson


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PICO #7 – Rationale cont.

Other receptors: delta, sigma, kappa, and epsilon  
Kappa produces analgesia, sedation and miosis

Select an opioid based on pain severity, route options, previous responses to opioids, SEs, how drug may interact with a patient’s disease state(s) & local protocols

Which do you prefer?



<https://www.marketplace.org/>

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PICO #8: Should a combination of weight-based **IV OPIOID + KETAMINE** vs. weight-based **IV OPIOID alone** be used to Rx moderate-severe pain in the prehospital setting?



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PICO #8 - **CONDITIONAL RECOMMENDATION**  
 (VERY LOW CERTAINTY OF EVIDENCE)



We suggest **AGAINST** the combination of weight-based IV opioid + wt-based IV ketamine vs. weight-based IV opioid alone



Weight	IV Opioid	IV Ketamine	IV Opioid	IV Ketamine
110 - 128 lbs	20 mcg = 0.4 mL	0.8 mL	20 mcg = 0.4 mL	0.8 mL
132 - 150 lbs	25 mcg = 0.5 mL	1 mL	25 mcg = 0.5 mL	1 mL
154 - 172 lbs	30 mcg = 0.6 mL	1.2 mL	30 mcg = 0.6 mL	1.2 mL
176 - 194 lbs	35 mcg = 0.7 mL	1.4 mL	35 mcg = 0.7 mL	1.4 mL
198 - 216 lbs	40 mcg = 0.8 mL	1.6 mL	40 mcg = 0.8 mL	1.6 mL
220-238 lbs	45 mcg = 0.9 mL	1.8 mL	45 mcg = 0.9 mL	1.8 mL
240-258 lbs	50 mcg = 1.0 mL	2.0 mL	50 mcg = 1.0 mL	2.0 mL

**Rationale:** Lack of clinical improvement in pain control, slight increase in undesirable SE, and desire to avoid complexity in administration

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PICO #9: Should a combination of **IV OPIOID + IV KETAMINE** vs. **IV KETAMINE alone** be used to treat moderate to severe pain in the prehospital setting?



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PICO #9 - **NO RECOMMENDATION**  
 (VERY LOW CERTAINTY OF EVIDENCE)

NO recommendation made at this time on the combination of IV KETAMINE + IV OPIOID vs. IV KETAMINE alone due to significant uncertainty of the evidence and incomplete information concerning the comparison

Need more

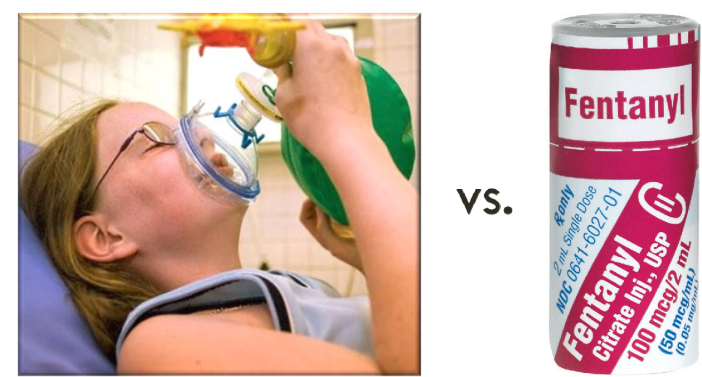


<https://www.youtube.com/watch?v=56rDexucUDU>

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PICO #10: Should **NITROUS OXIDE** vs. **IV OPIOIDS** be used to treat moderate to severe pain in the prehospital setting?



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PICO #10: **NO RECOMMENDATION**  
(Very low certainty of evidence)

*NO recommendation made on the comparison between nitrous oxide vs. IV opioids for the initial management of moderate to severe pain in the prehospital setting*

**Potential cons:** Cost, gas replacement; needs responsive patient who can follow instructions; contraindicated in pneumothorax/bowel obstructions



www.porterinstrument.com

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DISCUSSION



<https://madison.com/sports>

47

Why is this important?

- Pain is a frequent complaint of EMS patients
- Historical reliance on IV opioids



Growing opioid epidemic and expanding medical options opened door to exploring evidence-based guidelines (EBGs) with choices identified

<https://thesouthern.com/>

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## Current EMS Data



Remle Crowe, Ph.D., NREMT  
ESO Solutions

- Challenges persist in providing adequate analgesia in the field
- Pain frequently undertreated
- Disparities accentuated based on patient demographics

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## What are the barriers to effective pain management by EMS?

[www.frontier-pitts.f](http://www.frontier-pitts.f)

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# We don't always follow the EVIDENCE!

[illegible]

## What meds were used for EMS pain mgt by Eagle Systems? (2/15)

- Fentanyl (60%)
- Morphine (43%)
- Ketamine (16%)
- Ketorolac (16%)
- Nitrous Oxide (6%)
- Dilaudid (6%)
- IV Acetaminophen (1 system)



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2019 NEMSIS public use research database

N total: 26,501,968 records for 911 responses  
N Pain subset (initial pain score documented at ≥6): 3,206,755 pts  
Received prehospital analgesics: 428,562 (13%)

Drugs used	
Opioid	392,148 (91.5%)
NSAID	20,529 (4.8%)
Ketamine	16,338 (3.8%)
Acetaminophen	9,425 (2.2%)

Sum >100% as one person could receive ≥2 classes of meds



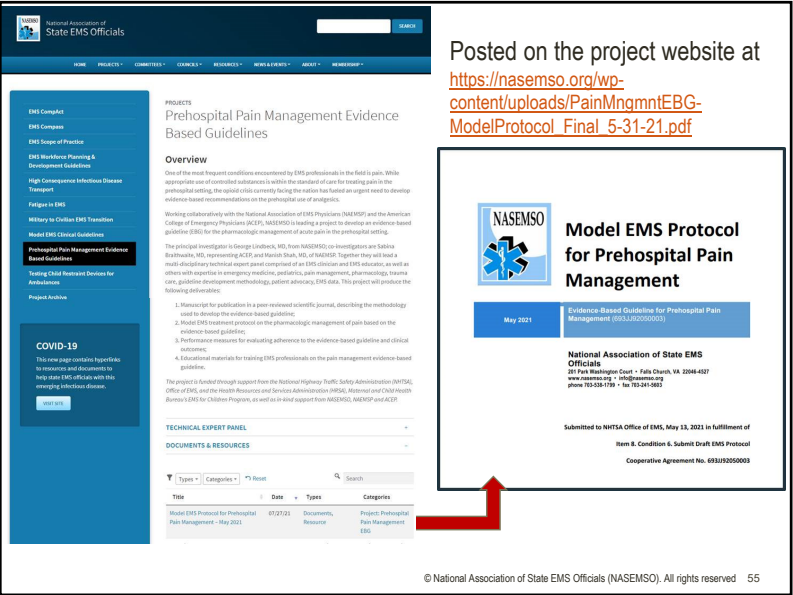
www.ihs.gov/opioids/

Not part of study - included for completeness


### Model EMS Protocol for Prehospital Pain Management

Individualized  
Multimodal  
Multidisciplinary

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Posted on the project website at [https://nasemso.org/wp-content/uploads/PainMngmntEBG-ModelProtocol\\_Final\\_5-31-21.pdf](https://nasemso.org/wp-content/uploads/PainMngmntEBG-ModelProtocol_Final_5-31-21.pdf)



### Model EMS Protocol for Prehospital Pain Management

May 2021

Evidence Based Guideline for Prehospital Pain Management (05/31/2020003)

National Association of State EMS Officials  
201 Park Washington Court • Falls Church, VA 22044-4527  
www.nasemso.org • info@nasemso.org  
phone 703-228-1789 • fax 703-241-9883

Submitted to NHTSA Office of EMS, May 13, 2021 in fulfillment of Item 8, Condition 5, Submit Draft EMS Protocol  
Cooperative Agreement No. 693UJ2000003

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# GOAL

Multimodal options are used by EMS to treat pain from various etiologies in a safe and effective way based on pain severity, patient history, hemodynamic status, & choice unless interventions are contraindicated or patient refuses

(Photo by Doug Pensinger/Getty Images)

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What's in your toolbox now?




Elephant Elite EL1 907i

What could or should be?



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**Lorin R. Browne, DO, FAAP**  
Associate Professor of Pediatrics and Emergency Medicine  
Medical College of Wisconsin  
Associate Medical Director, Pediatrics  
Milwaukee County Office of Emergency Management EMS

<https://www.myconfinedspace.com/>

Pediatric Pain Assessment

How did this happen?



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Myths about pain in children



Infants can't feel pain

Children experience less pain than adults

Children will admit to pain

Children recover more quickly from pain

Opiates always cause respiratory depression in children

<https://www.apa.org/monitor/2021/07/ice-corner-developmental-trauma>

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Assessment: Pain by the numbers




Photo by Matt Duncan on Unsplash

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Pain assessment in children



<https://www.romper.com/> © National Association of State EMS Officials (NASEMSO). All rights reserved. 61

Revised FLACC Scale: Birth to 7 yrs or unable to communicate their pain  
Scores range: 0–10 (0 = no pain)

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown; withdrawn, disinterested. <b>Sad, appears worried.</b>	Frequent to constant quivering chin, clenched jaw; <b>disinterested looking face; expression of fright or panic.</b>
Legs	Normal position or relaxed; <b>usual tone an motion to limbs</b>	Uneasy, restless, tense; <b>occasional tremors</b>	Kicking or legs drawn up; <b>marked increase in spasticity; constant tremors/jerking</b>
Activity	Lying quietly, normal position, moves easily; reg. <b>rhythmic respirations</b>	Squirming, shifting back & forth, tense; <b>guarded movements, mildly agitated; shallow, splinting respirations, intermittent sighs</b>	Ached, rigid, or jerking; severe agitation, <b>head banging; shivering, breath holding, gasping, severe splinting</b>
Cry	No cry (awake or asleep)	Moans or whispers, occasional complaint; <b>occasional verbal outbursts, constant grunting</b>	Crying steadily, screams or sobs, frequent complaints; <b>repeated outbursts, constant grunting</b>
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort; <b>pushing caregiver away, resisting care or comfort measures</b>

(Malviya, S. et al 2006) © National Association of State EMS Officials (NASEMSO). All rights reserved. 62

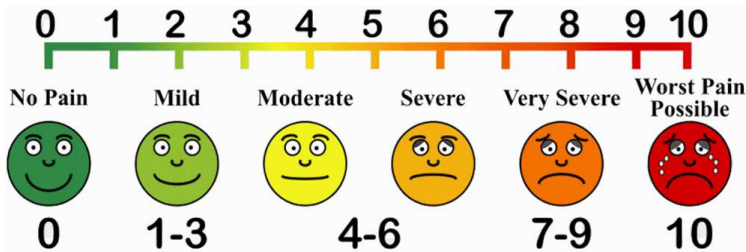
Children’s Hospital of Eastern Ontario Pain Scale (CHEOPS)

Variables	Score 0	Score 1	Score 2
Cry	No	Crying, moaning	Scream
Facial	Smile	Neutral	Grimace
Verbal	Positive statement	Negative statement	Suffering from pain
Torso	Neutral	Variable, upright	Stretched
Legs	Neutral	Cont. moving, kicking	Stretched

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Children 4-12 years of age

Faces Scales



<https://www.disabled-world.com/health/pain/scale.php>

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## Combination tool

**Source:** Hybrid of scales by authors. Wong-Baker FACES® Pain Scale Rating license grants this use. Reproduction of the Wong-Baker FACES® material requires licensing at [www.wongbakerfaces.org](http://www.wongbakerfaces.org)

Rating	Impact on the patient
10	Worst pain you can imagine
7-9	Severe pain Pain is so bad, normal activities are impacted, including talking or sleeping
4-6	Moderate pain Pain makes it hard to concentrate You can't ignore the pain but you can still work through some activities
1-3	Mild pain: Noticeable, but tolerable
0	No pain

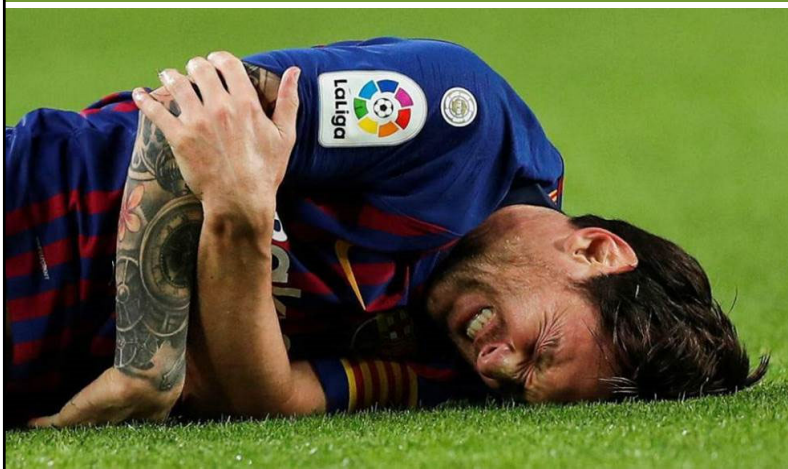
# UNIVERSAL PAIN ASSESSMENT TOOL

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## What else should EMS assess?



[www.marca.com/en/football/barcelona/2018.html](http://www.marca.com/en/football/barcelona/2018.html)

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## Pain assessment tool in patient with dementia

### Abbey Pain Scale

For measurement of pain in people with dementia who cannot verbalise.

How to use scale: While observing the resident, score questions 1 to 6

Name of resident: \_\_\_\_\_

Name and designation of person completing the scale: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Latest pain relief given was: \_\_\_\_\_ at \_\_\_\_\_ hrs.

Q1.	Vocalisation eg. whimpering, groaning, crying Absent 0 Mild 1 Moderate 2 Severe 3	Q1	
Q2.	Facial expression eg. looking tense, frowning, grimacing, looking frightened Absent 0 Mild 1 Moderate 2 Severe 3	Q2	
Q3.	Change in body language eg. Rigidities, locking, guarding part of body, withdrawn Absent 0 Mild 1 Moderate 2 Severe 3	Q3	
Q4.	Behavioural change eg. increased confusion, refusing to eat, agitation in usual pattern Absent 0 Mild 1 Moderate 2 Severe 3	Q4	
Q5.	Physiological change eg. temperature, pulse or blood pressure outside normal limits, perspiring, flushing or pallor Absent 0 Mild 1 Moderate 2 Severe 3	Q5	
Q6.	Physical changes eg. skin tears, pressure areas, sores, contractures, previous injuries Absent 0 Mild 1 Moderate 2 Severe 3	Q6	

Add scores for 1 – 6 and record here → Total Pain Score

Now tick the box that matches the Total Pain Score

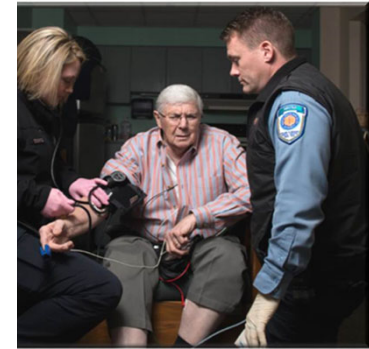
0 – 2	3 – 7	8 – 13	14+
None	Mild	Moderate	Severe

Finally, tick the box which matches the type of pain →

Chronic	Acute	Acute on Chronic
---------	-------	------------------

Dementia Care Australia Pty Ltd  
 Website: [www.dementiacare.org.au](http://www.dementiacare.org.au)

*Abbey, J, De Sillis, A, Piller, N, Easman, A, Gilks, P, Slater, P, Grant, L, Leary, B.  
 Funded by the JH & G. Gorman Memorial Research Foundation 1988 – 2002.  
 Copyright © 2002. All rights reserved. No part of this publication may be reproduced without written permission.*



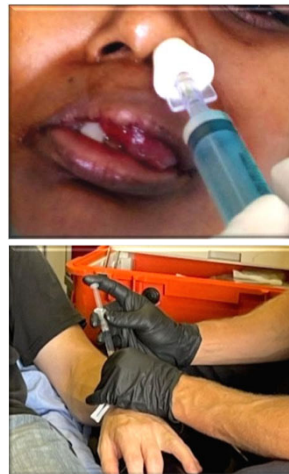
[www.jems.com/](http://www.jems.com/)

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## Shared decision-making and patient preferences



**Eddy S. Lang, MDCM, CCFP (EM), CSPQ**  
University of Calgary  
Alberta Health Services



<https://www.ems1.com/pain-management/>

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### What is a person-centered approach to pain mgt?



Photo: Adam Mason (JEMS)

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Patient choice is important!

*What else should be considered?*  
Underlying pathology, pain intensity, scope of practice

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Obtaining Past Medical History is Critical

www.verywellhealth.com/rheumatoid-arthritis-pain-medications-S113504 © National Association of State EMS Officials (NASEMSO). All rights reserved. 74



*When you touch someone with intention, you are saying, I am here to help you heal.*  
Inspirebywhitney.com

Creator: gordenkoff Credit: Getty Images © National Association of State EMS Officials (NASEMSO). All rights reserved. 75



*What can help alleviate pain other than medications?*


Empathy, verbal engagement  
Use repositioning, breathing; heat/cold; splints; guided imagery

*Cure sometimes. Treat often. Comfort always.*  
Hippocrates

John Moore/Getty Images © National Association of State EMS Officials (NASEMSO). All rights reserved. 76

### Non-pharmacologic Considerations in children

Use distraction (bubbles, Buzzy, music, electronics, toys)  
Consider need for caregiver presence; holding, pacifier



www.evidentlycochrane.net/chronic-pain-children-drugs/

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### Considerations in Pharmacologic pain treatment options



Sabina Braithwaite, MD, MPH  
Associate Professor of Emergency Medicine and EMS Fellowship Director  
Washington University in St Louis

<https://www.ismp.org/resources>



Options presented are not carried by all EMS agencies and do not replace protocols approved by your EMS Medical Director

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**I HEAR YOU LIKE OPTIONS**



**SO WE GOT OPTIONS ON OPTIONS ON OPTIONS ON OPTIONS**

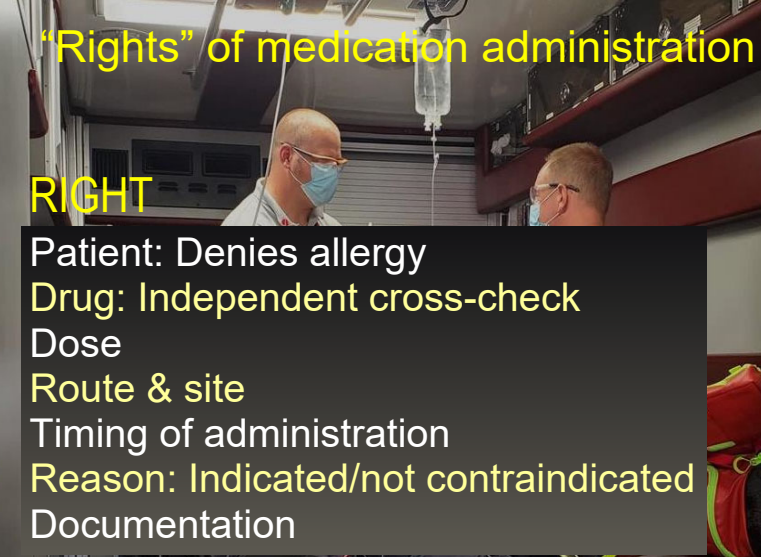
memegenerator.net

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### "Rights" of medication administration

**RIGHT**

- Patient: Denies allergy
- Drug: Independent cross-check
- Dose
- Route & site
- Timing of administration
- Reason: Indicated/not contraindicated
- Documentation



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If non-pharmacologic interventions are insufficient -  
Consider use of **pharmacologic analgesics**

- PO options** for milder pain –  
onset of action slower; desire to avoid  
parenteral meds or opioids
- **Acetaminophen** 15 mg/kg PO  
(max dose 1 gram)
  - **Ibuprofen** 10 mg/kg PO if older than  
6 months (max dose 800 mg)

Why is pain management a  
challenge in children?

Needle phobia!

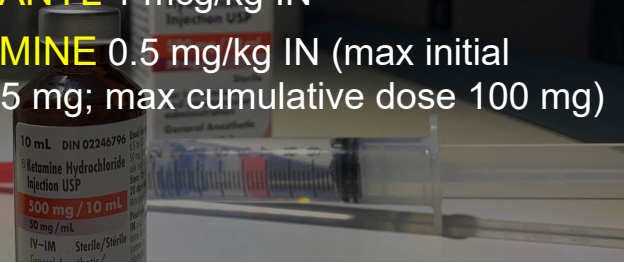
Strongly consider intranasal options

**Intranasal route (IN)** using the  
Mucosal Atomizer Device (MAD)



Preferred for initial dosing  
(for pain) if no IV access

- **FENTANYL** 1 mcg/kg IN
- **KETAMINE** 0.5 mg/kg IN (max initial  
dose 25 mg; max cumulative dose 100 mg)



**INTRAMUSCULAR (IM) OPTIONS** ☹️

- KETOROLAC** (one-time dose only)
- Adult (non-pregnant): 30 mg IM
  - Pediatric (2-14 years old): 1 mg/kg IM  
(max dose 30 mg)

**MORPHINE** sulfate: 0.1 mg/kg IM  
(max initial dose 15 mg)

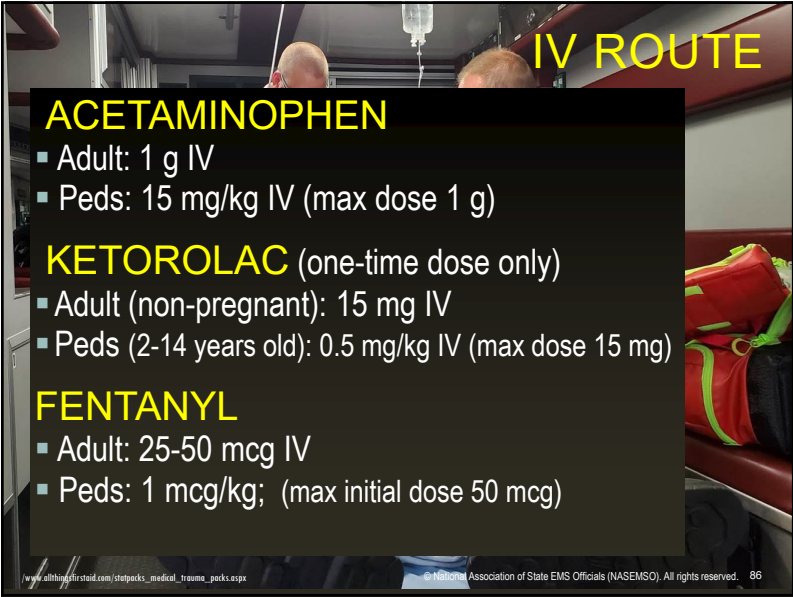
**FENTANYL** 1 mcg/kg  
(max initial dose 100 mcg)

**KETAMINE** 0.3 mg/kg IM  
(max initial dose 25 mg)



A paramedic in an ambulance is administering nitrous oxide to a patient lying on a stretcher. The patient is wearing a mask connected to a Nitronox delivery system. A red text box at the top right of the image contains the text: "Inhaled nitrous oxide (N<sub>2</sub>O) if available".

Inhaled nitrous oxide (N<sub>2</sub>O) if available

A paramedic is administering IV medication to a patient. A yellow text box at the top right of the image contains the text: "IV ROUTE".

IV ROUTE

**ACETAMINOPHEN**

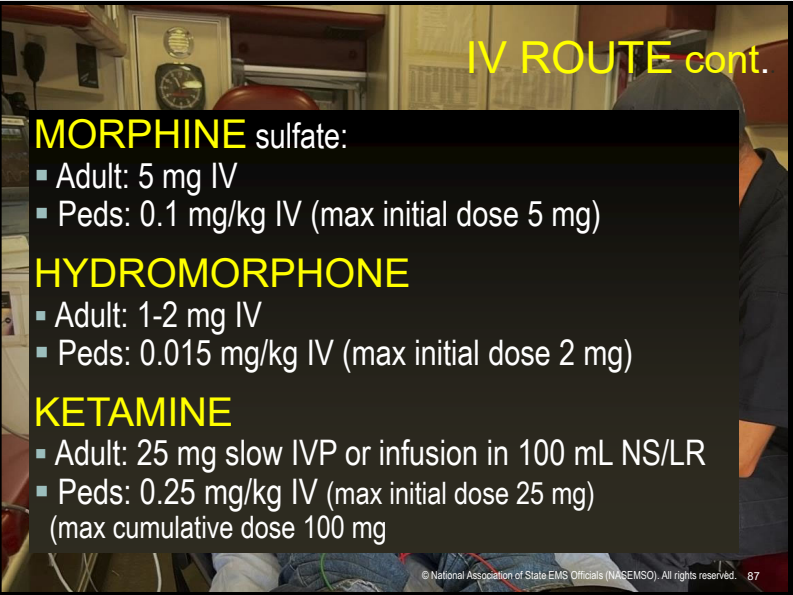
- Adult: 1 g IV
- Peds: 15 mg/kg IV (max dose 1 g)

**KETOROLAC** (one-time dose only)

- Adult (non-pregnant): 15 mg IV
- Peds (2-14 years old): 0.5 mg/kg IV (max dose 15 mg)

**FENTANYL**

- Adult: 25-50 mcg IV
- Peds: 1 mcg/kg; (max initial dose 50 mcg)

A paramedic is administering IV medication to a patient. A yellow text box at the top right of the image contains the text: "IV ROUTE cont.".

IV ROUTE cont.

**MORPHINE** sulfate:

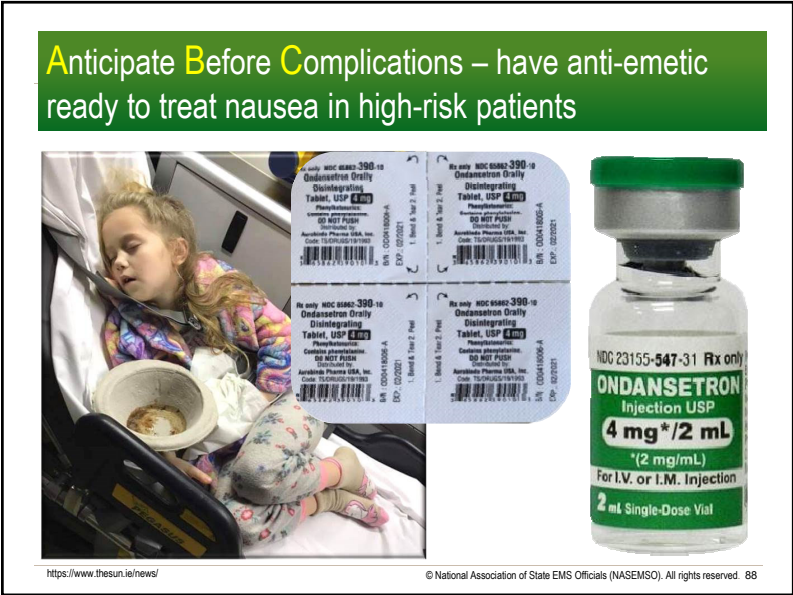
- Adult: 5 mg IV
- Peds: 0.1 mg/kg IV (max initial dose 5 mg)

**HYDROMORPHONE**

- Adult: 1-2 mg IV
- Peds: 0.015 mg/kg IV (max initial dose 2 mg)

**KETAMINE**

- Adult: 25 mg slow IVP or infusion in 100 mL NS/LR
- Peds: 0.25 mg/kg IV (max initial dose 25 mg)  
(max cumulative dose 100 mg)

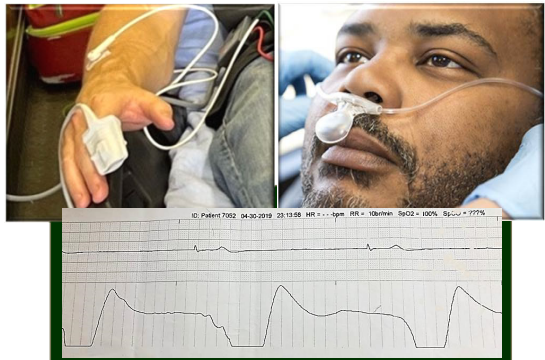
A patient is lying in an ambulance. To the right of the patient are boxes of Ondansetron and a vial of Ondansetron Injection. A green text box at the top of the image contains the text: "Anticipate Before Complications – have anti-emetic ready to treat nausea in high-risk patients".

Anticipate Before Complications – have anti-emetic ready to treat nausea in high-risk patients



Reassess q. 5 minutes! Repeat doses per protocol (if not contraindicated) until pain is tolerable, max dose is given, patient refuses, or SE evident

Careful/diligent ongoing reassessment



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**BRING IT ON HOME –**  
There's no going back! Our course is set straight to the future using the evidence as our guide....



<https://knowyourmeme.com/photos/184844-back-to-the-future>

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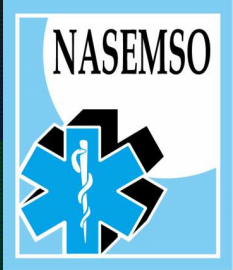


What practice changes will you make moving forward?

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Questions regarding this education module should be directed to:

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