I Feel Your Pain Kid: Pediatric Pain Pearls

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Disclosures:

1. I believe kids have real pain. It's part of why I don't like adults
2. I have no financial interests. In anything. Unfortunately.

Objectives

1. Understand the critical components of a pain assessment
2. Dispel a few pediatric pain myths
3. Discuss treatment options

This Is Part of Your Daily Practice

- Prehospital setting:
  - 20-30% of children have acute pain
  - As few as 6% receive prehospital analgesia
- ED setting:
  - Pain involved in 80% of ED visits
  - 30-60% of those in pain receive pain medication

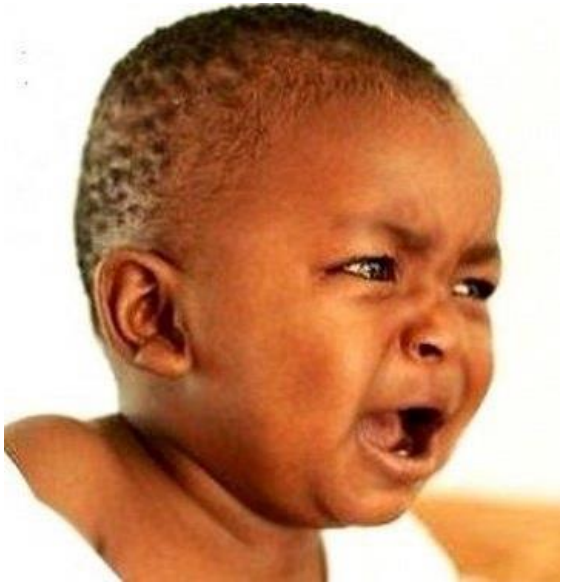
So if we're doing it all the time, why is it so hard?

Hewes H et al. *Prehosp Emerg Care* 2018; Miller AF et al. *Pediatrics* 2018

Meet Our Patient

Johnny is an 18-month-old African American male with an obviously deformed forearm.

- fell from a swing 1 hour ago
- makeshift splint in place
- Prior to calling 911, he was given 100mg ibuprofen
- He did not hit his head and had no loss of consciousness



Johnny is crying, Mom is worried

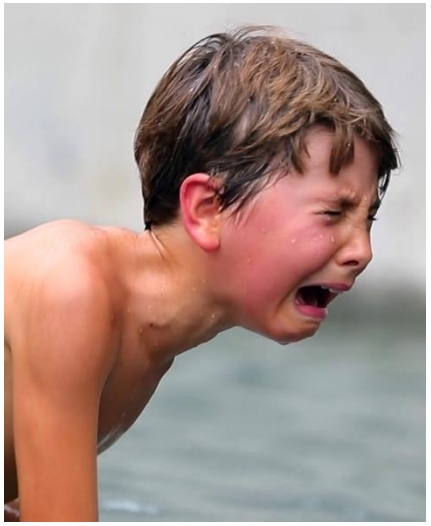
What is your first course of action?

A. Give him an analgesic
B. Put him in a real splint
C. Do a pain assessment
D. Chat about Johnny's puppy to build report

How Much Pain? How Do YOU Decide?

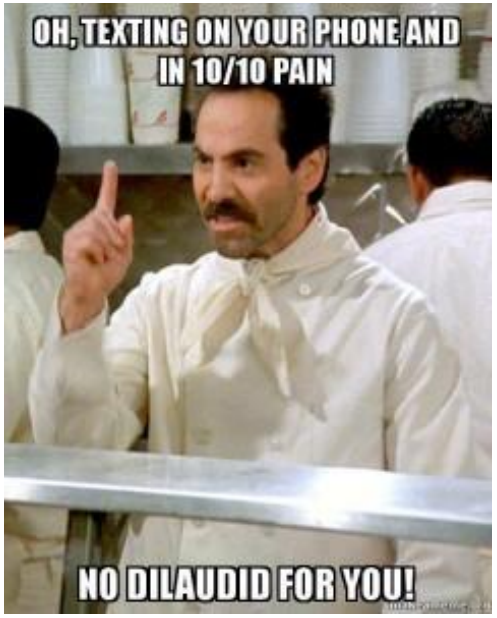
Is it really as simple as

This



vs

This?



What Makes Pain So Difficult

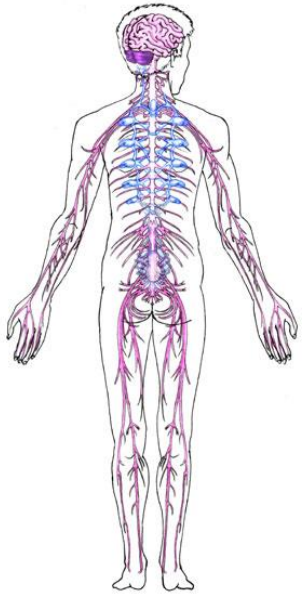
"Pain has sensory, emotional, cognitive, and behavioral components that are interrelated with environmental, developmental, sociocultural and contextual factors"

~Love, the AAP

Pain Is Complex

- Competing autonomic nervous system

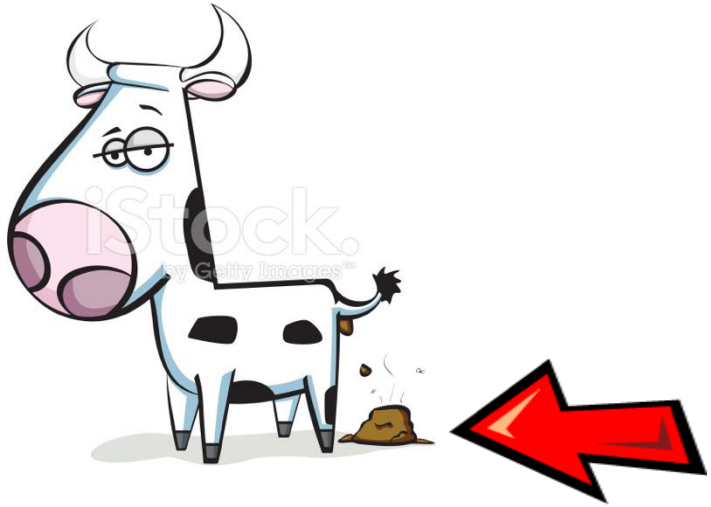
Sympathetic stimulation



Parasympathetic stimulation

A Painful Number of Myths & Barriers

- Lack of adequate assessment tools for children
  - Difficulty accounting for developmental stage
- Lack of knowledge/training
- Fear of adverse events
- Fear of masking symptoms
- Fear of opioid addiction
- Uncertainty that young children feel or interpret pain



Johnny didn't receive pain medication

Which of the following has been shown to influence this decision?

A. Age of the patient
B. Ethnicity of the patient
C. Insurance status of the patient
D. Gender of the provider
E. All of the above

Room for Improvement

Administration of analgesia in children:

- Administration and potency varies by age
- Varies by insurance status
- Varies by ethnicity
- Varies by provider type

Kircher J et al. *CJEM* 2014; Yackey KJ et al. *Pediatr Emerg Care* 2018; Hewes H et al. *Prehosp Emerg Care* 2018

How Did We Get Here?

1968 “landmark” paper claimed children don’t feel pain as adults and, therefore, do not need pain management

> “Pediatric patients seldom need relief of pain after general surgery. They tolerate discomfort well”

It's an EMS Issue

276,925 pediatric EMS calls for fracture/amputation, burns or penetrating injury. Analgesics given en route for:

- 6.4% of infants/toddlers
- 14.8% of pediatric patients < 15 years of age

When stratified by race:

- 8.7% of black patients regardless of age (least likely)
- 22.4% of white patients regardless of age (most likely)

Hewes H et al. *Prehosp Emerg Care* 2018

It's a Critical Care Transport Issue

5057 pediatric patients transported by HEMS for traumatic injuries:

- 61% had NO pain score documented
- 15% received analgesics

Risk factors associated with pain NOT being treated:

- Younger age
- Lack of IV access
- Higher GCS

Johnson JT et al. *Prehosp Emerg Care* 2016

It's an Emergency Department Issue

PECARN study of 7 pediatric emergency departments

- Children with moderate-to-severe pain: 45% received opioids for pain.
- Minority children were less likely to receive an opioid than white children.

This issue crosses all lanes of healthcare

How do we fix it?

Goyal MK et al. *Pediatrics* 2020

1. Understand that Your Decision Has an Impact

Inadequate pain control DOES have negative implications in children

- Neonates have long-standing alterations in their response to and perceptions of painful experiences
- Pediatric oncology patients have increased pain scores in subsequent painful procedures
- Documented PTSD in previously normal children
- Extends average length of hospital stay

2. Know the Critical Components of Pain Management

- Patient and provider preparation
- Pain assessment
- Acknowledge and address anxiety/pain catastrophizing
- Explain & Strategize: understand expectations, give choices
- Implement non-pharmacologic techniques
- Ask yourself: WWIDFA (What Would I Do For Adults?)
- Reassess

Time to Assess Johnny's Pain

The appropriate pain cale to use on a 2-year-old child is:

A. Visual Analog Scale (VAS)
B. FLACC
C. FACES
D. CHEOPS
E. There is no validated pain scale for this age group

Pain Assessment Scoring Tools

- Behavioral observation (Infants, Non-verbal children)
  - FLACC
  - PIPP (Premature Infant Pain Profile)
- Self-reporting tools (>3 years of age)
  - Wong-Baker FACES Scale
  - Visual Analog Scale (VAS)
  - Oucher Scale

FLACC Scale[2]	0	1	2
1 Face	No particular expression or smile.	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant frown, clenched jaw, quivering chin.
2 Legs	Normal position or relaxed.	Uneasy, restless, tense.	Kicking, or legs drawn up.
3 Activity	Lying quietly, normal position, moves easily.	Squirming, shifting back and forth, tense.	Arched, rigid or jerking.
4 Cry	No crying (awake or asleep).	Moans or whimpers; occasional complaint.	Crying steadily, screams or sobs, frequent complaints.
5 Consolability	Content, relaxed.	Reassured by occasional touching, hugging or being talked to, distractible.	Difficult to console or comfort.

REFERENCES:
1. Pain FACES based on Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P: *Wong's Essentials of Pediatric Nursing*, ed 6, St. Louis, 2001, p. 1301 © by Mosby, Inc.
2. From The FLACC: A behavioral scale for scoring postoperative pain in young children, by S Merkel and others, 1997, Pediatr Nurse 23(3), p. 293-297. ©1997 by Jannetti Co. University of Michigan Medical Center.

Product ID: PGPA-130
(877) 646-5877
HealthcareInspirations.com/pain
Healthcare Inspirations

Scoring:

0 = relaxed

1-3 = mild pain

4-6 = moderate pain

7-10 = Severe discomfort or pain or both

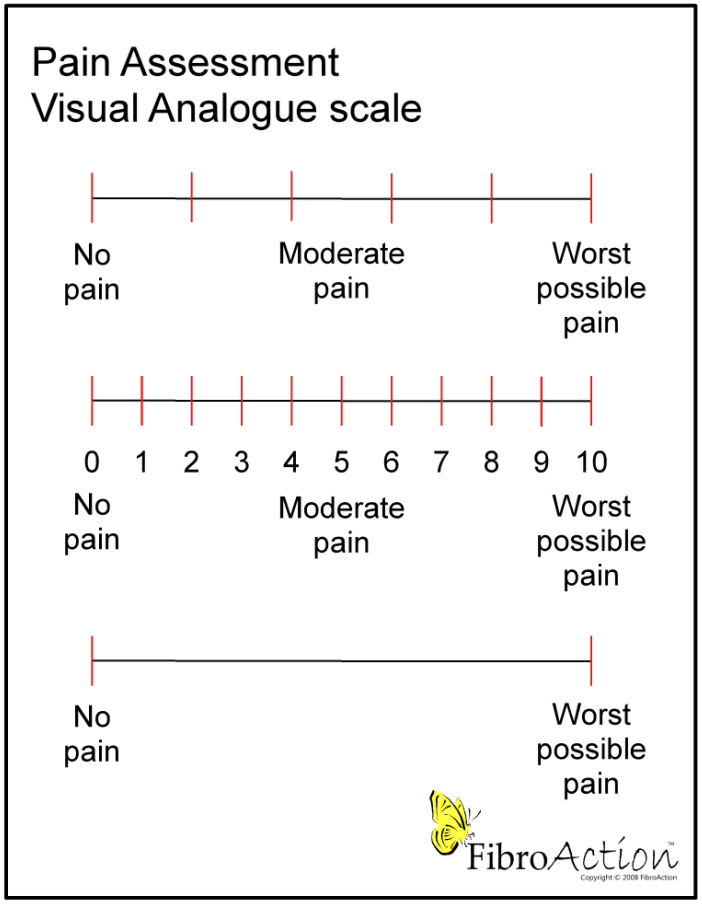
Wong-Baker FACES

- Validated for children 3 years and greater:

From Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P.: Wong's Essentials of Pediatric Nursing, ed. 6, St. Louis, 2001, p. 1301. Copyrighted by Mosby, Inc. Reprinted by permission.

Visual Analog Scale

- Used for 8 years and older



Pain Management

The Role of Anxiety: Why Is This Important?

Children who fear bodily sensations have amplified pain intensity

Anxiety  Pain

234 healthy children exposed to laboratory pain stimuli

- Combination of anxiety symptoms and anticipatory anxiety were 62% more likely to report more pain

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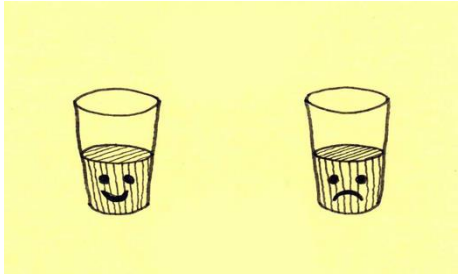
Lipsitz JD et al. J Pediatr Psych 2004; Kain ZN et al. *Pediatrics* 2006; Tsao JCI et al. Cog Behav Ther 2006

What the Heck is Pain Catastrophizing?

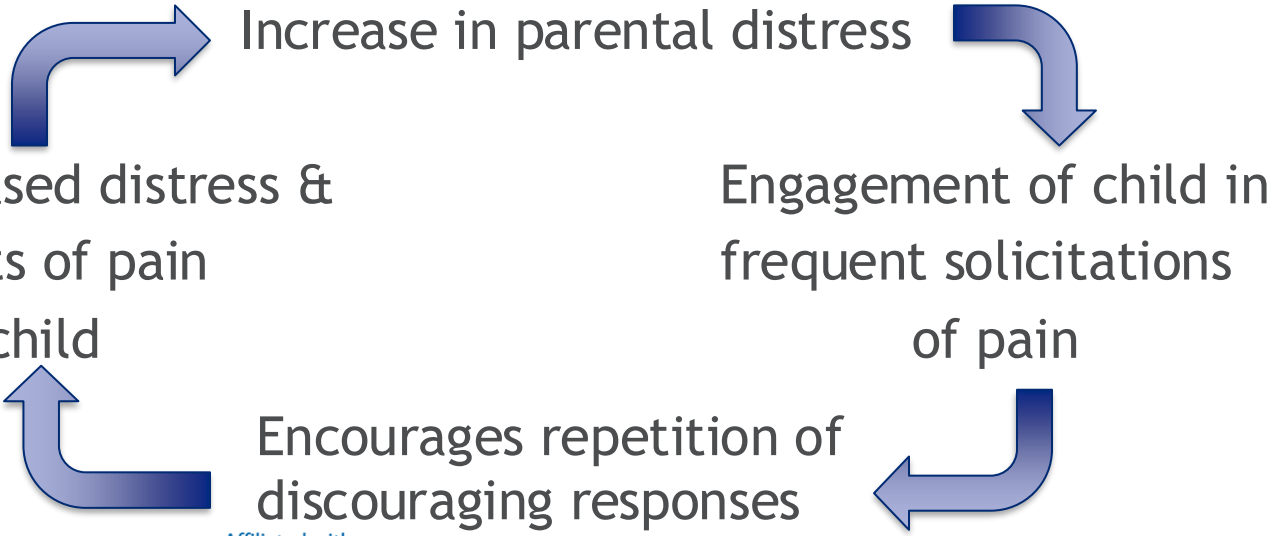
- "An exaggerated negative orientation toward actual or anticipated pain experiences." The expectation that an outcome will be negative
- Correlates with pain intensity, pain-related disability and psychosocial distress



Gatchel RJ et al. *Psych Bulletin* 2007;

It May Actually Be Mom's (or Dad's) Issue

High-catastrophizing parents who watch their child's pain results in:



Esteve R et al. *J Pain* 2014

Sum Total?

Anxiety + Pain Catastrophizing + Parental influences =

Know the Critical Components of Pain Management

- Patient and provider preparation
- Pain assessment
- Acknowledge and address anxiety/pain catastrophizing
- Explain & Strategize: understand expectations, give choices
- Implement non-pharmacologic techniques
- Ask yourself: WWIDFA (What Would I Do For Adults?)
- Reassess

Non-Pharmacologic Techniques

- Splint
- Ice or elevation
- Coping mantras
- Guided imagery
- Breathing exercises
- Music/Electronics
- Toys
- Blowing bubbles

Critical steps: reduces amount of analgesic, depth of or need for sedation

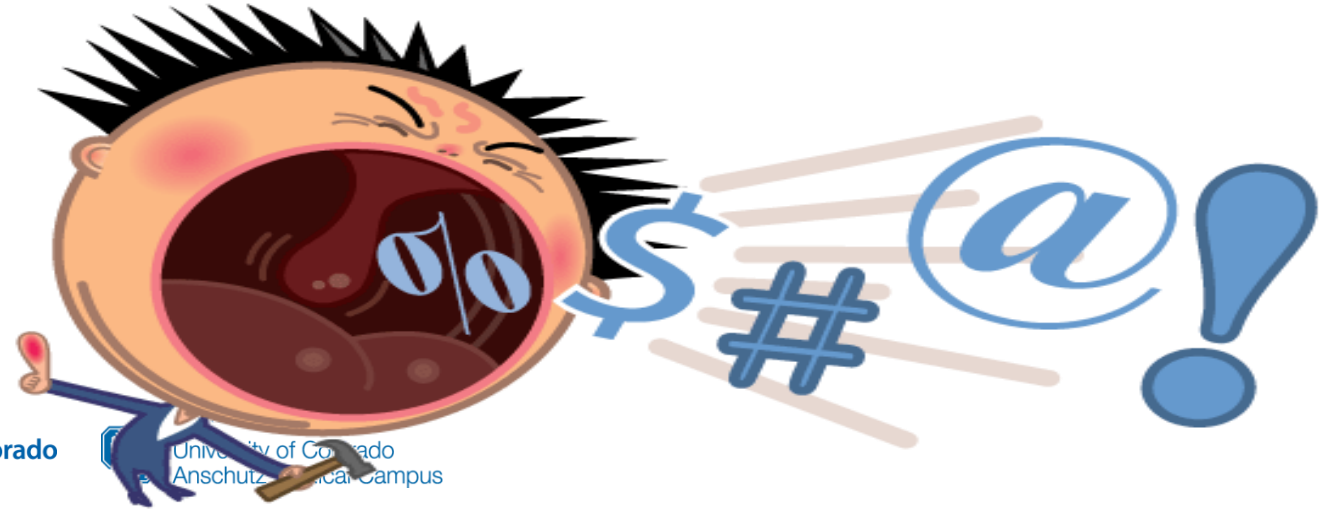
An alternative may be . . .

Cote CJ et al. *Pediatrics* 2016

A Cure to the Bleeping Opioid Crisis?

Cursing can help relieve pain

- Students who repeated a swear word were able to keep their hand in a bucket of ice water 40 seconds longer than those who repeated an innocuous, random word



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What About Those Infants?

- Swaddling or facilitated tucking
- Skin-to-skin
- Breastfeeding
- Analgesic effects of non-nutritive suck
  - Pacifier shown to have analgesic effect
  - Pacifier + sucrose even more effective

  Administer 2ml of 25% sucrose solution by syringe or allow infant to suck the solution out of a nipple no more than 2 minutes prior to the procedure

Pillai Riddell RR et al. *Cochrane Database Syst Rev* 2023

Considerations for Children with Developmental Disabilities

- Have a discussion with parents about child's anticipated response
- Ask about subtle, indirect behaviors that child displays
- Avoid myths of pain insensitivity or indifference
- May show altered sensitivity to medications

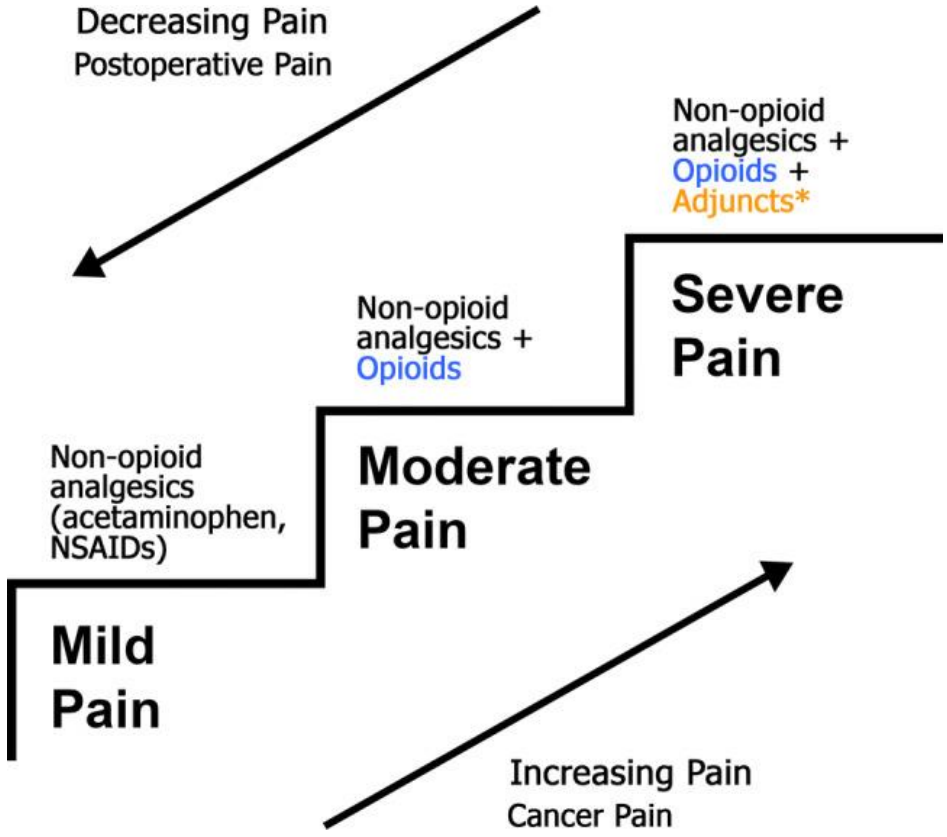
Word of the Day:

Multimodal

All patients should receive non-pharmacologic interventions

+

Ladder-based care



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Di Sarno L et al. *Acta Biomed* 2023; Gai N. *J Anesth* 2020

Time to Get Your S*** In a Pile

Many of the medications we give kids are sedating. Prepare ahead:

- Cardiovascular monitoring
- Capnography
- Pulse oximetry
- Capnography
- Age-appropriate resuscitation supplies: size it & check it before you need it.
- Reversal drugs as appropriate
- Capnography

Beware of the Unintended Events: Airway Obstruction

Drugs Preferred by Children Everywhere

- NSAIDs ← start here!
- LET/EMLA
- J-tips
- Lidocaine/Bupivicaine
- Opioids
- Non-opioid options

Tan F et al. *JAMA Netw Open* 2020

Intranasal Fentanyl: Fast, Effective

- General rule: dose is twice the IV dose (max 100mcg)
- Choose the highest concentration formulation
- Use BOTH nostrils for volumes over 0.3ml
- Snot = bad
- Respiratory depression is RARE with correct dosing (but Naloxone is also intranasal)
- Instruct the patient to “sniff the flower”
- Remember: nose is easy access

Opioids in EMS

PREHOSPITAL EMERGENCY CARE
2023, VOL. 27, NO. 2, 144–153
https://doi.org/10.1080/10903127.2021.2018073

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SPECIAL CONTRIBUTIONS

OPEN ACCESS Check for updates

Evidence-Based Guidelines for Prehospital Pain Management: Recommendations

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

Go for the nose!

Recommendation 1

We recommend in favor of intranasal (IN) fentanyl over intramuscular (IM) or intravenous (IV) opioids in the treatment of moderate to severe pain in pediatric patients prior to IV access or without (or without indication for) IV access (strong recommendation, low certainty of evidence). The panel makes a conditional recommendation for either IN fentanyl or IV opioids once IV access is established (condi-

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Regional Nerve Blocks

- Hematoma Blocks for forearm fractures
- Fascia Iliaca Compartment Nerve Block
- Submental or infraorbital blocks
- Digital blocks

Superior, longer pain control without opioids

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Sulton CD et al. *Pediatr Emerg Care* 2024; Neubrand T. *Pediatr Emerg Care* 2014

Non-Opioid Options: Ketamine. And more Ketamine

IV Ketamine for pain has been studied and shown beneficial for:

- Acute, traumatic pain
- Sickle cell crisis pain
- Status migrainosis
- Burn dressing changes
- End of life palliative care
- Oncology patients
- Post-operative pain. . . .

Ketamine vs Fentanyl or Morphine

Benefits:

- Multiple routes (IN, Nebulized, IV, IO, IM)
- Similar pain reduction at 0, 30, 60 minutes
- Same rates of rescue analgesia
- Lower risk of serious adverse event

Bummers:

- More sedated with ketamine
- 2x the rate of non-serious adverse events

Oliveira L et al. *Am J Emerg Med* 2020; Alanazi E. *Am J Emerg Med* 2022

Non-Opioid Options: Ketamine in EMS

PREHOSPITAL EMERGENCY CARE
2023, VOL. 27, NO. 2, 144–153
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Recommendation 5

We suggest either IV ketamine or IV NSAIDs for the initial management of moderate to severe pain in the prehospital setting

What Not to Do with Ketamine

- Give it IM
- Push it fast
- Co-administer a benzodiazepine
- Give it to a child < 3 months of age
- Give it to a child with a h/o schizophrenia or psychosis
- Give it to an infant with a cardiac defect

Summary

- Pain management is a critical component of your daily patient care
- The patient pain assessment should be done early
- A pediatric-centered approach will help head-off complications
- Always set up a mental check-list of badness
- Be very familiar with several drug options
- Don’t go at it alone

Thank You!