

# Acute Pain Management:

Assessment, Prevention, and Treatment of  
Pediatric Pain in the ED and the Office

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# Disclosures

none

# Pain Defined

- IASP: “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”
- Composite of stimulus and interpretation
- Innate and external factors can amplify or diminish pain

“Pain is whatever the patient says it is and it exists whenever he or she says it does.”



Although the world  
is full of suffering, it  
is also full of the  
overcoming of it.

# Prevention

- Anticipate - more medication must be administered to ameliorate pain that has occurred than to prevent its occurrence
- Prepare
  - Clear expectations
  - Practice
  - Video/demonstrations
- Clear Developmentally Appropriate Instructions
- Cluster Interventions

# Why prevent or treat “minor” pain?

- Evidence that painful experiences “add up”
- Children and parents appreciate the effort
- Less fear of the next visit means a better experience for all
- It’s an important part of world class care
- It’s the right thing to do

# Pain Assessment

- Scoring pain causes us to focus
- Initial pain scores should be standard practice
- Serial scores
- Scoring leads to improvement efforts
- Scoring by providers? Parents/caregivers? Child?
- Self report is the gold standard
- Unique challenges in children with neurologic impairment





# Assessment – Age 0-2 years

- Requires subjective assessment/scoring
- Pain detection vs pain intensity in infants
- Many scales used in neonates: PIPP, N-PASS, NIPS, CRIES
- Large inter-observer variability and subjectivity
- Physiologic parameters helpful but not reliable

## Revised FLACC pain score

Categories	Scoring		
	0	1	2
<b>F</b> Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested; <i>appears sad or worried</i>	Frequent to constant frown, clenched jaw, quivering chin; <i>distressed-looking face: expression of fright or panic</i>
<b>L</b> Legs	Normal position or relaxed	Uneasy, restless, tense; <i>occasional tremors</i>	Kicking, or legs drawn up; <i>marked increase in spasticity, constant tremors or jerking</i>
<b>A</b> Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense; <i>mildly agitated (eg, head back and forth, aggression); shallow and splinting respirations, intermittent sighs</i>	Arched, rigid, or jerking; <i>severe agitation, head banging; shivering (not rigors); breath-holding, gasping or sharp intake of breath; severe splinting</i>
<b>C</b> Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint; <i>occasional verbal outburst or grunt</i>	Crying steadily, screams or sobs, frequent complaints; <i>repeated outbursts, constant grunting</i>
<b>C</b> Consolability	Content, relaxed	Reassured by occasional touching, hugging, or being talked to, distractable	Difficult to console or comfort; <i>pushing away caregiver, resisting care or comfort measures</i>

This pain score can be used to assess pain from burns and other etiologies for preverbal children.

- Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between zero and ten.
- **Patients who are awake:** Observe for at least 1-2 minutes. Observe legs and body uncovered. Reposition patient or observe activity, assess body for tenseness and tone. Initiate consoling interventions if needed.
- **Patients who are asleep:** Observe for at least 2 minutes or longer. Observe body and legs uncovered. If possible reposition the patient. Touch the body and assess for tenseness and tone.
- The revised FLACC can be used for children with cognitive disability. The additional descriptors (in italics) are included with the original FLACC. The nurse can review the descriptors within each category with parents. Ask them if there are additional behaviors that are better indicators of pain in their child. Add these behaviors to the tool in the appropriate category.

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# Assessment – 3 Years and Above

- Self report!
- Developmentally appropriate tools – faces, colors, numbers
- Behavioral Indicators
- Parent/Caregiver Input
- Response to intervention

## Wong-Baker FACES® Pain Rating Scale



0

No  
Hurt



2

Hurts  
Little Bit



4

Hurts  
Little More



6

Hurts  
Even More



8

Hurts  
Whole Lot



10

Hurts  
Worst

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MILD

MODERATE

STRONG

0

1

2

3

4

5

6

7

8

9

10





# Treating Pain in Children



# Non pharmacologic Measures for Neonates

- Breastfeeding
- Skin to skin
- Pacifier
- Swaddling
- Multiple simultaneous measures
- Sucrose water (12-50%)



# Cognitive / Behavioral / Psychological Approaches

- Preparation, Practice
- Distraction, Imagery, Hypnosis
- Avoid Startle
- Parental Presence/Coaching
- Comfort Toys
- Child Life





# Cognitive / Behavioral / Psychological Approaches

- Art/Play Therapy, Exercise, Biofeedback
- Music Therapy
- Distraction Units
- Popsicles/Slushies
- Buzzy



# Topical Anesthetics

- Open Wounds
  - LET
- Intact Skin
  - EMLA and ElaMax 4
  - Vapocoolant spray
  - Needle free lidocaine (J tip)
  - Lidocaine Tetracaine patch (Synera)
  - Lidocaine iontophoresis (Numby Stuff)

# LET

- Mixture of lidocaine, epinephrine and tetracaine
- Most common local anesthetic for lacerations
- Not on mucous membranes
- Apply directly or soak a cotton ball and apply +/- occlusive dressing
- Approximately 30 minute wait

# Vapocoolant Spray

- Ethyl chloride or fluoromethane
- Rapid
- Intact skin only
- Spray until blanching, 8-10 seconds
- Lasts about 1 minute
- Useful for Quick I&D, IM injection, immunizations



# EMLA

- Lidocaine and Prilocaine
- Use with an occlusive dressing
- Depth of anesthesia 3-4 mm
- 1 hour to work
- Immunizations, venipuncture, intravenous lines
- Age 3 months and older
- Synera patch – no leakage

# Other Topicals

- J tip
  - Jet Injected Lidocaine
  - Immediate
  - Startling noise
- Numby Stuff
  - Lidocaine
  - Works in 10 minutes



# Injectable Lidocaine

- With or Without Epinephrine
- Temperature, Needle Size, Speed of Injection
- Max Dosing
- Wounds/Lacerations
- Nerve Blocks

# The Mainstays

- Tylenol
  - 15 mg/kg/dose, max daily dose 75 mg/kg/day
  - Oral, Rectal Suppository, Injection
- Ibuprofen
  - 10 mg/kg/dose
  - Oral
- Also, Toradol IV/IM/PO
  - 0.5 mg/kg/dose, max 15-30 mg
  - Age 1 year and above



# Nitrous Oxide

- Noninvasive delivery mechanism
- Rapid onset
- Short duration of activity
- Safe and well tolerated
- Concentrations of 50% or less
- Age 2 years and above
- Laceration repair, IV lines, lumbar puncture, fracture reduction, sexual abuse evaluations
- Requires proper equipment, scavenging
- Risks with chronic use

# Opioids

- Moderate to Severe Pain
- Caution
- Fentanyl – intranasal
  - Useful for rapid pain management – fractures, burns
  - Rapid effect, Short acting
- Oxycodone/Hydrocodone liquid/tabs
  - Careful with Tylenol dosing
- Morphine/Hydromorphone

# Opioids – Hot Topics

- Abuse
- Risk Factors
- Nonopioids vs opioids for fracture pain in children
- NO codeine or tramadol in children < 12 years, caution in 12-18 years

# Medical Cannabinoids in Children

- Neuropathic pain
  - Dronabinol (Marinol, Syndros) = THC
  - Epidiolex = CBD
- Very limited data in children and teens
- Insufficient evidence for use as pain reliever

**Questions?**

- International Association for the Study of Pain. IASP taxonomy. Available at: [www.iasp-pain.org/Taxonomy](http://www.iasp-pain.org/Taxonomy)
- Anand KJS. Consensus statement for the prevention and management of pain in the newborn. Arch Pediatr Adolesc Med. 2001;155:173-180
- Luhmann JD, Kennedy RM, Porter FL, Miller JP, Jaffe DM. A randomized clinical trial of continuous-flow nitrous oxide and midazolam for sedation of young children during laceration repair. Ann Emerg Med. 2001;37:20-27
- Weisman SJ, Bernstein B, Schechter NL. Consequences of inadequate analgesia during painful procedures in children. Arch Pediatr Adolesc Med. 1998;152:147-149
- Hauer J, Houtrow AJ. Pain assessment and treatment in children with significant impairment of the central nervous system. Pediatrics. 2017;139(6):e20171002
- Wong SS and Wilens TE. Medical cannabinoids in children and adolescents: a systematic review. Pediatrics. 2017;140(5):e20171818
- Uman LS, Birnie KA, Noel M, et al. Psychological interventions for needle-related procedural pain and distress in children and adolescents. Cochrane Database Syst Rev 2013; :CD005179
- US Food and Drug Administration Drug Safety Communications. FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against use in breastfeeding women. <https://www.fda.gov/downloads/drugs/drugsafety/UCM553814.pdf>
- Miech R, Johnston L, O'Malley PM, et al. Prescription opioids in adolescence and future opioid misuse. Pediatrics. 2015;136(5)