Pediatric Pain Management

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Disclosure

- I have no financial relationships to disclose

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Objectives

- At the end of this session, the learners will be able to:
  - Identify the appropriate circumstances for treating the injured child in pain
  - Recall commonly used pain medications with pediatric specific doses and routes
  - Explain some non-pharmacological adjuncts that can be used for the injured child in pain

What is pain?

- Merriam-Webster's dictionary:
  - Pain is localized physical suffering associated with a disease or injury
  - Pain can also be acute mental or emotional distress or suffering
- International Association for the Study of Pain:
  - Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage

What is pain?

- Pain is subjective
- It is felt only by the patient
- Past experiences may have an effect on how the patient deals with pain

Children and pain

- Myth that children experience pain differently from adults

- Inadequate pain control has negative implications for children

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Children and pain

- Pain is underestimated because of a lack of assessment tools
- Administration of analgesia in children lags behind adults
- Youngest children at risk of receiving inadequate analgesia

Children and pain

- Pain is often undermedicated:
  - Fears of oversedation and respiratory depression
  - Fear of addiction
  - Unfamiliarity of use of analgesics in children

Is this really part of my job?

- Position Paper, National Association of EMS Physicians
- “Prehospital Pain Management”. Prehosp Emerg Care. 2003 Oct-Dec;7(4):482-8.
- Recommendation: Prehospital protocols should mandate assessment and documentation of pain severity with potentially painful injuries and illnesses, as well as reassessment and documentation of the level of pain after any given intervention.

Is this really part of my job?

- Hot off the presses:
  - "An Evidence-Based Guideline for Prehospital Analgesia in Trauma", Prehosp Emerg Care. 2014;18 Suppl 1:25-34.
- Recommendations:
  - Assess pain as part of general patient care
  - Consider all patients with acute traumatic pain as candidates, regardless of transport interval
  - Use age-appropriate scale to assess pain

Is this really part of my job?

- Recommendations:
  - Use narcotic analgesics for patients in moderate to severe pain
  - Be aware of cautions and relative contraindications
  - Reassess all patients who have received analgesia every 5 minutes
  - Redose if still in significant pain
  - Redose at half the initial dose

How do I evaluate a child in pain?

- Children <8 have limited cognitive ability to understand instructions and to articulate descriptions of their pain

- It's hard to differentiate between pain and anxiety/fear

How do I evaluate a child in pain?

- Look at the child's demeanor
- HR and RR will increase with pain
  - Unfortunately anxiety, shock and other things do this too
- Multiple pain scales exist

Pain scales

- For children < 4 years, use observational scales:
  - FLACC
  - CHEOPS

FLACC pain scale

Minimum score: 0
Maximum score: 10

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

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CHEOPS pain scale

Minimum score: 4
Maximum score: 13

Parameter	Finding	Points
Cry	no cry	1
	moaning	2
	crying	2
	screaming	3
Facial	smiling	0
	composed	1
	grimace	2
Verbal	positive	0
	none	1
	complaints other than pain	1
	pain complaints	2
	both pain and non pain complaints	2
Torso	neutral	1
	shifting	2
	tense	2
	shivering	2
	upright	2
	restrained	2
Touch	not touching	1
	reaching	2

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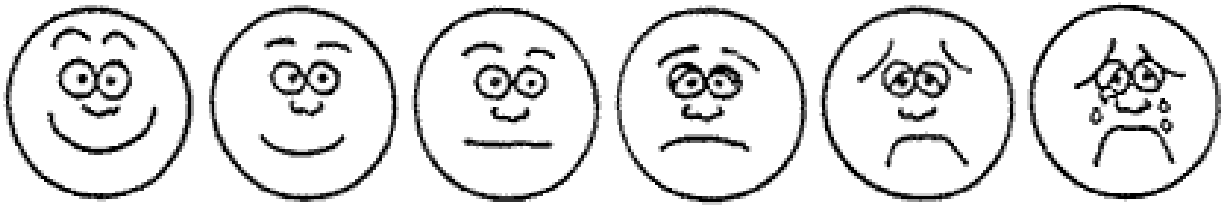
Pain scales

- For children 4-12 years, use a self report scale:
  - Wong Baker Faces

Wong-Baker FACES Pain Rating Scale



	0	1	2	3	4	5
	NO HURT	HURTS LITTLE BIT	HURTS LITTLE MORE	HURTS EVEN MORE	HURTS WHOLE LOT	HURTS WORST
Alternate coding	0	2	4	6	8	10

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Pain scales

- For children > 12 years, use the numerical scale of 0-10

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How much does the child weigh?

- Often the parent or caregiver has an idea of weight – from a recent doctor appointment or sports team evaluation
- Broselow™ Pediatric Emergency Tape

How much does the child weigh?

Broselow™ Pediatric Emergency Tape

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Broselow™ pediatric emergency tape

- Estimates ideal body weight
- Child must be supine
- Measure from head to heels
- Red end with arrow goes to the head
  - "red to head"
- Lists medication doses for estimated weight

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Access issues

- IV access can often be challenging in children
- What are other options?
  - IM
  - IO
  - Intranasal

Access issues

- MAD (Mucosal Atomization Device) nasal tips can be used in children

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What meds can I use in kids?

- Acetaminophen
  - 15mg/kg po/pr
- Ibuprofen
  - 10mg/kg po

What meds can I use in kids?

- Morphine sulfate
  - Opioid analgesic
  - Causes histamine release which can produce itching, bronchospasm, hypotension
  - Reversed by naloxone
  - IM/IV/IO
  - 0.1mg/kg (max to adult protocol dose)

What meds can I use in kids?

- Fentanyl
  - Opioid analgesic
  - Less histamine release than morphine
  - More rapid onset than morphine
  - Less respiratory depression
  - Reversed by naloxone
  - IV/IO/IN
  - Intranasal administration in prehospital and emergency department settings
  - 1 mcg/kg (max to adult protocol dose)

Opioid overdose

- Signs of overdose:
  - CNS depression
  - Respiratory depression
  - Pinpoint pupils
- First priority – AIRWAY
  - Support with bag-valve mask ventilation

Opioid overdose

- Naloxone
  - 0.1mg/kg IV/IO/IM/subcutaneous
  - Maximum 2mg
  - May repeat every 2 minutes as needed

Other pain medications reported in prehospital literature

- Nitrous oxide
  - Sedative/analgesic
  - Self administered inhalation
  - 50/50 N_2O/O_2 mixture
  - Onset of action 3-5 minutes, duration 3-5 minutes
  - Can lead to overdistention of gut or middle ear
  - Do not use for pneumothorax/bowel obstruction

Other pain medications reported in prehospital literature

- Ketorolac
  - NSAID
  - IM/IV
  - Not recommended as first line agent
  - 0.5mg/kg (max dose 15mg IV, 30mg IM)

Other pain medications reported in prehospital literature

- Ketamine
  - Dissociative analgesic
  - Has sympathomimetic effects (mild increase in HR, BP)
  - IV, IM, IN
  - Only case reports in literature, not recommended as first line agent
  - 0.5–1mg/kg

When should I not use narcotic analgesics?

- GCS < 15
- Hypotension
- Allergy to medication
- Hypoxia after maximal oxygen therapy
- Signs of hypoventilation
- Condition preventing administration (blocked nose, no IV/IO)

What else can I use besides medications?

- Parental presence
  - If a parent or guardian can ride with the child, they can help soothe their child
- Diversion/distraction techniques
  - Calm, soothing voice
  - Talk about favorite sport, favorite princess, Santa Claus, SpongeBob, Nemo etc…

What else can I use besides medications?

- Immobilization of fractures
- Elevation of extremities
- Ice packs
- Padding of immobilization devices
- Dressing of wounds

Other concerns

- Receiving ED staff will give you grief for medicating the patient
  - Remember, this need to address pain is UNIVERSAL
- Issues with Med Command
- Issues with restocking medications if they are given

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Cases…

Case 1

- 8 year old boy fell off monkey bars
- No LOC
- Acting appropriately
- Obvious deformity to right arm

Case 1

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Case 1

- What are your priorities?
  - ABCs

Case 1

- How can you address this child's pain?
  - Immobilize the arm
  - Elevate the arm
  - Narcotic analgesic (morphine sulfate/fentanyl)
  - Don't forget to check pulses

Case 1

- Other thoughts?

Case 2

- 12 year old girl riding on back of dad's motorcycle
- Motorcycle vs. car
- Wearing dad's helmet
- Unknown LOC
- Awake at scene
- Open fracture left femur

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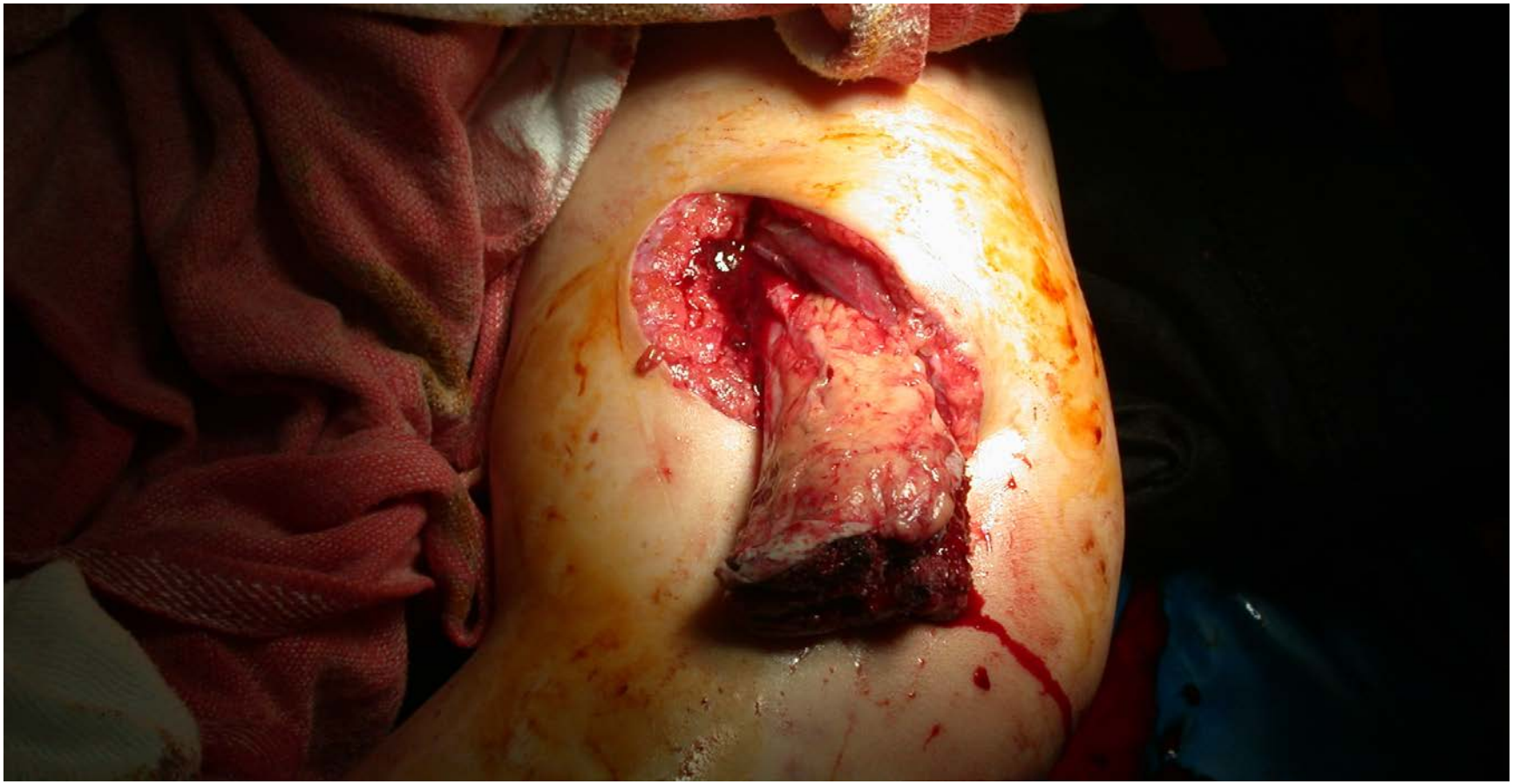
Case 2



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Case 2

- What are your priorities?
  - ABCs
  - Immobilize spine

Case 2

- How can you address this child’s pain?
  - Position of comfort for leg
  - Cover open fracture
  - Narcotic analgesic
  - Don’t forget to check pulses

Case 2

- Other thoughts?

Case 3

- 15 year old fell off skateboard
- No LOC
- Ambulating without difficulty

Case 3

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Case 3

- What are your priorities?

Case 3

- How can you address this child’s pain?
  - Dress wounds

Case 3

- Other thoughts?

Case 4

- 1 year old sitting in high chair
- Pulled cup of hot coffee off table

Case 4

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Case 4

- What are your priorities?

Case 4

- How can you address this child’s pain?
  - Dress wounds
  - Distraction

Case 4

- Other thoughts?

- What if the burn was more severe?

Case 5

- 3 year old, backseat passenger, lap belt only, high speed MVC
- Positive LOC
- GCS 13
- Deformity right thigh
- Bruising over abdomen
- Crying

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Case 5

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Case 5

- What are your priorities?
  - ABCs
  - Full immobilization
  - IV access

Case 5

- How do you address this child's pain?
  - Narcotic per protocol
  - Call med command if not comfortable with narcotic in this patient

Case 5

- Other thoughts?

Case 6

- 2 year old rolled out of bed
- Hit head on metal bed frame
- No LOC

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Case 6

- What are your priorities?

Case 6

- How do you address this child’s pain?
  - Dress wound
  - Ice pack
  - Distraction

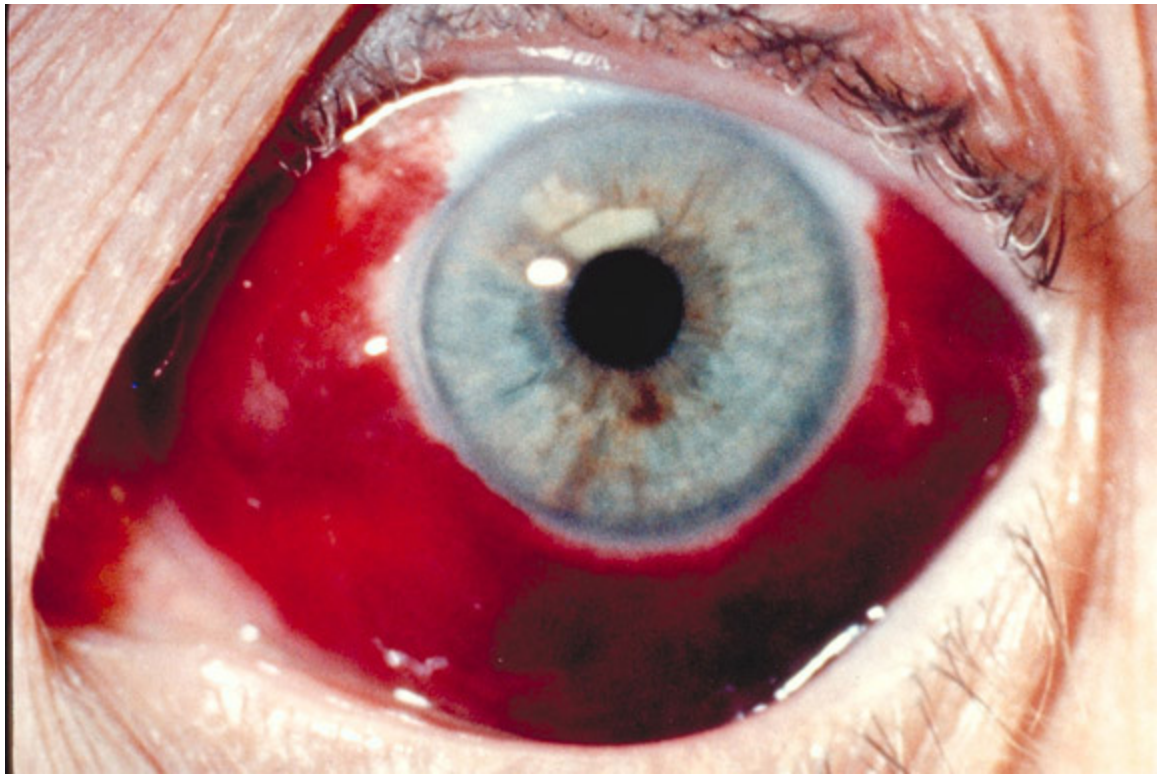
Case 6

- Other thoughts?

Case 7

- 3 year old backed over by tractor on family farm
- Awake, alert, crying
- Covered in mud
- Complaining of eye pain

Case 7



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Case 7

- What are your priorities?
  - ABCs
  - Spine immobilization

Case 7

- How do you address this child’s pain?
  - Wet gauze over eyes
  - Distraction
  - Narcotics

Case 7

- Other thoughts?

Case 8

- 14 year old GSW left shoulder
- Awake
- Screaming in pain
- No other obvious injuries

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Case 8

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Case 8

- What are your priorities?
  - Scene safety
  - ABCs
  - Immobilization?

Case 8

- How do you treat this child's pain?
  - Immobilize arm
  - Calm child down
  - Narcotics

Case 8

- Other thoughts?

QUESTIONS???

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Thank you!

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