

# EL DORADO COUNTY EMS AGENCY

## PREHOSPITAL PROTOCOLS

Effective: August 1, 2023

Reviewed: N/A

Scope: BLS/ALS Adult/Pediatric

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EMS Agency Medical Director

### PAIN MANAGEMENT - ADULT

Ensure and document that patient meets indications for medication and does not have contraindications. Simple, non-pharmacologic (BLS) pain management techniques are preferable when appropriate and should always be considered. Document medication dose, route of administration, patient response and pain scales before and after intervention, in the PCR. After the initial treatment, utilizing a different pain medication for the same patient is allowed, but it is preferable to stay with the same medication. Refer to Prehospital Formulary for detailed medication information.

## Basic Life Support

### EMT

Determine pain level (0-10) using appropriate pain scale:

- **NUMERIC** – Self reporting on a “0” to “10” scale for those age 7 and older. (Preferred scale for those able to communicate their pain level).
- **FLAAC** (Fig.1) – Age 2 months to 7 years or individuals that are unable to communicate their pain (0-10).
- **FACES** (Fig.2) – Self reporting or observed scale for those Age 3 and older (0-10).

#### MILD PAIN (Pain Scale 1-3)

- Assess Vital Signs
- Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress Provide verbal reassurance and calming measures
- Treat underlying cause for pain using non-pharmacological measures: Ice, Elevation, Repositioning, Compression, Splinting, Traction

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## Advanced Life Support

### Paramedic

#### MODERATE PAIN (Pain scale 4-6)

- Consider Analgesia Medication
- Consider Vascular Access and Cardiac Monitor

**ACETAMINOPHEN:** 1 gram IV/IO infusion over 15 minutes (single dose only)

(Ofirmev package insert: [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2010/022450lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2010/022450lbl.pdf))

#### SEVERE PAIN (Pain scale 7-10)

- Cardiac Monitor, Consider Vascular Access.
- Use caution in the elderly; consider starting with lower initial dosing.
- **ACETAMINOPHEN** may also be utilized for severe pain and may be delivered in combination with any of the other pain medications unless contraindicated.
- "Moderate Pain" that cannot be effectively managed with **ACETAMINOPHEN** may be treated with medications in this section.
- Contact Base for any medication doses desired above protocol maximum.

**NITROUS OXIDE 50:50** (50% nitrous oxide / 50% oxygen) via facemask

- Set up equipment (outside of ambulance).
- Explain the procedure and medication to the patient.
- Instruct the patient to:
  1. *Hold the facemask securely over nose and mouth.*
  2. *Breath normally until the pain is relieved, then remove the facemask.*
  3. *Discontinue if patient becomes drowsy or experiences side effects.*
  4. *Always turn off nitrous oxide once inside the ambulance*

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**FENTANYL (opioid):** 25 – 50 mcg slow IV/IO (over 1 minute) or IM/IN

- May repeat every 5 minutes x 4 (maximum cumulative dose = 200 mcg)
- If delivered secondary to MIDAZOLAM or KETAMINE, give lower dose (25 mcg) at least 10 minutes after first medication.

**MORPHINE SULFATE (opioid):** 2 – 5 mg slow IV/IO (over 1 minute) or IM

- May repeat every 5-10 minutes x4 (max cumulative dose = 20 mg)
- If delivered secondary to MIDAZOLAM or KETAMINE, give lower dose (2 mg) at least 10 minutes after first medication.

**KETAMINE (non-opioid):** 0.3 mg/kg IV/IO (infusion over 15 minutes), or 0.5 mg/kg IM/IN

- Max single IV/IO dose = 30mg
- Max single IM/IN dose=50mg
- May repeat every 15 minutes x 3 (max cumulative dose = 100 mg)
- If delivered secondary to opioid or MIDAZOLAM, use half dose (0.15 mg/kg IV/IO or 0.25mg/kg IM/IN) at least 10 minutes after first medication.

### Anxiety from Severe Pain or Emergence Reactions from Ketamine

**MIDAZOLAM (benzodiazepine):** 0.5 – 1 mg increments slow IV/IO or IM/IN

- May repeat prn every 5 minutes x 2, (max cumulative dose = 2 mg)
- If delivered following an opioid or KETAMINE, give lower dose increments (0.5mg), and at least 10 minutes after first medication.

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### PAIN MANAGEMENT – PEDIATRIC

## Basic Life Support

EMT

### MILD PAIN (Pain Scale 1-3)

- Assess Vital Signs
- Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress  
Provide verbal reassurance and calming measures
- Treat underlying cause for pain using non-pharmacological measures: Ice, Elevation, Repositioning, Compression, Splinting, Traction

## Advanced Life Support

Paramedic

### MODERATE PAIN (Pain scale 4-6)

- Cardiac Monitor, Consider Vascular Access
- Consider Analgesia Medications

**ACETAMINOPHEN** (Pediatric dosing If > 2yrs and <50k): 15mg/kg IV/IO, infusion over 15 min.  
(max. 750mg - single dose only)

(Ofirmev package insert: [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2010/022450lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2010/022450lbl.pdf))

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### SEVERE PAIN (Pain scale 7-10)

**FENTANYL (opioid)** - 1 mcg/kg slow IV/IO (over 1 min) or IM/IN

- Max single dose = 50 mcg
- May repeat every 5-10 minutes x 4

**MORPHINE SULFATE (opioid)** - 0.1 mg/kg slow IV/IO (over 1 minute) or IM

- Max single dose = 5 mg
- May repeat every 5-10 minutes x 4

**MIDAZOLAM (benzodiazepine)** – 0.05 mg/kg slow IV/IO/IM/IN (maximum 2 mg per dose)

- May repeat once
- If delivered secondary to KETAMINE, reduce dose (0.03 mg/kg) and deliver at least 10 minutes after first medication.

**KETAMINE (non-opioid)** - 0.3 mg/kg slow IV/IO (infused over 15 min) or IM/IN (maximum single dose = 15 mg)

- May repeat every 15 minutes x 3 (maximum cumulative dose = 50 mg)
- If delivered secondary to MIDAZOLAM, reduce dose (0.15 mg/kg) and deliver at least 10 minutes after first medication.

### Anxiety from Severe Pain or Emergence Reactions from Ketamine

**MIDAZOLAM (benzodiazepine):** 0.05 mg/kg slow IV/IO/IM/IN (maximum 1 mg per dose)

- May repeat once in >5 minutes.
- If delivered following an opioid or KETAMINE, give lower dose (0.03 mg/kg), and at least 10 minutes after the first medication.

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### QUICK REFERENCE

CONTRAINDICATIONS	ADVERSE REACTIONS
<p><b>Acetaminophen</b> (Tylenol):</p> <ul style="list-style-type: none"> <li>• Severe liver disease</li> <li>• Chronic alcoholism or other hepatic impairment</li> <li>• Prior Acetaminophen dose in last 6 hours, or &gt; 2g in last 24 hours</li> </ul> <p><b>Opioids</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 100 or &lt; normal range for age,</li> <li>• RR &lt; 12 or hypoxia</li> <li>• ALOC or traumatic brain injury</li> </ul> <p><b>Midazolam</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 100 or normal range for age,</li> <li>• RR &lt; 12 or hypoxia</li> <li>• ALOC (except agitation)</li> </ul> <p><b>Ketamine</b></p> <ul style="list-style-type: none"> <li>• SBP &lt; 90 OR &gt; 180</li> <li>• RR &lt; 12</li> <li>• GCS &lt; 14</li> <li>• Pregnancy or possible pregnancy</li> <li>• Penetrating eye trauma</li> </ul> <p><b>Nitrous Oxide</b></p> <ul style="list-style-type: none"> <li>• Pt unable to hold mask/mouthpiece</li> <li>• Severe COPD</li> <li>• Decompression sickness</li> <li>• Significant Facial or Head injury</li> <li>• GCS &lt; 14</li> <li>• Systolic BP &lt; 90</li> <li>• O2 Sat &lt; 91%</li> <li>• Pregnancy</li> <li>• Sedated or intoxicated</li> <li>• Pneumothorax</li> <li>• Bowel obstruction</li> <li>• Chronic ear or sinus infection</li> <li>• Chest / upper back pain</li> </ul>	<p><b>Acetaminophen</b> (Tylenol):</p> <ul style="list-style-type: none"> <li>• Nausea &amp; Vomiting</li> <li>• Headache</li> <li>• Insomnia</li> <li>• Pruritis</li> </ul> <p><b>Opioids</b></p> <ul style="list-style-type: none"> <li>• Nausea &amp; vomiting</li> <li>• Respiratory depression</li> <li>• Hypotension</li> <li>• ALOC</li> <li>• Chest wall rigidity (fentanyl)</li> </ul> <p><b>Midazolam</b></p> <ul style="list-style-type: none"> <li>• Respiratory depression</li> <li>• Hypotension</li> <li>• ALOC</li> </ul> <p><b>Ketamine</b></p> <ul style="list-style-type: none"> <li>• Apnea</li> <li>• Laryngospasm/airway obstruction</li> <li>• Nystagmus</li> <li>• Emergence Reactions</li> <li>• Tonic-clonic movements</li> <li>• Delirium</li> <li>• Increased ICP</li> </ul> <p><b>Nitrous Oxide</b></p> <ul style="list-style-type: none"> <li>• Dizziness/lightheadedness</li> <li>• ALOC</li> <li>• Nausea/vomiting</li> </ul>
<p><b>FOR FULL DESCRIPTION OF MEDICATIONS SEE PREHOSPITAL FORMULARY</b></p>	

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## FLACC Scale: Pain level determined by scoring each category and adding them all together:

Fig.1

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

## Faces Scale: Patient points to Face that describes pain:

Fig.2

