GENERAL CONSIDERATIONS

A. Pain management in the pre-hospital setting should be limited to patients with moderate to severe pain. The EMT must always consider the type of pain, the patient’s overall condition, allergies, co-existing medical conditions, and drug contraindications when deciding if pain management is appropriate and which pain medication should be administered.

B. Evaluate and document the following:
   - Vital signs
   - Level of consciousness
   - Patient’s description of pain
   - Location of pain
   - Severity (see diagrams below)
   - Does pain radiate?
   - Is it reproducible?
   - Associated symptoms? (Nausea, vomiting, diaphoresis, lightheadedness, etc.)
   - If pain medications administered, assess and document the effects of the medication.

Pain Scale

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<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<th>10</th>
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<tbody>
<tr>
<td>No Pain No Distress</td>
<td>Annoying</td>
<td>Uncomfortable</td>
<td>Dreadful</td>
<td>Horrible</td>
<td>Agonizing Unbearable Distress</td>
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Pediatric Patients – The Wong-Baker FACES Pain Rating Scale

![Pediatric Pain Scale Diagram]
C. The EMT must be prepared for potential complications of pain medications.

1. If patient becomes hypotensive administer IV normal saline fluid bolus:
   - 250 – 500 ml for adult patient
   - 20 ml/kg for pediatric patient (to a maximum of 500 ml)
   - Repeat boluses as needed to maintain BP

2. If LOC decreases and/or respiratory depression occur, manage airway appropriately.
3. Consider Narcan administration if respiratory depression does not quickly resolve or if patient is over-sedated.
4. Giving medications slowly will help you avoid complications. For all medications below, “slow push” means administration of the drug over 1-2 minutes

Guidelines as to which medication is most appropriate for specific situations are outlined below. Refer to Medication Appendix for complete drug information.

**Fentanyl and Morphine Sulfate**

May administer analgesics for the following:

- Trauma patients who are awake, alert, and oriented X 3 and have a good BP. Do NOT administer for patient with depressed level of consciousness and/or reported loss of consciousness
- Burns
- Chest pain / angina after oxygen, aspirin, and nitroglycerin have been administered
- Abdominal pain
- Flank pain

**Which Drug to Use, in Order of Priority:**
1) Fentanyl
2) Morphine
3) Ketamine

Fentanyl and Morphine are equivalent/equipotent, though Fentanyl is preferred and should be used if available. Fentanyl causes less hypotension and histamine reaction than morphine, and is preferred in children. Never combine Fentanyl and Morphine in the same patient; pick one or the other.

Though Ketamine has limited effect on BP, it is not a very effective analgesic on its own in the doses we are using. It should be reserved as an adjunct medication if Fentanyl or Morphine alone are insufficient to control pain.

**Fentanyl Adult dose:**
Dose = 1 mcg/kg, max 100 mcg, slow push IV/IO/IM/IN
Repeat = Every 5 minutes, max cumulative dose 300 mcg

Consider 0.5 mcg/kg, max 50 mcg, dose for patients > 60 years of age; “Start low, go slow” in elderly patients

Check and document vital signs between doses. Hold subsequent doses if BPsys < 100 mmHg, respiratory depression occurs and/or level of consciousness diminishes. Call Medical Control if additional doses are needed.
**Fentanyl** Pediatric dose:
Dose = 0.5-1.0 mcg/kg, max 100 mcg, slow push IV/IO/IM/IN
Repeat = 0.5 mcg/kg, max 50 mcg, every 5 minutes, max cumulative dose 200 mcg

Check and document vital signs between doses. Hold subsequent doses if patient becomes hypotensive for age, respiratory depression occurs and/or level of consciousness diminishes.

**Morphine** Adult dose:
Dose = 0.1 mg/kg, max 5 mg, slow push IV/IO/IM
Repeat = Every 5 minutes, max cumulative dose 10 mg

Consider 0.05 mg/kg, max 2-5 mg dose for patients > 60 years of age; “Start low, go slow” in elderly patients

Check and document vital signs between doses. Hold subsequent doses if BPsys < 100 mmHg, respiratory depression occurs and/or level of consciousness diminishes. Call Medical Control if additional doses are needed.

**Morphine** Pediatric dose:
Dose = 0.1 mg/kg, max 5 mg, slow push IV/IO/IM
Repeat = Every 5 minutes, max cumulative dose 10 mg

Check and document vital signs between doses. Hold subsequent doses if patient becomes hypotensive for age, respiratory depression occurs and/or level of consciousness diminishes.

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**Nitrous Oxide**

Consider for the following:
- Musculoskeletal trauma
- Burns
- Kidney stones

Contraindications:
- Altered mental status
- COPD
- Abdominal pain
- Suspected pneumothorax
- Traumatic chest pain
- Acute psychosis
- Pregnancy
- Patient unable to self-administer

Side Effects in addition to analgesia include light-headedness, drowsiness and very occasionally, nausea and vomiting. Changes in heart rate and respiratory rate are typically minimal.

**Dose:** Nitrous oxide is self-administered **ONLY**. Patient is instructed to hold mask tightly to their face or mouthpiece in mouth and breathe deeply and slowly. As patient becomes drowsy, the mask (or mouthpiece) will fall away from their face. Monitor patient to ensure that they do not fall asleep with the mask over their mouth.

**The patient must control the mask for themselves.** The EMT will NOT hold the mask to the patient’s face.
Ketamine

For patients who require additional pain management if Fentanyl or Morphine are insufficient, consider Ketamine as an adjunct medication. It should rarely, if ever, be the primary agent against pain in most patients. The advantages of Ketamine are that it usually does not impair respiratory drive and has minimal effect on blood pressure, unlike narcotic medications.

Do's and Don'ts:
- Avoid Ketamine in anyone > 60 yo. It can cause persistently altered mental status and is not an ideal drug for the elderly. Age is not an absolute contraindication, but the older the patient is, the more dangerous Ketamine becomes.
- If Ketamine is used on elderly patients, use ¼ to ½ the normal adult dose.
- Ketamine is safe in ADULTS with head injury/elevated intracranial pressure.
- Ketamine is not safe in KIDS with head injury/elevated intracranial pressure. Do not use it in this patient population.

**Ketamine Adult dose:**
Dose = 5–10 mg slow IV or 10–20 mg IN or 20–30 mg IM
Repeat = Every 5 minutes to desired effect or to onset of nystagmus. Max cumulative dose 1 mg/kg

**Ketamine Pediatric dose:**
Dose = 0.05 – 0.1 mg/kg slow IV or 0.1–0.2 mg/kg IN or 0.25 – 0.5 mg/kg IM
Repeat = Every 5 minutes to desired effect or to onset of nystagmus. Max cumulative dose 1 mg/kg

WHEN USING KETAMINE FOR PAIN MANAGEMENT IT MUST BE DILUTED TO A LOWER CONCENTRATION!

**INSTRUCTIONS TO DILUTE KETAMINE TO PROPER STRENGTH**

- DRAW UP ONE ML OF KETAMINE 100 MG / ML IN 10 ML SYRINGE
- ADD NINE ML OF NORMAL SALINE TO SYRINGE
- GENTLY ROLL SYRINGE IN HANDS FOR TEN SECONDS
- SYRINGE NOW CONTAINS 100 MG OF KETAMINE IN 10 MG / ML CONCENTRATION