**Treat Pain According to Severity**

[WHO's 3-Step Pain Ladder](http://www.who.int/cancer/palliative/painladder/en/)

**Pain Assessment**
- Use the pain scale, ask the patient.
- Assess pain intensity, location, onset, duration, relieving or exacerbating factors, and quality (e.g., sharp, dull, throbbing).
- If the patient is unable to communicate, assess pain based on behavioral cues (e.g., facial grimacing, crying, moaning, decrease in social interaction, irritability, confusion).
- Assess pain frequently (e.g., at each clinical interview, at least q 1 hr for moderate to severe pain).

**Patient Controlled Analgesia (PCA)**
- Method of providing opioid therapy to patients with moderate to severe acute or chronic pain.
- Patient self-administers a fixed opioid dose/bolus by pressing a button.
- Overdose is infrequent as patient must be alert to press the button.
- Consider using continuous opioid infusions for patients who are suffering from pain not expected to resolve shortly.
- See table below for suggested initial PCA doses.

<table>
<thead>
<tr>
<th>Opioid</th>
<th>Basal Rate</th>
<th>Demand Bolus</th>
<th>Lockout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>0-1 mg/hr</td>
<td>1 mg</td>
<td>5-10 min</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0-0.2 mg/hr</td>
<td>0.2 mg</td>
<td>5-10 min</td>
</tr>
</tbody>
</table>

- Consider reducing the dose in frail and elderly patients by ~50% or starting with a demand bolus only and add in a basal rate as needed.

**Prevention and Management of Opioid Side Effects**

- **Nausea and Vomiting**
  - Most patients become tolerant within 3-7 days.
  - Consider adding an antiemetic (e.g., prochlorperazine, promethazine, metoclopramide, meclizine, ondansetron).
  - Consider changing the dosing regimen or route to avoid fluctuations in serum concentration.
  - Consider switching opioids.

- **Pruritus**
  - Treat with a non-sedating antihistamine (e.g., loratadine), hydroxyzine, or diphenhydramine.
  - Consider changing the route or switching opioids.

- **Respiratory Depression**
  - Respirations <8 per minute.
  - Stop any opioid infusion.
  - Establish a patent airway, apply oxygen, and ventilate patient if necessary.
  - Dilute naloxone 0.4 mg with 9 ml normal saline to a concentration of 0.04 mg/ml and administer 0.5-1 ml slowly every 2 min, or administer over 30 sec as undiluted naloxone.
  - If no response observed after 10 mg, consider other causes of respiratory depression.
  - Watch for reedestion.
  - Resume opioid at 50% of previous dose or change to PO.

- **Sedation**
  - Evaluate the underlying cause.
  - Hold nonessential CNS-acting drugs (e.g., sedatives/antuolitics).
  - Consider decreasing the opioid dose by 10-25% or increasing the dosing frequency with a decreased opioid dose and add/increase the non-opioid analgesic.
  - Consider switching opioids.
  - Consider adding a CNS stimulant (e.g., caffeine).

- **Myoclonus**
  - Opioid-induced myoclonus is common and is often misdiagnosed.
  - Rotation to a different opioid may help.
  - Benzodiazepines are the primary symptomatic treatment.

**Constipation**
- Manage constipation prophylactically as patients do NOT develop tolerance to this side effect!!!!
- With few exceptions, begin a bowel regimen (stimulant + stool softener) when opioid therapy is initiated.
- See suggested bowel regimens below.
- If the patient is not on a bowel regimen then “step 1” should be started. If no response in 24 hr move to the next step.
- Rule out impaction/bowel obstruction with a rectal exam or abdominal x-ray.
- Rectal disimpaction must occur before treating constipation with an oral laxative regimen.
- Methylnaltrexone (Relistor®) may be useful in managing opioid-induced constipation (OIC).

**Recommended maximum daily doses of acetaminophen:**
- Adult: 4 grams/day
- Elderly: 3 grams/day
- Liver disease: 2 grams/day

**Pain Management Guide UTHSCSA/STVHCS**
## Opioid Equianalgesic Table

<table>
<thead>
<tr>
<th>ANALGESICS</th>
<th>OPIOID AGONIST</th>
<th>EQUIANALGESIC DOSES</th>
<th>PHARMACOKINETIC PARAMETERS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Parenteral (mg)</td>
<td>Oral (mg)</td>
<td>Dose Interval of Analgesia</td>
</tr>
<tr>
<td>Morphine</td>
<td>PO</td>
<td>60</td>
<td>30</td>
<td>60-20</td>
</tr>
<tr>
<td>Morphine SR</td>
<td>PO</td>
<td>30</td>
<td>15-30</td>
<td>12-16</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>PO</td>
<td>45-90</td>
<td>30-60</td>
<td>30-60</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>PO</td>
<td>30-60</td>
<td>15-30</td>
<td>12-24</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>PO</td>
<td>10-20</td>
<td>30-60</td>
<td>4-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45-72</td>
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<td>12-24</td>
<td>10-20</td>
<td>12-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30-60</td>
<td>15-30</td>
<td>12-24</td>
</tr>
</tbody>
</table>

**OPIODS NOT RECOMMENDED FOR USE**
- Meprobamate: Increased risk of seizures, active metabolite (normeperidine) causes CNS excitation.
- Propoxyphene: Withdrawn by FDA in 2010 due to cardiac toxicity.
- **Mixed Agonist-Antagonists: Includes pentazocine, butorphanol and nalbuphine. Use of these drugs in patients receiving opioids can precipitate withdrawal and cause increased pain. These drugs have a high risk of producing psychotomimetic adverse effects.**

**OPIOID TITRATION**
- For moderate pain: - Titrate the dose at least every 24 hr.
- For severe pain: - Titrate the dose every 2 hr.
- Increase opioids depending on the severity of the pain.
- Slow-release tablets or capsules: Do not crush, swallow whole! Avinza® and Kadian® capsules may be opened and contents sprinkled on food; however, do not heat, crush, or chew the beads.

**BREAK-THROUGH PAIN**
- Use short-acting/immediate release opioids.
- Breakthrough dose is typically -10% of the total 24 hr opioid dose.
- Increase the breakthrough dose available every 1-2 hr for PO opioids and 15-30 min for IV opioids.
- Example: A patient is taking long-acting morphine 60 mg PO q 12 hr. Breakthrough dose = 12 mg PO morphine every 2 hr PRN.

**PREVENTING CROSS TOLERANCE**
- When converting from one opioid to another decrease the equianalgesic dose by 25-50% to allow for incomplete cross-tolerance between the different opioids.

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### Opioid Conversion Equation

- **Opioid Conversion Equation**
- **Equianalgesic (route) Current opioid**
- **Desired opioid**
- **24 hr dose (route)**
- **Conversions:**
  - Oral — IV,
  - Oral — Transdermal,
  - Oral — Rectal,
  - Oral — Topical,
  - Oral — Transmucosal,
  - Oral — Subcutaneous,
  - Oral — Intranasal,
  - Oral — Inhalation

**References:**