**Principles of Pain Management/ Conversion Rules**

1) Ask the patient about the presence of pain
2) Perform a comprehensive pain assessment, including: Onset, duration, location; Intensity; Quality; Aggravating/Alleviating factors; Effect on function, QOL; Patients goal; Response to prior treatment; H & P.
3) Avoid IM route, if possible
4) Treat persistent pain with scheduled medications
5) Ordinarily 2 drugs of the same class (e.g. NSAIDS) should not be given concurrently; however 1 long-acting and 1 short-acting opioid may be prescribed concomitantly.
6) Short-acting strong opiates (morphine, hydromorphone, oxycodone) should be used to treat moderate to severe pain. Long-acting strong opiates (e.g. Oxycontin, MS Contin, Fentanyl patch) should be started once pain is controlled on short-acting preparations. Never start an opioid naïve patient on long-acting medications.
7) Titrate the opiate dose upward if pain is worsening or inadequately controlled: Increase dose by 25- 50% for mild/moderate pain; Increase by 50-100% for mod/severe pain.
8) Manage breakthrough pain with short-acting opiates. Dose should be 10% of total daily dose. Breakthrough doses can be given as often as Q 60min if PO; Q 30min if SQ; Q 15min if IV. (As long a patient has normal renal/hepatic function).
9) When converting patient from one opioid to another, decrease the dose of the second opioid by 25-50% to correct for incomplete cross-tolerance.
10) Manage opioid side effects aggressively. Constipation should be treated prophylactically.

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**Opioid Equianalgesic Chart**

<table>
<thead>
<tr>
<th>Opioid</th>
<th>IV/SQ mg route</th>
<th>PO/PR mg route</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>5</td>
<td>15</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>Long Acting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>15</td>
<td>8-12 hours</td>
<td></td>
</tr>
<tr>
<td>Oxycodone</td>
<td>10</td>
<td>3-4 hours</td>
<td></td>
</tr>
<tr>
<td>Long Acting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxycodone</td>
<td>10</td>
<td>8-12 hours</td>
<td></td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0.75</td>
<td>4</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>Meperidine**</td>
<td>50</td>
<td>150</td>
<td>2-3 hours</td>
</tr>
<tr>
<td>Codeine</td>
<td>50</td>
<td>100</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>15</td>
<td>3-4 hours</td>
<td></td>
</tr>
</tbody>
</table>

**Fentanyl Transdermal Patch**

Opioid doses equivalent to 25mcg/hr fentanyl patch

<table>
<thead>
<tr>
<th>Drug</th>
<th>Oral</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>45mg/24hr</td>
<td>15mg/24hr</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>10mg/24hr</td>
<td>2mg/24hr</td>
</tr>
</tbody>
</table>

- Patch duration: 48-72 hours
- Onset of effect: 12-24 hours before full analgesic effect of patch occurs
- Must prescribe Short acting opioid for breakthrough pain

**Opioids use for Liver or Renal Failure**

<table>
<thead>
<tr>
<th>Recommended</th>
<th>Use with caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydromorphone</td>
<td>Codeine *</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Morphine *</td>
</tr>
<tr>
<td></td>
<td>Oxycodone *</td>
</tr>
</tbody>
</table>

* These opioid have active metabolites that are renally eliminated
** Meperidine is not recommended b/c the metabolite, normeperidine, may accumulate in patients with poor renal functions causing CNS toxicity. Meperidine is contraindicated w/ MAOI’s

Propoxyphene not recommended - norpropoxyphene metabolite can accumulate in the elderly causing sedation, confusion and hallucinations

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Switching from one opioid to another

**Basic Conversation Equation**

\[
\text{Equianalgesic dose and route of current opioid} = \text{route of new opioid} \\
\text{24hr dose and route of current opioid} = \text{24hr dose and route of new opioid}
\]

Ex: Pt is taking Morphine SR 90mg po Q12h; you want to switch to IV morphine. Your equation would look like this based on conversion table.

\[
15\text{mg PO morphine} = 5\text{mg IV morphine} = 60\text{mg IV}
\]

\[
180\text{mg PO morphine} \times \text{mg IV morphine over 24 hr}
\]

**Converting to Transdermal Fentanyl**

- Calculate PO Morphine equivalent and divide by 2. Ex: MS 100mg PO = Fentanyl 50mcg patch.
- Patch duration of effect = 48-72 hrs
- Takes 12-24 hrs before full analgesic effect of patch occurs after application.
- Must prescribe short-acting opioid for breakthrough pain.

**Methadone**: Conversion varies with daily oral morphine dose. Long and variable half-life (12-60hrs), complicated dosing regimen. Should be used by someone with experience. When changing to methadone from higher doses of morphine the ratio of methadone: morphine changes. Ex: Morphine <100mg (1:3); 101-300mg (1:5); 301-600mg (1:10); 601-800mg (1:12); 801-1000mg (1:15); >1000mg (1:20)


**Bowel Regimen**

Do not start opioid therapy without an appropriate bowel regimen (softener + stimulant); Titrate regimen to one soft BM Q 1-2 days

- **Step 1**: Colace 100mg BID, Senna 1tab BID
- **Step 2**: Increase Senna 2 tabs BID
- **Step 3**: Increase Senna 3 tabs BID
- **Step 4**: Increase Senna 4 tabs BID and add Sorbitol 30cc BID, Miralax QD, or Bisacodyl 2 tabs BID
- **Step 5**: Increase Sorbitol 30cc TID or Miralax BID or Bisacodyl 3 tabs TID, if no BM by 4 days consider enemas, be aware of fecal impaction.

**Adverse Effect** | **Management Considerations**
--- | ---
**Constipation** | Bowel regimen as above
**Sedation** | Tolerance typically develops. Hold sedatives/anxiolytics, dose reduction; Consider CNS stimulants (methylphenidate, increase caffeine intake)
**Nausea/Vomiting** | Dose reduction, opioid rotation, consider metoclopramide, prochlorperazine, scopolamine patch
**Pruritus** | Dose reduction, opioid rotation; consider antihistamine or H2 blocker
**Hallucinations** | Dose reduction, opioid rotation, consider neuroleptic therapy (haloperidol, risperidone)
**Confusion/Delirium** | Dose reduction, opioid rotation, neuroleptic therapy (haloperidol, risperidone)
**Myoclonic Jerking** | Dose reduction, opioid rotation; consider clonazepam, baclofen.
**Respiratory Depression** | Sedation precedes respiratory depression. Hold opioid. Give low dose naloxone- Dilute 0.4mg (1ml of a 0.4mg/ml amp of naloxone) in 9ml of NS for final concentration of 0.04mg/ml.