### Opioid Analgesic Equivalences and Relative Potencies as Compared with Morphine

<table>
<thead>
<tr>
<th>Opioid Agonist</th>
<th>Parenteral mg</th>
<th>Oral mg</th>
<th>IV to PO</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>10</td>
<td>30</td>
<td>3</td>
<td>3-4 hrs</td>
</tr>
<tr>
<td>Long acting</td>
<td>10</td>
<td>30</td>
<td>3</td>
<td>8-12 hrs</td>
</tr>
<tr>
<td>Morphine</td>
<td>20</td>
<td>70</td>
<td>5</td>
<td>3-4 hrs</td>
</tr>
<tr>
<td>Long acting</td>
<td>20</td>
<td>70</td>
<td>5</td>
<td>8-12 hrs</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>1.5</td>
<td>7.5</td>
<td>5</td>
<td>3-4 hrs</td>
</tr>
<tr>
<td>Methadone</td>
<td>1-10</td>
<td>1-20</td>
<td>1.5</td>
<td>4-8 hrs</td>
</tr>
<tr>
<td>Meperidine</td>
<td>100</td>
<td>300</td>
<td>3</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>0.25</td>
<td>1-2</td>
<td>1-2 hrs</td>
<td></td>
</tr>
<tr>
<td>Codeine</td>
<td>130</td>
<td>200</td>
<td>1.5</td>
<td>3-4 hrs</td>
</tr>
</tbody>
</table>

1. Variable pharmacodynamic and pharmacokinetic effects complicate the use of methadone for analgesia. Symptoms of overdose may be delayed 3-7 days after starting or increasing Methadone.
2. Meperidine SHOULD NOT BE USED in older adults or patients with renal failure because of CNS toxic metabolites. Contraindicated with MAOIs.

### Converting Opioids to Transdermal Fentanyl

- Determine the 24 hr parenteral morphine equivalent
- For dosages of Fentanyl patch >100µg/hr multiple patches can be used
- Patch duration 48-72 hrs
- It takes 12-24 hrs before achieving full analgesic effect after the first patch is applied.
- Prescribe a short acting opioid for breakthrough pain.
- Increase the patch dose based on the average amount of additional short acting opioid required in the previous 72 hrs.

<table>
<thead>
<tr>
<th>Parenteral Morphine Equivalent (mg/24hrs)</th>
<th>Transdermal Fentanyl (µg/ hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-22</td>
<td>25</td>
</tr>
<tr>
<td>23-37</td>
<td>50</td>
</tr>
<tr>
<td>38-52</td>
<td>75</td>
</tr>
<tr>
<td>53-67</td>
<td>100</td>
</tr>
<tr>
<td>68-97</td>
<td>150</td>
</tr>
</tbody>
</table>
* 3mg po Morphine = 1mg IV/SQ Morphine

### Pain Management Guide

**1. Assess Pain Level:**
- Use the pain scale, Ask the patient.
- If the patient is unable to communicate, assess pain based on behavioral cues.
- Assess pain at each clinical interview, every 8 hrs, and PRN (at least every 1 hr for moderate to severe pain).

**2. Using Opioids Strengths & Formulations**
- For Moderate-Severe pain use short acting strong opioids (morphine, hydromorphone, oxycodone)
- Only start long acting preparations of opioids (eg sustained release morphine, oxycodone or Fentanyl) after pain has been controlled on short acting opioids.
- Never use long acting opioids for controlling acute pain

**3. Opioids Titration**
- For moderate pain: titrate at least every 24hrs
- For severe pain: titrate every 2 hrs
- Increase opioids depending on pain level:
  - Mild-mod pain: ↑ dose 25-50%
  - Mod-severe pain: ↑ dose 50-100%

**4. Dosing Route Equivalences**
- Rectal= oral
- SQ=IM = IV

**5. Breakthrough Pain**
- For acute pain in patients with otherwise controlled pain use short acting opioids.
- Breakthrough dose is about 10% of the 24hr standing opioid dose (scheduled dose)
- Make breakthrough dose available every 1-2hrs
- Example: In patient on long acting Morphine 60 mg po q 12 hrs. the breakthrough dose would be 15 mg po q 1hr prn

**6. Patient Controlled Analgesia (PCA)**
- Safe & effective way of delivering opioids for:
  - *pain that is expected to resolve( post op pain)*
  - *Acute exacerbation of chronic pain (e.g. fracture in patient with chronic pain from metastatic bone CA)*
- Patient self delivers fixed Opioid dose by pressing a button.
- Overdose infrequent as patient has to be alert to press the button.
- Safe starting PCA Dose for average Adult:
  - * Morphine 1 mg every 10 minutes or
  - * Hydromorphone 0.25mg every 10 minutes
- Use a continuous Opioid infusion for patients who suffer from pain not expected to resolve shortly.

**7. Don’t Use**
- *Partial agonist (Buprenorphine)*
- *Mixed agonist (Pentazocine, nalbuphine, butorphanol)*

Because of cognitive effects and because they cause withdrawal in patients on chronic therapy with opioids agonists.

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8. PREVENTING CROSS TOLERANCE
When converting from one opioid to another divide the dose of the second opioid by 2 to allow for incomplete cross-tolerance between different opioids. (may need to titrate rapidly to an analgesic dose within the first 24 hrs).

9. MANAGE OPIOID SIDE EFFECTS
Nausea and vomiting
Itchimg
Somnolence
Constipation
Respiratory depression (see narcan use below)
• Manage Constipation prophylactically
  • With few exceptions all patients on opioid therapy need an individualized bowel regimen.
  • Start with step 1 regimen.
  • Continue an effective regimen for the duration of opioid therapy.
  • Maintain a high index of suspicion for the possibility of bowel obstruction/ fecal impaction.
  • Rule out impactation with rectal examination or abdominal x-ray when clinical suspicion exist.
  • Rectal disimpaction must occur before treating constipation with an oral laxative regimen
  • If the patient has not been on a bowel regimen then step 1 should be started. If there is no response in 24 hrs move to next step
  • If no BM ≥3 days administer Enema (sodium phosphate or mineral oil)

**STEPS** | **BOWEL REGIMENS**
--- | ---
1 | Docusate 100 mg po bid+Senna 1tab qd/bid
2 | Docusate 100 mg po bid + Senna 2 tab bid
3 | Docusate 100 mg po bid + Senna 3 tab bid
4 | Docusate 100 mg po bid + Senna 4 tab bid
  | Plus Lactulose or Sorbitol 15 cc po bid
5 | Docusate 100 mg po bid + Senna 4 tab bid
  | Plus Lactulose or Sorbitol 30 cc po bid
6 | Docusate 100 mg po bid + Senna 4 tab bid
  | Plus Lactulose or Sorbitol 30 cc po bid

NALOXONE USE
• Naloxone should be used only for Life threatening opioid respiratory depression (exceedingly rare for patients on chronic stable opioid dose)
• To minimize opioid withdrawal symptoms (agitation,fever,emesis and pain) when Naloxone is needed.
  * dilute Naloxone 1 vial (0.4mg) in 10cc NS
  * administer 1 cc /min of diluted Naloxone
• This careful Titration will reverse respiratory depression without causing withdrawal sx.

MILD PAIN:
• Acetaminophen 650-1000 mg po q 6hrs
• Ibuprofen 200-800mg po q 6hrs
MODERATE PAIN:
• Acetaminophen with oxycodone 5-10mg q 4hr
• Acetaminophen with codeine 30-60mg po q 4hr
• Maximum acetaminophen daily:
  * 4gr /day average adult
  * 3gr /day elderly,
  * 2gr /day hepatic dysfunction
SEVERE PAIN:
• If the pain persists or increases despite the above measures the patient should be re-evaluated.
  • Morphine 15-30 mg po q 3hrs or
  • Hydromorphone 4-8 mg po q 3hr
• And continue NSAID or Acetaminophen unless contraindicated
• If the pain is severe, administration of parenteral opioids should be strongly considered;
• opioids dosing for the average adults are: morphine 5-10 mg IV/SQ or hydromorphone 0.5-1.5 mg IV/SQ Repeated every 15-30 minutes until the pain is controlled.