**Pain Management and Dosing Guide**

**Principles of Pain Management**

- **Establish realistic pain goals**
  - Will vary depending on patient and type of pain - goal of zero may not be feasible

- **Educate patient/caregivers on pain management goals and regimen**

- **Consider pharmacologic and non-pharmacologic treatment options and initiate therapy**

- **Continually reassess patient’s pain and monitor for medication efficacy and side effects**
  - Use same scale to reassess pain
  - Use scale that is age and cognitively appropriate
  - If no improvement, adjust regimen

**Pain Management Considerations**

- **Type of pain: nociceptive, neuropathic, inflammatory**
- **Acute vs. chronic vs. acute-on-chronic pain exacerbation**
- **Pain medication history: OTC, Rx and herbal**
- **Patient factors: genetics, culture, age, previous pain experiences, comorbidities**
- **Verify dosing for < 6 mo and > 65 yo**

**Treatment Options**

- **Pharmacotherapy:** systemic, topical, transdermal - nerve blocks
- **Non-pharmacologic modalities**
  - Refer to pain, palliative or other specialists for advanced treatment

**Discharge and Patient Safety Considerations**

- **Assess and counsel regarding falls, driving, work safety, and medication interactions**
- **Bowel regimen for opioid induced constipation**
- **Vital signs and oral intake before discharge**
- **Document all pain medications administered and response at time of discharge or disposition**
- **Consider OTC and non-pharmacologic options**
- **Can patient implement pain management plan?**
  - insurance coverage, transportation, etc.

**Non-opioid Analgesics**

<table>
<thead>
<tr>
<th>Generic (Brand)</th>
<th>Oral</th>
<th>IV</th>
<th>MAX</th>
<th>PO</th>
<th>PO q6-8h</th>
<th>q8-12h</th>
<th>q12-24h</th>
<th>q24h</th>
<th>Oral q6-8h</th>
<th>q8-12h</th>
<th>q12-24h</th>
<th>q24h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>1500</td>
<td>650</td>
<td>1000</td>
<td>650</td>
<td>30-150 mg</td>
<td>30-150 mg</td>
<td>30-150 mg</td>
<td>30-150 mg</td>
<td>650 mg</td>
<td>650 mg</td>
<td>650 mg</td>
<td>650 mg</td>
</tr>
</tbody>
</table>

**Opioid Prescribing Guidelines and Equianalgesic Chart**

<table>
<thead>
<tr>
<th>Opioid</th>
<th>Immediate Oral</th>
<th>Transdermal</th>
<th>Intranasal</th>
<th>Equianalgesic Dose</th>
<th>Recommended STARTING dose for ADULTS</th>
<th>Recommended STARTING dose for CHILDREN &gt;6 mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine (MSR®) [CII]</td>
<td>O: 30-60 min</td>
<td>O: 0-1 min</td>
<td>O: 15-20 min</td>
<td>30 mg</td>
<td>15-30 mg</td>
<td>5-15 mg</td>
</tr>
<tr>
<td>Morphine extended release (MS Contin®) [CII]</td>
<td>O: 30-60 min</td>
<td>O: 15-30 min</td>
<td>O: 15-45 min</td>
<td>30 mg</td>
<td>20-45 mg</td>
<td>5-10 mg</td>
</tr>
<tr>
<td>Hydrocodone/acetaminophen (Vicodin®) [CII]</td>
<td>O: 30-60 min</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>5-10 mg</td>
<td>7.5-15 mg</td>
<td>1.25-2.5 mg</td>
</tr>
<tr>
<td>Fentanyl (Sustaret® or Transdermal) [CII]</td>
<td>O: 15-45 min</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>25 mg</td>
<td>50 mg</td>
<td>3.75 mg</td>
</tr>
<tr>
<td>Methadone (Dolophine®) [CII]</td>
<td>O: 30-60 min</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>10 mg</td>
<td>20 mg</td>
<td>2.5 mg</td>
</tr>
<tr>
<td>Oxycodone (Percoval®)</td>
<td>O: 30-60 min</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>10 mg</td>
<td>20 mg</td>
<td>2.5 mg</td>
</tr>
<tr>
<td>Oxycodone (10 mg)</td>
<td>O: 15-45 min</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>10 mg</td>
<td>20 mg</td>
<td>2.5 mg</td>
</tr>
<tr>
<td>Tramadol (Ultram®) [CII]</td>
<td>O: 1-2 h</td>
<td>O: 0-1 min</td>
<td>O: 15-30 min</td>
<td>100 mg</td>
<td>200 mg</td>
<td>37.5 mg</td>
</tr>
</tbody>
</table>

**Opioid Cross-Sensitivities**

<table>
<thead>
<tr>
<th>Analgesics</th>
<th>Dose</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>1.5-2 mcg/kg q 1-2 h</td>
<td>Dose divide equally between each nostril</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>2-10 mg q 4-6 h</td>
<td>Dose divide equally between each nostril</td>
</tr>
<tr>
<td>Metaxalone 5 mg/mL</td>
<td>0.3 mg</td>
<td>Dose divide equally between each nostril</td>
</tr>
</tbody>
</table>

**Ladder Basics**

1. Use oral route when possible
2. Give analgesics at regular intervals
3. Prescribe according to pain intensity
4. Dosing must be adapted to individual
5. Analgesic plan must be refined and communicated with patient and staff
**Nerve Blocks**

<table>
<thead>
<tr>
<th>Type of Block</th>
<th>General Distribution of Anesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracutaneous Plexus Block</td>
<td>Shoulder, upper arm, elbow and forearm</td>
</tr>
<tr>
<td>Supratrochlear Plexus Block</td>
<td>Upper arm, elbow, wrist and hand</td>
</tr>
<tr>
<td>Infraclavicular Plexus Block</td>
<td>Upper arm, wrist, and hand</td>
</tr>
<tr>
<td>Axillary Plexus Block</td>
<td>Forearm, wrist, and hand: Elbow if including musculocutaneous nerve</td>
</tr>
<tr>
<td>Median Nerve Block</td>
<td>Hand and Forearm</td>
</tr>
<tr>
<td>Radial Nerve Block</td>
<td>Hand and Forearm</td>
</tr>
<tr>
<td>Ulnar Nerve Block</td>
<td>Hand and Forearm</td>
</tr>
<tr>
<td>Femoral Nerve Block</td>
<td>Anterior thigh, femur, knee and skin over the medial aspect below the knee</td>
</tr>
<tr>
<td>Popliteal Nerve Block</td>
<td>Foot and ankle and skin over the posterior lateral portion, distal to the knee</td>
</tr>
<tr>
<td>Tibial Block</td>
<td>Foot and ankle</td>
</tr>
<tr>
<td>Deep Peroneal Block</td>
<td>Foot</td>
</tr>
<tr>
<td>Saphenous Nerve Block</td>
<td>Foot</td>
</tr>
<tr>
<td>Sural Nerve Block</td>
<td>Foot</td>
</tr>
</tbody>
</table>

**Local Anesthetics**

- **Lidocaine (1%)**
  - **Onset:** Rapid
  - **Duration Without Epi (h):** 0.5 – 2
  - **Duration With Epi (h):** 1 – 6
  - **Max Dose Without Epi, mg/kg:** 4.5 (300 mg)
  - **Max Dose With Epi, mg/kg:** 7 (500 mg)

- **Bupivicaine (0.5%)**
  - **Onset:** Slow
  - **Duration:** 2 - 4
  - **Max Dose:** 4.5 (300 mg)

- **Mepivicaine (1.5%)**
  - **Onset:** Rapid
  - **Duration:** 2 - 6
  - **Max Dose:** 5

- **2-Chloroprocaine (0.5%)**
  - **Onset:** Rapid
  - **Duration:** 1.5 – 2
  - **Max Dose:** 10

- **Ropivicaine (0.5%)**
  - **Onset:** Medium
  - **Duration:** 3 – 6
  - **Max Dose:** 2 - 3

*Most cardiovagal: 1% – 10mg/ml, 0.5% – 5mg/ml

**Topical and Transdermal Medications**

- **Detomidine**
  - **Dosage:**
    - IV: 0.1-0.2 mg/kg
    - IM: 0.5 – 1.0 mg/kg

**Procedural Sedation and Analgesia Medications**

- **Ketamex (Ketalar®)**
  - **Indications:**
    - **Adults:** 5 - 10 mg IV
    - **Pediatric:** 2 - 4 mg/kg
  - **Starting Dose:**
    - **Adults:** 50 mg IV
    - **Pediatric:** 1 - 2 mg/kg

**Stepwise Approach to Pain Management and Procedural Sedation and Analgesia (PSA)**

1. **Situation Checkpoint**
   - What are you trying to accomplish?:
     - anxiety,asia, sedation, procedure, etc.

2. **Developmental/Cognitive Checkpoint**
   - What is the patient’s development stage?

3. **Family Dynamic Checkpoint**
   - Who is caring for the patient?
   - What are the family dynamics?

4. **Facility Checkpoint**
   - Type of staffing and setting, team experience, facility policies, etc.

5. **Patient Assessment Checkpoint**
   - Review patient’s risk factors and history.

6. **Management Checkpoint**
   - Choose your “ingredients” for pharmacologic and non-pharmacologic “recipe.”

7. **Monitoring & Discharge Checkpoint**
   - Joint Commission standards, reassessments, facility policies, discharge and transportation considerations.