Pain Assessment

- Preoperative patient evaluation is necessary.
- Requires systematic assessment using standardized pain assessment tools preoperatively, at scheduled intervals postoperatively, in response to new pain, and prior to discharge for optimal results.
- The components of a good assessment will vary but should include both pain and its impact on function.

Pain Assessment Components

- Pain attributes: (onset, intensity, duration, location, description, factors that alleviate/normalize)
- Behavioral manifestations of pain
- Impact of pain
- Current and past treatments for pain
- Patient’s expectations for pain relief

Assessing Pain Intensity

1. Ask the patient to rate their pain on a scale of 0-10, (0 = No pain and 10 = Worst possible pain).
2. Ask patient “What is your current pain level?”
3. Ask patient “What was your worst/best pain level?”
4. Assess and document intensity at each painful site.
5. Ask about the quality of the pain (e.g. dull, burning, stabbing, shooting, etc.).
6. Reassess frequently in the same consistent manner.

Preoperative Assessment

- Chief complaint
- Medical history
- Surgical history
- Past pain history
- Physical exam

Postoperative Assessment

- Assess pain level
- Assess side effects:
  - nausea/vomiting
  - pruritus
  - numbness/weakness
  - deep breathing
  - moving
  - sleep
- Patient overall satisfaction

Side Effect Management

- Nausea
  - Determine etiology
  - Decrease dose
  - Add anti-nausea agent
  - Change analgesic

- Respiratory Depression
  - Determine etiology
  - Decrease dose
  - Increase interval
  - Stop Medication
  - Consider reversal agent such as naloxone and titrate to effect

Preoperative Management

1. Preoperative pain assessment and development of intervention plan
2. Provide patient and family education
3. Initiate selected pain measures for pain management as indicated

Postoperative Management

1. Assess pain level
2. Re-evaluate at appropriate intervals
3. Change pain medication, dose, route, or modality; add adjuvant or treat side effect

Patient Education

- Education of the patient and those involved in their care is central
- Requires systematic assessment using standardized pain assessment tools preoperatively, at scheduled intervals postoperatively, in response to new pain, and prior to discharge for optimal results.

Pharmacologic Interventions:
- Main classes of medication: opioids, NSAIDs, local anesthetics
- Contemporary delivery systems (PCA instead of intermittent dosing via IM or SC) and techniques (neuraxial) are required to improve post operative pain control and patient satisfaction.

Intervention

- Intervention should be multimodal and individualized for the particular patient, operation, and particular circumstances.
- Understanding the range of available interventions and considerations of the type of surgery are essential to provide safe and effective pain management.
- In most instances, more than one intervention will be needed for successful pain management. Selection is determined by balancing the advantages, disadvantages, contraindications, and patient preferences.

- Pharmacologic interventions:
  - Main classes of medication: opioids, NSAIDs, local anesthetics
  - Contemporary delivery systems (PCA instead of intermittent dosing via IM or SC) and techniques (neuraxial) are required to improve post operative pain control and patient satisfaction.
  - Non-Pharmacologic Interventions
    - Cold
    - Hypnosis
    - Heat
    - Distraction
    - Massage
    - Relaxation
    - Exercise
    - Positioning
    - Immobilization
    - Rest
    - Transcutaneous Electrical Nerve Stimulation (TENS)
  - A discharge plan should be in place prior to discharge, include a plan for continued pain management, and be communicated to patients and those caring for them.

Evaluation

- Evaluation of the balance between pain control and side effects should be routine, timely, and specific. The effect of changes in response to inadequate pain or side effects should be evaluated in a timely fashion.
### Equianalgesic Table: Commonly Used Opioid Analgesics - Information & Conversion Tables

<table>
<thead>
<tr>
<th>Drug</th>
<th>IR PO</th>
<th>SR/CR PO</th>
<th>Concentration (mg)</th>
<th>Notes</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>4-6</td>
<td>120-200</td>
<td>30-60</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>4-6</td>
<td>12-30</td>
<td>5-15</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>4-6</td>
<td>1.5-2</td>
<td>3-5</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>4-5</td>
<td>1.5-2</td>
<td>3-5</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Meperidine</td>
<td>2-4</td>
<td>75-300</td>
<td>3-15</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Methadone</td>
<td>4-6</td>
<td>15-25</td>
<td>5-10</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Morphine</td>
<td>4-6</td>
<td>10-20</td>
<td>5-10</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Oxycodone IR</td>
<td>4-6</td>
<td>15-20</td>
<td>5-10</td>
<td>1 tablet/day = $355</td>
<td>1 tablet/day = $355</td>
</tr>
<tr>
<td>Oxycodone CR</td>
<td>4-6</td>
<td>15-20</td>
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</tr>
</tbody>
</table>

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- Morphine: 1 tablet/day = $355
- Oxycodone IR: 1 tablet/day = $355
- Oxycodone CR: 1 tablet/day = $355

**Conversion:**
- A smaller or less potent opioid must be metabolized to the active metabolite (morphine).
- Available alone or in combination with aspirin or acetaminophen.
- Do not exceed 4 grams APAP/day (11 tablets per day).
- Do not exceed 2 grams APAP/day with moderate alcohol use (2 600 mg).

**Footnote to Equianalgesic Table:**
- Oxycodone CR is usually administered every 12 hours.
- Do not administer oxycodone CR tablets.
- Do not exceed 4 grams oxycodone CR tablets.
- Do not exceed 4 grams APAP/day (11 tablets of oxycodone/APAP 5/325mg).
- Consult your local formulary for available dosage formulations.

**Opioid Conversion Instructions**
1. Determine the total 24-hour dose of the current opioid.
2. Using the equianalgesic table (on the left), find and calculate the equivalent dose of new analgesic for the desired route of administration.
3. When converting to a different opioid, the starting dose of the new opioid should be 50% to 67% (10% to 25% for methadone) of the equianalgesic dose because of incomplete cross-tolerance.
4. Take the 24-hour starting dose of the new opioid and divide by the frequency of administration to give the new dose for the new route.
5. All patients should have breakthrough opioid available during conversion process.

**Example:**
- Patient is receiving morphine 1mg PCA q6min
- He has received 30 doses over the past 24 hours.
- Total 24-hour dose of IV morphine is 30 mg
- From the equianalgesic table, we calculate that 30 mg of IV morphine is equal to 60 mg of PO oxycodone.
- The estimated equianalgesic dose of oxycodone is 60 mg per day.
- 67% of 60 mg of PO oxycodone is 40 mg per 24 hours.

**Footnotes to Equianalgesic Table:**
1. Duration of oral medication is longer than state achieved. Duration of effect increases with repeated use and cumulative effects.
2. Covers long-acting opioids until steady state is achieved. Covers long-acting opioids until steady state is achieved.
3. Do not administer "prn".
4. Do not exceed 4 grams APAP/day.
5. When switching from one opioid to another, the starting dose of oxycodone IR would be 10 mg q6h.
6. All patients should have breakthrough opioid available during conversion process.

**Treatment costs are expressed only in general, relative terms; consult local references for exact figures.**

**DRUG LOAD BOLUS/Demand LOCKOUT**

<table>
<thead>
<tr>
<th>TYPICAL IV PCA DOSING REGIMENS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generic</strong></td>
</tr>
<tr>
<td>Acetaminophen</td>
</tr>
<tr>
<td>Aspirin</td>
</tr>
<tr>
<td>Celecoxib</td>
</tr>
<tr>
<td>Etodolac</td>
</tr>
<tr>
<td>Ibuprofen</td>
</tr>
<tr>
<td>Indomethacin</td>
</tr>
<tr>
<td>Ketorolac</td>
</tr>
<tr>
<td>Naproxen</td>
</tr>
<tr>
<td>Naproxen Na</td>
</tr>
<tr>
<td>Procainamide</td>
</tr>
<tr>
<td>Rofecoxib</td>
</tr>
<tr>
<td>Salsalate</td>
</tr>
<tr>
<td>Saluteal</td>
</tr>
</tbody>
</table>

**Nonsteroidal Anti-Inflammatory Drugs**

**Cost**
- $: Very low
- $$: Low
- $$$: Moderate
- $$$$: High
- $$$$$: Very high
PATIENT EDUCATION

Questions to ask the patient:

a) Have you been told how your pain will be managed postoperatively?
b) What experience do you have with postoperative pain relief?
c) What are your concerns about pain medication and pain relief?
d) Do you have any questions about your postoperative pain management plan?

Questions to answer for the patient:

a) What is pain?
b) Why is pain control important?
c) Can pain be relieved?
d) If I am taking pain medications already, does it make a difference?
e) How can I help the doctors and nurses “measure” my pain?
f) What is an appropriate goal for pain relief?
g) When should I ask for pain medication?
h) How soon after I take medicine should my pain be relieved?
i) Will I become addicted to the pain medicine?
j) How can my pain be controlled?
k) What medications are used for pain control (which am I going to have)?
l) How will my pain medications be given?
m) What are some non-medication methods of pain management?

LOCAL ANESTHETICS

Are effective when administered by local, regional, epidural or intrathecal injection or infusion.

In combination with other agents (e.g., opioids), may have prolonged duration of action.

Allergic reaction occur mainly with the ester local anesthetics.

Patients with cardiac disease, hypothyroidism, or other endocrine disease may be more susceptible to toxic effects of local anesthetics.

GLUCOCORTICOIDS

Are potent anti-inflammatory agents used as adjunctive agents for short term prevention of certain types of postoperative pain.

Dexamethasone has antiemetic effects that may be beneficial in management of postoperative nausea or vomiting (PONV).

May increase risks of infection and delayed wound healing.

OPPIODS

- Safe and effective for postoperative pain control and can be used safely with other agents and techniques.
- No significant risk of addiction with short-term use for postoperative pain management. Addiction is often a concern of patients and should be addressed preoperatively.
- There is no ceiling dose for agonist opioids; dose should be determined by patient response.
- Respiratory depression should not be a concern if appropriate dosing, routes, and frequency are used with adequate patient monitoring.
- Opioids have significant side effects that can be modified by dose, route, and adjunctive agents.
- Longer-acting and safer alternatives to meperidine exist. If meperidine is indicated, its use should be restricted to the recovery room or limited to less than 12 h, in doses less than 600 mg/24 h.

ACETAMINOPHEN (APAP) & NSAIDS

- APAP & NSAIDs are effective for postoperative pain, but are often not sufficient as sole agent for major surgery.
- APAP & NSAIDs often decrease opioid requirement and improve analgesia.
- NSAIDs often increase bleeding time.

For patients who are unable to tolerate routine use of NSAIDs, APAP can also be used as an opioid-sparing adjunct.

Avoid the use of NSAIDs in the following situations:
- Hypersensitivity to NSAIDs
- Peptic ulcer disease
- Significant renal impairment.
- Ongoing bleeding

PHARMACOLOGIC INTERVENTIONS & PATIENT EDUCATION

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a) Have you been told how your pain will be managed postoperatively?
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- Dexamethasone has antiemetic effects that may be beneficial in management of postoperative nausea or vomiting (PONV).
- May increase risks of infection and delayed wound healing.

Give the patient: Written plan for pain management
### How to Use This Table

1. **Select operation from column 1, “Type of surgery by body region”. If your operation is not exactly listed, pick one that is close to it.**
   - For example, for a patient having a colon operation the appropriate choice would be “laparotomy”.

2. **Examine options on horizontal axis. Factors to consider:**
   - Evidence rating—i.e., is it the best available?
   - Patient factors
     - Patient motivation or desire
     - Medical conditions (example: anticoagulation)
   - Institutional factors
     - Who will implement choice?
     - Is specialized equipment available?
     - Are the appropriate practitioners available?
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3. **Additional considerations and suggestions can be found under the pharmacologic, non-pharmacologic and intervention sections.**

### SUMMARY TABLE: SITE-SPECIFIC PAIN MANAGEMENT INTERVENTIONS

<table>
<thead>
<tr>
<th>Pharmacologic Therapy (Route)</th>
<th>Non-Pharmacologic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of surgery by body region</td>
<td>Comments</td>
</tr>
<tr>
<td>PO</td>
<td>IM</td>
</tr>
</tbody>
</table>

#### 1. Head and neck
- **OP** = Opioids
- **NS** = Non-steroidal anti-inflammatory drugs
- **CS** = Corticosteroids
- **E** = Epidural
- **T** = Transdermal
- **LA** = Local Anesthetics
- **C** = Corticosteroid

**Possible Use**

- **Common usage based on consensus** (QE = 1; R = A)
- **Preferred based on evidence** (QE = 2; R = B)
- **Rarely used** (QE = 3; R = C)

### Common Use

- **Bleeding is not contraindication for COX-2 inhibitors**
- **Use of cognitive therapy is patient-dependent rather than procedure-dependent**

### Indications for Use

- **Bold/Shaded**: Preferred based on evidence (QE = 2; R = B)
- **Italicized/Bold**: Common usage based on consensus (QE = 1; R = A)
- **Plain Text**: Possible Use

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### Cutting Guides

- **Type of surgery by body region**
  - **PO** = Percutaneous intervention
  - **IM** = Intramuscular
  - **IV** = Intravenous
  - **Epidural** = Intrathecal
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