Pain Management Lab

Definition of Pain: “Pain is whatever the experiencing person says it is existing whenever he or she says it does.” – Margo McCaffrey, R.N.

TREATMENT OF PAIN

WHO ANALGESIC LADDER

The analgesic ladder developed by the WHO recommends a practical three-step pharmacological approach to pain management.

Source: http://www.who.int/cancer/palliative/painladder/en/

MEDICATIONS PRESCRIBED ACCORDING TO STEP

“Adjuvants” refers either to medications that are co-administered to manage an adverse effect of an opioids, or to so-called adjuvant analgesics that are added to enhance analgesia.”

Source: Adapted from WHO, 1986.


See stepwise treatment approach in appendix

TREATMENT OF SURGICAL PAIN

AHCPR – (Federal Agency for Health Care Policy and Research), in 1992 developed a comprehensive set of post-op pain management guidelines. These emphasize patient-specific analgesic plans, frequent pain assessments and documentation and the aggressive use of pharmacologic and non-pharmacologic therapies. Around-the-clock dosing is preferable to giving pain meds on request because preventing pain is easier than treating pain once it has occurred.
1. **Patient-controlled analgesia:** allows patients to self-administer small continuous doses of IV narcotics, as they feel the need.

**Advantages:**
1. better pain control: more constant serum levels of narcotic avoids peaks and troughs
2. less sedation and respiratory depression
3. fewer post-op complications
4. saves nursing time
5. increases patient autonomy

**Selection of Patients**
1. Adequate renal, hepatic and respiratory function
2. Alert and oriented
3. Able to demonstrate an understanding of the system and how to use it
4. Motivated to use PCA
5. No allergy to the narcotic
6. Covered by insurance
7. Research shows that addicted patients don’t misuse PCA. In fact PCA may lessen opioid demand and obviate drug seeking behavior.

**Components of System**
1. Infusion pump with a chamber that houses the pre-filled syringe of narcotic (obtained from pharmacy and stored in narcotic cabinet).
2. Timing unit linked to a switch or button that is activated by patient to deliver a preset dose of medication (ordered by physician).
3. Tubing that delivers the medication from the pre-filled syringe through the timing unit to an indwelling IV.
Definition of Terms

Refer to and review attached Sample Physician Orders, Patient-Controlled Analgesia in back of packet

Initial Bolus Dose:

PCA Dose:

Delay Time:

One Hour Limit:

Basal Rate:

### Common Drugs and Dosing For PCA Pump (See sample orders in appendix)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Common Concentrations In mg. per ml.</th>
<th>PCA dose</th>
<th>Delay time</th>
<th>Basal Rate</th>
<th>Onset</th>
<th>Duration</th>
<th>Sample One Hour Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>1 mg. per ml. 100mg in 100mL</td>
<td>1-3 mg PCA dose</td>
<td>6-10 minutes</td>
<td>Starting basal rate 0-1 mg/hr</td>
<td>immediate</td>
<td>4-5 hr.</td>
<td>4-20 mg 4-20 ml</td>
</tr>
<tr>
<td>Dilaudid (Hydromorphone)</td>
<td>0.2mg per mL. 20mg in 100 mL</td>
<td>0.1-0.3 mg PCA dose</td>
<td>6-10 minutes</td>
<td>Starting basal rate generally 0.2 mg/hr.</td>
<td>10-15 minutes</td>
<td>2-3hrs.</td>
<td>1.2mg. 6 ml</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>10 mcg/ml</td>
<td>10-30 mcg PCA dose</td>
<td>6-10 minutes</td>
<td>0-10 mcg/hr</td>
<td>1-2 minutes</td>
<td>0.5 to 1 hour</td>
<td>50 mcg-200 mcg limit 5-20 ml</td>
</tr>
<tr>
<td>Meperidine*</td>
<td>10 mg/ml</td>
<td>10-30 mg PCA dose</td>
<td>6-10 minutes</td>
<td>0-10 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Meperidine generally not prescribed or formulary when alternatives are available due to increased incidence of seizure secondary to normeperidine metabolite.


Complications and Side-Effects

Respiratory Depression
Hypotension
Sedation
Urinary retention
Constipation and others

Nursing Responsibilities

1. Patient Education – Teach patients during pre-op period when they are not sedated (e.g.-pre-op testing area, physician’s office) and include the following:

   a. harmful effects of unrelieved pain
   b. goals of PCA therapy
   c. use of a pain rating scale to maintain a comfort level
   d. how to use the PCA pump
   e. built-in safety parameters of the pump to alleviate fear of overdose
   f. how adverse effects will be managed
2. Patient assessment (refer to attached Acute Pain Management Medication Record). Common frequency of assessment: assess with first dose given every 10 minutes, then every 2 hrs. for 8 hrs., then every 4 hrs.

3. Documentation on PCA medication as per agency policy. (refer to attached Acute Pain Management Medication Record in appendix).

4. During assessments, check the settings on the pump for accuracy and the history on the pump for the number of attempted injections and the number that were actually delivered. An excessive number of dosing attempts may indicate medication needs to be increased or changed, prescribed dosing interval should be adjusted or that the patient needs to be re-educated. (Most machines provide print outs of above information).

II. **Epidural Analgesia:** Injection of narcotics via a catheter directly into the epidural space (between the lining of the vertebral canal and the dura mater of the spinal cord).

**Advantages**
1. Relief of severe pain with low blood levels of the drug, as narcotics act directly on spinal receptors.
2. Less CNS depression.
3. Fewer post-op complications, as patient mobile sooner.
   - Refer to the attached Epidural Physician Order Sheet.

**Dosing Schedules**
- **Single doses:** one dose (usually morphine) given after procedure. Respiratory depression can occur for up to 24 hours after dose of morphine.
- **Intermittent doses:** narcotic injected into catheter at physician specified intervals.
- **Continuous dosing:** continuous infusion of narcotic into catheter using a volume controlled infusion pump for dose accuracy. Patient is commonly cared for on med/surg units and must be monitored closely.

**Common Drugs and Dosing Opioids** *all must be free of preservatives*

<table>
<thead>
<tr>
<th>Drug</th>
<th>Common Concentration In mg per ml</th>
<th>Dose Infusion Rate per hr.</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>10mcg. Per ml. 1mg (1000mcg) in 100 ml</td>
<td>50-100mcg per hr. (5-10 ml. per hr.)</td>
<td>10-15 minutes</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td>Preservative Free Morphine Duramorph Astramorph</td>
<td>1 mg. per ml. (100 mg in 100 ml)</td>
<td>2-5mg per hr. (2-5ml per hr.)</td>
<td>30-60 minutes</td>
<td>* 6-24 hrs.</td>
</tr>
</tbody>
</table>

**Local Anesthetics**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidocaine (xylocaine)</td>
<td>15 minutes</td>
<td>80-180 minutes</td>
</tr>
<tr>
<td>Rupivacaine (Marcaine)</td>
<td>10-20 minutes</td>
<td>60-90 minutes</td>
</tr>
</tbody>
</table>

*Because of lingering effects of Fentanyl and especially morphine, IV access must be maintained for 24 hrs. after the epidural analgesia has been stopped and no other narcotics or CNS depressants can be given except as prescribed by the clinician or anesthetist responsible for the epidural analgesia.
Potential Complications

1. **Neurotoxicity** from accidental administration and IV medications or solutions into an epidural catheter. Use “epidural catheter” labels for bag of epidural narcotic solution, tubing and pump. Tape all ports.
   Use no alcohol to clean ports during tubing changes, as alcohol is neurotoxic.
   (Betadine acceptable).

2. **Respiratory Depression**
   Assess for change in LOC: note sedation scale and respiratory rate on epidural analgesia flow sheet every 1 hr., stimulate patient as necessary. Pulse oximetry and apnea monitors as ordered.
   Have naloxone (narcan) 0.4mg/ml. (one ampule) available. Administer as per agency policy (e.g. 0.08 mg, in increments to a total dose of 0.4mg until respirations are satisfactory. If too much naloxone is given or it is given too quickly, analgesia will be reversed.

3. **Catheter Dislodgement or Migration**
   a. Catheter secured with dressing, no sutures, taped up back and over shoulder.
   b. Check site as per agency policy for leakage.
   c. Prevent kinks, pulling on catheter.
   d. Headache and motor and sensory losses in legs can indicate migration of catheter into subarachnoid space.
   e. HOB 30 degrees, as medication may migrate towards head.

4. **Hypotension**
   Vital signs monitored as per agency policy on epidural analgesia flow sheet.

5. **Urinary Retention** (side-effect of opiate by any route)
   Monitor I+O, palpate bladder.
   Most common in men in the first 24-48 hrs.
   Less of a problem in post-op patients, as usually have a retention catheter.

6. **Pruritis** (common side-effect of epidural opiates)
   Benadryl (Diphenhydramine) 25 mg IV or PO q 6 hr is frequently ordered.

7. **Nausea and Vomiting** (side-effect of opiates by any route)
   Frequently managed with:
   Droperidol (Inapsine) IV/IM (tardive dyskinesia) especially with 2 or more doses
   Metoclopramide (Reglan) IV
   *assess for extra pyramidal reactions
   Ondansetron Hydrochloride (Zofran) IV
   Dolasetron (Anzemet) IV

8. **Infection** (relatively uncommon)
   Can occur with permanent, tunneled catheters at suture sites during healing. Those catheters used for management of chronic pain. Assess sites and temperature.
   Epidural catheter site: Anything more than slight erythema should be reported.
9. **Break-Through Pain** – Toradol (NSAID) frequently ordered by anesthesiologist.

10. **Epidural Hematoma**
   More common in patients receiving anti-coagulants. If severe back pain or change in sensory or motor function occurs - call anesthesiologist immediately.

11. **Sympathetic Blockade**
   Can be caused by local anesthetics. Assess for vasodilation, hypotension and motor blockade.

### III. Morphine Drips

1. High dose morphine is the drug of choice for severe acute and chronic pain (e.g. cancer) because it can be administered by all routes, is metabolized quickly and completely and is economical.
2. When the morphine dose is increased **gradually** there’s **no** ceiling on the amount the patient can receive. The dose should be as high as necessary to relieve the pain without causing unacceptable adverse reactions: respiratory depression, sedation, nausea and vomiting, constipation. The patient works up to the high-dose needed for pain relief.

**Route for severe pain:**

**Continuous IV infusion**
Morphine drips are commonly in a concentration of 1 mg in 1 ml.

Hourly doses start at 0.8-1.0 mg per hr. and have been used at doses of 15-20 mg per hr. when needed.
*Use infusion pump.

**Extended-release preparations:**
Oral preparations taken every 8 hr. (Roxanol) or every 12 hr. (MS Contin). Ordered around the clock.
*Do not chew, break or crush. **Swallow whole.**

### IV. Continuous Local Anesthesia

1. Excellent postoperative pain control can be achieved by infusing a local anesthetic, subcutaneously into or near the incision site postoperatively, to block nerve conduction.
2. Postoperatively the surgeon inserts a 20-gauge epidural type catheter under the subcutaneous tissue and on top of the fascia or muscle adjunct to or in the wound. A transparent dressing is applied.
3. A long acting local anesthetic such as 0.25% bupivacaine or 0.2% ropicaine is administered continuously in the subcutaneous tissue via an infusion.
4. This method of pain relief has been used in shoulder repair, knee arthroplasty, abdominal hysterectomy, hernia repair and mastectomy.

**Advantages**
1. Provides uninterrupted pain relief
2. Reduces opioid requirements
3. Avoids adverse effects of opioids such as sedation and respiratory depression that are common with conventional administration methods.

**Nursing Responsibilities**
1. Keep catheter site clean and dry and maintain intact dressing to prevent catheter dislodgement. The dressing is not usually changed.
3. Assess for signs of drug toxicity.
   a. Dizziness
   b. Tinnitus
   c. Metallic taste
   d. Perioral anesthesia
   e. Twitching, tremors

*Low doses of the subcutaneous infusion of local anesthetic are not likely to produce symptoms.
4. Teach patient use of pump and catheter care if he is discharged with continuous local anesthesia. Call the patient the day after discharge to assess the quality of pain relief and the presence of adverse effects.

V. Fentanyl Transdermal Patch (Duragesic)

Drug slowly absorbed producing relatively constant blood levels over a long period. Used for chronic, severe pain. Available in 25, 50, 75 and 100 mcg/hr. patches.

Put on flat area of upper torso-can be worn for 72 hrs.

At home disposal: flush down toilet so any residual drug not a hazard to children and pets.

VI. Opioids and the Elderly

A number of factors that affect distribution of drugs are altered by age. There is a decrease in muscle and soft tissue mass and an increase in the proportion of body fat. Renal and liver function also decrease in the elderly. As a result, elderly patients may experience a higher peak effect and a longer duration of pain relief from an opioid. Also, drug accumulation and toxicity can occur more often in the elderly. It is therefore best to start with 25% to 50% of the recommended adult dose and titrate upward slowly as needed.

VII. Non-opioids for pain relief.

*Acetaminophen (Tylenol)
*Nonsteroidal anti-inflammatory drugs (NSAIDS) e.g. Advil, Toradol, Aleve

VIII. Adjuvants (given with pain relieving drugs)

*Tricyclic anti-depressants e.g. Elavil
*Anticonvulsants e.g. Tegretol, Dilantin
*Multi-purpose e.g. Decadron, Ritalin
IX. TENS (Transcutaneous Electrical Nerve Stimulation)

Battery-operated unit with electrodes applied to skin to produce a tingling, vibrating or buzzing sensation in the area of pain. Believed to decrease pain by stimulating non-pain receptors in the same area as the fibers that transmit the pain. Consistent with the Gate Control Theory of Pain, this blocks transmission of pain signals to the brain.

X. Other Non-Pharmacological Techniques

*Positioning
*Heat or cold
*Music, distraction, imagery, relaxation techniques
*Accupressure
*Massage
*Therapeutic touch

XI. The Dying Patient in Pain (See sample nursing management guide in Appendix)

If we agree that patients have a right to effective pain relief, then nurses have a duty to advocate relief and they harm patients when they ignore the duty. Nurses often are not applying the guidelines of the Agency for Health Care Policy and Research even though they are familiar with them.

With dying patients, nurses may fear they are hastening death with pain medication but patients are harmed when they are left to suffer. When patients die in pain unwillingly, it is an ethical problem.

The ANA (American Nurses’ Association) Position Paper states that nurses should not hesitate to use full and effective doses of pain medication for proper management of pain in the dying patient. If death is hastened it is an unintended result of the action.
Bibliography


Browsing the Web for Pain Management Information

Try these sites:
Community-Wide End-of-Life/Palliative Care Initiative
http://www.compassionandsupport.org/index.php/for_professionals/pain_management

Agency for Health Care Policy & Research (AHCPR)
http://www.ahcpr.gov

American Pain Society
http://www.ampainsoc.org

The Cancer Pain Page
http://www.mdacc.tmc.edu/acc
Recognizing Pain Management as a Human Right: A First Step, http://www.anesthesia-analgesia.org/cgi/content/full/105/1/8

Misprogram a PCA pump? It's easy! ISMP Medication Safety Alert Retrieved from
http://www.ismp.org/newsletters/acuteacare/articles/20040729_2.asp
# APPENDIX

**PHYSICIAN'S ORDERS**

**ADDRESSOGRAPH** Single/Continuous Dose Epidural Narcotic Orders

<table>
<thead>
<tr>
<th>Date/Time: ___________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single Dose</strong></td>
</tr>
<tr>
<td>Drug: ___________________________ Dose: ___________________________ Time: ___________________________</td>
</tr>
<tr>
<td><strong>Continuous Drip</strong></td>
</tr>
<tr>
<td>Drug: ___________________________ Concentration: ___________________________ /ml</td>
</tr>
<tr>
<td>Start at: ___________________________ ml/hr Range: ___________________________ ml/hr</td>
</tr>
<tr>
<td>May increase by _______________ ml/hr</td>
</tr>
</tbody>
</table>

Head of bed: Maintain elevation greater than or equal to 30 degrees. If there is no postural hypotension, patient may be out of bed.

Activity: As per surgeon's orders

Vital Signs: As per surgeon's orders with respiratory rate and level of sedation q1h (continue q1h x 6 hours after drug discontinued)

I.V. Access: (Drip or IV Lock): Maintain for 24 hours after last dose of epidural or spinal narcotic

Narcan (Naloxone) 0.4 mcg/ml must be immediately available from medication room

Treatment of respiratory rate less than or equal to ________________/min: Narcan __________mg IV push: If no improvement repeat x __________ q __________min

Narcan I.V. infusion for prophylaxis against respiratory depression

[ ] Yes [ ] No Naloxone 2mg/500ml Normal Saline (4mcg/ml)

_______ ml/hr for _________ bottles

Treatment of Nausea/Vomiting:

[ ] Yes [ ] No Droperidol __________mg IM q __________ h pm x __________

[ ] Yes [ ] No Reglan __________mg IVPB q8h pm x __________

[ ] Yes [ ] No Transderm Scop patch over the mastoid area x 72 hours

Treatment of Itching:

[ ] Yes [ ] No Naloxone 0.2mg IV push q __________h pm

[ ] Yes [ ] No Benadryl __________mg IM q __________h pm x __________

[ ] Yes [ ] No Benadryl cream 2% topically

Treatment of Urinary Retention:

[ ] Yes [ ] No Catheterize pm if patient has not voided in __________ hours

[ ] Yes [ ] No Foley

No systemic narcotics, sedation, tranquilizers or antihistamines to be given. Except as ordered by anesthesiologist.

Narcotics: 1. ___________________________ Begin on __________/ __________/ _________ at _________ am/pm

or __________ hours after epidural drip is discontinued

No other narcotics, sedatives, tranquilizers or sleeping medications until:

_______/ _________/ _________ at _________ am/pm

Notify anesthesiologist on call if patient experiences:

Confusion or inability to be awakened

Respiratory rate less than or equal to 7/min.

Inadequate analgesia when top of infusion range reached

Pruritus not diminished by above ordered modalities

Physician’s Signature

__________________________ M.D.
**PHYSICIAN ORDER FORM**

**PHYSICIANS:** All orders should be written generically and using the Metric System; include the physician's signature, PRINTED name, ID Number, pager number and the date/time. A generic and therapeutically alternative drug as approved by the P & T Committee may be dispensed unless the order is specifically designated “Dispense as Written”.

Form Approved by Medical Record Informatics Technology Committee: **(Revision 12/04)**

FAX □ TITLE: **STANDARD IV PATIENT CONTROLLED ANALGESIA (PCA) ORDER FORM**

**Adults and Children over 5 years of age**

MUST USE STANDARD IV PCA DEVICE.

<table>
<thead>
<tr>
<th>DATE</th>
<th>PCA ORDERS MUST BE RENEWED EVERY 48 HOURS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>(PLEASE CIRCLE OR CHECK APPROPRIATE ORDERS AND FILL IN BLANKS AS NEEDED)</td>
</tr>
</tbody>
</table>

**DIAGNOSIS:**

**PATIENT WEIGHT (kg):**

**ALLERGIES:**

1. PCA is being managed by (check):
   - [ ] ACUTE PAIN SERVICE
   - [ ] Service: __________________________
   - Pager 806-9414
   - Pager __________________________

2. PCA indication:
   - [ ] Postoperative Pain
   - [ ] Cancer-related Pain
   - [ ] Other __________________________

3. Drug:
   - [ ] Morphine 1 mg/ml
   - [ ] Hydromorphone 0.2 mg/ml
   - [ ] Fentanyl 10 mcg/ml

4. Continuous infusion rate: ml/hr (See guidelines and policy)

5. Demand dose: ________ ml (Maximum dose = 4 ml)

6. Demand dose lockout: ________ (Time delay between doses)

7. One hour limit: ________ ml (Maximum dose = 12 ml)

8. Reservoir volume: 50 ml (Use 25 ml bag if patient < 20 kg)

9. Adjuvant analgesic in addition to IV PCA (CHECK BOX AND CIRCLE DOSE BELOW):
   - [ ] Acetaminophen 650 mg OR 1000mg OR _________mg po q6h for pain.
   - [ ] Other __________________________

10. NURSING:
   - monitor and record respiratory rate and level of consciousness every two (2) hours times 12 hours
   - upon PCA initiation or dose change, then every four (4) hours
   - record pain location and intensity every four (4) hours
   - Naloxone is located in the ACCUDOSE or CRASH CART if needed
   - notify HOUSE OFFICER STAT, if respiratory rate < 10/min, unable to arouse patient, or change in mental status

Patient is on a patient-controlled analgesia device. All physician orders for additional opioid (narcotic) analgesics or sedative/hypnotics must be written as:

“IN ADDITION TO CURRENT IV PCA, give _________mg of ___________ IV or PO.”

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
</tr>
</thead>
</table>

**Physician Computer ID #**

**Physician SIGNATURE:**

**PRINT Physician NAME:**

**Beeper #:**

**Unit Secretary SIGNATURE:**

**TIME Sent to Pharmacy:**

**RN SIGNATURE:**
**EPIDURAL P.C.A ADMINISTRATION FLOW SHEET**

Drug(s): ___________________________________________________________

Concentration: ___________________ Total Volume: ___________

State university of New York
UNIVERSITY HOSPITAL
AND MEDICAL CENTER
Stony Brook, New York 11794

Epidural Initiated Date: ______________ Time: ___________ Unit: ___________

Initiating R.N. Signature/ID# ______________________________ CSAR Sheet No: ___________

Epidural Initiating M.D. Signature/I.D.#

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>BOLUS</th>
<th>CONTINUOUS</th>
<th>EPIDURAL PCA/DOSE</th>
<th>DELAY INTERVAL</th>
<th>TOTAL ML DELV’D</th>
<th>PULSE</th>
<th>RESP. RATE</th>
<th>B/P</th>
<th>PAIN SCORE</th>
<th>SL**</th>
<th>0-10</th>
<th>COMMENTS</th>
<th>NURSE SIGNATURE/ID#</th>
</tr>
</thead>
<tbody>
<tr>
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TOTAL ML WASTED _________________________

*PAIN SCORE CODE:  
0 = No Pain
10 - Worst Pain

**SEDATION LEVEL SCORE:  
0 = No Sedation
10 = Cannot stay Awake
# Principles of Pain Management: Adult Guide

## Assessment and Diagnosis

All patients should be screened for pain. Once identified, a complete assessment, including physical, emotional, and spiritual components, is necessary to determine cause of pain and appropriate therapy.

### History: Assess
- **Onset:** location, quality, intensity, temporal pattern, aggravating and alleviating factors, associated symptoms
- **Characteristics of pain:**
- **Previous methods of treatment:**
- **Other medical and surgical conditions:**
- **Substance use:**

### Psychosocial History: Assess
- **Depression:** anxiety, PTSD, sleep pattern, suicide risk
- **Impact on quality of life:** ADL’s & performance status
- **Patient, family, and caregiver’s cultural and spiritual beliefs:**
- **Secondary gain:** psychosocial/financial

### Assessment
- **Order and evaluate appropriate diagnostic testing:**
  - Evaluate pain on all patients using the 0-10 scale:
    - A. mild pain: 1-3
    - B. moderate: 4-7 (interferes with work or sleep)
    - C. severe: 8-10 (interferes with all activities)

### Wong-Baker Faces Pain Rating Scale

```
<table>
<thead>
<tr>
<th>No Hurt</th>
<th>Hurts Little Bit</th>
<th>Hurts Little More</th>
<th>Hurts Even More</th>
<th>Hurts Whole Lot</th>
<th>Hurts Worst</th>
</tr>
</thead>
</table>
```

**Diagnostic pain:** localized; ache, throbbing; or gnawing
- **Visceral pain:** often referred, cramp, pressure, deep ache, squeezing
- **Neuropathic pain:** burning, electric shock, hot, stab, numb, tingling

**Malignant pain:** associated with cancer, HIV
- **Non-malignant pain:** e.g. arthritis or muscular-skeletal disorders

**Acute Pain:** 1 HR, HBP, diaphoresis, pallor, fear, anxiety

**Chronic pain:** sleep difficulties, loss of appetite, psychomotor retardation, depression, relationship change

## Treatment

### Goals
- **Rx acute pain aggressively to avoid chronic pain**
- **Rx chronic pain thoughtfully and systematically**
- **Identify and address the cause of pain**
- **Maintain alertness, ability to function safely/ productively**
- **Allow emergence of feelings other than pain**
- **Interve ce noninvasively as possible**
- **Negotiate target with patient**

### Non-Pharmacological Therapy
- **Patient / Family Education**
- **Cognitive Behavioral Therapy; Supportive Counseling**
- **Chiropractic Care; Osteopathic Manipulation; Massage**
- **Physical Therapy/Exercise: Tai Chi, Qi Gong, Yoga**
- **Cutaneous Stimulation: Ice, Heat, Capsaicin**
- **Stimulation:** TENS, Biofeedback, Reiki
- **Relaxation Techniques:** Emotional, Physical
- **Meditation:** Prayer, Spiritual, Pastoral Support
- **Visualization/Interactive Guided Imagery**

### Pharmacological Therapy
- **Use WHO/ACOG step care as “ramp”**
- **Use adjuvant therapies prn**
- **Avoid Demerol (meperidine) & Darvon (propoxyphene)**
- **Use care with combinations (acetaminophen/ASA)**
- **Use short acting meds for acute pain exacerbation**
- **Switch to long acting meds when pain stabilized**

### For chronic moderate or severe pain
- **Give baseline long acting med around the clock**
- **For breakthrough, give 10% of total daily dose as prn**
- **PRN interval:** 1-2 h oral, and 30-60 min parenteral
- **Adjust baseline upward based on total amount of prns**
- **When converting from one opioid to another, reduce total dose by 1/3-1/2 to account for incomplete cross tolerance**

### Anticipate side effects
- **Prevent constipation:** start serena, sorbitol
- **Mental impairment:** avoid driving/hazardous situations until side effect profile stabilizes; reassess safety for self/others periodically
- **Nausea:** Rx with antiemetics or change meds
- **Pruritus:** Rx with antihistamines or change meds
- **Myoclonus:** Rx with benzodiazepine or change meds

## Management and Monitoring

### General
- **Reassess regularly**
- **Measure “5th vital sign” using tools (i.e., numeric scale, face scale); respond urgently to pain 8 or more**
- **Follow amount and duration of response**
- **Assess performance status**
- **Partner with patient/family in setting goals of care**
- **Balance function vs. complete absence of pain**

### Acute Pain
- **Refer early to appropriate specialist or Pain Center, if diagnosis unclear or pain refractory to treatment**

### Chronic, "Non-malignant" Pain
- **Set realistic chronic care goals**
- **Transition from passive recipient to patient-directed management of therapies**

### "Malignant" Pain
- **Refer "difficult to treat" cases to MD with Palliative Care expertise; Opioid substance abuse, neuropathic pain, rapidly escalating opioid doses**

### Neuropathic Pain
- **Use anti-epilepsy drugs (AED’s) first**
- **Use step 2 or 3 drug to help Rx**

### Special Situations
- **Anxiety and depression**
  - **Refer to Depression Principles**
- **Verbally Noncommunicative Patients**
  - Infants, children & cognitively impaired all feel pain
  - Evaluate patient’s non-specific signs: noisy breathing, grunting, teeth, crying, agitation

### Elderly, renal or hepatic disease
- **Start at ½ usual dose**
- **Watch carefully for toxicity from accumulation**

### Patients with substance abuse history
- **May need higher starting dose (tolerance)**
- **Use prescribing contracts for outpatient use**
- **N.B. Addiction is very rare when opioids are used for pain in patients with no prior substance abuse hx**

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Step 1: Treatment of Mild Pain (Score of 1-3)

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Practical Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen (APAP)</td>
<td>NOT anti-inflammatory, excess alcohol intake risks hepatotoxicity, can interact with warfarin, chronic users of aspirin or acetaminophen: renal dysfunction.</td>
</tr>
<tr>
<td>Salicylates (ASA)</td>
<td>Inhibits platelet aggregation; possible post-op bleeding, heparin/renal impairment; GI ulcers, increased risk of bleeding with warfarin; monitor level (150-300 ug/ml)</td>
</tr>
<tr>
<td>Non-steroidal anti-inflammatory drugs</td>
<td>GI bleeding, nausea; can increase likelihood of renal impairment in patients with HTN, CHF; administer with food; cost varies</td>
</tr>
<tr>
<td>Cox-2 anti-inflammatory</td>
<td>Caution in patients with cardiovascular (CV) disease or at risk for CV disease. Avoid Celebrex® with known sulfa allergy</td>
</tr>
</tbody>
</table>

Step 2: Treatment of Moderate Pain (Score of 4-7), pain not alleviated with medicine from Step 1, and/or if pain worsens

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Practical Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine 30 with APAP; Oxycodone 5 with ASA or APAP; Hydrocodone 5 with APAP</td>
<td>Total dose limited by Acetaminophen: max 4 grams/24 hrs. Lower threshold for Elderly. Counsel patients on OTC additives.</td>
</tr>
<tr>
<td>Tramadol</td>
<td>Not 1st line</td>
</tr>
</tbody>
</table>

Step 3: Opioid Treatment of Moderate-Severe Pain (Score of 4-10), pain not alleviated with medicine from Step 2, using Equianalgesic Dosing

<table>
<thead>
<tr>
<th>MEDICATION (currently NYS requires tricarboxylic*)</th>
<th>EQUIANALGESIC DOSE IM/IV (onset 15-30 min)</th>
<th>PO (onset 30-60 min)</th>
<th>USUAL STARTING DOSES for ADULT ≥50KG *</th>
<th>PARENTERAL</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORPHINE*</td>
<td>10mg</td>
<td>30 mg</td>
<td>5-10 IV/SC q3-4h (+ 2.5-5 mg)</td>
<td>15-30 mg q3-4h (IR or Oral soln.) (+ 5-15 mg)</td>
<td>Oral sol. (2 mg/ml); Conc. (20 mg/ml) can be given buccally. MSIR® (Morphine Immediate-Release tablets - 15, 30 mg) Morphine sustained-release (15, 30, 60, 100, 200 mg) q12h Use cautiously in severe renal disease</td>
</tr>
<tr>
<td>OXYCODONE*</td>
<td>Not Available</td>
<td>20 mg</td>
<td>Not Available</td>
<td>10 mg q4-6h (+ 5 mg)</td>
<td>Dry IRB (Oxycodone Immediate-Release tablets - 5 mg) Oxycodone® (Oxycodone sustained-release 10, 20, 40, 80 mg) q12h Pentoxy® (oxycodone/APAP; 25, 525, 5/325, 7.5/500, 10/650 mg); monitor acetaminophen dose</td>
</tr>
<tr>
<td>HYDROMORPHONE (Dilaudid®)*</td>
<td>1.5mg</td>
<td>7.5 mg</td>
<td>1-2 mg IV/SC q3-4h (+ 0.5-1 mg)</td>
<td>4-8 mg q3-4h (+ 2-4 mg)</td>
<td>Tablets (2, 4, 8 mg); Oral liquid (5 mg/5ml) Preferred for patients with renal disease</td>
</tr>
<tr>
<td>METHADONE*</td>
<td>10 mg</td>
<td>20 mg</td>
<td>10 mg SC q6-8h 2.5 mg IV</td>
<td>5-10 mg q12h (+ Seek consultation)</td>
<td>Inexpensive. May help with myoclonus, neuropathic pain. Variable duration between individual. (Refer to Methadone Dose Conversion Guidelines) Start doses q12h &amp; increase gradually. Accumulates with repeat dosing (Days 2-5) - Conversion does complex - consult Palliative Care or Pain Specialist</td>
</tr>
<tr>
<td>FENTANYL* ($5) (DuraTears patch®)</td>
<td>100mcg (Single Dose) 25mcg/hr = 90 mg MS 50mcg/hr = 180mg MS</td>
<td>50 -100 mcg IV q1-2h (+ 50 mcg)</td>
<td>25 mcg/hr q72h (transdermal)</td>
<td>Transdermal: See PDF for details of dose transition; include short-acting supplement for breakthrough pain, 12-hour delay onset and offset with patch.</td>
<td></td>
</tr>
<tr>
<td>CODEINE*</td>
<td>120 mg</td>
<td>200 mg</td>
<td>30 mg IV/SC q3-4h (+15mg) IV Contraindicated</td>
<td>30-50 mg q3-4h (+ 15-30 mcg)</td>
<td>Codeine alone is Schedule II Rx Monitor total acetaminophen dose</td>
</tr>
<tr>
<td>HYDROCODONE (Vicodin®, Lortab®)</td>
<td>Not Available</td>
<td>30 mg</td>
<td>Not Available</td>
<td>5-10 mg q4-6h (+ 5mg)</td>
<td>Vicodin® (hydrocodone/APAP; 5/500 mg) Lortab® (hydrocodone/APAP: 25/500, 5/500, 7.5/500, 10/500 mg)</td>
</tr>
</tbody>
</table>

* "Usual starting doses" apply to opioid naïve patients, not to patients who have been on opioids and whose starting dose should take their usual consumption into account.

Avoid Demerol® (Meperidine) due to seizures.

Adjuvant Therapies

<table>
<thead>
<tr>
<th>Therapeutic Class/ Drug Name</th>
<th>Indication</th>
<th>Contraindications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tricyclic antidepressants: amitriptyline, imipramine, nortriptyline, desipramine</td>
<td>Neuropathic pain and chronic pain</td>
<td>MAC inhibitor Rx in the past 14 days; prolonged QRS; narrow-angle glaucoma</td>
</tr>
<tr>
<td>Other Antidepressants: citalopram, sertraline, paroxetine, fluoxetine, cymbalta</td>
<td>Neuropathic pain and depression</td>
<td>Numerous drug interactions; Neurontin does not affect other drug levels</td>
</tr>
<tr>
<td>Anti-epilepsy: gabapentin, phenytoin, carbamazepine, lyrica, pregablin</td>
<td>Neuropathic pain</td>
<td>Patients with CNS/respiratory depression; narrow-angle glaucoma</td>
</tr>
<tr>
<td>Antiarhythmics: mexiletine, tocainide</td>
<td>Neuropathic pain</td>
<td>Patients with CNS/respiratory depression; narrow-angle glaucoma</td>
</tr>
<tr>
<td>Benzodiazepines: diazepam, lorazepam</td>
<td>Skeletal muscle spasm, akathesia</td>
<td>Patients with CNS/respiratory depression; narrow-angle glaucoma</td>
</tr>
<tr>
<td>Antimuscle spasticity: lonasal/Baclofen®, cyclobenapine</td>
<td>Muscle spasm</td>
<td>Patients with CNS/respiratory depression; narrow-angle glaucoma</td>
</tr>
<tr>
<td>Anesthetics: Lidocain patch</td>
<td>Neuropathic pain</td>
<td></td>
</tr>
</tbody>
</table>
### Assessment and Diagnosis

“Pain is whatever the experiencing person says it is, existing whenever the experiencing person says it does” (McGaffey, 1999)

**History: Assess**
- Onset, location, quality, intensity, aggravating and alleviating factors, associated symptoms
- Characteristics of pain
- Previous methods of treatment
- Substance use
- General medical condition
- Impact of concurrent medical & surgical diagnoses

**Psychosocial History: Assess**
- Depression, anxiety, sleep pattern
- Impact on quality of life, ADL’s & performance status
- Patient, family, & caregiver’s cultural and spiritual beliefs

**Assessment:**
- Evaluate pain on all patients using the 0-10 scale:
  - A. mild pain: 1-3
  - B. moderate: 4-7 (interferes with sleep)
  - C. severe: 8-10 (interferes with all activities)

### Treatment

**Goals:**
- Rx acute pain aggressively to avoid chronic pain
- Rx chronic pain thoughtfully & systematically
- Identify & address the cause of pain
- Maintain alertness & function
- Allow emergence of feelings other than pain
- Intervene as noninvasively as possible
- Support target set by patient

**Non-Pharmacological Therapy**
- Patient/Family Education
- Cognitive Behavioral Therapy/Distraction
- Passive Range of Motion
- Massage
- Relaxation Techniques: Deep Breathing
- Meditation, Prayer, Spiritual & Pastoral Support
- Cutaneous Stimulation: Ice, Heat, Capsaicin
- Splinting
- Humor
- Visualization

**Pharmacological Therapy**
- Dispense medication as ordered using the 5 Rights:
  - dose
  - patient
  - time
  - medication
  - route
- Assess effectiveness of pain medication
- Addiction is rare in patients without abuse history when opioids are prescribed

**Pain Types:**
- Acute pain: often associated with tachycardia, hypertension, diaphoresis, pallor, fear & anxiety
- Chronic pain: often associated with sleep difficulties, loss of appetite, irritability, psychomotor retardation, depression, career/relationship change

### Management and Monitoring

**General**
- Reassess regularly for pain & pain relief
- Measure “5P vital sign” using tools (i.e. numeric scale, face scale): respond urgently to pain 8 or more
- Clearly document time medication is given & response to pain medication
- Assess ADL’s status
- Partner with patient/family in setting goals of care
- Balance function versus complete absence of pain

**SPECIAL SITUATIONS:**
- **Anxiety and depression**
  - Provide emotional support
  - Advocate for psychosocial consultation
  - **Verbally Noncommunicative Patients**
  - Infants, children & cognitively impaired patients may not be able to express level of pain
  - Evaluate patient’s non-specific signs of discomfort such as noisy breathing, grinding teeth, bracing, rubbing, guarding, crying, frightened facial expression, tense, fidgeting, reoccurring agitation (see pg. 8)

**Elderly/renal or hepatic disease**
- Meds start at ¼ usual dose
- Watch carefully for toxicity from accumulation

**Anticipate side effects:**
- Prevent constipation: senna, sorbitol
- Mental impairment: may occur; monitor for safety during home & work activities
- Consider risk to self & others as treatment & condition progresses
- Nausea: antiemetics may be used; may need new mod
- Pruritus: antihistamines may be used; may need new mod

**Pain Types:**
- “Malignant” pain: associated with cancer, HIV
- “Non-malignant” pain: e.g. arthritis or musculoskeletal disorders; may be acute or chronic

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Consensual guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines & principles should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs. Approved 6/2006; Next Scheduled Update by 6/2008