

Principles of Pharmacologic Management:

1. Base the initial choice of analgesic on the severity and type of pain: non-opioids for mild pain (rating 1-4); opioids, often in combination with a non-opioid, for moderate (rating 5-6) to severe (rating 7-10) pain. Neuropathic pain is not responsive to NSAIDs and may require an antidepressant or anticonvulsant drug.
2. Dose to ceiling of non-opioid if side effects permit. Increase opioid dose until pain relief is achieved or side effects are unmanageable before changing medications.
3. Administer drugs orally whenever possible. Avoid intramuscular injections.
4. Administer analgesics “around the clock” rather than prn.
5. Use balanced, multi-modal treatment plans when possible (regional techniques + nonopioid + opioid + adjuvant + nondrug methods). Avoid using multiple opioids or multiple non-opioids (drugs from the same class at the same time).
6. Anticipate and vigorously treat side effects.
7. Avoid dosing with meperidine (no more than 48 hours or at doses greater than 600mg/24 hours).
8. Addiction occurs very rarely in patients who receive opioids for pain control. Drug addiction, when suspected should be investigated and ruled in or out but not implied and “left hanging” because it interferes with pain management. The hallmarks of addiction include: a) compulsive use, b) loss of control, and c) use in spite of harm.
9. Do not use placebos to determine if the pain is “real”.
10. Assess pain, pain relief, and side effects frequently and adjust the dose accordingly. Change to another drug if side effects are unmanageable.

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Pain Management Reference

Principles of Pain Management:

1. **Ask patients about the presence of pain.**
2. **Believe the patient’s report of pain.** Patient’s self-report is the single most reliable indicator of pain. Take pain seriously even when you do not know its cause. Autonomic or behavioral signs of pain may be helpful when present, but are often absent.
3. **Assess the pain including:**
 - location, quality, intensity (patient’s self report using rating scale; e.g. 0-10, mild- moderate-severe), temporal characteristics, what makes the pain better or worse, how the pain affects function and quality of life
 - response to prior and present analgesic medications and non-pharmacologic interventions
4. **Perform a complete physical exam.**
5. **Treat the pain while completing the diagnostic evaluation.**
6. **If possible, determine the cause or mechanisms of the pain** (e.g. neuropathic, myofascial, inflammatory, etc.).
7. **Institute diagnosis-specific therapy.**
8. **Discuss with the patient realistic goals and limitations of pain therapy for the specific pain diagnosis.**
9. **Reassess, re-examine, and re-adjust therapy frequently until pain is adequately controlled.**

Opioid Equivalency Table

Equianalgesic doses are approximate. Individual patient response must be observed. Doses and intervals between doses are titrated according to the patient's response.

DRUG	Dose (mg)		Duration (hour)
	Parenteral	Oral	
morphine (IR)	10	30¹	3-4
hydromorphone (Dilaudid)	1.5	7.5	3-4
codeine	130	200	3-4
oxycodone (Roxicodone, *Percocet)	-	20-30	3-4
oxymorphone (Opana, Opana ER)	1	10	2-6
hydrocodone (**Vicodin, Lortab)	-	30	3-4
meperidine (Demerol)	100	300	2-3 ²
levorphanol (Levo-Dromoran)	2	4	6-8 ³
methadone (Dolophine) <i>See footnote #4 below</i>	1-2⁴	3-5⁴	6-8 ³
Fentanyl[†] (Sublimaze)(Duragesic)	0.1	topical 17 mcg/h	48-72

- 1 Available in extended release preparation with duration 8-12 hours and 24 hours.
 - 2 Meperidine is not recommended for chronic administration. Oral administration is not recommended.
 - 3 Risk of CNS depression with repeated use; accumulation in elderly or persons with impaired renal function with regular dosing, monitor for patient variability in duration of efficacy.
 - 4 **Caution!** The equianalgesic dose of methadone compared with other opioids **varies widely in patients on chronic opioids**. PO morphine : PO methadone ratio may range from **4:1 to 14:1**. For more detail see: <http://www.aafp.org/afp/20050401/1353.html>
- * Percocet may contain 5, 7.5, or 10 mg oxycodone per tablet.
 * Vicodin and Lortab may contain 5, 7.5 or 10mg of hydrocodone per tablet.
 * Morphine and hydromorphone are available in suppository form.
 † Oral transmucosal (Actiq) and buccal tablets (Fentora) are also available. See Fast Facts and in UConnect and package insert for information on dosing and approximate equianalgesia.

Equianalgesic calculations are NOT recommended for patients on brief therapy or for postoperative pain when converting from IV PCA to oral analgesia.

$$\frac{\text{Equianalgesic dose and route for currently administered opioid}}{\text{Total 24 hr dose and route for currently administered opioid}} = \frac{\text{Equianalgesic dose and route for desired new opioid}}{\text{Total 24 hr dose with route for desired new opioid*}}$$

Depending on situation, decrease new dose by 30-50%

Opioid Dosing/Titration Guidelines

These guidelines apply to patients with normal renal and hepatic function. For elderly patients, or those with renal/liver disease, dose escalation percentages may require reduction.

Oral:

1. Increase the dose until either analgesia or intolerable side effects occur by titrating upwards at increments of 25-100% at subsequent dosing intervals. Peak drug effect occurs within 1 to 1-1/2 hours after oral administration of short acting opioids. Therefore, it is safe for patients to take a second opioid dose for unrelieved pain 1 to 2 hours after the first dose if side effects are tolerable.

Intravenous Infusion:

1. Give a loading bolus dose at the start and with each increase in basal rate. Administer the loading dose slowly (2mg/min) and observe vital signs frequently after each loading dose;

- a. 100-150% of established starting hourly dose.

OR b. 0.03mg/kg of morphine or the equivalent dose of a similar opioid every 10 minutes until pain score is diminished by 50% on a numeric or visual analog scale. Then calculate the basal rate as one sixth of the total loading dose given*.

*For example: A patient weighs 80kg. A loading dose of 2.4mg morphine dose (80 x 0.03mg) is administered 4 times doses over ~40 minutes to achieve 50% reduction in their pain rating. The total loading dose is 9.6mg is divided by 6 to calculate a starting basal rate would be 1.6mg/hr.

2. Full effects of initiating or increasing a continuous basal dose (without first administering a loading dose) will not be seen until steady state is reached, approximately 5 half-lives (10-12 hours).
3. For pain that is uncontrolled administer frequent RN bolus doses. Avoid escalating the continuous basal dose more frequently than every 8 hours.
4. When escalating opioid infusions, do not increase basal rate more than 100% at any one time, irrespective of how many bolus/breakthrough doses have been used.
5. When patient controlled boluses are used with a basal dose, the PCA bolus dose should be one-half of the hourly basal rate. The PRN RN bolus is usually 2X the PCA dose or equal to the hourly basal dose. Keep in mind the hourly limit should be set to approximately 3-5 times the projected hourly requirement. For example; at a basal rate of 4 mg of morphine, the PCA bolus could be 2 mg (every 6-10 minutes).

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