

Equianalgesic Chart: Approximate equivalent doses of opioids for moderate to severe pain.

ANALGESIC	PARENTERAL (IM, SC, IV) ROUTE ^{1,2} (mg)	PO ROUTE ¹ (mg)	COMMENTS
MU OPIOID AGONISTS			
MORPHINE	10	30	Standard for comparison. Multiple routes of administration. Available in immediate-release and controlled-release formulations. Active metabolite M6G can accumulate with repeated dosing in renal failure.
CODEINE	130	200 NR	IM has unpredictable absorption and high side effect profile; used PO for mild to moderate pain; usually compounded with nonopioid (e.g., Tylenol #3).
FENTANYL	100 µg/h parenterally and transdermally ≅ 4 mg/h morphine parenterally; 1 µg/h transdermally ≅ 2 mg/24h morphine PO	—	Short half-life, but at steady state, slow elimination from tissues can lead to a prolonged half-life (up to 12 h). Start opioid-naïve patients on no more than 25µg/h transdermally. Transdermal fentanyl NR for acute pain management. Available by oral transmucosal route.
HYDROMORPHONE (Dilaudid)	1.5	7.5	Useful alternative to morphine. No evidence that metabolites are clinically relevant; shorter duration than morphine. Available in high-potency parenteral formulation (10 mg/ml) useful for SC infusion; 3 mg rectal ≅ 650 mg aspirin PO. With repeated dosing (e.g., PCA), it is more likely that 2-3 mg parenteral hydromorphone = 10 mg parenteral morphine.
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LEVORPHANOL (Levo-Dromoran)	2	4	Longer acting than morphine when given repeatedly. Long half-life can lead to accumulation within 2-3 days of repeated dosing.
MEPERIDINE	75	300 NR	No longer preferred as a first-line opioid for the management of acute or chronic pain due to potential toxicity from accumulation of metabolite, normeperidine. Normeperidine has 15-20 h half-life and is not reversed by naloxone. NR in elderly or patients with impaired renal function; NR by continuous IV infusion.
METHADONE (Dolophine)	10	20	Longer acting than morphine when given repeatedly. Long half-life can lead to delayed toxicity from accumulation within 3-5 days. Start PO dosing on PRN schedule; in opioid-tolerant patients converted to methadone, start with 10-25% of equianalgesic dose.
OXYCODONE	—	20	Used for moderate pain when combined with a nonopioid (e.g., Percocet, Tylox). Available as single entity in immediate-release and controlled-release formulations (e.g., OxyContin); can be used like PO morphine for severe pain.
OXYMORPHONE (Numorphan)	1	10 rectal	Used for moderate to severe pain. No PO formulation.

¹ Duration of analgesia is dose dependent; the higher the dose, usually the longer the duration.

(Continued.)

² IV boluses may be used to produce analgesia that lasts approximately as long as IM or SC doses. However, of all routes of administration, IV produces the highest peak concentration of the drug, and the peak concentration is associated with the highest level of toxicity, e.g., sedation. To decrease the peak effect and lower the level of toxicity, IV boluses may be administered more slowly, e.g., 10 mg of morphine over a 15 minute period or smaller doses may be administered more often, e.g., 5 mg of morphine every 1-1.5 hours.

FDA = Food and Drug Administration; NR = not recommended; ≅ roughly equal to