Dosing and Conversion Chart for Opioid Analgesics

Drug	Route	Equianalgesic Dose (mg)	Duration(h)	Plasma Half-Life(h)
Morphine	SQ/IV	10	4	2-3.5
Morphine	PO	30	4	4
Codeine	SQ/IV	130	4	3
Codeine	PO	300	4	
Oxycodone	SQ/IV	-		
Oxycodone	PO	30	3-4	4
Hydromorphone (Dilaudid)	SQ/IV	1.5	4	2-3
Hydromorphone (Dilaudid)	PO	7.5	4	4
Meperidine	SQ/IV	75	4	2
Meperidine	PO	300	4	normeperidine
Methadone	SQ/IV	10*	6-8†	12-24
Methadone	PO	20*	6-8†	20-200
Fentanyl	IV	0.1		
Hydrocodone	SQ/IV	-		
Hydrocodone	PO	30	3-4	4

Conversion to Transdermal Fentanyl (Duragesic)

Parenteral Morphine: mg/24h (recommended)	Duragesic Equivalent (μg/h)
8-22 (17)	25
23-37 (33)	50
38-52 (50)	75
53-67 (66)	100
68-92 (83)	125
83-97 (95)	150

Adapted from the Texas Cancer Council Guidelines for Treatment of Cancer Pain.

Adapted from Foley KM. The treatment of cancer pain. N Engl J Med. 1985;313:84-95. (PMID: 2582259)

*The equianalgesic dose of methadone compared to other opioids is extremely variable with chronic dosing. Conversion from oral morphine to oral methadone may range from 4 to 14:1.

† 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.

Source: PIER modules on Pain and Opioid Abuse. ©2007 by the American College of Physicians.

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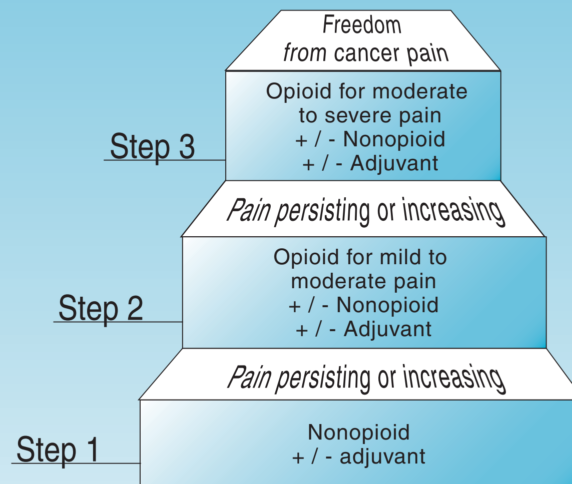
OB7010

Chronic Pain Management

Appropriate Use of Opioid Analgesics

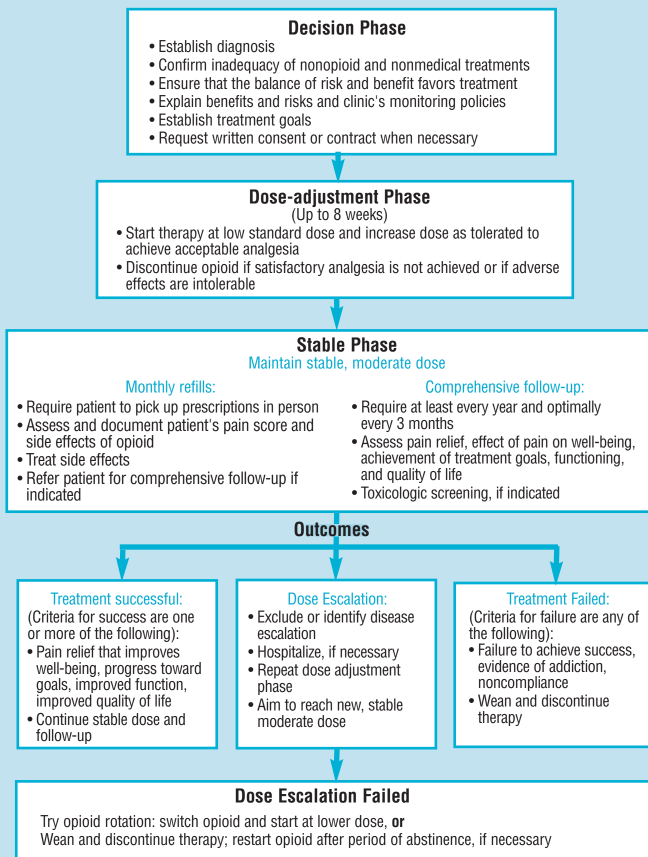
WHO Pain Relief Ladder



If pain occurs, there should be prompt oral administration of drugs in the following order: nonopioids (aspirin and paracetamol); then, as necessary, mild opioids (codeine); then strong opioids such as morphine, until the patient is free of pain. To calm fears and anxiety, additional drugs – “adjuvants” – should be used. To maintain freedom from pain, drugs should be given “by the clock,” that is every 3-6 hours, rather than “on demand.” This three-step approach of administering the right drug in the right dose at the right time is inexpensive and 80%-90% effective. Surgical intervention on appropriate nerves may provide further pain relief if drugs are not wholly effective.

Source: World Health Organization, http://www.who.int/cancer/palliative/painladder/en/

Suggested Protocol for Opioid Therapy



Side effects other than constipation usually subside during prolonged treatment but occasionally persist. Other adverse effects include addiction and complex problems in functioning or quality of life. There are no accepted or validated risk factors for these effects, but it is widely acknowledged that there is a link between previous drug or alcohol abuse and addiction to opioids prescribed for pain. Deterioration in functioning or quality of life appears to be closely associated with lack of motivation to improve; young adults are the most susceptible to this type of deterioration.

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Opioid Treatment for Pain

Agent	Dosage	Notes
Short-acting: Morphine (MSIR, Roxanol)	15-30 mg q 4 h	
Short-acting: Hydromorphone (Dilaudid)	2-4 mg q 3-4 h	
Short-acting: Codeine (alone, or in acetaminophen with codeine)	30-60 mg q 4 h	With all combination agents, doses limited by maximal daily dose of nonopioid component (4 g/d of acetaminophen or aspirin)
Short-acting: Oral transmucosal fentanyl citrate (Actiq)	200-1600 µg q 3 h as needed	Cherry-flavored lozenge; use only in opioid-tolerant patients (taking at least the equivalent of 60 mg of morphine per day)
Short-acting: Hydrocodone and acetaminophen; hydrocodone and aspirin; hydrocodone and ibuprofen	5-10 mg q 4 h	With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of acetaminophen or aspirin)
Short-acting: Oxycodone (Roxicodone) or in acetaminophen and oxycodone (Percocet, Roxicet); ibuprofen and oxycodone (Combunox)	5-10 mg q 4 h	With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of aceta-minophen or aspirin)
Short-acting: Tramadol (Ultram) or in acetaminophen and tramadol (Ultracet)	Initial: 25 mg/d; average analgesic dosage: 50 mg tid; maximum dosage: 400 mg/d	Constipation, sedation, nausea. Adjust dose based on renal and hepatic function and in patients over age 75. With all combination agents, doses limited by maximal daily dose of the nonopioid component (4 g/d of acetaminophen or aspirin)
Long-acting, sustained-release: Morphine (MS Contin, Oramorph, Kadian, Avinza)	15-30 mg q 12 h or q 24 h (or based on 24-hour use of short-acting opioid)	Patients on sustained-release opioids should generally have a short-acting opioid available as needed for breakthrough or episodic pain
Long-acting, sustained-release: Oxycodone (Oxycontin)	10-20 mg q 12 h (or based on 24-hour use of short-acting opioid)	Patients on sustained-release opioids should generally have a short-acting opioid available as needed for breakthrough or episodic pain
Long-acting: Transdermal fentanyl (Duragesic patch)	12-25 µg/h patch q 72 h (avoid in opioid-naïve patients)	Peak effects occur 12-24 hours after application and effects last 12-24 hours after removal of patch

qd = once daily; qid = four times daily; tid = three times daily.