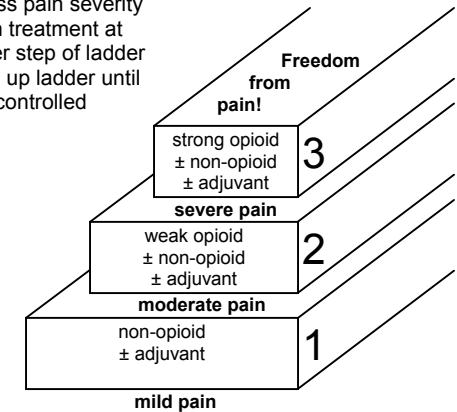


Analgesic Reference Guide

Analgesic Ladder (Adapted from WHO, 1990)

1. Assess pain severity
2. Begin treatment at proper step of ladder
3. Move up ladder until pain controlled



Principles of Pain Management

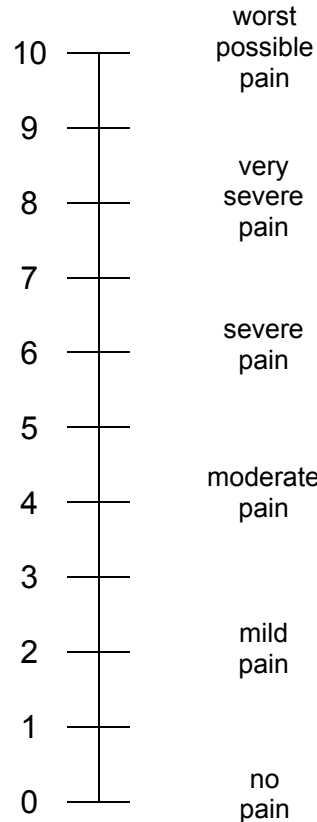
1. Use a multi-drug approach by combining opioids with non-opioid adjuvants.
2. Chronic pain almost always requires scheduled and rescue dosing. Scheduled dosing maintains serum levels of medication and provides constant relief. Rescue dosing should be available as needed for breakthrough pain. Frequent rescue dosing indicates a need for increased scheduled medication.
3. Use the dose interval (see Guide inside) for scheduling analgesics. Use long-acting agents for scheduled dosing and short-acting agents for rescue dosing.
4. Use a non-invasive route whenever possible. Acute, severe, or escalating pain may require IV analgesics every 5-15 minutes. If IV dosing must be used for chronic pain, a continuous infusion is indicated.
5. Aggressively manage the side effects of opioids. There is no tolerance to the constipating effects of opioids.

WILDA ASSESSMENT

Words to Describe Pain

Aching	Nagging	Stabbing
Burning	Numb	Tender
Dull	Penetrating	Tiring
Exhausting	Radiating	Throbbing
Gnawing	Sharp	Unbearable
Miserable	Shooting	

Pain Intensity Scale



LOCATIONS OF PAIN

DURATION OF PAIN

Does it hurt all the time
or does it come and go?

Aggravating and/or Alleviating factors

What makes the pain better?
What makes the pain worse?

PCA Guidelines for Acute Pain (Adults)

Opioid	Demand Bolus	Usual Lockout (minutes)	Basal Rate (after loading)
Morphine 1 mg/mL*	1-2 mL	8 - 15	0-1 mL/hr
Fentanyl 10 mcg/mL*	1-2 mL	6 - 15	1-2 mL/hr*
Hydromorphone 0.2 mg/mL*	1-3 mL	8 - 15	0-1 mL/hr
*standard starting concentrations at KUMC CAUTION: For high risk patient, elderly, or patients receiving other sedatives (e.g. lorazepam), start with a demand bolus only and add a basal dose later as needed.			
Please note <u>all</u> doses are given in <u>mL's</u> *Due to fentanyl's short duration of action, most patients will benefit from a basal dose.			

Treatment of Respiratory Depression

1. Establish a patent airway, apply oxygen, and ventilate patient if necessary.
 2. Naloxone 0.4mg in 9 mL saline, given as 0.5mL slow IV push q 2 min.
- Respiratory depression is rare in patients who have been receiving chronic opioid therapy, but it is a significant risk in opioid-naive patients requiring high doses for acute pain. As the pain lessens, patients might fall asleep, which can enhance the respiratory depression produced by opioids. **Physical stimulation may be sufficient to prevent hypoventilation** since patients do not succumb to respiratory depression while awake. If an opioid antagonist (naloxone) must be used, **careful titration is required to avoid the production of acute withdrawal, seizures, and severe pain**. The duration of action of naloxone is shorter than that of most opioids so **repeated dosing may be necessary**.

Signs/Symptoms of Opioid Withdrawal

Body aches, diarrhea, tachycardia, fever, chills, diaphoresis, anorexia, nausea, vomiting, abdominal pain, nervousness, irritability, insomnia, miosis, or weakness.

Opioid Agonist/Antagonists

WARNING: Use of a mixed opioid agonist-antagonist in a patient receiving opioids can precipitate withdrawal and cause increased pain. These medications can be psychotomimetic with prolonged use.

Butorphanol [Stadol]	Dezocine [Dalgan]
Nalbuphine [Nubain]	Pentazocine [Talwin]
	Tramadol ¹ [Ultram, Ultracet]

¹not a true agonist-antagonist but can precipitate withdrawal in a similar fashion

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Cancer Pain Relief and Palliative Care. World Health Organization (Technical Report Series 804), Geneva, Switzerland; 1990; 1-75.
Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain (5th ed.), American Pain Society, Skokie, IL; 2003.

Disclaimer:
The intent of this guide is to provide a brief summary of commonly used analgesics. It is not a complete pharmaceutical review and should be used in conjunction with *Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain (5th ed.)*, American Pain Society, 2003. Absolutely no liability will be assumed for the use of this guide.

Equianalgesic doses: when comparing pain medications, the doses required to produce a similar amount of pain relief.
Ibuprofen 200mg PO ≈ Oxycodone 5mg PO ≈ Morphine 2mg IV
Opioid Dosing Guidelines
<ul style="list-style-type: none"> • Equianalgesic doses are used for conversion. Equianalgesic doses do not represent starting doses! • When converting from one opioid to another: If pain is well controlled → reduce the new opioid's dose by 25% If pain is not controlled → give 100% of the new opioid's dose • For all opioids, the IV dose may be given IM in emergencies if no other route of administration is available.
Opioid Conversion Examples
<p>For a patient whose pain is well controlled by 8 Percocet 5mg/24°:</p> <ul style="list-style-type: none"> • 8 Percocet is 40 mg Oxycodone/24°, which equals 40 mg MS Contin /24° • since pain is well controlled, reduce to 30 mg MS Contin /24° (15 mg q12°) (The dose was reduced by 25% since the pain was well controlled.)
<p>To dose Duragesic patches – total the 24° oral morphine equivalent, divide in half, and apply closest patch size</p> <ul style="list-style-type: none"> • For a patient who is taking MS Contin 60mg q12° and used 4 doses of MSIR 15mg for breakthrough, 120+60 = 180 mg / 2 = 90 - If patient is comfortable use 75 mcg patch - If patient's pain is not controlled use 100mcg patch • A patient is taking Dilaudid 4mg PO q 4° (for a total of 24mg in 24°) the pain is well controlled but need to switch to long-acting opioid for chronic pain. - Dilaudid 24mg PO = MS Contin 90mg/24° - pain is controlled (reduce dose by 25%) - 90mg – 22 (25%) = 68, MS Contin 30mg q 12°, and use Dilaudid 4mg PO q 2° PRN for Breakthrough pain
<p>For a patient who is continuing to feel pain despite Morphine 2 mg/hr IV:</p> <ul style="list-style-type: none"> • Morphine 2 mg/hr IV = Morphine 48 mg/24° IV = Morphine 144mg/24° po = Fentanyl 72 mcg TD • The order would read "Duragesic 75 mcg/hr patch q 72°" (This dose was not reduced since the pain is not yet controlled.)
Breakthrough Dosing
<p>Breakthrough dose is typically 10-20% of the 24° opioid dose. Patient is taking MS Contin 30 mg q 12h (60 mg po morphine/24°) 10-20% = 6-12 mg po morphine equivalent every 2 hours PRN. Order would read "5-10mg po morphine q 2h PRN." Oxycontin 80 mg po q 12hrs for total 160 mg in 24 hours. 10-20% is 16-32 mg oxycodone equivalent per dose. Order would read "oxycodone 15-30mg po q 2h PRN."</p>

Equianalgesic Dosing Guide				
Opioid	Selected Forms Available	Equianalgesic Dose	Dose Interval	Comments
Morphine	Tablets - MSIR: 15, 30 mg	PO/PR: 30 mg	2-4 hrs	May cause systemic vasodilation due to histamine release. Roxanol-T is colored orange and has a fruit taste where regular Roxanol oral solution is clear and does not taste pleasant.
	Liquid MSIR Solution: (2) mg/mL, (4) mg/mL Roxanol Concentrate: 20 mg/mL	IV: 10 mg	2-4 hrs	
	Suppository Rectal Morphine Sulfate: (5), (10), (20), (30) mg			
Hydromorphone	Tablets - Dilaudid: (1), 2, 4, (8) mg	PO/PR: 7.5 mg	2-4 hrs	The 8 mg tablet is scored.
	Liquid - Dilaudid: (1) mg/mL	IV: 1.5 mg	2-4 hrs	
	Suppository - Dilaudid: (3) mg			
Oxycodone	Tablets OxyIR or Roxicodone: 5, 15, 30 mg Oxycodone/Acetaminophen- Percocet: (2.5/325), 5/325, (7.5/325), 10/325 mg Roxicet: 5/325, Tylox 5/500 mg Oxycodone/Aspirin- Percodan: (2.5/325), (5/325) mg	PO: 20-30 mg	2-4 hrs	Maximum daily dose of combination oxycodone/acetaminophen products limited by maximum acetaminophen daily dose of 4000 mg. (less in elderly)
	Liquid Roxicodone: 1 mg/mL, (20) mg/mL OxyFAST: (20) mg/mL			
Fentanyl	Oral Transmucosal Actiq: 200, 400, (600), 800, 1200, (1600) mcg	IV: 100 mcg	30-60 min	Opioid of choice for patients with renal or liver disease. Onset of OTFC is 5 min. OTFC should not be used in opiate-naive patients.
		OTFC: unknown	30-60 min	
Hydrocodone	Tablets - Hydrocodone/Acetaminophen- Lortab: (2.5/500), 5/500, (7.5/500), (10/500) mg Lorcet: (10/650) mg Norco: (5/325), (7.5/325), (10/325) mg Vicodin: 5/500, ES: (7.5/750), HP: (10/660) mg Hydrocodone/Ibuprofen - Vicoprofen: (7.5/200) mg	PO: 30 mg	3-4 hrs	Only available in combination products that include acetaminophen or ibuprofen. The maximum daily dose is limited by these components.
	Liquid Hydrocodone/Acetaminophen- Lortab Elixir: (7.5/500 mg per 15 mL)			
Meperidine	Tablets Demerol: (50), (100) mg	PO: 300 mg	---	Contraindicated in renal disease. Not for chronic pain. Active metabolite causes CNS excitation and seizures. Max dose 600 mg/24 hrs. Non-Formulary
	Liquid Demerol: 10 mg/mL	IV: 75 mg	2-3 hrs	
Morphine	Tablets Avinza ^{1,2} : 30, (60), 90, (120) mg Oramorph SR ¹ : 15, 30, 60, 100 mg MS Contin ¹ : 15, 30, 60, 100, (200) mg Kadian ^{1,2} : (20), (30), (50), (60), (100) mg	PO: 30 mg	8-12 ² hrs	Kadian and Avinza are capsules that may be opened and poured down a G tube.
	Tablets OxyContin ¹ : 10, 20, 40, (80) mg	PO: 30 mg	8-12 hrs	
Fentanyl	Transdermal Patch Duragesic: 12, 25, 50, 75, 100 mcg/hr	TD: 15 mcg ³	72 hrs	Onset of action is 12-24 hrs. Should not be used in opiate-naive patients.
Methadone	Tablets Dolophine: 5, 10 mg Methadone: (40) mg	Consult Pain Service	---	Long half-life (unpredictable). Accumulates with repeated dosing and maximum effect may not be seen until day 2-5. Pain management consult recommended.
	Liquid Methadone: (1), (2), (10) mg/mL			

IV – intravenous; OTFC – oral transmucosal fentanyl citrate; PO – per mouth; PR – per rectum; TD – transdermal; () indicates non-formulary at KU Med.
¹Controlled – or sustained-release tablet or capsule. Do not cut or crush! ²Kadian and Avinza are dosed every 24 hours. ³Patches not available in this size.

Side Effects of Opioid Therapy	
In addition to the treatments below, try changing the dosing regimen or route to avoid fluctuations in serum concentration. Also, consider changing opioids.	
Side Effect	Treatment
constipation	senna and docusate sodium [Senokot-S], milk of magnesia, sorbitol, lactulose
nausea/vomiting	prochlorperazine [Compazine], scopolamine, metoclopramide [Reglan], meclizine
pruritus	loratadine [Claritan] 10 mg po qd
sedation	caffeine, methylphenidate [Ritalin], dextroamphetamine
respiratory depression	naloxone (see Treatment of Opioid Overdose on reverse for dosing guidelines)
All patients receiving scheduled opioids should be started on a bowel regimen to prevent the development of constipation.	
Adjuvants to Opioid Therapy	
Adjuvant (Examples)	Common Indication(s)
Alpha agonist (clonidine)	neuropathic pain
Anticonvulsants (gabapentin, pregabalin)	neuropathic pain or post-herpetic neuralgia
Antihistamines (diphenhydramine, hydroxyzine, loratadine)	nausea, pruritus, or anxiety
Benzodiazepines (clonazepam, diazepam, lorazepam)	anxiety or myoclonus
Corticosteroids (dexamethasone, prednisone)	nerve compression or anorexia
NSAIDs and COX-2 inhibitors (celecoxib, ibuprofen, naproxen)	musculoskeletal pain
Tricyclic antidepressants (amitriptyline, desipramine, nortriptyline)	neuropathic pain or post-herpetic neuralgia

Pre-emptive analgesia - Celecoxib 200-400 mg po day of surgery and four days post-op (unless contraindicated) to decrease opioid requirements. Not for long-term use.