Commonly Used Non-Opioid Analgesics

Drug	Average Dose	Dosing Interval	Maximum Dose in 24h	Side Effects	Comments
Acetaminophen (Tylenol)	325-500 mg 500-1000 mg	**4h** **6h**	4 g **(<3 g in patients with liver dysfunction and in the elderly)**	Minimal, if any, side effects	Reduce maximum dose 50-75% with hepatic insufficiency or history of alcohol abuse. IV acetaminphen is available.
Non Steroidal Anti-Inflammatory Drugs (NSAIDS) (use with extreme caution in the elderly). Thrombotic cardiovascular risk and GI bleeding risk for all.					
Choline Magnesium Trisalicylate (Trilisate)	500-1000 mg	8-12h	3000 mg	Lower incidence of GI bleeding, minimal anti-platelet activity	Caution with renal disease.
Ibuprofen (Motrin & others)	200-400 mg	4-6h	2400 mg	*see below	Caution with renal disease.
Naproxen (Naprosyn)	500 mg initial, 250 mg subsequent	6-8h	1500 mg	*see below	Caution with renal disease.
Nabumetone (Relafen)	500-750 mg	8-12h	2000 mg	*see below	Caution with renal disease.
Ketorolac (Toradol)	30 mg IV initial, 15-30 mg subsequent	6h	150 mg first day, 120 mg thereafter	*see below	In elderly, 30 mg starting dose, 15 mg thereafter. Use restricted to 5 days. Caution with renal disease
Celecoxib (Celebrex)	100-200 mg	12h	200-400 mg	Lower incidence of adverse GI effects. Renal toxicity	Contraindicated in sulfonamide allergy. No platelet effects. Risk of cardiovascular events. Use lowest dose possible.
Dual Mechanism Analgesics					
Tramadol (Ultram, Ultram ER)	25-50 mg ER: 100, 200, 300 mg	4-6h ER: q24h	400 mg **(300 mg in the elderly)**	Headache, confusion, sedation.	Opioid and inhibitor of serotonin and norepinephrine reuptake. Lowers seizure threshold. Titrate by 25-50 mg every 3-5 days.
Tapentadol (Nucynta)	50-100 mg after titration	4-6h	600 mg/day	Nausea, dizziness, sedation.	Opioid and inhibitor of norepinephrine reuptake.

* Monitor for common adverse effects: GI ulceration and bleeding, decreased platelet aggregation, and renal toxicity.

Management of Opioid Side Effects

Adverse Effect	Management Considerations
Constipation	**Begin bowel regimen when opioid therapy is initiated.** Include a mild stimulant laxative (e.g., Senna, Cascara) + stool softener (e.g., Colace) at hs, or in divided doses as routine prophylaxis. Peripheral mu opioid antagonists are available.
Sedation	Tolerance typically develops. Hold sedatives/anxiolytics, dose reduction; consider CNS stimulants (e.g., increase caffeine intake, methylphenidate, dextroamphetamine or modafinil)
Nausea/Vomiting	Dose reduction, opioid rotation; consider metoclopramide, prochlorperazine, scopolamine patch, $5HT_3$ antagonists.
Pruritus	Dose reduction, opioid rotation; consider an antihistamine such as diphenhydramine
Hallucinations	Dose reduction, opioid rotation, consider neuroleptics (haloperidol or risperidone)
Confusion/Delirium	Dose reduction, opioid rotation, neuroleptic therapy (haloperidol, risperidone)
Myoclonus	Dose reduction, opioid rotation, increase fluid intake; consider clonazepam, baclofen
Respiratory Depression	**Sedation precedes respiratory depression**. Hold opioid. Give low dose naloxone - dilute 0.4 mg (1 ml of a 0.4 mg/ml amp of naloxone) in 9 ml normal saline for final concentration of 0.04 mg/ml. Nasal naloxone available in some communities.

References

1). American Pain Society (2008). Principles of Analgesic Use in the Treatment of Acute Pain and Cancer Pain, 6th ed. **2).** Fishman et al. (2013). Competencies for Pain Management: Results of an Interdisciplinary Concensus Summit. Pain Med. **3).** National Comprehensive Cancer Network Clinical Practice Guideline: Adult Cancer Pain (v. 2.2015).

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Pain Management Pocket Tool

MASS PI

www.masspaininitiative.org

Principles of Pain Management

1. Ask the patient about the presence of pain
2. Accept the patient's report of pain
3. Perform a comprehensive pain assessment, including:
   - Onset, duration, and location
   - Intensity (use appropriate scale)
   - Effect on function and quality of life
   - What makes the pain better or worse
   - Risk Assessment for abuse/misuse
   - Quality
   - Patient's goal
   - Response to prior treatment
   - History/physical exam
4. **Do not use I.M. route. Avoid concurrent use of benzodiazepines. Avoid meperidine.**
5. Treat persistent pain with by-the-clock medications
6. Ordinarily two drugs of the same class (e.g., NSAIDs) should not be given concurrently; however, one long-acting and one short-acting opioid may be prescribed concomitantly
7. Use multi-modal analgesia: Use an opioid, non-opioid and/or adjuvant to improve relief.
8. Assess, reassess pain frequently, anticipate and manage opioid side effects aggressively.
9. Most opioid agonists have no ceiling dose for analgesia; titrate to relief and assess for side effects
10. With older adults, start low, go slow, but go!
11. Discuss goals and plans with patient and family. Use an opioid agreement for long-term opioid use.
12. Misuse, abuse or relapse may occur in those with a history of substance use disorders; the hallmarks include: a) compulsive use, b) loss of control, c) use despite harm
13. Include non-pharmacologic strategies.

Management of Breakthrough Pain

When using long-acting opioids around-the-clock for persistent pain, obtain order for a short-acting opioid (rescue) for breakthrough pain.

- The rescue dose is 10-15% of the 24h total daily dose.
- Oral rescue doses should be available every 1-2h; parenteral doses every 15-30 minutes.
- If patient is consistently using 3 or more rescue doses daily, consider increasing the around-the-clock dose.
- Whenever the around-the-clock dose is increased, the rescue dose will need to be recalculated.
- Consider using the same drug for both scheduled and breakthrough doses when possible (e.g., long-acting morphine + short-acting morphine).

Examples: Oral dosing: breakthrough pain

Pt. is on Morphine CR 30 mg q12h.

1. Total daily dose: (30 mg x 2 = 60 mg morphine/24h)
2. Calculate 10 to15% of 24h dose for rescue dose. (10% = 6 mg, 15% = 9 mg short acting morphine)
3. Rescue dose = 6 - 9 mg of morphine q1- 2h.

Parenteral dosing continuous infusion:

Calculate rescue dose based on 25-50% of hourly infusion.

Switching From One Opioid To Another: (Examples)

1. Calculate the total 24h dose of pt's opioid regimen.
   (morphine 30 mg q 4h = 180 mg/24h)
2. Locate new opioid on equianalgesic chart.
   (hydromorphone 7.5 mg = 30 mg morphine)
3. Set-up equation.
   $\frac{180\text{ mg}}{30\text{ mg}} = \frac{X}{7.5\text{ mg}}$ and cross multiply
   (X = 45 mg hydromorphone in 24h)
4. Divide the total daily dose of the new opioid by the number of doses given per day.
   (45 mg divided by 6 doses = 7.5 mg q 4h)
5. Reduce calculated dose of new opioid by 25% -50% for incomplete cross tolerance; titrate up as needed.

Transdermal Fentanyl (Duragesic patch): **Do not use in opioid-naïve patients.** Duragesic patch 25 µg q 72h = 50 mg oral morphine q 24h. Divided into 6 doses = 8.3 mg oral morphine or 2.8 mg IV morphine q 4h. **These are approximate doses.**

*Opioid Equianalgesic Chart (opioids with no ceiling dose)

Opioid	Parenteral Route	Oral Route	Starting Dose for Opioid Naïve Adults
Morphine	10 mg	30 mg	Start at 2.5-10 mg po for immediate release (IR). Controlled release (CR) available.
Hydromorphone	1.5 mg	7.5 mg	Start at 1-2 mg po IR. 0.2-1 mg IV. CR available.
Oxycodone	N/A	20 mg	Start at 2.5 - 5 mg po IR. CR available.
Fentanyl	0.1 mg (100 µg)	N/A	Start at12 µg. 25 µg patch is equal to approx. 50 mg of oral morphine q 24h. For opioid-tolerant ONLY.
Methadone	-	-	Consult with pain specialist before prescribing. Long half-life results in accumulation.
Oxymorphone	1 mg	10 mg	Start at 5 mg po IR. CR available. Must be taken on an empty stomach.
Hydrocodone	N/A	30-45 mg	Start at 2.5 -5 mg po. CR available.

*Combination Opioid Drugs (have ceiling dose)

Hydrocodone + aspirin, acetaminophen, or ibuprofen (Vicodin, Lortab, Vicoprofen)	N/A	30 mg	Available as 5, 7.5, or 10 mg hydrocodone with acetaminophen, aspirin or ibuprofen (4 g/24h ceiling dose with acetaminophen)
Oxycodone (Percocet, Tylox)	N/A	20 mg	Available as 2.5, 5, 7.5 or 10 mg oxycodone with acetaminophen (4 g/24h ceiling dose with acetaminophen)

*Equianalgesic doses are approximate. Use the lowest effective dose.Titrate according to individual response. **Doses may be lower in elderly and with OSA.**

Adjuvant Analgesic Drugs. Consider age, comorbidities, hepatic and renal status. With antiepileptics and antidepressants, monitor children and young adults for behavior change, suicidal ideation.

Drug	Uses	Starting Dose	Dose Range	Comments
Antiepileptics				
Gabapentin (Neurontin)	Neuropathic pain	100-300 mg po tid. Increase by 100-300 mg q 3 days	300-3600 mg/day in three divided doses	Adjust dose for renal dysfunction. Can cause drowsiness. No drug-drug interactions
Pregabalin (Lyrica)	Diabetic peripheral neuropathy. Post herpetic neuralgia. Fibromyalgia.	150 mg po in 2-3 divided doses (depending on (indication)	50-600 mg/day (depending on indication)	Similar to gabapentin, often more rapid response than gabapentin; Schedule V controlled substance.
Antidpressants (often use lower doses to treat pain than to treat depression)				
Tricyclic Antidepressants				
Amitriptyline (Elavil) Nortriptyline (Pamelor) Desipramine (Norpramin)	Neuropathic pain	25 mg po hs (**10 mg or less for elderly)** Titrate dose very few days to minimize side effects.	75-150 mg po hs	Amitriptyline has greatest side effect profile. Dry mouth, drowsiness, dizziness, constipation, urinary retention, confusion. Obtain baseline EKG for history of cardiac disease.
Selective Serotonin and Norepinephrine Reuptake Inhibitor (SSNRI) Antidepressant				
Duloxetine (Cymbalta)	Diabetic neuropathy, chronic musculoskeletal pain.	30 mg	60 mg once daily sustained release	Should not use with MAOIs. Consider lower starting dose for patients for whom tolerability is a concern.
Venlafaxine (Effexor)	Neuropathic pain	37.5 mg daily or twice daily - titrate up over 2-3 weeks.	150 mg -225 mg/day	Available as IR and CR formulations. Should not use with MAOIs.
Corticosteroids				
Dexamethasone (Decadron)	Spinal cord compression, bony mets, joint pain.	4-8 mg po q 8-12 h 10-20 mg IV q 6h	Minimal effective dose	High dose therapy should not exceed 72h. May improve appetite.
Prednisone	Spinal cord compression, bony metastases.	5-10 mg po daily or bid	Minimal effective dose	For cancer pain, continue treatment until side effects outweigh benefit. Also for joint pain and R.A. pain.
Local Anesthetic				
Lidoderm Patch (Topical Lidocaine)	Post Herpetic Neuralgia	1-3 patches over painful area(s)	1-3 patches 12h on and 12h off	Patch may be cut to fit painful area(s). Place only on intact skin.
Other Adjuvant				
Baclofen (Lioresal)	Muscle spasticity	5-10 mg po tid-qid	80-120 mg po in 24h	Caution in renal insufficiency.

For more information about persistent pain, visit *www.masspaininitiative.org*. **Revised 1/2016**