## Non-Opioid Treatments for Pain: Provider Information

- Opioids are not the first-line or routine therapy for chronic pain.
- Non-pharmacologic therapy and non-opioid pharmacologic therapy are preferred for chronic pain.
- If opioids are used, they should be combined with non-pharmacologic therapy and non-opioid pharmacologic therapy, as appropriate.

## **Effective approaches to chronic pain should:**

- Identify and address co-existing mental health conditions (e.g., depression, anxiety, PTSD).
- Focus on functional goals and improvement, engaging patients actively in their pain management.
- Use disease-specific treatments when available (e.g., triptans for migraines, gabapentin/pregabalin/duloxetine for neuropathic pain).
- Use first-line medication options preferentially.
- Use multimodal approaches, including interdisciplinary rehabilitation for patients who have failed standard treatments, have severe functional deficits, or psychosocial risk factors.

Non-Opioid Treatments	Generic (brand) names	Type of Pain Treated	Notes
Acetaminophen <sup>1, 2, 3</sup>	Acetaminophen (Tylenol)	<ul> <li>Mild to moderate pain</li> <li>Low-back pain</li> <li>Migraines</li> <li>Osteoarthritis</li> </ul>	<ul> <li>Generally considered safer than other non-opioid pain relievers.</li> <li>Does not cause side effects such as stomach pain or bleeding.</li> <li>Taking more than the recommended dose or taking with alcohol increases the risk of kidney damage or liver failure over time.</li> <li>Use should be avoided in patients with liver failure.</li> <li>Dosage should be reduced in patients with liver problems or history of alcohol abuse.</li> </ul>
NSAIDS (Nonsteroidal Anti-inflammatory Drugs) <sup>4, 5, 6</sup>	<ul> <li>Ibuprofen (e.g., Advil, Motrin IB,)</li> <li>Naproxen sodium (Aleve)</li> </ul>	<ul> <li>Mild to moderate pain accompanied by swelling and inflammation</li> <li>Low-back pain</li> <li>Osteoarthritis</li> <li>Pain resulting from muscle sprains and strains</li> <li>Back and neck injuries, overuse injuries</li> <li>Menstrual cramps</li> <li>Migraines</li> </ul>	<ul> <li>NSAIDs are generally safe, when taken as directed.</li> <li>Taking more than recommended or sometimes just taking the recommended dosage, may cause nausea, stomach pain, stomach bleeding or ulcers.</li> <li>Large doses can also lead to kidney problems, fluid retention, and high blood pressure.</li> </ul>
COX-2 inhibitors	Celecoxib (Celebrex)	<ul><li>Rheumatoid arthritis</li><li>Osteoarthritis</li><li>Menstrual cramps</li><li>Injury-related pain</li></ul>	<ul> <li>COX-2 inhibitors protect the lining of the stomach and the risk of stomach bleeding is generally lower compared to NSAIDs. Bleeding can still occur though, especially at higher doses. Side effects can include headache and dizziness and can lead to kidney problems, fluid retention, and high blood pressure.</li> </ul>
Tricyclic antidepressants and Serotonin and norepinephrine reuptake inhibitors (SNRIs) ) <sup>7,8</sup>	<ul> <li>Amitriptyline</li> <li>Nortriptyline (Pamelor)</li> <li>Duloxetine (Cymbalta)</li> <li>Venlafaxine (Effexor XR)</li> <li>Milnacipran (Savella)</li> </ul>	<ul> <li>Neuropathic pain</li> <li>Chronic daily headaches</li> <li>May be considered for chronic low-back pain</li> </ul>	<ul> <li>Side effects of these medications are generally mild. However, side effects can include nausea, dizziness, or drowsiness. To reduce the risk of side effects, your doctor may start you at a lower dose and gradually increase it.</li> </ul>
Anti-seizure/ A-typical pain medications <sup>9, 10, 11</sup>	<ul><li>Gabapentin (Gralise, Neurotin)</li><li>Pregabalin (Lyrica)</li></ul>	<ul> <li>Chronic nerve pain including: postherpetic neuralgia and diabetic neuropathy</li> <li>Fibromyalgia</li> </ul>	<ul> <li>Side effects of these medications are generally mild. However, side effects can include nausea, dizziness, or drowsiness. To reduce the risk of side effects, your doctor may start you at a lower dose and gradually increase it.</li> </ul>
Corticosteroid injections <sup>12</sup>	<ul><li>Cortisone Acetate</li><li>Dexamethasone</li><li>Hydrocortisone</li></ul>	<ul><li>Psoriatic arthritis</li><li>Reactive arthritis</li><li>Rheumatoid arthritis</li><li>Tendinitis</li></ul>	<ul> <li>Cortisone shots might cause the cartilage within a joint to deteriorate. Doctors typically limit the number of shots into a joint. Injections should not occur more often than every six weeks and not more than three to four times a year.</li> </ul>
Topical agents <sup>13,</sup> <sup>14, 15</sup>	<ul><li>Lidocaine</li><li>Capsaicin</li><li>NSAIDs</li></ul>	<ul> <li>Topical Lidocaine: neuropathic pain</li> <li>Topical NSAIDs: localized osteoarthritis</li> <li>Topical capsaicin: musculoskeletal and neuropathic pain</li> </ul>	Thought to be safer than systemic medications.





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## References

- 1 Rauck, R. L., Nalamachu, S., Wild, J. E., Walker, G. S., Robinson, C. Y., Davis, C. S., & Farr, S. J. (2014). Single-entity hydrocodone extended-release capsules in opioid-tolerant subjects with moderate-to-severe chronic low back pain: a randomized double-blind, placebo-controlled study. Pain Medicine, 15(6), 975-985.
- 2 Wininger, S. J., Miller, H., Minkowitz, H. S., Royal, M. A., Ang, R. Y., Breitmeyer, J. B., & Singla, N. K. (2010). A randomized, double-blind, placebo-controlled, multicenter, repeat-dose study of two intravenous acetaminophen dosing regimens for the treatment of pain after abdominal laparoscopic surgery. Clinical therapeutics, 32(14), 2348-2369.
- 3 DeVeaugh-Geiss, A., Kadakia, A., Chilcoat, H., Alexander, L., & Coplan, P. (2015). A retrospective cohort study of long-term immediate-release hydrocodone/ acetaminophen use and acetaminophen dosing above the Food and Drug Administration recommended maximum daily limit among commercially insured individuals in the United States (2008–2013). The Journal of Pain, 16(6), 569-579.
- 4 Bickham, K., Kivitz, A. J., Mehta, A., Frontera, N., Shah, S., Stryszak, P., ... & Peloso, P. M. (2016). Evaluation of two doses of etoricoxib, a COX-2 selective non-steroidal anti-inflammatory drug (NSAID), in the treatment of Rheumatoid Arthritis in a double-blind, randomized controlled trial. BMC musculoskeletal disorders, 17(1), 331.
- 5 Khalil, S. N., Hahn, B. J., Chumpitazi, C. E., Rock, A. D., Kaelin, B. A., & Macias, C. G. (2017). A multicenter, randomized, open-label, active-comparator trial to determine the efficacy, safety, and pharmacokinetics of intravenous ibuprofen for treatment of fever in hospitalized pediatric patients. BMC pediatrics, 17(1), 42.
- 6 Harel, Z. (2012). Dysmenorrhea in adolescents and young adults: an update on pharmacological treatments and management strategies. Expert opinion on pharmacotherapy, 13(15), 2157-2170.
- 7 Yang, Y. H., Lin, J. K., Chen, W. S., Lin, T. C., Yang, S. H., Jiang, J. K., ... & Tzeng, C. H. (2012). Duloxetine improves oxaliplatin-induced neuropathy in patients with colorectal cancer: an open-label pilot study. Supportive Care in Cancer, 20(7), 1491-1497.
- 8 Iyer, S., & Tanenberg, R. J. (2013). Pharmacologic management of diabetic peripheral neuropathic pain. Expert opinion on pharmacotherapy, 14(13), 1765-1775.
- 9 Hausman-Kedem, M., Menascu, S., & Kramer, U. (2018). Efficacy of CBD-enriched medical cannabis for treatment of refractory epilepsy in children and adolescents—An observational, longitudinal study. Brain and Development, 40(7), 544-551.
- 10 Gaínza-Lein, M., Benjamin, R., Stredny, C., McGurl, M., Kapur, K., & Loddenkemper, T. (2017). Rescue medications in epilepsy patients: a family perspective. Seizure, 52, 188-194
- 11 Boyle, Y., Fernando, D., Kurz, H., Miller, S. R., Zucchetto, M., & Storey, J. (2014). The effect of a combination of gabapentin and donepezil in an experimental pain model in healthy volunteers: results of a randomized controlled trial. PAIN®, 155(12), 2510-2516.
- 12 Kumar, A., Dhir, V., Sharma, S., Sharma, A., & Singh, S. (2017). Efficacy of methylprednisolone acetate versus triamcinolone acetonide intra-articular knee injection in patients with chronic inflammatory arthritis: a 24-week randomized controlled trial. Clinical therapeutics, 39(1), 150-158.
- 13 Vecchio, S. L., Andersen, H. H., & Arendt-Nielsen, L. (2018). The time course of brief and prolonged topical 8% capsaicin-induced desensitization in healthy volunteers evaluated by quantitative sensory testing and vasomotor imaging. Experimental brain research, 236(8), 2231-2244.
- 14 Mooney, J. J., Pagel, P. S., & Kundu, A. (2014). Safety, tolerability, and short-term efficacy of intravenous lidocaine infusions for the treatment of chronic pain in adolescents and young adults: a preliminary report. Pain Medicine, 15(5), 820-825.
- 15 Pfaffenrath, V., Fenzl, E., Bregman, D., & Färkkila, M. (2012). Intranasal ketorolac tromethamine (SPRIX®) containing 6% of lidocaine (ROX-828) for acute treatment of migraine: safety and efficacy data from a phase II clinical trial. Cephalalgia, 32(10), 766-777.
- 16 Chronic pain: Medication decisions. Mayo Clinic. https://www.mayoclinic.org/chronic-pain-medication-decisions/art-20360371.
- 17 CDC. Alternative Treatments Fact Sheet. https://www.cdc.gov/drugoverdose/pdf/nonopioid\_treatments-a.pdf. CDC.
- 18 Guideline for Prescribing Opioids for Chronic Pain United States, 2016. CDC; 2016. https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm?CDC\_AA\_refVal=.



