Background This Fast Fact discusses treating pain in patients using buprenorphine for opioid addiction. Buprenorphine is a mixed opioid agonist/antagonist, available in the United States in the sublingual form as 'Subutex,' and formulated with naloxone as 'Suboxone.' It is approved for treatment of opioid addiction in the US; such use is restricted to qualified physicians who have received training and a waiver to practice medication-assisted opioid addiction therapy. Over the last seven years, over 10,000 physicians have been approved to use buprenorphine, with 2,103,000 prescriptions filled in 2007. Given this, clinicians are likely to encounter patients on buprenorphine therapy who also require treatment for pain. Note: buprenorphine is also used as an analgesic, particularly in Europe, where a transdermal system is available. Currently it is uncommonly used in the US as an analgesic. Naloxone has minimal sublingual bioavailability and is included only to prevent abuse by intravenous injection; in this Fast Fact 'buprenorphine' refers to both sublingual products.

Pharmacology Buprenorphine binds to mu-opioid receptors tightly but with low intrinsic activity, providing some analgesic effects but effectively preventing other opioids from binding. This 'blocks' the analgesic and euphoric effects of other opioids, leading to its effectiveness in opioid addiction therapy. Buprenorphine's effect at the mu-opioid receptor lasts 24 to 60 hours, and can lengthen even further with increasing doses. The duration of sublingual buprenorphine's analgesic effects is shorter than its occupation of the receptor - between 6 and 12 hours. When patients on buprenorphine therapy for addiction are in acute pain, the continued interaction of buprenorphine with opioid receptors can limit other opioids' analgesic effectiveness.

Pain Management Strategies While there are no clinical studies addressing how to treat pain in patients taking buprenorphine, the strategies below are derived from expert opinion, animal studies, federal guidelines, and international experience treating breakthrough pain in patients using transdermal buprenorphine (not available in the US). As with all patients with pain, non-pharmacologic therapies and non-opioid analgesics should be used when safe and likely to work. The following strategies should be chosen and implemented in close collaboration with the physician treating the patient's opioid addiction.

- If acute pain is anticipated, such as for an elective surgical procedure, adjuvant analgesics and interventional procedures such as nerve blocks should be provided as available.
- For patients with moderate to severe pain who are expected to require opioid analgesic therapy for the short term, federal guidelines recommend holding the buprenorphine and starting short acting opioid agonists. While the buprenorphine's effects diminish (20-60 hours), the patient may require higher opioid doses to compete with the presence of buprenorphine on mu-opioid receptors. The patient should be monitored carefully in the initial period to titrate the opioid agonist dose downward as its effect becomes greater. Before restarting buprenorphine, the patient should be opioid-free for 12-24 hours to avoid precipitating withdrawal. This process should be overseen by an approved buprenorphine provider.
- For patients with mild to moderate acute pain, consider treating the pain with buprenorphine alone. The total daily dose of buprenorphine can be increased (to a maximum of 32 mg sublingual/day); it should be given in divided doses every 6-8 hours.
- Another option is to continue buprenorphine and use short-acting opioid agonists at high enough doses to overcome buprenorphine's partial agonism. Opioids that have a higher intrinsic activity at the mu-opioid receptor, including morphine, fentanyl, or hydromorphone, are all options, while opioids with less efficacy such as hydrocodone or codeine should be avoided.
In a patient who is expected to have an ongoing need for pain management, consider replacing buprenorphine with methadone therapy for opioid addiction. For analgesia, additional methadone or other 'full' mu-opioid receptor agonists can then be added without problems related to use of a partial opioid agonist.

- Patients who have life-limiting illnesses that are expected to cause significant pain are not good candidates for buprenorphine therapy for addiction. A collaborative approach, including patient preference and discussion with both addiction and pain or palliative care specialists, will best identify a therapeutic plan to achieve adequate pain relief and maintain recovery from addiction.

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**References**


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