Partial agonist, full potential:

Buprenorphine in Pain Management

PRESENTED BY KAYCEE POWER FREDERICK, MSN, APRN, FNP -C

Objectives

Pharmacological Properties

Benefits of Use in Chronic Pain

Proper Patient Selection and Dosing

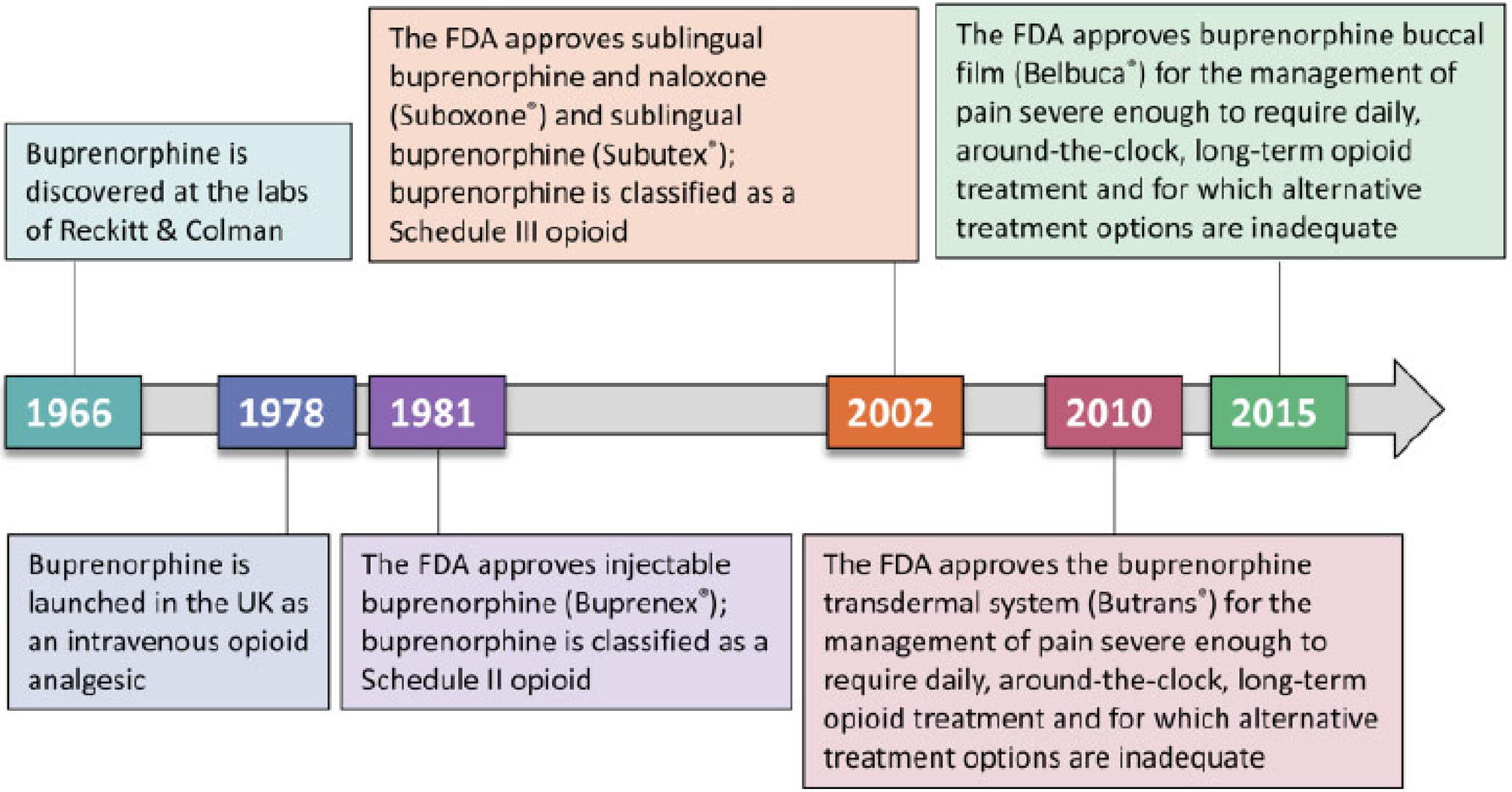
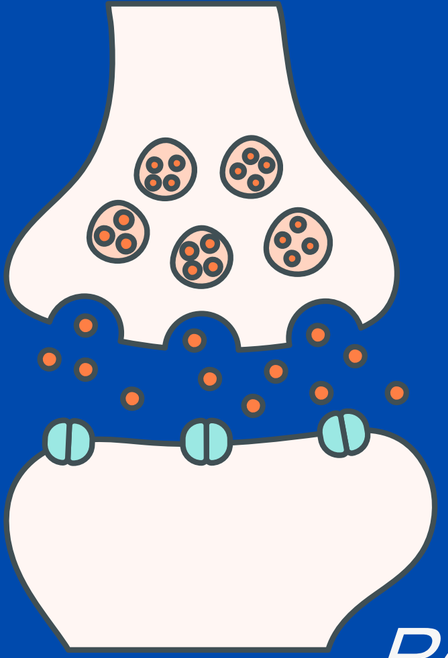


Figure 1. The history of buprenorphine. Buprenorphine was originally developed as an analgesic and was subsequently used for OUD before novel delivery systems allowed for approval in chronic pain management [8,9,12,13]. FDA=Food and Drug Administration; OUD=opioid use disorder.

SCHEDULE III OPIOID ANALGESIC

Partial agonist activity at the μ-opioid receptor and antagonist activity at the kappa and delta receptors

TRANSDERMAL PATCH
BUCCAL FILM
SUBLINGUAL TABLET



Why does this matter?

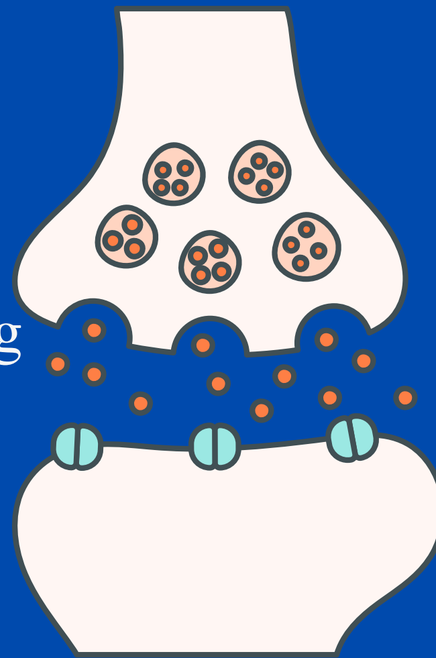
Respiratory Ceiling Effect With partial agonist activity

Higher doses do not proportionally increase opioid effects/euphoria or respiratory depression (MOR agonist)

Antagonist activity (DOR and KOR)

Less development of tolerance/dependence (DOR antagonism)

Reduced dysphoria and craving (KOR antagonism)



How does this translate?

Better side effect profile

- Ceiling effect for respiratory depression
- Lower risk of misuse
- Less constipation
- Does not require dose adjustment in renal impairment
- Less cognitive impairment
- Milder withdrawal symptoms

Why choose buprenorphine?

Systematic Review and Metanalysis of Randomized Controlled Trials

- Buprenorphi ne was associated with a statistically significant reduction in pain intensity compared to placebo
- Minimal development of tolerance with transdermal
- More evidence supporting its use for chronic low back pain.

WHEN TO CONSIDER BUPRENORPHINE FOR PAIN

- Patients no longer benefitting from opioids
- Patients experiencing harms from long-term opioids
- Opioid-naive patients who have exhausted non-opioid and non-pharmacologic options

THE CURB SIDERS ADDICTION MEDICINE

How do I initiate the conversation?

Main question: Is this patient benefitting from their opioid therapy any longer?

- Safety is important but often doesn't resonate with patients
- Instead, focus on feeling better and functioning better.
- Once you have agreement, explore changes to the opioid regimen and other treatment options.

Patient Questions

- What is a typical day like for you?
- How does pain limit you throughout the day?
- How has your pain and function changed over time?
- How have things been for you dealing with this pain over the past year? (listen for declining function and/or sedentary lifestyle)

Buprenorphine Initiation

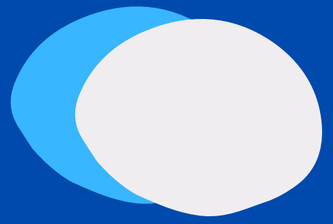
- **Adequate time** (30-40 minutes) should be allotted for in-depth conversation to understand pain impact
- Focus on **assessing the patient's pain and experience**, not on whether the opioids are working or not.
- Assess change in patient's **pain-related functio**n over the past year
- Patients' agreement that **opioids are not workin**g is necessary before exploring other options.
- Consider Buprenorphine for **patients no longer benefit** or experiencing harm from long-term opioid therapy.
- Can be considered in **opioid-naive patients** after exhausting non-opioid/non-pharmacologic pain management modalities.
- Two methods can be used to transition to buprenorphine: the **traditional method and the overlap method**

What about organ dysfunction?

Buprenorphine is also a safer choice for pain management in patients with organ dysfunction.

- Plasma clearance was not impacted by transdermal buprenorphine in renal failure/dialysis
- Patients with mild to moderate liver impairment do not have any altered clearance
- of buprenorphine
- Severe liver failure can have increased bioavailability of buprenorphine

Initiation

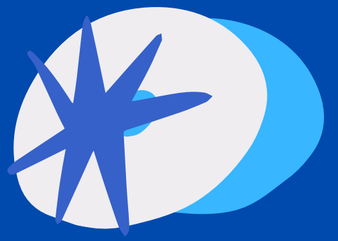


Initial Dose

- Given this way to avoid precipitating withdrawal for those on full agonist opioids

Specific Timing

- Wait 8–12 hours after the last dose of short-acting full agonist opioids
- Longer after the last dose of long-acting full agonist opioids (e.g., at least 12–24 hours of an ER/LA full agonist opioid



Overlap Method

- Similar to low-dose buprenorphine initiation. Start a low dose of buprenorphine while the patient continues the full opioid agonist, uptitrate the buprenorphine dose daily, and then stop the full agonist once the buprenorphine is at a therapeutic dose.

How do I prescribe this for my patients?

Opioid Naive Patients

- Transdermal- 5 mcg/h every 7 days
- Buccal film- 75 mcg once or twice daily

May precipitate withdrawal symptoms in patients on LTOT (partial mu-receptor agonist)

Opioid Tolerant Patients

- Titrate the patch by 5 mcg/h increments (minimum interval 72 hours)
- Max dose 20 mcg/h
- Buccal film by 150 mcg increments every 4 days
- Max dose 900 mcg every 12 hours

OVERLAP METHOD TIPS

- Make sure the patient understands the process - teach -back.
- Determine formulation patient will switch to by calculating the MMEs
- Higher MME typically requires SL formulation to provide higher buprenorphine doses.
- Understand your patient’s insurance coverage for certain buprenorphine products
- Consider reducing the full agonist dose on Days 4 and 5 of the overlap to minimize the amount of pills the patient needs to take.
- Overdose is less of a concern due to the partial agonism of buprenorphine.

What are the side effects?

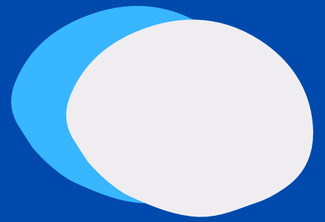
- QTc prolongation
  - caution in patients with risk factors for QT prolongation (e.g., hypokalemia, bradycardia, heart failure, baseline QT prolongation, or use of other QT-prolonging agents), as the risk of additive effects is unknown
  - appears safe for those w/o risk factors
- Sedation
- Constipation
- Nausea
- Headache
- Dizziness/orthostatic hypotension
- Dental problems with transmucosal formulations
- Patients CAN overdose on buprenorphine, though less likely
  - especially if taken concurrently with other respiratory depressants (e.g., full agonist opioids, benzodiazepines, or alcohol)

Can I add full agonist opioids?

Yes, if they do not have OUD and still have breakthrough pain

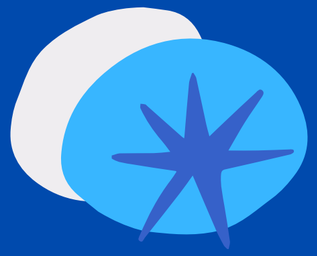
- Adding full agonists to buprenorphi ne will not precipitate withdrawal and patients may still gain analgesic benefits from the full agonist when buprenorphine is on board

What about the perioperative period?



Multimodal plan

The use of full mu-opioid agonists is appropriate as part of the multimodal treatment of pain and can be used in addition to buprenorphine. Opioids with high affinity to the mu-opioid receptors such as fentanyl or hydromorphone should be utilized.



Tapering

Patients who require an increase or additional opioids for postoperative pain management should be provided tapering plan

Discontinuation

Consultation with the patient's buprenorphine prescriber to ensure appropriate discontinuation of other opioids and resumption of baseline buprenorphine therapy.


questions

Reference
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Davis M. Buprenorphine Pharmacodynamics: A Bridge to Understanding Buprenorphine Clinical Benefits. Drugs. 2025 Feb;85(2):215-230. doi: 10.1007/s40265-024-02128-y. Epub 2025 Jan 28. PMID: 39873915

Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC Clinical Practice Guideline for Prescribing Opioids for Pain - United States, 2022. MMWR Recomm Rep. 2022 Nov 4;71(3):1-95. doi: 10.15585/mmwr.rr7103a1. PMID: 36327391; PMCID: PMC9639433.

Wong SSC, Chan TH, Wang F, Chan TCW, Ho HC, Cheung CW. Analgesic Effect of Buprenorphine for Chronic Noncancer Pain: A Systematic Review and Meta-analysis of Randomized Controlled Trials. Anesth Analg. 2023 Jul 1;137(1):59-71. doi: 10.1213/ANE.0000000000006467. Epub 2023 Jun 16. PMID: 36988663.

Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC Clinical Practice Guideline for Prescribing Opioids for Pain —United States, 2022. MMWR Recomm Rep 2022;71(No. RR-3):1–88.

Morford KM, Becker W, Roy P, Chan, CA. “#15 Buprenorphine for Chronic Pain with Dr. Will Becker”. The Curbsiders Addiction Medicine Podcast. https://thecurbsiders.com/episode-list July 27th, 2023.

Vu PD, Bansal V, Chitneni A, Robinson CL, Viswanath O, Urits I, Kaye AD, Nguyen A, Govindaraj R, Chen GH, Hasoon J. Buprenorphine for Chronic Pain Management: a Narrative Review. Current Pain and Headache Reports. 2023;27:811–820. https://doi.org/10.1007/s11916-023-01185-4.

Nasser AF, Heidbreder C, Liu Y, Fudala PJ. Pharmacokinetics of Sublingual Buprenorphine and Naloxone in Subjects with Mild to Severe Hepatic Impairment (Child-Pugh Classes A, B, and C), in Hepatitis C Virus-Seropositive Subjects, and in Healthy Volunteers. Clin Pharmacokinet. 2015 Aug;54(8):837-49. doi: 10.1007/s40262-015-0238-6. PMID: 25603822.