Buprenorphine and Pain

Caitlyn Kuwata MD
Assistant Professor
Department of Geriatrics and Palliative Medicine

Mount Sinai

Disclosure

No conflicts of interest or financial disclosures

Objectives

1. Understand the evolution of buprenorphine use in history
2. Define the pharmacodynamic properties of buprenorphine
3. Identify the patient populations in which to consider the use of buprenorphine
4. Identify the available buprenorphine formulations and understand their unique qualities
5. Learn some of the nuances of prescribing buprenorphine using case examples

What will not be covered:

- **IV buprenorphine (Buprenex) and inpatient IV buprenorphine protocols for rapid induction**
- **Extended-release buprenorphine injection (Sublocade)**
- **Rotation from methadone to buprenorphine**
- **Perioperative management of patients on buprenorphine for OUD**

Quiz your knowledge

The next slide is to quiz your current knowledge of buprenorphine:

On a piece of paper you can # 1-7 to write down your responses:

At the end there will be an answer key (but hopefully you will learn the correct answers as we go through today's slides)

Quiz

Question	Answers
1. True or False: Buprenorphine is only used for treatment of opioid use disorder	A) True B) False
2. True or False: DEA X waiver is required to prescribe buprenorphine for pain	A) True B) False
3. True or False: If someone is on buprenorphine, and you add on oxycodone they will not withdrawal	A) True B) False
4. Buprenorphine is only available in sublingual forms	A) True B) False
5. Buprenorphine is safe to use in dialysis patients	A) True B) False
6. Suboxone is the same DEA Schedule class as Tylenol with Codeine.	A) True B) False
7. Buprenorphine has a ceiling effect on treating pain and a ceiling effect on respiratory depression	A) True B) False

Background

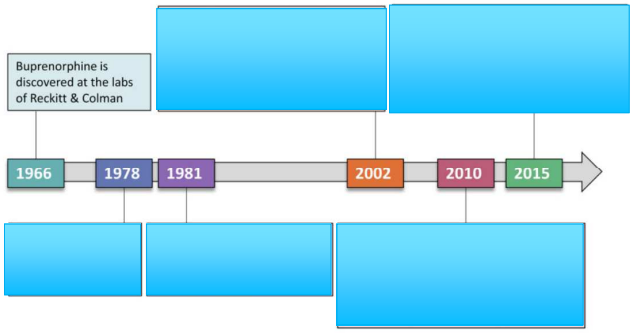


Figure 1. The history of buprenorphine. Buprenorphine was originally developed as an analgesic and was subsequently used for OUD before novel delivery systems allowed for approval in chronic pain management [8,9,12,13]. FDA=Food and Drug Administration; OUD=opioid use disorder.

Key point:

Buprenorphine can be used in both chronic pain and opioid use disorder

Scheduling of opioids

Substances are placed in their respective schedules based on whether they have currently accepted medical use in the US, their relative abuse potential, likelihood of causing dependence when abused

Schedule	Examples
Schedule I	Substances in this schedule have no currently accepted medical use in the United States, a lack of accepted safety for use under medical supervision, and a high potential for abuse. Example of substances listed in Schedule I: heroin
Schedule II	Substances in this schedule have a high potential for abuse which may lead to severe psychological or physical dependence. Examples of Schedule II narcotics include: hydromorphone, methadone, oxycodone, fentanyl
Schedule III	**Substances in this schedule have a potential for abuse less than substances in Schedules I or II and abuse may lead to moderate or low physical dependence or high psychological dependence. Examples of Schedule III narcotics include: products containing not more than 90 milligrams of codeine per dosage unit (Tylenol with Codeine®), and buprenorphine (Suboxone®).**
Schedule IV	Examples of Schedule IV substances include: alprazolam (Xanax®), carisoprodol (Soma®), clonazepam (Klonopin®)
Schedule V	Examples of Schedule V substances include: cough preparations containing not more than 200 milligrams of codeine per 100 milliliters or per 100 grams (Robitussin AC®, Phenergan with Codeine®), and ezogabine.

The unique receptor qualities of buprenorphine:

- Part of what can make buprenorphine different than other traditional opioids is how it interacts at the receptors (pharmacodynamics)….
- However, before we talk about how it interacts at the receptors it's important to clarify some definitions

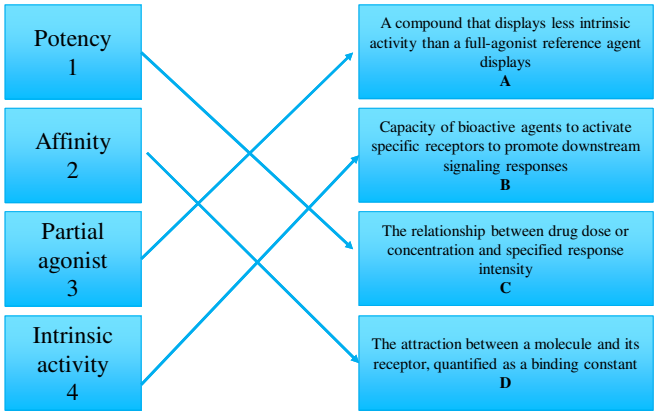
Test your knowledge regarding pharmacodynamic definitions:

Match the term (#) to the definition (letter)

Potency 1	A compound that displays less intrinsic activity than a full-agonist reference agent displays **A**
Affinity 2	Capacity of bioactive agents to activate specific receptors to promote downstream signaling responses **B**
Partial agonist 3	The relationship between drug dose or concentration and specified response intensity **C**
Intrinsic activity 4	The attraction between a molecule and its receptor, quantified as a binding constant **D**

Answers

Match the term (#) to the definition (letter)



Buprenorphine's Pharmacodynamic Properties

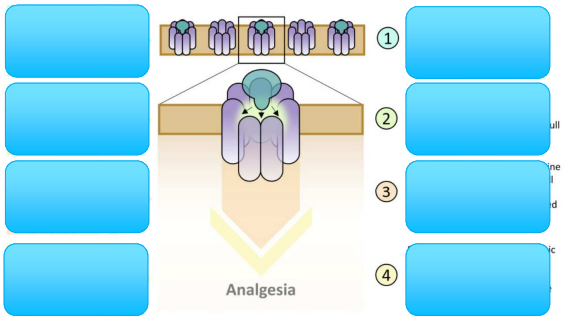


Figure 2. Receptor/ligand definitions and applications to buprenorphine at the μ-opioid receptor. *Definition of a partial agonist: a compound with an intermediate intrinsic activity that at full receptor saturation produces less than the maximal effect obtainable with full agonists in some specified set of in vitro or clinical circumstances [25]. Buprenorphine is a potent Schedule III opioid with high binding affinity at the μ-opioid receptor that behaves as a partial agonist on the basis of in vitro studies [7,14,26]. Although buprenorphine has less total intrinsic activity (capacity to activate a receptor to induce multiple signaling pathways) than full μ-opioid receptor agonists, it still effectively stimulates the analgesic signaling pathway from the μ-opioid receptor [7,14,25,27,28]. 3D=three-dimensional; OR=opioid receptor.

Clinical implications

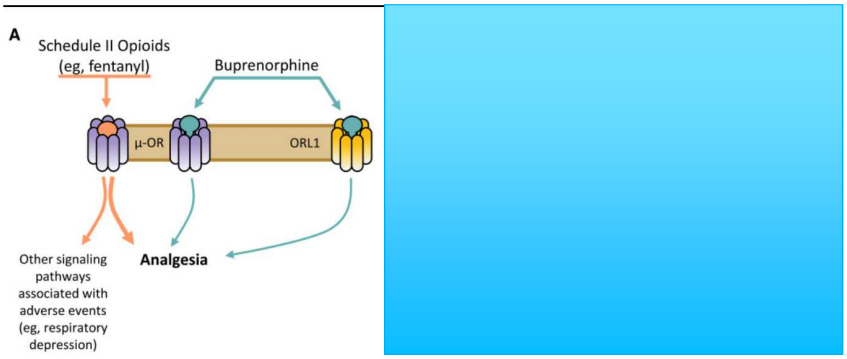


Figure 3. Efficacy and tolerability of buprenorphine compared with those of other opioids used for chronic pain. (A) Potential mechanism of action for buprenorphine and (B) conceptual representation of possible effects compared with those of Schedule II opioids such as, but not limited to, fentanyl [33,38,39]. OR=opioid receptor; ORL1=opioid receptor-like 1.

Benefits of buprenorphine use based on it's receptor activity:

- Lower risk for respiratory depression because of ceiling effect
- Lower effect of euphoria or "high"
- Lower potential for adverse effects like sedation
- Lower risk of hyperalgesia

Davis 2018

What patient populations can find buprenorphine helpful?

1. Anytime you are considering using an opioid, consider buprenorphine, just like any other tool in the opioid tool box
2. Special populations to consider:
    1. Those seeking **treatment for opioid use disorder (OUD)**
    2. **Chronic pain** AND:
        - History of OUD
        - Active OUD or concern for possible opioid misuse
        - Renal dysfunction including ESRD on dialysis (elimination in stool)
        - Older adults
        - Those with long term opioid use
        - Anyone who is not tolerating adverse effects of opioids
        - Need for alternative route of administration, those with dysphagia

Fitzgerald Jones & Merlin 2022
Urits et al 2020
Lu et al 2020
Vadivelu et al 2008

Special considerations for certain populations

- Liver dysfunction
  - Dose reduce buprenorphine if **moderate/severe (Child Pugh B-C)** liver dysfunction (ie - okay to use in stable compensated cirrhosis)
  - Avoid using naloxone based products if **severe liver dysfunction** because concern for higher levels of naloxone ---> precipitated withdrawal risk increases
- QTc prolongation
  - Available studies do not show this prolongation to be **clinically significant**
  - Clinically patients have been rotated from methadone to buprenorphine as a result of a prolonged QTc interval, with resolution of the prolonged QTc interval
  - No need to monitor serial ECGs
  - Mainly a concern when combined with other medications that prolong QTc (antiarrhythmics like amiodarone or certain antiretrovirals) or Long QT syndrome

Davis 2018
Belbuca and Butrans package insert

Dental concerns?

Jan 2022:

FDA warns about dental problems with buprenorphine medicines dissolved in the mouth

- However, this is very misleading
- The American Society of Addiction Medicine w/10 other health profession organizations wrote a letter for **retraction of this warning**

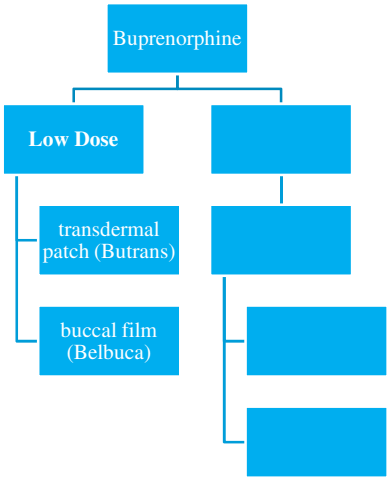
305 cases of dental problems
vs
2.4 million Americans taking buprenorphine

Association, not causation, no RCT

~10% of those on buprenorphine seek dental care

https://sitefinitystorage.blob.core.windows.net/sitefinity-production-blobs/docs/default-source/advocacy/letters-and-comments/22.01.24-a-call-for-the-fda-to-retract-its-1.12.2022-safety-communication-regarding-buprenorphine.pdf?sfvrsn=b30f18eb_3

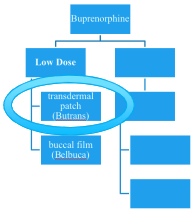
Formulations of buprenorphine



Low Dose Formulations

- **FDA indications:** pain
- **Off label:** part of low dose initiation protocols
- Consider if opioid naïve or oral morphine **equivalent (OME) ≤80**

TRANSDERMAL BUPRENORPHINE - BUTRANS



- **Dosing:** Q7 days
- **Dosage forms:** 5, 7.5, 10, 15, 20mcg/hr
- **Peak effect**: 72 hours
- **Minimum titration interval:** 72 hours (steady state)
- Per Butrans's prescribing guide for starting dose:

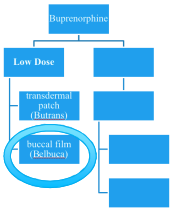
Table 1: Initial BUTRANS Dose

Also if opioid naive

Previous Opioid Analgesic Daily Dose (Oral Morphine Equivalent)	<30 mg	30-80 mg
Recommended BUTRANS Starting Dose	**5 mcg/hour**	**10 mcg/hour**

Butrans insert
http://app.purduepharma.com/xmlpublishing/pi.aspx?id=b

BUPRENORPHINE BUCCAL FILM - BELBUCA



- **Dosing:** Q12 hours
- **Dosage forms:** 75, 150, 300, 450, 600, 750, 900mcg
- **Peak effect:** 3 hours
- **Minimum titration interval:** 4 days (steady state)
- Per Belbuca's prescribing guide for starting dose :

Table 1: Initial BELBUCA Dose Based on Prior Opioid Expressed as Oral Morphine Sulfate Equivalents

Prior Daily Dose of Opioid Analgesic Before Taper to 30 mg Oral MSE	**Initial BELBUCA Dose**
Less than 30 mg oral MSE (Also if opioid naive)	BELBUCA 75 mcg once daily or every 12
30 mg to 89 mg oral MSE	BELBUCA 150 mcg every 12 hours
90 mg to 160 mg oral MSE	BELBUCA 300 mcg every 12 hours
Greater than 160 mg oral MSE	Consider alternate analgesic

BELBUCA doses of 600 mcg, 750 mcg, and 900 mcg are only for use following titration from lo
BELBUCA. Individual titration should proceed in increments of 150 mcg every 12 hours, no mo
than every 4 days.

Taper current daily opioid dose to 30 mg oral morphine sulfate equivalents (MSE) or less prior to initiating therapy with BELBUCA.

Belbuca package insert

Quiz

What is the highest dose of the buprenorphine transdermal patch in the United States?

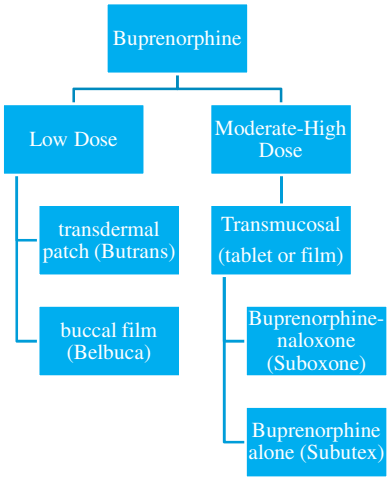
A) 15mcg
B) 20mcg
C) 25mcg
D) 40mcg

Quiz

What is the highest dose of the buprenorphine transdermal patch in the United States?

A) 15mcg
B) 20mcg
C) 25mcg
D) 40mcg

Formulations of buprenorphine



Moderate/High Dose Formulations

- **FDA indications: opioid use disorder (need DEA X waiver)**
- **Off label:** chronic pain (technically do not need DEA X waiver)
- Consider if **NOT** opioid naïve

DEA X WAIVER

Drug Addiction Treatment Act of 2000 (DATA) waiver = X Waiver

- Allows providers to prescribe buprenorphine for treatment of opioid use disorder (**outside of opioid treatment programs (OTPs)**)
- Since April 2021 = **no training required!!!**
- MD/DO/PA/NP
  - Need a license and a DEA #
  - Without training = up to 30 patients
  - With training = > 30 patients

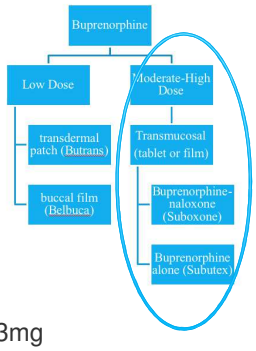
Complete the NOI today!

https://getwaivered.com
https://www.samhsa.gov/medication-assisted-treatment/become-buprenorphine-waivered-practitioner/buprenorphine-waiver-faqs

Slide adapted from "X-Express: Buprenorphine Prescribing for Beginners" by Jessica Merlin MD and Katie Fitzgerald Jones NP (2022)

BUPRENORPHINE TRANSMUCOSAL FILM or TABLET

- **Dosing:** BID/TID/QID (when used for pain), daily (OUD)
- **Peak effect:** 1.5-2 hrs
- **Duration**: 4-8hrs
- **Dosages:**
  - Buprenorphine alone:
    - 2mg, 4mg, 8mg, 12mg
  - Buprenorphine + naloxone:
    - 2mg/0.5mg, 4mg/1mg, 8mg/2mg, 12mg/3mg



Suboxone package insert

QUIZ

What is the dosing frequency of sublingual buprenorphine when the indication is for treating pain?

A. Every other day
B. Daily
C. BID
D. TID
E. BID or TID or QID

QUIZ

What is the dosing frequency of sublingual buprenorphine when the indication is for treating pain?

A. Every other day
B. Daily
C. BID
D. TID
E. BID or TID or QID

Case #1 – Ms.R

85 y.o. Female with HTN and mild Alzheimer's dementia, with chronic back pain 2/2 spinal stenosis. She recalls after a hip replacement surgery she was taking oxycodone 5mg and it made her very dizzy and constipated. Because of that experience, since then she has not used any opioids. Tylenol is no longer effective in managing her pain and she asks "Is there anything stronger, perhaps Tylenol with codeine?"

Case #1 – Ms.R

85 y.o. Female with HTN and mild Alzheimer's dementia, with chronic back pain 2/2 spinal stenosis. She recalls after a hip replacement surgery she was taking oxycodone 5mg and it made her very dizzy and constipated. Because of that experience, since then she has not used any opioids. Tylenol is no longer effective in managing her pain and she asks "Is there anything stronger, perhaps Tylenol with codeine?"

What patient factors would lead to consideration of buprenorphine use?

Case #1 – Ms.R

85 y.o. Female with HTN and mild Alzheimer's dementia, with chronic back pain 2/2 spinal stenosis. She recalls after a hip replacement surgery she was taking oxycodone 5mg and it made her very dizzy and constipated. Because of that experience, since then she has not used any opioids. Tylenol is no longer effective in managing her pain and she asks "Is there anything stronger, perhaps Tylenol with codeine?"

What patient factors would lead to consideration of buprenorphine use?

- **Chronic pain**
- **Opioid naïve**
- **Frail older adult**
- **Didn't tolerate opioids in the past**

Case #1 – Ms.R

85 y.o. Female with HTN and mild Alzheimer's dementia, with chronic back pain 2/2 spinal stenosis. She recalls after a hip replacement surgery she was taking oxycodone 5mg and it made her very dizzy and constipated. Because of that experience, since then she has not used any opioids. Tylenol is no longer effective in managing her pain and she asks "Is there anything stronger, perhaps Tylenol with codeine?"

Which formulations of buprenorphine would you consider using in her, and at what doses?

Case #1 – Ms.R

85 y.o. Female with HTN and mild Alzheimer's dementia, with chronic back pain 2/2 spinal stenosis. She recalls after a hip replacement surgery she was taking oxycodone 5mg and it made her very dizzy and constipated. Because of that experience, since then she has not used any opioids. Tylenol is no longer effective in managing her pain and she asks "Is there anything stronger, perhaps tylenol with codeine?"

Which formulations of buprenorphine would you consider using in her, and at what doses?

Transdermal buprenorphine patch (Butrans) = 5mcg/hr

Or

Buccal film (Belbuca) = 75mcg daily

Case #1 – Ms.R – Logistical considerations

- May need to do a prior authorization
  - Use website **Cover My Meds** for fast prior authorizations
    - Free
    - Just need to register as a prescriber
    - Can get same day approvals
- May be delays in getting it from the pharmacy
  - Can take some pharmacies 1-2 days to get it in stock (call ahead)
- Even if covered, there can sometimes be copays
  - Variable: $0 to $150 for month supply
    - Counsel patients to reach out if the copay is high, consider alternative options

Case #1 – Ms.R – Patient instructions – Transdermal - Butrans

- Rotate application site each time you change the patch (Q7 days) – allow 3 weeks pass before using same site again to avoid incr. drug absorption
- Okay to wear in shower
- Avoid prolonged heat exposure (saunas/hot tubs) as can increase absorption
- Can cause skin irritation – if not bothersome, can leave in place (not dangerous)

Where to apply BUTRANS:

- BUTRANS should be applied to the **upper outer arm, upper chest, upper back, or the side of the chest (See Figure A)**. These 4 sites (located on both sides of the body) provide 8 possible BUTRANS application sites.

Butrans – packet insert: Davis 2018

Case #1 – Ms.R – Patient instructions – Buccal Film - Belbuca

- Moisten your cheek (rinse mouth with water)
- Place the yellow side of film against inside of the cheek
- Avoid eating or drinking until the film has completely dissolved, usually within 30 minutes
- After it has dissolved, rinse your mouth with water and swallow
- Wait for at least 1 hour before brushing teeth

3. Using a finger, place the yellow side of the BELBUCA buccal film against the inside of your moistened cheek. Press and hold the BELBUCA buccal film in place for 5 seconds and then take your finger away **(see Figure E)**.

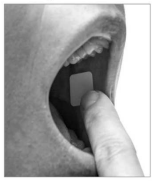


Figure E

Belbuca – packet insert: https://s3.amazonaws.com/belbuca/website/pdfs/med-guide.pdf

Case #2 - Mr.L

40 y.o. male with SCC of the tongue with hx of OUD, CKD stage IV, anemia, HTN, CAD s/p PCI who has been on oxycontin 10mg BID with oxycodone 5mg PRN (hasn't been needing as pain well controlled) for cancer related pain but notes he has mucositis from radiation and has a high pill burden from his other medical conditions and wondering if there were any patch options for pain medication.

Case #2 - Mr.L

40 y.o. male with SCC of the tongue with hx of OUD, CKD stage IV, anemia, HTN, CAD s/p PCI who has been on oxycontin 10mg BID with oxycodone 5mg PRN (hasn't been needing as pain well controlled) for cancer related pain but notes he has mucositis from radiation and has a high pill burden from his other medical conditions and wondering if there were any patch options for pain medication.

What patient factors would lead to consideration of buprenorphine use?

Case #2 - Mr.L

40 y.o. male with SCC of the tongue with hx of OUD, CKD stage IV, anemia, HTN, CAD s/p PCI who has been on oxycontin 10mg BID with oxycodone 5mg PRN (hasn't been needing as pain well controlled) for cancer related pain but notes he has mucositis from radiation and has a high pill burden from his other medical conditions and wondering if there were any patch options for pain medication.

What patient factors would lead to consideration of buprenorphine use?

- Cancer related pain
- Hx of OUD
- Renal dysfunction
- Difficult to take PO or SL medications due to mucositis

Case #2 - Mr.L

40 y.o. male with SCC of the tongue with hx of OUD, CKD stage IV, anemia, HTN, CAD s/p PCI who has been on oxycontin 10mg BID with oxycodone 5mg PRN (hasn't been needing as pain well controlled) for cancer related pain but notes he has mucositis from radiation and has a high pill burden from his other medical conditions and wondering if there were any patch options for pain medication.

Which formulation of buprenorphine would you consider using in him, and at what dose?

Case #2 - Mr.L

40 y.o. male with SCC of the tongue with hx of OUD, CKD stage IV, anemia, HTN, CAD s/p PCI who has been on oxycontin 10mg BID with oxycodone 5mg PRN (hasn't been needing as pain well controlled) for cancer related pain but notes he has mucositis from radiation and has a high pill burden from his other medical conditions and wondering if there were any patch options for pain medication.

Which formulation of buprenorphine would you consider using in him, and at what dose?

Table 1: Initial BUTRANS Dose

Previous Opioid Analgesic Daily Dose (Oral Morphine Equivalent)	<30 mg	30-80 mg
Recommended BUTRANS Starting Dose	5 mcg/hour	10 mcg/hour

As not opioid naïve with OME = 30mg, would start transdermal (Butrans) patch 10mcg/hr

Case #2 – Mr. L – Patient instructions – Rotation

- In the morning, do NOT take the usual oxycontin 10mg dose, and instead place the butrans patch
- Be aware the patch will take at least 48 hours to have some effect and 72hrs for max effect
- While waiting for the patch to take effect, take oxycodone 5mg PRN Q4H
- Even once the patch is working, oxycodone PRNs can continue to be used for breakthrough pain

Because you are starting at a very low dose of buprenorphine, this will NOT precipitate withdrawal (receptors are gradually being occupied)

Furthermore, once the receptors have buprenorphine in place, can always use additional full agonists opioids and not cause withdrawal

Key point

There is potential for precipitated withdrawal when adding buprenorphine to someone on a full opioid agonist

No potential for withdrawal when adding a full opioid agonist to someone already on buprenorphine

Case #2 – Mr.L - What if the 10mcg/hr patch wasn't enough?

- Can consider uptitration of patch at 72hrs (steady state); however, it may be logistically easier to wait until the next patch change (7 days)
- Depending on degree of pain, can either prescribe new rx for 15mcg/hr patch OR counsel patient to put on 2 of the 10mcg/hr patches at the same time = 20mcg/hr
- When it comes to titrating buprenorphine, it's best to titrate to pain and not based on calculations/conversions. Only use the OME to determine the starting dose

Case #2 – Mr.L - What if he is admitted to the hospital?

- **Depends on reason for admission to the hospital:**
  - If for management of uncontrolled pain:
    - Would remove the patch and proceed with pain management like you normally would in a pain crisis (starting IV PRN opioids)
  - If for non-pain related admission:
    - Can leave the patch in place and have PRN full agonists on board like usual (although may need patient to bring in further doses of the patch as often non-formulary)

Case #3 – Ms. W

72 y.o. female with multiple myeloma with worsening cancer related pain who has been taking oxycontin 60mg BID and oxycodone IR 10mg Q4H PRN for breakthrough pain. She notes in 24hrs taking 6 breakthrough doses. Patient with no history of OUD; however, she notes lately she sometimes will take the PRNs for reasons other than pain and is bothered by feeling decreased control over her oxycodone use. She also finds that even with higher PRN use, her pain isn't as well controlled these days. She wonders if there was any other medications she could try that would maybe make her feel less dependent.

Case #3 – Ms. W

72 y.o. female with multiple myeloma with worsening cancer related pain who has been taking oxycontin 60mg BID and oxycodone IR 10mg Q4H PRN for breakthrough pain. She notes in 24hrs taking 6 breakthrough doses. Patient with no history of OUD; however, she notes lately she sometimes will take the PRNs for reasons other than pain and is bothered by feeling decreased control over her oxycodone use. She also finds that even with higher PRN use, her pain isn't as well controlled these days. She wonders if there was any other medications she could try that would maybe make her feel less dependent.

What patient factors would lead to consideration of buprenorphine use?

Case #3 – Ms. W

72 y.o. female with multiple myeloma with worsening cancer related pain who has been taking oxycontin 60mg BID and oxycodone IR 10mg Q4H PRN for breakthrough pain. She notes in 24hrs taking 6 breakthrough doses. Patient with no history of OUD; however, she notes lately she sometimes will take the PRNs for reasons other than pain and is bothered by feeling decreased control over her oxycodone use. She also finds that even with higher PRN use, her pain isn't as well controlled these days. She wonders if there was any other medications she could try that would maybe make her feel less dependent.

What patient factors would lead to consideration of buprenorphine use?

- Worsening chronic cancer related pain
- Risk for possible opioid misuse

Case #3 – Ms. W

72 y.o. female with multiple myeloma with worsening cancer related pain who has been taking oxycontin 60mg BID and oxycodone IR 10mg Q4H PRN for breakthrough pain. She notes in 24hrs taking 6 breakthrough doses. Patient with no history of OUD; however, she notes lately she sometimes will take the PRNs for reasons other than pain and is bothered by feeling decreased control over her oxycodone use. She also finds that even with higher PRN use, her pain isn't as well controlled these days. She wonders if there was any other medications she could try that would maybe make her feel less dependent.

Which formulation of buprenorphine would you consider using in her, and at what dose?

Case #3 – Ms. W

72 y.o. female with multiple myeloma with worsening cancer related pain who has been taking oxycontin 60mg BID and oxycodone IR 10mg Q4H PRN for breakthrough pain. She notes in 24hrs taking 6 breakthrough doses. Patient with no history of OUD; however, she notes lately she sometimes will take the PRNs for reasons other than pain and is bothered by feeling decreased control over her oxycodone use. She also finds that even with higher PRN use, her pain isn't as well controlled these days. She wonders if there was any other medications she could try that would maybe make her feel less dependent.

Which formulation of buprenorphine would you consider using in her, and at what dose?

Oxycontin 60mgx2 (120mg) + oxycodone IR 10mg x6PRN (60mg) = 180mg oxycodone/24hrs = 270 OME

Given OME >160, low dose formulations won't be sufficient

Given high amount of oxycodone in the system, risk for precipitated withdrawal if 2mg buprenorphine is immediately added…

Role of low dose initiation theory

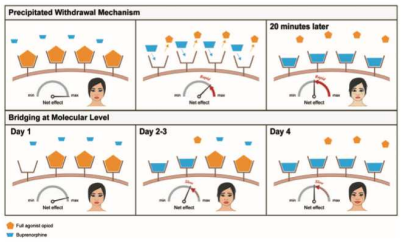


Fig. 1.
Mechanism behind precipitated withdrawal mechanism as well as bridging: Partial agonist opioid with high affinity for μ-receptors replaces the full opioid agonist rapidly over a short period of time causing a massive change in the net μ-receptor activation leading to rapid precipitated withdrawal. This can be mitigated by bridging, where the gradual introduction of higher affinity partial agonist opioids can help minimize withdrawal symptoms.

- When you give a larger amount of buprenorphine, because of it's high affinity to the receptor it can **rapidly displace** the full agonists which can lead to withdrawal
- When you give low doses (ie 0.5mg buprenorphine), buprenorphine **slowly displaces** the full agonist from the receptors and not precipitating a withdrawal

DeAquino et al 2021
Ghosh et al 2019
Cohen et al 2022

Case #3 – Ms. W – Gradual low dose induction of buprenorphine

Day	Buprenorphine Dosage (using 2mg/0.5mg buprenorphine/naloxone film)	Full Mu Opioid Agonist Dosage (extended release)	Full Mu Opioid Agonist Dosage (immediate release)
1	0.5mg BID	Continue 60mg oxycontin BID	Continue Oxycodone 10mg IR Q4H PRN
2	1mg BID	Continue 60mg oxycontin BID	Continue Oxycodone 10mg IR Q4H PRN
3	1mg TID	Continue 60mg oxycontin BID	Continue Oxycodone 10mg IR Q4H PRN
4	2mg TID	Decrease to 30mg oxycontin BID	Continue Oxycodone 10mg IR Q4H PRN
5	4mg TID	STOP oxycontin	Continue Oxycodone 10mg IR Q4H PRN
6 (may not need to this dose)	8mg TID	None	Continue Oxycodone 10mg IR Q4H PRN

Becker et al 2020 (adapted)

Quiz Answers

Question	Answers
1. True or False: Buprenorphine is only used for treatment of opioid use disorder	A) True **B) False**
2. True or False: DEA X waiver is required to prescribe buprenorphine for pain	A) True **B) False**
3. True or False: If someone is on buprenorphine, and you add on oxycodone it will not precipitate withdrawal	**A) True** B) False
4. Buprenorphine is only available in sublingual forms	A) True **B) False**
5. Buprenorphine is safe to use in dialysis patients	**A) True** B) False
6. Suboxone is the same DEA Schedule class as Tylenol with Codeine.	**A) True** B) False
7. Buprenorphine has a ceiling effect on treating pain and a ceiling effect on respiratory depression	A) True **B) False**

Conclusion

- Buprenorphine can be used for treatment of pain
- Buprenorphine has a lower risk of respiratory depression compared to other opioids
- There are various formulations of buprenorphine that can be used and it's important to get an X-waiver
- If someone is taking buprenorphine, it is safe and effective to add on a full opioid agonist for breakthrough pain
- Consider buprenorphine in those patients who you worry may not tolerate a traditional full mu opioid agonist

Additional Resources

- CEI: Clinical Education Initiative – New York State Department of Health AIDS Institute.
  - https://ceitraining.org/courses/
- PCSS: Providers Clinical Support System
  - https://pcssnow.org/medications-for-opioid-use-disorder/buprenorphine/
- GeriPal Podcast -
  - https://geripal.org/buprenorphine-use-in-serious-illness-a-podcast-with-katie-fitzgerald-jones-zachary-sager-and-janet-ho/
- Fast Facts
  - https://www.mypcnow.org/fast-fact/low-dose-buprenorphine-patch-for-pain/
- Padlet – Katie Fitzgerald Jones
  - https://padlet.com/kfitzgerald118/pbrl241qci5yompo

References

Becker WC, Frank JW, Edens EL. Switching From High-Dose, Long-Term Opioids to Buprenorphine: A Case Series. Ann Intern Med. 2020 Jul 7;173(1):70-71. doi: 10.7326/L19-0725. Epub 2020 Apr 7. PMID: 32252072.

Cohen SM, Weimer MB, Levander XA, Peckham AM, Tetrault JM, Morford KL. Low Dose Initiation of Buprenorphine: A Narrative Review and Practical Approach. J Addict Med. 2022 Jul-Aug 01;16(4):399-406. doi: 10.1097/ADM.0000000000000945. Epub 2021 Dec 23. PMID: 34954746.

Davis MP, Pasternak G, Behm B. Treating Chronic Pain: An Overview of Clinical Studies Centered on the Buprenorphine Option. Drugs. 2018 Aug;78(12):1211-1228. doi: 10.1007/s40265-018-0953-z. PMID: 30051169; PMCID: PMC6822392.

De Aquino JP, Parida S, Sofuoglu M. The Pharmacology of Buprenorphine Microinduction for Opioid Use Disorder. Clin Drug Investig. 2021 May;41(5):425-436. doi: 10.1007/s40261-021-01032-7. Epub 2021 Apr 5. PMID: 33818748; PMCID: PMC8020374.

Fitzgerald Jones K, Merlin J. Prescribing Buprenorphine: Palliative in Practice. CAPC. Updated March 23, 2022. https://www.capc.org/blog/part-2-the-ins-and-outs-of-prescribing-buprenorphine/

Ghosh, Sumantra Monty MD, MSc, FRCPC, ISAM1; Klaire, Sukhpreet MD, CCFP2; Tanguay, Robert MD, FRCPC, ISAM3; Manek, Mandy MD, CCFP4; Azar, Pouya MD, FRCPC, ISAM5. A Review of Novel Methods To Support The Transition From Methadone and Other Full Agonist Opioids To Buprenorphine/Naloxone Sublingual In Both Community and Acute Care Settings. The Canadian Journal of Addiction: December 2019 - Volume 10 - Issue 4 - p 41-50. doi: 10.1097/CXA.0000000000000072

Lu E, Schell JO, Koncicki HM. Opioid Management in CKD. Am J Kidney Dis. 2021 May;77(5):786-795. doi: 10.1053/j.ajkd.2020.08.018. Epub 2020 Oct 22. PMID: 33500128.

Urits I, Pham C, Swanson D, Berardino K, Bandi P, Amgalan A, Kaye RJ, Jung JW, Kaye AD, Paladini A, Varrassi G, Kaye AM, Manchikanti L, Viswanath O. The utilization of buprenorphine in chronic pain. Best Pract Res Clin Anaesthesiol. 2020 Sep;34(3):355-368. doi: 10.1016/j.bpa.2020.06.005. Epub 2020 Jul 3. PMID: 33004153.

Vadivelu N, Hines RL. Management of chronic pain in the elderly: focus on transdermal buprenorphine. Clin Interv Aging. 2008;3(3):421-30. doi: 10.2147/cia.s1880. PMID: 18982913; PMCID: PMC2682375.

Webster L, Gudin J, Raffa RB, Kuchera J, Rauck R, Fudin J, Adler J, Mallick-Searle T. Understanding Buprenorphine for Use in Chronic Pain: Expert Opinion. Pain Med. 2020 Apr 1;21(4):714-723. doi: 10.1093/pm/pnz356. PMID: 31917418; PMCID: PMC7139205.