Opioid Use Disorder Management in the Acute Care Setting

Amy W. Liu, MD
Providence Regional Medical Center Everett

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Disclosures

No conflicts of interest or relationships to disclose

Objectives

- Review trends in opioid use in the US and Washington state.
- Learn to diagnose opioid use disorder (OUD) and recognize opioid withdrawal.
- Compare medications for opioid use disorder (MOUD).
- Examine inpatient management strategies for opioid withdrawal and MOUD initiation.
- Outline transitions of care considerations for patients started on MOUD during hospitalization.

Trends in Opioid Use in the US and Washington state

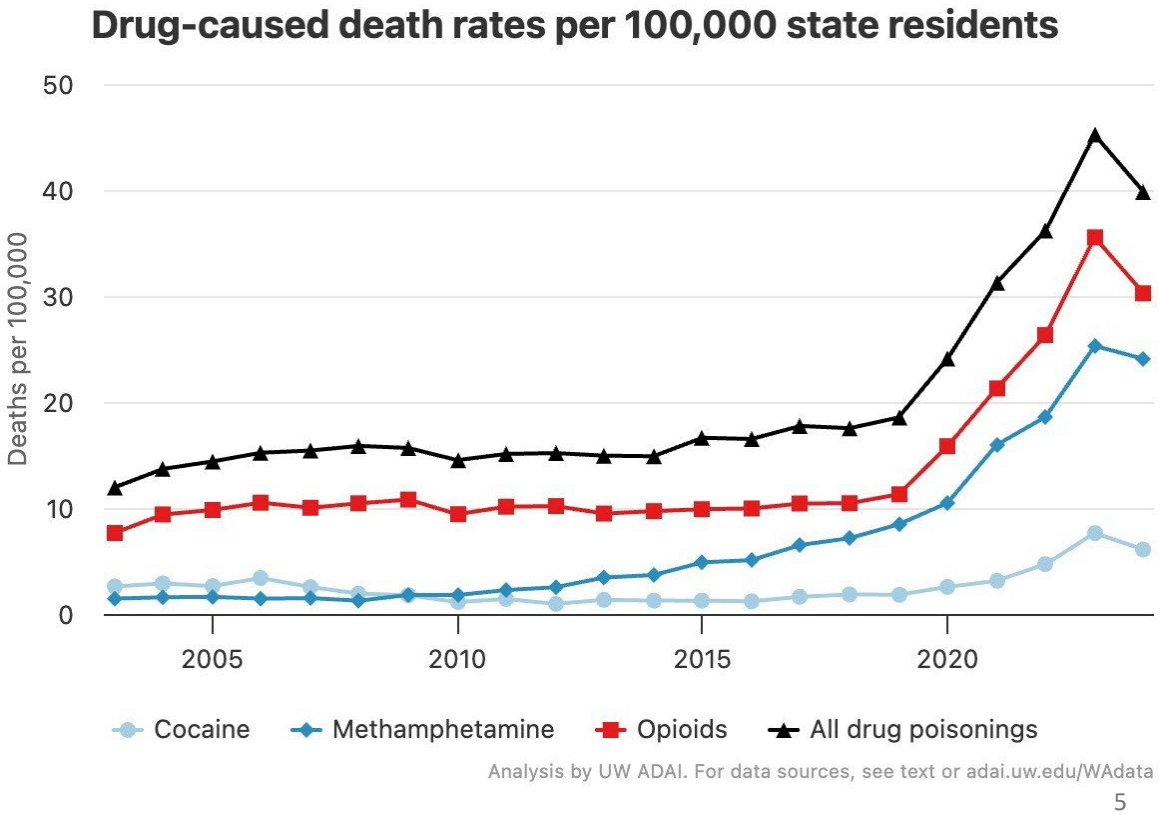
Opioid overdose deaths in Washington State and the US have risen overall since 2013

55 people nationwide die daily from a drug overdose from prescription or illicit opioids.

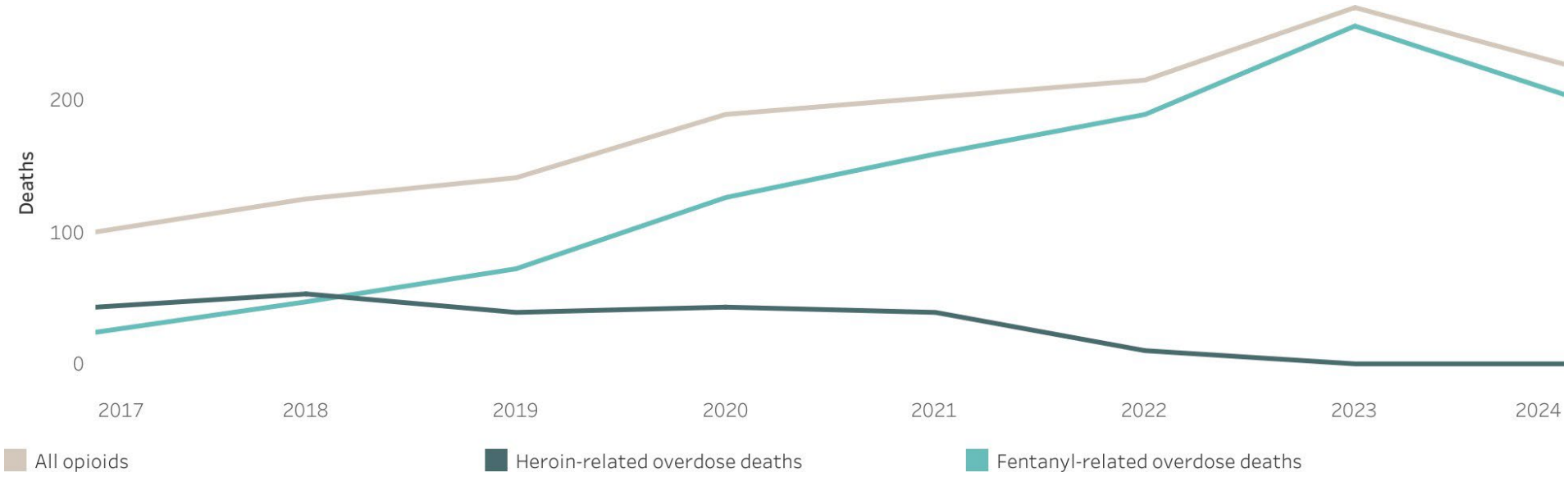
Nearly **2x** increase in Opioid drug overdose deaths in Washington State from 2019 to 2021

68% of drug overdose deaths among Washington residents involved an opioid.

WA DOH, Accessed 2025 June 30.



Snohomish County Opioid Overdose Deaths, by Substance



Snohomish County Health Department. Snohomish Overdose Prevention. Accessed 2025 March 24. https://snohomishoverdoseprevention.com/data/

Opioid Overdoses in the US

- 64% of US overdose deaths were due to synthetic opioids (primarily fentanyl) in 2021.
- 20.4 million counterfeit pills seized
- Many counterfeit pills are pressed to look like prescription opioids (oxycodone, hydrocodone, alprazolam), or stimulants like amphetamines

Authentic Oxycodone

Counterfeit Oxycodone

DEA 2022

Fentanyl

- “Blues”: Per 2020 data, 89% of police-confiscated fentanyl in tablet form
- Rise in unintentional overdoses due to drugs (e.g. methamphetamine) contaminated by fentanyl
- More often smoked than injected

DEA 2024, Glick 2024

Fentanyl use complicates management of OUD in the acute care setting

- Higher potency -> higher opioid tolerance
- High lipophilicity -> slower clearance, possibly prolonged, severe, and unpredictable withdrawal symptoms
- Increased use of fentanyl necessitates changes in OUD management in the inpatient setting:
  - Risk of precipitated withdrawal with buprenorphine
  - Risk of opioid withdrawal with slower methadone titration

Englander 2024, Luba 2023

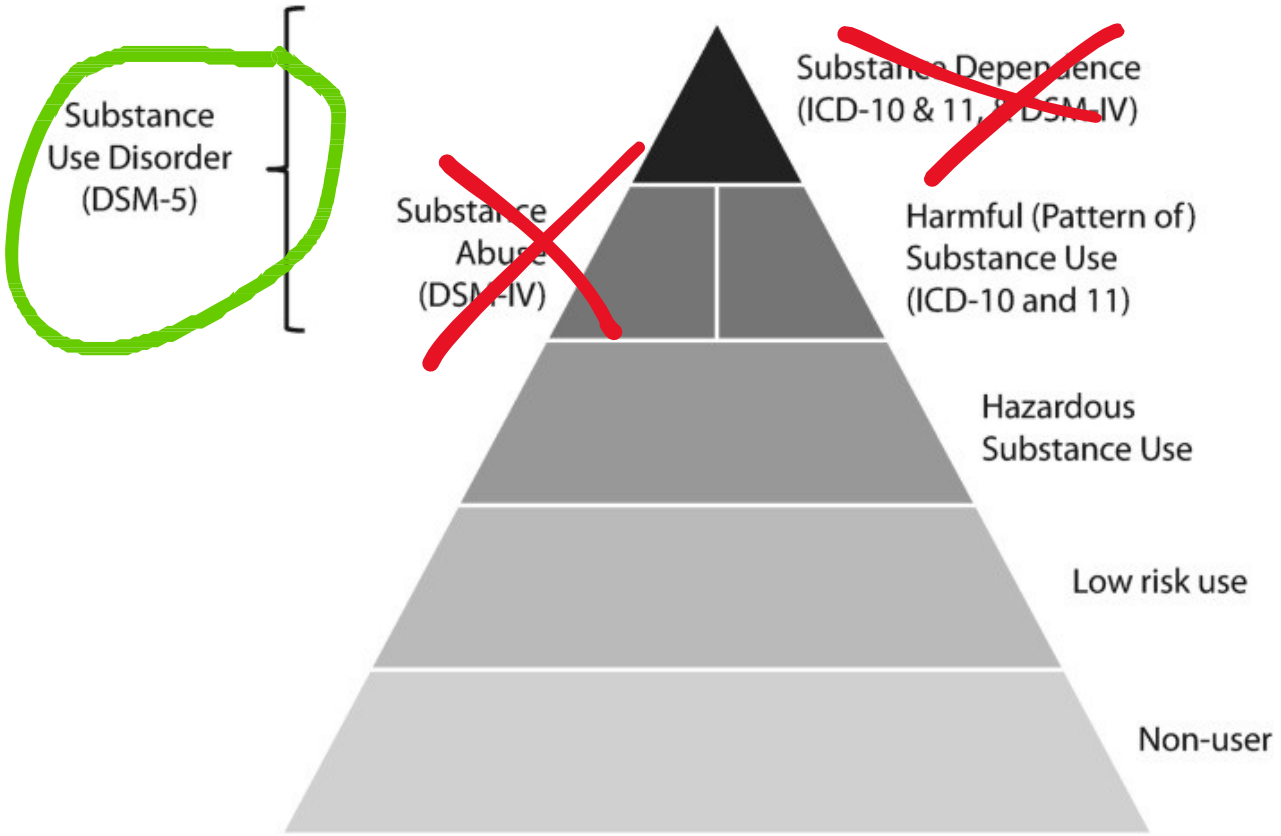
Why should SUDs and substance withdrawal be addressed in the inpatient setting?

- Substance use disorders (SUDs) are common in hospitalized patients
  - In one US retrospective study, 1 of 11 patients in the ER, and 1 of 9 patients hospitalized, had a SUD diagnosis (Suen 2021).
- Treating substance withdrawal and SUDs improves outcomes
  - Reduced overdoses, readmissions
  - Increased linkage to outpatient SUD treatment
- Clinicians who take a nonjudgmental, informed approach to SUD management can build trust with people with SUDs
  - Decreased risk of patient-directed discharges
  - Increased engagement in medical care

Suen 2021, Alrawashdeh 2023, Weiner 2024, Rosenthal 2023, Lambert 2025, Velez 2016

Diagnosis of Opioid Use Disorder (OUD) and Opioid Withdrawal

Spectrum of Substance Use



- "**Substance Use Disorder**": persistent substance use despite negative consequences.
- Why it matters: The term "**abuse**" perpetuates stigmatizing attitudes, even in highly trained medical or mental health professionals (Kelly 2010).
- Substance "**dependence**" describes a physiological state but is NOT equivalent to all the features of SUD.

Saunders 2021, Kelly 2010

Opioid Use Disorder (OUD) DSM-5 Criteria

1. Use in larger amounts or longer duration than intended
2. Persistent desire to cut down or control use
3. Great deal of time is spent obtaining, using, or recovering from use
4. Craving
5. Recurrent use resulting in failure to fulfill major role obligations at work, school or home
6. Continued use despite social or interpersonal problems caused or exacerbated by opioid use
7. Giving up important social, occupational or recreational activities due to use.
8. Recurrent use in physically hazardous situations
9. Continued use despite physical or psychological problems
10. *Tolerance
11. *Withdrawal

OUD Severity:
Mild: 2-3 symptoms
Moderate: 4-5 symptoms
Severe: 6 or more symptoms

* Criteria 10 and 11 are NOT considered to be met for those individuals taking opioids solely under appropriate medical supervision.

Opioid Withdrawal

Subjective:

- GI upset (Nausea, vomiting, diarrhea, abdominal cramping)
- Chills, flushing
- Muscle or bone pain
- Irritability, anxiety, restlessness, agitation
- Opioid cravings

Objective:

- Tachycardia, Hypertension
- Diaphoresis
- Piloerection
- Restlessness
- Pupil dilation
- Yawning
- Rhinorrhea
- Lacrimation

Usual Time of Onset:
Heroin, oxycodone, other short acting opioids: 8-12 hr
Methadone: 24-72 hr
Fentanyl: 8-24 hr

Wesson 2003, Englander 2024, ASAM 2020

COWS Score

<5 - no active withdrawal
5-12 - mild withdrawal
13-24 - moderate withdrawal
25-36 - moderately severe withdrawal
>36 - severe withdrawal

Wesson 2003

Wesson & Ling, J Psychoactive Drugs. 2003 Apr-Jun;35(2):253-9.

COWS Clinical Opiate Withdrawal Scale

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120	GI Upset: *over last 1/2 hour* 0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 No report of chills or flushing 1 Subjective report of chills or flushing 2 Flushed or observable moistness on face 3 Beads of sweat *on* brow or face 4 Sweat streaming off face	Tremor *observation of outstretched hands* 0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 Able to sit still 1 Reports difficulty sifting still, but is able to do so 3 Frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds	Yawning *Observation during assessment* 0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute
Pupil size 0 Pupils pinned or normal size for room light 1 Pupils possibly larger than normal for room light 2 Pupils moderately dilated 5 Pupils so dilated that only the rim of the iris is visible	Anxiety or irritability 0 None 1 Patient reports increasing irritability or anxiousness 2 Patient obviously irritable anxious 4 Patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 Not present 1 Mild diffuse discomfort 2 Patient reports severe diffuse aching of joints/ muscles 4 Patient is rubbing joints or muscles and is unable to sit still because of discomfort	Gooseflesh skin 0 Skin is smooth 3 Piloerrection of skin can be felt or hairs standing up on arms 5 Prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment:_____

Score: 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal

Comparing Medications for Opioid Use Disorder (MOUD)

Purpose of Medications for Opioid Use Disorder (MOUD)

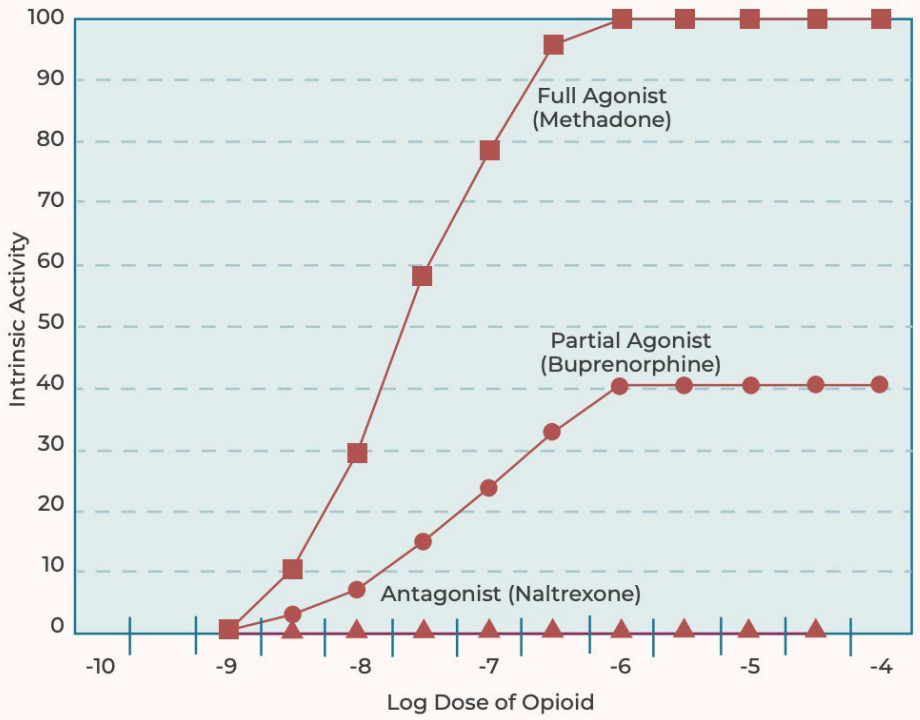
To reduce or stop opioid use and mitigate the negative effects of opioid use, by:

- Controlling opioid withdrawal symptoms (methadone, buprenorphine)
- Reducing opioid cravings
- Blocking reinforcement of ongoing opioid use
- Promoting engagement in recovery-oriented activities

MOUD is standard of care in OUD and should be offered during hospitalization.

Medications for Opioid Use Disorder

Exhibit 3A.4. Intrinsic Activity of OUD Medications[74]

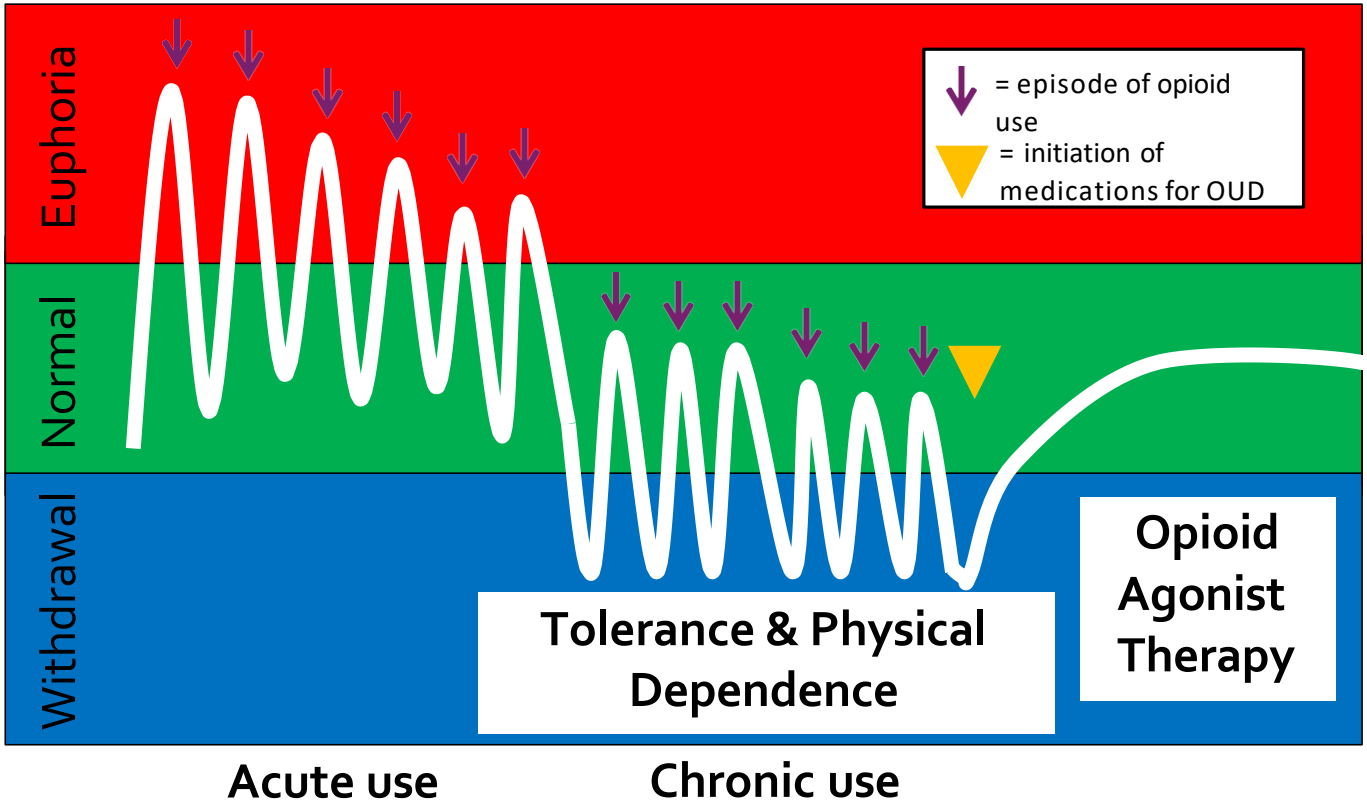


SAMHSA 2021

Comparisons of MOUD

MOUD	Advantages	Disadvantages	Transition of Care Considerations
Buprenorphine	Effective for opioid withdrawal stabilization May be effective for pain	Risk of precipitated withdrawal	Any provider with DEA license can prescribe for OUD
Methadone	Effective for opioid withdrawal stabilization May be effective for pain	Respiratory depression, QTc prolongation (relative contraindication)	Only available outpatient via opioid treatment program (OTP)
Extended-release Naltrexone	Can be used for both OUD and AUD Good for those who wish to avoid opioids	Does not treat opioid withdrawal Risk of precipitated withdrawal	Any prescribing clinician, but must be administered by a trained clinician, pharmacist, or RN

Methadone or Buprenorphine: Aren't you just replacing one drug for another?



- On therapeutic doses of opioid agonist therapy, patients should have reduced withdrawal symptoms and opioid cravings, and do not "get high."
- Opioid agonist therapy helps restore balance/stability in mu opioid receptor activity to support recovery.

Methadone and buprenorphine, but not naltrexone, as MOUD are associated with reduced mortality after nonfatal opioid overdose

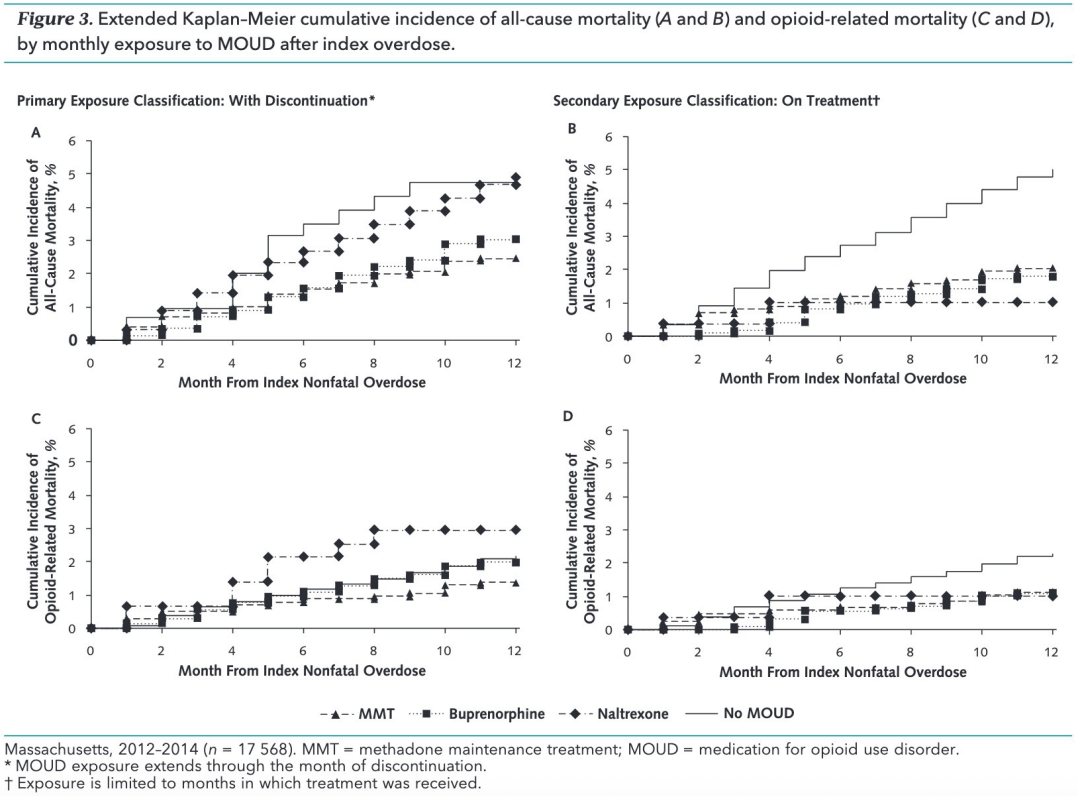


Figure 3. Extended Kaplan-Meier cumulative incidence of all-cause mortality (*A* and *B*) and opioid-related mortality (*C* and *D*), by monthly exposure to MOUD after index overdose.

Massachusetts, 2012-2014 (n = 17 568). MMT = methadone maintenance treatment; MOUD = medication for opioid use disorder.
* MOUD exposure extends through the month of discontinuation.
† Exposure is limited to months in which treatment was received.

Larochelle 2018

Patients in the study received MOUD in the 12 months after a nonfatal opioid overdose.

At 12 months, the authors found a **reduction in all-cause mortality** with **methadone** (AHR, 0.37 [CI, 0.24 to 0.59]) and **buprenorphine** (AHR, 0.35 [CI, 0.23 to 0.53]) but **not naltrexone** (AHR, 0.34 [CI, 0.08 to 1.34]).

Management of Opioid Withdrawal and MOUD Initiation in the Inpatient Setting

Opioid Agonists as Treatment for Opioid Withdrawal

- More effective in reducing opioid withdrawal symptoms
- Should be offered even if patient does not plan to continue as MOUD
- Methadone
  - 20-30 mg to start
  - Then 10 mg 4-6 hours later if ongoing symptoms
  - Max 40-60 mg on day 1
- Buprenorphine
  - Wait until COWS≥8, then give 2-4 mg SL
  - Then 4 mg q1-2 hours if ongoing symptoms
  - Max 16-32 mg/day
- Tailor starting dose to patient's baseline opioid tolerance
- AVOID in high risk of respiratory depression or sedation

ASAM 2020, Englander 2024

Adjunctive Medications for Opioid Withdrawal

Symptom	Medication	Typical Dose Range
Anxiety, restlessness, insomnia	Clonidine	0.1-0.2 mg q2H PRN, NTE 1.2 mg daily (avoid if hypotensive), taper by 0.1-0.2 daily
	Gabapentin	300 mg TID PRN
	Hydroxyzine	25-50 mg q6H PRN
Muscle spasms	Methocarbamol	500 mg TID PRN
Muscle aches, joint pain, headache	Ibuprofen	400-800 q6H PRN
	Acetaminophen	500-1000 mg q6H PRN
Nausea, vomiting	Ondansetron	4-8 mg q8H PRN
Abdominal cramping	Dicyclomine	20 mg 4x daily PRN
Diarrhea	Loperamide	2 mg 4x daily PRN

Srivastava 2020

Inpatient Initiation of MOUD

- If already on MOUD, should continue during admission and adjust dose as needed
- If not yet on MOUD, should offer during hospitalization
  - Patient preference is key
  - Consider clinical factors (co-occurring pain or other SUD, QTc prolongation, sedation or respiratory depression risks)
  - Account for community access to treatment after hospitalization

Naltrexone-extended release

- Stop short-acting opioids at least 6 days before starting
- Stop long-acting opioids (methadone, buprenorphine) at least 7-10 days before
- Can give naloxone as a test dose beforehand
- If no withdrawal, then give 380 mg IM injection in gluteal muscle
- Transitions of care: should have follow up appointment with outpatient prescribing clinician in 4 weeks for next dose

Methadone Inpatient Start

- No society guidelines for inpatient methadone titration
- Titration strategies usually based on expert opinion, observational studies, and extrapolation from clinical practice guidelines
- Consider traditional and rapid initiation strategies
- Check baseline ECG (QTc >500 is relative contraindication)

Methadone Traditional Start

- Based on OTP guidelines:
- Day 1
  - Initial dose 10-30 mg
  - Then 5 mg q2-4H PRN x 2 doses max
  - Max day 1 dose is 40 mg
- Days 2+, increase by no more than 5-10 mg every 3-5 days.
- Dose adjustments based on opioid withdrawal, craving, or adverse effects (e.g. sedation).

Methadone Rapid Start

- Based on expert opinion, limited observational studies
- The below is an example approach

Day	Initial Dose	Subsequent Doses (up to TDD)	Max Total Daily Dose (TDD)
1	20-40 mg	5-10 mg at least 4 hr later PRN opioid withdrawal or craving	40 mg
2	Day 1 TDD	5-10 mg at least 4 hr later PRN	50 mg
3	Day 2 TDD	5-10 mg at least 4 hr later PRN	60 mg
Subsequent (once at 60 mg TDD)	Prior day's TDD	5-10 mg every 3-4 days PRN	-

Cohen 2025, Klaire 2023, Englander 2025

Continuing Patient's Outpatient Methadone

- Confirm with OTP, then continue outpatient methadone dose
- If patient has missed 3-4 days of methadone, consider decreasing by 50% initially
- If >4 days of methadone missed, START OVER with methadone initiation (e.g. 20-40 mg to start).
- Don't forget to check the PDMP. NOTE: Methadone for OUD is NOT reported on PDMP (but IS for pain). Buprenorphine IS reported on PDMP.

Methadone Starts: Additional Thoughts

- Consider methadone split dosing for analgesia if acute pain (BID or TID dosing)
  - If going to continue methadone outpatient, should consolidate to daily dose ideally a few days before discharge
- Can add short-acting opioids for acute pain (on top of the baseline methadone)
  - Keep in mind baseline opioid tolerance. Higher doses likely needed
- Look out for side effects (as with all opioid agonists) and drug-drug interactions (CYP P450 3A inducer/inhibitors)

Buprenorphine Overview

- Partial *agonist* at mu opioid receptor (MOR)
- Ceiling effect on respiratory depression (lower risk of overdose compared to methadone)
- High affinity for MOR (displaces other opioids)
- Poor oral bioavailability; given sublingually or subcutaneously for OUD (transdermal or buccal for pain)
- Sublingual:
  - Peak level 3-6 hours
  - Half life >24 hours
  - Typical maintenance dose (for OUD): **16-32 mg daily** (typical max 32 mg daily)
- Subcutaneous: weekly or monthly
- Does NOT prolong QTc (unlike methadone)

SAMHSA 2021

Limitations of Buprenorphine

- Need for detoxification from opioid agonists before starting buprenorphine
  - Risk of return to use when opioid agonist is stopped
- Precipitated withdrawal if buprenorphine given too soon after stopping opioid agonist (especially with fentanyl)
- Inability to quickly achieve therapeutic effect with buprenorphine

Buprenorphine MOUD Formulations

Formulation	Dosing	FDA-Approved Products
Tablet (Sublingual)	Daily	Generic, buprenorphine-naloxone SL (Suboxone, Zubsolv), buprenorphine (Subutex)
Film (Sublingual)	Daily	Generic, buprenorphine-naloxone (Suboxone)
Extended-Release Injection (Subcutaneous)	Monthly or Weekly	Buprenorphine monthly (Sublocade) Buprenorphine weekly or monthly (Brixadi)

- The naloxone in buprenorphine-naloxone is included to deter from misuse.
- When taken sublingually (as prescribed), naloxone is NOT active
- If dissolved/injected, then naloxone WOULD be active
- Therefore, naloxone's inclusion is meant to deter IM/IV use

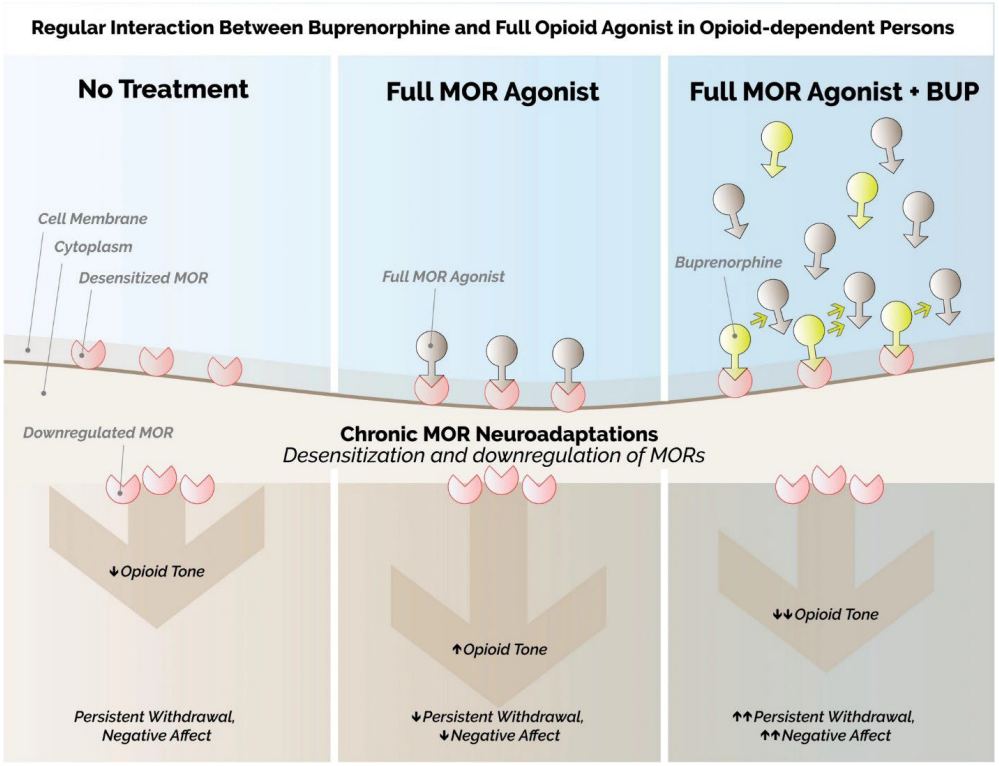
Note there are **buccal** and **transdermal** patch formulations for **chronic pain** (not FDA-approved for OUD) (brand names Belbuca, Butrans)

Buprenorphine (Sublingual) Start Protocols

- Withdrawal or “Traditional” start
- Rapid or “High-dose” start
- Overlapping or “Low-dose” start
- Practical considerations

“Buprenorphine made me sick!”
Why is this?

Buprenorphine competitively binds to mu opioid receptor (MOR)



Precipitated withdrawal

De Aquino 2021

Buprenorphine Withdrawal ("Traditional") Start

- Stop opioids and wait until COWS>8
- Day 1:
  - Initial dose: buprenorphine 2-4 mg SL
  - Subsequent doses: 2-4 mg q2-4H PRN until withdrawal resolves
  - Usual day 1 TDD: 8-16 mg bup total
  - Subsequent days: Increase from prior TDD by 4-8 mg daily, typical maintenance range 8-24 mg daily (max 32 mg)
- Pro: less complex protocol
- Cons:
  - Risk of precipitated withdrawal when using fentanyl
  - Risk for return to use after stopping opioids
  - May take days to achieve therapeutic buprenorphine level

Rapid or "High-dose" Buprenorphine Start

- Like withdrawal start, but **higher** initial buprenorphine dose on day 1 (16-32 mg)
- Advantages
  - Less complex protocol than overlapping or withdrawal start
  - Could be more effective in achieving therapeutic dose while minimizing withdrawal period
- Limited evidence in literature (for now)
  - Retrospective studies from ER setting
  - Few cases of precipitated withdrawal, even with fentanyl use

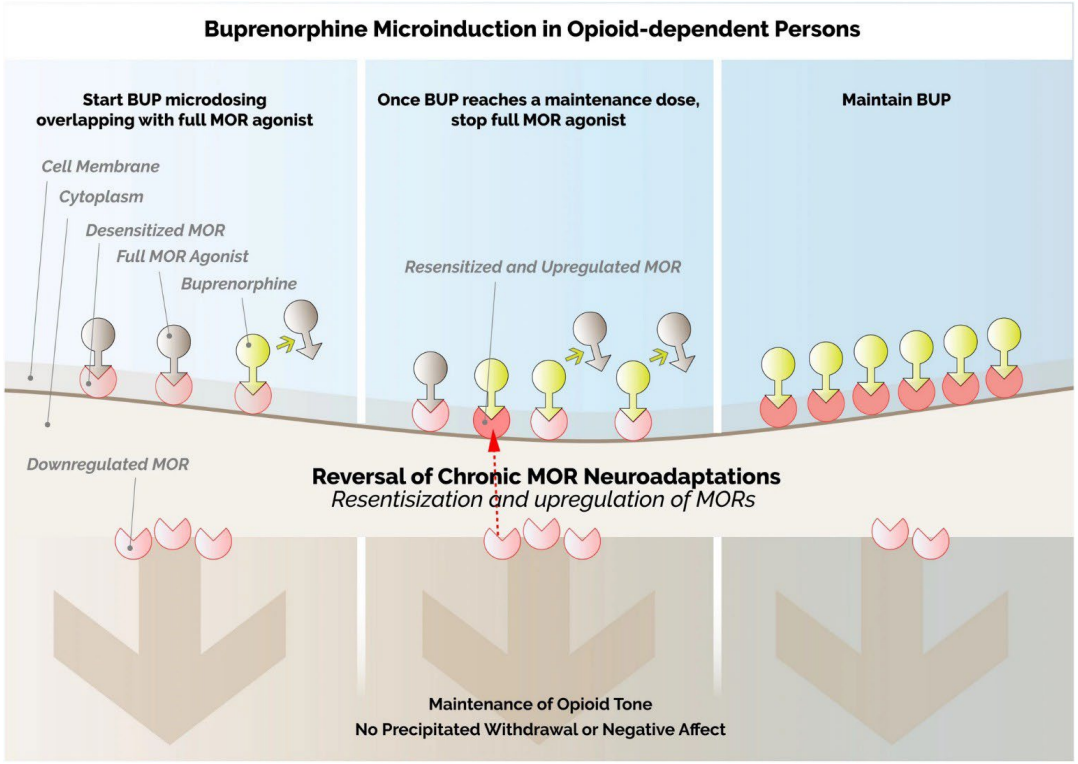
Herring 2021, Snyder 2023

Overlapping or "Low-Dose" Buprenorphine Start

- Start buprenorphine at low doses while **continuing** full agonist (e.g. hydromorphone, methadone)
- Intention is to minimize precipitated withdrawal
- Pros:
  - May be more acceptable if patient has had negative prior experiences with standard buprenorphine initiation
  - Minimizes withdrawal symptoms
  - Can start while patient is receiving full opioid agonists for acute pain
- Cons:
  - More complex instructions
  - Takes longer to achieve therapeutic dose

Hämmig 2016, Bhatraju 2022, Button 2022

Low doses of buprenorphine avoid significant withdrawal



De Aquino 2021

Outpatient Low-Dose 1-week Initiation Example

Day	Actual Dose/Day	Fraction of buprenorphine-naloxone SL film (or tablet)	Full Opioid Agonist Dose
Day 1	0.5 mg daily	¼ (2/0.5 mg) film once daily	Continue current dose
Day 2	0.5 mg BID	¼ (2/0.5 mg) film twice daily	Continue current dose
Day 3	1 mg BID	½ (2/0.5 mg) film twice daily	Continue current dose
Day 4	2 mg BID	1 (2/0.5 mg) film twice daily	Continue current dose
Day 5	2 mg TID	1 (2/0.5 mg) film three times daily	Continue current dose
Day 6	4 mg BID	2 (2/0.5 mg) films twice daily	Continue current dose
Day 7	4 mg TID	2 (2/0.5 mg) films three times daily	STOP opioid
Day 8+	8 mg BID (can titrate up to 32 mg total daily dose)	1 (8/2 mg) film twice daily (can titrate up to 4 films daily)	

Example Low-Dose Initiation Protocol

Day	Buprenorphine dose	Methadone dose
0	None	35 mg
1	450 mcg once	35 mg
2	450 mcg BID	35 mg
3	900 mcg BID	35 mg
4	2 mg BID	35 mg
5	4 mg BID	35 mg
6	8 mg BID	None
7	8 mg BID	None

Continuing Outpatient Buprenorphine

- Generally, DO NOT STOP IT in hospital.
- If patient needs to get full opioid agonists (for pain), they can get it while ALSO continuing their buprenorphine.
- Be aware of the different formulations of buprenorphine (for pain, OUD) and try to keep on the same equivalent dosing.
- Do NOT stop pre-operatively, generally
- If buprenorphine is stopped for any reason and started on full agonists, then:
  - If it's been ~1 day of missed buprenorphine, then resume home bup dose ASAP
  - If ≥2 days off bup, then likely should restart via overlapping protocol. (Expert opinion)
- Check the PDMP (to verify recent fills)

Comparisons of Protocols

- Most studies are observational case series with heterogeneous populations, methods, and reported outcomes
- Overlapping (low-dose) start has more evidence for efficacy
- Most data for overlapping starts currently is from inpatient setting; limited generalizability to outpatient setting
- Limited data on high-dose (rapid) transition from opioid agonists to buprenorphine, but anecdotally some potential benefits to this strategy

Withdrawal/Rapid vs. Overlapping Buprenorphine Starts: Cold Water Analogy

Pain management in OUD

- Utilize non-opioid analgesics
- Giving opioids will NOT worsen OUD, and withholding opioids will NOT improve OUD. Give opioids if indicated.
- Higher tolerance = higher opioid doses needed for pain control.
- Ok to give methadone AND other short-acting opioids
- Ok to start low-dose buprenorphine protocol while on opioid agonists

Englander 2025, ASAM 2020

Transitions of Care Considerations for Patients Receiving MOUD

Methadone: Transitions of Care

- Need to schedule OTP intake appointment to establish care
  - Ideally: If appointment is the day after discharge date, then give methadone dose morning prior to DC
  - If unable to arrange next-day appointment, up to 3 days of methadone can be dispensed from inpatient pharmacy (NOT prescribed) while coordinating with OTP
- Methadone may be a challenge for SNF placement, as it can only be dispensed by an OTP.

Buprenorphine: Transitions of Care

- Ensure arrangement of follow-up buprenorphine appointment on discharge
  - Can be with PCP, or opioid treatment program (OTP), or other SUD treatment clinic with buprenorphine MOUD prescriber
  - Ideally within 1-2 weeks of discharge
- Prescribe enough buprenorphine-naloxone on discharge to get to the follow-up appointment
- If discharging to SNF: Should confirm that SNF will continue to prescribe buprenorphine-naloxone for OUD

Outpatient Access to Medications for Opioid Use Disorder

Factor	Naltrexone (IM)	Methadone	Buprenorphine
Treatment Setting	Office-Based Opioid Treatment (OBOT) Program (within general medical practice)	Opioid Treatment Program (OTP) only	Office-Based Opioid Treatment (OBOT) Program (within general medical practice)
Provider	Any prescribing clinician	OTP provider only (for OUD)	Any prescribing clinician with current DEA registration (including Schedule III authority)
Pharmacy	Non-OTP pharmacy ok (but needs to be administered IM by clinician, pharmacist, or RN)	Dispensed by OTP clinic only Exception: Can dispense up to 3 days from inpatient pharmacy while coordinating with OTP.	Non-OTP pharmacy ok

Harm Reduction Measures in the Hospital

- Providing naloxone and overdose education prior to discharge
- Offer information on community-based resources (e.g. syringe service programs, drug testing supplies)
- Counseling on safer use practices
- Screening for infections (HIV, HBV, HCV, TB, and STIs).

Martin 2023, ASAM 2020

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Questions?

amy.liu@providence.org

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