

Buprenorphine in the Emergency Department: An Overview



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Objectives

- Overview of the pathophysiology of withdrawal
- Review induction strategies for buprenorphine
- Review additional adjunct medications to treat withdrawal

Disclaimers

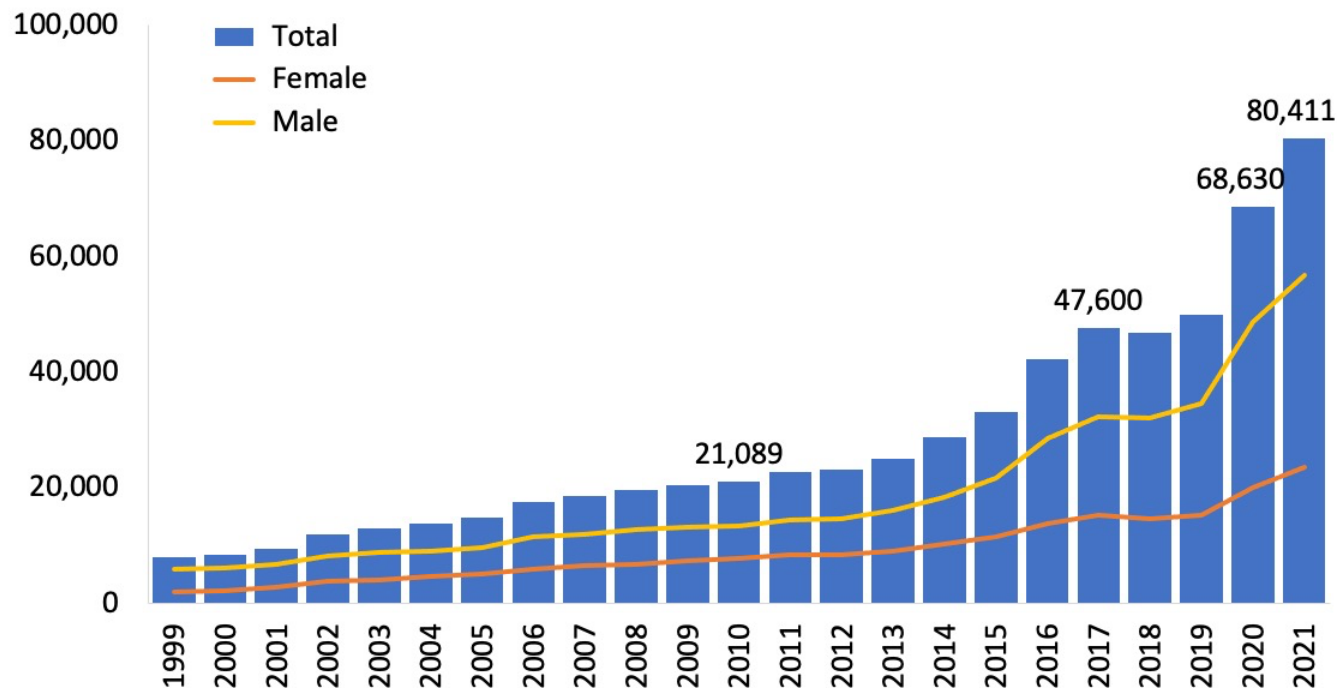
- I have no financial disclosures
- I just discovered AI art
- Thanks to Dr. Joseph Carpenter for his help with this talk



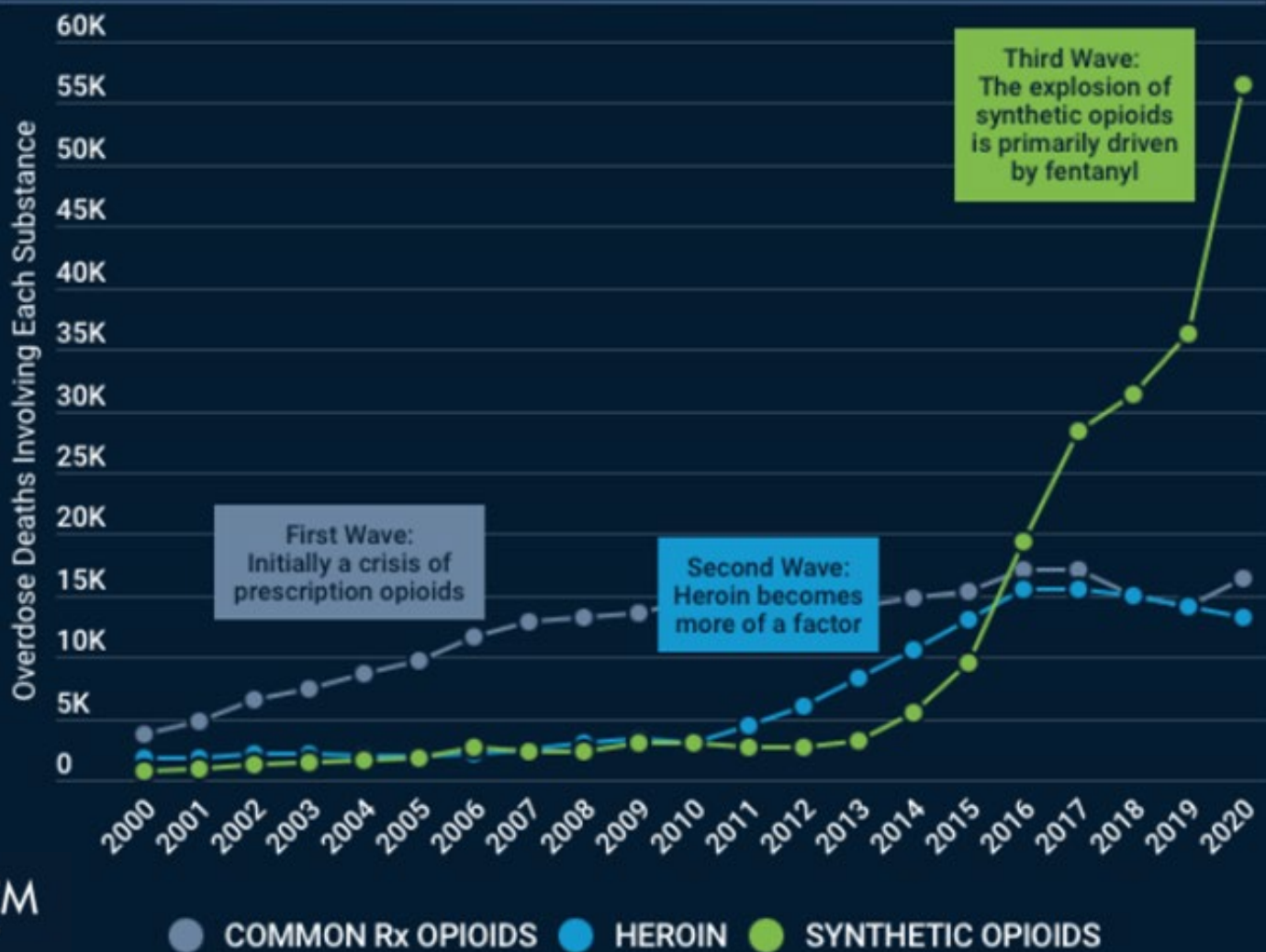
A photograph of an airplane cabin interior, showing rows of blue seats with grey armrests and seatbelts. The seats are arranged in a 3-2-3 configuration. The number 130 is overlaid in large white font in the center of the image.

130

Figure 3. National Overdose Deaths Involving Any Opioid*,
Number Among All Ages, by Gender, 1999-2021



*Among deaths with drug overdose as the underlying cause, the “any opioid” subcategory was determined by the following ICD-10 multiple cause-of-death codes: natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids (other than methadone) (T40.4), or heroin (T40.1). Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2021 on CDC WONDER Online Database, released 1/2023.



Euphoria

Hyperalgesia

Tolerance

Cravings

Withdrawal

Dysphoria





The Approach to the Opioid Use Disorder Patient





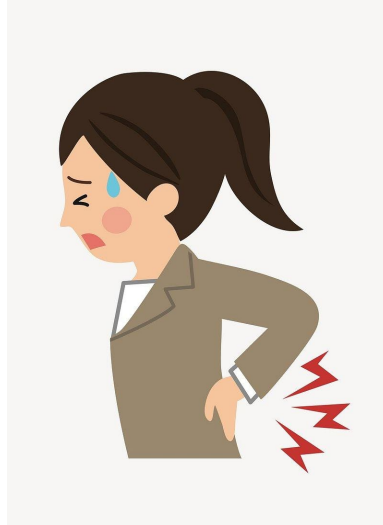
Opioid Withdrawal

- **Spontaneous**
 - Most common
 - Abrupt cessation of opioid use
- **Precipitated**
 - Introduction of opioid antagonist
 - Most severe
- **Protracted**
 - Long-term, subjective symptoms



Symptoms

- Vomiting & Diarrhea
- Tachycardia
- Mydriasis
- Myalgias
- Yawning
- Tremors
- Diaphoresis
- Piloerection
- Restlessness
- Normal Mental Status



COWS

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

Clinical Opiate Withdrawal Scale

<p>Resting Pulse Rate: _____ beats/minute <i>Measured after patient is sitting or lying for one minute</i></p> <p>0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120</p>	<p>GI Upset: <i>over last 1/2 hour</i></p> <p>0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting</p>
<p>Sweating: <i>over past 1/2 hour not accounted for by room temperature or patient activity.</i></p> <p>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</p>	<p>Tremor <i>observation of outstretched hands</i></p> <p>0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching</p>
<p>Restlessness <i>Observation during assessment</i></p> <p>0 Able to sit still 1 Reports difficulty sitting 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</p>	<p>Yawning <i>Observation during assessment</i></p> <p>0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute</p>
<p>Pupil size</p> <p>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</p>	<p>Anxiety or irritability</p> <p>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</p>
<p>Bone or Joint aches <i>If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored</i></p> <p>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</p>	<p>Gooseflesh skin</p> <p>0 Skin is smooth 3 Piloerection of skin can be felt or hairs standing up on arms 5 Prominent piloerection</p>
<p>Runny nose or tearing <i>Not accounted for by cold symptoms or allergies</i></p> <p>0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks</p>	<p>Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment: _____</p>

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



Treatment



Managing Withdrawal

Detoxification Only

70% return to
use within 6
months





Medication Assisted Treatment

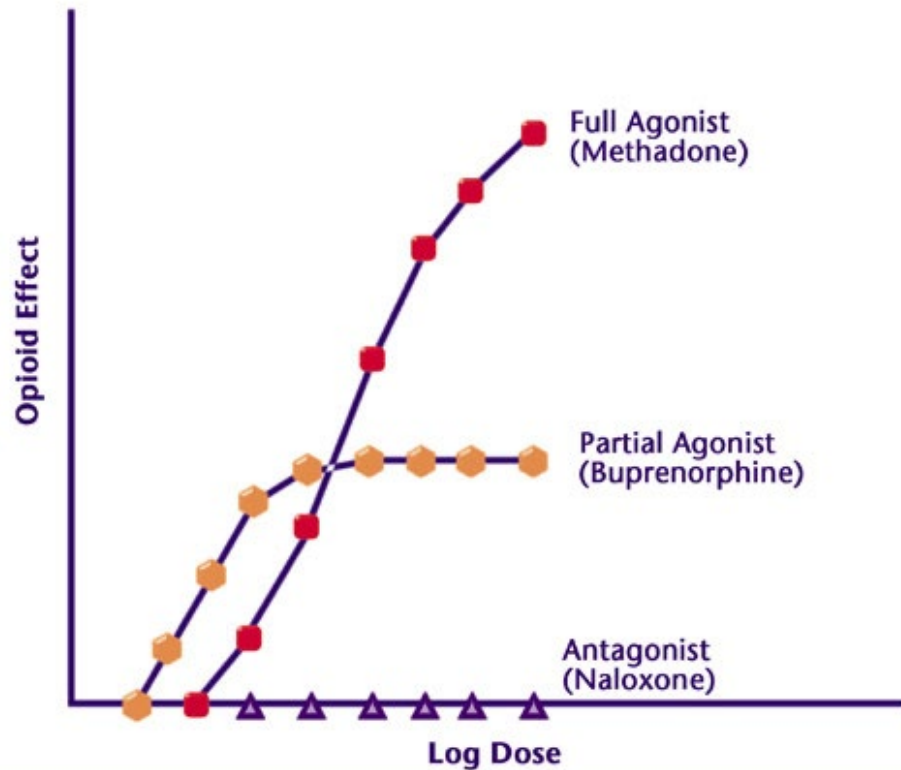


Medication Assisted Treatment (MAT)

<u>Medication</u>	<u>Mu Activity</u>	<u>Initiation</u>	<u>Dosing</u>	<u>Cost</u>	<u>Risks</u>
Buprenorphine	Partial Agonist	Intermediate	1-3 x/ day (Monthly)	\$ (\$\$\$)	Precipitated Withdrawal
Methadone	Full Agonist	Easy	Daily	\$	Overdose, QTc prolongation
Naltrexone	Antagonist	Difficult	Monthly	\$\$\$	Precipitated Withdrawal

- Dosing
 - Daily - BID- TID
- Formulations
 - SL- IV- IM- Buccal
- Withdrawal if stopped
- Naloxone to discourage injection
- Monoproduct in pregnancy





- Induction

- COWS ≥ 8
- 12-24 hours after last opioid
 - 24- ≥ 36 hours after methadone
- “Test dose”



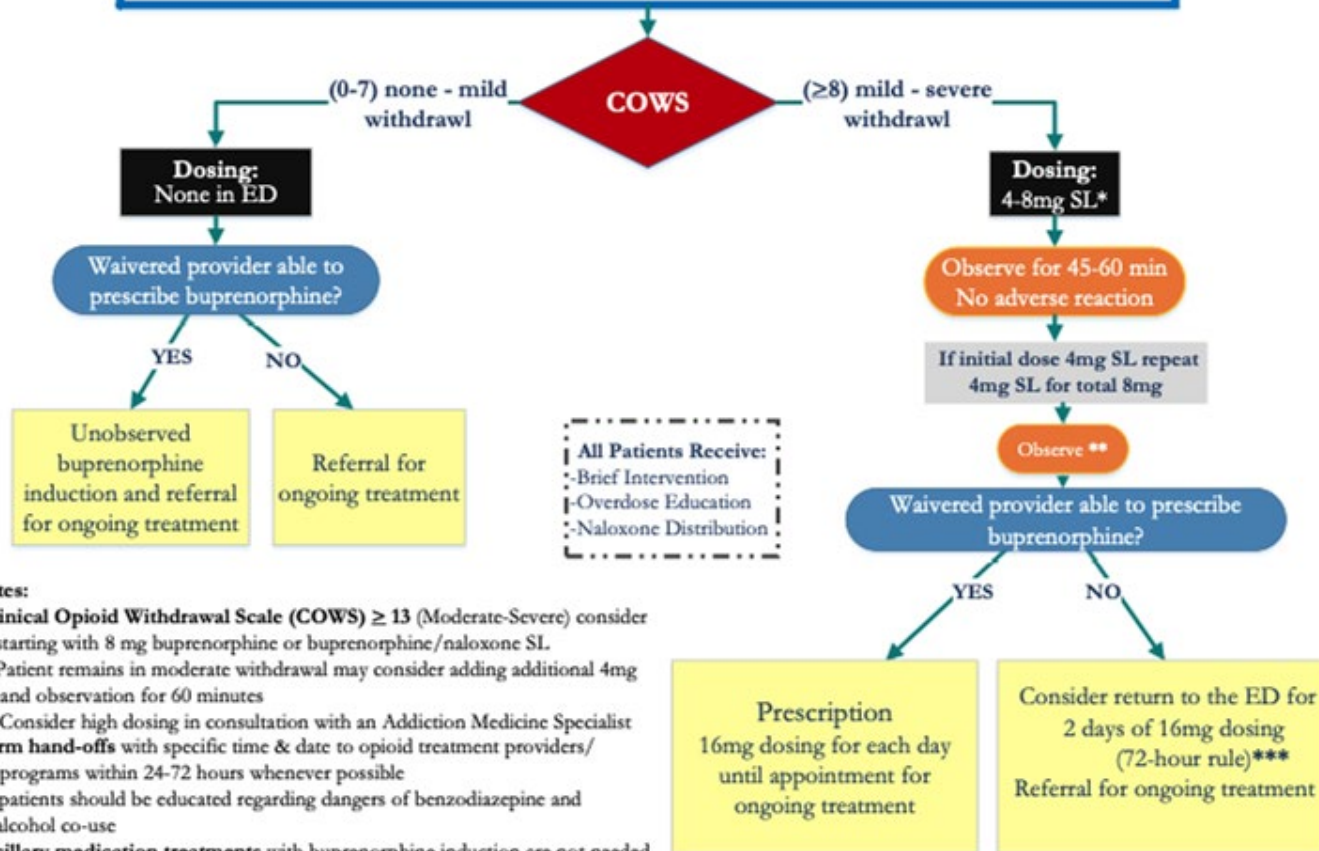
ED-Initiated Buprenorphine

Diagnosis of Moderate to Severe Opioid Use Disorder

Assess for opioid type and last use

Patients taking methadone may have withdrawal reactions to buprenorphine up to 72 hours after last use

Consider consultation before starting buprenorphine in these patients



Notes:

*Clinical Opioid Withdrawal Scale (COWS) ≥ 13 (Moderate-Severe) consider starting with 8 mg buprenorphine or buprenorphine/naloxone SL

** Patient remains in moderate withdrawal may consider adding additional 4mg and observation for 60 minutes

***Consider high dosing in consultation with an Addiction Medicine Specialist
Warm hand-offs with specific time & date to opioid treatment providers/ programs within 24-72 hours whenever possible

All patients should be educated regarding dangers of benzodiazepine and alcohol co-use

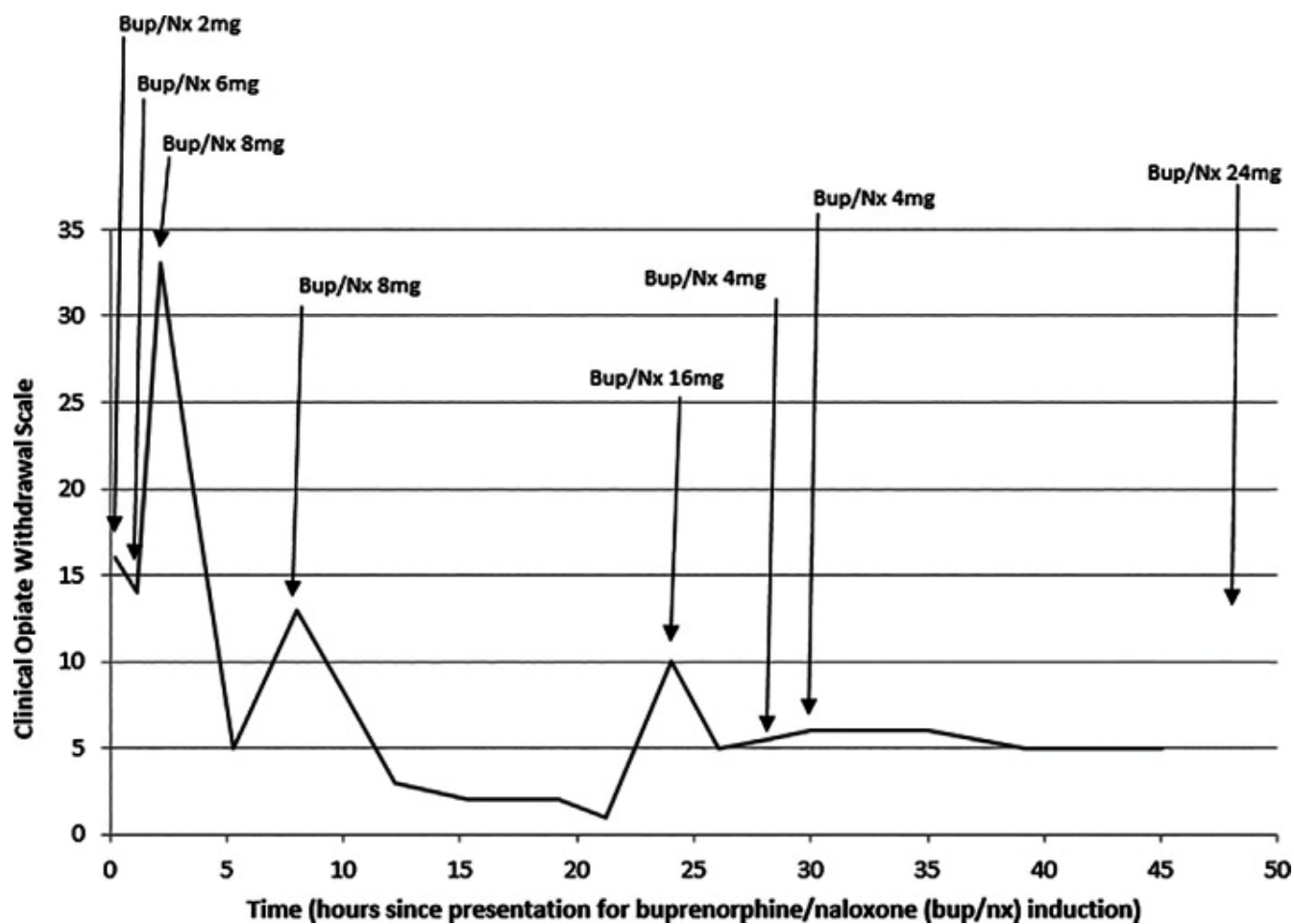
Ancillary medication treatments with buprenorphine induction are not needed




Precipitated Withdrawal

- 9% of inductions
- Induced too soon
- Long acting opioids
- Chronic fentanyl user
- Answer
 - More Buprenorphine
 - Adjunct medications
 - Coaching





Oakley B, Wilson H, Hayes V, Lintzeris N. Managing opioid withdrawal precipitated by buprenorphine with buprenorphine. *Drug Alcohol Rev.* 2021 May;40(4):567-571. doi: 10.1111/dar.13228. Epub 2021 Jan 21. PMID: 33480051; PMCID: PMC8248003.

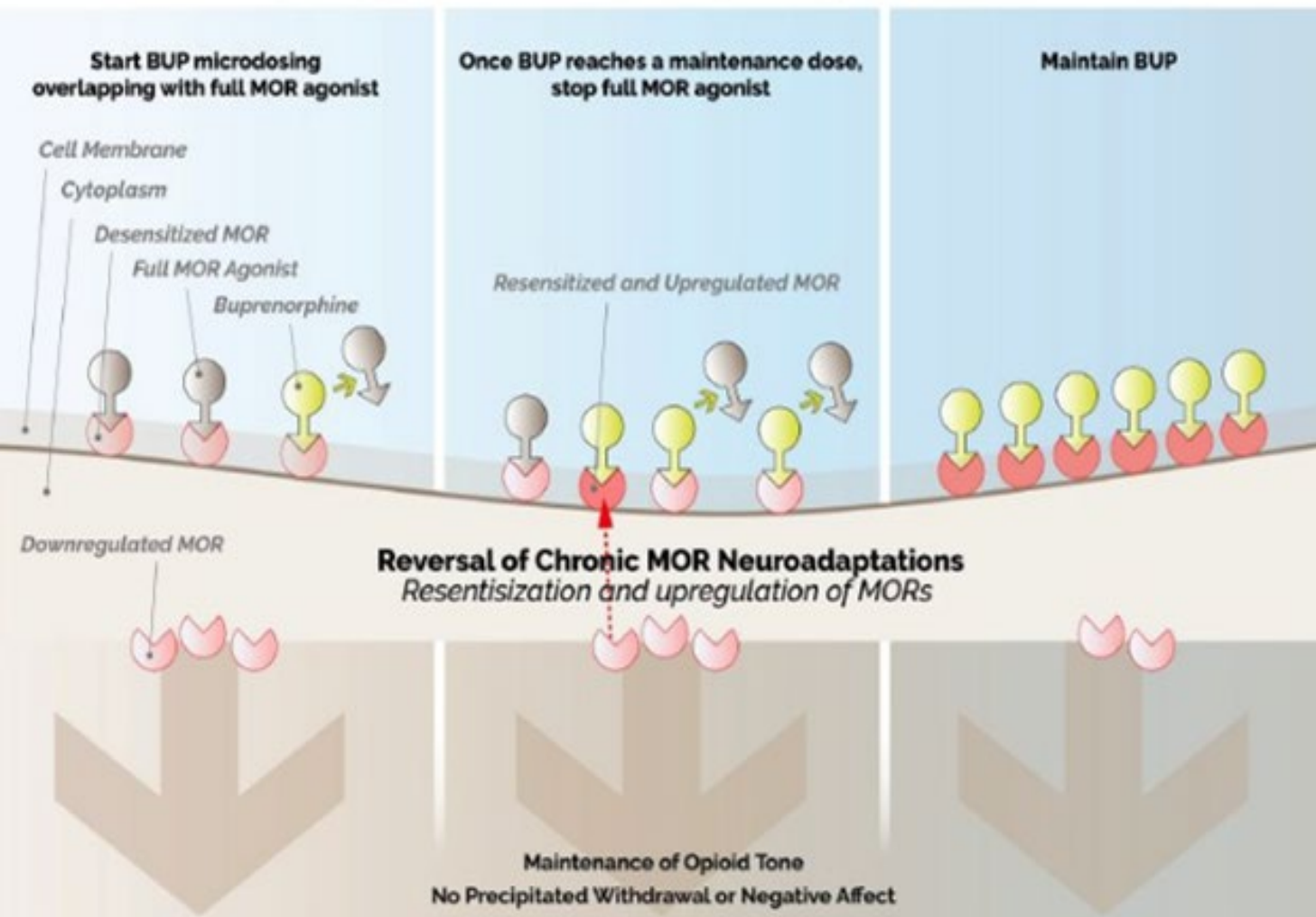
A glass bottle with a brown screw cap is filled with white and teal capsules. A magnifying glass with a black handle is positioned over the bottle, focusing on the capsules. The bottle has a white label with the text "Micro -induction". Several capsules are scattered on the wooden surface in front of the bottle. The background is a blurred bokeh of green and blue lights.

Micro -induction

Potential Indications

- High level of dependence
- Methadone / Long acting opioids
- Not in withdrawal

Buprenorphine Microinduction in Opioid-dependent Persons



Day	Dose	Route
1	0.1	IV
1	0.2	IV
2	0.3	IV
2	0.3	IV
2	0.3	IV
3	0.3	IV
3	0.3	IV
3	2	SL
4	2	SL
4	4	SL
5	4	SL
5	8	SL
6	8	SL
7	8	SL
7	8	SL

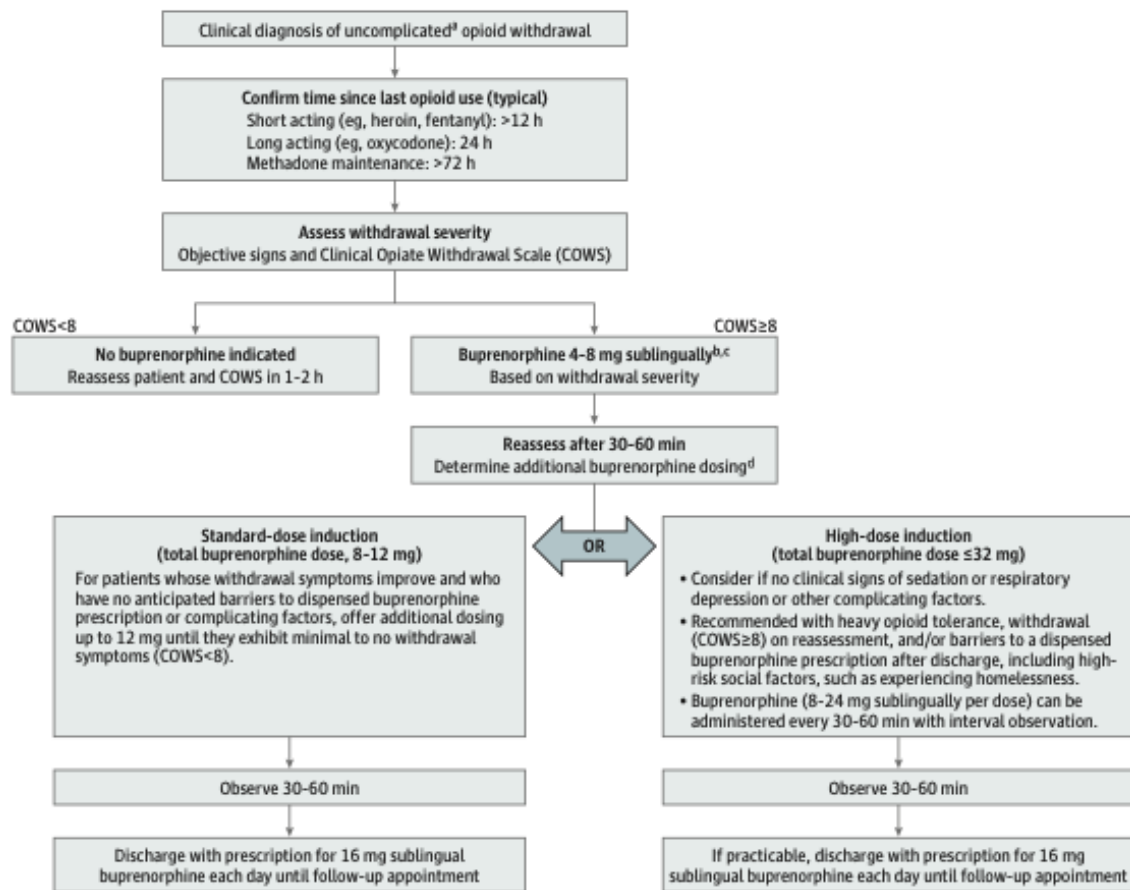
MACRO-DOSING

Potential Indications

- High level of dependence
- Met had one / Long acting opioids
- Not in withdrawal
- “>12 mg”
- Max dose=32mg



Figure 1. High-Dose Buprenorphine Treatment Pathway



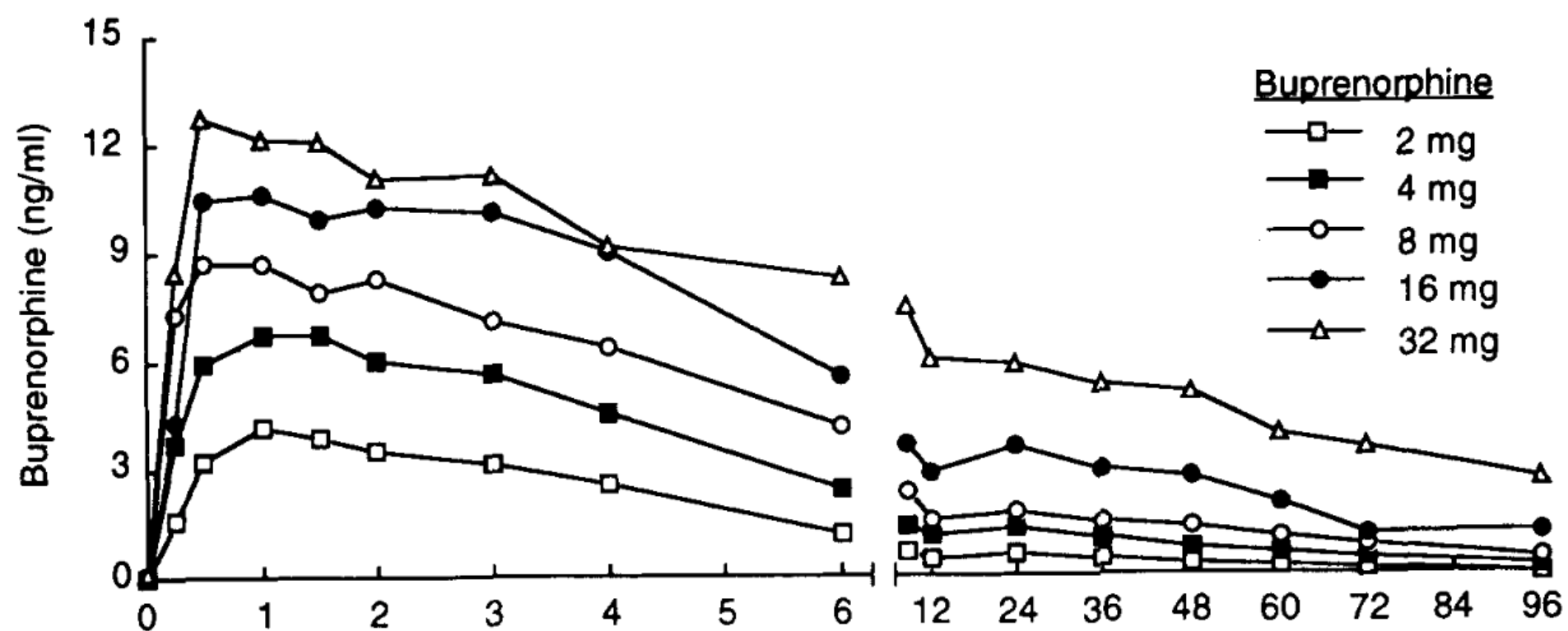


Fig. 5. The time course of plasma drug levels is illustrated for buprenorphine (**upper panel**) and methadone (**lower panel**) for 96 hours. Each *data point* represents the mean score for the group.

Now What

Fatal Overdose after ED Treatment

- 5-15% within 1 year
 - 1% within 1 month
 - 0.25% within 2 days

Use of addiction treatment at 30 days

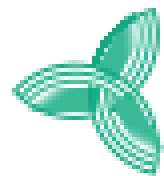
- Referral only - 37%
- Brief Intervention - 45%
- Induced - 78%



The logo for Gateway Foundation features a blue arc above the word "gateway" in a lowercase, sans-serif font. Below "gateway" is the word "FOUNDATION" in a smaller, uppercase, sans-serif font. A second blue arc is positioned below "FOUNDATION".

gateway

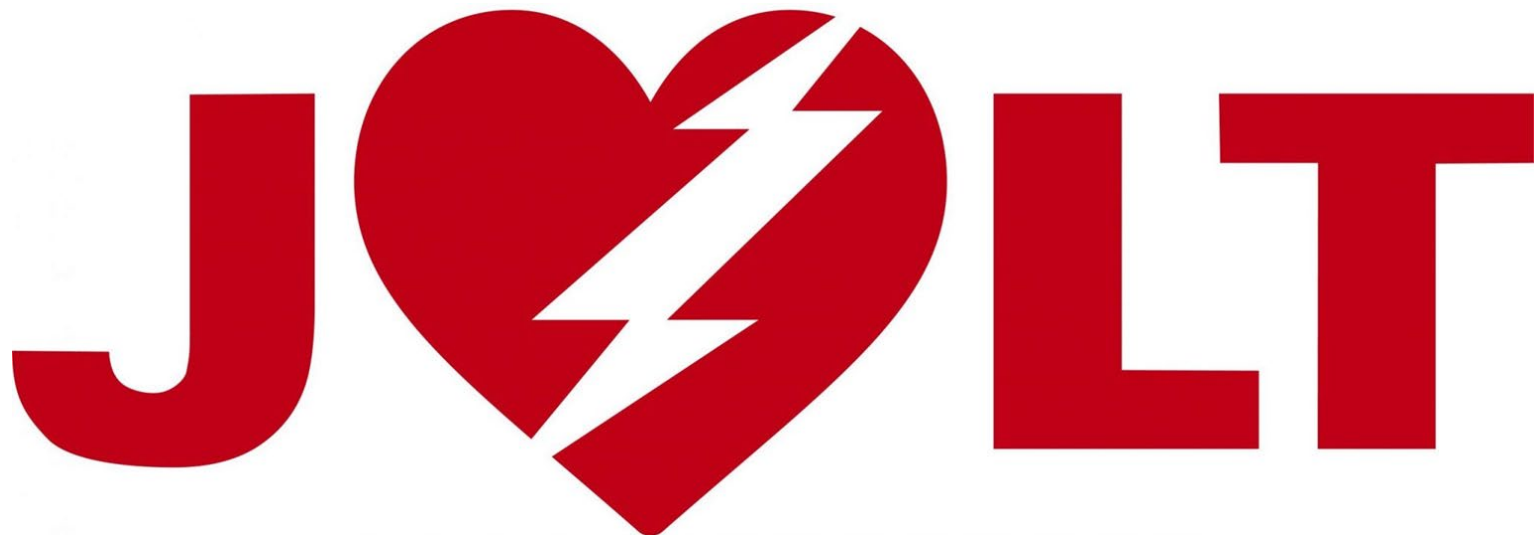
FOUNDATION



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Summary

- MOUD is safe and effective
- Significant mortality benefit
- Can be initiated in many settings
- Consider connection with outpatient services

