

A photograph of two people in a raft navigating a turbulent river with large rocks and rapids. The rafters are wearing helmets and life jackets. The water is white and foamy, splashing around the raft. The background shows large, dark rocks and a forested hillside under a bright sky.

Rocking the bOAT: a case for ED Based Opioid Agonist Therapy

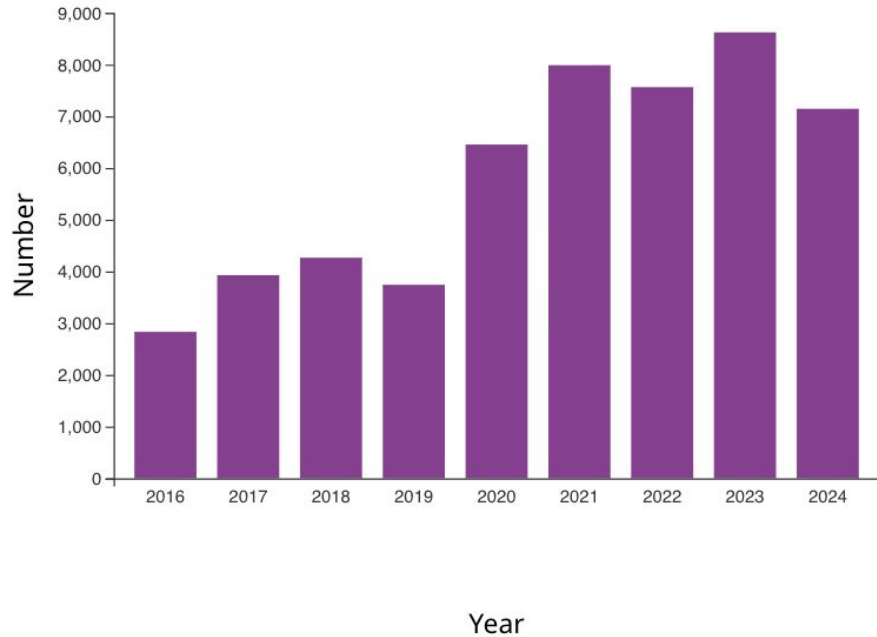
Stephen Kesselman
PGY-5 EM, University of Manitoba
Sept 23, 2025

Objectives

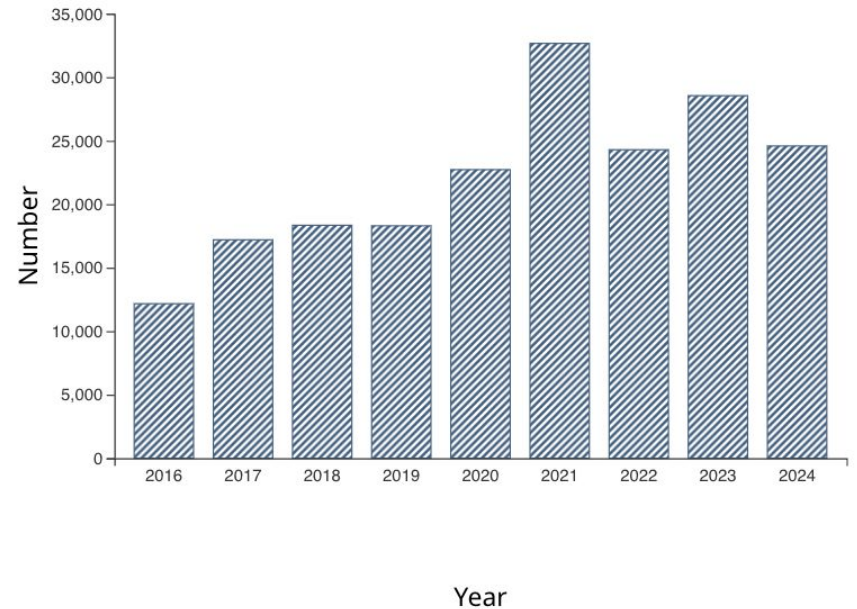
- 1. What is Opioid Agonist Therapy? – goals, benefits, common OATs**
- 2. Buprenorphine/Naloxone – pharmacology, features, benefits, and induction approaches**
- 3. ED-Initiated Buprenorphine/Naloxone – Rationale, Approach, Evidence**
- 4. Hesitations, challenges, barriers to ED-Based OAT initiation**
- 5. Addictions Medicine is a core competency of Emergency Medicine**

“Untreated addiction is a life threatening condition”

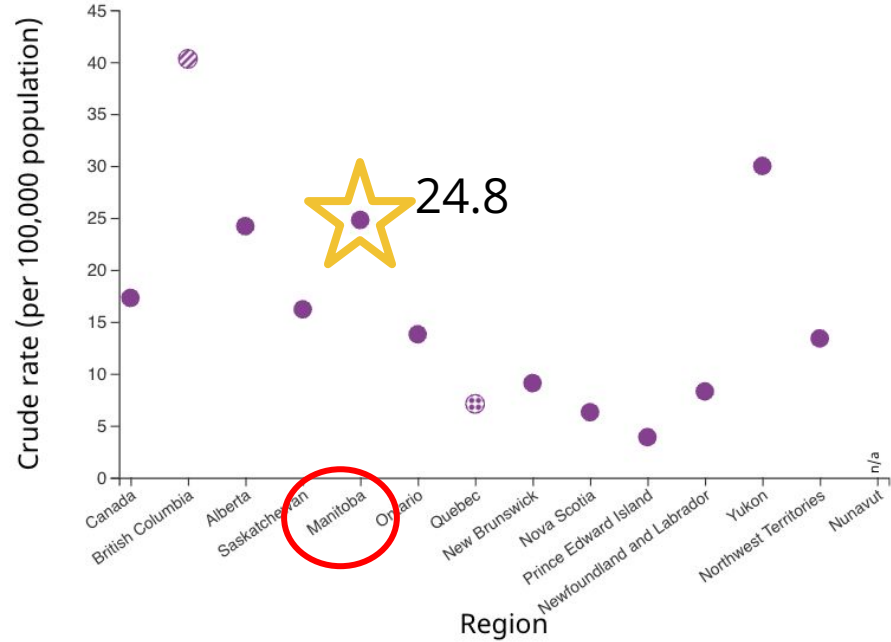
Number of apparent opioid toxicity deaths in Canada, 2016 to 2024



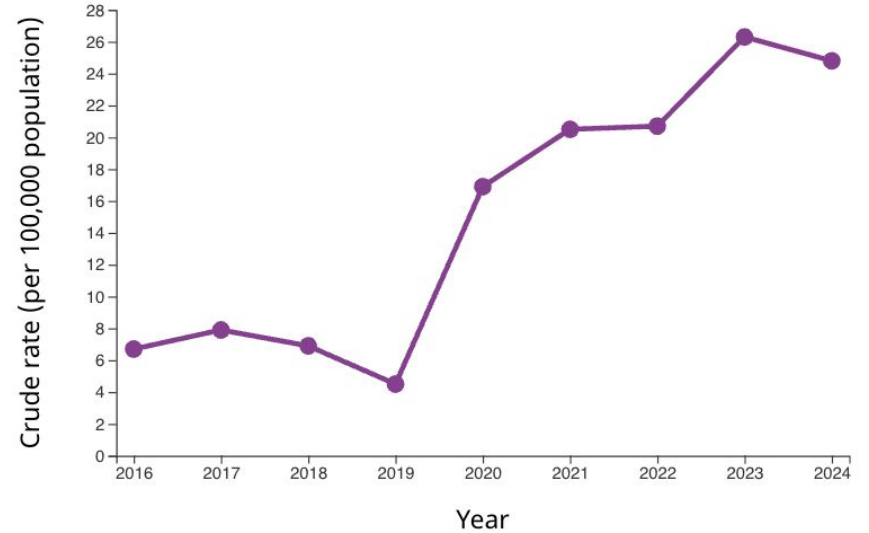
Number of opioid-related poisoning ED visits in Canada, 2016 to 2024



Crude rate (per 100,000 population) of apparent opioid toxicity deaths by province or territory in 2024



Crude rate (per 100,000 population) of apparent opioid toxicity deaths in Manitoba, 2016 to 2024

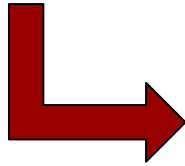


Crude rate Canada 2024: 17.3

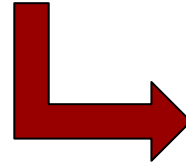


Mortality post ED discharge after for Non-Fatal Opioid OD

5% die within 12 months



20% die in first month:



22% die within 2 days:

3.5x higher mortality than non-OD related visits

Pillars OUD treatment

1. Harm Reduction
2. Withdrawal management - AKA detox - high risk alone
3. Psychosocial supports
4. **Opioid Agonist Therapy**

Goals:

- Meet people's opioid requirements with regulated, safer, long acting opioids
- Reduce unsafe use and associated burdens
- Reduce risk OD

Options for OATs

- **Buprenorphine/Naloxone**
- Methadone
- SROM
- iOAT
 - Hydromorphone
 - Diacetylmorphine

Buprenorphine / Naloxone - Pharm

- Semisynthetic opioid
- Partial mu-opioid agonist
- High affinity
- Contains Naloxone
- SL, IV and LAI formulations

- Rapid Onset
- Peak at 1-4 hrs
- **DOA dose dependent**
 - **Low: 4-12 hrs**
 - **Mod (8-12 mg): 24 hrs**
 - **High: 2-3 days**

Buprenorphine - Benefits, Concerns, Safety



- Effective
- Decreases euphoria
- Decreases cravings
- Decr risk OD
- Minimal risk of diversion
- **Safe - ceiling effect**



- Precipitated Withdrawal
- Which Induction approach?
 - *Conventional*
 - *Micro-Dose*
 - *Macro-Dose*
 - *XR*

Bup Induction Approaches

Conventional

- Day 1: 2-4 mg + 2-4 mg q1-2h (max 12mg)
- Day 2: Day 1 total + 2-4 mg prn (max 16-18mg)
- Repeat etc. until controlled

Macro / High-Dose

- **Larger upfront doses**
- **Rapid Titration**
- **Transition to maintenance SL or XR**

Micro / Low-Dose

- 0.5 mg BID
- Incr by 0.5-1 mg daily to goal 12-16 mg /day
- Concurrent full agonist use
- Abrupt cessation on last day
- 6-8 days

Other emerging

- *48 hr rapid low dose*
- *24-48 hr transdermal patch induction*
- *Rapid induction to XR*

Macro-Dosing

Who?


- **Active opioid withdrawal (COWS??)**
- **Post Naloxone reversed OD**

Who not?

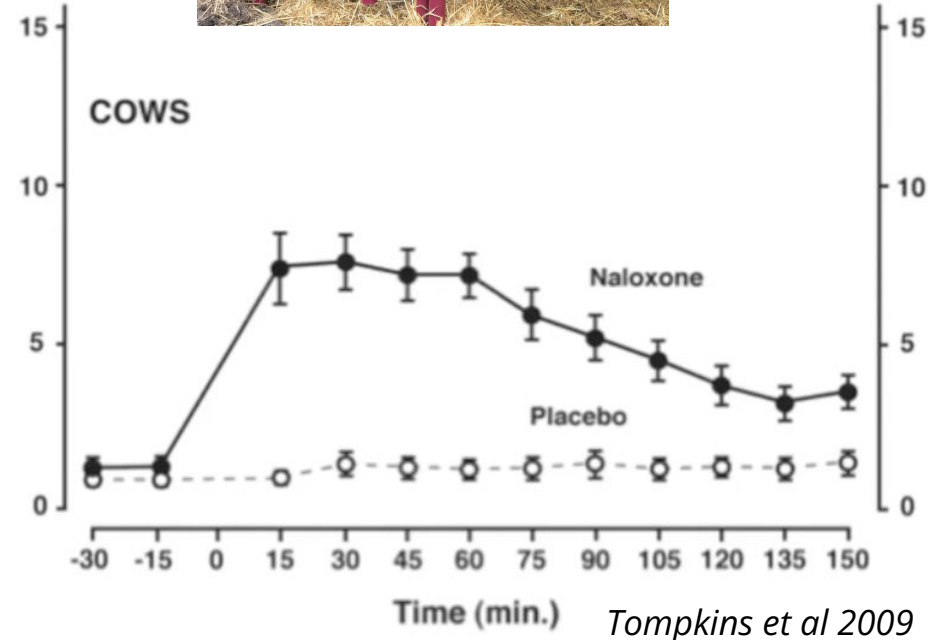
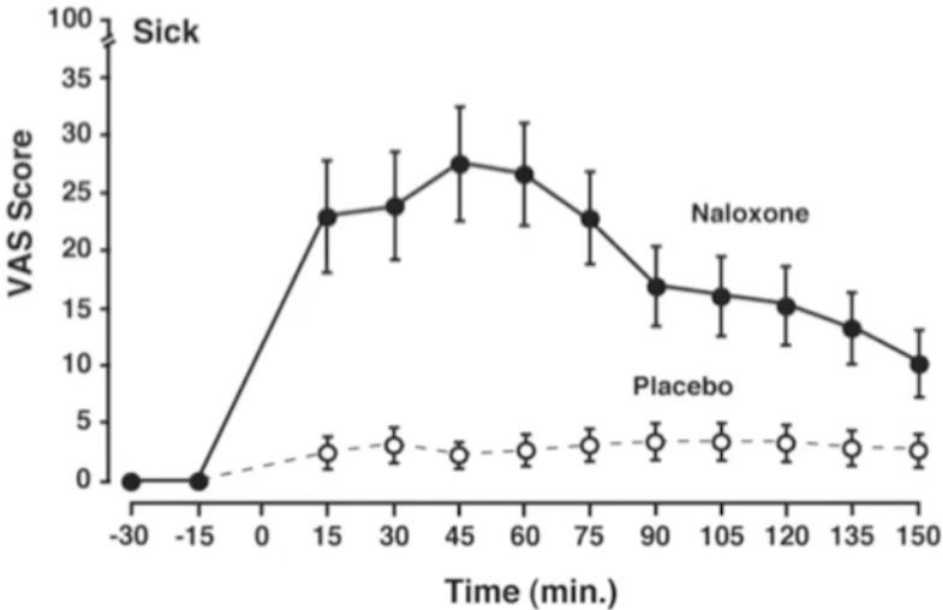
- Altered/Depressed LOC
- Concurrent Etoh/Benzo withdrawal
- Recent methadone use
- Severe illness

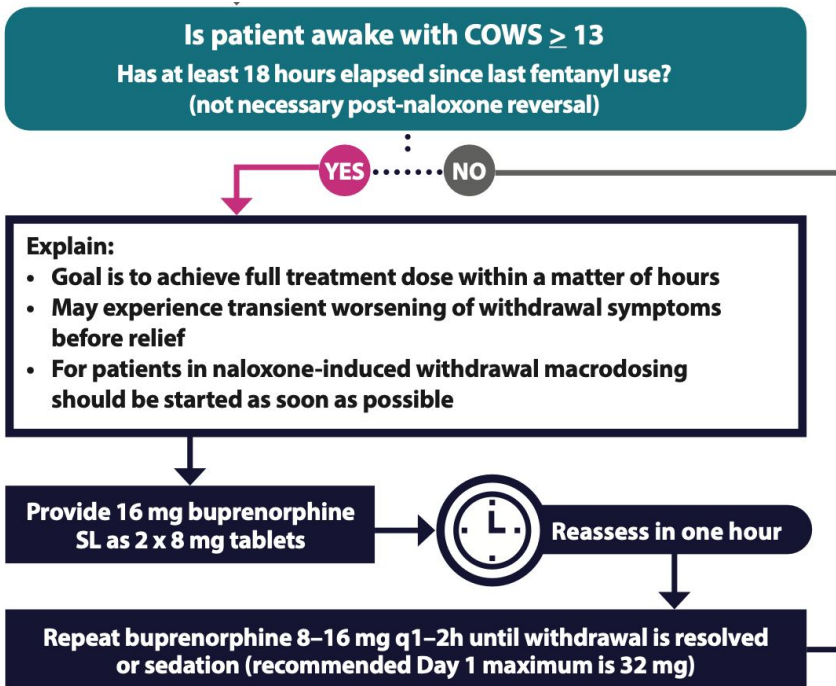
Clinical Opiate Withdrawal Scale (COWS) Score (0-48)[†]

Category (Points), Clinician Administered

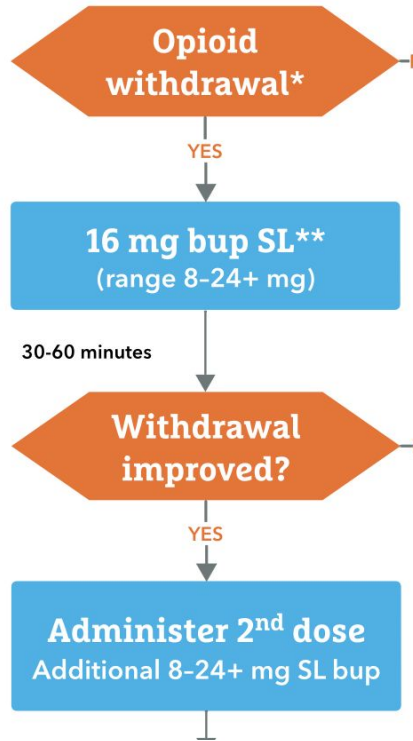
	WORSE 				
Resting Pulse Rate	0	1	2	3	4
Sweating	0	1	2	3	4
Observed Restlessness	0	1	2	3	4
Pupil Size	0	1	2	3	4
Bone or Joint Aches	0	1	2	3	4
Runny Nose or Tearing	0	1	2	3	4
Gastrointestinal Upset	0	1	2	3	4
Observed Tremor of Outreached Hands	0	1	2	3	4
Observed Yawning	0	1	2	3	4
Anxiety or Irritability	0	1	2	3	4
Gooseflesh Skin	0	1	2	3	4

A quick note on COWS





Typical initial dose: **16 mg**
 Day 1 max: **32-48 mg**



Discharge

- Rx for total dose dispensed
- Refer to RAAM/Community Clinic
- Harm reduction info / supplies

**Withdrawal /
Reversal**



Bup

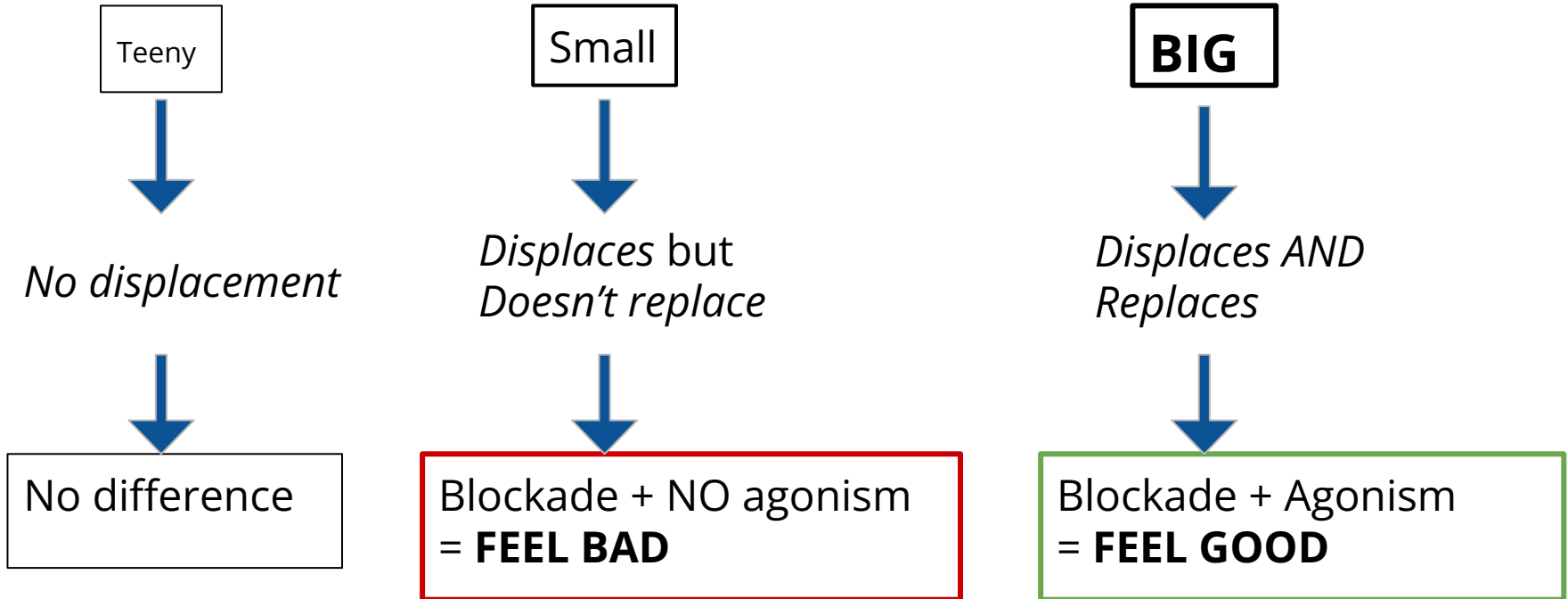


Discharge

2-6 hrs

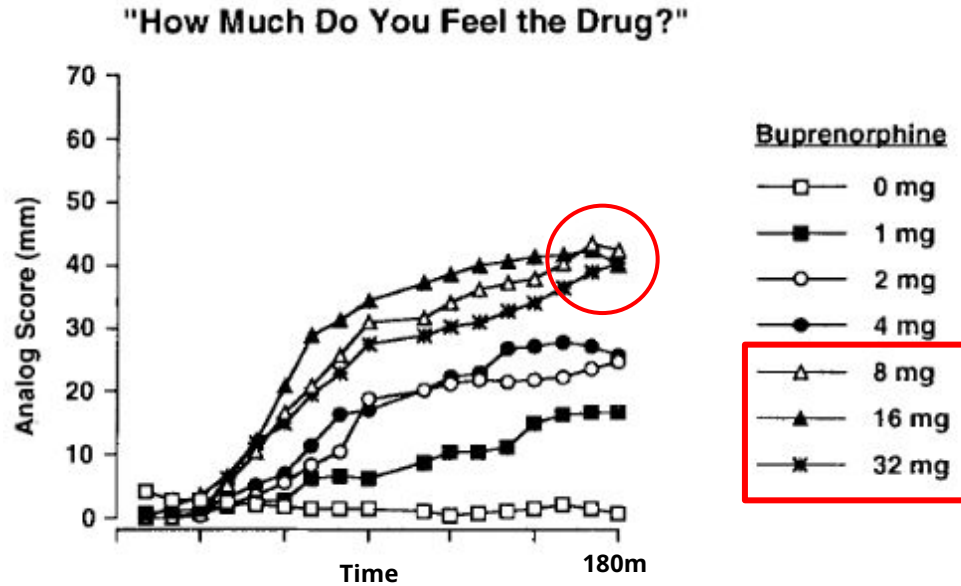
Dose Size - balance between withdrawal and agonism

*Displacement of agonist from receptor = **Painful***



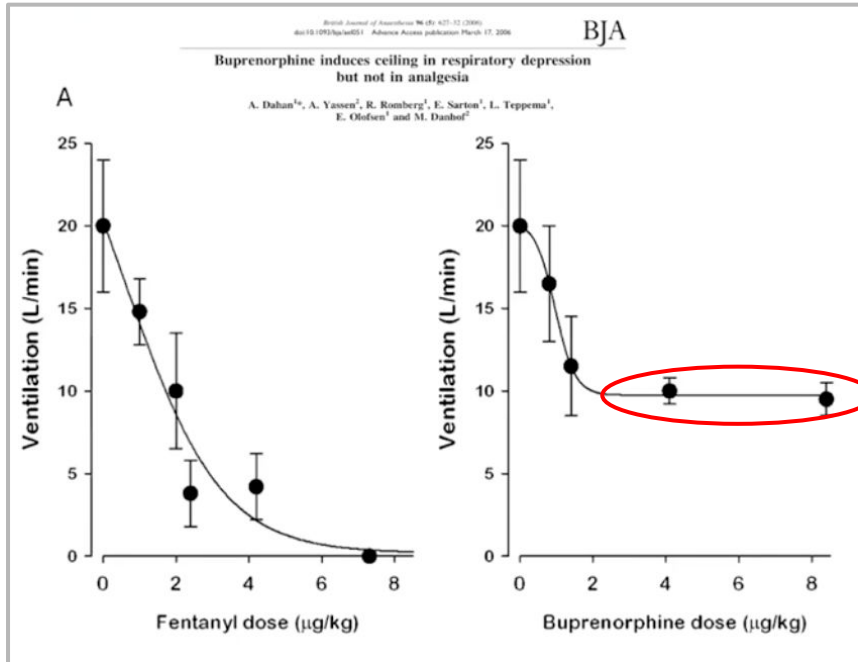
Buprenorphine - Safety

Ceiling Effect

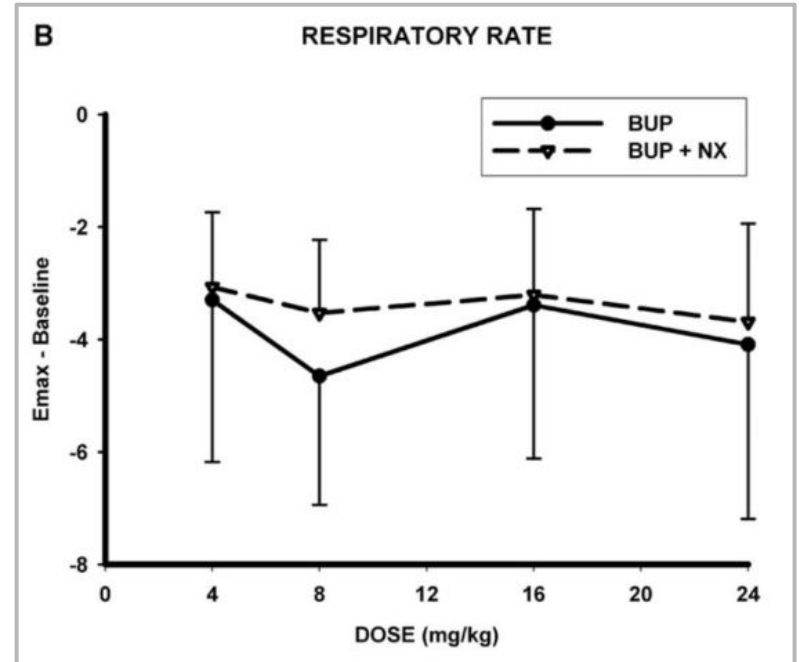


Buprenorphine - Safety

Ceiling Effect



Dahan et al 2006



Ciraulo et al 2013

Macro-dose Bup - evidence

RESEARCH

Open Access

Single high-dose buprenorphine for opioid craving during withdrawal



Jamshid Ahmadi^{1*}, Mina Sefidfard Jahromi¹, Dara Ghahremani² and Edythe D. London^{2,3,4}

Single doses up to 96 mg!

- Higher Initial doses
- More rapid titration
- = greater treatment retention at 7 days

THE AMERICAN JOURNAL ON ADDICTIONS

The American Journal on Addictions, 24: 667–675, 2015
Copyright © American Academy of Addiction Psychiatry
ISSN: 1055-0496 print / 1521-0391 online
DOI: 10.1111/ajad.12288

Treatment Outcomes in Opioid Dependent Patients With Different Buprenorphine/Naloxone Induction Dosing Patterns and Trajectories

Petra Jacobs, MD,¹ Alfonso Ang, PhD,² Maureen P. Hillhouse, PhD,²
Andrew J. Saxon, MD,³ Suzanne Nielsen, PhD,⁴ Paul G. Wakim, PhD,⁵
Barbara E. Mai, PhD,⁶ Larissa J. Mooney, MD,² Jennifer S. Potter, PhD,⁷
Jack D. Blaine, MD¹

Macro-dose Bup - the evidence

Original Investigation | Substance Use and Addiction

High-Dose Buprenorphine Induction in the Emergency Department for Treatment of Opioid Use Disorder

Andrew A. Herring, MD; Aidan A. Vosooghi, MS; Joshua Luftig, PA; Erik S. Anderson, MD; Xiwen Zhao, MS; James Dziura, PhD; Kathryn F. Hawk, MD, MHS; Ryan P. McCormack, MD, MS; Andrew Saxon, MD; Gail D'Onofrio, MD, MS

- Safe
- Well tolerated
- May impart greater OD / relapse protection
- Treatment to DC <3 hrs

“Higher dosing provides the individual with a critical extended period without craving ,allowing more opportunity to navigate the barriers to follow-up, where obstacles to treatment engagement are more easily addressed.”

Macro-Dose to XR - early depo Buprenorphine

Buprenorphine/Naloxone XR Long Acting Injectable

- SC inj q4 wks
- Per Can. monograph: req 7 days on stable SL dose before starting
- Rationale
 - Protects against OD if ongoing unregulated use
 - Reduces cravings, euphoria with ongoing use
 - Reduces withdrawals
 - **Offers options**

Initiation and Dosing of Extended-Release Buprenorphine: A Narrative Review of Emerging Approaches for Patients Who Use Fentanyl

Kenneth W Lee¹, Annabel Mead², Imran Ghauri³, Bruce Hollett⁴, Martine Drolet⁵, Jan-Marie Kozicky⁵

Table 1 BUP-XR Initiation Protocols with <7-Day TM-BUP Stabilization Periods Described in Patients Using Fentanyl

Citation	Location	Study Description	Day 1	Day 2	Day 3	Day 4	Day 5
BUP-XR initiated without any immediate prior TM-BUP dose, in patients with previous exposure to TM-BUP							
Wethern, 2023 ¹¹	Denver, Colorado, USA	Case study (n=2)	300 mg BUP-XR				
Mooney 2024 ¹⁰	Portland, Oregon, USA	Case study (n=2)	300 mg BUP-XR				
BUP-XR initiated after single TM-BUP dose							
Hasman 2023 ³⁹	Berlin, NJ, USA	Open label, uncontrolled (n=26)	4 mg TM-BUP 300 mg BUP-XR				
Ochalek, 2023 ⁴¹	Richmond, VA, USA	Open label, uncontrolled (n=19)	4 mg TM-BUP 300 mg BUP-XR				
Shiwach 2024 ⁴	Multiple Sites, Canada/ USA	Randomized controlled trial (n=489)	4 mg TM-BUP 300 mg BUP-XR				
BUP-XR initiated after macro/high-dose TM-BUP induction							
Mariani, 2021 ⁴²	New York, NY, USA	Open label, uncontrolled (n=5)	24 mg TM-BUP (divided) 300 mg BUP-XR				
Taylor 2024 ⁴³	Boston, MA, USA	Case study (n=1)	12mg IN-NAL 16mg TM-BUP 300 mg BUP-XR				
Kahan, 2023 ³⁴	Timmins, ON, Canada	Case study (n=2)	28-32 mg TM-BUP (divided)	32 mg TM-BUP 300 mg BUP-XR			
LeSaint 2024 ⁴⁴	San Francisco, CA, USA	Case study (n=1)	32mg TM-BUP (divided)	32 mg TM-BUP 300 mg BUP-XR			
Mariani, 2020 ⁴⁵	New York, NY, USA	Open label, uncontrolled (n=5)	10-24 mg TM-BUP (divided)	16-24mg TM-BUP (divided) 300 mg BUP-XR			
				8-24mg TM-BUP (divided)	16 mg TM-BUP (divided) 300 mg BUP-XR		
BUP-XR initiated after micro/low-dose TM-BUP induction							
Azar 2024 ⁴⁶	Vancouver BC, Canada	Case study (n=2)	6 x 20 ugh BUP TD patches	Additional 6 x 20 ugh BUP TD patches	BUP-TD patches removed 4mg TM-BUP 300 mg BUP-XR		
Azar, 2023 ⁴⁷	Vancouver, BC, Canada	Case study (n=1)	6 x 20 ugh BUP TD patches	Additional 6 x 20 ugh BUP TD patches	BUP-TD patches removed 300 mg BUP-XR		
Azar, 2020 ⁴⁸	Vancouver, BC, Canada	Case study (n=1)	3 mg TM-BUP (divided)	7 mg TM-BUP (divided)	8 mg TM-BUP	300 mg BUP-XR	
Gorham 2024 ⁴⁹	Kansas City, KS, USA	Case study (n=1)	1x10 ugh BUP TD patch/1mg TM-BUP bid	1x10 ugh BUP TD patch/1mg TM-BUP qid	1x10 ugh BUP TD patch/1mg TM-BUP b/d	1x10 ugh BUP TD patch/8mg TM-BUP	300mg BUP-XR

Abbreviations: BUP-XR, extended-release buprenorphine; IN, intranasal; BUP-TD, transdermal buprenorphine; TM-BUP, transmucosal buprenorphine.

1. Direct dose XR

2. Test dose to XR
4-8mg SL → 1hr → Bup-XR

3. Macro-dose
16-32mg SL → 1-24 hrs → Bup-XR

4. Micro-dose to XR

Bup-XR in ED

ORIGINAL RESEARCH

Extended-release Injectable Buprenorphine Initiation in the Emergency Department

Brittany Cesar, MD**
Jessica Moore, MD**
Raluca Isenberg, CRNP*
Jessica Heil, MSPH*†
Rachel Rafeq, PharmD‡
Rachel Haroz, MD**
Matthew Salzman, MD, MPH*†§
Alice V. Ely, PhD*§

*Cooper University Health Care - Center for Healing, Department of Addiction Medicine, Camden, New Jersey

†Cooper University Health Care - Cooper Research Institute, Camden, New Jersey

‡Cooper University Health Care, Department of Emergency Medicine, Camden, New Jersey

§Cooper Medical School of Rowan University, Camden, New Jersey

**ED-initiated Bup-XR increased treatment retention rate at 3 months compared to ED-initiated Bup-SL
58-74% vs 16-60%**

ED-Initiated Bup - more evidence for benefits

Original Investigation

Emergency Department–Initiated Buprenorphine/Naloxone Treatment for Opioid Dependence


A Randomized Clinical Trial

Gail D'Onofrio, MD, MS¹; Patrick G. O'Connor, MD, MPH²; Michael V. Pantalon, PhD¹; [et al](#)

Emergency Department–initiated Interventions for Patients With Opioid Use Disorder: A Systematic Review

Janusz Kaczorowski PhD^{1,2} , Jaunathan Bilodeau PhD² , Aaron M Orkin MD, MSc, MPH³ , Kathryn Dong MD, MSc⁴ , Raoul Daoust MD, MSc^{1,5} , and Andrew Kestler MD, MScPH⁶ 

Buprenorphine/naloxone initiation and referral as a quality improvement intervention for patients who live with opioid use disorder: quantitative evaluation of provincial spread to 107 rural and urban Alberta emergency departments

Kayla D. Stone¹ · Ken Scott² · Brian R. Holroyd^{2,3} · Eddy Lang^{2,4} · Karen Yee⁵ · Niloofar Taghizadeh^{2,4} · Janjeevan Deol³ · Kathryn Dong³ · Josh Fanaeian³ · Monty Ghosh^{1,6,7} · Keysha Low² · Marshall Ross⁴ · Robert Tanguay^{1,8} · Peter Faris⁵ · Nathaniel Day⁹ · Patrick McLane^{2,3} 

ORIGINAL RESEARCH

OPEN

Real-world Evidence for Impact of Opioid Agonist Therapy on Nonfatal Overdose in Patients with Opioid Use Disorder during the COVID-19 Pandemic

Kenneth Lee, MD, MCFP(AM), Yue Zhao, MD, PhD, DrPH, Tazmin Merali, B Pharm, MBA, Christopher Fraser, MD, FRCPC, Jan-Marie Kozicky, MHA, PhD, Marie-Christine Mormont, PhD, and Brian Conway, MD, FRCPC

Barriers to OAT in ED

Provider Factors

- Experience/
Comfort
- Knowledge
- Attitudes
- Other staff comfort
- “Not in my scope”

Institutional Factors

- Licensing restrictions
- Lack of protocols
- Lack of support
- Inertia/Norms

External Factors

- Referral pathways
- Lack of reliable
followup
- Not relevant to
my pts

Take Home

- Bup/Nal is a life saving drug for a life threatening condition
- Macro-dosing and early Depo Bup is simple, safe, and effective with documented positive outcomes
- ED is a feasible and appropriate place for OAT initiation
- Addictions Medicine is Emergency Medicine

CAEP Position Statement: Emergency department management of people with opioid use disorder

Justin J. Koh , MD, MPH*; Michelle Klaiman, MD^{††}; Isabelle Miles, MD^{§§}; Jolene Cook, MD^{**}; Thara Kumar, MD^{††}; Hasan Sheikh, MD, MPA^{††§§}; Kathryn Dong, MD, MSc^{||||***}; Aaron M. Orkin, MD, MSc, MPH^{§§†††}; Samina Ali , MDCM^{||||†††§§§}; Elizabeth Shouldice, MD, MPH^{||||}

Thank you!

References

1. Herring AA, Vosooghi AA, Luftig J, et al. High-Dose Buprenorphine Induction in the Emergency Department for Treatment of Opioid Use Disorder. *JAMA Netw Open*. 2021;4(7). doi:10.1001/jamanetworkopen.2021.17128
2. Ochalek TA, Ringwood KJ, Davis TT, et al. Rapid induction onto extended-release injectable buprenorphine following opioid overdose: A case series. *Drug and Alcohol Dependence Reports*. 2023;7. doi:10.1016/j.dadr.2023.100144
3. Kelly TD, Hawk KF, Samuels EA, Strayer RJ, Hoppe JA. Improving Uptake of Emergency Department-initiated Buprenorphine: Barriers and Solutions. *Western Journal of Emergency Medicine*. 2022;23(4):461-467. doi:10.5811/westjem.2022.2.52978
4. Stone KD, Scott K, Holroyd BR, et al. Buprenorphine/naloxone initiation and referral as a quality improvement intervention for patients who live with opioid use disorder: quantitative evaluation of provincial spread to 107 rural and urban Alberta emergency departments. *Canadian Journal of Emergency Medicine*. 2023;25(7):598-607. doi:10.1007/s43678-023-00520-3
5. Moe J, Chong M, Zhao B, Scheuermeyer FX, Pursell R, Slaunwhite A. Death after emergency department visits for opioid overdose in British Columbia: a retrospective cohort analysis. *CMAJ Open*. 2021;9(1):E242-E251. doi:10.9778/cmajo.20200169
6. Weiner SG, Baker O, Bemson D, Schuur JD. One-Year Mortality of Patients After Emergency Department Treatment for Nonfatal Opioid Overdose. *Ann Emerg Med*. 2020;75(1):13-17. doi:10.1016/j.annemergmed.2019.04.020
7. *MANITOBA OPIOID AGONIST THERAPY RECOMMENDED PRACTICE MANUAL 1.2 Application, Training, & Regulatory Requirements to Provide Opioid Agonist Therapy REGULATION OF OAT PRESCRIBING & DISPENSING*. www.cpsm.mb.ca
8. Cesar B, Moore J, Isenberg R, et al. Extended-release Injectable Buprenorphine Initiation in the Emergency Department. *Western Journal of Emergency Medicine*. 2025;26(4):888-896. doi:10.5811/westjem.21299
9. Shiwach R, Le Foll B, Alho H, Strafford S, Zhao Y, Dobbins R. 557 A Randomized Study Comparing Rapid Versus Standard Induction to Buprenorphine Extended-Release Injection. *Ann Emerg Med*. 2025;86(3):S239-S240. doi:10.1016/j.annemergmed.2025.06.579
10. D'Onofrio G, O'Connor PG, Pantalon M V., et al. Emergency department-initiated buprenorphine/naloxone treatment for opioid dependence: A randomized clinical trial. *JAMA - Journal of the American Medical Association*. 2015;313(16):1636-1644. doi:10.1001/jama.2015.3474
11. Marion-Bellemare L, Srivastava A, Samson J, et al. Initiation of extended-release buprenorphine in emergency department patients: A retrospective cohort study. *American Journal of Emergency Medicine*. 2025;94:71-75. doi:10.1016/j.ajem.2025.04.011
12. Lee K, Mead A, Ghauri I, Hollett B, Drolet M, Kozicky JM. Initiation and Dosing of Extended-Release Buprenorphine: A Narrative Review of Emerging Approaches for Patients Who Use Fentanyl. *Subst Abuse Rehabil*. 2025;Volume 16:71-82. doi:10.2147/sar.s516138
13. Koh JJ, Chenoweth J, Miles I. Expanding access to buprenorphine/naloxone in the emergency department. *Canadian Journal of Emergency Medicine*. Springer Nature. 2023;25(7):543-544. doi:10.1007/s43678-023-00543-w
14. Lee K, Zhao Y, Merali T, et al. Real-world Evidence for Impact of Opioid Agonist Therapy on Nonfatal Overdose in Patients with Opioid Use Disorder during the COVID-19 Pandemic. *J Addict Med*. 2023;17(6):E374-E381. doi:10.1097/ADM.0000000000001213
15. Kaczorowski J, Bilodeau J, M Orkin A, Dong K, Daoust R, Kestler A. Emergency Department-initiated Interventions for Patients With Opioid Use Disorder: A Systematic Review. *Academic Emergency Medicine*. 2020;27(11):1173-1182. doi:10.1111/acem.14054
16. Koh JJ, Klaiman M, Miles I, et al. CAEP Position Statement: Emergency department management of people with opioid use disorder. *Canadian Journal of Emergency Medicine*. 2020;22(6):768-771. doi:10.1017/cem.2020.459
17. Johns SE, Bowman M, Moeller FG. Utilizing Buprenorphine in the Emergency Department after Overdose. *Trends Pharmacol Sci*. Elsevier Ltd. 2018;39(12):998-1000. doi:10.1016/j.tips.2018.10.002