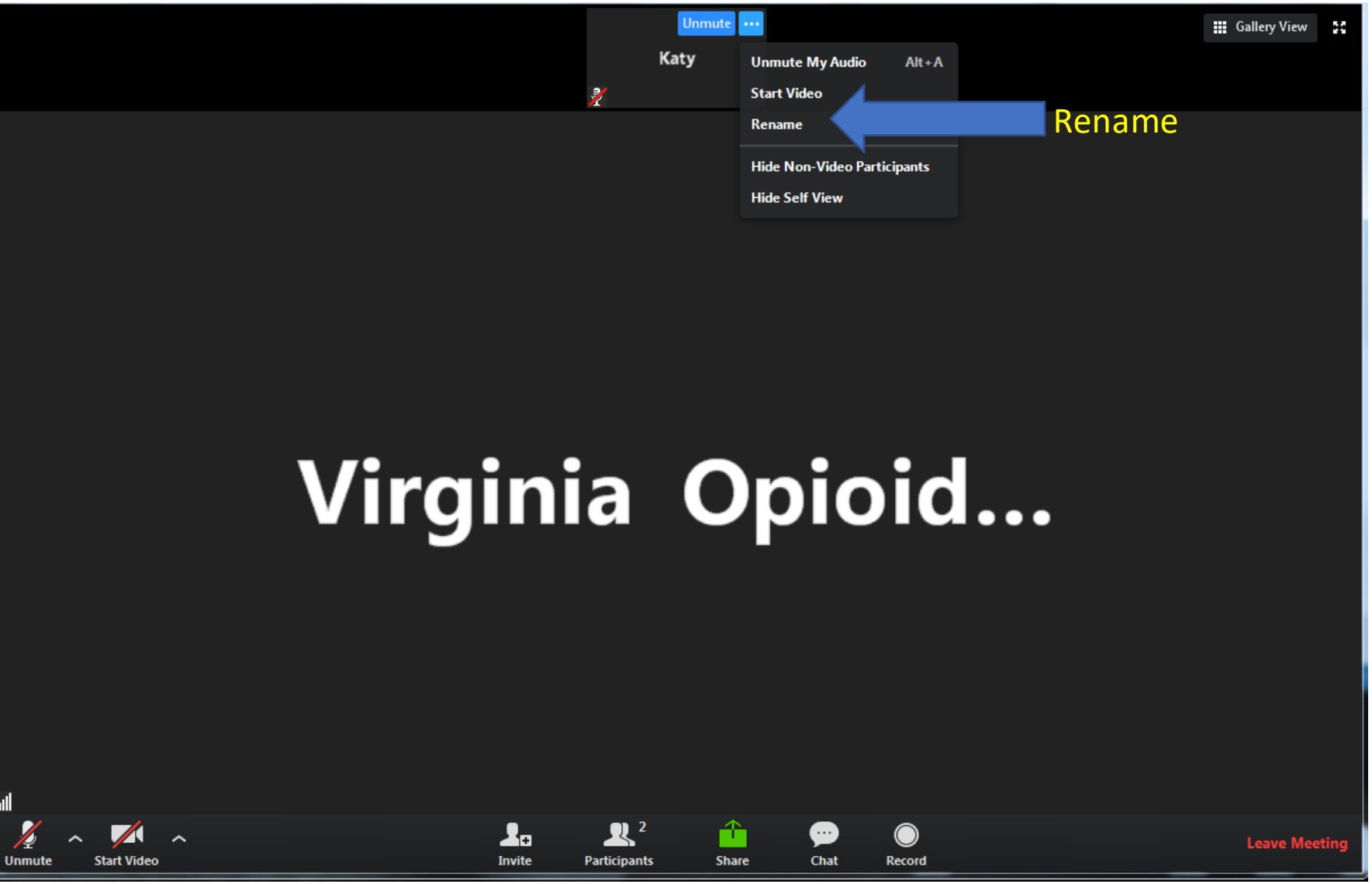
Virginia Opioid Addiction ECHO* Clinic

October 22, 2021

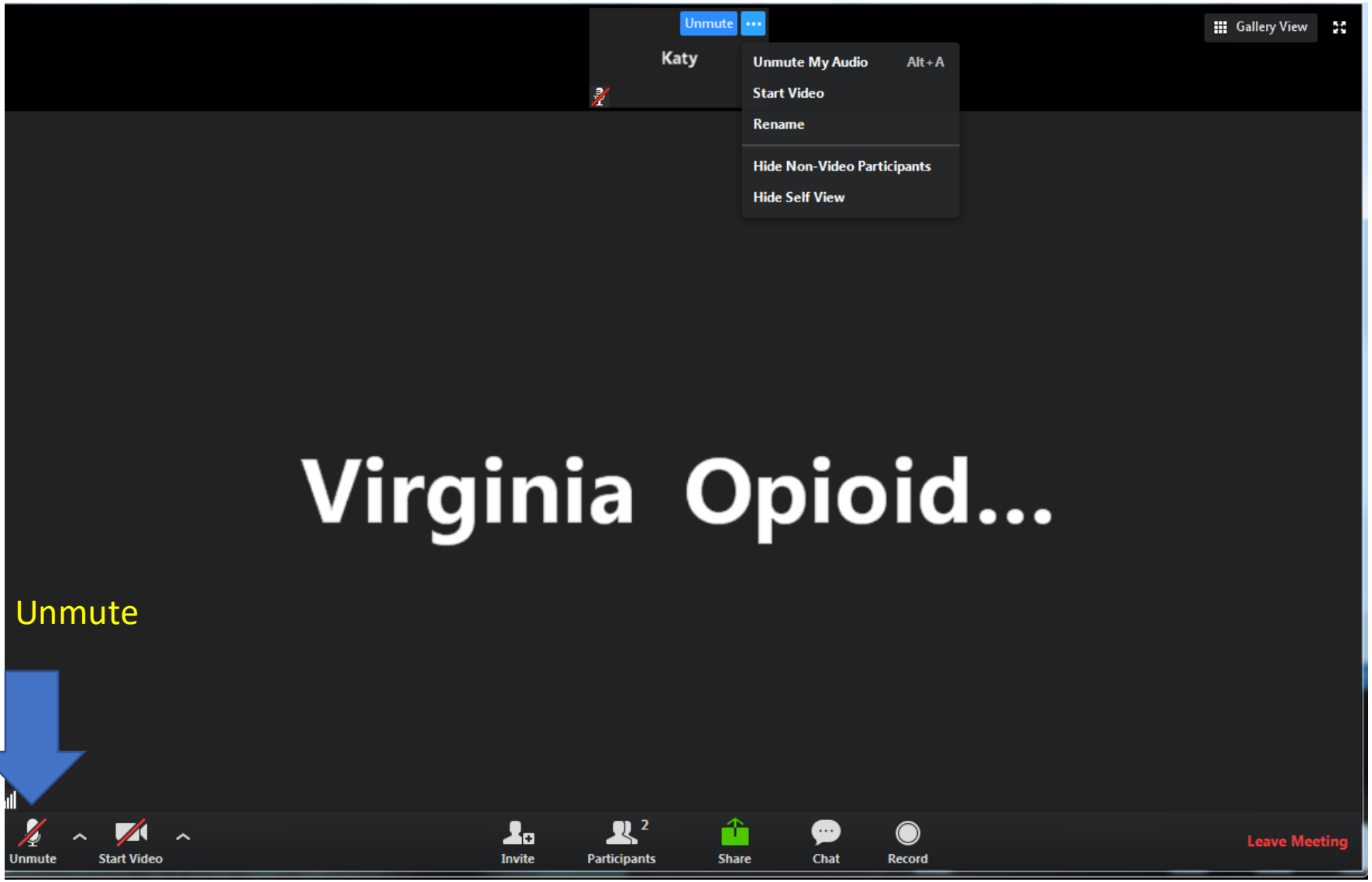
*ECHO: Extension of Community Healthcare Outcomes

Helpful Reminders



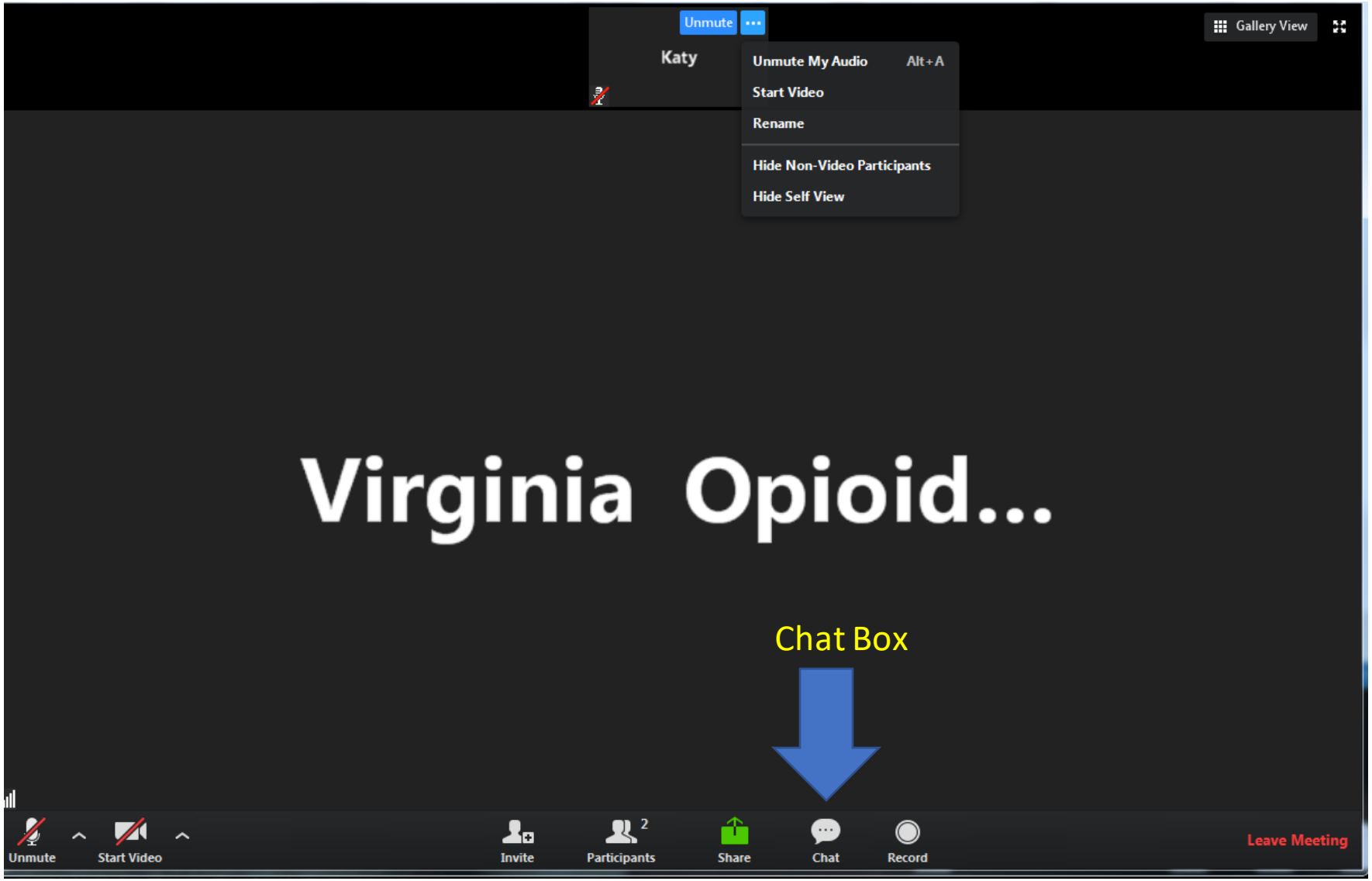
- Rename your Zoom screen, with your name and organization

Helpful Reminders



- You are all on mute please unmute to talk
- If joining by telephone audio only, *6 to mute and unmute

Helpful Reminders



- Please type your full name and organization into the chat box
- Use the chat function to speak with IT or ask questions

VCU Opioid Addiction ECHO Clinics

VCU Health
VCU School of Medicine

VDH Virginia Department of Health | VDHLiveWell.com

Virginia Department of Behavioral Health & Developmental Services

- Bi-Weekly 1 hour tele-ECHO Clinics
- Every tele-ECHO clinic includes a 30 minute didactic presentation followed by case discussion
- Didactic presentations are developed and delivered by inter-professional experts
- Website Link: www.vcuhealth.org/echo

Hub and Participant Introductions

VCU Team	
Clinical Director	Gerard Moeller, MD
Administrative Medical Director ECHO Hub	Vimal Mishra, MD, MMCi
Clinical Experts	Lori Keyser-Marcus, PhD Courtney Holmes, PhD Albert Arias, MD Megan Lemay, MD Katie Adams, PharmD
Didactic Presentation	Brandon Wills, MD
Program Manager	Bhakti Dave, MPH
Practice Administrator	Tamera Barnes, MD
IT Support	Vladimir Lavrentyev, MBA

- Name
- Organization

Reminder: Mute and Unmute screen to talk

*6 for phone audio

Use chat function for Introduction

What to Expect

I. Didactic Presentation: Provider Focused Series
   I. **Brandon Wills, MD**

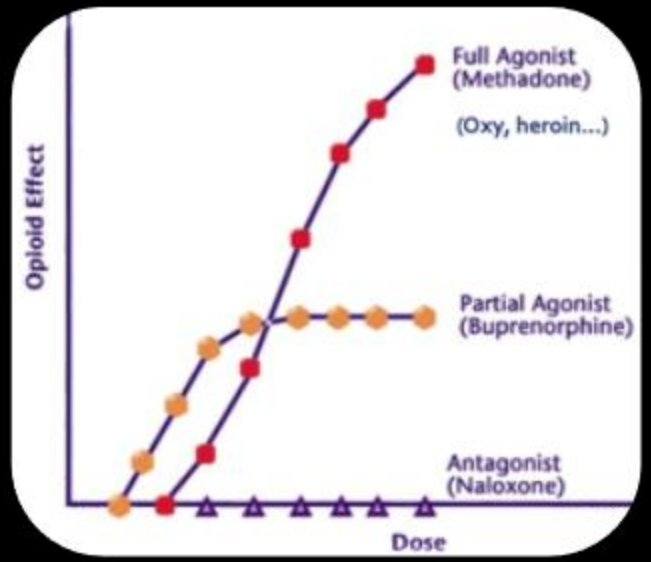
II. Case presentations
   I. Case 1
      I. Case summary
      II. Clarifying questions
      III. Recommendations

III. Reminders
   I. Claim CME
   II. Future Sessions

Lets get started!

Didactic Presentation

Precipitated Opioid Withdrawal



Brandon Wills, DO, FACEP, FAACT
Fellowship Director, Medical Toxicology
Division of Clinical Toxicology
VCU Medical Center
Virginia Poison Center

Disclosures

None

My background…

Initiating treatment for opioid use disorder is a *medical urgency*

September 18, 2020

Nonfatal Opioid Overdoses at an Urban Emergency Department During the COVID-19 Pandemic

Taylor A. Ochalek, PhD[1]; Kirk L. Cumpston, DO[2]; Brandon K. Wills, DO[2]; et al

- Nonfatal opioid overdoses at VCU Medical Center increased by > 2X between 2020 vs 2019.
- The percentage of Black patients increased from 63% in 2019 to 80% in 2020--"Health disparities have been magnified during the pandemic."

JAMA Network™

TOXICOLOGY/BRIEF RESEARCH REPORT

One-Year Mortality of Patients After Emergency Department Treatment for Nonfatal Opioid Overdose

Scott G. Weiner, MD, MPH*; Olesya Baker, PhD; Dana Bernson, MPH; Jeremiah D. Schuur, MD, MHS

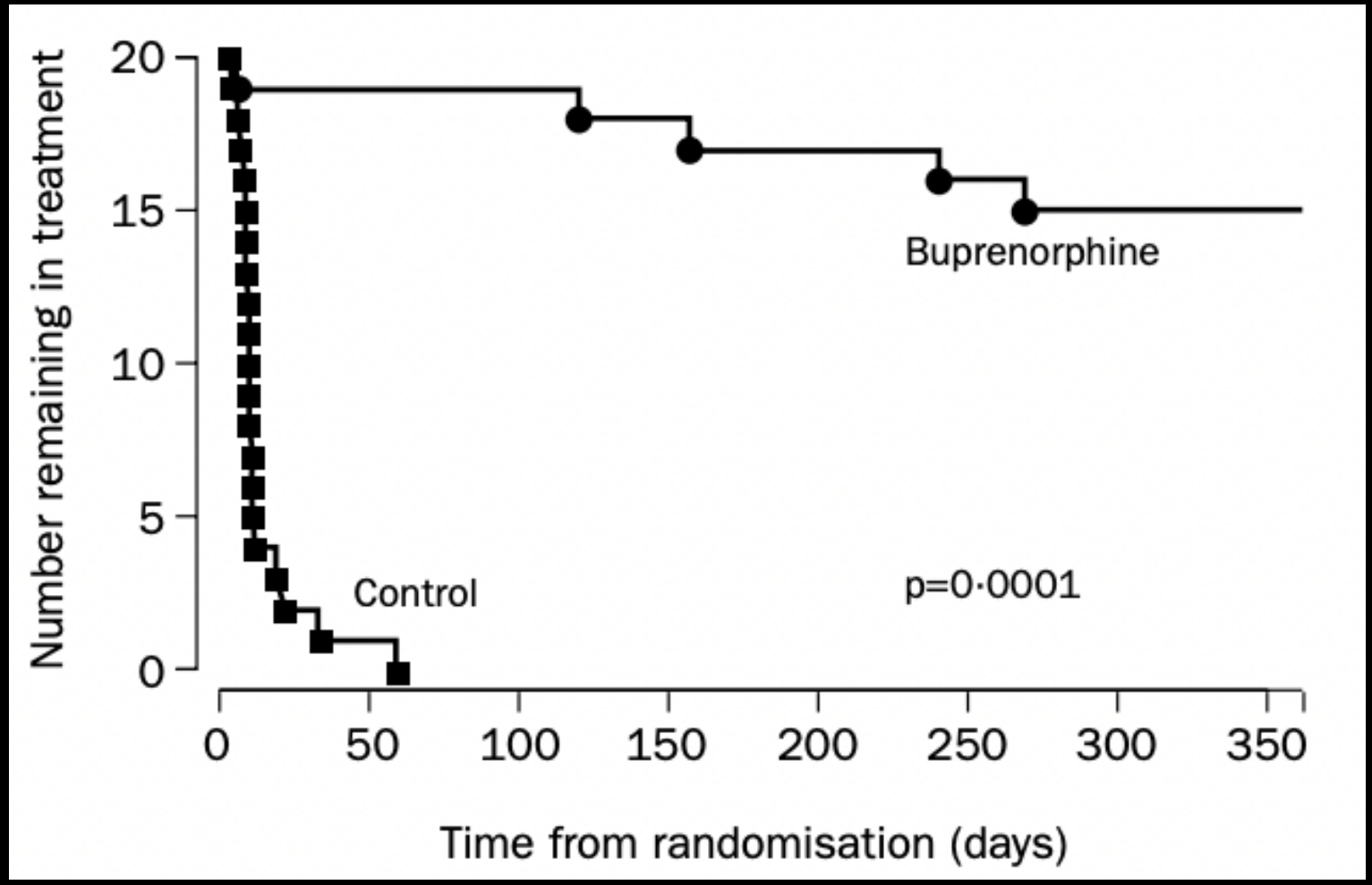
*Corresponding Author. E-mail: sweiner@bwh.harvard.edu, Twitter: @scottweinermd.

N=11,000 opioid overdoses

Subsequent death
5% dead within 1 year!!
1% dead within 1 month
0.25% dead within 2 days

Ann Emerg Med, 2020;75(1)

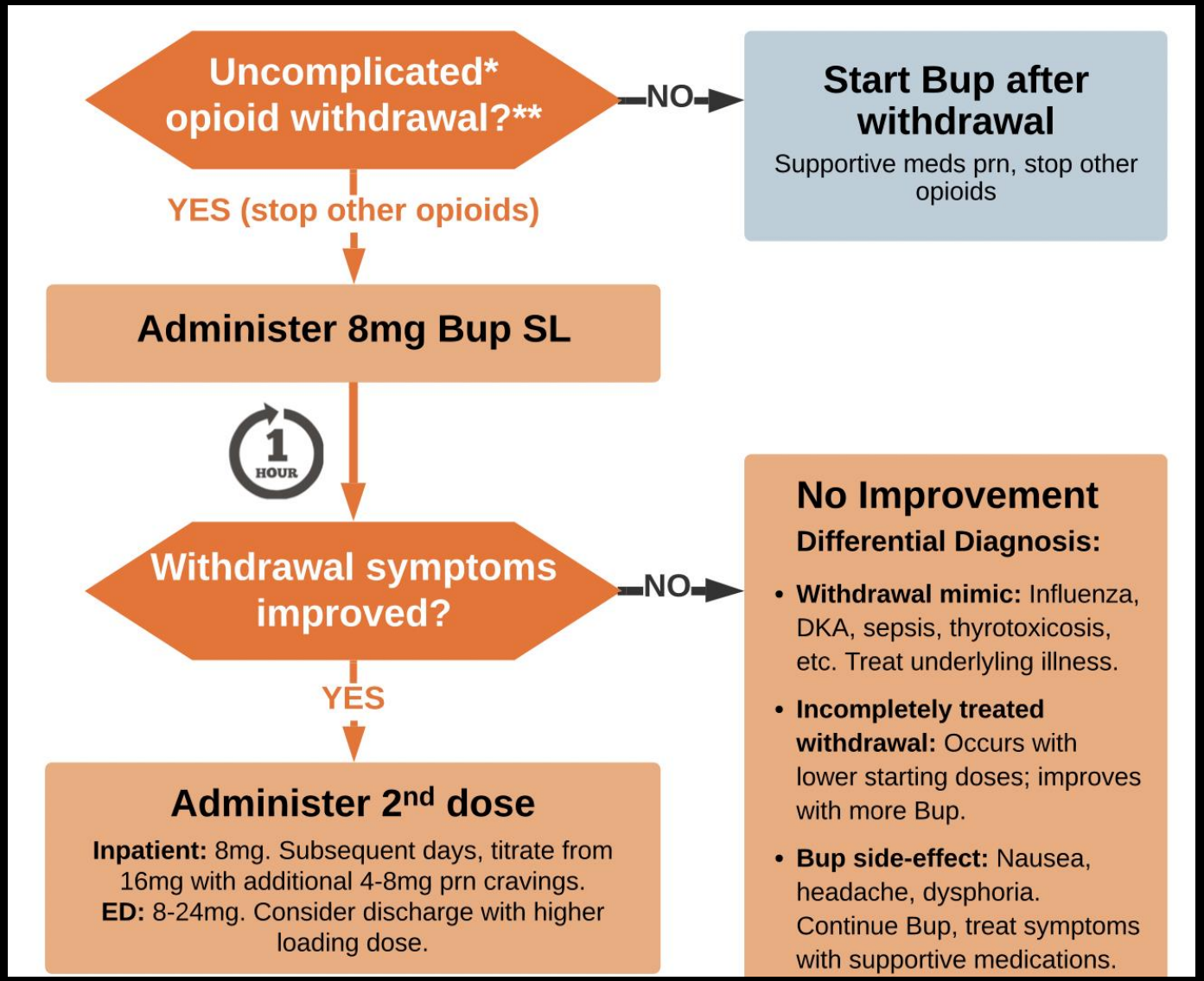
Natural history of OUD treatment



Treatment Retention at 1 year
Buprenorphine: 75%
Placebo: 0%

Kakko J et al. Lancet 2003

Starting buprenorphine in the ED



https://cabridge.org/

Sometimes things don’t go well…

ED Case

54 y/o

CC: Knee/ back pain

HPI: Pain started 3 weeks ago s/p multiple falls

Reports not taking methadone for the past 4 days. Previously has taken x 10 years, unclear if for chronic pain vs OUD.

Pt reporting severe withdrawal.

PMH: T2DM, MS

Physical exam

- VS: 36.8; 119; 158/84; 16; 96%
- Gen: Writhing in pain
- Diaphoretic
- Serum drug screen: pan negative

ED Course

- Given buprenorphine 8mg SL

- W/D worsened. N/V/D x 2
- HR 160, RR 40's
- Pt now reporting last methadone dose was last couple of days

ED Course Cont.

- Over 30 minutes: Hydromorphone 3 mg, lorazepam 1mg, methadone 20 mg, dexmedetomidine drip, IV methadone, restraints

- 2 hr after buprenorphine, pt intubated

(Later determined methadone 175 mg QD x 10yr)

Hospital Course

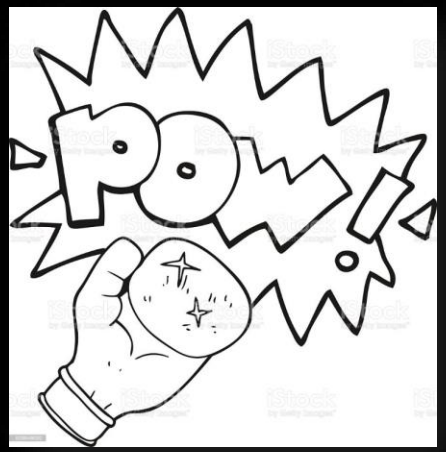
- Mechanical ventilation 24 hours
- Hydromorphone drip
- Transitioned back to methadone 175 mg
- Discharged on hospital day 7

Objectives

- Understand the mechanism of buprenorphine-precipitated withdrawal.
- Describe the evidence available for using buprenorphine to treat precipitated withdrawal.

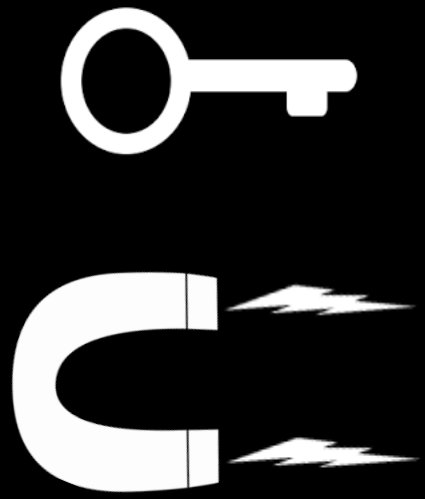
Concepts

Precipitated opioid withdrawal

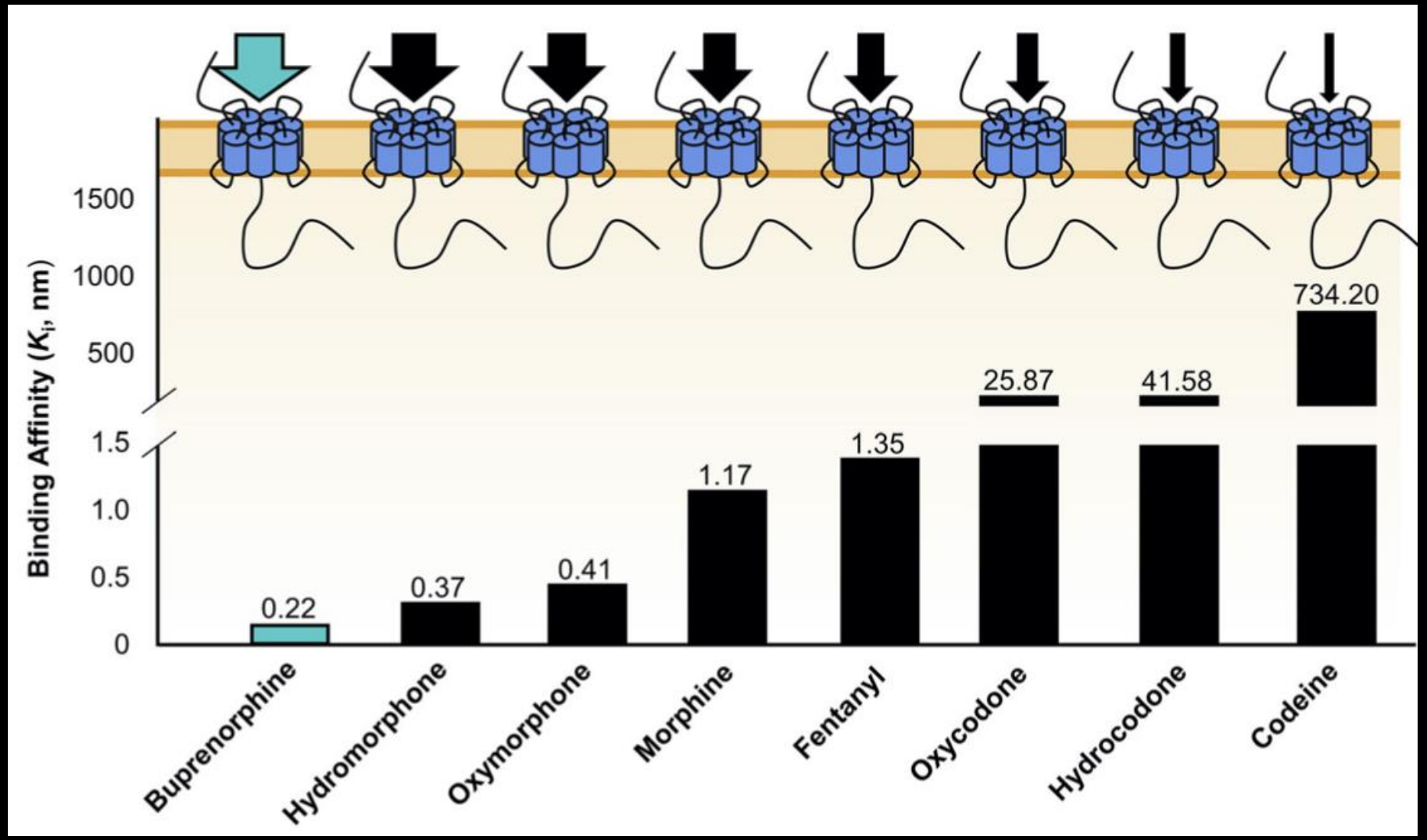


μ-opioid Receptor

Affinity vs Potency

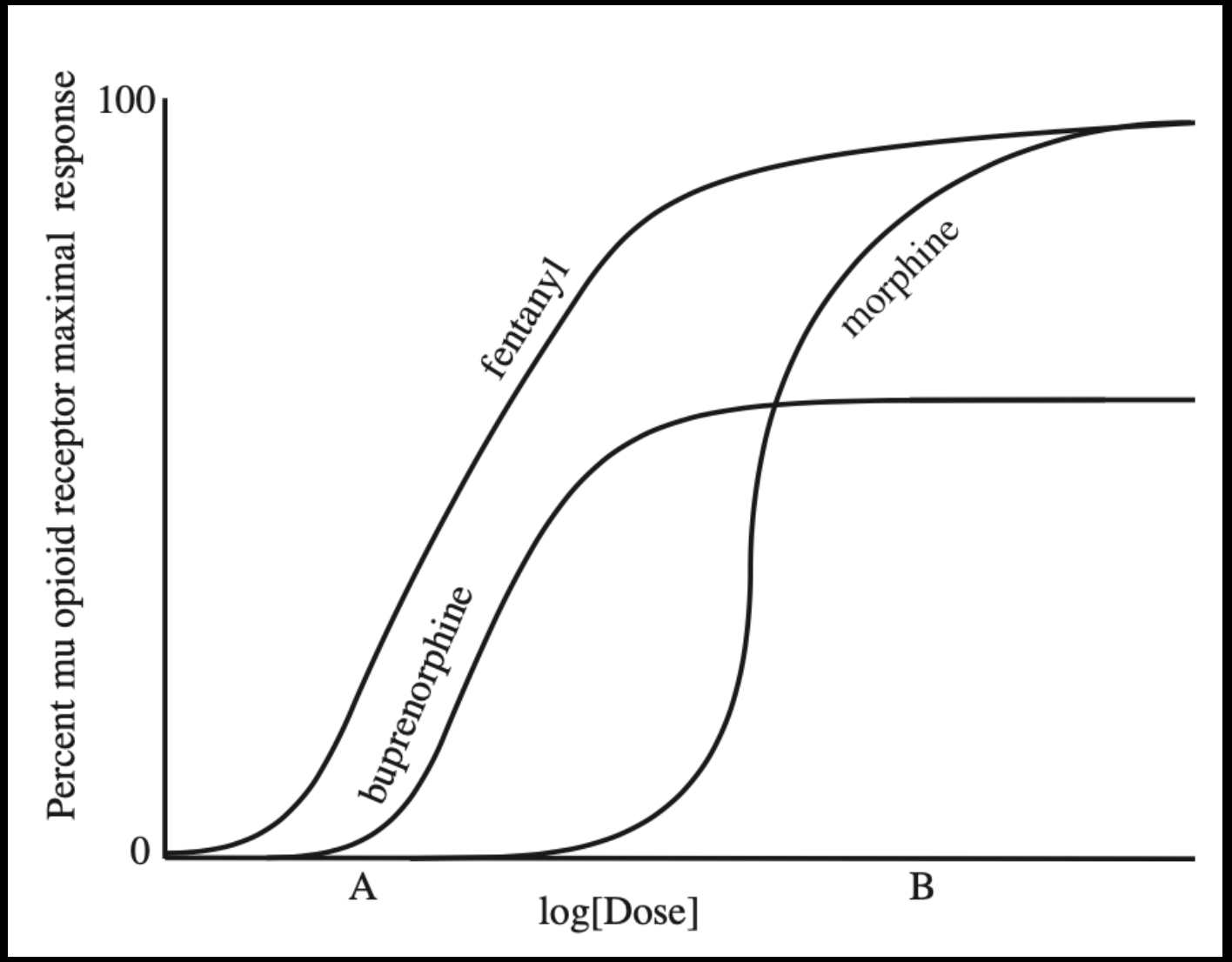


Affinity

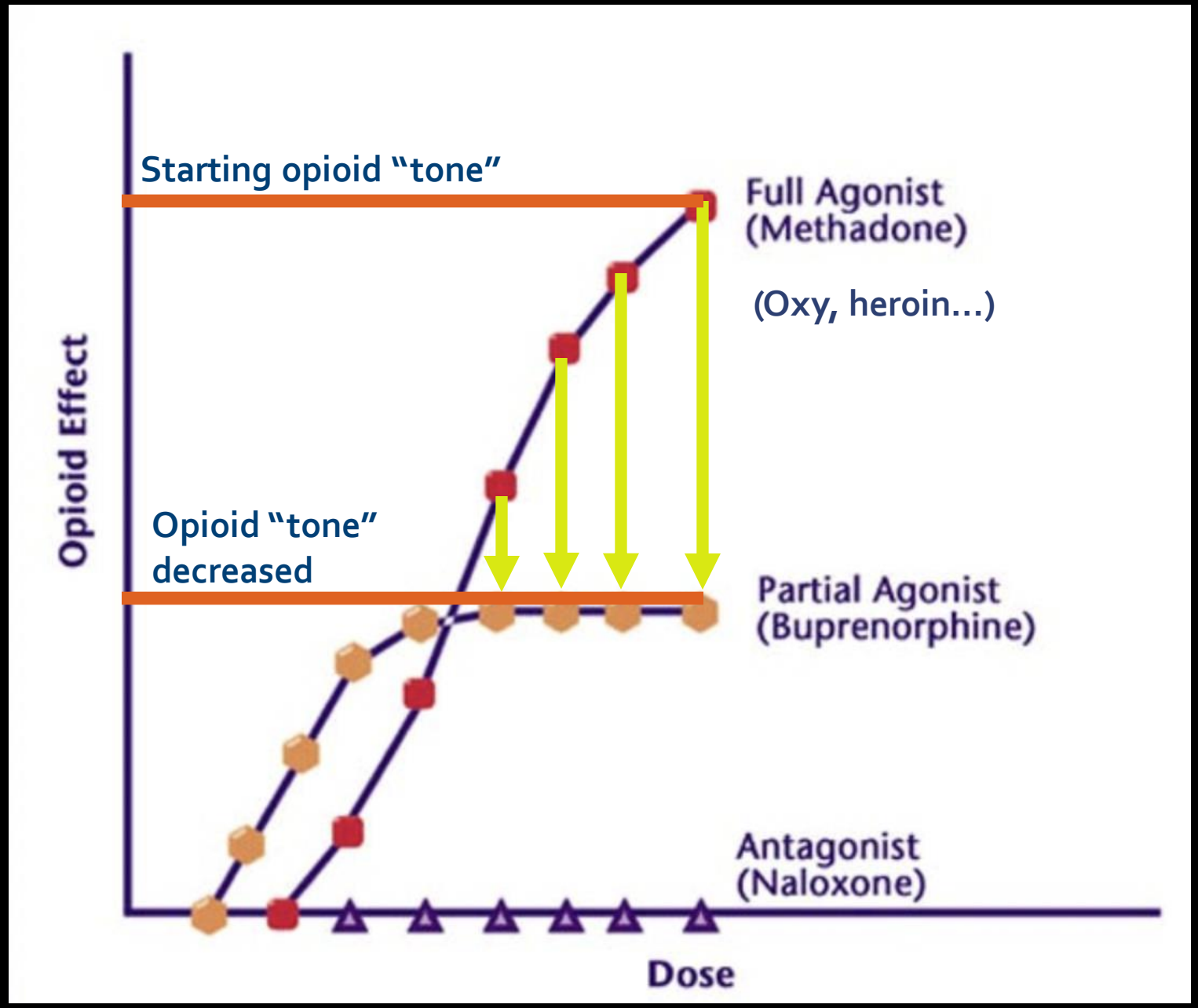


Pain Ther (2020) 9:41–54

Potency



J Addict Med • Volume 00, Number 00, Month/Month 2018


Starting opioid "tone"
Full Agonist
(Methadone)
(Oxy, heroin…)
Opioid Effect
Opioid "tone"
decreased
Partial Agonist
(Buprenorphine)
Antagonist
(Naloxone)
Dose

How to treat precipitated withdrawal?

Options

1. Non-opioid medication combo
2. Full agonist
3. Additional buprenorphine

Evidence for using additional buprenorphine to treat precipitated withdrawal (not much)

American Journal of Emergency Medicine 38 (2020) 691.e3–691.e4

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Treatment of acute naloxone-precipitated opioid withdrawal with buprenorphine

Neeraj Chhabra [a,*], Steven E. Aks [b]

Single case report:

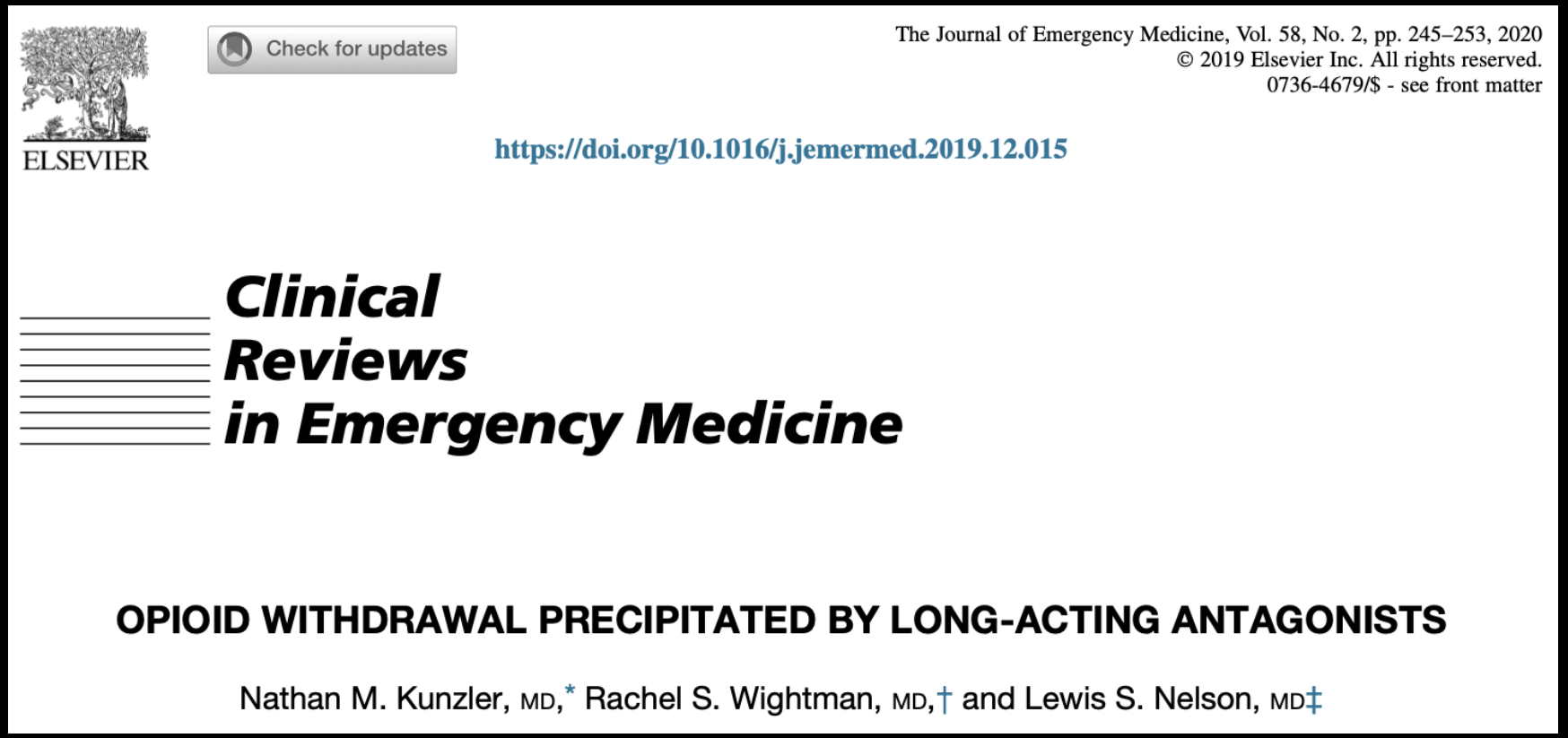
-Naloxone precipitated withdrawal after opioid overdose

-Prehospital IM naloxone, 2 mg

-COWS= 10

-Given buprenorphine/ naloxone 4/1 mg film

-COWS 30 min later= 4, 60 min later= 3



The Journal of Emergency Medicine, Vol. 58, No. 2, pp. 245–253, 2020

0736-4679/$ - see front matter

https://doi.org/10.1016/j.jemermed.2019.12.015

Clinical Reviews in Emergency Medicine

OPIOID WITHDRAWAL PRECIPITATED BY LONG-ACTING ANTAGONISTS

Nathan M. Kunzler, MD,* Rachel S. Wightman, MD,† and Lewis S. Nelson, MD‡

Review article: 27 papers, precipitated withdrawal from long-acting antagonists
-Mostly precipitated withdrawal from naltrexone
-Many therapies used, not standardized, only a few cases used buprenorphine
-When buprenorphine used, usually had rapid improvement
-Doses used: 4-22 mg

Drug and Alcohol REVIEW

Drug and Alcohol Review (May 2021), 40, 567–571
DOI: 10.1111/dar.13228

BRIEF REPORT

Managing opioid withdrawal precipitated by buprenorphine with buprenorphine

BRIDGET OAKLEY[1], HESTER WILSON[1,2], VICTORIA HAYES[1,2] & NICHOLAS LINTZERIS[1,3]

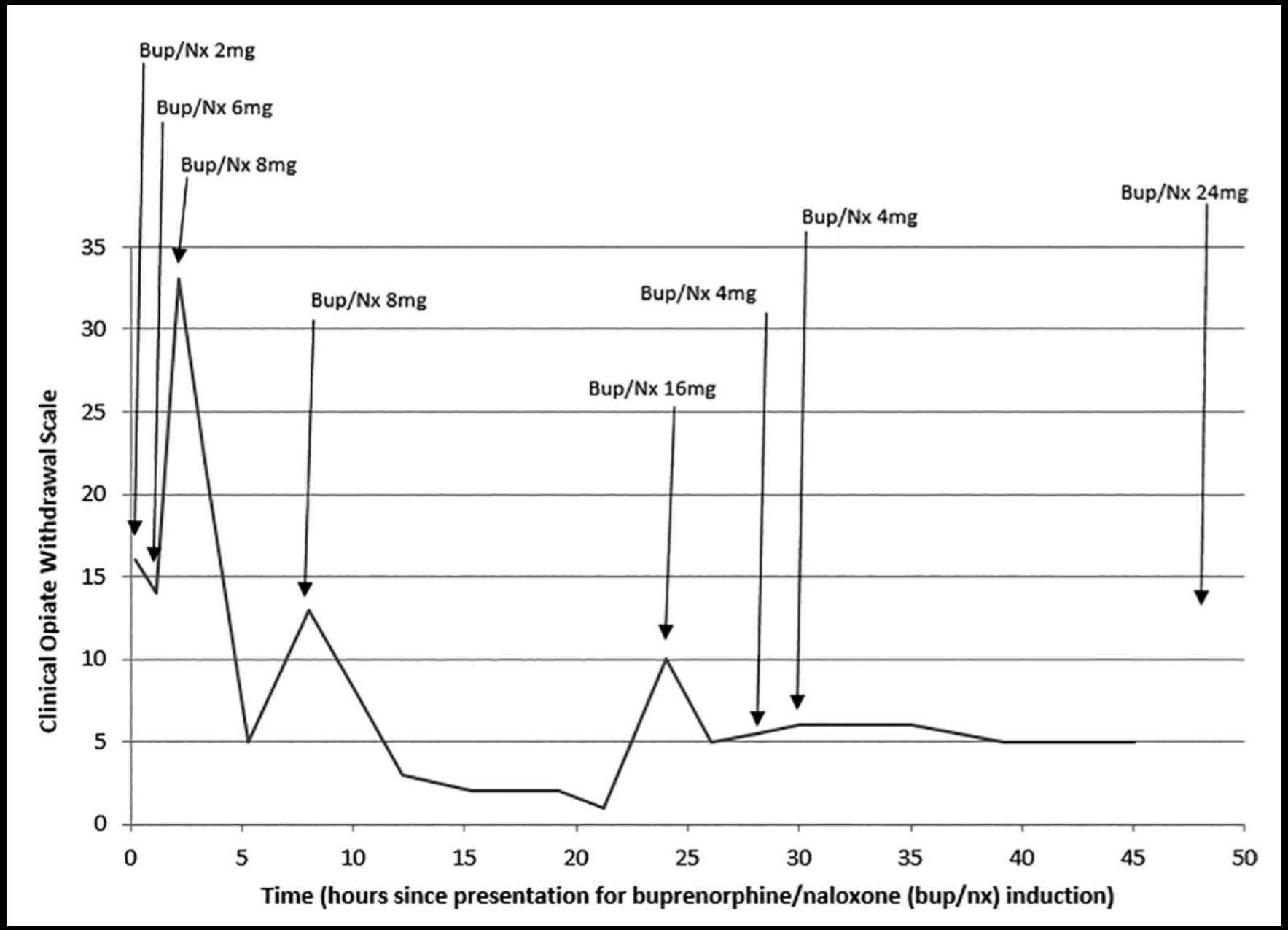
Single case report:

-Pt with OUD reported heroin use 29 hrs earlier

-COWS 16→ 2mg bupe→ 1 hr later COWS 14→ 6mg bupe→ 2 hr later→ COWS 33 → 8mg bupe→ 2 hr later COWS 22

-Day 1 total: 24 mg bupe

-Later reported taking 10 mg methadone < 1 week prior to induction


Bup/Nx 2mg
Bup/Nx 6mg
Bup/Nx 8mg
Bup/Nx 24mg
Bup/Nx 4mg
Bup/Nx 8mg
Bup/Nx 4mg
Bup/Nx 16mg
Clinical Opiate Withdrawal Scale
0
5
10
15
20
25
30
35
0
5
10
15
20
25
30
35
40
45
50
Time (hours since presentation for buprenorphine/naloxone (bup/nx) induction)

Time		COWS	Treatment	Comments
Day 1	0819	16	Bup/nx 2 mg SL	Test dose given when COWS >8 as per g
	0914	14	Bup/nx 6 mg SL	No increase in COWS, so further bup/n starting dose of 8 mg
	1019	33	Bup/nx 8 mg SL	Precipitated withdrawal diagnosed
				Transferred from community facility to department
	1135	22		Assessed in emergency department
	1203		Sodium chloride 0.9% 1L IV	Admitted
				Dehydration
			Ondansetron 4 mg	Nausea and vomiting
			IV Diazepam 5 mg PO	Agitation
			Buscopan 20 mg IV	Abdominal pain
	1327	5		Reduced COWS in response to greater
	1600	13	Bup/nx 8 mg SL	Withdrawal symptoms
			Paracetamol 1 g PO	Pain
	1807	8	Ondansetron 4 mg PO	Nausea and vomiting
	1851		Paracetamol 1 g PO	Pain
	2023	3	Metoclopramide 10 mg IM	Nausea and vomiting
	2328	2	Paracetamol 1 g PO	Pain
Day 2	0115	2		
	0321	2		
	0523	1	Paracetamol 1 g PO	Pain
	0803	10	Bup/nx 16 mg SL	Rising withdrawal symptoms as time from 16 mg given rather than 24 mg (total da monitoring for sedation, in a setting whe given if needed
			Ondansetron 4 mg PO	Nausea and vomiting
	1007	5	Paracetamol 1 g PO	Pain
	1215		Bup/nx 4 mg SL	Withdrawal symptoms not improving

Family Practice, 2021, 1–3
doi:10.1093/fampra/cmab073

OXFORD

Case Report

A case of buprenorphine-precipitated withdrawal managed with high-dose buprenorphine

Thomas H N Quattlebaum[a,*], Miki Kiyokawa[b,c] and Kayla A Murata[a]

Single case report:
-Pt with OUD, daily oxycodone > 70 mg (Oxy ER 20 mg TID + IR prn)
-Home induction
-17 hours after last oxy ER, began bupe induction, 4 mg→ 30 min later= worse
-Serial doses up to 16 mg → worse→ to the ER (COWS 25)
-IVF/clonidine/ bupe 2 mg→ COWS 13→ bupe 2 mg (Day 1: 20 mg)
-Discharged the following day on 20 mg QD
-5 months later, still doing great with 16 mg daily

High-dose buprenorphine?

JAMA Network | Open

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

Table 2. Clinical Characteristics of Sublingual Buprenorphine Induction for Opioid Use Disorder During Emergency Department Visits

Characteristic	Total buprenorphine dose sublingual					
	2-6 mg (n = 55)	8 mg (n = 136)	10-12 mg (n = 22)	16 mg (n = 106)	20-24 mg (n = 122)	≥28 mg (n = 138)
Adverse events, No. (%)						
Precipitated withdrawal	0	4 (2.9)	0	0	0	1 (0.7)
Hospitalization	5 (9.1)	4 (2.9)	1 (4.5)	3 (2.8)	8 (6.6)	4 (2.9)

-ED induction for OUD, not treating precipitated withdrawal
-Bottom line: patients did well with high-dose

Ahmadi *et al. Trials* (2018) 19:675
https://doi.org/10.1186/s13063-018-3055-z

Trials

RESEARCH Open Access

Single high-dose buprenorphine for opioid craving during withdrawal

Jamshid Ahmadi[1*], Mina Sefidfard Jahromi[1], Dara Ghahremani[2] and Edythe D. London[2,3,4]

-RCT
-Single buprenorphine dose for opioid withdrawal
-Gave 32 mg, 64 mg or 96 mg
-Observed craving scores for the next 5 days

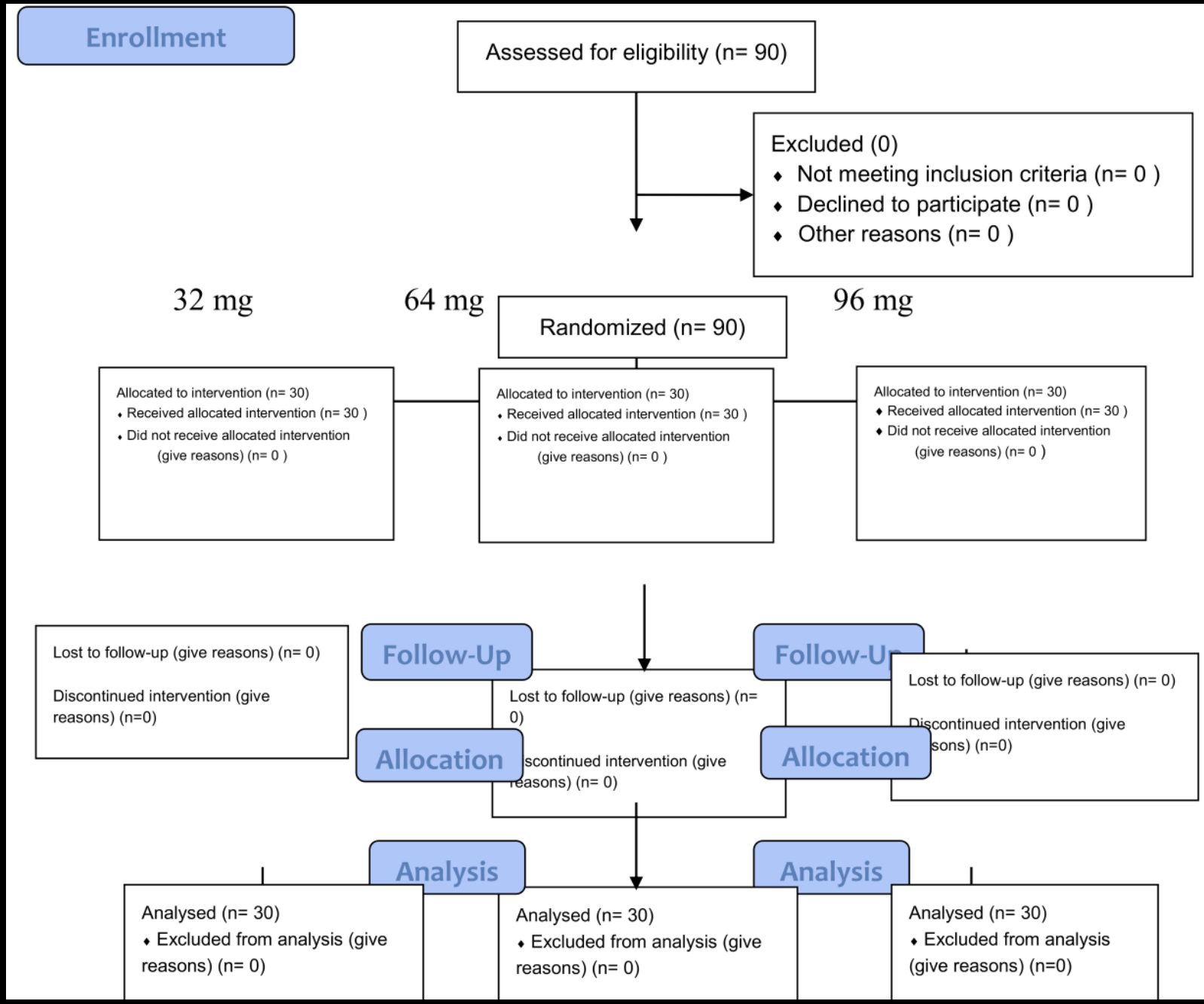

Enrollment
Assessed for eligibility (n= 90)
Excluded (0)
Not meeting inclusion criteria (n= 0)
Declined to participate (n= 0)
Other reasons (n= 0)
32 mg
64 mg
Randomized (n= 90)
96 mg
Allocated to intervention (n= 30)
Received allocated intervention (n= 30)
Did not receive allocated intervention (give reasons) (n= 0)
Allocated to intervention (n= 30)
Received allocated intervention (n= 30)
Did not receive allocated intervention (give reasons) (n= 0)
Allocated to intervention (n= 30)
Received allocated intervention (n= 30)
Did not receive allocated intervention (give reasons) (n= 0)
Lost to follow-up (give reasons) (n= 0)
Discontinued intervention (give reasons) (n=0)
Follow-Up
Follow-Up
Lost to follow-up (give reasons) (n= 0)
Allocation
scontinued intervention (give reasons) (n= 0)
Allocation
Lost to follow-up (give reasons) (n= 0)
Discontinued intervention (give sons) (n=0)
Analysis
Analysis
Analysed (n= 30)
Excluded from analysis (give reasons) (n= 0)
Analysed (n= 30)
Excluded from analysis (give reasons) (n= 0)
Analysed (n= 30)
Excluded from analysis (give reasons) (n=0)

Table 3 Craving scores (means and standard deviations) of the three groups

Group (Buprenorphine, mg) Day	32 $n = 30$	64 $n = 30$	96 $n = 30$
Baseline	7.23 ± 3.51	6.93 ± 3.54	7.56 ± 3.53
Day 1	4.46 ± 3.95	4.96 ± 2.90	4.00 ± 2.75
Day 2	2.56 ± 3.23	3.03 ± 2.23	1.00 ± 1.74
Day 3	1.70 ± 2.39	0.900 ± 1.37	0.366 ± 0.927
Day 4	1.23 ± 1.86	0.300 ± 0.749	0.233 ± 0.727
Day 5	0.700 ± 1.14	0.100 ± 0.402	0.00 ± 0.00

Results:

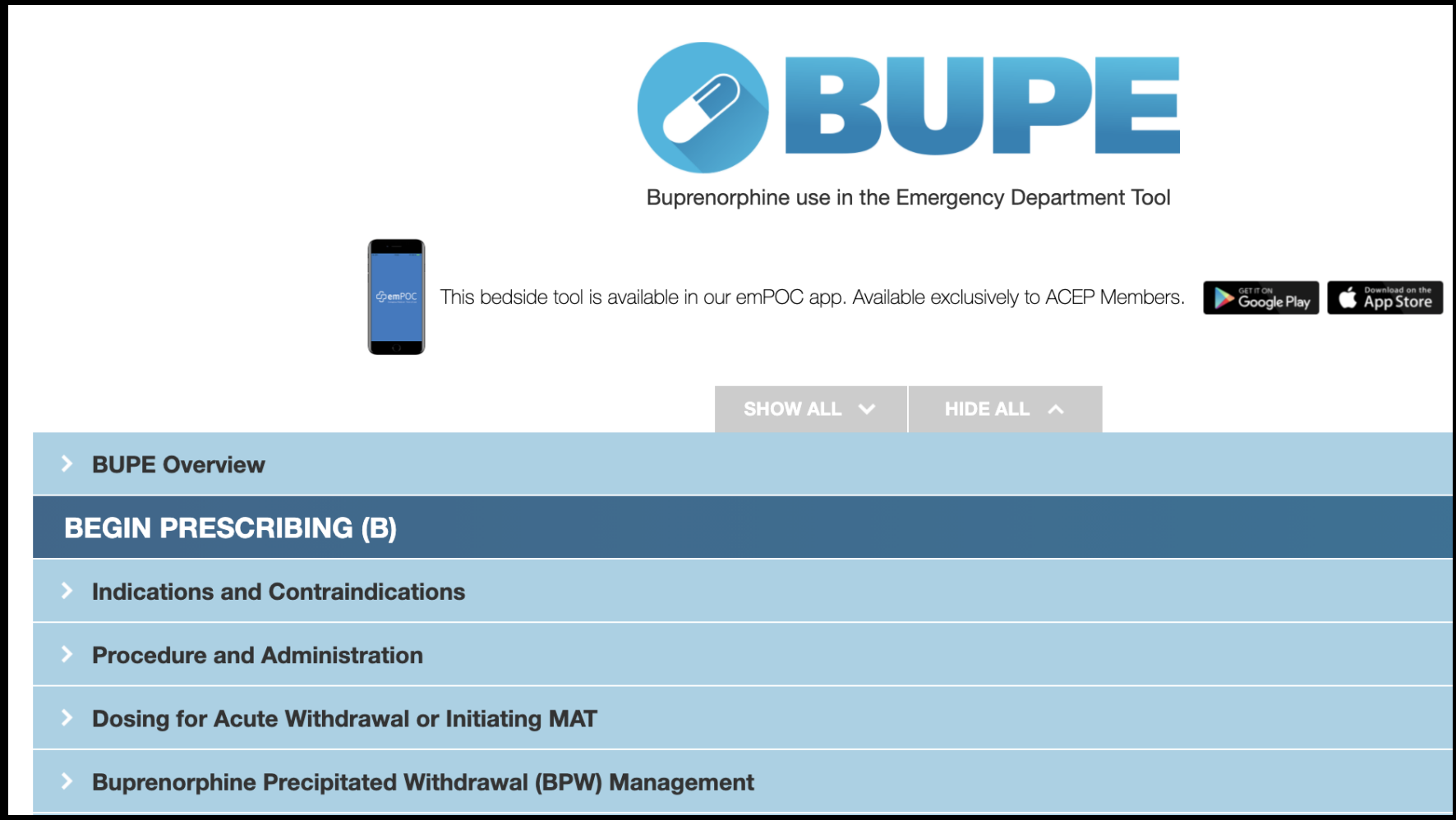
-64 mg worked better than 32 mg

-96 mg did not work better than 64 mg

Adverse effects

To ensure safety, side effects, vital signs, respiration, and gastrointestinal effects were measured and monitored every hour for the first day, and then every 6 h. Nine patients developed notable side effects. Two (both in the 96-mg group) developed significant hypotension (blood pressure of 75/50 and 80/45, respectively) and were treated with hydration. Two (both in the 32-mg group) developed nausea. Five (two in the 64-mg group and three in the 96-mg group) developed both nausea and vomiting. Patients who had nausea or vomiting were treated with antiemetic medications. No severe respiratory, cardiovascular, or gastrointestinal adverse effects were observed.

ACEP "BUPE" Tool



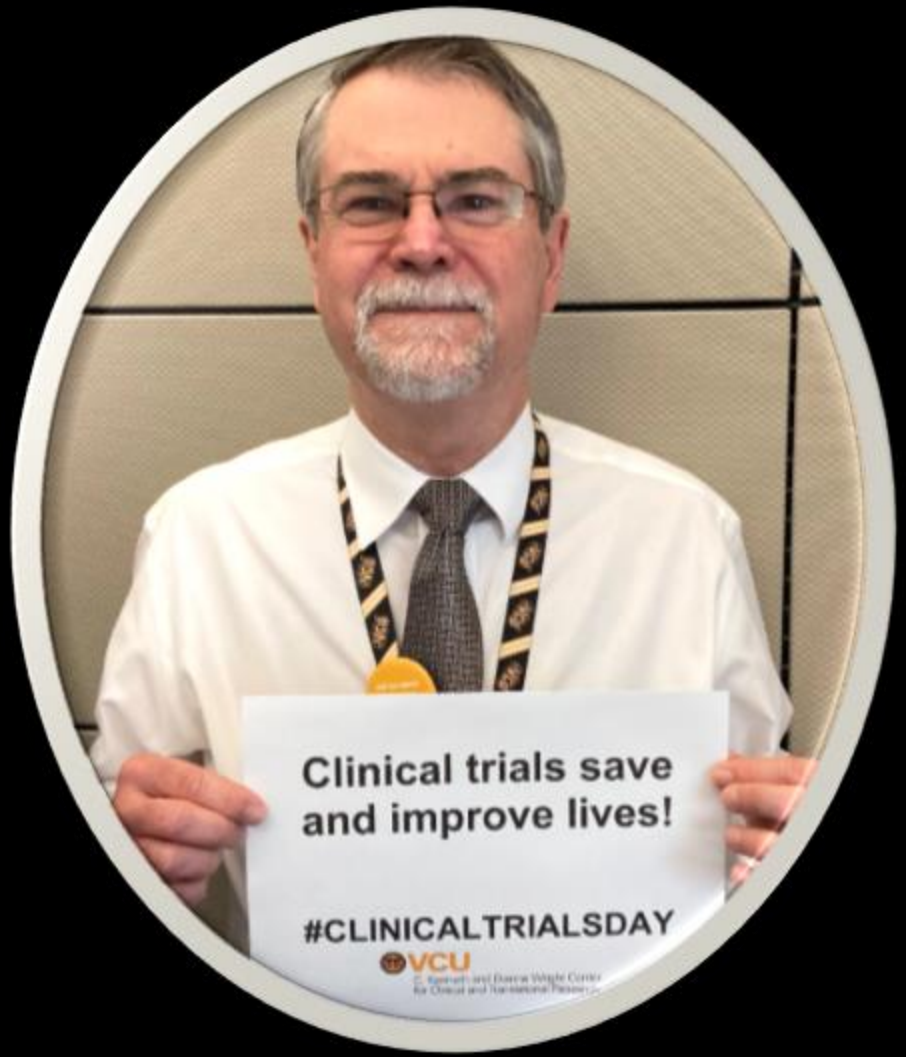
ACEP.org

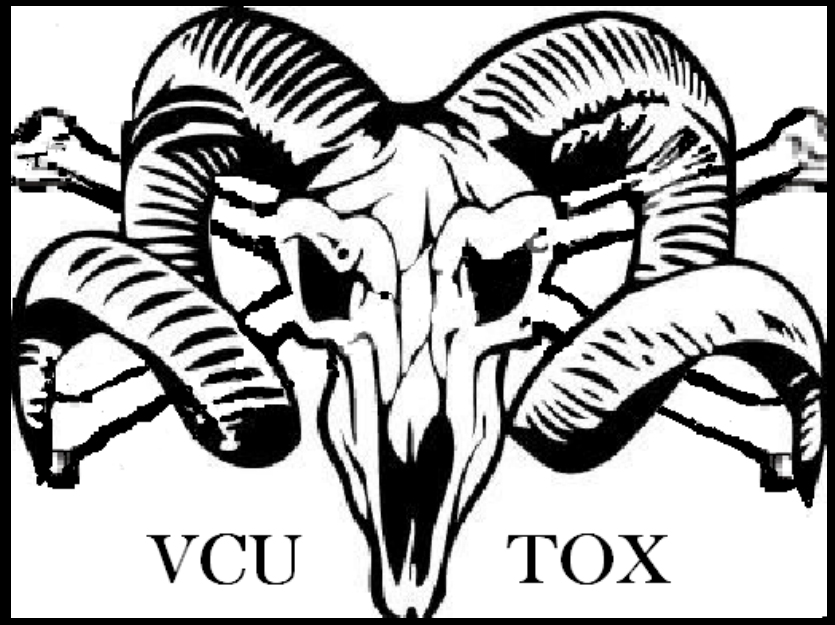
- Traditional non-opioid agonist, symptom focused medications (alpha-2 agonists, anti-emetics, anti-diarrhea medications, anxiolytics, etc.) .Some institutional protocols for BPW only use non-opioid agonists. Watch for sedation (a common complication of these medications). A prolonged ED stay may be required. **View table of medications below ↓**
- Additional buprenorphine: Although there is limited published data, it is the experience among many experts, that generally, additional buprenorphine is more rapidly effective, and less sedating (and potentially obviates the need for an IV). Depending on initial dose of buprenorphine administered, administer additional 4-8mg Q 30 min until withdrawal symptoms abate.[19,20,21,22]

Summary

- Buprenorphine-POW can be severe
- Increased risk of Buprenorphine-POW
  - Methadone and fentanyl analogs
  - Low starting dose of buprenorphine?
- Treatment with additional bupe seems reasonable
  - Some suggest 2 mg Q 1 hour, others 4-8 mg Q 30 min
- Evidence is weak…

Future Directions?





COMMENTS?
QUESTIONS?

Case Presentation #1
Liz Signorelli- Moore, LPC

- 12:35-12:55 [20 min]
  - 5 min: Presentation
  - 2 min: Clarifying questions- Spokes
  - 2 min: Clarifying questions – Hub
  - 2 min: Recommendations – Spokes
  - 2 min: Recommendations – Hub
  - 5 min: Summary - Hub

Reminder: Mute and Unmute to talk
*6 for phone audio
Use chat function for questions

Main Question

*How can we provide SUD treatment services to this client? (He likely qualifies for 3.3-level ASAM, but Virginia doesn't seem to have such a program.)
*Should he continue using medical cannabis for his seizure d/o?

Demographic Information

DM 24 year old unmarried cisgender Caucasian male who lives with his mother and stepfather. Has been hospitalized at Western State since 9/29/21 after he threatened to kill his sister in setting of substance use (says he was angry she mixed his 2g medical cannabis w/ 3g of midgrade). Mother reported he had "beat up" sister the week before. Father died 7/2021 of cirrhosis.
No children. Works part-time for a trash collector. Completed high school. Has received disability since age 21 after traumatic brain injury from a motor vehicle accident (was using meth and cannabis w/ his uncle and a friend; uncle was driving and died). Has other family who use drugs and encourage him to use drugs. He says mother is the "sober one" in the family; she and stepfather believe he needs to stop methamphetamine use but not cannabis.

Background Information

*MH diagnosis is schizophrenia (I also found Dementia which does not make sense to me). Previous psych hospitalizations at Western 7-2021 X 1 week (choked stepdad, responding to internal stimuli, +UDS cannabis, methamphetamines, & amphetamines) and 11-2020 X 1 month (aggression in setting of substance use).
*Medical diagnoses are TBI and seizure disorder from the motor vehicle accident. Was in a coma for 3 weeks and part of his skull was removed due to brain swelling. Completed rehabilitation at Sheltering Arms and sees a neurologist at UVA. Has tremors and seizure disorder. Memory, concentration, judgment, and impulsivity issues. Anger issues with aggression ~2X/y. Seasonal allergies.
*Current meds: Trazodone 100mg, oxcarbazepine 600mg BID, aripiprazole 20mg, fluticasone BID, diphenhydramine 50mg Q6H for extrapyramidal symptoms. History of ADHD meds as a child.
*No history of suicide attempts or self-injurious behavior. History of being on suicide watch in jail.
*History of aggression as above + Assault & Battery on Law Enforcement, Obstruction, A&B on mom 11/2020 when she would not buy him cannabis. Also stole her car but was not charged.
*Other legal: Possession methamphetamines 8/2020, several prior traffic offenses.
*Substance use: Methamphetamines/amphetamines since age 23 via inhalation, history daily use ($50-180), now 1-2X/month, last use ~day before hospitalization; cocaine since age 22 via inhalation 1-2X/m, last use 2-3d before hospitalization; cannabis since age 18 daily (up to $80/d) "for my seizures," alcohol since age 13, history drinking case beer 2-3X/m, now 1-2X/m, last a few days before hospitalization; nicotine-dips 2 cans daily. States his only period of abstinence in community was at age 18 for 1 month while he worked at a job that required urine screens.

Previous Interventions

*Psychiatric hospitalization and stabilization on psych meds
*CSB prescriber, case manager, and MHSS services
*Was discharged from Intensive OP SA groups due to being "not cognitively ready to engage"
*Completed Sheltering Arms rehabilitation after TBI; sees a neurologist

Plans for Future Treatment/ Patient's Goal

*He is interested in more brain rehab and CSB is investigating referral to Woodrow Wilson, though his substance use and history of violence may be barriers.
*He wants to keep living with his mother and stepfather (he likely can't live independently) and continue his employment. Will continue with CSB prescriber, CM, and MHSS as above.
*He is committed to continued cannabis and nicotine use; will consider abstinence from methamphetamines. He has drastically reduced his alcohol use but does not see abstinence as a goal.
*Anger management groups have been suggested, but his performance in past groups does not suggest he will be able to participate effectively.

Reminder: Main Question

*How can we provide SUD treatment services to this client? (He likely qualifies for 3.3-level ASAM, but Virginia doesn't seem to have such a program.)
*Should he continue using medical cannabis for his seizure d/o?

Case Studies

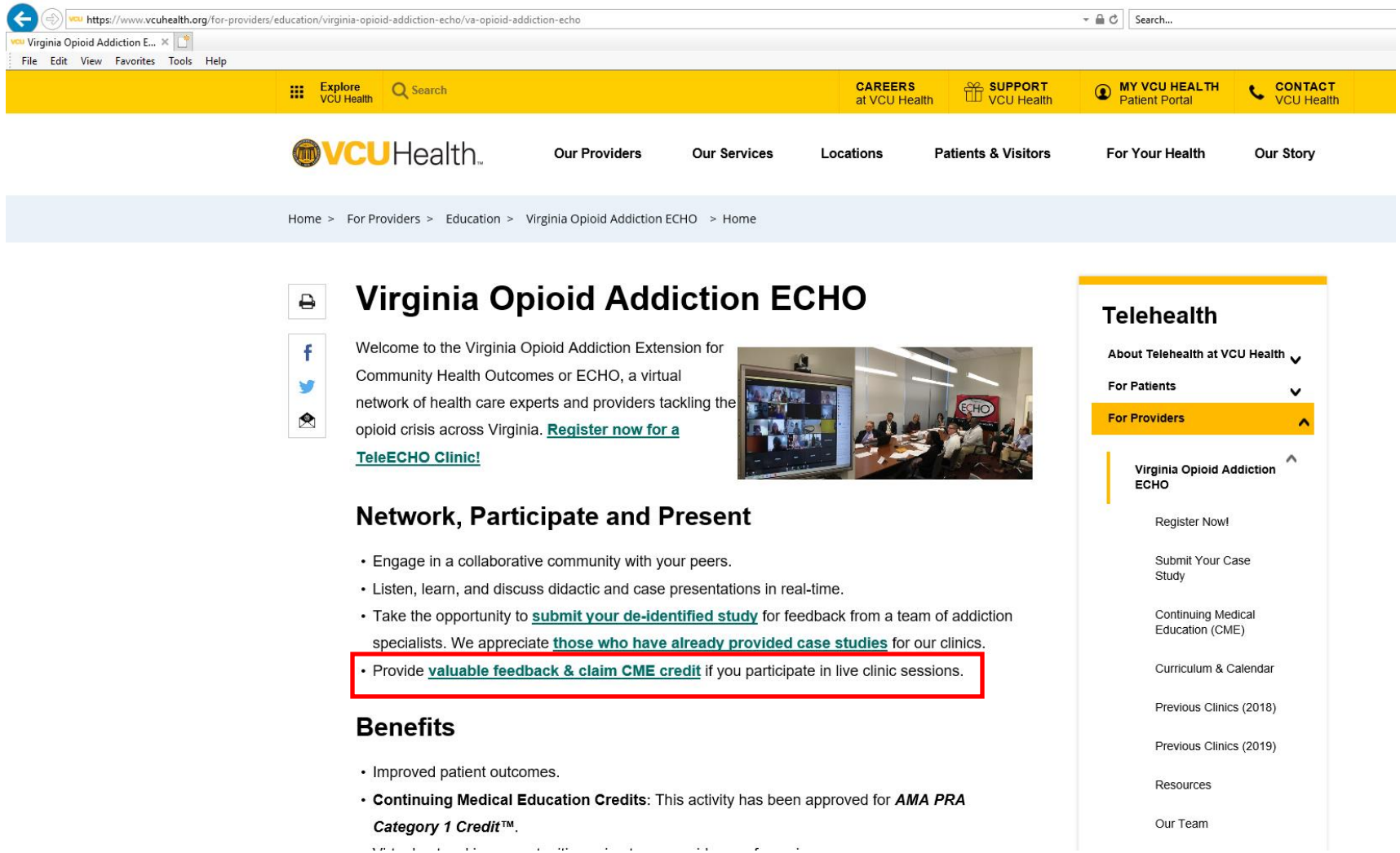
- Case studies
  - Submit: www.vcuhealth.org/echo
  - Receive feedback from participants and content experts
  - Earn **$100** for presenting

Claim Your CME and Provide Feedback

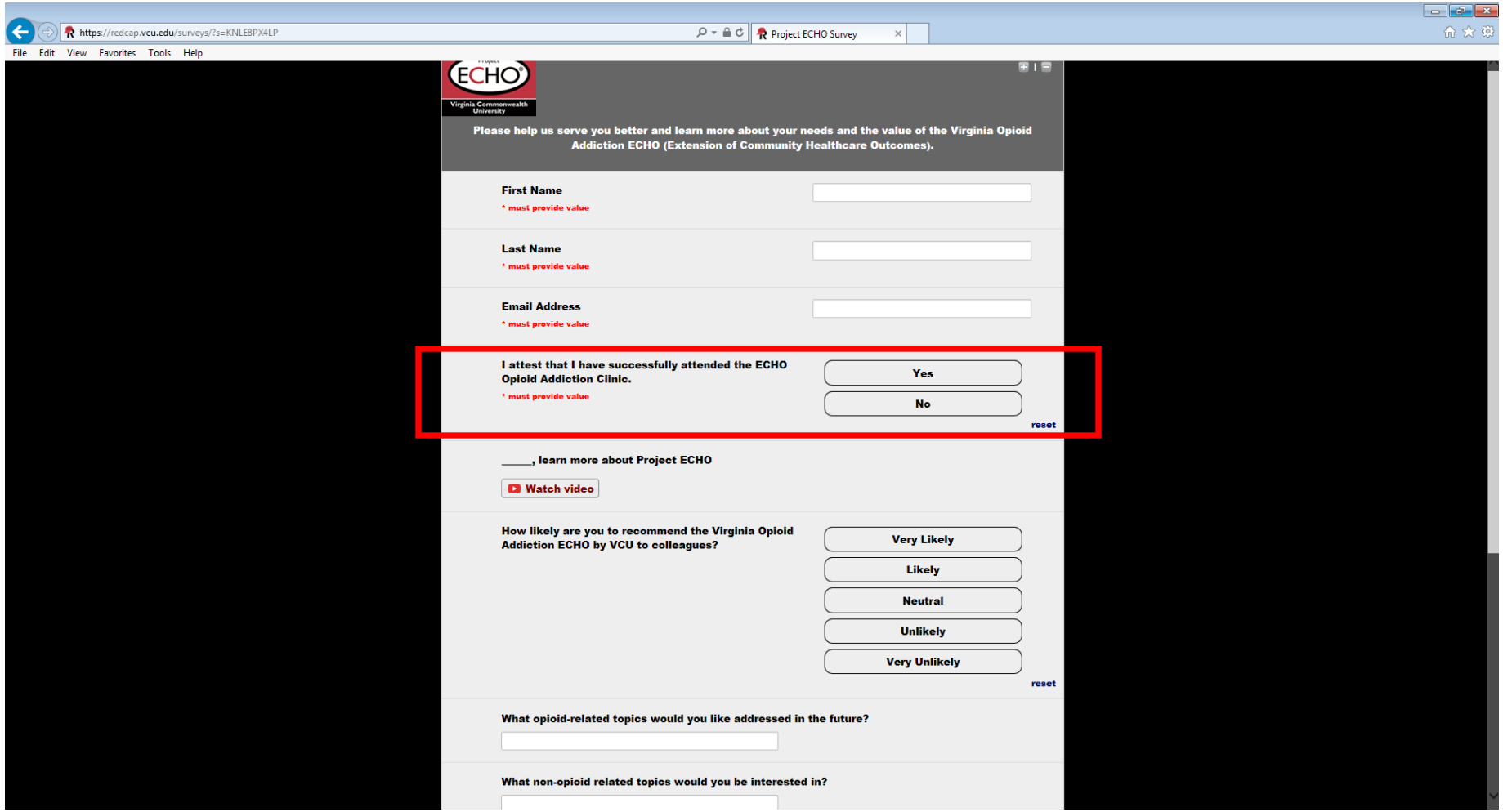
- www.vcuhealth.org/echo

- To claim CME credit for today's session
- Feedback
  - Overall feedback related to session content and flow?
  - Ideas for guest speakers?

Access Your Evaluation and Claim Your CME



Access Your Evaluation and Claim Your CME



Access Your Evaluation and Claim Your CME

- www.vcuhealth.org/echo
  - To view previously recorded clinics and claim credit

Access Your Evaluation and Claim Your CME

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Virginia Opioid Addiction ECHO

Welcome to the Virginia Opioid Addiction Extension for Community Health Outcomes or ECHO, a virtual network of health care experts and providers tackling the opioid crisis across Virginia. **Register now for a TeleECHO Clinic!**

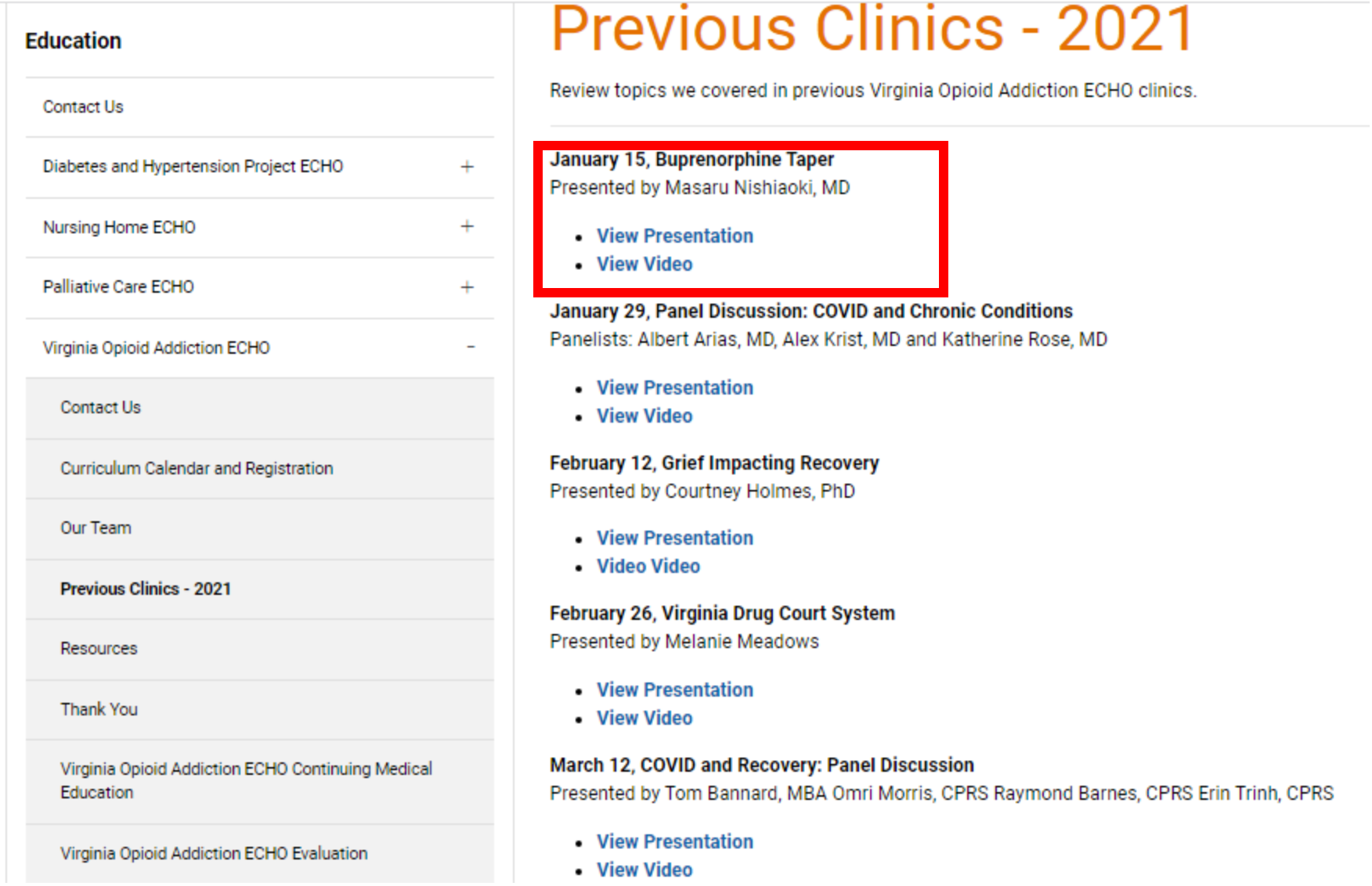
Network, Participate and Present

- Engage in a collaborative community with your peers.
- Listen, learn, and discuss didactic and case presentations in real-time.
- Take the opportunity to **submit your de-identified study** for feedback from a team of addiction specialists. We appreciate **those who have already provided case studies** for our clinics.
- Provide **valuable feedback & claim CME credit** if you participate in live clinic sessions.

Benefits

- Improved patient outcomes.
- **Continuing Medical Education Credits**: This activity has been approved for ***AMA PRA Category 1 Credit™***.
- Virtual networking opportunities using two-way video conferencing.
- No cost to participate.
- **If unable to attend a live clinic session**, **learn how to access the CME website** to view the recording and claim credit.

Access Your Evaluation and Claim Your CME



VCU Virginia Opioid Addiction TeleECHO Clinics

Bi-Weekly Fridays - 12-1:00 pm

Mark Your Calendar: Provider Focused Series

November 5 : Treating Insomnia in OUD	Morgan Ried, PhD
November 19: Buprenorphine Microdose Induction	Katie Adams, PharmD
December 3: New X Waiver Guidelines	TBD

Please refer and register at vcuhealth.org/echo

Project ECHO®
Virginia Commonwealth University

THANK YOU!

Reminder: Mute and Unmute to talk
*6 for phone audio
Use chat function for questions

VCU