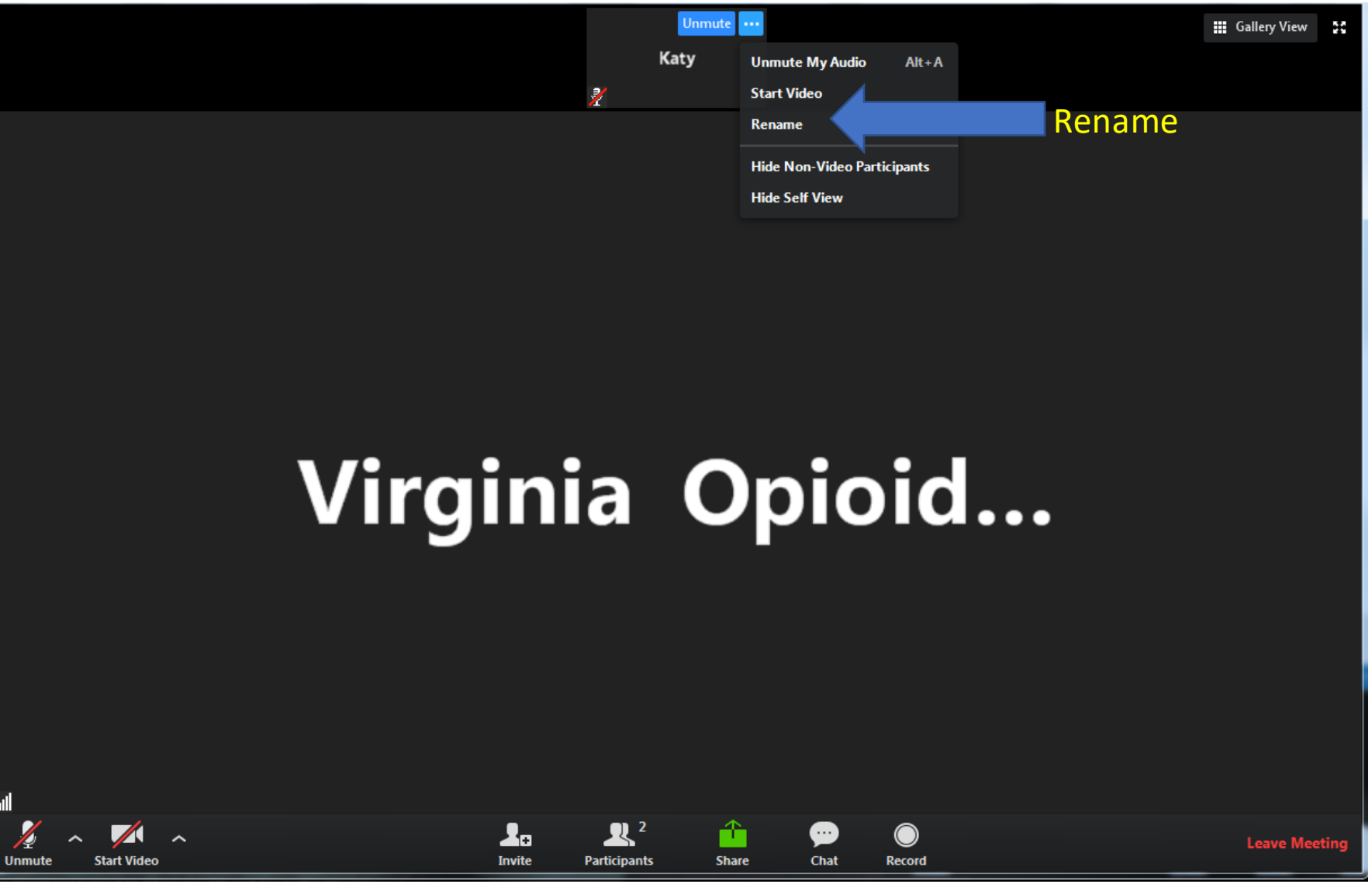
Virginia Opioid Addiction ECHO* Clinic

November 18, 2022

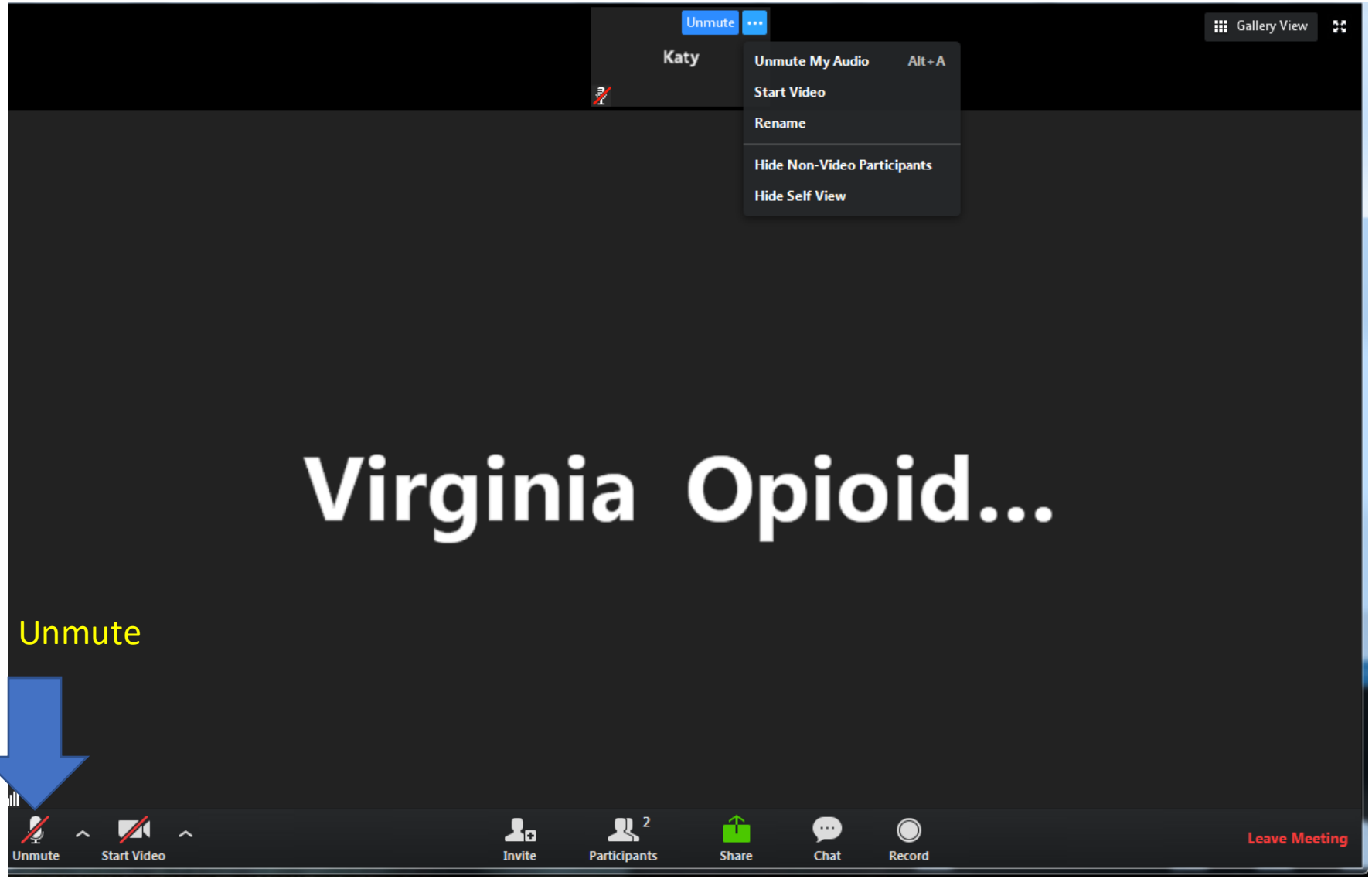
*ECHO: Extension of Community Healthcare Outcomes

Helpful Reminders



- Rename your Zoom screen, with your name and organization

Helpful Reminders



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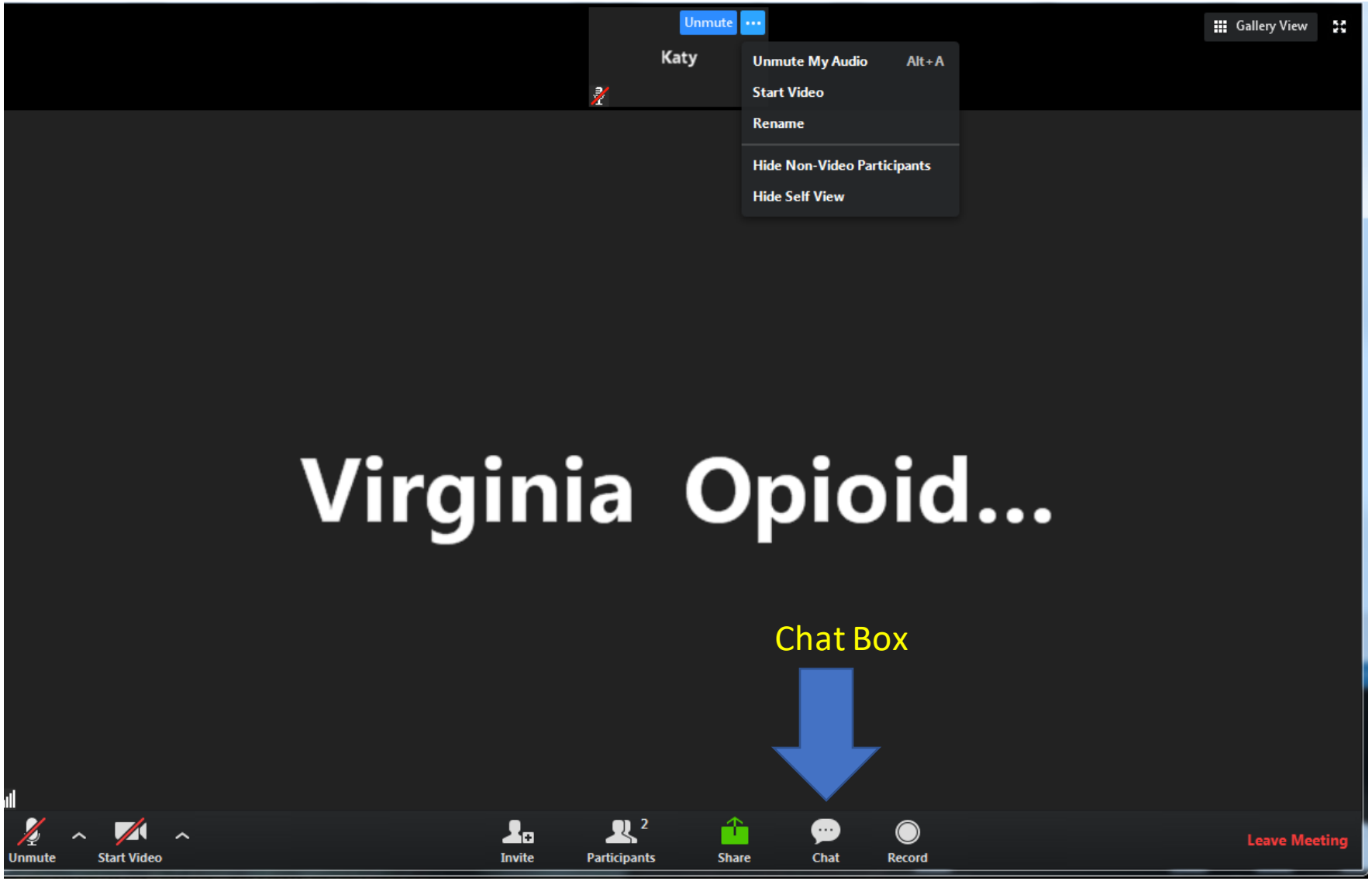
- If joining by telephone audio only, *6 to mute and unmute

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 teleECHO Clinics
- Every teleECHO clinic includes a 30 minute didactic presentation followed by case discussions
- Didactic presentations are developed and delivered by interprofessional experts
- Website Link: www.vcuhealth.org/echo

Hub and Participant Introductions

VCU Team	
Clinical Director	F. Gerard Moeller, MD
Administrative Medical Director ECHO Hub	F. Gerard Moeller, MD
Clinical Experts	Lori Keyser-Marcus, PhD Courtney Holmes, PhD Albert Arias, MD Megan Lemay, MD
Didactic Presentation	Bishoy Samuel, MD
Subject Matter Expert	Megan Lemay, MD
Program Manager	Leslie Bobb, MPH
Senior Program Coordinator	Lillie Lattimore, MA

- Name
- Organization

Reminder: Mute and Unmute screen to talk

*6 for phone audio

Use chat function for Introduction

What to Expect

I. Didactic Presentation
    I. **Bishoy Samuel, MD**
II. Case presentations
    I. Case 1
        I. Case summary
        II. Clarifying questions
        III. Recommendations

III. Closing and questions

Lets get started!

Didactic Presentation

Disclosures

Bishoy Samuel, MD has no financial conflicts of interest to disclose.

There is no commercial or in-kind support for this activity.

Acute Pain Management in Patients with Substance Use Disorder

Bishoy T. Samuel, M.D., M.S.
Assistant Professor, Division of Addiction
Department of Psychiatry
VCU School of Medicine

Project ECHO
Virginia Opioid Addiction
November 18, 2022

DISCLOSURES

- None

OBJECTIVES

1. Gain a basic understanding of the neurobiology of pain and commonalities with addiction

2. Recognize barriers to effective pain management in patients with SUD

3. Identify proper opioid selection and strategy for treatment of acute pain

Pain and Addiction

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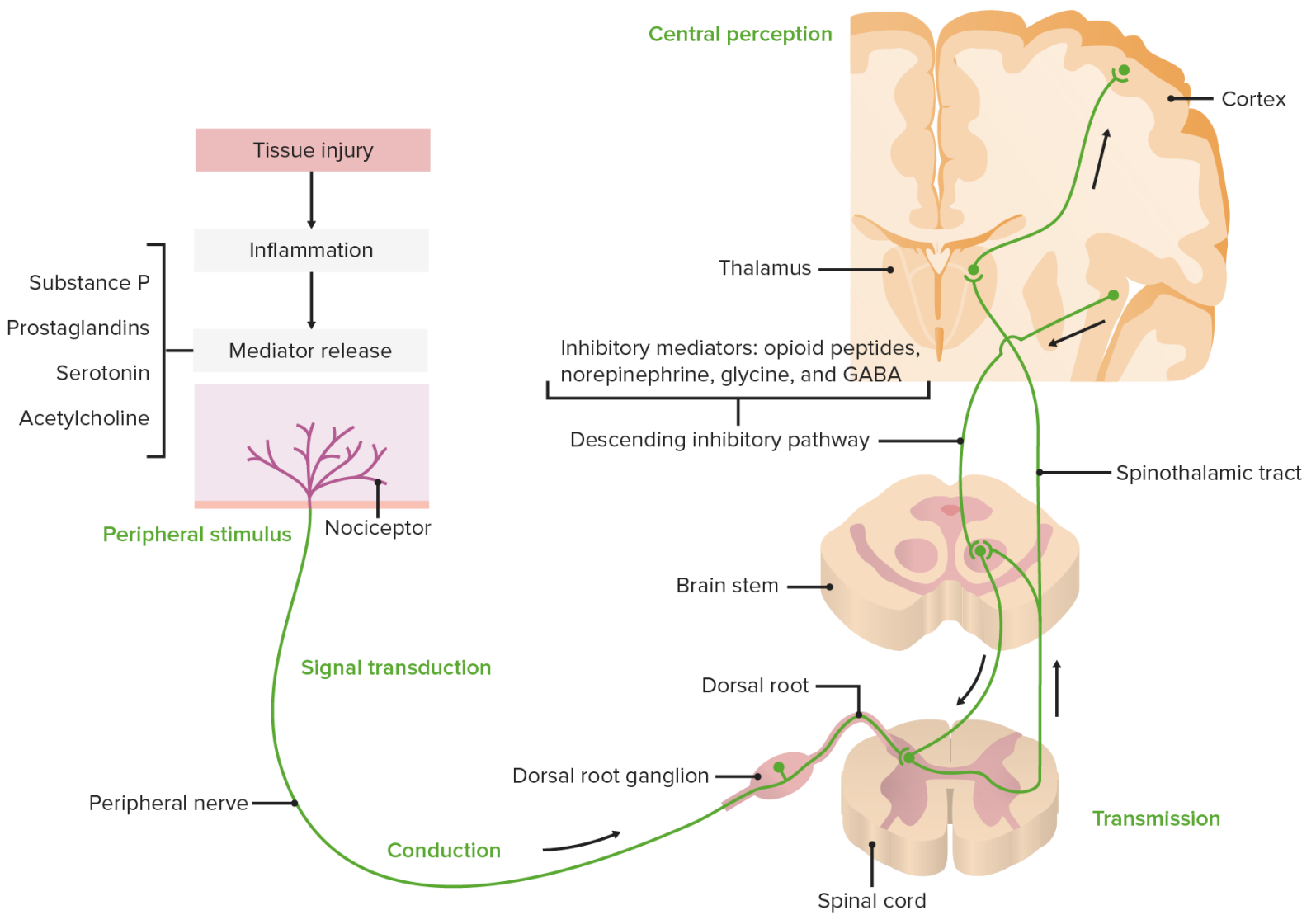
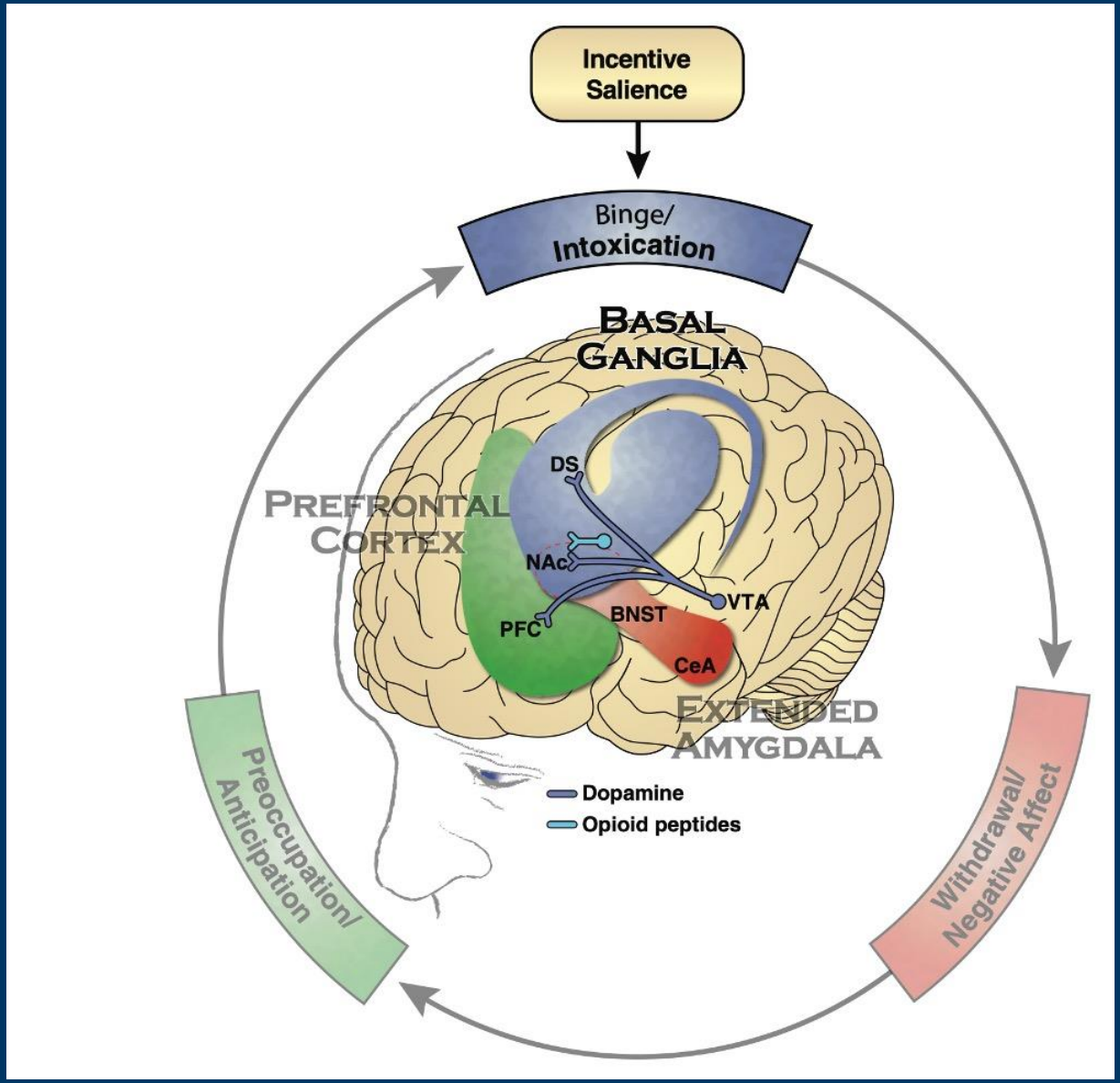

Central perception
Cortex
Thalamus
Tissue injury
Inflammation
Substance P
Prostaglandins
Serotonin
Acetylcholine
Mediator release
Inhibitory mediators: opioid peptides, norepinephrine, glycine, and GABA
Descending inhibitory pathway
Spinothalamic tract
Brain stem
Peripheral stimulus
Nociceptor
Signal transduction
Dorsal root
Dorsal root ganglion
Peripheral nerve
Conduction
Transmission
Spinal cord


Incentive Salience
Binge/ Intoxication
Withdrawal/ Negative Affect
Preoccupation/ Anticipation
BASAL GANGLIA
PREFRONTAL CORTEX
EXTENDED AMYGDALA
DS
NAc
VTA
PFC
BNST
CeA
Dopamine
Opioid peptides

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Commonalities between Addiction and Pain

- Addiction can affect nociceptive input, processing and/or modulation
- Chronic use of addictive substances like opioids may affect processing of pain stimuli
- Addiction can augment the experience of pain and lead to decreased pain tolerance
- Personality traits of patients with addiction have been associated with poorer pain management outcomes
- Sympathetic nervous system activation

Barriers to Proper Pain Management

Barriers in Assessment and Screening

- Stigma associated with addiction still exists
- Competence and comfort levels in managing patients with substance use disorders may be limiters
- Need to establish good patient-clinician rapport
- Interdisciplinary approach especially in coordinating post-discharge analgesia reduction during recovery phase
- Screening for psychiatric comorbidities
- Consider urine drug testing

Urine detection of drugs (approximate duration in h/d).
Buprenorphine and metabolites: 8 d
Cocaine metabolite: 48–72 h
Methadone maintenance dosing: 7–8 d
Heroin (diamorphine), detected as morphine, codeine, dihydrocodeine, and propoxyphene: 48 h
Cannabinoids, single use: 3–4 d
Cannabinoids, heavy or chronic use: up to 45 d
Amphetamines: 48 h
Benzodiazepine (short acting, such as midazolam): 12 h
Benzodiazepine (long acting, such as diazepam): over 7 d

Who Is at Risk?

- Some studies suggest minimal (3%) risk of addiction or aberrant behaviors related to opioid misuse following long-term opioid therapy in patients with chronic pain
- Difficult to completely ascertain which patients are at highest risk of developing addiction to opioids
- Strongest high-risk predictor is a personal history of alcohol and illicit drug use
- Be cognizant to recognize symptoms during course of therapy that may indicate emerging addiction

Acute Pain Management with Opioid Medications

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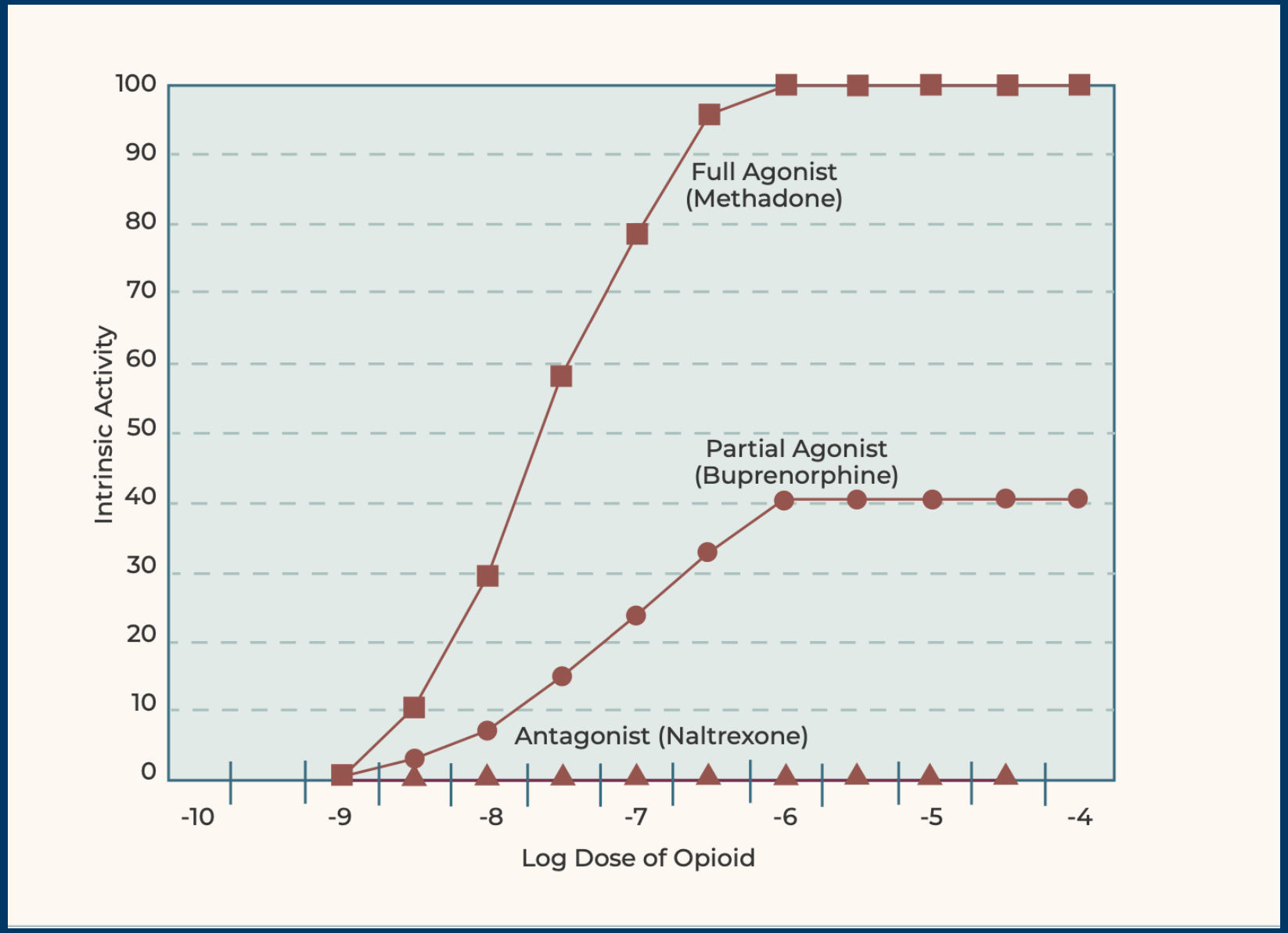
Medications for Treatment of Opioid Use Disorder

Buprenorphine and methadone

- Both are often dosed once daily
- However, analgesic effects only last 6-8 hours

Naltrexone

- Daily oral dose or a monthly injection
- Competitive antagonist at opioid receptor


100
90
80
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40
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Intrinsic Activity
Full Agonist
(Methadone)
Partial Agonist
(Buprenorphine)
Antagonist (Naltrexone)
-10
-9
-8
-7
-6
-5
-4
Log Dose of Opioid

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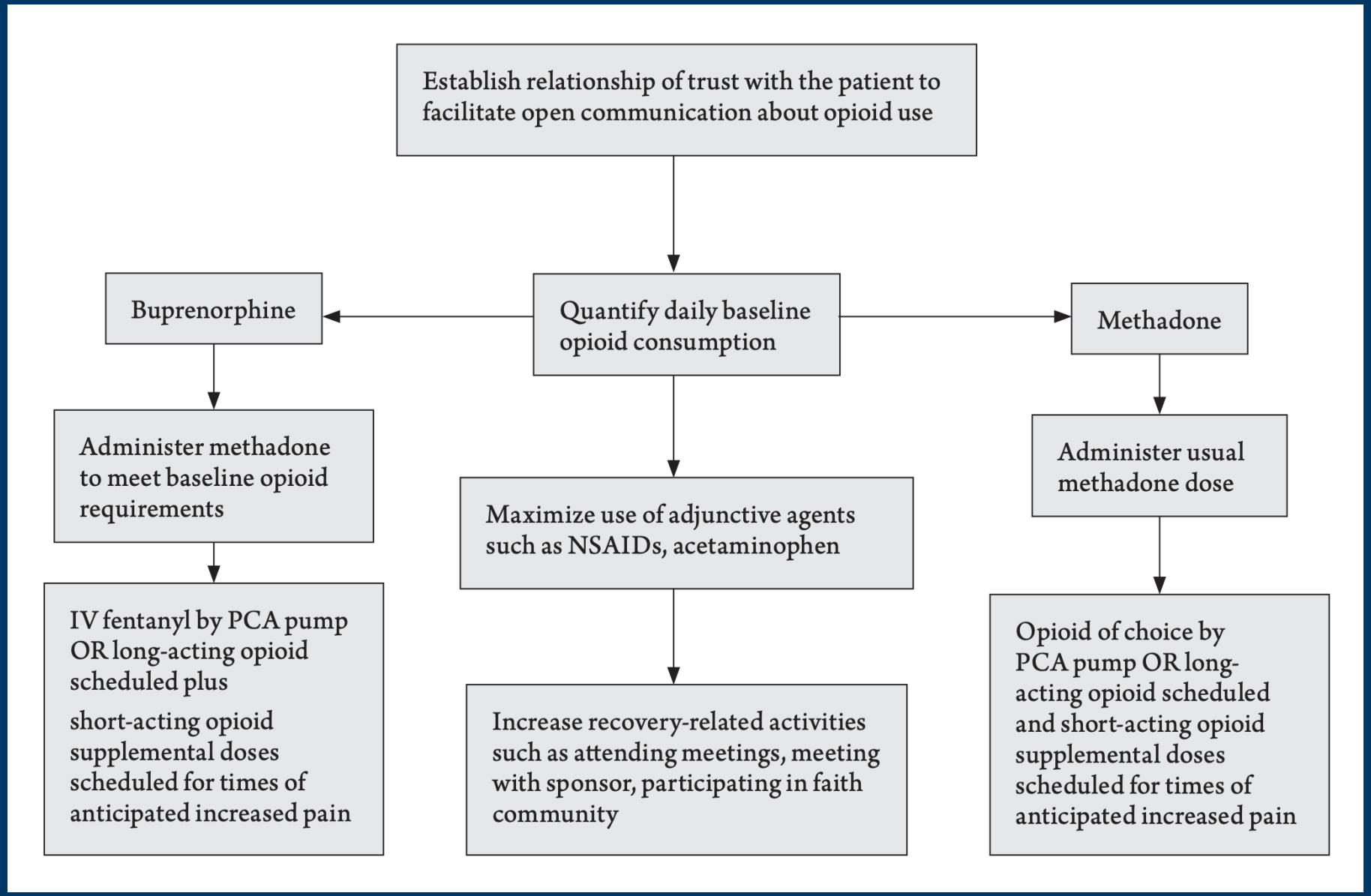
General Considerations

- Pure opioid agonists remain the best choice of therapy for many patients with pain even in presence of a substance use disorder
- Rapid onset of action is a critical property
- Use of scheduled long-acting agent with an as-needed short-acting agent for breakthrough pain reinforces behavior of taking additional doses of opioids

Patients with Opioid Use Disorder

- Pain intolerance
- Opioid tolerance
- Withdrawal prevention


Establish relationship of trust with the patient to facilitate open communication about opioid use
Quantify daily baseline opioid consumption
Buprenorphine
Methadone
Administer methadone to meet baseline opioid requirements
Maximize use of adjunctive agents such as NSAIDs, acetaminophen
Administer usual methadone dose
IV fentanyl by PCA pump OR long-acting opioid scheduled plus
short-acting opioid supplemental doses scheduled for times of anticipated increased pain
Increase recovery-related activities such as attending meetings, meeting with sponsor, participating in faith community
Opioid of choice by PCA pump OR long-acting opioid scheduled and short-acting opioid supplemental doses scheduled for times of anticipated increased pain

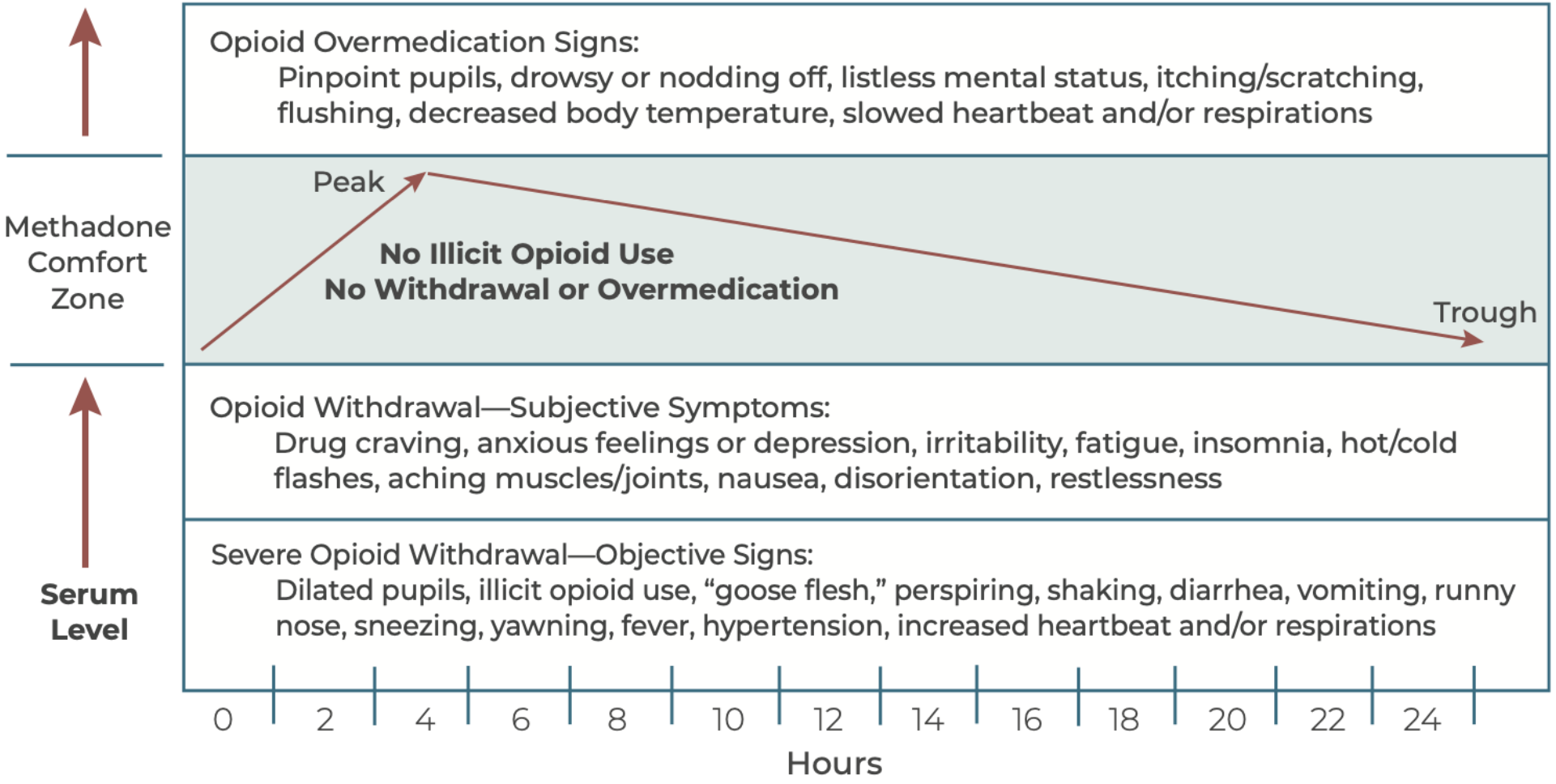
Patients Receiving Methadone or Buprenorphine for OUD

- Doses of oral short-acting opioids usually calculated as fraction of total daily opioid dose, but empiric doses are easier to start
- For inpatients maintained on oral opioids, transition to scheduled short-acting oral opioids instead of PRN, following initial control of pain
- Avoid mixed agonist and antagonist opioid analgesics (pentazocine, nalbuphine, butorphanol)
- For severe pain, initial pain control may be achieved by administering rapid IV bolus of full mu-opioid agonist titrated to analgesic need – needs a monitored setting
- For patients requiring continued IV opioids following initial control of pain, management is same as patients maintained on methadone

Methadone

- Best approach is continuing methadone during acute pain to treat opioid use disorder and prevent withdrawal
- If patient cannot tolerate oral medication, can give methadone parenterally at one-half oral maintenance dose, divided into 2-4 equal doses/day
- Physicians and providers can legally dispense methadone for addiction treatment in the inpatient setting if a patient is admitted for a reason other than opiate use disorder
- Maximize non-opioid strategies first for treatment of mild acute pain

Using Signs and Symptoms To Determine Optimal Methadone Level



Buprenorphine

- Home doses should be continued perioperatively
  - Do not need to taper home dose
  - Avoids opioid deficit created by discontinuation
  - Can lead to more effective acute pain analgesia
- If pain is not well-controlled:
  - For mild to moderate pain: may increase dose up to 32 mg/day, divided Q6 to 8 HRS, then full mu-agonist opioids if still needed
    - For patients with buprenorphine implants or long-acting depot injections, opt for full mu-agonist opioids instead of adjusting buprenorphine dose
  - Severe or undertreated pain: full mu-agonist opioids

Naltrexone

Blocks activation of mu opioid receptor therefore blocks effectiveness of opioid analgesics

- However, chronic opioid antagonism → increased density of opioid receptors

Recommended Approach:

- Discontinue oral naltrexone at least 3 days prior to surgery, and XR naltrexone at least one month prior
  - If opioids are required in these time frames, they can be titrated to analgesic requirements with monitoring in an ICU setting
- Maximize non-opioid agents for perioperative pain control, including ketamine and regional anesthesia where appropriate

- Before reinitiating naltrexone therapy following opioid treatment for pain, patient should have been without opioid use for at least 7 days

Drug (United States brand name)	Approximate equianalgesic doses*	Sample initial dose for opioid-naïve adult¶	Serum half-life (in hours)	Duration of analgesic effect (in hours)	Comments
Parenteral opioids					
Fentanyl (Sublimaze)	100 mcg IV	25 to 50 mcg for moderate pain or 50 to 100 mcg for more severe pain IV/subcutaneous; repeat every two to five minutes as needed until adequate pain relief	7 to 12	0.5 to 1 (IV) 1 to 2 (subcutaneous)	▪ Fentanyl does not release histamine and may therefore be preferred in the presence of hemodynamic instability or bronchospasm. ▪ Potential for drug interactions as it is hepatically metabolized by CYP3A4.Δ ▪ Duration of effect increases after repeated use. ▪ May be used for PCA, less commonly than hydromorphone and morphine.
Hydromorphone (Dilaudid)	1.5 mg IV	0.2 to 0.5 mg IV; repeat every five minutes as needed until adequate pain relief, then 0.2 to 0.5 mg IV every three to four hours as needed	2 to 3	3 to 4	▪ Lower potential for drug interactions as it is hepatically metabolized primarily by glucuronidation. ▪ Use reduced dose in renal and/or hepatic impairment. ▪ May be used for PCA.
Morphine (Infumorph, others)	10 mg IV	1 to 3 mg IV; repeat every five minutes as needed until adequate pain relief; then 1 to 3 mg IV every three to four hours as needed	2 to 3	4 to 5	▪ Lower potential for drug interactions as it is hepatically metabolized primarily by glucuronidation. ▪ In patients with renal impairment, clearance of active metabolites that contribute to hyperalgesia and neuroexcitation is decreased; hydromorphone or fentanyl may be preferred. ▪ Histamine release and vagally mediated venodilation, hypotension, and bradycardia can be significant. ▪ May be used for PCA. ▪ Subcutaneous not recommended due to local tissue irritation.

Drug (United States brand name)	Approximate equianalgesic doses*	Sample initial dose for opioid-naïve adult¶	Serum half-life (in hours)	Duration of analgesic effect (in hours)	Comments
Oral immediate-release opioids					
Codeine	200 mg orally	15 to 60 mg orally every four to six hours as needed	2 to 4	4 to 6	▪ Potential for drug interactions as it is hepatically metabolized by CYP2D6 to active metabolite (ie, morphine). ▪ Analgesic and adverse effects are unpredictable because rate of conversion to morphine is genetically determined by polymorphic CYP2D6 enzyme. Generally not recommended for this reason. ▪ Oral immediate-release preparations are also available in combinations with acetaminophen (eg, Tylenol #3); acetaminophen component dose limits apply to combinations.
Hydrocodone (immediate-release only available in US in combination products, eg, Vicodin, Lorcet, others)	30 mg orally	5 to 10 mg orally every six hours as needed	3 to 4	4 to 8	▪ Hepatically metabolized by CYP2D6 and 3A4 to active (ie, hydromorphone) and inactive metabolites. ▪ Oral immediate-release preparations are only available in United States in combinations with acetaminophen or ibuprofen; nonopioid component dose limits apply.
Hydromorphone (Dilaudid)	7.5 mg orally	2 to 4 mg orally every four hours as needed	2 to 3	3 to 6	▪ Refer to comments for parenteral hydromorphone above.
Morphine	30 mg orally	15 to 30 mg orally every four hours as needed	2 to 3	3 to 6	▪ Refer to comments for parenteral morphine above.
Oxycodone (Oxy-IR, Roxicodone, others)	20 mg orally	5 to 10 mg orally every four to six hours as needed	2 to 3	3 to 6	▪ Hepatically metabolized by CYP2D6 and 3A4 to active and inactive metabolites. ▪ Oral immediate-release preparations are also available in combinations with acetaminophen, aspirin, or ibuprofen; nonopioid component dose limits apply to combinations.

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Drug (United States brand name)	Approximate equianalgesic doses*	Sample initial dose for opioid-naïve adult¶	Serum half-life (in hours)	Duration of analgesic effect (in hours)	Comments
Oral immediate-release opioids					
Oxymorphone (Opana)	10 to 15 mg orally	5 to 10 mg orally every four to six hours as needed	7 to 9	3 to 6	
Tramadol (Ultram, others)	Not established	50 to 100 mg every four to six hours as needed	6 to 9 (includes active metabolite)	4 to 6	▪ Multiple mechanisms of action: Weak mu-opioid agonist and reuptake inhibitor of norepinephrine and serotonin. ▪ Risk of drug interactions. ▪ Use reduced dose for moderate renal or hepatic impairment. ▪ Not recommended in severe organ impairment or if risk for seizures. ▪ Effects not fully reversed by naloxone. ▪ Also available in combinations with acetaminophen; dose limits apply.

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SUMMARY

- Addiction can augment the experience of pain and lead to decreased pain tolerance
- Minimizing stigma, establishing trust with patient, screening for comorbid psychiatric conditions and proper care coordination are all elements of proper addiction treatment and pain management
- Strongest high-risk predictor for addiction in a person receiving opioid pain treatment is a personal history of alcohol and illicit drug use

SUMMARY

- Pure opioid agonists, especially full mu-opioid agonists, remain the best choice of therapy for many patients with pain even in presence of a substance use disorder
- A full agonist exerts maximal effects at increasing doses; a partial agonist has a ceiling effect
- Avoid mixed agonist and antagonist opioid analgesics in patients receiving chronic opioid therapy
- If known, continue patient's home dose of methadone in setting of acute pain management
- Buprenorphine maintenance doses should be continued perioperatively
- Discontinue oral naltrexone at least 3 days prior to surgery, and XR naltrexone at least one month prior

REFERENCES

- Alford DP, Compton P, Samet JH. Acute pain management for patients receiving maintenance methadone or buprenorphine therapy. Ann Intern Med. 2006 Jan 17;144(2):127-34.
- Carr D. 2022. Management of acute pain in adults with opioid use disorder. *UpToDate*. Retrieved Nov 18, 2022.
- Medications for Opioid Use Disorder. Treatment Improvement Protocol (TIP) 63. SAMHSA. 2021.
- Prince V. Pain Management in Patients with Substance-Use Disorders. PSAP-VII. 2011.
- Quinlan J, Cox F. Acute pain management in patients with drug dependence syndrome. Pain Rep. 2017 Jul 27;2(4):e611.

THANK YOU

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Questions?

Case Presentation #1
Faisal Mohsin, MD

- 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

Patient consistently testing positive for illicit opiates. What else can we do for this patient?

Demographics

31 yr Caucasian female, mother of a 5 yr. daughter living with her boyfriend. Employed at an auto shop run by the boyfriend's family. Working conditions exacerbate her anxiety.

High school graduate. A semester or 2 in college?

Began treatment at PIR July 2021.

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

Medical, Behavioral, Mental Health History

Diagnosis: Major Depressive Disorder, recurrent, moderate.
Generalized Anxiety Disorder.
Opioid Use Disorder.
H/o Alcohol Use Disorder in remission.
H/o ADHD (reportedly diagnosed in college)

History of abusing Percocets for a few years before transitioning to heroin use. Mostly sniffing. Some intravenous use. Believes she was using less than 1gm heroin daily prior to initiating treatment. Had been buying Suboxone off the streets. No history of overdosing on heroin (Narcan never used).

No history of attempted suicides.

Current medications: Lexapro 20 mg daily, Wellbutrin XL 300mg daily, Sublocade 300mg sc monthly.

'Random' urine screens done at the time of her injection appointments have been consistently THC+, OPI+, FTY+ and BUP+. Occasionally COC+.

Past Interventions

Mood remains depressed. Tearful affect during office visits. Reporting an inability to stop using heroin. In fact, reports using increasing amounts of heroin lately. Reports using to "feel happy". Reports easy access.

Feels the effects of heroin "sometimes".

Future Plans, Patient's Treatment Goals

Continue Sublocade indefinitely for purely harm reduction purposes.

Patient reportedly unclear on her own goals but acknowledges an inability to stop using.

Has consistently refused referrals to higher levels of care such as residential based treatment programs.

Her boyfriend reportedly does not use. Suspects she is back to using.

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Use chat function for questions

Case Studies

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

Thank You

The success of our telehealth program depends on our participants and those who submit case studies to be discussed during clinics. We recognize the following providers for their contributions:

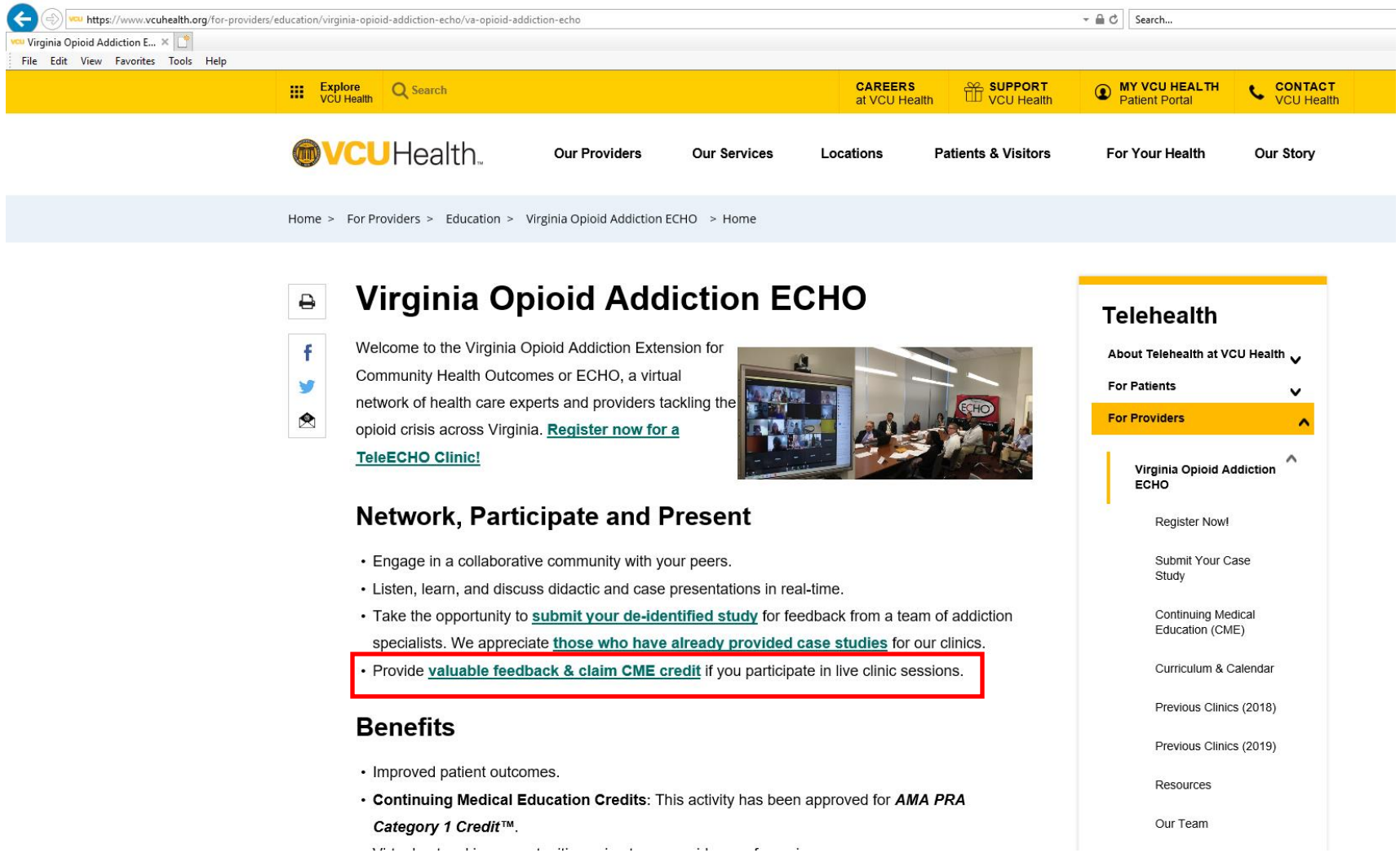
- **Ademola Adetunji, NP** from Fairfax County CSB
- **Tara Belfast-Hurd, MBA-PA** from Department of Behavioral Health and Developmental Services
- **Michael Bohan, MD** from Meridian Psychotherapy
- **Ramona Boyd, NP** from Health Wagon
- **Diane Boyer, DNP** from Region Ten CSB
- **Melissa Bradner, MD** from VCU Health
- **Kayla Brandt, B.S.** from Crossroads Community Service Board
- **Candace Fletcher, PharmD Candidate** from Hopkins Medical Association
- **Susan Cecere, LPN** from Hampton Newport News
- **Kimberly Dexter, DNP** from Hampton Newport News CSB
- **Shokoufeh Dianat, DO, MAS** from Virginia League from Planned Parenthood
- **Candace Fletcher, PharmD** from Hopkins Medical Association
- **Michael Fox, DO** from VCU Health
- **Shannon Garrett, FNP** from West Grace Health Center
- **LaShawna Giles, MSW** from Hampton Newport News CSB
- **Sharon Hardy, BSW, CSAC** from Hampton-Newport News CSB
- **Kara Howard, NP** from Southwest Montana Community Health Center
- **Sunny Kim, NP** from VCU Health
- **Heidi Kulberg, MD** from Meridian Health
- **Thokozeni Lipato, MD** from VCU Health
- **Caitlin Martin, MD** from VCU Health
- **Jennifer Melilo, FNP** from Chesapeake Integrated Behavioral Health
- **Dawn Merritt, QMHP** from Eastern Shore CSB
- **Maureen Murphy-Ryan, MD** from AppleGate Recovery
- **Faisal Mohsin, MD** from Hampton-Newport News CSB
- **Jeromy Mullins, PharmD Candidate** from Hopkins Medical Association
- **Stephanie Osler, LCSW** from Children's Hospital of the King's Daughters
- **Davina Pavie, QMHP** from Hanover County CSB
- **Winona Pearson, LMSW** from Middle Peninsula Northern Neck CSB
- **Dana DeHart**, from Piedmont CSB
- **Jennifer Phelps, BS, LPN** from Horizons Behavioral Health
- **Crystal Phillips, PharmD** from Appalachian College of Pharmacy
- **Jashanda Poe, MA** from Rappahannock Area CSB
- **Tierra Ruffin, LPC** from Hampton-Newport News CSB
- **Manhal Saleeby, MD** from VCU Health Community Memorial Hospital
- **Jenny Sear-Cockram, NP** from Chesterfield County Mental Health Support Services
- **Elizabeth Signorelli-Moore, LPC** from Region 1 CSB
- **Amber Sission, QMHP** from Eastern Shore CSB
- **Daniel Spencer, MD** from Children's Hospital of the King's Daughters
- **Linda Southall, QMHP** from Alleghany Highlands CSB
- **Heather Stone, PhD, LCSW** from Central Virginia Health Services of Petersburg
- **Cynthia Straub, FNP-C, ACHPN** from Memorial Regional Medical Center
- **Saba Suhail, MD** from Ballad Health
- **Michelle Tanner, LPC** from Hanover County CSB
- **Barbara Trandel, MD** from Colonial Behavioral Health
- **Bill Trost, MD** from Danville-Pittsylvania Community Service
- **Art Van Zee, MD** from Stone Mountain Health Services
- **Ashley Wilson, MD** from VCU Health
- **Sarah Woodhouse, MD** from Chesterfield Mental Health
- **Susan Mayorga, BA, CBIS** from Community Health Center of the New River Valley
- **Jordan Siebert, Peer Recovery Specialist** from Daily Planet Health Services

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



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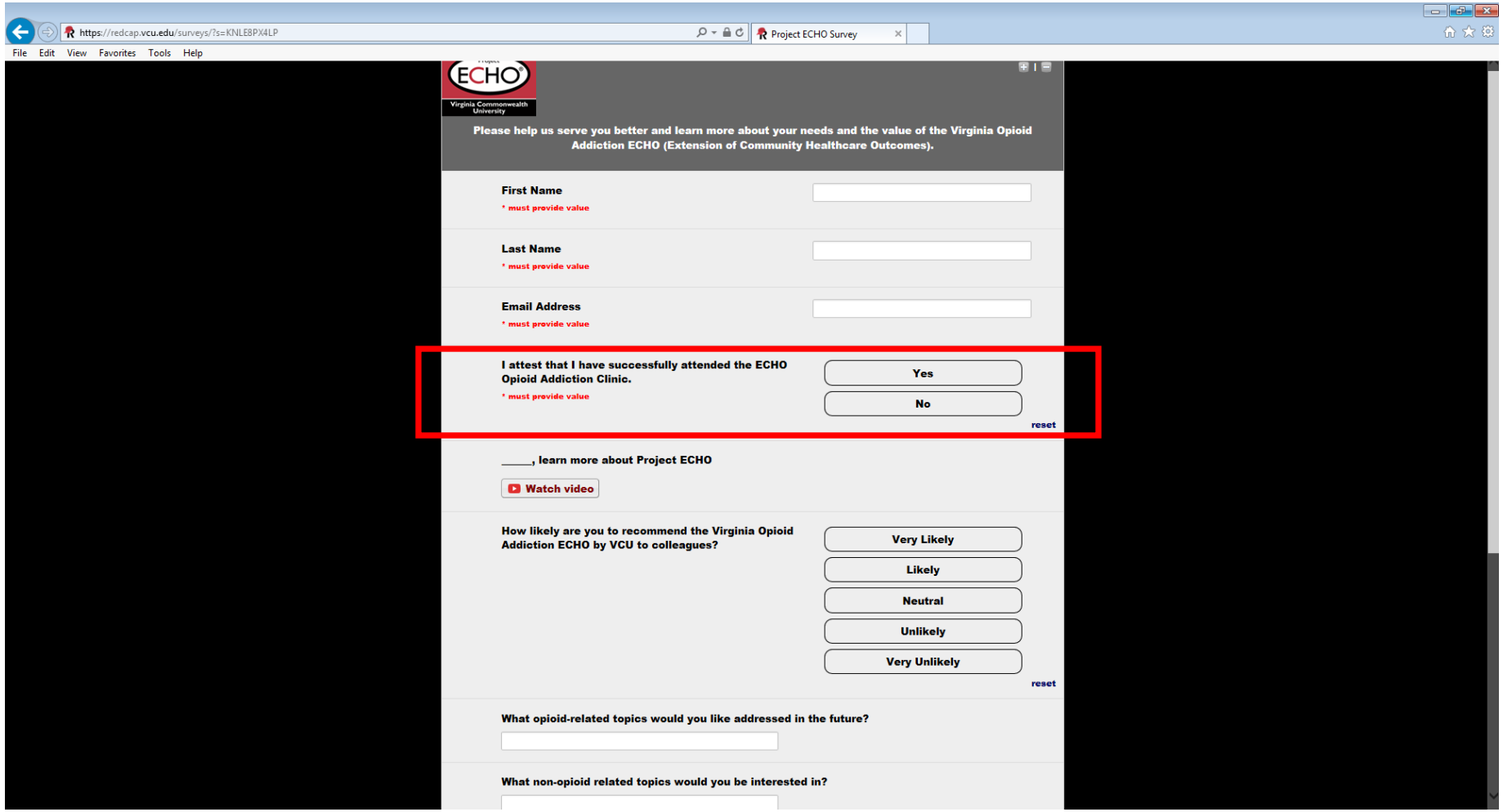

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  - To view previously recorded clinics and claim credit

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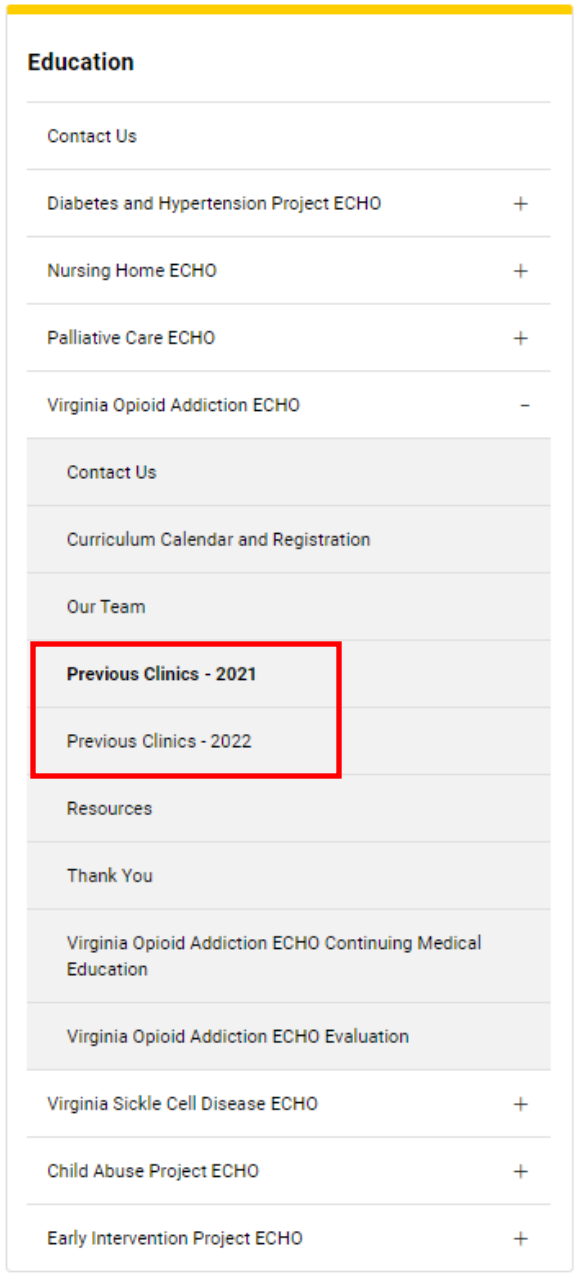

Previous Clinics - 2021

Review topics we covered in previous Virginia Opioid Addiction ECHO clinics.

January 15, Buprenorphine Taper
Presented by Masaru Nishiaoki, MD

- View Presentation
- View Video

January 29, Panel Discussion: COVID and Chronic Conditions
Panelists: Albert Arias, MD, Alex Krist, MD and Katherine Rose, MD

- View Presentation
- View Video

February 12, Grief Impacting Recovery
Presented by Courtney Holmes, PhD

- View Presentation
- Video Video

February 26, Virginia Drug Court System
Presented by Melanie Meadows

- View Presentation
- View Video

March 12, COVID and Recovery: Panel Discussion
Presented by Tom Bannard, MBA Omri Morris, CPRS Raymond Barnes, CPRS Erin Trinh, CPRS

- View Presentation
- View Video

March 26, Effects of Pharmacology on Cognitive Function
Presented by Gerry Moeller, MD

- View Presentation
- View Video
- View Resource

April 9, PropER Clinic and SUD Virtual Bridge Clinic: Linking Patients from ED to PCP and SUD Care
Presented by Taruna Aurora, MD and Brandon Wills, MD

- View Presentation

VCU Virginia Opioid Addiction TeleECHO Clinics

Bi-Weekly Fridays - 12:00-1:00 pm

Mark Your Calendar --- Upcoming Sessions

Dec. 2: Overdose Risk for Patients Coming Out of Controlled Environments- F. Gerard Moeller, MD

Dec. 16: Communication with Patients on Risk of Overdose- Lori Keyser Marcus, PhD

Please refer and register at vcuhealth.org/echo

Project ECHO®
Virginia Commonwealth University

THANK YOU!

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