Site Preceptor, Addiction Research & Treatment Services Curriculum

University of Colorado School of Medicine

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This curriculum was designed for 4th year medical students during their Transition to Residency (TTR) phase of the University of Colorado School of Medicine's Trek Curriculum, specifically during the integrated clinician's course (ICC).

*Developed for COPE Addiction Medicine Curriculum Challenge 2.0

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ABSTRACT:

This curriculum was designed for 4th year medical students during their Transition to Residency (TTR) phase of the University of Colorado School of Medicine's Trek Curriculum, specifically during the integrated clinician's course (ICC).

The first phase of this curriculum involves naloxone training, adapted from a previous COPE-designed curriculum entitled, "Opioid Overdose Identification and Naloxone Administration Training." The goal of this session is to empower students to feel confident in their ability to identify signs and symptoms of an opioid overdose and to emergently administer naloxone. The second phase seeks to address the growing fentanyl epidemic by teaching innovative treatment approaches relevant to providers in addiction medicine, emergency medicine, and primary care fields. Buprenorphine microinduction is an emerging treatment option that avoids precipitated withdrawal for the growing number of patients with Opioid Use Disorder (OUD) in need of care. By the end of this session, students will understand buprenorphine microinduction, as evidenced by their ability to explain this Medications for Opioid Use Disorder (MOUD) strategy to a patient in lay terms and their ability to apply a microinduction plan to a simulated clinical scenario.

DESIRED RESULTS:

As a result of this curriculum, students will:

Naloxone training

- Identify the signs of symptoms of opioid poisoning ("overdose").
- Describe the mechanism of action of naloxone.
- Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.
- Demonstrate how to administer naloxone to patients.
- Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.

Buprenorphine microinduction (didactic lecture and Project-Based Learning <PBL>)

- Describe the mechanism of action of buprenorphine.
- Demonstrate understanding of MOUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.
- Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microinduction
- Identify eligible patients for buprenorphine microinduction
- Explain buprenorphine microinduction to patients in lay terms.
- Demonstrate the ability to work in a multidisciplinary setting to treat patients with a Sunstance Use Disorder (SUD) when microdosing buprenorphine is the preferred approach.
- Apply a buprenorphine microdose induction plan to a simulated clinical scenario.

Buprenorphine microinduction (Standardized Patient Encounter "SPE")

- Use open-ended questions to enhance communication. Set clear guidelines and expectations.
- Demonstrate empathy by focusing on health and safety rather than judgment.
- Avoid stigmatizing language: using “substance use disorder” instead of “drug habit,” for example.
- Explain in lay terms how medications for opioid use disorder work and evaluate the patient’s appropriateness to receive buprenorphine or methadone.
- Describe the process / follow-up for a buprenorphine microdose induction.
- Explain buprenorphine microdosing to patients in lay terms.
- Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
- Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing for harm reduction.

DETERMINE ACCEPTABLE EVIDENCE TO ASSESS LEARNING:

Formative: The faculty member will lead students through a training, didactic sessions, and a PBL by asking test questions and leading the discussion via Socratic questioning on salient points that undergird the knowledge, skills and attitudes (KSA’s) identified in rubrics (embedded in the learning session) and learning objectives. During the time in these sessions, students will receive informal verbal feedback from the faculty member through guided discussion and Socratic questioning.

Summative: The faculty member will supervise an SPE, where a student and a co-learner will participate in a 10-minute encounter and a 5-minute debrief. By the end of the session, students will demonstrate understanding of the naloxone and buprenorphine microdosing course content and meeting the learner case objectives.

LEARNING EXPERIENCES:

Facilitator Pre-work: Review this case series describing buprenorphine microdose inductions

Learning Session: Naloxone training
Recommended time: 50 minutes
Resources needed:

- COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide (PowerPoint Script)

    - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx
- PowerPoint – Naloxone Training – 15JAN2023
    - can be downloaded from the COPE website or found by this link: Naloxone Training - 15JAN2023.pptx
- https://youtu.be/Sm5Tbb8YcgQ
- https://www.cdc.gov/stopoverdose/naloxone/index.html
- https://www.ama-assn.org/delivering-care/overdose-epidemic/how-administer-naloxone
- PDF for how to use Narcan Nasal Spray: https://www.narcan.com/wp-content/uploads/2021/10/Gen2-Instructions-For-Use.pdf
- Injectable naloxone graphics: https://dph.illinois.gov/content/dam/soi/en/web/idph/files/images/naloxone-brochure-09052017.pdf

Learning Session: Buprenorphine Microinduction Didactic Lecture Session
Recommended time: 30 minutes
Resources needed:

- COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide
    - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx

Learning Session: Buprenorphine Microinduction PBL Session
Recommended time: 90 minutes
Resources needed:

- Note: This case is written in PBL-style, with the case revealed in subsequent parts. This format promotes student learning of concepts and principles, self-directed learning, and real-time application of evidence-based medicine and practice. Any questions that arise during case discussion should be looked-up in real time and applied to the case.
- COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide
    - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx

Learning Session: Standardized Patient Encounter Session
Recommended time: 90 minutes* (see resources and learning session for format)
Resources needed:

- COPE 2.0 Microdosing Buprenorphine - Standardized Patient Profile - 5JAN2023
    - Can be downloaded from the COPE website
- Format notes:
    - 10-minute encounter for learner and co-learner to interact with SP
    - 5 minutes for debrief:
        - SP feedback on what went well
        - Co-Learner feedback on what went well
        - Option to repeat a portion of the encounter based on feedback
    - Repeat for up to four learner and co-learner pairs

Additional Resources:

- The Urge: Our History of Addiction by Carl Erik Fisher
- Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and
- Health.
- American Society of Addiction Medicine
- American Academy of Addiction Psychiatry

POST IMPLEMENTATION:

A link for session feedback will be provided to students for both the naloxone training and buprenorphine microinduction session. Student feedback will be used for ongoing session improvement.
Buprenorphine training feedback link: https://forms.gle/8BqYHnoDTYyhadDa9
Naloxone training feedback link: https://forms.gle/JxKS2nQ3nBst7kfW6

REFERENCES/RESOURCES:

CU School of Medicine. Trek Curriculum: Class of 2025 and Beyond. Accessed on 8/29/2022 from https://medschool.cuanschutz.edu/education/current-students/curriculum/trek-curriculum

Ehrhardt T, Litardo N, Schneider G. Opioid Overdose Identification and Naloxone Administration Training. Florida International University Herbert Werthein College of Medicine; COPE Curriculum Challenge (2021).

Ahmed S, Bhivandkar S, Lonergan BB, Suzuki J. Microinduction of Buprenorphine/Naloxone: A Review of the Literature. Am J Addict.;30(4):305-315 (2021).

Walsh SL, June HL, Schuh KJ, et al. Effects of buprenorphine and methadone in methadone-maintained subjects. Psychopharmacology (Berl); 119: 268- 276 (1995).

Rothman RB, Ni Q, Xu H. Buprenorphine: a review of the binding literature. In: A Cowan, JW Lewis, eds. Buprenorphine: Combatting Drug Abuse With a Unique Opioid. New York: Wiley-Liss; 19- 29 (1995).

The Urge: Our History of Addiction by Carl Erik Fisher

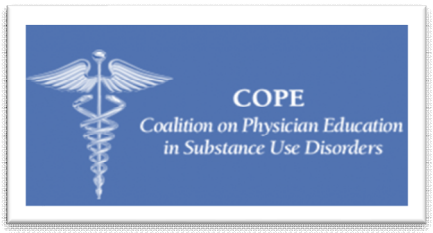
Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health.

American Society of Addiction Medicine

American Academy of Addiction Psychiatry

PDF for how to use Narcan Nasal Spray: https://www.narcan.com/wp-content/uploads/2021/10/Gen2-Instructions-For-Use.pdf

Injectable naloxone graphics: https://dph.illinois.gov/content/dam/soi/en/web/idph/files/images/naloxone-brochure-09052017.pdf



Site Preceptor, Addiction Research & Treatment Services
Curriculum: Learning Sessions

University of Colorado School of Medicine

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Learning Session: Naloxone Training

OPEN THE SESSION:

- Welcome learners/ Overview session agenda
  - Intro: Welcome to the Naloxone training session.
  - Outline: "In our first session, we'll be discussing the indications and proper administration of naloxone – a lifesaving intervention in patients experiencing opioid overdose."
- Introduce Learning Objectives: "As a result of this session, learners will be able to …"
  1. Identify the signs of symptoms of an opioid overdose.
  2. Describe the mechanism of action of naloxone.
  3. Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.
  4. Demonstrate how to administer naloxone to patients.
  5. Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.

ASSESS/ ACTIVATE LEARNERS' PRIOR KNOWLEDGE: The Attending/ Core Faculty will:

- *Ask questions* that will enable you to gauge what learners already know about the topic.
  - "Tell me about your prior clinical education experiences with Naloxone."
  - "In what situations do we use naloxone?"
  - "What is the mechanism of action of naloxone?"
- *Show a brief video to engage students*
  - https://youtu.be/Sm5Tbb8YcgQ
  - https://www.cdc.gov/stopoverdose/naloxone/index.html
- *And to enable them to open the discussion.*
  - "What questions do you have about…?
  - Before we start, what initial questions do you have about naloxone administration?

DEEPEN LEARNING:

- *Introduce the core knowledge or skill* using these resources
  - Naloxone Training - 15JAN2023.pptx
- *Teach the signs and symptoms* of an opioid overdose.
- Use the COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide (PowerPoint Script)
  - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx
  - Pages 1-6

ASSESSMENT *FOR* LEARNING/ DEVELOP METACOGNITION/ ASSESSMENT *OF* LEARNING:
Attending/ Core Faculty administer test questions throughout the training or at the end. Rubrics are embedded below.

Background for Test Question 1: Describe signs & symptoms of opioid overdose

a. Pulmonary/Airway/Chest findings:
a. Neurologic findings:
b. Dermatologic findings:

Test Question 1: what are the signs and symptoms of an opioid overdose?
Answer: [Free text]

b. Pulmonary/Airway/Chest findings:
   i. Required criteria (1):
      1. Slowed/erratic/stopped breathing
c. Neurologic findings:
   i. Required criteria (3):
      1. Loss / altered level of consciousness
      2. Pinpoint pupils
      3. Unresponsiveness to physical or auditory stimuli
   ii. Additional criteria: confusion, dizziness, decreased muscle tone
d. Dermatologic findings:
   i. Required criteria (4):
      1. Skin color change (blue/purple skin in light skinned people vs. gray/ashen skin in dark skinned people)
      2. Fingernails turn blue/purple
      3. Lips turn blue/purple
      4. Cold/clammy skin
   ii. Additional criteria: choking sounds, vomiting

# Required Criteria Identified	Proficiency Level
0	Novice
1-3	Beginner
4-6	Intermediate
7-8	Proficient
8+*	Expert

*All required criteria + at least 1 additional criterion identified

Background for Test Questions 2: Describe the mechanism of action of naloxone.

a. Naloxone (Narcan) is an **opioid antagonist --** it works by competing with other opioids to bind the mu receptor.
b. Can be administered IM, intranasally, subcutaneously, or IV. Nasal spray and IM are most commonly used.

Test Questions 2: Which of the following most accurately describes the mechanism of action of naloxone? What are the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations?

A. Partial mu receptor agonist that displaces opioids due to it's high affinity binding
B. Competitive mu opioid receptor antagonist (correct answer)
C. Full mu opioid receptor agonist

D. Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.

	Nasal Spray	**Naloxone Nasal Spray (Yellow Cap Spray**	**Autoinjector**	**IM (Needle and Syringe)**
Characteristics	Each kit comes with two Nasal Sprays (2 doses). Each Nasal spray has one spray. Most prescribed form.	You must attach the spray nozzle to the syringe before administering. More education needed for use.	Evzio has been discontinued.	Need extra supplies such as a needle. Education on how to draw up and inject is also needed.
Mode of Administration	Nasal Spray	Nasal Spray	IM	IM
Cost	$50 with GoodRx, Free at MANY clinics	$50	$$$	$10-20 with GoodRx

Test Question: Blank Table for Students to Fill In

Empty Squares Filled	**Proficiency Level**
0	Novice
1-4	Beginner
4-8	Intermediate
8-12	Proficient
12	Expert

Background for Test Question 3: Demonstrate how to administer naloxone to patients.

Narcan Nasal spray:

A. Remove device from package
B. Hold device with thumb on the bottom of the plunger and a finger on each side of the nozzle
C. Hold the tip of the nozzle in the patient's nostril until your fingers touch the bottom of their nose

D. Press plunger firmly to release the naloxone

Naloxone Yellow cap nasal spray:

E. Take yellow caps off of the top and bottom
F. Remove purple cap
G. Grip clear plastic wings on spray nozzle
H. Twist spray nozzle onto syringe
I. Screw naloxone capsule into barrel of the syringe
J. Insert spray nozzle into nostril
K. Give a short, but firm push on the capsule to spray naloxone into nose
L. Administer one half of the capsule into each nostril

Intramuscular injection (autoinjector):

M. Pull off red safety guard (when ready to use)
    a. Caution: black base is where the needle, comes out – do not touch
N. Place black end against the outer thigh. Can be placed through clothing if necessary
O. Press and hold firmly for 5 seconds
    a. You should hear a "click and hiss"
    b. Needle will not be visible after use

Intramuscular needle syringe:

P. Carefully draw naloxone up into needle, ensuring to draw a full dose
Q. Inject 1cc of naloxone straight into a muscle
    a. Thigh, outer-quadrant of glute, or shoulder works best

After administering naloxone, call 911.

Administer another dose of naloxone if there is no response after 2-3 minutes.

https://www.ama-assn.org/delivering-care/overdose-epidemic/how-administer-naloxone

Test Question 3: What are the 2 main forms of naloxone administration?

Answer: Intramuscular and intranasal

Test Question 3: Describe how to administer naloxone.

Test Question 3: Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose: Free Response

1. **Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.**
2. Prevention of overdose
3. Harm Reduction Principles
4. Rapport building with patients
5. Decreased morbidity from a prolonged overdose course

Reasons Given	Proficiency Level
0	Novice
1	Beginner
2	Intermediate
3	Proficient
4+	Expert

CLOSE SESSION:

- Attending debriefs the session with the student group.
- Attending refers to intended learning objectives to elicit student feedback on whether the learning objectives were met.
- Attending thanks students for participating and their contributions.

Learning Session: Buprenorphine Microinduction Didactic Lecture

OPEN THE SESION:

- *Welcome learners/ Overview session agenda*
  - Intro: Welcome to the Buprenorphine microinduction didactic lecture session.
  - Outline: In today's session, we'll be discussing buprenorphine microinduction – a new technique to use buprenorphine as a MAT for SUD patients without causing precipitated withdrawal.
- *Introduce Objectives: "As a result of this session, learners will be able to/develop competence in…"*
  6. Describe the mechanism of action of buprenorphine.
  7. Demonstrate understanding of OUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.
  8. Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microdosing.
  9. Identify eligible patients for buprenorphine microdosing.

ASSESS/ ACTIVATE LEARNERS' PRIOR KNOWLEDGE: *The Attending/ Core Faculty will ask:*

- "Tell me about your prior clinical education experiences with Buprenorphine?
  - What is the mechanism of action for buprenorphine?
  - In what patient population do we primarily use buprenorphine?"
- "Before we begin, what initial questions do you have about buprenorphine microinduction?"

DEEPEN LEARNING:

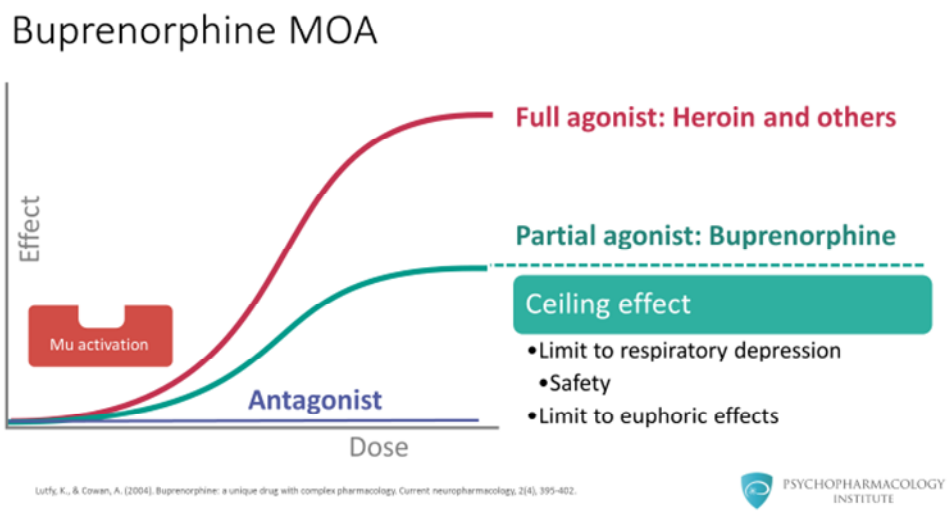
- *Identify KSA's/objectives*
- *Engage learners in a discussion about KSA's/objectives.*
- *Use Socratic questioning throughout session.*
- Use the COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide (PowerPoint Script)
  - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx
  - Pages 7-19 (parts 1-5)

ASSESSMENT *FOR* LEARNING/ DEVELOP METACOGNITION/ ASSESSMENT *OF* LEARNING:

- *Evidence*
- *Quiz questions*
- Prompt/ small group work
- *Assessment document KSA's/objectives*

Objective 6: Describe the mechanism of action of buprenorphine.

- High affinity partial mu opioid agonists that works in OUD treatment by displacing full agonists
- When administered gradually at low doses with full mu opioid agonists, it can slowly replace the full agonists over time while avoiding precipitated withdrawal.



Test Question:

Explain why buprenorphine can lead to precipitated withdrawal by explaining its mechanism of action. [free text response]

Objective 7: Demonstrate understanding of OUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.

	Methadone	Buprenorphine
Patient Accessibility	-Limited # of clinics -Daily dosing initially requires proximity to clinic or reliable transportation -Inexpensive for most insurances -Provides structure and accountability for high-risk patients	-Can be prescribed by any provider with a DEA license -Rx can range from 1 weeks to 3 months long -$ dependent on pharmacy and insurance
Clinical Guidelines	-Assess for OUD -First dose between 10-30mg -Increase dose 5-10mg daily until 80mg/day, then 5-10mg every 3 days thereafter until patient symptoms resolve -Daily dosing and monthly counseling requirements	-Assess for OUD -Substance use history -Determination of induction dosing protocol to be used -Weekly appointments until stable -Counseling recommended

Test Question: Name 3 patient accessibility factors for Methadone and Buprenorphine. [Free Response]

Factors Given	Proficiency Level
0	Novice
2	Beginner

4	Intermediate
5	Proficient
6	Expert

Test Question: Contrast the Clinical Guidelines of Methadone and Buprenorphine. [Free Response]

Guidelines Given	Proficiency Level
0	Novice
2	Beginner
4	Intermediate
6	Proficient
8+	Expert

Objective 8: Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microdosing.

- Traditionally, patients must discontinue full opioid agonist use for at least 12-24 hours before beginning buprenorphine to avoid acute withdrawal.
- Even with this requirement, patients often experience mild-moderate withdrawal symptoms due to initiating buprenorphine.
- If actively using full opioid agonists, a traditional full dose of buprenorphine will cause acute precipitated withdrawal (potentially severe).
- Buprenorphine microdosing allows for a gradual replacement of the full opioid agonist via concurrent administration of low-dose buprenorphine and the full opioid agonist. The gradual increase of buprenorphine dosing minimizes the risk of precipitated withdrawal.

Test Question: (Short answer) List 1-4 similarities and 1-4 differences between traditional buprenorphine treatment and buprenorphine microdosing.

Similarities Listed	Proficiency Level
0	Novice
1	Beginner
2	Intermediate
3	Proficient
4+	Expert

Objective 9: Identify eligible patients for buprenorphine microdosing.

- Patients who are actively taking full opioid agonists and who have opioid use disorder
- Patients with no known history of hypersensitivity to buprenorphine

Test Question: (True or False) Patients must have discontinued full opioid agonist use for at least 12-24 hours before beginning buprenorphine.

(and/or)

Which patient populations are eligible for initiating buprenorphine microdosing?

a. Patients actively using full opioid agonists who want to quit
b. Patients with no intention of quitting opioid use
c. Patients with documented hypersensitivity to buprenorphine

Score	Proficiency Level
0/2	Beginner
1/2	Intermediate
2/2	Proficient

CLOSE SESSION:

- Attending debriefs the session with the student group.
- Attending refers to intended learning objectives to elicit student feedback on whether the learning objectives were met.
- Attending thanks students for participating and their contributions.

Lesson Session: Buprenorphine Microinduction PBL

OPEN THE SESION:

- *Welcome learners/ Overview session agenda*
  - Intro: Welcome to the Buprenorphine microinduction problem-based learning session.
  - Outline: Finally, in our third session, you'll be applying this new knowledge in a problem-based learning session designed to enhance and assess your understanding of buprenorphine microinduction.
- *Introduce Objectives: "As a result of this session, learners will be able to/develop competence in…"*
  10. Explain buprenorphine microdosing to patients in lay terms.
  11. Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
  12. Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing to patient for harm reduction.

ASSESS/ ACTIVATE LEARNERS' PRIOR KNOWLEDGE: The Attending/ Core Faculty will ask:

- Who can summarize what we learned in our previous session?
- If not given, prompt students to specifically contrast buprenorphine microinduction to previous methods of buprenorphine administration and to include the MOA of buprenorphine in their answer.

DEEPEN LEARNING:

- *Identify KSA's/objectives*
- *Engage learners in a discussion about KSA's/objectives.*
- *Use Socratic questioning throughout session.*
- Use the COPE Addiction Medicine Curriculum Challenge 2.0 Naloxone Training & Microdosing Buprenorphine Facilitator Guide (PowerPoint Script)
  - can be downloaded from the COPE website or found by this link: COPE 2.0 - Microdosing Buprenorphine - Facilitator Guide PBL 15JAN2023.docx
  - Pages 7-19 (parts 1-5)

ASSESSMENT *FOR* LEARNING/ DEVELOP METACOGNITION/ ASSESSMENT *OF* LEARNING:

- *Evidence*
- *Quiz questions*
- Prompt/ small group work
- *Assessment document KSA's*

Objective 10: Explain buprenorphine microdosing to patients in lay terms.

- Example: "Buprenorphine is a drug that works similarly to other opioids, like heroine and fentanyl, in your brain. It's different because it is not as strong as those drugs, but it will essentially kick any stronger drug off its spot in your brain. That can stop those drugs from working and can even cause withdrawal. To avoid that withdrawal, we can give you small doses of buprenorphine. You can even continue taking your drug of choice while you take the small doses, which we will slowly increase over time. Once the dose gets high

enough, you can stop taking your drug of choice without experiencing any withdrawal symptoms. Then you can continue taking that dose of buprenorphine which will help stop cravings."

Test Question: Will be assessed via students orally presenting personalized explanations. Students will be split into small groups and asked to roleplay the patient-physician interaction in which the physician will explain buprenorphine microdosing in lay terms. Several students will then be selected to present their explanation to the rest of the class.

Competency will be assessed, and feedback provided, by instructor's subjective assessment of the students' individual explanations.

Objective 11: Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.

- Assessed during the PBL session as MD/PA students work with standardized patients during simulated clinical scenarios.

Test Question: N/A

Objective 12: Apply a buprenorphine microdose induction plan to a simulated clinical scenario.

- Assessed during PBL session as MD/PA students work with standardized patients during simulated clinical scenarios.

Test Question: N/A

Learning Objective Teaching Format

Flipped Classroom Optional	**Simulation**
Naloxone Focused: 1, 2, 3, 4, 5 Buprenorphine Focused: 6, 7, 8, 9 **Buprenorphine objectives will require some in person teaching in the flipped style	Patient Education: 10 Interdisciplinary: 11 Creating a Plan: 12

CLOSE SESSION:

- Attending debriefs the session with the student group.
- Attending refers to intended learning objectives to elicit student feedback on whether the learning objectives were met.
- Attending thanks students for participating and their contributions.

Lesson Session: Buprenorphine Microinduction Standardized Patient Encounter

OPEN THE SESION:

- *Welcome learners/ Overview session agenda*
  - Intro: Welcome to the Buprenorphine microinduction standardized patient encounter.
  - Outline: In this session, you'll be applying all of your knowledge acquired over the past three session in a standardized patient encounter session designed for you to demonstrate understanding of the naloxone and buprenorphine microdosing course content and meet the learner case objectives.
- *Introduce Objectives: "As a result of this session, learners will be able to/develop competence in…"*
  - Use open-ended questions to enhance communication. Set clear guidelines and expectations.
  - Demonstrate empathy by focusing on health and safety rather than judgment.
  - Avoid stigmatizing language: using "substance use disorder" instead of "drug habit," for example.
  - Explain in lay terms how medications for opioid use disorder work and evaluate the patient's appropriateness to receive buprenorphine or methadone.
  - Describe the process / follow-up for a buprenorphine microdose induction.
  - Explain buprenorphine microdosing to patients in lay terms.
  - Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
  - Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing for harm reduction.

ASSESS/ ACTIVATE LEARNERS' PRIOR KNOWLEDGE:

- Who can summarize what we learned in our previous sessions?
- Review the signs and symptoms of an opioid overdose.
- Review the mechanism of action for buprenorphine.
  - In what patient population do we primarily use buprenorphine?
- Review the contrast of buprenorphine microinduction to previous methods of buprenorphine administration and to include the MOA of buprenorphine in their answer.

DEEPEN LEARNING:

- *Identify KSA's/objectives*
- *Engage learners in a discussion about KSA's/objectives.*
- Use the COPE 2.0 Microdosing Buprenorphine - Standardized Patient Profile - 5JAN2023
  - Can be downloaded from the COPE website

ASSESSMENT *FOR* LEARNING/ DEVELOP METACOGNITION/ ASSESSMENT *OF* LEARNING:

- *Observation and feedback from the standardized patient*
- *Observation and feedback from the co-learner*
- *Assessment document KSA's*
- Format notes:
  - 10-minute encounter for learner and co-learner to interact with SP
  - 5 minutes for debrief:
    - SP feedback on what went well
    - Co-Learner feedback on what went well
    - Option to repeat a portion of the encounter based on feedback
  - Repeat for up to four learner and co-learner pairs

Competency will be assessed, and feedback provided, by instructor's subjective assessment of the students' individual explanations, in conjunction with the standardized patient and co-learner feedback..
CLOSE SESSION: • Attending debriefs the session with the student group. • Attending refers to intended learning objectives to elicit student feedback on whether the learning objectives were met. • Attending thanks students for participating and their contributions.

COPE Addiction Medicine Curriculum Challenge 2.0

Naloxone Training & Microdosing Buprenorphine

Facilitator Guide

Notes:

- Some of the content that we will be discussing today may be triggering or create a strong emotional response. We care about you. Should that occur, please feel free to step out of the room or do what you need to do for self-care in that moment (without penalty).
- Your learning group may have students who are in recovery, have loved ones in recovery, or have loved ones not in recovery. Please reiterate the message that they are welcome to share personal experiences with SUD if they would like to, and no one should feel compelled to do so.
- Facilitator notes are in red. Student guides will not include red text.
- Highlighted text connects learning objectives with session activities and discussion items. Naloxone-based learning objectives are in green, buprenorphine-based learning objectives are in blue, and standardized patient-based learning objectives are in yellow.
- Note that naloxone-based learning objectives 1-5 lend themselves well to a flipped classroom model!

Learning Objectives:

1. Identify the signs of symptoms of an opioid overdose.
2. Describe the mechanism of action of naloxone.
3. Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.
4. Demonstrate how to administer naloxone to patients.
5. Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.
6. Describe the mechanism of action of buprenorphine.
7. Demonstrate understanding of OUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.
8. Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microdosing.
9. Identify eligible patients for buprenorphine microdosing.
10. Explain buprenorphine microdosing to patients in lay terms.
11. Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
12. Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing to patient for harm reduction.

Facilitator Pre-work:

Required:

- Review this case series describing buprenorphine microdose inductions

Sample Session Outline:

1300 – 1350 Naloxone Session

1350 – 1400 Break and Transition to PBL Setting

1400 – 1415 Debrief and Check-In

Check-In

What stood out to you from the naloxone session?

1415 – 1545 PBL Case: Troy Williams

You will have 90 minutes to work through this case.

This case is written in PBL-style, with the case revealed in subsequent parts. This format promotes student learning of concepts and principles, self-directed learning, and real-time application of evidence-based medicine and practice. Any questions that arise during case discussion should be looked-up in real time and applied to the case.

1545 – 1600 Break and Transition to Standardized Patient Encounter

1600 – 1730 Standardized Patient Encounter

- 10-minute encounter
- 5 minutes for
  - SP feedback on what went well
  - Co-Learner feedback on what went well
  - Option to repeat a portion of the encounter based on feedback
- Repeat x 4

1730 End

Naloxone Session

- See PowerPoint entitled “Naloxone Training”

Slide 1:

- Welcome! To start out our session together we are going to do a Naloxone or Narcan training.
- At the end of this training we hope you are able to:
    - Identify the signs of symptoms of an opioid overdose.
    - Describe the mechanism of action of naloxone.
    - Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.
    - Demonstrate how to administer naloxone to patients.
    - Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.

Slide 2:

- We will start with an overview of the opioid epidemic

Slide 3:

- Tracing a brief history of the opioid epidemic, we can start with how pain was understood in the 1800s. At this time, pain was viewed more as an existential crisis/consequence of aging. There was no regulation on the use of cocaine and opioids.
- In 1914, the Harrison Narcotic Control Act passed due to increased Heroin abuse and morphine dependence
- During the period of 1920-1950, Opioids were hardly used and viewed negatively. People refer now to this period as one of “opiophobia”
- Then, in 1970-1990, many articles came out about the failure of the medical system in treating patient’s pain. However, these articles were mostly based on cancer patients and not on the general population leading to conflation of cancer patients pain with non-cancer patient pain
- Pharmaceutical companies used spurious data to support marketing claims that opioids carried minimal addiction risk. These marketing practices later resulted in lawsuits that were settled for millions and billions of dollars.
- In 1995, the American Pain Society named pain as the fifth vital sign. Physicians now had to manage pain and pharmaceutical companies began to increase marketing efforts and research efforts and came out with new formulations like oxycodone
- 2000-2010 saw a push back from overprescribing, rates of dependence, abuse, and other side effects sky rocketing.

- 2011 is when we first begin to see Fentanyl pop up in association with overdoses (this medication was originally developed in 1959 as an IV pain medication). Fentanyl is 100 times more potent than morphine and has a much tighter affinity to the opioid receptor making it very dangerous
- Fast-forward to today, in 2023 many illicit drugs now have some form of fentanyl in them. This is one reason that naloxone is now so important.

Slide 4:

- ***ASK*** Can anyone list signs of an opioid overdose?

Slide 5:

- Read signs of an opioid overdose [Learning Objective 1]

Slide 6:

- Before we talk about how to use naloxone, we need to understand where it falls in the realms of medicine and public health.
- Naloxone is a great example of Harm Reduction.
- Harm Reduction is becoming more and more a part of medical practice and it is important to know why it matters and why it is effective.

Slide 7:

- Read slide
- Harm reduction is essentially about safety, about putting the patient and their experiences first and about helping them take the next best step for them.

Slide 8:

- The National Coalition on Harm Reduction has identified key principles that guide harm reduction.
- ***ASK*** Can anyone think of examples of harm reduction?

Examples of harm reduction: Syringe services, fentanyl test strips, safe injection sites, housing first, helmets, seatbelts, birth control, sunscreen, COVID social distancing, and speed limits

Slide 9:

- Now we are going to move into how naloxone works and how to administer it

Slide 10:

- Read to students [Learning Objective 2]

Slide 11:

- Review the following chart with students [Learning Objective 3]

	Nasal Spray	Naloxone Nasal Spray (Yellow Cap Spray	Autoinjector	IM (Needle and Syringe)
Characteristics	Each kit comes with two Nasal Sprays (2 doses). Each Nasal spray has one spray. **Most prescribed form**	You must attach the spray nozzle to the syringe before administering. More education needed for use.	Most autoinjectors have been discontinued and they are hard to find as they were very expensive to make. They worked similar to epipens.	Patient will need extra supplies such as a needle. Education on how to draw up and inject is also needed.
Mode of Administration	Nasal Spray	Nasal Spray	IM	IM
Cost	$35-90 with GoodRx, Free at MANY clinics	About $50	$$$	$10-20 with GoodRx

-

Slide 12-14:

- Read steps on slides to students [Learning Objective 4]

Slide 15:

- Naloxone Standing Orders: this refers to the fact that anyone can go to any pharmacy at any time and request naloxone from the pharmacist. Narcan ranges from $35-$90 depending on insurance, where you go and Goodrx coupons.
- The Good Samaritan Law states that a person is immune from criminal prosecution for an offense when the person, in good faith, uses naloxone on someone they believe to be experiencing a drug overdose.
- Third Party Laws: means that a provider can prescribe a medication to a patient knowing that they may not be the person who uses this medication. This is helpful in making sure that patients' family members have naloxone.
- You should be familiar with your state's laws around these topics as they vary between states

Slide 16-18:

- Read as on slide [Learning Objective 5]

PDF for how to use Narcan Nasal Spray: https://www.narcan.com/wp-content/uploads/2021/10/Gen2-Instructions-For-Use.pdf

Injectable naloxone graphics: https://dph.illinois.gov/content/dam/soi/en/web/idph/files/images/naloxone-brochure-09052017.pdf

Guide for Buprenorphine didactic and PBL

Part 1

You see the following entry on the Emergency Room Board:
Troy Williams; 47-year-old cisgender male; Chief Concern: "Pain management"

When you click on the chart, you see the full chief concern: "I need help managing my pain. I'm afraid to keep taking the fentanyl I've been getting from my dealer."

Discussion Questions:

1. What feelings come up for you about Troy and his chief concern?
2. What image pops into their mind when they hear the chief concern? How might these images be influenced by what we read or see in the media?

Facilitator Notes:

The DSM-V diagnostic criteria for opioid use disorder: must have at least two of the following should be observed within a 12-month period:

- Opioids are often taken in larger amounts or over a longer period than was intended.
- There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
- A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
- Craving, or a strong desire or urge to use opioids.
- Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.
- Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
- Important social, occupational, or recreational activities are given up or reduced because of opioid use.
- Recurrent opioid use in situations in which it is physically hazardous.
- Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
- Exhibits tolerance*
- Exhibits withdrawal*
    - *The last two diagnostic criteria, related to tolerance and withdrawal, are not considered to be met for individuals taking opioids solely under appropriate medical supervision.
        - Tolerance is defined as either: 1) a need for markedly increased amounts of opioids to achieve intoxication or desired effect, or 2) a markedly diminished effect with continued use of the same amount of an opioid.
        - Withdrawal

A. Either of the following: 1) Cessation of (or reduction in) opioid use that has been heavy and prolonged (several weeks or longer), or 2) administration of an opioid antagonist after a period of opioid use
B. Three (or more) of the following, developing within minutes to several days after Criterion A: dysphoric mood; nausea or vomiting; muscle aches; lacrimation or rhinorrhea; pupillary dilation, piloerection, or sweating; diarrhea; yawning; fever; or insomnia

Part 2

Troy reports his first experience with opioids was at age 43 following a car crash requiring an L1-L4 fusion. He was prescribed oxycodone during the acute management of his hospital stay. Post-discharge, he was prescribed scheduled (10 mg every 4-6 hours) and prn oxycodone (5-10 mg every 4 hours as needed) as he progressed through 2 weeks of acute rehabilitation and skilled nursing facilities, until he was discharged home.

Troy continued to take the medications as prescribed, but found the dosage was not providing him the relief he initially experienced. He also hoped that if his pain became better controlled, he could push himself much more during physical therapy sessions and everything could get back to normal. He would time his dose before physical therapy to tolerate the exercise. He was also having difficulty sleeping due to the pain, so he started taking an extra oxycodone before bed so he could sleep and recover. He discussed this with his provider who prescribed the higher doses with a discussion of cutting down as he improved.

After a few months, he was taking 15-20, 10 mg tablets of oxycodone per day. He would quickly notice after almost 12-14 hours of not taking any he would begin to feel sweaty, nauseous, stomach pain, watery eyes, runny nose, and body aches. As the months went by, the pain didn't get any better and he was needing higher doses to control his pain and "just function." He told his doctor that he felt like he was needing more oxycodone than he was getting, which prompted the doctor to provide him with a referral to a pain management clinic.

"My PCP dumped me and told me I had to see the pain specialists. They made me sign a medication contract in order to get the oxycodone and be treated. I felt like I had no choice if I wanted my pain to be better. I did everything they asked—Physical therapy, acupuncture, injections, lidocaine patches, and anti-inflammatory medications—none of it helped. The pain was always there, and I wasn't getting better."

"Then, after 6 months seeing them every month without improvement, they told me it was time to start weaning off the oxycodone. Just like that! And my pain wasn't any better. In fact, it was getting worse. If anything, I needed more medication, not less. It felt like they labeled me as a 'drug-seeker' and didn't care about my pain. They didn't listen to me. The car accident wasn't my fault. No matter what I said that doctor was hell bent on getting me off the oxycodone over the next few months."

"I freaked out. I was terrified I was going to have to live with this horrible pain with no relief. A friend connected me with Jane, who helped me get some oxycodone. Turns out, she sold me something that was fake oxycodone – it had fentanyl in it. They did a random urine drug test and fentanyl showed up, so they stopped prescribing me oxycodone altogether. Just like that. Now, I was really freaked out because now I had nothing for my pain. I tried cutting down but it was

miserable, I started withdrawing real bad – aches, nausea, diarrhea, just felt terrible. Even though I knew it wasn't the smartest thing to do, I reached out to Jane and she, well, she became my 'pharmacist'. It was the first time in months I had no pain and I felt good. But it kept spiraling, and things started to go badly – I was having trouble getting to work on time and I started fighting more with my partner. This has been really hard. So now I am smoking 10 fentanyl tabs a day, and am injecting heroin intravenously when fentanyl is not available. I feel like I've completely lost control."

Discussion Questions:

1. Does Troy meet criteria for opioid use disorder?

   Troy currently meets the following criteria:

   - Opioids are often taken in larger amounts or over a longer period than was intended.
   - Exhibits tolerance—needing increase in dose for same effect
   - Exhibits withdrawal—sweaty, nauseous, stomach pain, watery eyes, runny nose, and body aches
   - Interpersonal problems, occupational problems, continued use despite acknowledging the problems opioids are causing, inability to cut down on use

   As he initially took increased amounts of oxycodone than prescribed, learners can debate whether the tolerance and withdrawal fall under the "solely under appropriate medical supervision" criteria.

2. What else would you want to know?

   - Learners should inquire about any issues related to social functioning, safety, cravings, etc. as it relates to opioid use disorder criteria.

Part 3

Objective:
Vital Signs: 143/93, 103 bpm, 99.3F, 96% ambient air
Gen: well nourished, alert, and in no acute distress
HENOT: head is normocephalic, face symmetric features, no lesions on lips or mucus membranes, good dental hygiene, no exudates on tonsils, uvula midline, and posterior pharynx is pink. **+Rhinorrhea**
Eyes: no edema in orbital area, sclera is white, no injection of conjunctiva, **pupils are dilated**
Neck: trachea is midline and no swelling
Thyroid: lobes are symmetric and non-tender on palpation
Lymph Nodes: No lymph nodes appreciated in submandibular, anterior cervical, or supraclavicular areas
Pulm: anterior/posterior chest is symmetric, normal percussion, clear to auscultation bilaterally, no accessory muscle use or retractions
Cardio: no lifts/heaves, PMI non-displaced, regular rhythm, slightly tachycardic, normal S1/S2 and no murmurs, radial, dorsalis pedis, and posterior tibial pulses equal and symmetric, no edema
Abd: no scars, moderately distended, no hernias, and bowel sounds present. No masses appreciated. **Liver edge prominent** and tender to palpation.
MSK/Spine: no deformities of UE and LE with normal alignment and symmetry; spine is straight with decreased range of motion in lumbar spine. Lumbar paraspinous muscle tenderness.
Neuro: oriented with clear speech and intact ability to follow directions; CN II-XII intact with no focal deficits.
Skin: Healed incision over L1-4; **injection sites and bruising along left antecubital fossa**

What is your working diagnosis?
Opioid use disorder; concern for liver disease and soft tissue infection given physical exam findings

How do drugs to treat substance use disorders work?

Pharmacologic treatment of substance use disorder can be grouped into four general categories:

- Drugs which reduce withdrawal and cravings directly with a therapeutically managed replacement (e.g., methadone or buprenorphine for opioid dependence).
- Drugs which reduce withdrawal and cravings indirectly by modulating addiction-reinforcing neural pathways (e.g., naltrexone for alcohol dependence).
- Drugs which address neuropsychological disorders that contribute to drug seeking behavior (e.g., bupropion for depressed patients with nicotine addiction).
- Drugs which produce a noxious response to create an aversion to drug intake (e.g., disulfiram for alcohol dependence).

What are some potential next steps? How do you decide who should receive medication for opioid use disorder? **[Learning Objective 9]**

- The patient is experiencing significant dysfunction in his interpersonal relationships, professional activity, social setting, and physical health, in addition to increased use and cravings to achieve the same effect. Of the 12 criteria of a DSM-V diagnosis for opioid use disorder, this patient meets most of them (2-3 criteria = mild, 4-5=moderate, 6+=severe use disorder) and is reasonably diagnosed with severe OUD.
- Troy is experiencing symptoms of opioid withdrawal—heroin craving, anxiety, restlessness, nausea, stomach pain, muscle aches, difficulty sleeping, and depressed mood.
- **Medication for opioid use disorder are appropriate in this patient, and in all patients with opioid use disorder**. The use of medications for OUD has been repeatedly shown to have superior outcomes to counseling or other modalities (e.g., 'rehab') alone. FDA-approved medications for OUD are methadone, buprenorphine, and naltrexone. Medication + behavioral counseling, historically called medication-assisted treatment (MAT), is the gold standard for treating OUD.[1]

Pharmacology: Medications for OUD

	 **Methadone**	 **Buprenorphine**	 **Naltrexone**
How it's taken	Liquid, edible wafer or tablet	Tablet, oral dissolving strip or implant	Tablet or injection
What it does	A long-acting opioid medication that reduces cravings and symptoms of withdrawal and blocks euphoric effects of other opioids	An opioid medication that reduces cravings and symptoms of withdrawal and weakens euphoric effects of many opioids until the effects eventually level off	After mandatory 7- to 10-day withdrawal from all opioids, this non-opioid drug blocks effects of opioids and reduces cravings
How often it's taken	Daily	• Tablet or strip: Daily • Implant: Every six months	• Tablet: Every one to three days • Injection: Monthly
Where it's available	Certified Opioid Treatment Program (OTP), also known as a methadone clinic	Doctor, nurse practitioner or physician assistant with training to prescribe in office-based setting or some opioid treatment programs	Doctor or pharmacist

Colorado Health Institute 2018

[1] Some in the addiction community view the term medication-assisted treatment as outdated/inaccurate, as it implies a difference between opioid use disorder and other chronic conditions that include behavioral health counseling (e.g., nutrition counseling for patients with type 2 diabetes). Medications for Opioid Use Disorder (MOUD) is preferred in some circles.

Part 4

You review treatment options with Troy. Given his most recent fentanyl use 3 hours ago, you recommend avoiding naltrexone and full-dose buprenorphine. You discuss microdose induction of buprenorphine and methadone as potential next steps.

Troy asks you for more information about those two drugs, and for your recommendation.

Discussion Questions:

Why do you recommend Troy not use naltrexone or full-dose buprenorphine?

- Naltrexone is a mu opioid receptor blocker, and buprenorphine is a partial mu opioid receptor agonist with high affinity for the receptor. If Troy were to take either naltrexone or full dose buprenorphine at this time, he would likely experience precipitated withdrawal (PW), which is extremely unpleasant and can be a medical emergency. Administering these agents would be akin to administering intranasal naloxone, which would downgrade the opioid receptor tone from "fully activated" to "partially" or "not activated" in a matter of minutes, which the body will perceive as pain.

How does buprenorphine work to treat OUD? **[Learning Objective 6]**

- Buprenorphine is a partial mu opioid agonist with high affinity for the receptor. It's very "sticky" on the mu receptor, and will displace other full agonist opioids currently activating the receptor. The brain can perceive this change in opioid activation from "full" to "partial" as withdrawal, and this results in "precipitated withdrawal" (PW). For this reason, a full buprenorphine dose is not advisable for Troy.

How does methadone work to treat OUD?

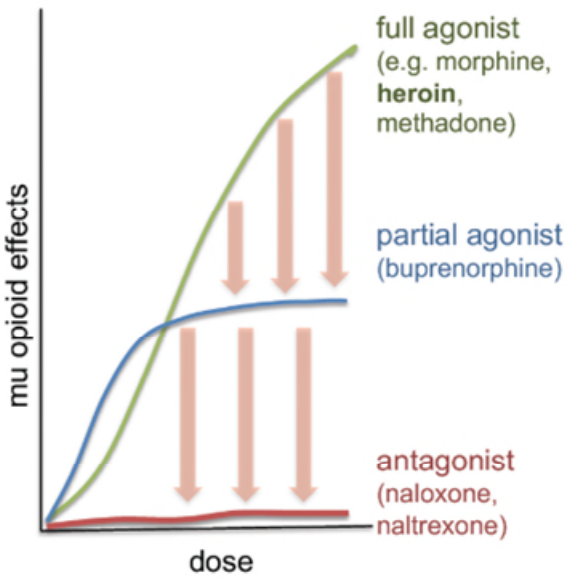
- Methadone is a long-acting synthetic opioid dispensed from federally-licensed clinics (opioid treatment programs, aka methadone clinics) to treat opioid cravings and withdrawal symptoms. Methadone clinics are highly regulated and typically involve daily visits to the clinic during the initial phase of treatment (often several weeks) for direct observed treatment of the medication.

What are some considerations in deciding methadone vs. buprenorphine for treating OUD? **[Learning Objective 7]**

- Methadone is generally more intensive than buprenorphine, so it's good to try buprenorphine first before referring someone to methadone.
- Sometimes buprenorphine doesn't "scratch the itch" and has dosing limitations (generally 24mg/day) – so if cravings persist in a patient taking the maximum dose of buprenorphine, you should consider referring them to a methadone clinic.
- If a patient has limited transportation and/or lives far away from an opioid treatment program, buprenorphine may be a better choice.

How do you start someone on medication for OUD?

- Methadone: Methadone is a full agonist opioid and will not cause withdrawal if given to someone who has recently used heroin, fentanyl, or other opioids. That is to say – starting someone on methadone is easy and does not change depending on the patient's last use of opioids.
- Buprenorphine
    - Precipitated withdrawal is extremely unpleasant and should be avoided whenever possible. The two most commonly-used methods for induction are described below. A third method, called macrodose induction, is reserved for ED settings and is not covered in detail in this session.
        - Traditional induction: [Learning Objective 8] Traditional guidance has advised the patient to enter into a mild-moderate level of withdrawal before starting "low and slow" with buprenorphine over the course of a day with a maximum Day 1 dose of 12mg.
        - Microdose induction: A newer approach, microdose induction avoids the need to enter withdrawal by introducing small amounts of buprenorphine into the system at the same time the patient continues to use full agonist opioids. Upon reaching a critical threshold dose of buprenorphine, the full agonist opioids are discontinued and a full-fledged buprenorphine dose is given. This can be done in an outpatient setting and usually takes a week or so.



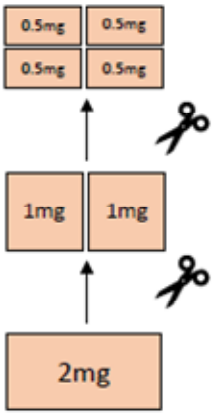
SAMHSA 2018

Helpful Graphic: Patient guidelines for a microdose induction (Credit: David Tian MD, UCSF Highland Hospital – Oakland, CA)

Patient Guidelines for Buprenorphine "Micro-Dosing" Induction

To reduce the risk of precipitated withdrawal when starting buprenorphine/naloxone, we would like you to start at very low doses and increase slowly. Please follow the schedule below and call us at _____ if there are any problems.

PREPARING YOUR DOSES:



*On Days 1-5, we will use **2mg buprenorphine/naloxone films**:*

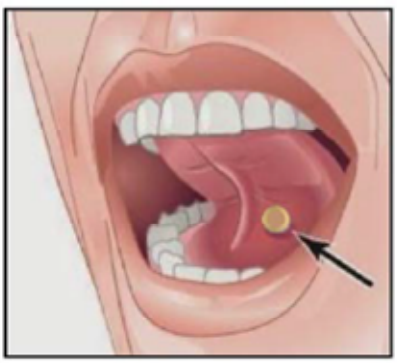
- **Days 1-2:** Cut ONE 2mg film into four equal pieces to achieve the lowest dose needed (0.5mg or 1/4th of a 2mg film).
- **Day 3:** Cut ONE 2mg film into two equal pieces to achieve the lowest dose needed (1mg or ½ of a 2mg film).
- **Days 4-5:** Use full 2mg films. You do NOT need to further prepare the films.

*On Days 6-7, we will use **8mg buprenorphine/naloxone films**. You do NOT need to cut or further prepare these films.*

DAILY DOSING INSTRUCTIONS:

On each day, take your 1st dose of buprenorphine/naloxone about 10-15 minutes ***BEFORE*** using any other opioid-based substances (i.e. heroin, fentanyl, methadone, prescription pills, etc.)

Place the film ***under your tongue*** and let it melt completely.



Day 1: _____	Take ¼ of a 2mg film (0.5 mg) ONCE
Day 2: _____	Take ¼ of a 2mg film (0.5 mg) TWICE daily
Day 3: _____	Take ½ of a 2mg film (1 mg) TWICE daily
Day 4: _____	Take one full 2mg film (2mg) TWICE daily
Day 5: _____	Take two full 2mg films (4mg) TWICE daily
Day 6: _____	Take one full 8mg film (8mg) TWICE daily
Day 7: _____	**STOP** using any non-buprenorphine opioid-based substances. Continue taking buprenorphine/naloxone 8mg films TWICE or THREE TIMES daily (as advised by your medical provider).

PLEASE RETURN TO CLINIC ON:

_____

Starting Buprenorphine
Symptom Management Guide

Clinic Name: _____
Clinic Phone Number: _____

The following medications have been prescribed to help you manage the symptoms of opioid withdrawal while you wait to take the first dose of buprenorphine. You can keep using these medications after you take your first dose if you keep on having withdrawal symptoms.

If you feel much worse after starting medications within 1-2 hours after starting buprenorphine, please call us at _____ during business hours or seek care in a local Urgent Care of Emergency Department.

	If You Feel This, Then…	Take This…	In This Way…
Prescribed? ☐	**Cold sweats, Chills, Feeling "Jittery"** 	Clonidine 0.1 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Stop taking if you feel dizzy. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Anxiety, Problems Sleeping** 	Hydroxyzine 50 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Stop taking if you feel too sleepy. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Nausea or Vomiting** 	Ondansetron 4 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Diarrhea** 	Loperamide 2 mg tablet	Take 2 tablets as your first dose. Take 1 additional tablet after each episode of diarrhea. Do not use more than 6 tablets in one day.

Symptom management guide is adapted from Highland Hospital's Buprenorphine Induction Clinic guide, prepared by David Tian, MD MPP.

Part 5

You start a microdose induction with Troy. You provide the above handout and prescriptions for buprenorphine, clonidine PRN, hydroxyzine PRN, ondansetron PRN, and loperamide PRN. You schedule him for follow up in your clinic in 7 days.

7 days later, Troy appears at your clinic. He continues to use fentanyl multiple times per day, and he is now taking 8mg/day buprenorphine. He has not needed any of the PRN medications you prescribed him and has not experienced any signs of precipitated withdrawal.

What are your next steps?

- Counsel Troy to fully discontinue fentanyl use and increase buprenorphine to 16mg/day. Monitor for precipitated withdrawal and send to ED if needed. May increase to 24mg tomorrow if cravings are poorly controlled and/or other withdrawal symptoms worsen.

You take the steps you feel are appropriate, and decide to follow up with Troy in 3-5 days. What questions would you ask him at that visit to assess whether the buprenorphine is working for him?

- What has your drug use been like since starting buprenorphine?
- How is your sleep? How is your mood?
- How would you rate your cravings right now?
- What withdrawal symptoms are you having, if any? How severe are they?
- What is your general level of function on buprenorphine compared to the time before you started buprenorphine?

What are some signs that Troy should consider transitioning to methadone?

Continued fentanyl use; poorly-controlled cravings, including drug dreams; other withdrawal symptoms; personal preference; other indications that a higher level of care is appropriate.

Part 6
Standardized Patient Encounter

You see the following entry on the Emergency Room Board:
Troy Williams
47-year-old cisgender male
Chief Concern: “Pain management”

When you click on the chart, you see the full chief concern: “I need help managing my pain. I’m afraid to keep taking the fentanyl I’ve been getting from my dealer.”

LEARNER CASE OBJECTIVES:

A. Use open-ended questions to enhance communication. Set clear guidelines and expectations.
B. Demonstrate empathy by focusing on health and safety rather than judgment.
C. Avoid stigmatizing language: using “substance use disorder” instead of “drug habit,” for example.
D. Explain in lay terms how medications for opioid use disorder work, and evaluate the patient’s appropriateness to receive buprenorphine or methadone.
E. Describe the process / follow-up for a buprenorphine microdose induction.
F. Explain buprenorphine microdosing to patients in lay terms. **[Learning Objective 10]**
G. Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach. **[Learning Objective 11]**
H. Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing for harm reduction. **[Learning Objective 12]**

Resources:

- The Urge: Our History of Addiction by Carl Erik Fisher
- Facing Addiction in America: The Surgeon General’s Report on Alcohol, Drugs, and
- Health.
- American Society of Addiction Medicine
- American Academy of Addiction Psychiatry

Buprenorphine Microdosing Standardized Patient Script

Troy Williams

Chief Concern: Pain Management

Demographics: Cis Male / 47y / Black or White

Case Developed for COPE Addiction Medicine Curriculum Challenge 2.0
Primary Case Authors: Tyler Coyle MD
Date: 1/6/2023

PATIENT'S OPENING STATEMENT:

"I feel absolutely awful."

SUMMARY:

You are a 47 male who has been using illicit opioids in increasing amounts over the past several months. After initially being prescribed oxycodone for pain after a car crash, you have exhausted pain management options and have been discharged from your pain management clinic after they found illicit opioids in your urine drug test. You are smoking several fentanyl pills per day and injecting heroin as well. You have opioid use disorder and are having intense cravings; you last used fentanyl 3 hours ago and feel like you are entering withdrawal. You are scared and unsure of what to do next. You came to the ED to see if the doctors could help manage your pain.

SETTING:

Emergency department, inside patient's room.

PATIENT'S APPEARANCE:

- Wearing hospital gown
- Scratching arms and neck, sweating
- Restless, fidgeting in chair

AFFECT AND BEHAVIOR:

- You start out calmly but are clearly uncomfortable
- Bordering on desperation
- Scared at the loss of control over your drug use

PRESENT LIFE HISTORY:

Age – 47

Birth Date – 1/1/1976

Education – High school; Associate's degree in marketing

Occupation – Work in IT sales

Marital Status – Has a girlfriend; no children

Activities – Watching sports, going to family cookouts

Stressors –Feeling like using heroin has become a burden

PATIENT'S CONCERNS:

<u>If asked what you understand about treating opioid use disorder:</u>

> "I don't know. I know there are detoxes and stuff but I don't know much else beyond what I've seen on TV. I doubt I can afford those fancy rehabs."
>
> "I think cold turkey is how you're supposed to do it."

<u>If asked what the provider can help you with the most right now:</u>

> "I guess I'm just feeling bad and like I need a hit."
>
> "Can you make this itching/jittery feeling go away?"
>
> "Everything hurts. What can you do about the pain?"

<u>If asked if you've ever taken buprenorphine:</u>

> "My friend took buprenorphine once, he said he got… preemptive withdrawal or something. He said it was absolute hell. I do not want buprenorphine."

Miscellaneous concerns:

> "My pain is through the roof – can't you do something for me? I'm willing to do whatever but I feel like I'm getting hit with a baseball bat right now."
>
> "I heard about a guy who died from an overdose, and that terrifies me. I don't want to die."

WHAT PATIENT THINKS IS GOING ON:

You understand that you are going through opioid withdrawal and that your pain is really your body's way of saying it needs more opioids to feel normal. You are scared and you don't really know what options are available.

MEDICAL HISTORY:

Started using oxycodone after a car crash several years ago; progressed to smoked fentanyl and injection heroin use over the past few months after your pain management provider discontinued opioid prescriptions.

No other operations. No allergies. No medications currently taken.

FAMILY HISTORY:

Some alcoholism "on my mother's side" but otherwise unremarkable.

PERSONAL HABITS:

Tobacco – Yes, 0.5-1ppd x 11 years

Marijuana / THC – "I used to smoke a fair bit but that all stopped when I started using opioids."

Alcohol – "I haven't had a drink in 5 years." Received 2nd DUI 5 years ago

Other Drugs – Heroin 0.5g injection use daily; smoked fentanyl 4-10 tabs daily x 3 months.

Diet – Standard

CASE CONCLUSION:

You are able to calm down once reassured that your withdrawal symptoms will be treated promptly and until you feel like it is adequate. There are many ways to treat withdrawal in the ED, and the medical team will use different medications to make you feel better. The medical team will also review the process of starting someone on medications for opioid use disorder, including the approach of using microdose buprenorphine to avoid precipitated withdrawal. The medical team will dispense naloxone for harm reduction and explain how to use it.

LEARNER CASE OBJECTIVES:

A. Actively avoid implicit bias when treating patient, especially if patient becomes agitated.
B. Observe emotional state and remain objective. Speak calmly and remain patient-centered.
C. Use open-ended questions to enhance communication. Set clear guidelines and expectations.
D. Demonstrate empathy by focusing on health and safety rather than judgment.
E. Avoid stigmatizing language: using “substance use disorder” instead of “drug habit,” for example.
F. Explain in lay terms how medications for opioid use disorder work and evaluate the patient’s appropriateness to receive buprenorphine or methadone.
G. Describe the process / follow-up for a buprenorphine microdose induction, ensuring naloxone dispensing for harm reduction.

COPE Addiction Medicine Curriculum Challenge 2.0
Naloxone Training & Microdosing Buprenorphine
Student Guide

Notes:

- Some of the content that we will be discussing today may be triggering or create a strong emotional response. We care about you. Should that occur, please feel free to step out of the room or do what you need to do for self-care in that moment (without penalty).
- Your learning group may have students who are in recovery, have loved ones in recovery, or have loved ones not in recovery. Please reiterate the message that they are welcome to share personal experiences with SUD if they would like to, and no one should feel compelled to do so.
- Highlighted text connects learning objectives with session activities and discussion items. Naloxone-based learning objectives are in green, buprenorphine-based learning objectives are in blue, and standardized patient-based learning objectives are in yellow.

Learning Objectives:

13. Identify the signs of symptoms of an opioid overdose.
14. Describe the mechanism of action of naloxone.
15. Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.
16. Demonstrate how to administer naloxone to patients.
17. Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.
18. Describe the mechanism of action of buprenorphine.
19. Demonstrate understanding of OUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.
20. Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microdosing.
21. Identify eligible patients for buprenorphine microdosing.
22. Explain buprenorphine microdosing to patients in lay terms.
23. Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
24. Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing to patient for harm reduction.

Naloxone Session

- See PowerPoint entitled “Naloxone Training”

PDF for how to use Narcan Nasal Spray: https://www.narcan.com/wp-content/uploads/2021/10/Gen2-Instructions-For-Use.pdf

Injectable naloxone graphics:
https://dph.illinois.gov/content/dam/soi/en/web/idph/files/images/naloxone-brochure-09052017.pdf

Guide for Buprenorphine didactic and PBL

Part 1

You see the following entry on the Emergency Room Board:
Troy Williams; 47-year-old cisgender male; Chief Concern: “Pain management”

When you click on the chart, you see the full chief concern: “I need help managing my pain. I’m afraid to keep taking the fentanyl I’ve been getting from my dealer.”

Discussion Questions:
1. What feelings come up for you about Troy and his chief concern?
2. What image pops into their mind when they hear the chief concern? How might these images be influenced by what we read or see in the media?

Part 2

Troy reports his first experience with opioids was at age 43 following a car crash requiring an L1-L4 fusion. He was prescribed oxycodone during the acute management of his hospital stay. Post-discharge, he was prescribed scheduled (10 mg every 4-6 hours) and prn oxycodone (5-10 mg every 4 hours as needed) as he progressed through 2 weeks of acute rehabilitation and skilled nursing facilities, until he was discharged home.

Troy continued to take the medications as prescribed, but found the dosage was not providing him the relief he initially experienced. He also hoped that if his pain became better controlled, he could push himself much more during physical therapy sessions and everything could get back to normal. He would time his dose before physical therapy to tolerate the exercise. He was also having difficulty sleeping due to the pain, so he started taking an extra oxycodone before bed so he could sleep and recover. He discussed this with his provider who prescribed the higher doses with a discussion of cutting down as he improved.

After a few months, he was taking 15-20, 10 mg tablets of oxycodone per day. He would quickly notice after almost 12-14 hours of not taking any he would begin to feel sweaty, nauseous, stomach pain, watery eyes, runny nose, and body aches. As the months went by, the pain didn't get any better and he was needing higher doses to control his pain and "just function." He told his doctor that he felt like he was needing more oxycodone than he was getting, which prompted the doctor to provide him with a referral to a pain management clinic.

"My PCP dumped me and told me I had to see the pain specialists. They made me sign a medication contract in order to get the oxycodone and be treated. I felt like I had no choice if I wanted my pain to be better. I did everything they asked—Physical therapy, acupuncture, injections, lidocaine patches, and anti-inflammatory medications—none of it helped. The pain was always there, and I wasn't getting better."

"Then, after 6 months seeing them every month without improvement, they told me it was time to start weaning off the oxycodone. Just like that! And my pain wasn't any better. In fact, it was getting worse. If anything, I needed more medication, not less. It felt like they labeled me as a 'drug-seeker' and didn't care about my pain. They didn't listen to me. The car accident wasn't my fault. No matter what I said that doctor was hell bent on getting me off the oxycodone over the next few months."

"I freaked out. I was terrified I was going to have to live with this horrible pain with no relief. A friend connected me with Jane, who helped me get some oxycodone. Turns out, she sold me something that was fake oxycodone – it had fentanyl in it. They did a random urine drug test and fentanyl showed up, so they stopped prescribing me oxycodone altogether. Just like that. Now, I was really freaked out because now I had nothing for my pain. I tried cutting down but it was

miserable, I started withdrawing real bad – aches, nausea, diarrhea, just felt terrible. Even though I knew it wasn't the smartest thing to do, I reached out to Jane and she, well, she became my 'pharmacist'. It was the first time in months I had no pain and I felt good. But it kept spiraling, and things started to go badly – I was having trouble getting to work on time and I started fighting more with my partner. This has been really hard. So now I am smoking 10 fentanyl tabs a day, and am injecting heroin intravenously when fentanyl is not available. I feel like I've completely lost control."

Discussion Questions:

1. Does Troy meet criteria for opioid use disorder?
2. What else would you want to know?

Part 3

Objective:
Vital Signs: 143/93, 103 bpm, 99.3F, 96% ambient air
Gen: well nourished, alert, and in no acute distress
HENOT: head is normocephalic, face symmetric features, no lesions on lips or mucus membranes, good dental hygiene, no exudates on tonsils, uvula midline, and posterior pharynx is pink. **+Rhinorrhea**
Eyes: no edema in orbital area, sclera is white, no injection of conjunctiva, **pupils are dilated**
Neck: trachea is midline and no swelling
Thyroid: lobes are symmetric and non-tender on palpation
Lymph Nodes: No lymph nodes appreciated in submandibular, anterior cervical, or supraclavicular areas
Pulm: anterior/posterior chest is symmetric, normal percussion, clear to auscultation bilaterally, no accessory muscle use or retractions
Cardio: no lifts/heaves, PMI non-displaced, regular rhythm, slightly tachycardic, normal S1/S2 and no murmurs, radial, dorsalis pedis, and posterior tibial pulses equal and symmetric, no edema
Abd: no scars, moderately distended, no hernias, and bowel sounds present. No masses appreciated. **Liver edge prominent** and tender to palpation.
MSK/Spine: no deformities of UE and LE with normal alignment and symmetry; spine is straight with decreased range of motion in lumbar spine. Lumbar paraspinous muscle tenderness.
Neuro: oriented with clear speech and intact ability to follow directions; CN II-XII intact with no focal deficits.
Skin: Healed incision over L1-4; **injection sites and bruising along left antecubital fossa**

What is your working diagnosis?

How do drugs to treat substance use disorders work?

What are some potential next steps? How do you decide who should receive medication for opioid use disorder?

Pharmacology: Medications for OUD

	 **Methadone**	 **Buprenorphine**	 **Naltrexone**
How it's taken	Liquid, edible wafer or tablet	Tablet, oral dissolving strip or implant	Tablet or injection
What it does	A long-acting opioid medication that reduces cravings and symptoms of withdrawal and blocks euphoric effects of other opioids	An opioid medication that reduces cravings and symptoms of withdrawal and weakens euphoric effects of many opioids until the effects eventually level off	After mandatory 7- to 10-day withdrawal from all opioids, this non-opioid drug blocks effects of opioids and reduces cravings
How often it's taken	Daily	• Tablet or strip: Daily • Implant: Every six months	• Tablet: Every one to three days • Injection: Monthly
Where it's available	Certified Opioid Treatment Program (OTP), also known as a methadone clinic	Doctor, nurse practitioner or physician assistant with training to prescribe in office-based setting or some opioid treatment programs	Doctor or pharmacist

Colorado Health Institute 2018

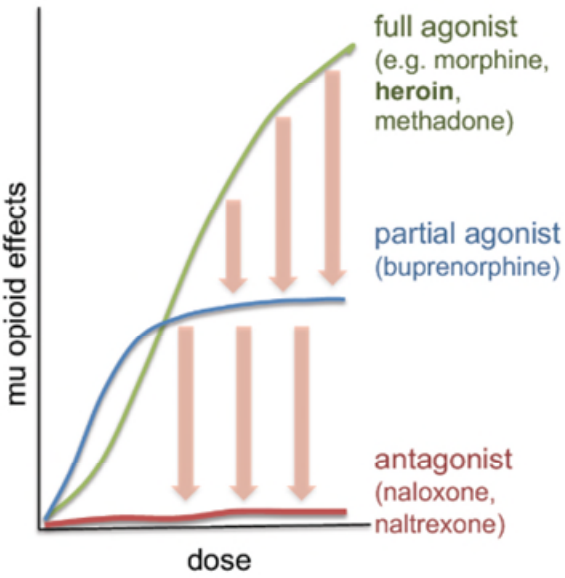
Part 4

You review treatment options with Troy. Given his most recent fentanyl use 3 hours ago, you recommend avoiding naltrexone and full-dose buprenorphine. You discuss microdose induction of buprenorphine and methadone as potential next steps.

Troy asks you for more information about those two drugs, and for your recommendation.

Discussion Questions:

- Why do you recommend Troy not use naltrexone or full-dose buprenorphine?
- How does buprenorphine work to treat OUD?
- How does methadone work to treat OUD?
- What are some considerations in deciding methadone vs. buprenorphine for treating OUD?
- How do you start someone on medication for OUD?



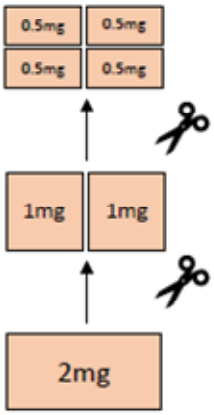
SAMHSA 2018

Helpful Graphic: Patient guidelines for a microdose induction (Credit: David Tian MD, UCSF Highland Hospital – Oakland, CA)

Patient Guidelines for Buprenorphine "Micro-Dosing" Induction

To reduce the risk of precipitated withdrawal when starting buprenorphine/naloxone, we would like you to start at very low doses and increase slowly. Please follow the schedule below and call us at _____ if there are any problems.

PREPARING YOUR DOSES:



*On Days 1-5, we will use **2mg buprenorphine/naloxone films**:*

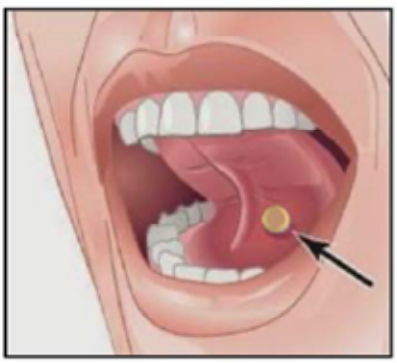
- **Days 1-2:** Cut ONE 2mg film into four equal pieces to achieve the lowest dose needed (0.5mg or 1/4th of a 2mg film).
- **Day 3:** Cut ONE 2mg film into two equal pieces to achieve the lowest dose needed (1mg or ½ of a 2mg film).
- **Days 4-5:** Use full 2mg films. You do NOT need to further prepare the films.

*On Days 6-7, we will use **8mg buprenorphine/naloxone films**. You do NOT need to cut or further prepare these films.*

DAILY DOSING INSTRUCTIONS:

On each day, take your 1st dose of buprenorphine/naloxone about 10-15 minutes ***BEFORE*** using any other opioid-based substances (i.e. heroin, fentanyl, methadone, prescription pills, etc.)

Place the film ***under your tongue*** and let it melt completely.



Day 1: _____	Take ¼ of a 2mg film (0.5 mg) ONCE
Day 2: _____	Take ¼ of a 2mg film (0.5 mg) TWICE daily
Day 3: _____	Take ½ of a 2mg film (1 mg) TWICE daily
Day 4: _____	Take one full 2mg film (2mg) TWICE daily
Day 5: _____	Take two full 2mg films (4mg) TWICE daily
Day 6: _____	Take one full 8mg film (8mg) TWICE daily
Day 7: _____	**STOP** using any non-buprenorphine opioid-based substances. Continue taking buprenorphine/naloxone 8mg films TWICE or THREE TIMES daily (as advised by your medical provider).

PLEASE RETURN TO CLINIC ON:

_____

Starting Buprenorphine
Symptom Management Guide

Clinic Name: _____
Clinic Phone Number: _____

The following medications have been prescribed to help you manage the symptoms of opioid withdrawal while you wait to take the first dose of buprenorphine. You can keep using these medications after you take your first dose if you keep on having withdrawal symptoms.

If you feel much worse after starting medications within 1-2 hours after starting buprenorphine, please call us at _____ during business hours or seek care in a local Urgent Care of Emergency Department.

	If You Feel This, Then…	Take This…	In This Way…
Prescribed? ☐	**Cold sweats, Chills, Feeling "Jittery"** 	Clonidine 0.1 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Stop taking if you feel dizzy. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Anxiety, Problems Sleeping** 	Hydroxyzine 50 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Stop taking if you feel too sleepy. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Nausea or Vomiting** 	Ondansetron 4 mg tablet	Take 1 tablet by mouth every 6 hours as needed. Do not use more than 4 tablets in one day.
Prescribed? ☐	**Diarrhea** 	Loperamide 2 mg tablet	Take 2 tablets as your first dose. Take 1 additional tablet after each episode of diarrhea. Do not use more than 6 tablets in one day.

Symptom management guide is adapted from Highland Hospital's Buprenorphine Induction Clinic guide, prepared by David Tian, MD MPP.

Part 5

You start a microdose induction with Troy. You provide the above handout and prescriptions for buprenorphine, clonidine PRN, hydroxyzine PRN, ondansetron PRN, and loperamide PRN. You schedule him for follow up in your clinic in 7 days.

7 days later, Troy appears at your clinic. He continues to use fentanyl multiple times per day, and he is now taking 8mg/day buprenorphine. He has not needed any of the PRN medications you prescribed him and has not experienced any signs of precipitated withdrawal.

- What are your next steps?

- You take the steps you feel are appropriate and decide to follow up with Troy in 3-5 days. What questions would you ask him at that visit to assess whether the buprenorphine is working for him?

- What are some signs that Troy should consider transitioning to methadone?

Part 6
Standardized Patient Encounter

You see the following entry on the Emergency Room Board:
Troy Williams
47-year-old cisgender male
Chief Concern: "Pain management"

When you click on the chart, you see the full chief concern: "I need help managing my pain. I'm afraid to keep taking the fentanyl I've been getting from my dealer."

LEARNER CASE OBJECTIVES:

H. Use open-ended questions to enhance communication. Set clear guidelines and expectations.
I. Demonstrate empathy by focusing on health and safety rather than judgment.
J. Avoid stigmatizing language: using "substance use disorder" instead of "drug habit," for example.
K. Explain in lay terms how medications for opioid use disorder work, and evaluate the patient's appropriateness to receive buprenorphine or methadone.
L. Describe the process / follow-up for a buprenorphine microdose induction.
M. Explain buprenorphine microdosing to patients in lay terms.
N. Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.
O. Apply a buprenorphine microdose induction plan to a simulated clinical scenario, ensuring naloxone dispensing for harm reduction.

Resources:

- The Urge: Our History of Addiction by Carl Erik Fisher
- Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and
- Health.
- American Society of Addiction Medicine
- American Academy of Addiction Psychiatry

Competency Assessment Rubric

Learning objectives:

1. **Identify the signs of symptoms of an opioid overdose.**
    a. Pulmonary/Airway/Chest findings:
        i. Required criteria (1):
            1. Slowed/erratic/stopped breathing
    b. Neurologic findings:
        i. Required criteria (3):
            1. Loss / altered level of consciousness
            2. Pinpoint pupils
            3. Unresponsiveness to physical or auditory stimuli
        ii. Additional criteria: confusion, dizziness, decreased muscle tone
    c. Dermatologic findings:
        i. Required criteria (4):
            1. Skin color change (blue/purple skin in light skinned people vs. gray/ashen skin in dark skinned people)
            2. Fingernails turn blue/purple
            3. Lips turn blue/purple
            4. Cold/clammy skin
        ii. Additional criteria: choking sounds, vomiting

Test question: what are the signs and symptoms of an opioid overdose?
Answer: [Free text]

# Required Criteria Identified	Proficiency Level
0	Novice
1-3	Beginner
4-6	Intermediate
7-8	Proficient
8+*	Expert

*All required criteria + at least 1 additional criterion identified

2. **Describe the mechanism of action of naloxone.**
    - Naloxone (Narcan) is an **opioid antagonist --** it works by competing with other opioids to bind the mu receptor.
    - Can be administered IM, intranasally, subcutaneously, or IV. Nasal spray and IM are most commonly used.

Test question: Which of the following most accurately describes the mechanism of action of naloxone?

A. Partial mu receptor agonist that displaces opioids due to it's high affinity binding
B. Competitive mu opioid receptor antagonist
C. Full mu opioid receptor agonist

3. **Compare and contrast the characteristics, modes of administration, and cost considerations of FDA-approved naloxone formulations.**

	Nasal Spray	**Naloxone Nasal Spray (Yellow Cap Spray**	**Autoinjector**	**IM (Needle and Syringe)**
Characteristics	Each kit comes with two Nasal Sprays (2 doses). Each Nasal spray has one spray. Most prescribed form.	You must attach the spray nozzle to the syringe before administering. More education needed for use.	Evzio has been discontinued.	Need extra supplies such as a needle. Education on how to draw up and inject is also needed.
Mode of Administration	Nasal Spray	Nasal Spray	IM	IM
Cost	$50 with GoodRx, Free at MANY clinics	$50	$$$	$10-20 with GoodRx

Test Question: Blank Table for Students to Fill In

Empty Squares Filled	**Proficiency Level**
0	Novice
1-4	Beginner
4-8	Intermediate
8-12	Proficient
12	Expert

4. **Demonstrate how to administer naloxone to patients.**

<u>Narcan Nasal spray:</u>

- Remove device from package
- Hold device with thumb on the bottom of the plunger and a finger on each side of the nozzle
- Hold the tip of the nozzle in the patient's nostril until your fingers touch the bottom of their nose
- Press plunger firmly to release the naloxone

<u>Naloxone Yellow cap nasal spray:</u>

- Take yellow caps off of the top and bottom
- Remove purple cap

- Grip clear plastic wings on spray nozzle
- Twist spray nozzle onto syringe
- Screw naloxone capsule into barrel of the syringe
- Insert spray nozzle into nostril
- Give a short, but firm push on the capsule to spray naloxone into nose
- Administer one half of the capsule into each nostril

Intramuscular injection (autoinjector):

- Pull off red safety guard (when ready to use)
    - Caution: black base is where the needle, comes out – do not touch
- Place black end against the outer thigh. Can be placed through clothing if necessary
- Press and hold firmly for 5 seconds
    - You should hear a "click and hiss"
    - Needle will not be visible after use

Intramuscular needle syringe:

- Carefully draw naloxone up into needle, ensuring to draw a full dose
- Inject 1cc of naloxone straight into a muscle
    - Thigh, outer-quadrant of glute, or shoulder works best

After administering naloxone, call 911.

Administer another dose of naloxone if there is no response after 2-3 minutes.

https://www.ama-assn.org/delivering-care/overdose-epidemic/how-administer-naloxone

Test Question: What are the 2 main forms of naloxone administration?

Answer: Intramuscular and intranasal

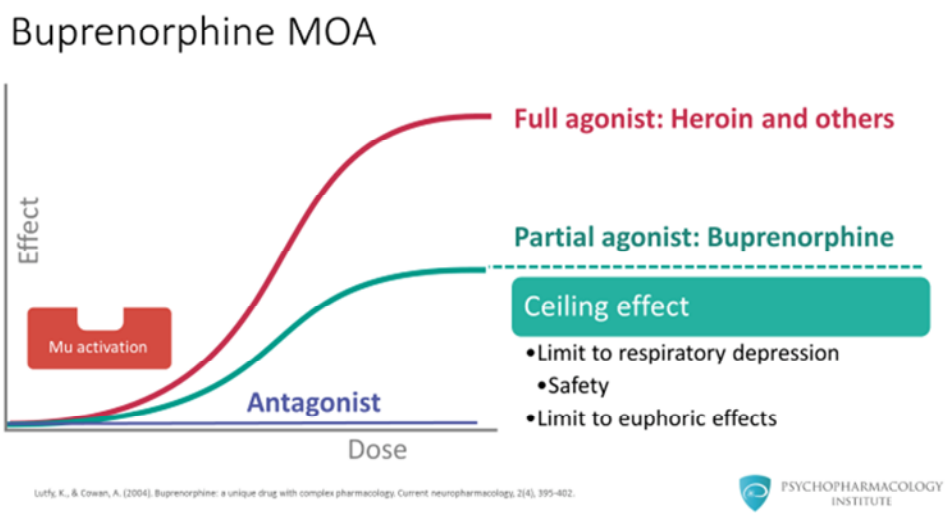
Test Question: Have students describe how to administer naloxone.

5. **Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose.**
    - Prevention of overdose
    - Harm Reduction Principles
    - Rapport building with patients
    - Decreased morbidity from a prolonged overdose course

Test Question: Explain the public health importance of prescribing/dispensing naloxone to people at risk of overdose → Free Response

Reasons Given	Proficiency Level
0	Novice
1	Beginner
2	Intermediate
3	Proficient
4+	Expert

6. **Describe the mechanism of action of buprenorphine.**
   - High affinity partial mu opioid agonists that works in OUD treatment by displacing full agonists
   - When administered gradually at low doses with full mu opioid agonists, it can slowly replace the full agonists over time while avoiding precipitated withdrawal.



Test Question:

Explain why buprenorphine can lead to precipitated withdrawal by explaining its mechanism of action. [free text response]

7. **Demonstrate understanding of OUD treatment plans by comparing and contrasting methadone with buprenorphine treatment plans, both in terms of patient accessibility and clinical guidelines.**

	Methadone	Buprenorphine
Patient Accessibility	-Limited # of clinics -Daily dosing initially requires proximity to clinic or reliable transportation -Inexpensive for most insurances -Provides structure and accountability for high-risk patients	-Can be prescribed by any provider with a DEA license -Rx can range from 1 weeks to 3 months long -$ dependent on pharmacy and insurance
Clinical Guidelines	-Assess for OUD -First dose between 10-30mg -Increase dose 5-10mg daily until 80mg/day, then 5-10mg every 3 days thereafter until patient symptoms resolve -Daily dosing and monthly counseling requirements	-Assess for OUD -Substance use history -Determination of induction dosing protocol to be used -Weekly appointments until stable -Counseling recommended

Test Question: Name 3 patient accessibility factors for Methadone and Buprenorphine. [Free Response]

Factors Given	Proficiency Level
0	Novice
2	Beginner
4	Intermediate
5	Proficient
6	Expert

Test Question: Contrast the Clinical Guidelines of Methadone and Buprenorphine. [Free Response]

Guidelines Given	Proficiency Level
0	Novice
2	Beginner
4	Intermediate
6	Proficient
8+	Expert

8. **Demonstrate understanding of buprenorphine treatment plans by comparing and contrasting traditional buprenorphine treatment plans with buprenorphine microdosing.**

- Traditionally, patients must discontinue full opioid agonist use for at least 12-24 hours before beginning buprenorphine to avoid acute withdrawal.

- Even with this requirement, patients often experience mild-moderate withdrawal symptoms due to initiating buprenorphine.
- If actively using full opioid agonists, a traditional full dose of buprenorphine will cause acute precipitated withdrawal (potentially severe).
- Buprenorphine microdosing allows for a gradual replacement of the full opioid agonist via concurrent administration of low-dose buprenorphine and the full opioid agonist. The gradual increase of buprenorphine dosing minimizes the risk of precipitated withdrawal.

Test Question: (Short answer) List 1-4 similarities and 1-4 differences between traditional buprenorphine treatment and buprenorphine microdosing.

Similarities Listed	Proficiency Level
0	Novice
1	Beginner
2	Intermediate
3	Proficient
4+	Expert

9. Identify eligible patients for buprenorphine microdosing.

- Patients who are actively taking full opioid agonists and who have opioid use disorder
- Patients with no known history of hypersensitivity to buprenorphine

Test Question: (True or False) Patients must have discontinued full opioid agonist use for at least 12-24 hours before beginning buprenorphine.

(and/or)

Which patient populations are eligible for initiating buprenorphine microdosing?

a. Patients actively using full opioid agonists who want to quit
b. Patients with no intention of quitting opioid use
c. Patients with documented hypersensitivity to buprenorphine

Score	Proficiency Level
0/2	Beginner
1/2	Intermediate
2/2	Proficient

10. Explain buprenorphine microdosing to patients in lay terms.

- Example: “Buprenorphine is a drug that works similarly to other opioids, like heroine and fentanyl, in your brain. It’s different because it is not as strong as those drugs, but it will essentially kick any stronger drug off its spot in your brain. That can stop those drugs from working and can even cause withdrawal. To avoid that withdrawal, we can give you small doses of buprenorphine. You can even continue taking your drug of choice while you take the small doses, which we will slowly increase over time. Once the dose gets high enough, you can stop

taking your drug of choice without experiencing any withdrawal symptoms. Then you can continue taking that dose of buprenorphine which will help stop cravings."

Test Question: Will be assessed via students orally presenting personalized explanations. Students will be split into small groups and asked to roleplay the patient-physician interaction in which the physician will explain buprenorphine microdosing in lay terms. Several students will then be selected to present their explanation to the rest of the class.

Competency will be assessed, and feedback provided, by instructor's subjective assessment of the students' individual explanations.

11. **Demonstrate the ability to work in a multidisciplinary setting to treat patients with a SUD when microdosing buprenorphine is the preferred approach.**

- Assessed during the PBL session as MD/PA students work with standardized patients during simulated clinical scenarios.

Test Question: N/A

12. **Apply a buprenorphine microdose induction plan to a simulated clinical scenario.**

- Assessed during PBL session as MD/PA students work with standardized patients during simulated clinical scenarios.

Test Question: N/A

Learning Objective Teaching Format

Flipped Classroom Optional	**Simulation**
Naloxone Focused: 1, 2, 3, 4, 5 Buprenorphine Focused: 6, 7, 8, 9 **Bup objectives will require some in person teaching in the flipped style	Patient Education: 10 Interdisciplinary: 11 Creating a Plan: 12