Case Studies in Inpatient Addiction Medicine

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Disclosures

- I have no financial relationships to disclose.
- The cases presented are extensively modified and fictitious names are used.

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Objectives

By the end of this presentation you should be able to…

- Recognize substance use disorders (SUDs) and diagnose them using DSM-V criteria
- Recognize and treat opioid, stimulant and benzodiazepine withdrawal
- Describe standard-of-care medication treatments for alcohol and opioid use disorder
- Improve motivation and implement harm reduction for patients who are not currently interested in discontinuing substance use

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Resources

Call the OHSU operator

(503) 494-8311

Ask for the Addiction Medicine provider on call

"Substance Use Disorders in Hospital Care"

Free lunchtime learning and case review

Earn CME

Oregonechonetwork.org

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Case 1

A patient is admitted to the hospital.

What are the chances they have a substance use disorder?

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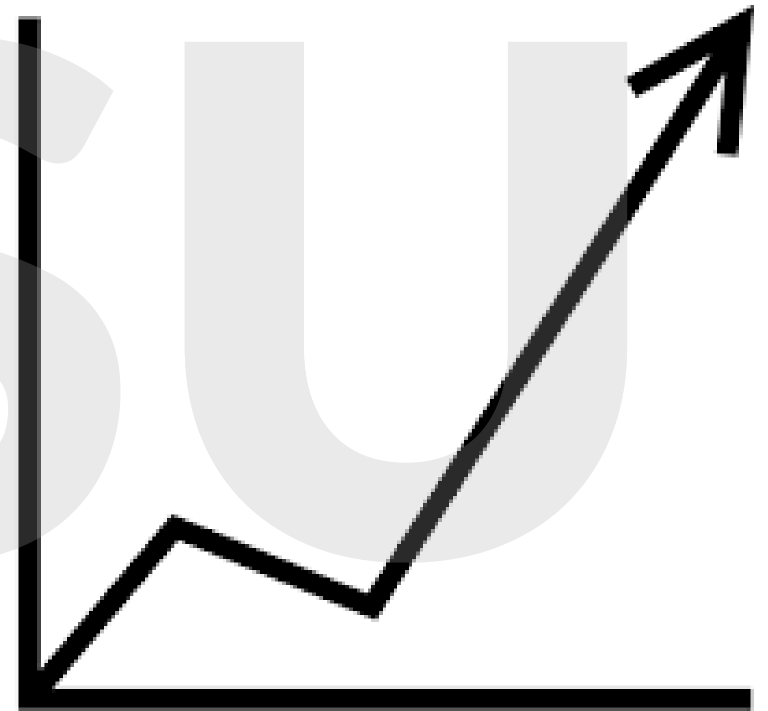
Epidemiology

- As of 2017 ~10% of all hospital inpatient encounters include a SUD diagnosis
- Hospital admissions with a *principal* diagnosis of SUD increased 12% from 2005-2014
- In Oregon from 2008-2018:
  - Hospitalizations for injection drug-use related serious bacterial infections (SBI) increased from 980 per year to 6,265 per year
  - Patients with injection drug-use SBI now make up 8.46% of all unique hospitalized patients in Oregon



Peterson, et al., 2021; McDermott, et al., 2017; Capizzi, et al., 2020.

Case 1 (continued)

Louis is a 40 year-old man admitted for multiple traumatic injuries after a rollover motor vehicle accident in which he was the unrestrained driver.

Urine drug test is positive for opiates and methamphetamine.

Does Louis have a substance use disorder?

Image: crello.com

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Case 1 (continued)

Louis is a 40 year-old man admitted for multiple traumatic injuries after a rollover motor vehicle accident in which he was the unrestrained driver.

Urine drug test is positive for opiates and methamphetamine.

Does Louis have a substance use disorder?

A. Yes
B. No
C. Probably
D. Need more information

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The "Big Five"

- Opioids
- Alcohol
- Stimulants
- Benzodiazepines
- Nicotine

DSM-V Criteria

Cravings
Control
Consequences

2-3: Mild SUD
4-5: Moderate SUD
6-11: Severe SUD

- Tolerance/withdrawal alone are not *sufficient* for diagnosis
- Tolerance/withdrawal are not *required* to make diagnosis

In the past 12 months:

1. Recurrent use causes failure to fulfill major obligations (work, school, home)
2. Recurrent use in physically hazardous situations
3. Continued use despite social problems caused or exacerbated by substance
4. Tolerance (don't count if sx occur with appropriate medical supervision)
5. Withdrawal (don't count if sx occur with appropriate medical supervision)
6. Taking more or for longer than intended
7. Persistent desire or unsuccessful efforts to cut back or stop
8. Excess time spent to obtain, use, or recover from substance effects
9. Stop or reduce important social, work, or recreational activities
10. Continued use despite associated physical or psychological problem
11. Craving or strong desire to use

Anticipating withdrawal

Substance	Withdrawal Monitoring Tool	Interpretation
Opioids	Clinical Opiate Withdrawal Scale (COWS)	<5 - no active withdrawal 5-12 - mild withdrawal 13-24 - moderate withdrawal 25-36 - moderately severe withdrawal >36 - severe withdrawal
Alcohol	Clinical Institute Withdrawal Assessment Scale (CIWA)	≤8 Absent or minimal withdrawal 9-19 Mild to moderate withdrawal ≥20 Severe withdrawal
Benzodiazepines		

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Tips for Best Practice

1. Elicit patient's experience of cravings, control and consequences with open, non-judgmental prompts such as:
    - *"Tell me about the role X plays in your life."*
    - *"Have you ever tried to cut back?"*
    - *"Has anyone given you trouble about it?"*
    - *"Are you ever worried about health problems from this?"*

2. Record your diagnosis in the problem list
3. Anticipate and monitor for withdrawal from the "big five"

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Case 1 (continued)

Louis reports he began selling oxycodone at age 18

- *has taken opioid pills at least occasionally since his early 20s*
- *five years ago began using pills daily*
- *progressed to smoking heroin*
- *typically smokes about a half gram of heroin daily*
- *longest period of abstinence has been about 2 weeks*

Has smoked methamphetamine occasionally since his early 20s

- *now pretty much every day*
- *fired recently after nodding off during work*
- *can't see his children because of his drug use*

Smokes cigarettes and has been able to cut back from a pack a day to ½ pack per day.

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Image: crello.com

Case 1 (continued)

Based on the information he provided, Louis is diagnosed with

- severe opioid use disorder
- severe methamphetamine disorder
- tobacco use disorder

You order nicotine patches, COWS monitoring, and PRN oxycodone for his pain.

Case 1 (continued)

Three hours later:

- *Louis is agitated*
- *reports body aches and rhinorrhea*
- *current pain level is "10/10."*
- *COWS score is 14*

What should you do next?

Image: crello.com

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Case 1 (continued)

Three hours later:

- *Louis is agitated*
- *reports body aches and rhinorrhea*
- *current pain level is "10/10."*
- *COWS score is 14*

What should you do next?

A. Treat with methadone
B. Treat with buprenorphine
C. Treat with hydromorphone
D. Comfort medications only

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Opioid Withdrawal Management

- "A patient with an opioid dependency who is admitted to a hospital for a primary medical problem … [e.g. acute MI] … may be administered opioid agonist medications such as methadone and buprenorphine to prevent opioid withdrawal that would complicate the primary medical problem."

SAMHSA, 2020.

Opioid Withdrawal Management

- Clonidine 0.1-0.2mg oral tid prn for sweating/agitation
- Tizanidine 2-4mg oral q6h prn for muscle spasms or cramps
- Hydroxyzine 25-50mg oral q4h prn for anxiety
- Ondansetron 4mg oral q8h prn for nausea
- Hyoscyamine 0.125mg oral q6h prn for abdominal cramps
- Loperamide 2mg oral qid prn for diarrhea

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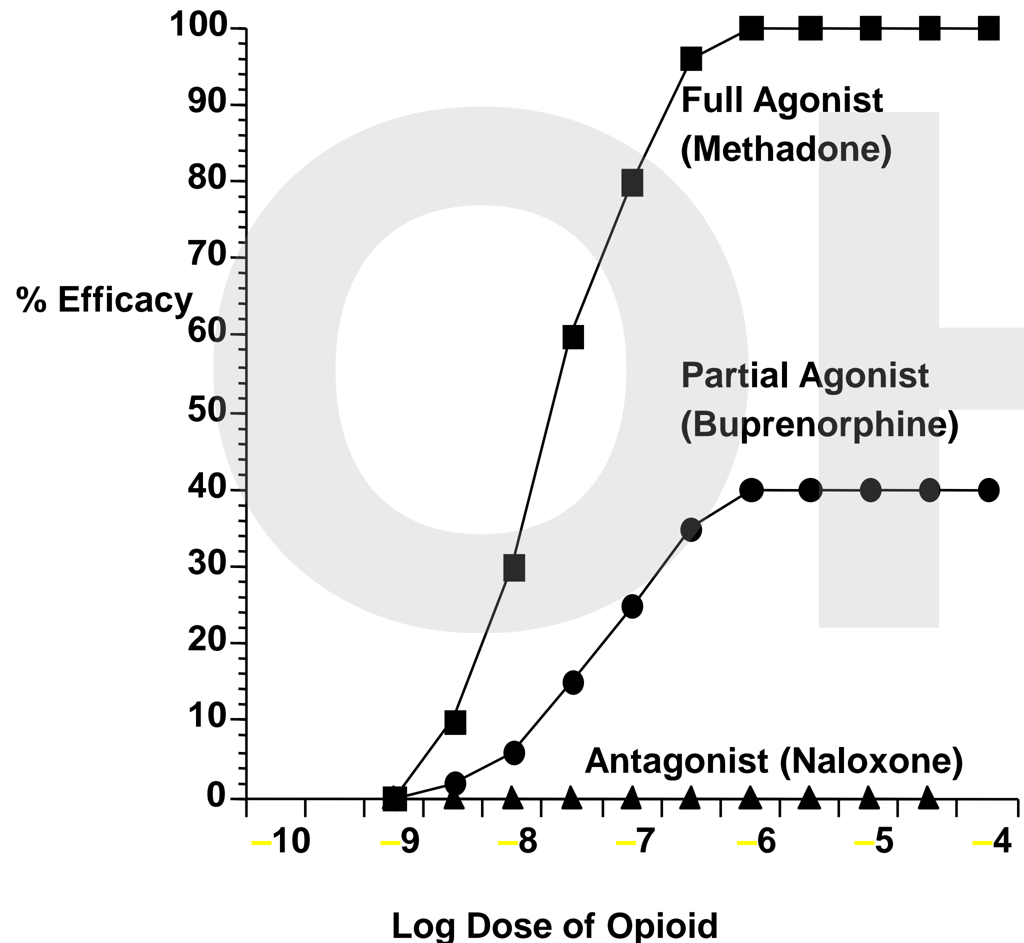
Medication for Opioid Use Disorder



Methadone

- *Full Agonist* at the mu-receptor

Buprenorphine

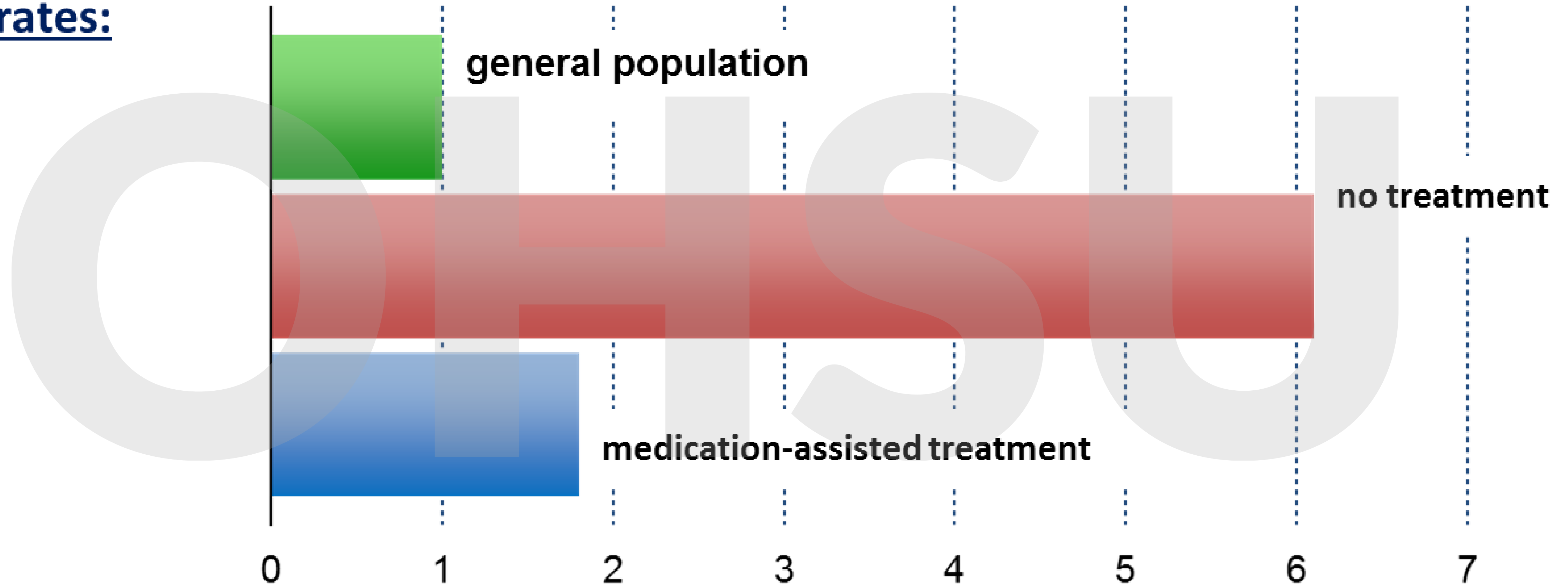
- *Partial Agonist* at the mu-receptor

Naltrexone

- *Antagonist* at the mu-receptor

SAMHSA, 2018; Orman & Keating, 2009

Medication for Opioid Use Disorder



Dupouy et al., 2017; Sordo et al., 2017.

Medication for Opioid Use Disorder

MOUD treatment with buprenorphine or methadone is associated with…

- A 76% reduction in overdose at 3 months, 59% reduction at 12 months
- A 32% relative rate of reduction in serious opioid-related acute care use at 3 months, 26% at 12 months
- Detoxification, intensive behavioral health, and naltrexone treatment were not associated with reductions in those outcomes

Wakeman, et al., 2020.

Tips for Best Practice

1. Offering medication treatment with buprenorphine or methadone is the standard of care for OUD
2. You must have a buprenorphine waiver to prescribe buprenorphine on discharge
3. Patients who desire treatment with methadone must be connected to an opioid treatment program (federally regulated methadone clinic) prior to discharge to avoid a gap in care

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Case 1 (continued)

Louis is given 20mg of methadone

- *12 hours later RN reports he is sleepy but requesting more oxycodone and methadone for “severe pain.”*
- *You find he rouses to voice but yawns and closes his eyes during the conversation*
- *He reports severe generalized discomfort/aches and anxiety*
- *Heart rate is 108, he is normotensive and pupils are 8mm bilaterally in a bright room.*

Is Louis in opioid withdrawal or is he opioid intoxicated?

Image: crello.com

Case 1 (continued)

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Is Louis in opioid withdrawal or is he opioid intoxicated?

A. Opioid withdrawal
B. Opioid intoxication

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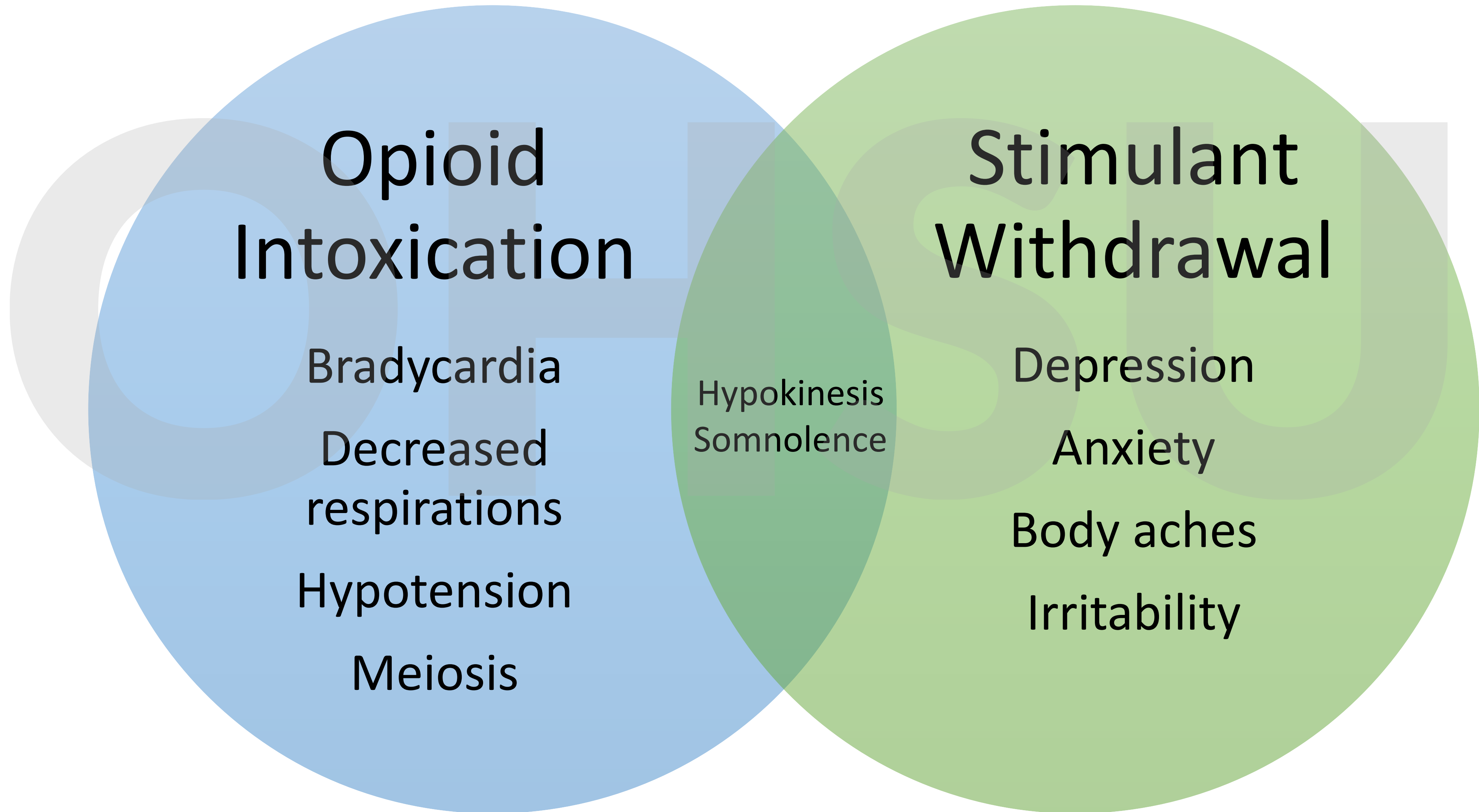
Stimulant Withdrawal



Stimulant Withdrawal

Treatment of withdrawal is supportive/symptomatic

Candidate treatments for methamphetamine use disorder:

- Mirtazapine
- Bupropion
- Naltrexone

Paulus & Stewart, 2020.

Acute Pain in Patients with Opioid Use Disorder

Opioid dependent patients are less able to tolerate a given pain stimulus compared to non-dependent patients

Multimodal pain relief, higher opioid doses, and combining or rotating opioid types are strategies to attain adequate analgesia

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Compton, et al., 2020; Athanasos, et al., 2006.

Case 1 (continued)

You liberalize Louis' oxycodone and order adjunct medications for withdrawal

- *Methadone is increased to 25mg daily the following day*
- *He then asks if you can switch him to buprenorphine-naloxone*

What should you do?

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Image: crello.com

Case 1 (continued)

You liberalize Louis' oxycodone and order adjunct medications for withdrawal

- *Methadone is increased to 25mg daily the following day*
- *He then asks if you can switch him to buprenorphine-naloxone*

What should you do?

A. Start buprenorphine now
B. Start buprenorphine in 12 hours
C. You can't transition from methadone to buprenorphine

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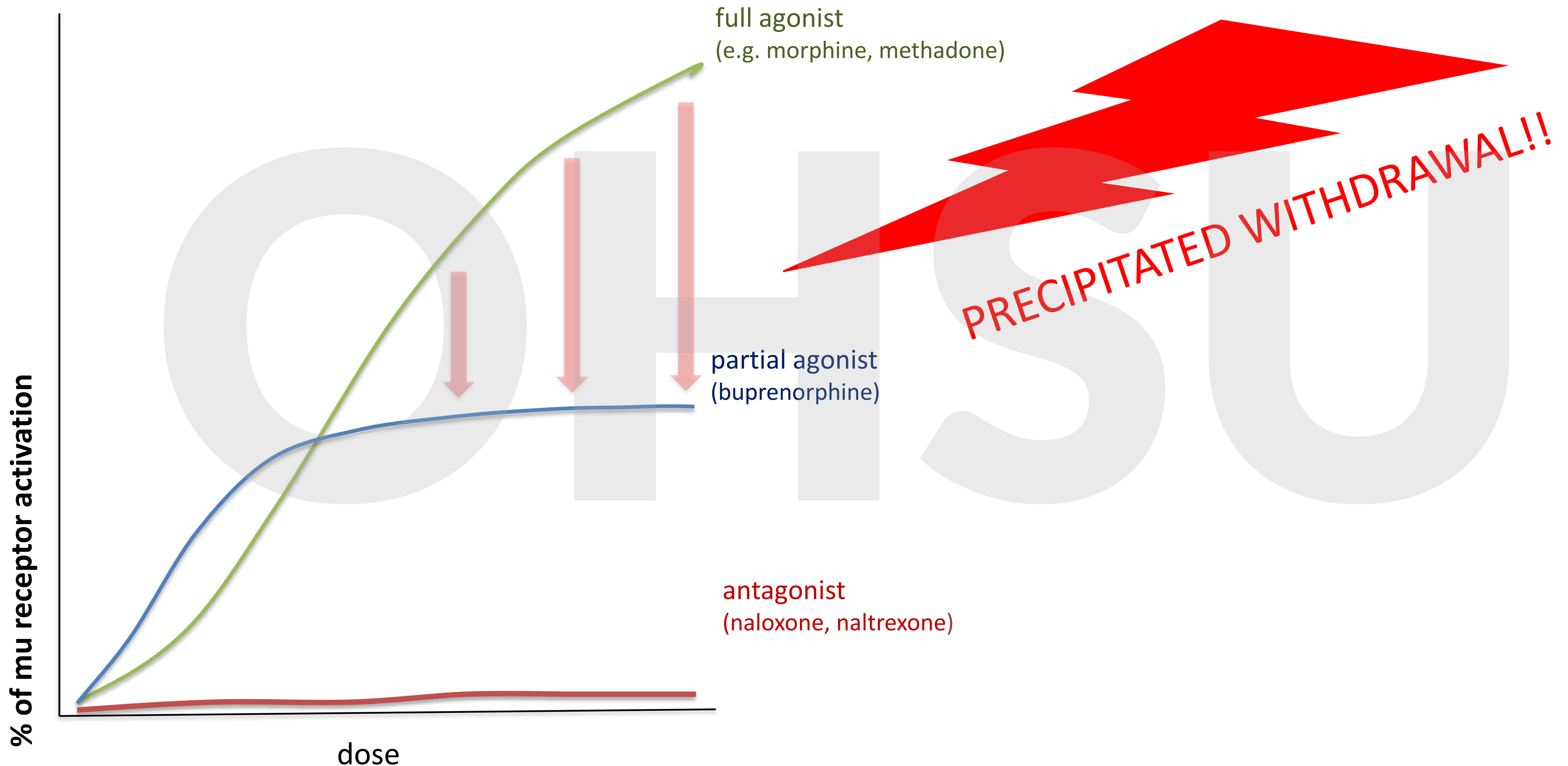
Transitioning to Buprenorphine



Transitioning to Buprenorphine

Option 1: switch to short-acting opioids for several days, then pause for 12-18 hours to do a traditional induction

Option 2: *Microdose induction*

- Newer method that introduces buprenorphine at low doses with regular small dose increases while continuing other opioids
- Example:
  - Day 1: buprenorphine 0.5 mg (1/4 of a 2mg tab)
  - Day 2: 0.5 mg BID
    Day 3: 1 mg BID (1/2 of a 2mg tab)
  - Day 4: 2 mg BID
  - Day 5: 4 mg BID
  - Day 6: 4mg TID
    On day 5 or 6, stop or taper full agonists

Robbins, et al., 2021.

Case 1 (continued)

Louis is switched from methadone to buprenorphine-naloxone over 5 days

- *Withdrawal is well controlled on 4mg buprenorphine-naloxone TID*
- *Full agonist opioids are continued throughout for management of acute pain*

There is concern that he may need a surgical procedure for his traumatic injuries.

- *surgical team asks you if you should stop the buprenorphine for him to get pain control after the procedure*

What should you do?

Image: crello.com

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Case 1 (continued)

Louis is switched from methadone to buprenorphine-naloxone over 5 days

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There is concern that he may need a surgical procedure for his traumatic injuries.

- *surgical team asks you if you should stop the buprenorphine for him to get pain control after the procedure*

What should you do?

A. Stop buprenorphine until after surgery
B. Reduce dose of buprenorphine to 2mg
C. Continue current dose of buprenorphine

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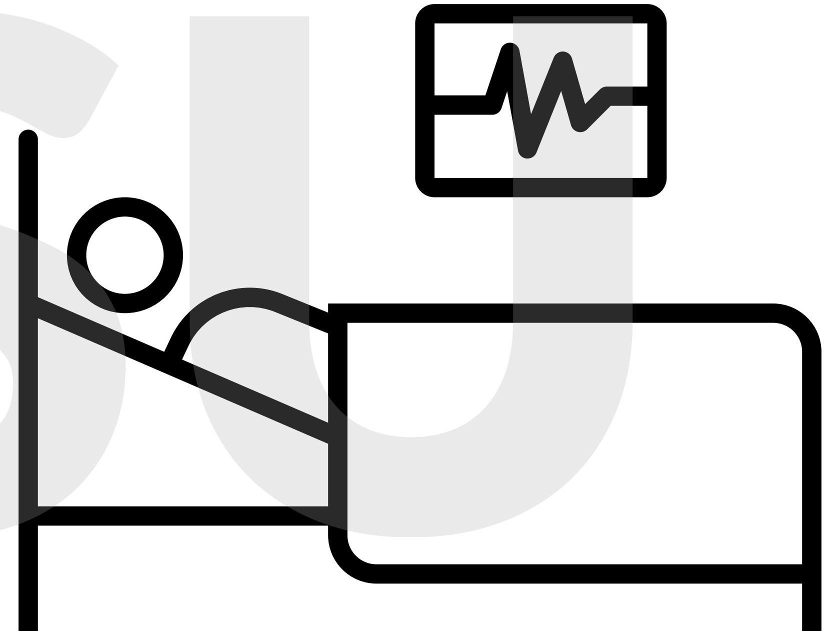
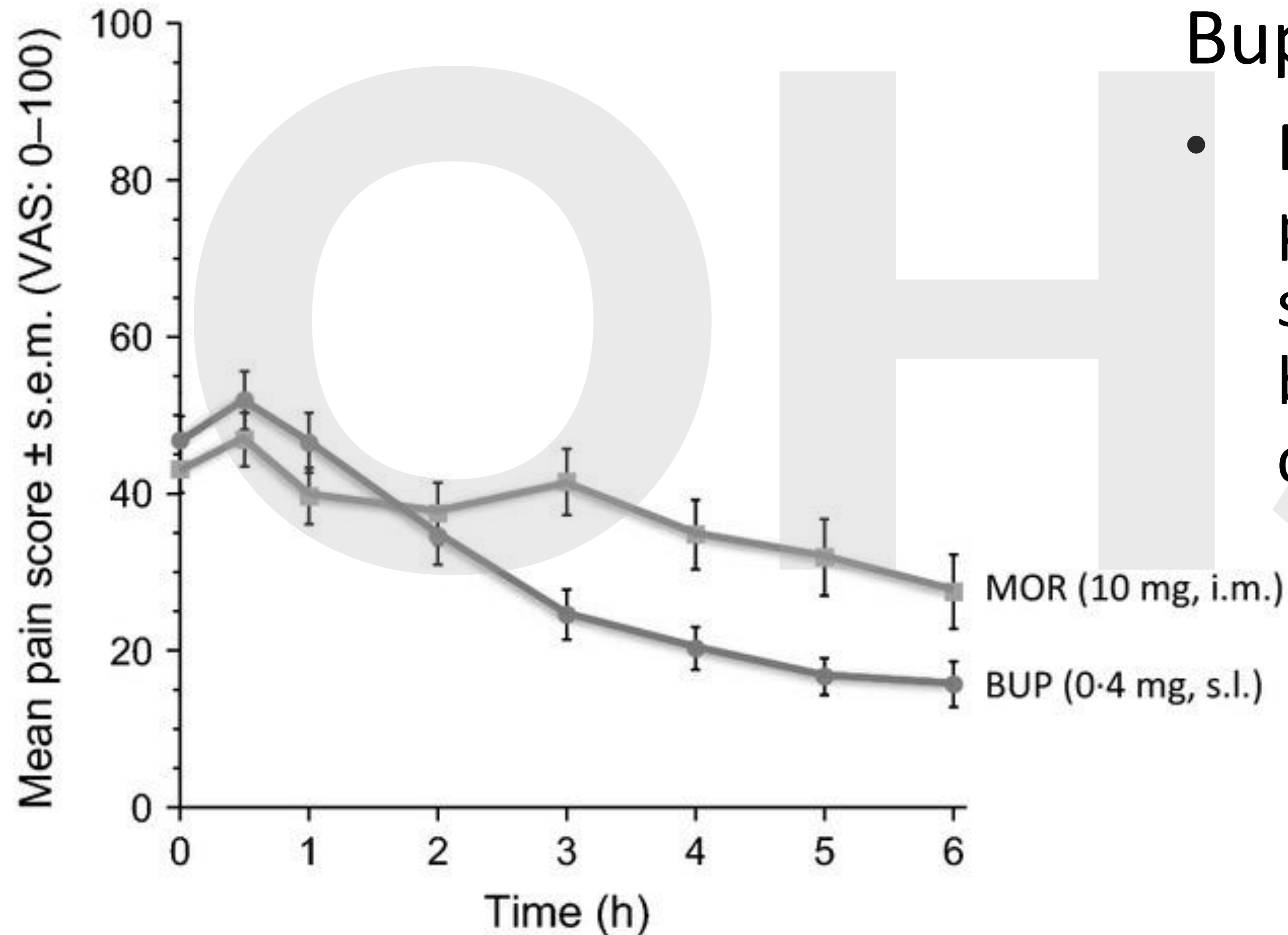
Buprenorphine in the Perioperative Period

- There is general movement in the field toward routinely continuing buprenorphine therapy for OUD in the perioperative period
- Some guidelines recommend decreasing daily dose of buprenorphine to 12mg or less in the perioperative period
- Using full agonist pain medications and other modalities on top of a buprenorphine “base layer” avoids a potential gap in OUD treatment



Anderson, et al., 2017.

Buprenorphine in the Perioperative Period



Buprenorphine is a potent analgesic

- Randomized, double-blind study of postoperative patients showed sublingual buprenorphine gave slightly better pain relief between 2-6 hours compared to IM morphine

Raffa, et al., 2014.

Tips for Best Practice

1. Continue buprenorphine in the perioperative period, using full agonists on top of buprenorphine as needed for acute pain.
2. Dose buprenorphine three times daily to maximize analgesic effect

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Case 1 (continued)

Louis continues buprenorphine-naloxone 4mg TID on the day of his surgery and after

- *A hydromorphone PCA is used post-op for breakthrough pain*
- *He is discharged with a 1-week supply of buprenorphine, with a follow up appointment at a buprenorphine bridge clinic scheduled within the week, and intends to enroll in counseling for his methamphetamine use disorder*

Image: crello.com

Case 2

Joe is a 57 year-old man with a past medical history of hypertension, anxiety and gout who developed abdominal distension 2 months ago and was found to have ascites and a gallbladder wall abnormality concerning for malignancy.

He is admitted after developing hypoxia during a biopsy procedure.

Image: crello.com

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Case 2 (continued)

On H&P he endorses drinking 6-8 drinks daily

- *reports he is able to stop drinking without withdrawal symptoms*
- *had a DUI ten years ago*
- *has actually cut back quite a bit – last drink was 8 days ago*
- *does not perceive his current alcohol use to be a problem*

Denies any past or current use of illicit opioids, illicit benzodiazepines or stimulants and does not use tobacco.

Image: crello.com

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Case 2 (continued)

Urine drug test on admit is positive for benzodiazepines.

- *he reports he took some clonazepam*

Ethanol level on admission is negative.

Admit labs include:

Cr 0.67

AST 174

ALT 40,

Alk phos 380

Tbili 1.1

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Image: crello.com

Case 2 (continued)

He is placed on CIWA protocol

- *within 6 hours he begins to report severe anxiety, tremor, diaphoresis and nausea*

What substance is he withdrawing from?

Image: crello.com

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Case 2 (continued)

He is placed on CIWA protocol

- *within 6 hours he begins to report severe anxiety, tremor, diaphoresis and nausea*

What substance is he withdrawing from?

A. Alcohol
B. Benzodiazepines
C. Both
D. Need more information

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Benzodiazepine Withdrawal

Benzodiazepine dependence is underrecognized

- highest past-year misuse rates among 18-25 year olds
- 43% of US adults with OUD reported past-year benzodiazepine misuse
- 12% of adults with AUD

Note: most illicitly obtained benzodiazepines do not contain the substance or dose advertised

Image: reddit.com/r/drugsarebeautiful

Votaw, et al., 2017.

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Benzodiazepine Withdrawal

Standard of care for benzodiazepine use disorder is a prolonged, physician-guided taper

- if the patient is using illicit benzodiazepines this may not be realistic

Rapid withdrawal is managed similarly to alcohol withdrawal, with symptom-triggered benzodiazepines

- consider a prophylactic anti-epileptic medication to be taken for a few weeks around the time of rapid benzodiazepine discontinuation

Image: reddit.com/r/drugsarebeautiful

ASAM Essentials of Addiction Medicine, 2nd edition.

Case 2 (continued)

Joe reports that when he stops drinking alcohol for a few days his anxiety usually gets much worse, so he typically takes his prescribed clonazepam only when he is not drinking.

He is concerned about the withdrawal syndrome he is going through and wants to stop drinking but worries his anxiety will go through the roof.

Image: crello.com

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Case 2 (continued)

Based on the new information he provides, he is diagnosed with

- moderate alcohol use disorder

In addition to treating his withdrawal, should you offer him a medication treatment for alcohol use disorder?

Image: crello.com

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Case 2 (continued)

Based on the new information he provides, he is diagnosed with

- moderate alcohol use disorder

In addition to treating his withdrawal, should you offer him a medication treatment for alcohol use disorder?

A. Offer medication now
B. Wait until after withdrawal
C. Only addiction specialists can offer medication for AUD

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Alcohol Use Disorder

Medication treatment is the standard of care for moderate to severe alcohol use disorder

FDA-Approved:

- Naltrexone
  - Dose: 50mg oral daily or monthly injectable
  - Strongest medication for craving reduction
  - Ok to start while patient is still drinking, and has NNT of 12 for return to heavy drinking
  - Avoid in patients with severe liver dysfunction (LFTs >5x ULN)

Jonas, et al., 2014.

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Alcohol Use Disorder

Medication treatment is the standard of care for moderate to severe alcohol use disorder

FDA-Approved:

- Naltrexone
- Acamprosate
  - Dose: 666mg oral TID
  - Works best once abstinence is established, NNT of 12 for return to any drinking
  - Avoid in patients with severe renal dysfunction (CrCl <30, dose reduce in CrCl 30-60)

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Jonas, et al., 2014.

Alcohol Use Disorder

Medication treatment is the standard of care for moderate to severe alcohol use disorder

FDA-Approved:

- Naltrexone
- Acamprosate
- Disulfiram
  - Dose: 250 mg/day
  - Causes severe nausea and flushing with alcohol intake
  - Only shows efficacy when dosing is observed and in open-label studies – blinded studies showed no effect on outcomes

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Skinner, et al., 2014.

Alcohol Use Disorder

Medication treatment is the standard of care for moderate to severe alcohol use disorder

Non FDA-Approved:

- Topiramate
  - Dose: 75-300mg/day
  - Effect sizes compare favorably to naltrexone and acamprosate

Guglielmo, et al., 2015.

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Alcohol Use Disorder

Medication treatment is the standard of care for moderate to severe alcohol use disorder

Non FDA-Approved:

- Topiramate
- Gabapentin
    - Meta-analyses show reduction in percentage of heavy drinking days
    - Higher dose (~1800mg/d) may be more effective
    - Works well for patients with post-acute withdrawal (PAWS)

Mason, et al., 2018.

Case 2 (continued)

After discussion with hepatology and completing alcohol withdrawal, Joe is started on acamprosate 666mg TID for his alcohol use disorder

- *will follow up with his PCP for further prescribing*
- *also started on an SSRI for his anxiety*
- *arrives at mutually decided goal of discontinuing prn benzodiazepine use within 6 months*

Image: crello.com

Tips for Best Practice

1. Regularly ask about benzodiazepine use and treat benzodiazepine withdrawal as needed
2. Start daily medication treatment for all patients with moderate or severe alcohol use disorder unless contraindicated

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Case 3

Portia is 31 year-old woman with a past medical history of poorly controlled type 1 diabetes, severe opioid use disorder (1 gram of IV heroin daily), and prior tricuspid valve endocarditis who presents with shoulder pain and is admitted for right shoulder abscess and diabetic ketoacidosis.

Image: crello.com

Case 3 (continued)

She reports she is currently experiencing some withdrawal

- *feeling anxious and sweating*
- *requests “some narcotic” anxiolytic*
- *is planning on returning to use of heroin after discharge*
- *reports 10/10 pain in her shoulder*

What should you do?

Image: crello.com

Case 3 (continued)

She reports she is currently experiencing some withdrawal

- *feeling anxious and sweating*
- *requests "some narcotic" anxiolytic*
- *is planning on returning to use of heroin after discharge*
- *reports 10/10 pain in her shoulder*

What should you do?

A. Treat withdrawal with methadone
B. Treat withdrawal with hydromorphone
C. Have her sign AMA paperwork in advance

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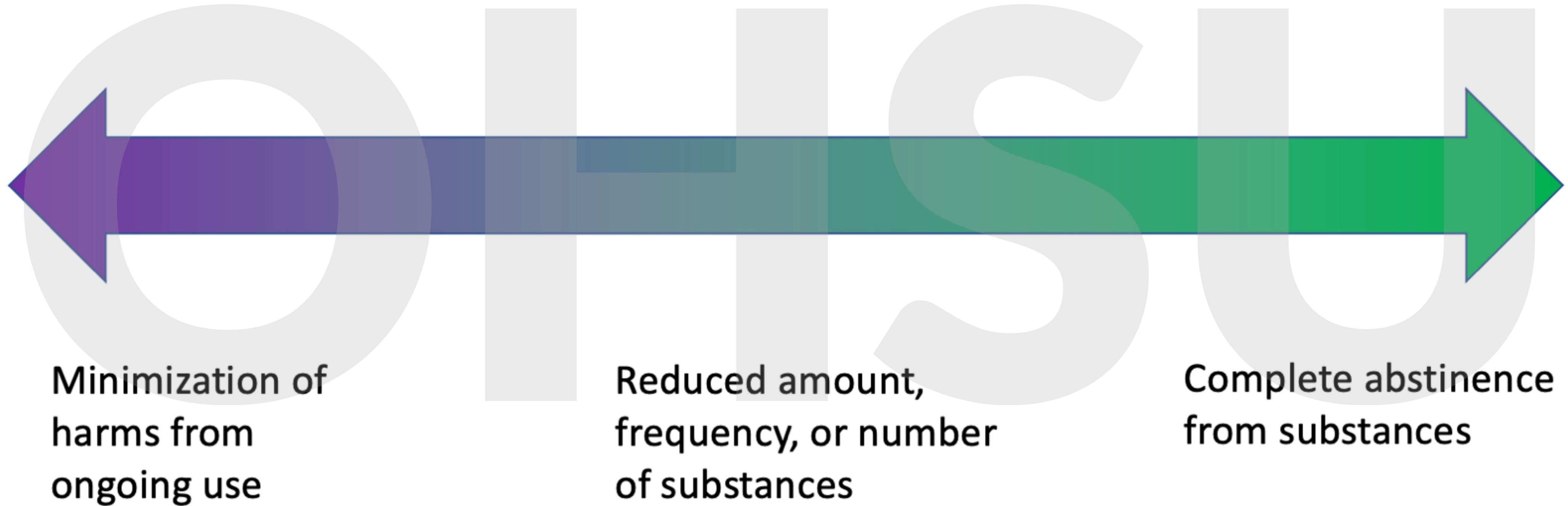
The Precontemplative Patient

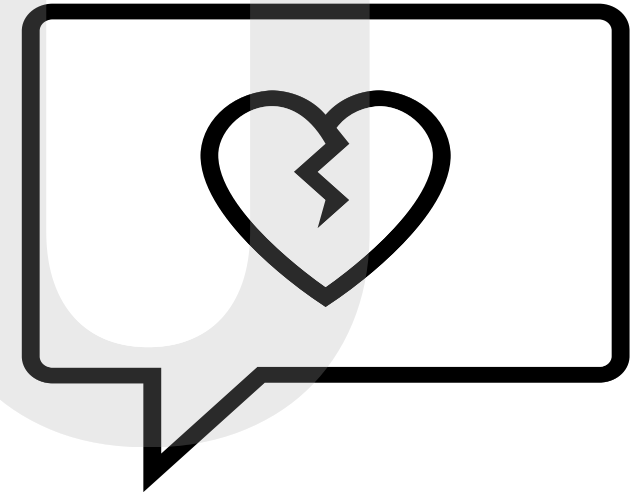


The Precontemplative Patient

Prevalence of AMA discharge in people who use illicit substances is 25-30%

Top reasons for AMA discharge:

- undertreated withdrawal
- undertreated acute and chronic pain
- perceived stigma from hospital staff
- not being allowed to leave the hospital floor



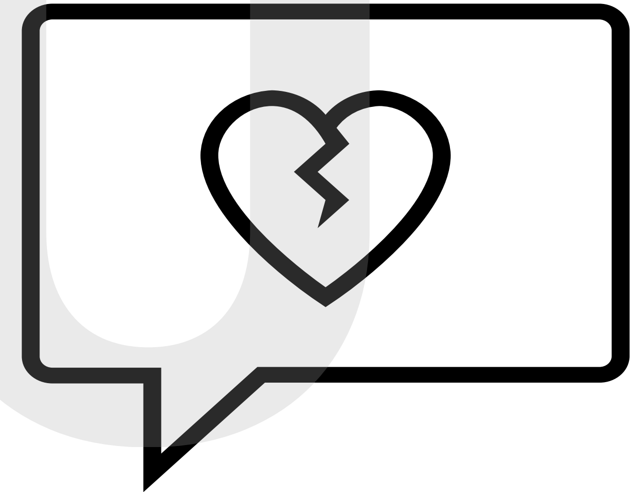
Ti & Ti, 2015; Simon, et al., 2020.

The Precontemplative Patient

AMA discharge:

- 2X thirty-day mortality
- 2-12X risk of thirty-day readmission

In-hospital methadone use and social support are associated with a lower chance of self-directed discharge in this population



Ti & Ti, 2015; Simon, et al., 2020.

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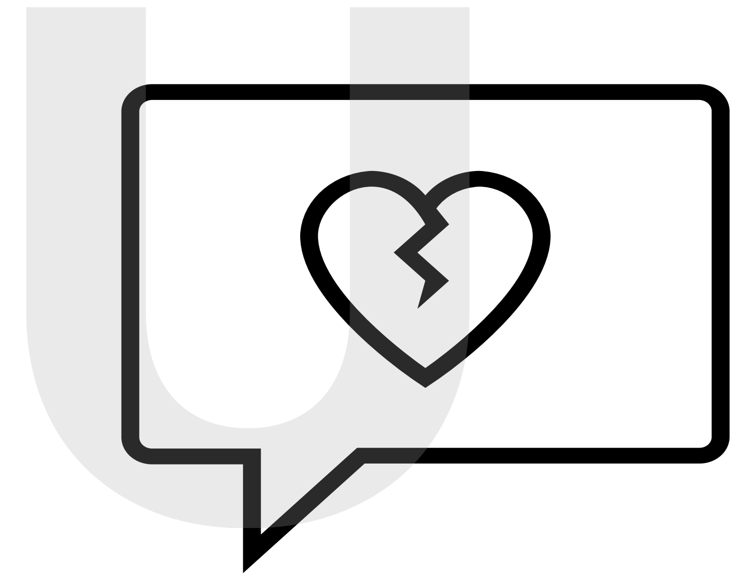
The Precontemplative Patient

Substance use while hospitalized:

- in only 2% of incidents was the patient administered medication to treat withdrawal or cravings for substances, either before or after the incident of in-hospital use



Acknowledge and expect cravings and withdrawal and explicitly invite your patient to report these to you

Taylor, et al., 2020.

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Harm Reduction

Respecting patient’s autonomy and encouraging change talk enhances motivation

Providing harm reduction services is an expression that you care for your patient’s health no matter what their current choices around substance use

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Harm Reduction

Brief harm reduction checklist:

- Frequently test for communicable diseases in anyone at risk
- Provide a naloxone rescue kit to anyone who uses illicit opioids, stimulants or benzodiazepines
- For patients with injected substance use, encourage safer injection locations or alternate routes and provide clean supplies as able

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Case 3 (continued)

Portia expresses that she prefers methadone over buprenorphine for withdrawal management while admitted

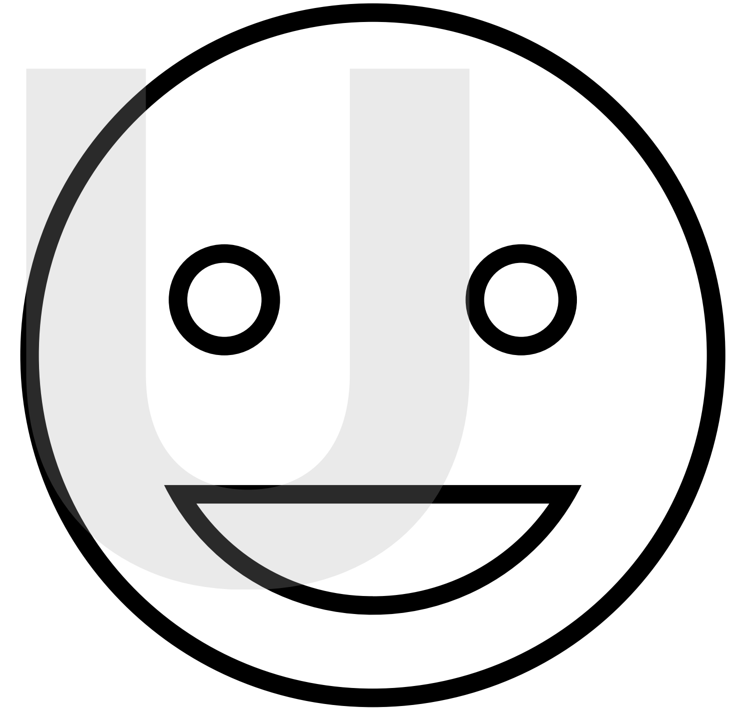
- *placed on methadone 20mg twice daily*
- *oxycodone prn for breakthrough pain*
- *HIV, hepatitis and syphilis serologies come back negative*
- *encouraged to consider alternate routes of heroin administration*
- *provided information for needle exchange by social work*
- *provided with a supply of alcohol swabs for skin cleansing*
- *prescribed a naloxone rescue kit on discharge*

OHS

Image: crello.com

Summary of Recommendations

- Always assess for the "big five" substance types that can cause withdrawal
- Treat withdrawal and acute pain early and adequately
- Unless contraindicated, start a daily medication treatment for all patients with moderate or severe AUD or OUD
- Practice harm reduction for all patients with substance use disorders, no matter what their goals are regarding ongoing use



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Earn CME
Oregonechonetwork.org

Thank you!

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marshkat@ohsu.edu

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