SOAR ECHO Series

Addiction Medicine: What's New in the Clinic

Charles Reznikoff, MD, FACP, FASAM

Kurt DeVine, MD
Family Medicine and
Addiction Physician

Erin Foss, RN, CARN
Program Manager and Addiction Medicine Subject Matter Expert, Stratis Health

April 3, 2024

Announcements

Upcoming In-Person Event
MOUD Boot Camp for Minnesota Jails

May 7, 2024, 10 a.m.- 4 p.m. CT

Park Event Center, Waite Park, MN

Scan for more info and to register

- No-cost event focusing on evidence-based best practices for implementing medication-assisted treatment (MAT)/medications for opioid use disorder (MOUD) program components in jails.
- **Open to Minnesota county sheriffs, jail administrators, correctional leadership, and jail medical staff.**

Upcoming SOAR ECHO Sessions

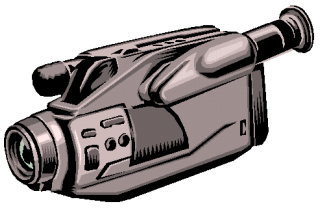
- **Wednesday, Apr. 10, 2024**
  Human Trafficking Pt. 2
  Kate LePage, East Central MN Regional Navigator for Safe Harbor
- **Wednesday, Apr. 17, 2024**
  Clarie Drom, MD, Consultation-liaison Psychiatrist, CentraCare
- **Wednesday, Apr. 24, 2024**
  ADHD Treatment in Patients with SUD
  Kurt DeVine, MD
- **Wednesday, Jun. 5, 2024**
  Abigail Judge, PhD

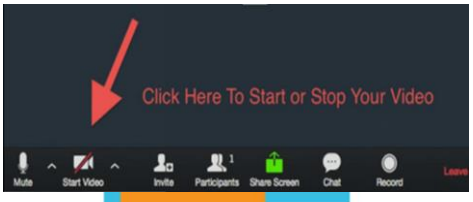
Other ECHO Series

Integrated Opioid and Addiction Care ECHO (Thursdays, 1:15-2:15 p.m.)

Minnesota Community Collaboration on Viral Hepatitis ECHO (First and third Tuesdays of the month, 12-1 or 1-2 p.m.)

Midwest Tribal ECHO OUD Education and Treatment Series (First and third Wednesdays of the month, 12-1 p.m.)



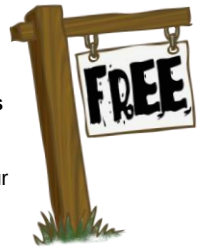


YES, THERE'S *FREE* CME

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Minnesota Medical Association (MMA) through the joint providership of Stratis Health and the Minnesota Academy of Family Physicians. **Stratis Health is accredited by the MMA to provide continuing medical education for physicians.**

Stratis Health designates this educational activity for a maximum of **1 *AMA PRA Category 1 Credits*™.**

Physicians should claim credit commensurate with the extent of their participation in the activity.



Continuing Education Credits and Contact Hours for Other Health Professionals
The OUD Education and Treatment ECHO Series may meet continuing education requirements for your focus. It is the responsibility of the individual to determine if this activity fulfills that requirement.

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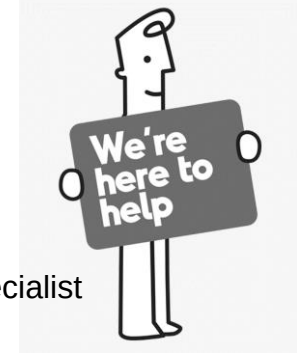
TECHNICAL ASSISTANCE

- **We are ALWAYS here for you!**
  - Program implementation
  - Inductions
  - Difficult cases
  - Troubleshooting
  - Anything!
- **Call us anytime:**
  - Erin Foss, RN, CARN, Program Manager/Nurse Specialist efoss@stratishealth.org, 320-282-6553
  - Kurt DeVine: 320-630-2507



All technical assistance (TA) requested and provided by the Stratis Health opioid team of subject matter experts is intended to respond to non-patient-specific participant TA needs, make connections to needed resources, and share information and access to evidence-based recommendations and best practices on opioid and other substance use disorders and harm reduction practices. This activity is funded by the Minnesota Department of Human Services (MN DHS). The views expressed when providing TA, in written materials, or during virtual tele-education sessions (e.g., Project ECHO) do not necessarily reflect official MN DHS policies, nor does mention of trade names, commercial practices, or organizations imply endorsement by the state of Minnesota.

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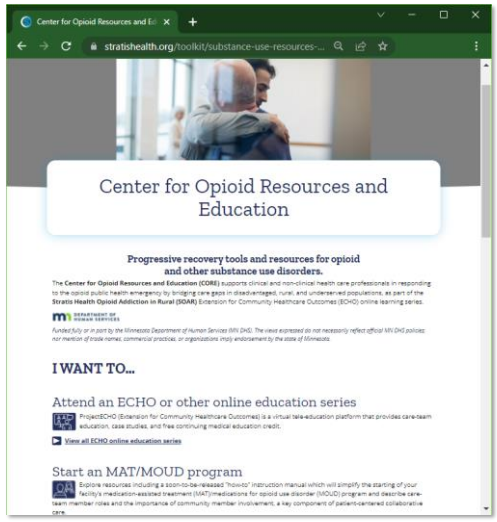
Center for Opioid Resources and Education (CORE)

Online source for progressive recovery tools and resources for opioid and other substance use disorders includes:

- Links to all current OUD ECHOs and recorded sessions
- How-tos to simplify starting an MAT/MOUD program
- SUD clinical resources to use in practice
- Info to connect with other MAT/MOUD practitioners
- And more!



Center for Opioid Resources and Education

The **Center for Opioid Resources and Education (CORE)** supports clinical and non-clinical health care professionals in responding to the opioid public health emergency by bridging care gaps in disadvantaged, rural, and underserved populations, as part of the **Stratis Health Opioid Addiction in Rural (SOAR)** Extension for Community Healthcare Outcomes (ECHO) online learning series.

https://stratishealth.org/toolkit/substance-use-resources-and-education/

Project ECHO

StratisHealth

Addiction Medicine:

What's New in the Clinic?

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ACP American College of Physicians
Leading Internal Medicine, Improving Lives

Disclosure of Financial Relationships

I have no relevant financial disclosures to make

Visit any speaker's profile within the *ACP Meeting* mobile app or the meeting's web platform to view disclosure of relevant financial relationships.

Overview

- The effects of **cannabis** use by an aging population
- Preoperative assessment for those who drink **alcohol**
- Successfully treating opioid use disorder with **buprenorphine**
- Caring for those with **methamphetamine** use disorder

Cannabis and older adults

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Case #1 – Cannabis

- 72-year-old man with insomnia, coronary artery disease, atrial fibrillation, and hypertension presents to clinic. He smokes a cannabis joint prior to bed as a sleep aid. He does not drink alcohol or use other drugs. He has no prior history of substance use disorder or psychiatric diagnosis. His medications are amitriptyline, apixaban, aspirin, atorvastatin, lisinopril, metoprolol.
- Blood pressure 125/75, heart rate 92. His exam is normal other than an irregular heart rate

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Question #1 – Cannabis

Which of the following is NOT a concern with this patient's THC use?

A. Increased risk of an acute coronary syndrome
B. Worsened rate control of atrial fibrillation
C. Drug-drug interaction between THC and atorvastatin
D. Rebound insomnia after THC cessation
E. Increased risk of falls at night

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Q1. Which of the following is NOT a concern with this patient's THC use?

ⓘ Start presenting to display the poll results on this slide.

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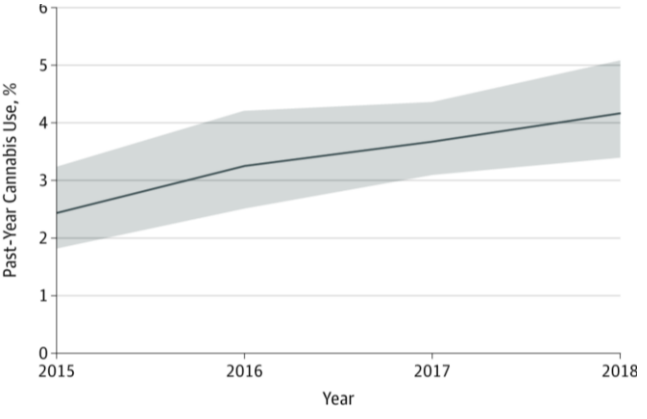
Cannabis use among older adults is increasing

- >70% of Baby Boomers previously used cannabis
  - As laws and norms change, boomers return to use
  - Boomers are older and sicker now, and cannabis is stronger!

Trend in Prevalence of Past-Year Cannabis Use Among Adults 65 Years and Older in the United States, 2015 to 2018



Ann Intern Med. 2021 Jan;174(1):133-135, JAMA Netw Open. 2023 Aug 1;6(8):e2328934, *JAMA Intern Med.* 2020;180(4):609–611

“Legalize it” Peter Tosh 1976

Doctors smoke it, nurses smoke it,

Judges smoke it, even the lawyer too.

So You’ve got to legalize it, and don’t criticize it,

Legalize it, yeah yeah, and I will advertise it.

It’s good for the flu, good for asthma,

Good for tuberculosis, even umara composis.

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Cannabis benefits and risks

Benefits

- Pleasure
- Sleep induction and maintenance
- Nausea relief
- Chronic pain relief (for some)
- Muscle spasm relief
- Suppression of nightmares

Harms

- Cardiovascular harms
- Falls, motor vehicle crashes, occupational risk
- Cannabis use disorder
- Impaired learning & memory
- Worsened mental health
- Cannabis hyperemesis syndrome
- Cannabis withdrawal

Syst Rev. 2019 Dec 10;8(1):320, PLoS One. 2023 Feb 17;18(2):e0281826

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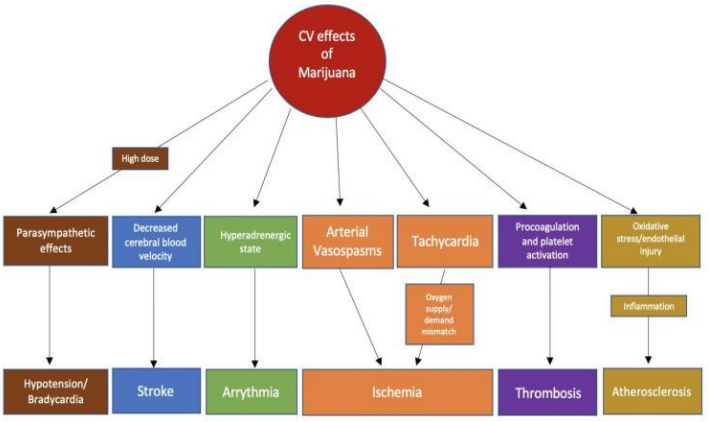
THC activation of cannabis receptors on endothelium

-Sympathetic activation
-Coronary vasoconstrictor
-Peripheral vasodilator
-Orthostasis, reflex tachy
-Increased myocardial stress

-Endothelial inflammation
-Possibly thrombogenic



J Clin Med. 2020 Jun 19;9(6):1925, Br J Pharmacol. 2014 Dec;171(24):5573-88, Cell VOL 185 ISSUE 10 P1676-1693 MAT 12, 2022

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Cannabis and cardiovascular health

- A fib incidence increases 30-50% with heavy cannabis use
- Prior research didn't show cannabis causes myocardial infarction
- Postoperative cardiac events increase 5X if cannabis used preop
- Recent cannabis decreases exertional capacity in angina by 50%

Am J Addict. 2021 Nov;30(6):578-584, Reg Anesth Pain Med. 2023 Mar;48(3):119, *JAMA Surg.* 2023;158(9):935–944, Cureus. 2022 Feb 9;14(2):e22054, Am J Cardiol. 2023 Oct 1;204:226-233

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Cannabis causes vascular disease

- 400,000 patients, 4% daily cannabis users, 7% nondaily
- Dose dependent increase in coronary heart disease, MI, stroke and composite
- True for never tobacco-users
- Similar for men and women

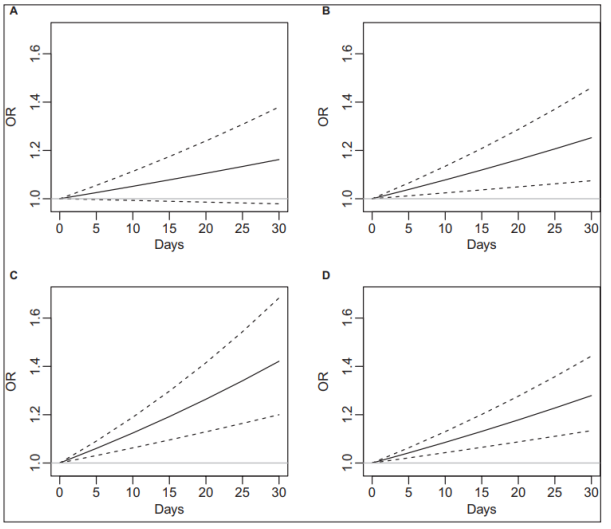

Figure. **Dose–response correlation graph of the magnitude of the OR for the association between days of cannabis use per month and adverse cardiovascular outcomes.**
A, CHD. **B**, MI. **C**, Stroke. **D**, Composite outcome of CHD, MI, and stroke. The OR and 95% CI show that the association is significant for every outcome except CHD. CHD indicates coronary heart disease; MI, myocardial infarction; and OR, odds ratio.

J Am Heart Assoc. 2024;13:e030178.

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Cannabis and drug-drug interactions

- Cannabinoids are metabolized in liver
  - First pass metabolism 85%
- Multiple P450 interactions – *high dose CBD is problematic*
- Any drug causing orthostasis interacts with THC – *e.g.* tricyclics
- Any drug causing sedation or ataxia interacts with THC – *e.g.* benzos

Reg Anesth Pain Med. 2023 Mar;48(3):119 J Gen Intern Med. 2021 Jul;36(7):2074-2084

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Sleep is a common reason for cannabis use

- Sleep induction and maintenance improved with cannabis
- Cannabis suppresses nightmares (*e.g.* PTSD)
- THC may disrupt deep/REM sleep
- Rebound insomnia is problematic

N Engl J Med. 2023 Dec 14;389(24):2267-2275.

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Cannabis causing falls and MVCs

- Cannabis predisposes older individuals to falls for multiple reasons
- Four hours of impairment after inhaled use, longer after edible
- 1.4 X risk of motor vehicle crash on cannabis
  - Mixing cannabis with alcohol is extremely dangerous
  - New approaches to roadside saliva THC testing
- Cannabis is associated with workplace accidents

Am J Epidemiol. 2021 Dec 1;190(12):2582-2591, Brain Sci. 2021 Jan 21;11(2):134, *Workplace Health & Safety*. 2023;71(9):400-410.

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Cannabis hyperemesis syndrome

- Episodic presentations due to heavy cannabis use
- Severe abdominal pain, nausea, emesis, and dehydration
- Symptom relief with prolonged hot showers/baths
- Treat with cannabis abstinence…. or a regimen of at-home meds
  - Capsaicin, metoclopramide, ondansetron, lorazepam

JAMA Netw Open. 2022;5(9), CJEM. 2018 Jul;20(4):550-555, Am J Emerg Med. 2021 Nov;49:343-351

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Case #2 – Cannabis wrap up case

- 63-year-old female presents to clinic with midepigastric pain, nausea and vomiting. The symptoms began earlier today. She is unable to eat or drink. She has a history of multiple sclerosis and tobacco use. She recently switched from smoked cannabis to edible cannabis to medicate symptoms of multiple sclerosis.
- Medications: atorvastatin, diroximel fumarate, THC gummies
- Vitals: Heart rate 105, 164/107, afebrile, RR 20, O2 97%
- Besides appearing uncomfortable and restless, exam is normal

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Question #2 – Cannabis wrap up case

What is the best next step?

A. Obtain an MRI to rule out new CNS lesion from multiple sclerosis
B. Obtain urine toxicology to assess drug exposure other than cannabis
C. Counsel the patient about cannabis hyperemesis syndrome, prescribe topical capsaicin and ondansetron, recommend abstinence
D. Obtain 12-lead electrocardiogram
E. Check for P450 interaction between THC and diroximel fumarate

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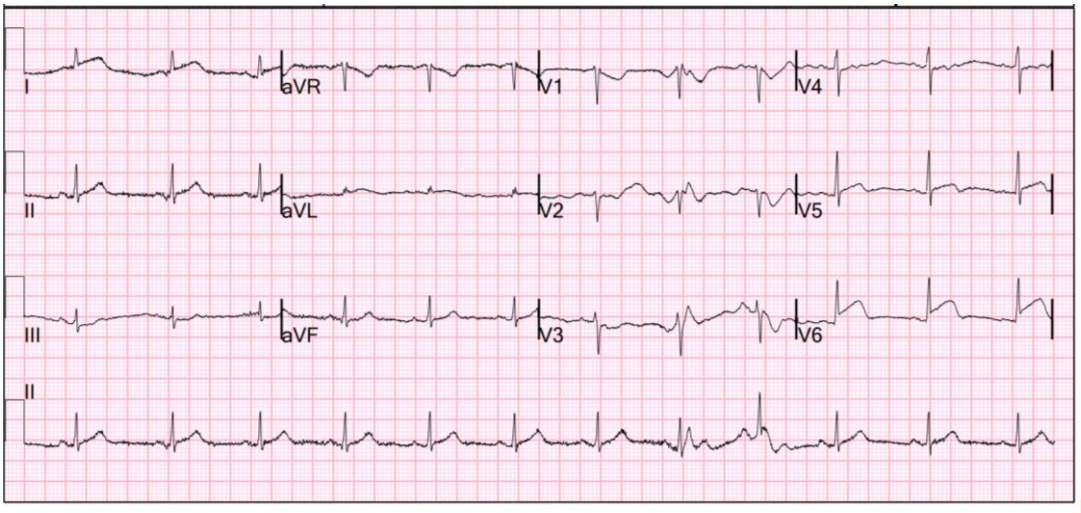
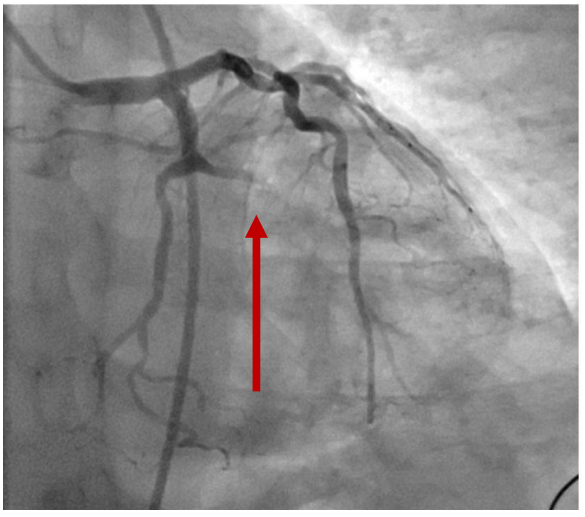
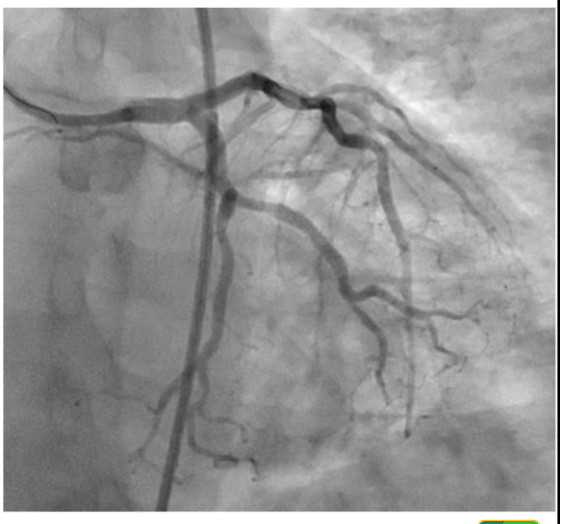
Antero-inferior STEMI



100% stenosis of midsegment OM1 pre/post PCI





Cannabis wrap up

- An aging population is returning to cannabis use
- Cannabis causes cardiovascular harms
- Consider drug-drug interactions with CBD
- Cannabis causes falls and car crashes
- Cannabis hyperemesis is a diagnosis of exclusion

Starting Buprenorphine for people with opioid use disorder using fentanyl

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Case #3 – Buprenorphine initiation for fentanyl

- A 25-year-old with severe OUD presents to clinic for help stopping fentanyl use. The patient uses no other drugs or medications. They have symptomatic PTSD from an adverse childhood event.
- They have mild anxiety and chills, but no pain, diarrhea or nausea.
- Heart rate 105. The patient is oriented to place and time and is not sedated. They yawn twice and frequently shift in their seat during the visit. They are not diaphoretic and have 4 mm pupils. They have neither tremor nor piloerection.

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Question #3 – Buprenorphine initiation for fentanyl

What is the best approach to helping the patient stop fentanyl use?

A. Buprenorphine/naloxone 8/2 mg SL BID. Follow up in seven days.
B. Prescribe ¼ tablet of buprenorphine/naloxone 2/0.5 mg with instructions to titrate up to 8/2 mg BID. Follow up in seven days.
C. Refer to inpatient chemical dependency treatment.
D. Refer to outpatient addiction psychiatry.

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Wesson & Ling, J Psychoactive Drugs. 2003 Apr-Jun;35(2):253-9.

COWS Clinical Opiate Withdrawal Scale

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120	GI Upset: *over last 1/2 hour* 0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 No report of chills or flushing 1 Subjective report of chills or flushing 2 Flushed or observable moistness on face 3 Beads of sweat *on* brow or face 4 Sweat streaming off face	Tremor *observation of outstretched hands* 0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 Able to sit still 1 Reports difficulty sifting still, but is able to do so 3 Frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds	Yawning *Observation during assessment* 0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute
Pupil size 0 Pupils pinned or normal size for room light 1 Pupils possibly larger than normal for room light 2 Pupils moderately dilated 5 Pupils so dilated that only the rim of the iris is visible	Anxiety or irritability 0 None 1 Patient reports increasing irritability or anxiousness 2 Patient obviously irritable anxious 4 Patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 Not present 1 Mild diffuse discomfort 2 Patient reports severe diffuse aching of joints/ muscles 4 Patient is rubbing joints or muscles and is unable to sit still because of discomfort	Gooseflesh skin 0 Skin is smooth 3 Piloerrection of skin can be felt or hairs standing up on arms 5 Prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment:_____

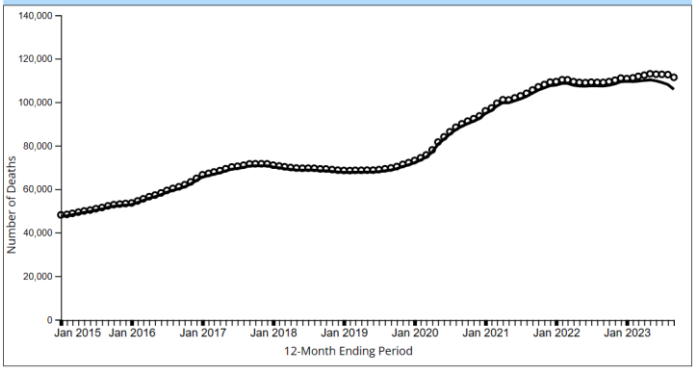
Score: 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal

If COWS >8 start full dose bup promptly!

Opioid related deaths have plateaued – why?

Based on data available for analysis on: February 4, 2024

Figure 1a. 12 Month-ending Provisional Counts of Drug Overdose Deaths: United States



- Naloxone availability
- Buprenorphine availability
- Route of fentanyl use trending from IV to smoked
- Regression after COVID OD increases
- Public education about fentanyl

www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm
Routes of Drug Use Among Drug Overdose Deaths — United States, 2020–2022 | MMWR (cdc.gov)
JAMA Netw Open. 2023;6(6):e2314925

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Buprenorphine lowers mortality in OUD >50%

- **Patients only benefit when taking buprenorphine**
- Also, improvements in….
  - Opioid craving and withdrawal
  - Opioid use
  - Pregnancy and neonatal outcomes
  - Nonfatal overdose
  - Retention in treatment
  - Emergency department visits
  - Hospital readmission
  - Criminal justice involvement
  - Possibly hepatitis C and HIV transmission

JAMA feb 2020, ann int med 2018; 169: p137 , JAMA Internal Medicine 174(12):1947–1954

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No Wrong Door for buprenorphine

Universal system-wide access to buprenorphine

>50% of those with OUD should be on MOUD

www.hhs.gov/about/news/2024/02/01/biden-harris-administration-marks-two-years-advancements-hhs-overdose-prevention-strategy-new-actions-treat-addiction-save-lives-press-release.html

All DEA license holders can now prescribe buprenorphine for OUD.

All DEA license holders must attest to cumulative 8 hours of opioid/SUD education

(This session counts as one hour!)

Telemedicine exceptions for controlled substances

- The DEA extended the "flexibilities" for prescribing controlled substances (CS) until december 2024
  - DEA license holders can prescribe CS II-V by real time audio-visual telemedicine to patients never evaluated in-person
  - DEA license holders can prescribe CS III-V by ***telephone only*** *for the* ***treatment of OUD*** to patients never evaluated in-person

    (Buprenorphine)

www.dea.gov/documents/2023/2023-10/2023-10-06/dea-and-hhs-extend-telemedicine-flexibilities-through-2024, J Gen Intern Med. 2024 Jan;39(1):95-102

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    (Buprenorphine)

Telemedicine for OUD has Improved retention and less ODs than in-person!

www.dea.gov/documents/2023/2023-10/2023-10-06/dea-and-hhs-extend-telemedicine-flexibilities-through-2024, J Gen Intern Med. 2024 Jan;39(1):95-102

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Buprenorphine initiation, active prescription, and retention on MOUD is <20% of those with OUD

Proportion of the 1.1 Million Medicare Enrollees With Opioid Use Disorder by Medication and Setting			
	Office Based	Opioid Treatment Program	Total*
Buprenorphine	12%	<1%	13%
Methadone	-	5%	**5%**
Naltrexone	<1%	<1%	**<1%**
Total*	13%	6%	**18%**

* Percentages do not sum to totals because of rounding, some enrollees received multiple medications, and some enrollees received medication from both settings.
Source: OIG analysis of Medicare data, 2023.

The Consistently Low Percentage of Medicare Enrollees Receiving Medication to Treat Their Opioid Use Disorder Remains a Concern, OEI-02-23-00250 (hhs.gov), *JAMA Netw Open.* 2023;6(8), *JAMA.* 2023;329(16):1402–1404

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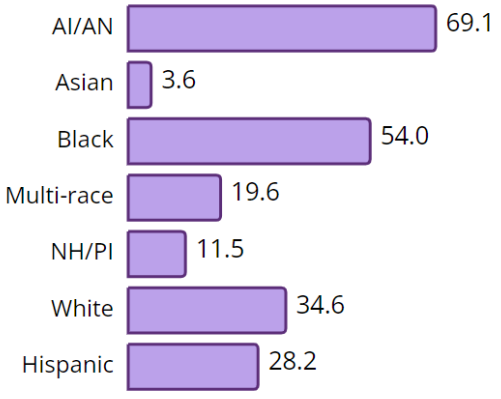
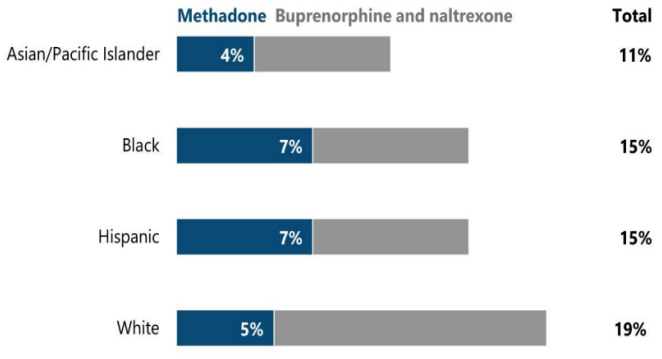
Opioid overdose death rate per 1000 people in 2022



SUDORS Dashboard: Fatal Overdose Data | Drug Overdose | CDC Injury Center

Treatment for OUD by medication and race/ethnicity



Source: OIG analysis of Medicare claims data, 2023.

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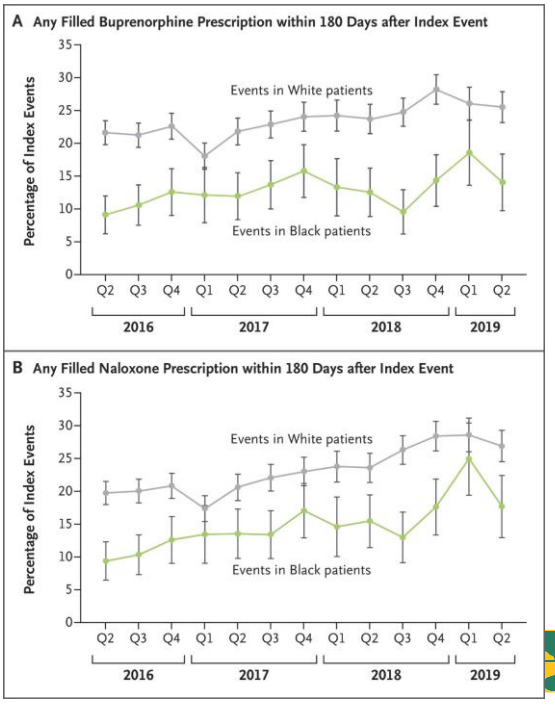
After a medical consequence of OUD, Black or Hispanic patients are less likely to receive MOUD than white patients



N Engl J Med. 2023 May 11;388(19):1779-1789.

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What is buprenorphine, put simply…

- A safer, less problematic “partial” opioid
- Lowers mortality for people with OUD
- It is taken sublingually (or Intramuscularly)
- Once started it is safe and easy to dose
- Should be continued throughout illnesses, pain and surgeries
- *One catch* – you need to be careful how you start it

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Precipiatated withdrawal is a “never event”

- **Don’t start full dose buprenorhpine when currently on opioids**
- Sudden severe opioid withdrawal
  - Initiated correctly, buprenrophine causes precipiated withdrawal <1%
- If a patient has precipitated withdrawal, what to do?
  - Promptly give very high-doses of buprenorphine (>16 mg)
  - Encourage them to stay on buprenorphine long term
  - Symtpomatic treatment

J Addict Med. 2023 Sep-Oct 01;17(5):509-516, JAMA Netw Open. 2021 Jul 1;4(7)

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How to avoid precipitated withdrawal?

- **Properly time a traditional induction**
- Or low-dose (micro) induction
- Or high-dose (macro) induction

J Addict Med. 2022 Jul-Aug 01;16(4):399-406, *JAMA Netw Open.* 2023;6(3):e231572.

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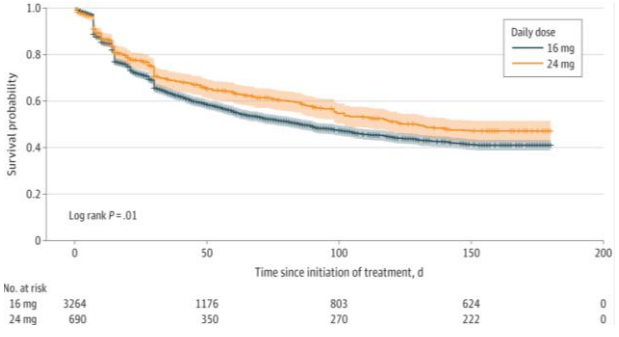
Traditional buprenorphine induction

1. Stop full agonist opioid (fentanyl, heroin, oxycodone, etc)
2. Begin buprenorphine when **COWS > 8**

   Give 8-16 mg on the first day, >16 mg daily after that
3. Follow up within a week if possible, telemedicine ok

   The reason for follow up is retention in treatment

How is fentanyl different than other opioids?



- 24 mg buprenorphine daily is better for fentanyl users
- Fentanyl vs nonfentanyl use doesn't change published rates of follow up
- Precipitated withdrawal more common among fentanyl users, but still <2%
- Naloxone still works!

JAMA Netw Open. 2023;6(9):e2334540. *JAMA Netw Open.* 2023;6(3):e231572, JAMA Netw Open. 2023 Mar 1;6(3):e236108

Supervised consumption sites (SCS)

- SCS are not legal in most of USA
- Decades of success in other countries (Switzerland)
- SCS lower behaviors risky for HIV & hep C transmission
- The presence of a SCS lowered mortality in the square mile around the SCS in Canada
  - Mortality decreased by 2/100,000 people annually
  - OUD mortality is ~32/100,000 people annually in USA

Lancet Public Health. 2024 Feb;9(2):e79-e87, *Addiction*. 2024;119(1):180–199.

Frontiers and updates on opioids, good and **bad**

- Initiating buprenorphine immediately after OD reversal with naloxone
- Long-acting injectable buprenorphine
- Mobile buprenorphine clinics
- Drug testing strips
- Updating methadone regulations*
- Updated SUD confidentiality law to approximate HIPAA*

- Stimulant adulteration with fentanyl (~10% samples)
- Xylazine adulteration of fentanyl
- Kratom use
- Tianeptine use
- Novel illicit synthetic opioids and benzos

*42 CFR part 8 RIN 0930-AA39 & 42 CFR part 2 RIN 0945-AA16, Drug and Alcohol Dependence, Volume 252, 2023

Buprenorphine wrap up

- Always facilitate buprenorphine for patients with untreated OUD
- Initiate full dose buprenorphine for OUD when COWS is >8
- Quickly get to a daily buprenorphine dose >16 mg
- Follow up frequently until stable, ok by telemedicine
- Fix racial disparities in how we offer this treatment

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Perioperative assessment and treatment for alcohol use disorder

ACP

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Alcohol poll

Which statement is most true about alcohol?

A. Consuming any amount of alcohol worsens health

B. Healthy alcohol consumption is equal to or less than one drink per day for women and two drinks per day for men

C. Drinking red wine is cardioprotective

D. Beer before liquor, never sicker; liquor before beer, you're in the clear!

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Alcohol Poll: Which statement is most true about alcohol?

ⓘ Start presenting to display the poll results on this slide.

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Alcohol poll

Which statement is most true about alcohol?

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B. Healthy alcohol consumption is equal to or less than one drink per day for women and two drinks per day for men

C. Drinking red wine is cardioprotective

D. Beer before liquor, never sicker; liquor before beer, you're in the clear!

No healthy dose of alcohol!

- 13% of all deaths age 20-64 attributable to excess alcohol intake
- AUD accounts for 400,000 hospitalizations and $3.5 B annually
- The cardiovascular effects of alcohol are probably NOT beneficial
- Atrial fibrillation is strongly associated with alcohol intake

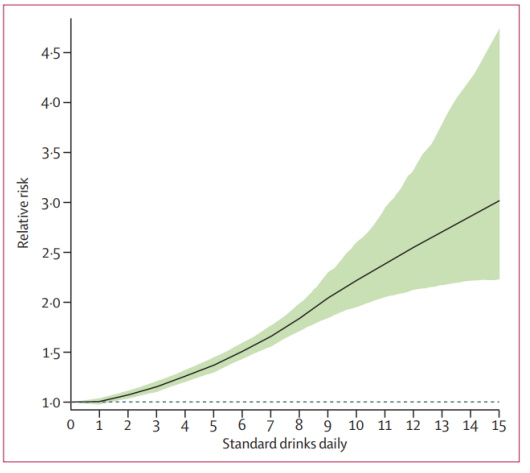

Figure 5: **Weighted relative risk of alcohol for all attributable causes, by standard drinks consumed per day**
Age-standardised weights determined by the DALY rate in 2016, for both sexes. The dotted line is a reference line for a relative risk of 1. DALY=disability-adjusted life-year.

JAMA Netw Open. 2022 Feb 1;5(2):e220158, Eur Heart J. 2021 Mar 21;42(12):1170-1177, Lancet. 2018 Sep 22;392(10152):1015-1035, JAMA Netw Open. 2022 Mar 1;5(3):e223849, *JAMA Netw Open.* 2022;5(11):e2239485.

The good news:

Reduction in non-abstinent alcohol use lessens liver, psychiatric and cardiovascular disease

Table 4. Cardiovascular Disease (CVD) at Wave 2 Among Those Without Wave 1 CVD (Incidence) by Wave 1 WHO Risk Drinking Level and Change in WHO Risk Level Between Waves 1 and 2

Wave 1 WHO risk level and change by Wave 2	Wave 1 very-high-risk and high-risk drinkers without Wave 1 CVD (n = 817)			
	n	Adjusted prevalence of Wave 2 CVD (%)	Adjusted OR (95% CI)	p-value
Wave 1 very high risk				
Not decreased by ≥2 levels	154	17.8	Reference	
Decreased by ≥2 levels	237	8.2	0.41 (0.28 to 0.62)	**<0.0001**
Wave 1 high risk				
Not decreased by ≥2 levels	196	15.4	Reference	
Decreased by ≥2 levels	230	13.3	0.84 (0.72 to 0.99)	**0.0421**

Alcohol Clin Exp Res. 2018 Nov;42(11):2256-2265., Alcohol Clin Exp Res. 2020 Aug;44(8):1625-1635.

Low risk alcohol use
Preferable language to "healthy alcohol use"

	World Health Organization Risk Levels (for males)			
	Low Risk	**Medium Risk**	**High Risk**	**Very High Risk**
Drinks per day (in grams)	1 to 40 g	41 to 60 g	61 to 100 g	101+ g
Drinks per day (approximate U.S. standard drinks, 14 g)	0 to 3 drinks	3 to <4 drinks	4 to 7 drinks	7 drinks
Drinks per week (approximate U.S. standard drinks, 14 g)	0 to 20 drinks	21 to 30 drinks	31 to 50 drinks	51+ drinks

	World Health Organization Risk Levels (for females)			
	Low Risk	**Medium Risk**	**High Risk**	**Very High Risk**
Drinks per day (in grams)	1 to 20 g	21 to 40 g	41 to 60 g	61+ g
Drinks per day (approximate U.S. standard drinks, 14 g)	0 to 1 drinks	2 to <3 drinks	3 to <4 drinks	4 drinks
Drinks per week (approximate U.S. standard drinks, 14 g)	0 to <10 drinks	10 to <20 drinks	20 to 30 drinks	31+ drinks

J Gen Intern Med. 2021 Feb;36(2):404-412.

NIAAA single question screen for alcohol use

- **"How many times in the last year have you had [4/5] or more drinks in a day?"** Women 4, Men 5
  - If any number of times – proceed to the next questions
- **"On average, how many days a week do you drink?"** and **"On a typical day, how many drinks do you have"**
  - If >7 drinks per week for women, >14 per week for men, proceed to DSM-5 AUD diagnostic interview or AUDIT-C
- **Risk of alcohol use disorder (AUD)**
  - 1% if first criteria is negative
  - 20% if only the first criteria is met
  - 50% if both criteria are met

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64

64

Grape or grain, never the twain!

- Does mixing types of alcohol in a certain order worsen hang overs?
- “Neither type nor order of consumed alcoholic beverages significantly affected hangover intensity” (P>0.05)
- What caused worse hang overs for study participants?

Am J Clin Nutr. 2019 Feb 1;109(2):345-352. .

65

Grape or grain, never the twain!

- Does mixing types of alcohol in a certain order worsen hang overs?
- “Neither type nor order of consumed alcoholic beverages significantly affected hangover intensity” (P>0.05)
- What caused worse hang overs for study participants?

How drunk they got

Am J Clin Nutr. 2019 Feb 1;109(2):345-352.

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Case #4 – Preoperative assessment of alcohol use disorder (AUD)

- 55-year-old woman presents for a “preop” for a total knee arthroplasty. Medical history includes osteoarthritis, obesity, and alcohol use disorder. She drinks multiple mixed drinks daily, and often skips meals. She becomes tremulous after 24 hours of abstinence and returns to alcohol use. She does not wish to enter treatment or quit alcohol, but she would “cut back” for the surgery.
- BP 140/90 HR 95 Afebrile RR 12 oxygen 97%
- On exam you detect the odor of alcohol. She has a protuberant abdomen. Otherwise, normal

Question #4 – Preop assessment of alcohol use disorder

What is your preoperative recommendation?

A. Proceed with the surgery

B. Cancel the surgery

C. Initiate naltrexone for alcohol use disorder and proceed with the surgery

D. Check serum liver enzymes

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Q4. What is your preoperative recommendation?

ⓘ Start presenting to display the poll results on this slide.

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Question #4 – Preop assessment of alcohol use disorder

What is your preoperative recommendation?

A. Proceed with the surgery

B. Cancel the surgery

C. Initiate naltrexone for alcohol use disorder and proceed with the surgery

D. Check serum liver enzymes

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Preoperative screening for patients with AUD

- **Screen all patients for AUD preoperatively***
- Assess nutrition and ability to comply with postoperative cares
- Assess the risk of alcohol withdrawal
- Rule out cirrhosis due to its high perioperative mortality
- AUDIT-C score predicts surgical complications
  - Infectious, cardiopulmonary, neurologic and bleeding
  - Modifiable with alcohol cessation 7-30 days prior to surgery

*Multiorganizational consensus to screen patients for SUD preop: Dickerson, Reg Anesth Pain Med 2023;0:1–9

Surg. 2011 Jan;15(1):1-11, Clin Gastroenterol Hepatol. 2020 October 18(11) p2398-2414, J Gen Intern Med. 2011;26(2):162-9.
www.dhcs.ca.gov/services/medi-cal/Documents/tool_auditc.pdf

Alcohol Withdrawal risk:

PAWSS >4 = concern for severe w/d

Also ask:
-Past alcohol withdrawal seizures*
-Past delirium tremens
-Past medical detoxification
-Serious nutritional, medical or psychiatric comorbidities

***Preemptively treatment on POD zero**

Alcohol. 2014 Jun;48(4):375-90

Prediction of Alcohol Withdrawal Severity Scale (PAWSS)

Maldonado et al., 2014

Part A: Threshold Criteria: (1 point either)

1. Have you consumed any amount of alcohol (i.e., been drinking) within the last 30 days?
   OR did the patient have a "+" BAL upon admission? ____
   IF the answer to either is YES, proceed with test:

Part B: Based on patient interview: (1 point each)

2. Have you ever experienced previous episodes of alcohol withdrawal? ____
3. Have you ever experienced alcohol withdrawal seizures? ____
4. Have you ever experienced delirium tremens or DT's? ____
5. Have you ever undergone of alcohol rehabilitation treatment? ____
   (i.e., in-patient or out-patient treatment programs or AA attendance)
6. Have you ever experienced blackouts? ____
7. Have you combined alcohol with other "downers" like benzodiazepines or barbiturates during the last 90 days? ____
8. Have you combined alcohol with any other substance of abuse during the last 90 days? ____

Part C: Based on clinical evidence: (1 point each)

9. Was the patient's blood alcohol level (BAL) on presentation > 200? ____
10. Is there evidence of increased autonomic activity?
    (e.g., HR > 120 bpm, tremor, sweating, agitation, nausea) ____

Total Score:____

Notes: Maximum score = 10. This instrument is intended as a SCREENING TOOL. The greater the number of positive findings, the higher the risk for the development of alcohol withdrawal syndromes. A score of ≥ 4 suggests HIGH RISK for moderate to severe AWS; prophylaxis and/or treatment may be indicated.

Outpatient alcohol use disorder treatment

- Naltrexone 50 mg PO daily, or IM monthly
  - Return to any drinking 0.95 favoring naltrexone over placebo
  - Return to heavy drinking 0.86 favoring naltrexone over placebo
  - Naltrexone blocks opioids completely! (Perioperative)
  - Causes mild nausea, avoid in Childs Pugh C or worse liver failure
- Acamprosate 666 mg TID
  - Return to any drinking 0.88 favoring acamprosate over placebo
  - Use if abstinence is the goal
  - Renal adjustment, monitor for mood changes

J Addict Med. 2022 Nov-Dec 01;16(6):630-638, JAMA. 2023 Nov 7;330(17):1653-1665.

More on meds for AUD

- Gabapentin 400-600 mg TID
  - Outperforms benzodiazepines for outpatient mild alcohol withdrawal
  - Lowers alcohol cravings and drinking
- IM naltrexone
  - Lowers alcohol use and improved quality of life
- Naltrexone, gabapentin, and baclofen
  - Decreased progression of liver disease in patients with AUD
- Thiamine and pneumonia vaccine!

JAMA Netw Open. 2022 May 2;5(5):e2213014, Ann Emerg Med. 2023 Apr;81(4):440-449, *JAMA Intern Med. 2020 May 1;180(5):728-736*

How often are we initiating medications for AUD at the time of hospital discharge?

How often are we initiating medications for AUD at the time of hospital discharge?

- 1.3% of the time
- *NNT 12*
- *Nonwhite patients less often*
- *AUD is frequently the secondary diagnosis*

Ann intern med. 2023;176:1137-1139

Alcohol wrap up

- There is no healthy dose of alcohol
- Lessening alcohol intake reduces disease progression
- Naltrexone, acamprosate and gabapentin help people drink less
- Screen for AUD, cirrhosis and alcohol withdrawal preoperatively

Emerging treatments and harm reduction for people who use methamphetamines

Case #5 – Methamphetamine medications

- A 23-year-old man with severe stimulant use disorder sees you in clinic. He continues to use IV methamphetamines multiple times a week. He is willing to try a treatment to reduce or stop methamphetamines, but he does not wish to go to residential addiction treatment. He has no other medical or psychiatric diagnosis and takes no medication.

Question #5 – Methamphetamine medications

What treatment might help him lower methamphetamine use?

A. An outpatient treatment program in which he gains monetary rewards for methamphetamine abstinence

B. Mirtazapine 30 mg PO at HS

C. Intramuscular naltrexone monthly plus 450 mg bupropion daily

D. Any of the above

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Q5. What treatment might help him lower methamphetamine use?

ⓘ Start presenting to display the poll results on this slide.

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Question #5 – Methamphetamine medications

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B. Mirtazapine 30 mg PO at HS

C. Intramuscular naltrexone monthly plus 450 mg bupropion daily

D. Any of the above

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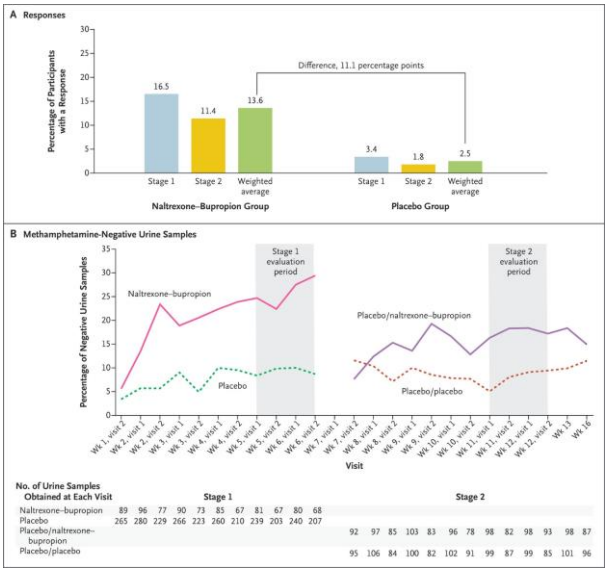
Bupropion and naltrexone for methamphetamine use disorder (MUD)

- Severe MUD treated with 450 mg bupropion daily and IM naltrexone q21 days vs placebo
- 15% of treated patients decreased methamphetamine use



N Engl J Med. 2021 Jan 14;384(2):140-153

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Patients with both OUD & MUD

Methadone or buprenorphine for OUD

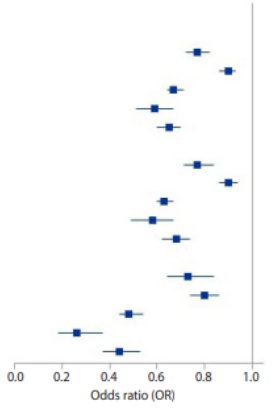
plus

Bupropion for MUD

(*Hold the naltrexone!)*

Figure 2. Odds of Stimulant-Related ED and Hospital Admissions Associated With Medication Treatment Days Compared With Nontreatment Days[a]

Co-occurring SUD	OR (95% CI)	*P* value
Model 1, any stimulant		
Bupropion	0.77 (0.72–0.82)	.0001
SSRI	0.90 (0.86–0.93)	.0001
Buprenorphine	0.67 (0.64–0.71)	.0001
Methadone	0.59 (0.51–0.67)	.0001
Naltrexone PO or ER	0.65 (0.60–0.70)	.0001
Model 2, cocaine-related		
Bupropion	0.77 (0.71–0.84)	.0001
SSRI	0.90 (0.86–0.94)	.0001
Buprenorphine	0.63 (0.60–0.67)	.0001
Methadone	0.58 (0.49–0.67)	.0001
Naltrexone PO or ER	0.68 (0.62–0.74)	.0001
Model 3, amphetamine-related		
Bupropion	0.73 (0.64–0.84)	.0001
SSRI	0.80 (0.74–0.86)	.0001
Buprenorphine	0.48 (0.44–0.54)	.0001
Methadone	0.26 (0.18–0.37)	.0001
Naltrexone PO or ER	0.44 (0.37–0.53)	.0001



J Clinical Psychiatry 83:4 July/august 2022

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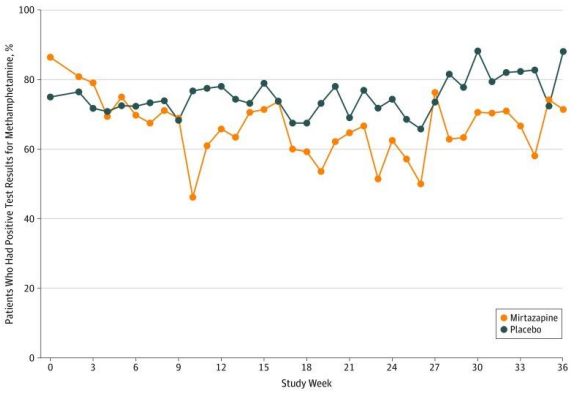
Mirtazapine may lower methamphetamine use

- 30 mg mirtazapine qHS
- Reduction in methamphetamine use RR 0.81
- No effect on retention in treatment or mood symptoms



Drug Alcohol Depend. 2022 Mar 1;232:109295, JAMA Psychiatry. 2020 Mar 1;77(3):246-255.

Contingency Management (CM) therapy doubles rates of methamphetamine abstinence

- Offering $100-$200/week rewards for demonstrated abstinence
- Short term studies, low overall benefit
- Most insurers do not cover it
- Issues with Stark (kick back) law
- California reimburses CM for Medicaid recipients

	Effect	Size of effect	Level of evidence
Screening and brief intervention	No effect	IRR 0·97 (0·77 to 1·22)	B[7]
Motivational enhancement therapy (also known as motivational interviewing)	No effect	RR 1·16 (0·95 to 1·42)	B[7]
Self-help interventions	No effect	Hedges' g 0·13 (−0·05 to 0·31)	A[7]
Self-help interventions involving peers	No effect	OR 0·75 (0·30 to 1·86)	A[18]
Peer-based support groups (12-step programmes, and NA)	Potential decrease	Insufficient evidence	B[4,5]
Cognitive behaviour therapy	No effect	OR 1·17 (0·79 to 1·74)	A[18]
Family interventions, multisystemic therapy	Potential decrease	NE	B[6]
Contingency management	Decrease	OR 2·22 (1·59 to 3·10)	A[18]
Community reinforcement approach	No effect	OR 2·10 (0·67 to 6·59)	A[18]
Acceptance and commitment therapy	No effect	Compared with CBT RR 0·73 (0·26 to 2·07)	B[7]
Meditation-based therapies	No effect	OR 1·37 (0·48 to 3·93)	A[18]
Psychostimulant drugs	Decrease	RR 1·36 (1·05 to 1·77)	A[19]
Dopamine agonists	No effect	OR 1·12 (0·85 to 1·47)†	A[18]
Antidepressants	No effect	OR 1·22 (0·99 to 1·51)†	A[20]
Antipsychotics	No effect	OR 1·30 (0·72 to 2·33)†	A[18]
Therapeutic communities	No effect	RR 1·05 (0·87 to 1·27)†	C[6]
Compulsory drug treatment	No effect	Very low-quality evidence; likely to not be effective†	C[6]
Compulsory drug detention centres	No effect	Very low-quality evidence; likely to not be effective*	C[6]
Other law enforcement interventions (drug courts)	Unclear	OR 1·49 (0·88 to 2·53)‡	D[6]
Criminalisation of drug use	..	..	..

IRR=incidence rate ratio. RR=rate ratio. OR=odds ratio. NA=not applicable. CBT=cognitive behavioural therapy. NE=no pooled quantitathve estimate reported. Level of evidence: A=consistent conclusions across meta-analyses, high-quality systematic reviews, or multiple randomised controlled trials. B=evidence from one or two randomised controlled trials only. C=high-quality systematic reviews with some inconsistent conclusions from authors; or multiple consistent ecological studies, or cohort studies. D=cross-sectional association, case series suggesting outcome, single cohort study. *Evidence from people with substance use problems not necessarily stimulants. †Evidence specifically for cocaine. ‡Evidence specifically for amphetamines.

Table 3: **Summary of the evidence of interventions to reduce stimulant use**

Other services to offer (MUD)

- Offer statins for cardio-protection
- Housing assistance
- Financial management/assistance
- Syringe service programs
- Drug testing strips
- Pre-exposure prophylaxis for HIV
- Screen for (and treat) syphilis, gonorrhea, chlamydia
- Screen for (and treat) hepatitis C
- Contraceptive counselling
- Wound/skin management
- Psychiatric services

Lancet. 2019;394(10209):1652-1667 , Arterioscler Thromb Vasc Biol. 2019 Sep;39(9):1739-1746, NEJM Evid. 2023 Dec;2(12):EVIDra2300160, Drug and Alcohol Dependence, Volume 252, 202

	Amphetamines		Cocaine	
	Effect	Level of evidence	Effect	Level of evidence
Substance use				
Dependence	Increase	B[25]	Increase	B[26]
Non-fatal overdose and poisoning	Increase	C[V]	Increase	C[27]
Mental health				
Depression*	Increase	D[28]	Increase	B[28]
Anxiety	Unclear	D[28]	No effect	B[28]
Psychosis	Increase	E[28]	Increase	C[29]
Violence*	Increase	D[28]	Potential increase†	E[28]
Physical Health				
Stroke and myocardial infarction	Increase	C[30]	Increase	C[31]
Respiratory and lung disease	Increase	C[32]	Increase	C[28]
Skin and soft tissue infection	Increase	B[33]	Increase	B[33]
Bloodborne viruses and sexually transmitted infections				
HIV	Increase	B[32,34,35]	Increase‡	B[28,35]
Hepatitis C virus	Increase§	C[36,37]	Increase	B[28]
Sexually transmitted infections	Unclear	C[8,28–40]	Increase	B[28]
Other harms				
Non-fatal Injury	Increase	B[25]	Potential increase	B[25]
Neonatal outcomes	Increase	B[41]	Increase	B[28]
Parkinson's disease	Increase	C[42]	Unknown	..

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Methamphetamine use disorder wrap up

- Bupropion, mirtazapine and naltrexone lower methamphetamine use
- Contingency management works, but is mostly unavailable
- Offer harm reduction services, screen for STIs

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Summary

- Cannabis worsens cardiovascular health
- Prescribe buprenorphine for OUD
- People with AUD can navigate the perioperative period with your help
- Offer harm reduction and emerging pharmacotherapy to those with MUD

Thank you!

Email questions: charles.reznikoff@hcmed.org

Thank You! Questions?

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Erin Foss
efoss@stratishealth.org

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