

FEBRUARY 2022



STREET DRUGS 101

What to know now for your patients

CLAIRE ZAGORSKI, MSC, LP

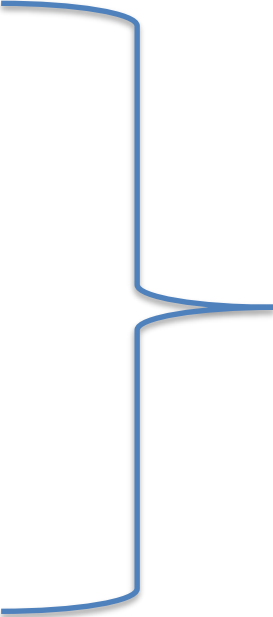
Program Coordinator and Harm Reduction Instructor, The University of Texas at Austin College of Pharmacy PhARM Team

Disclosure

- Funding for this program was made possible (in part) by grant award number 1H79TI081729-01 from SAMHSA. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services or Texas Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. or Texas Government.

Major Types of Non-Clinical Drugs

- Stimulants
 - Cocaine and crack
 - Methamphetamine and amphetamine
 - MDMA
- Opioids
 - Heroin
 - Fentanyl and fentanyls
- Non-opioid depressants
 - Benzodiazepines
 - Barbiturates
 - Alcohol*
- Psychedelics
 - Cannabis*
 - LSD
 - Psilocybin*
 - Mescaline/peyote*
 - Several other novel drugs in this category



While these are the major groups to know, street drugs are seldom pure!*

(*we'll talk more on this later.)

Stimulants 101: The Physiology

- Cocaine/crack, meth, MDMA and amphetamine
- These all work by increasing the amount of available **dopamine and serotonin** at the synapse
 - The **dopaminergic** activity is especially reinforcing
- Perceived Effect
 - **The good:** Confidence, happiness, loss of inhibition, energy, entactogen (MDMA)
 - **The bad:** Bruxism (teeth grinding), hyperthermia, can trigger anxiety/panic and psychosis, esp for patients with prior history thereof
 - **The ugly:** Small risk of serotonin syndrome, especially for people on older antidepressants (tricyclics, MAOIs), **lowers seizure threshold** for folks with seizure history, can **constrict coronary arteries**, especially cocaine/crack → myocardial infarct!

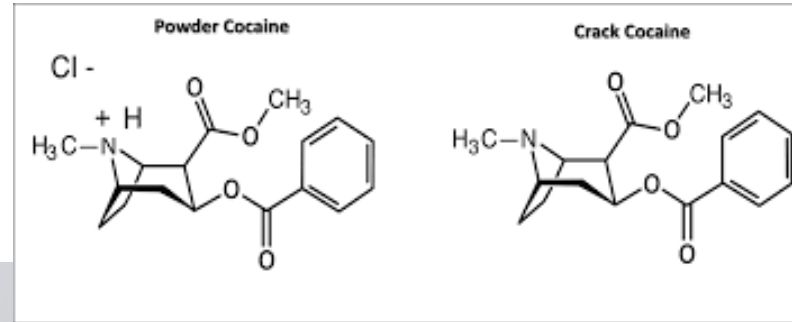


Stimulants 101: The Epidemiology

- **Stimulants in general are ascendant in the drug market**
- Drug use patterns tend to swing like a pendulum
 - Many years of opioid dominance → stimulant dominance
- Cocaine is becoming more popular among college students, young adults as a party drug
 - Still perceived as sexy and glamorous, not much as changed there!
- Crack is on the rise among low-income and unhoused people → current rise in homelessness as housing has become less accessible
- MDMA still **fairly** limited to party and rave scenes
- Illegal amphetamine isn't very common, but **diverted medications for ADHD** are commonly used without provider oversight
- **Meth is experiencing an especially big boom now**

Crack vs. Cocaine

- Crack and cocaine are the same molecule.
 - Cocaine is almost always a hydrochloride salt
 - Polar, dissolves in water, longer-lasting and less intense high
 - Crack is the freebase form of the same molecule
 - Nonpolar, won't dissolve in water, intense and shorter-lasting high



Crack vs. Cocaine

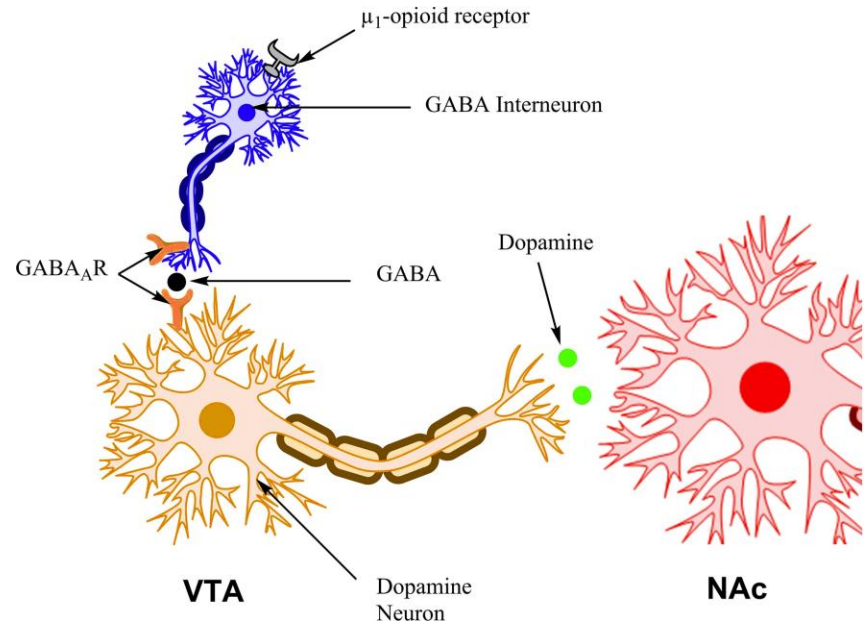
- Up until 2010, the “100-to-1” law criminalized 500 grams of cocaine equivalently to 5 grams of crack
 - President Obama signed a law in 2010 to bring this down to 18-to-1
- There’s no data to back up this sentencing disparity, and it continues to **over-impact Black communities**
 - White people use crack at least as much as Black people, but probably more
- **Consider this social context with your patients!** Understanding these complexities helps us feel greater compassion for our patients.

Stimulants 101: Why?

- We don't often consider the very real reasons why our patients use drugs!
 - *“What do you enjoy about your drug use?”*
- Stimulants, especially cocaine/crack and meth, offer sustained energy and help people stay awake
 - Realities of homelessness and poverty
 - “Balancing out” opioids
- Opioids relieve pain and elevate mood
 - Pain, chronic or acute
 - Depression and/or anxiety
- Thinking of illegal drug use as someone **doing what they can to feel better** in a world with **poor healthcare access** and major **financial inequity** helps to contextualize their drug use and **feel greater compassion** toward them

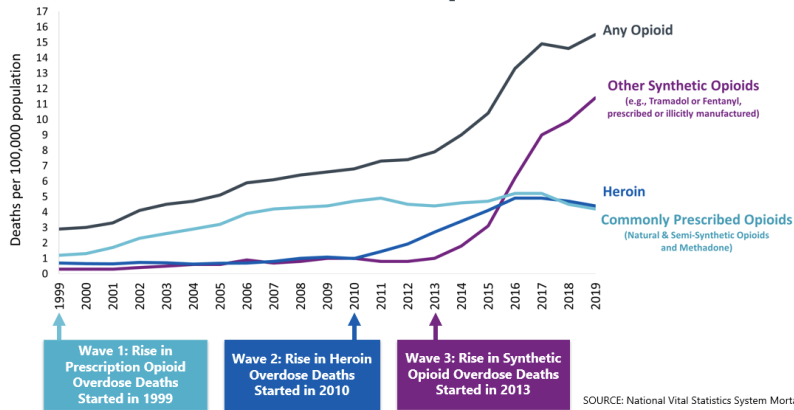
Opioids 101: The Physiology

- Many in the opioid class, but considering illegal use: most often **heroin, fentanyl, and “fentalogues”**
- Opioids work by agonizing opioid receptors (GPCRs) in the CNS, especially mu receptors
- Opioid use is strongly reinforced by GABA-mediated **disinhibition of dopaminergic neurons**
- Perceived Effect
 - The good: analgesia, euphoria
 - The bad: Itchy skin, dry mouth, constipation w chronic use, N/V, reduced LOC, downregulation of endogenous opioid production
 - The ugly: **fatal overdose** d/t severely depressed respirations



Opioids 101: The Epidemiology

Three Waves of the Rise in Opioid Overdose Deaths



- Opioids are the dominant illegal drug of concern today
- In 2020, over **100,000 Americans** died of an opioid overdose
 - COVID-era changes drove this, but deaths have been climbing since before 2000
- A common narrative focuses on prescribed opioids, but in reality, **the contaminated street drug supply is driving deaths**
- Heroin is disappearing from the drug supply outside of the Southwest and being replaced with **fentanyl and other synthetic opioids**

Opioids 101: Why?

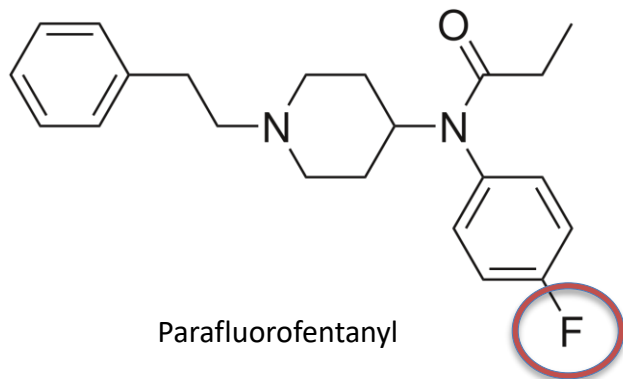
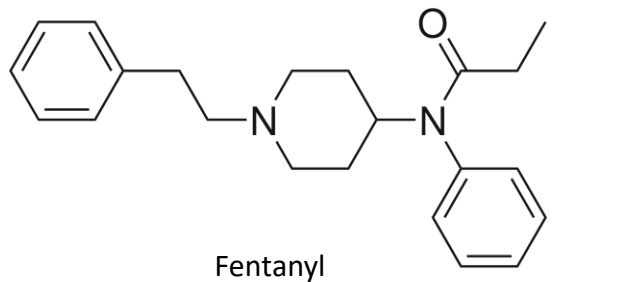
- While a boom in opioid prescribing around year 2000 seems to have accelerated opioid deaths, we are now past this – **synthetic illegal opioids are now the problem**
- Many theories as to why (it's definitely multi-causal), but there is strong correlation between opioid misuse and a **history of childhood abuse and neglect**
 - **Healthcare inaccessibility** also contributes generally to self-treatment
 - **Medical trauma** experiences and **social stigma** further isolate patients and reinforce disordered drug use
 - **Rejecting stigma in your practice is an investment in good patient outcomes**

Fentanyl and fentanyl analogues

- Fentanyl is a synthetic opioid
 - “synthetic”: we made it in a lab, not naturally derived
 - Developed in the 1950s by Janssen
- It’s a WHO Essential Medicine!
 - NOT a poison
- Excellent pain reliever with a short half-life
- Commonly used in hospitals, in surgery, on ambulances, and for patients with chronic pain
- **There are no “bad drugs”.** But some drugs are problematic in the wrong **context**.



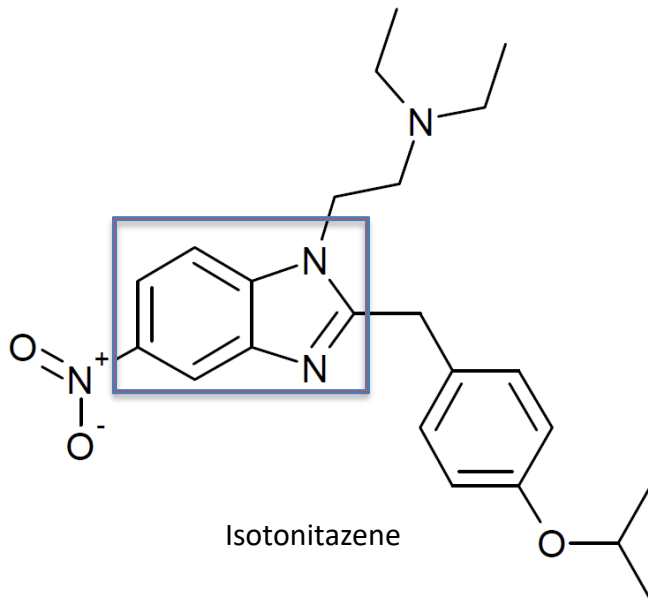
Fentanyl and fentanyl analogues



- Fentanyl analogues, or “fentalogues”, are new drugs built from fentanyl as a starting point
- They usually have a modification to **increase potency**
- There are dozens of potential ways to make a new drug from fentanyl
- The fentanyl appearing in the illegal drug supply is being made by drug sellers, so it’s often **contaminated** and made **without quality control**

Benzimidazoles (aka “nitazenes”)

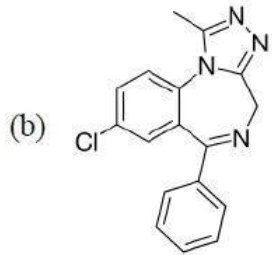
- Examples include isotonitazene and metonitazene
- Made by Janssen in the 1950s
 - But unlike fentanyl, Janssen declined to pursue these drugs commercially
- The benzimidazole allows these drugs to communicate with many different cell types in our body, so there’s a lot about them we don’t know yet
- They “act” and feel very much **like fentanyl** – similar potency and efficacy, and they bind to the same receptor types.



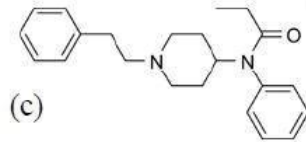
Depressants 101

- Barbiturates are not currently common as street drugs
 - Seldom prescribed
 - Their effect can be approximated with other substances
- **Benzos appear in the opioid drug supply regularly**
 - Flualprazolam and etizolam are the most common
 - Mixed in with fentanyl
 - Some concern for **benzo withdrawal** among people who use street fentanyl!
 - Two studies underway looking at this more closely
 - This is intentional – adds to and sustains the “down” effect of fentanyl, stretches profits for sellers
- Benzos + opioids mixed in the drug supply **raises significant overdose risk** – benzos are not detected by fentanyl test strips and won’t respond to naloxone

Novel Benzodiazepines



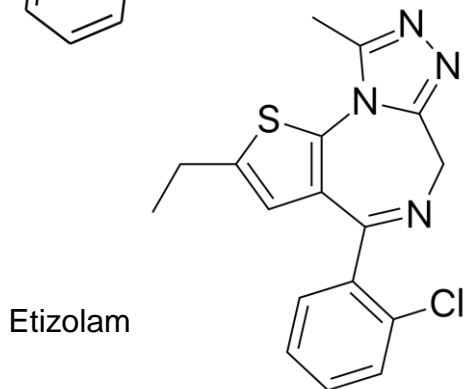
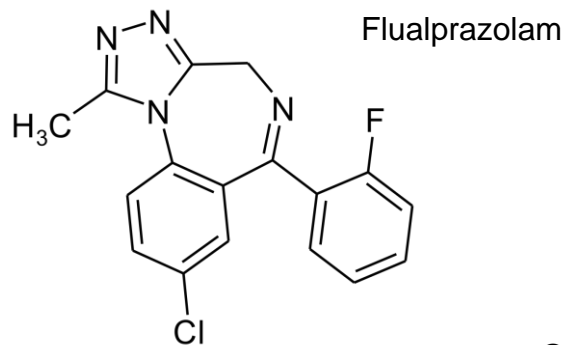
Alprazolam



Fentanyl

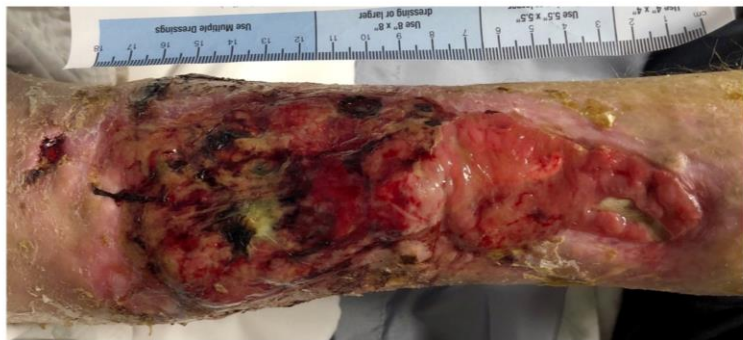
- Benzodiazepines (“benzos”) are used frequently for anxiety, insomnia, and seizure
- These drugs are safe and effective when used correctly under a prescriber’s supervision
 - Ex. Xanax (alprazolam), Valium (diazepam), and Ativan (lorazepam)
- They’re **sedating**, so are especially dangerous when combined with **opioids and/or alcohol**
 - Easier to lose consciousness, easier to choke on vomit, slower and more shallow breathing
- In the illegal drug supply, we see both novel benzos being added to the heroin supply, and **non-benzos being sold as prescribed benzos**

Novel Benzodiazepines



- The major benzos in the drug supply are **flualprazolam** and **etizolam**
 - Flualprazolam was first made in 1976, but never marketed commercially
 - Based on alprazolam, or Xanax
 - Even better than Xanax at getting into the brain → stronger effect
 - Etizolam was made for commercial use in the 1980s, but is very uncommonly prescribed because it's **difficult to use safely** - very high potency

Xylazine (aka tranq dope)



- Xylazine is a recent addition to the illegal drug supply
- It's an alpha-2 agonist, and so “talks” to the receptors in our body that control **fight-or-flight response**
- It's only approved for use as an anesthetic in animals
- It's appearing in what is sold as heroin, especially in the Northeast
 - Philadelphia seems to be the epicenter in the continental US
- Causes **profound sedation**, low blood pressure, changes in blood sugar, anemia, and appears to cause **severe necrotic ulcers in the skin**
 - The mechanism of this isn't known and research is underway to learn more

Xylazine (aka tranq dope)

- Xylazine is not being made by drug sellers, but **diverted from veterinary suppliers**
- Qualitative reports describe xylazine as “**giving fentanyl legs**” – fentanyl is very short acting, so xylazine may be used to help extend the overall effect
- However, many dislike it – it causes **very profound sedation** to the point that people may be unable to move, lose control of their bowels and bladder, and are **at risk of being assaulted or robbed** (especially if they live outdoors)
- Time will tell if it becomes a mainstay, but it’s been reported in the US drug supply for several months now

Pressed Pills 101

- Pills are frequently available from drug sellers, and are typically marketed as an **opioid or benzo** that has been **diverted**
 - But they're usually homemade and contain a mix of ingredients
 - We should assume the worst of any pill that we don't **know** came from a pharmacy
 - Some can look **very convincing!**
 - Pill presses are even available on Amazon



LIZIWEI 6mm/8mm/10mm/12mm Hand Tablet Press Machine, Stainless Steel Pill Press Machine, Sugar Slice Pill DIY Making Tool, Milk Tablet Molding Machine for Home Kitchen

Brand: LIZIWEI

★★★★☆ 1 rating

\$65¹⁰

Size: 10mm

10mm	6mm	12mm
\$65.10	\$65.10	\$65.10

- **Stainless steel tablet press:** The body is made of high-quality 304 food grade stainless steel. Excellent performance, strong adaptability, handmade anytime and anywhere.
- **Durable and strong:** It is made of sturdy materials. When the powder is compressed, the impact force of the hammer is more easily formed. The effect is good, the speed is fast, and it is convenient.
- **Simple operation:** Small size and light weight, easy to carry, manual operation can be compressed into round, hollow or shaped pills.

\$65¹⁰

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Add to List

Pressed Pills 101

'Operation Spyder Web': Current, former UT students arrested in drug trafficking operation

All arrested are charged with conspiracy to distribute a controlled substance. Some of those arrested are also charged with money laundering.

- Sometimes pressed pills are meant to be swallowed, but it's more common that they're broken down and **injected**
 - So a pill contaminated with fentanyl or similar can become deadly (wouldn't be if taken orally)
 - Pills seem to be used more by people who would otherwise reject the use of heroin
 - Research is underway to explore this connection
 - Pills are usually meant to approximate the effect of the advertised drug
 - E.g., meth dyed blue, pressed and sold as Adderall
 - Testing pills saves lives – coach your patients!

Psychedelics 101

- With the exception of LSD, psychedelics are **low-risk** for contamination-driven overdose (i.e., fentanyl contamination)
- No confirmed reports of fentanyl-contaminated cannabis or psilocybin
- LSD blotters can be used to administer **novel psychoactive substances** with unpredictable effect
 - Most common in rave and party scenes



Cannabis Adulteration

NEWS

Dozens of CT overdoses were falsely linked to fentanyl-laced marijuana, official says



Ginny Monk

Feb. 1, 2022 | Updated: Feb. 1, 2022 4:19 p.m.

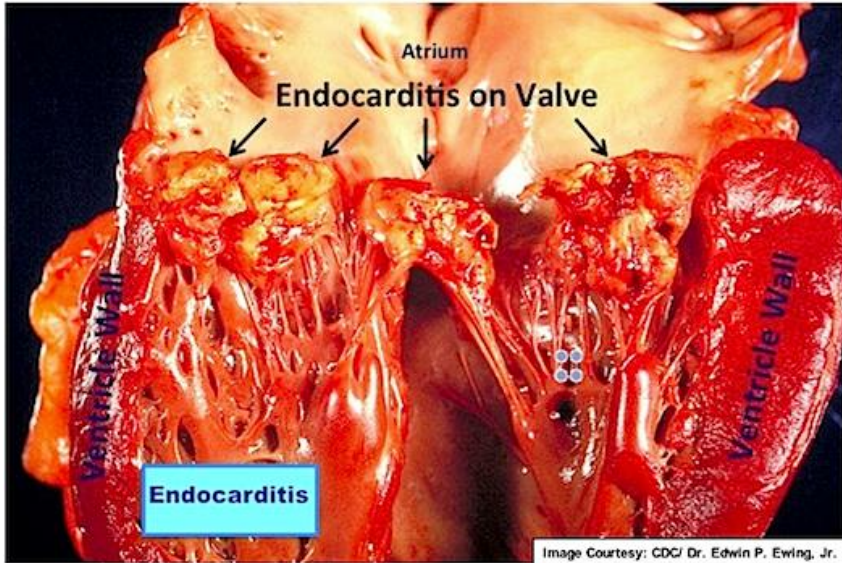


- There are many local news reports of cannabis flower contaminated with (usually) fentanyl
- **This has likely never happened**, and there are good reasons for that...

Cannabis Adulteration

- The Science
 - The ways in which cannabis is consumed are **incompatible with fentanyl use**
 - Cannabis vapes don't get hot enough to vaporize fentanyl
 - Given the ubiquity of cannabis, we would be seeing lots of reports if this was a common practice
- The Economics
 - Fentanyl is more expensive than cannabis and has a different effect on the consumer
 - Secretly adding fentanyl to cannabis wouldn't make sense to the consumer and would be a financial loss to the seller
 - There is precedent for drug sellers adding things to cannabis (e.g. hash oil), but this is openly advertised by the seller
 - Fentanyl panic is also so widespread that fentanyl-treated cannabis would certainly scare consumers off
- *What's happening then?*
 - Some limited cross-contamination during packaging is very possible, but we have no evidence that sellers are intentionally treating cannabis with fentanyl or similar drugs
- You can read more at <https://filtermag.org/fentanyl-marijuana-myth/>

Emerging Drug-Related Harms



- It's not just overdose!
- **What can healthcare providers do to help patients stay healthy?**
- There are simple, evidence-based techniques to help patients use drugs more safely and avoid harms related to drug use
- Let's explore **harm reduction!**

Injection Harms

- Heroin, meth, and cocaine can all be injected IV, IM, or SQ
 - IM is called “muscling”
 - SQ is called “skin popping”
- Many patients cannot access **clean syringes**
- Many patients cannot access **housing**
- Dirty syringes + unclean surroundings + infrequent bathing = **skin and soft tissue infection**
- What you can do
 - **Don’t judge! Nothing turns a patient off faster.**
 - If a syringe exchange (aka syringe access program) is available locally, connect patients
 - Prescribe syringes + sharps container
 - **Coach patients** on good sterile injection technique
 - Give out skin preps, bathing wipes, wound care supplies
 - While sterile skin prep technique is best, **even a good soap and water scrub makes a big difference!** (think of hand washing!)

Injection Harms

ACCEPTED MANUSCRIPT

Long-term infective endocarditis mortality associated with injection opioid use in the United States: a modeling study.

Joshua A Barocas, MD ✉, Golnaz Eftekhari Yazdi, MSc, Alexandra Savinkina, MSPH, Shayla Nolen, MPH, Caroline Savitzky, MSW, Jeffrey H Samet, MD, MA, MPH, Honora Englander, MD, Benjamin P Linas, MD, MPH

Clinical Infectious Diseases, ciaa1346, <https://doi.org/10.1093/cid/ciaa1346>

Published: 09 September 2020 **Article history** ▼

- Infective endocarditis is a common issue for people who inject drugs
 - Especially common on the right side
- A computer model at HMS predicted that by 2030, **one in five people who inject drugs are predicted to die** from infective endocarditis
- What you can do:
 - Coach patients on the s/sx of endocarditis
 - Encourage the use of syringe filters
 - Sterifilts
 - Wheel filters
 - Advocate for your patient with CT surgery
 - Encourage MOUD and get x-waivered!

Smoking and Snorting Harms

- Crack, meth, and heroin/fentanyl can be smoked
 - Fun fact: It's actually vaping, but only called "smoking"
- The most common drug to be snorted is cocaine
- Stimulants in general tend to cause **dry mouth** and associated **dental decay**
- Heat from glass pipes can **burn and crack lips**
- Snorting drugs irritates the nasal mucosa and can cause infections and epistaxis
- What you can do:
 - Prioritize stimulant smokers for accessible dental care programs
 - Coach patients on good oral hygiene and drinking lots of water throughout the day
 - Give our safer smoking and snorting kits
 - Give out sugar free hard candy and gum to encourage salivary flow
 - Give out lip balm/petroleum jelly for lip care
 - Encourage people who snort to not share snorting straws



General Overdose Prevention



- **Naloxone** should be everywhere!
 - Consider prescribing to patients with drug use history
- Since you can't self-administer naloxone when overdosing, make sure patients teach their friends/family/roommates how to use it
- It's key to never use drugs alone! The **Never Use Alone** hotline is **1-800-484-3731**
- **Fentanyl test strips** are helpful at identifying fentanyl-contaminated drugs (most useful for non-opioid users)
- Discuss **MOUD** with patients to help them avoid the unsafe drug supply

Thank You!

Claire Zagorski, MSc, LP

claire.zagorski@austin.utexas.edu

[@clairzagorski](https://twitter.com/clairzagorski)

