


In-person
March 13-16, 2024




Virtual
May - July 31, 2024

45th National Conference on Pediatric Health Care

It's not just experimenting anymore: The landscape of substance use in youth

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Experts in pediatrics, Advocates for children. 1


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Speaker Disclosure

I have no conflicts to disclose

The presence of a grandparent confirms that parents were, indeed, little once, too, and that people who are little can grow to be big, can become parents, and one day even have grandchildren of their own. So often we think of grandparents as belonging to the past; but in this important way, grandparents, for young children, belong to the future.
Fred Rogers





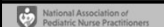
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Learning Objectives

1. Apply the epidemiology of substance use in youth to predict the percentage of your patients who are using
2. State
 - a) The substances youth most commonly use
 - b) How they obtain and ingest them
 - c) The associated effects of each
3. Engage in effective conversations with youth about their substance use



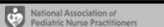
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Abbreviations/Definitions Key

- AOD = Alcohol or Other Drugs
- SUD = Substance Use Disorder
- AUD = Alcohol Use Disorder
- CUD = Cannabis Use Disorder
- OUD = Opioid Use Disorder
- Current use = Use in the last 30 d
- Regular Use = using 20/30 days in the past month



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Substance use disorders: A continuum



Mild: 2-3 symptoms
 Moderate: 4-5 symptoms
 Severe: 6 or more symptoms

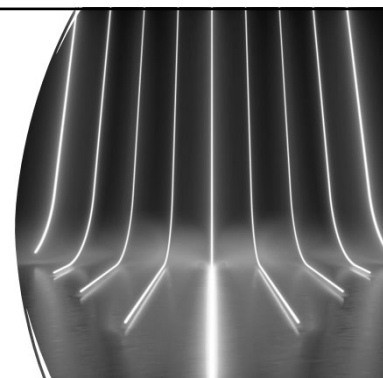
- A problematic pattern of substance use
- Increasing amounts
- Unable to control use
- Time spent
- Cravings
- Missed obligations
- Reducing usual activities
- Social & physical consequences
- Use in hazardous situations
- Tolerance*
- Withdrawal*

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The Scope

Substance Use in Youth

- Youth Risk Behavior Surveillance System (CDC)
- Monitoring the Future (Univ of Michigan)



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Most youth do not use substances!

69% of High School seniors abstain!

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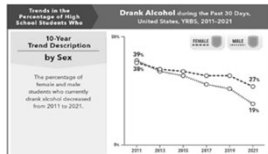
Use of AODs has been trending down

The Percentage of High School Students Who:*	2011 Total	2013 Total	2015 Total	2017 Total	2019 Total	2021 Total	Trend
Currently drank alcohol	39	35	33	30	29	23	↓
Currently used marijuana	23	23	22	20	22	16	↓
Currently used an electronic vapor product [†]	–	–	24	13	33	18	↓
Ever used select illicit drugs	19	16	13	13	13	13	↓
Ever misused prescription opioids [‡]	–	–	–	14	14	12	↓
Currently misused prescription opioids [‡]	–	–	–	–	7	6	↓

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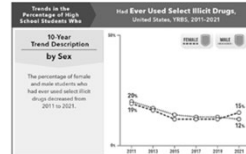
Youth Risk Behavior Survey trends 2011-2021

Currently Use Alcohol



2021 Total = 23%

Ever Used Select Illicit Drugs



2021 Total = 13%



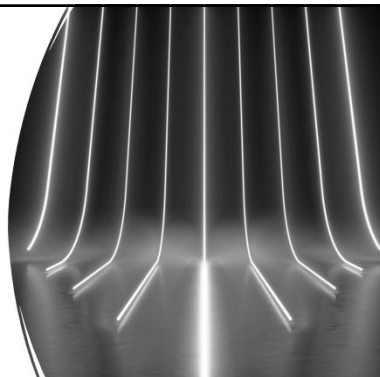
Drug overdoses & poisonings
Now ranked the 3rd leading
cause of death
2 Firearms
1 Moving Vehicle Accidents

Percent rise in OD deaths

Between 2019-2020: ↑ 94%
Between 2020-2021: ↑ 20.05%

2010: 518 deaths (2.4/100,000)
2019: 492 deaths (2.36/100,000)
2020: 954 deaths (4.57/100,000)
2021: 1146 deaths (5.49/100,000)
2022: 22 deaths per week!

Why youth use



Reasons for using

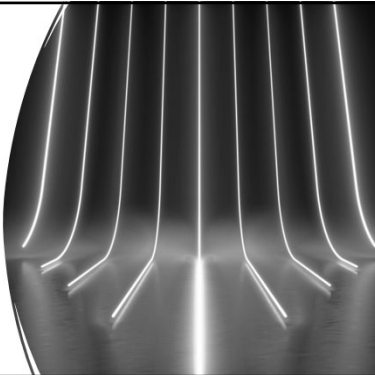
- To manage stress 73%
- To experiment or have fun 51%
- To forget about worries 44%
- For sleep 44%
- To reduce boredom 41%
- Help anxiety or depression 40%
- Improve concentration 20%

Who they use with

- Friend(s) 81%
- Alone 50%
- Anyone who has AOD 23%
- Girlfriend or Boyfriend 24%
- Sibling 13%
- Adult relative 9%
- Parent 9%

Substances


- What they use
- How they use them
- How they obtain them
- Associated effects
- Prevention



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What substances do youth use?

Most Common	Others
• Alcohol	• Illicit Rx pills <ul style="list-style-type: none">• Opioids• Benzodiazepines• Stimulants
• Marijuana	• Hallucinogens
• Nicotine	• Stimulants (cocaine, meth)



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CDC, YRBSj-Q023

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Smoking & Vaping




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Quiz

Youth who vape are less likely to become addicted than if they smoke cigarettes.

- True
- False

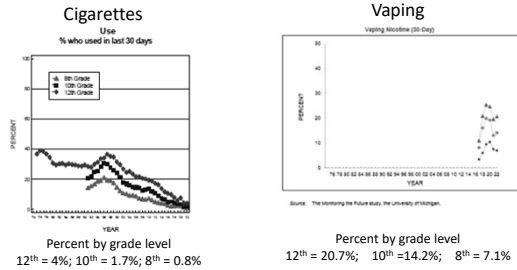


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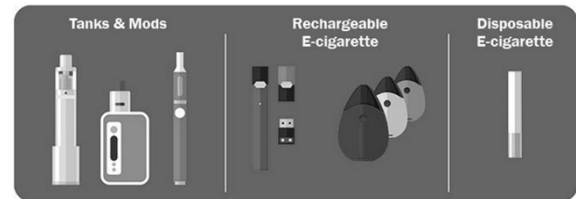
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Nicotine Prevalence



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Vaping (most common since 2014)



The aerosol from vaping is NOT harmless. 2nd hand exposure is harmful

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Nicotine Health Effects

- Nicotine disrupts development of brain areas that control impulse control, attention, learning, and mood
- The most common reason for youth *trying* vaping nicotine is “a friend used them.” The most common reason for *continuing to use* is “feeling stressed, anxious or depressed”
- Nicotine withdrawal symptoms (anxiety, irritability, restlessness, poor sleep, and cravings) cause youth to return to use
- 89.4% of youth who vape use flavored products
- Among students who had ever vaped nicotine, 46.3% reported current use.
- Increased risk for lifelong nicotine addiction and subsequent health problems (9/10 adults addicted to tobacco began use as a teen)

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Prevention and Treatment

Parents

- Model a smoke free life
- Talk to your kids about smoking
- Set rules for a smoke free home
- [Talk with your Teen about E-cigarettes](#)
- If they smoke visit PCP to request help
- [AAPs practice statement on nicotine replacement therapy](#)

Public Health

- FDA regulates manufacture, marketing & sale of e-cigarettes
- No authority to include in smoke-free policies or limit sale to minors. States can do that
- [CDC has multiple resources](#)

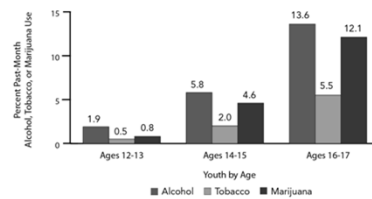
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Alcohol

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Alcohol is the most widely used substance

More adolescents use alcohol than tobacco or marijuana



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Underage Drinking



CDC, 2023; Image by Florian Dre Creative Commons

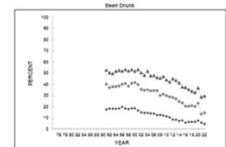
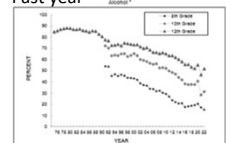
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Trends in drinking

Drinking has declined but

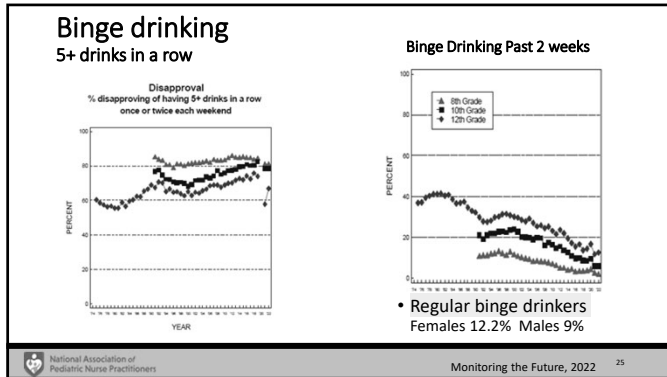
- Drank in past year: 61.6% (12th graders) (2022)
- Been Drunk 26.7% (12th graders) (2022)
- Regular drinkers 6%, 14%, & 28% (8th, 10th, 12 graders) (2022)

Past year

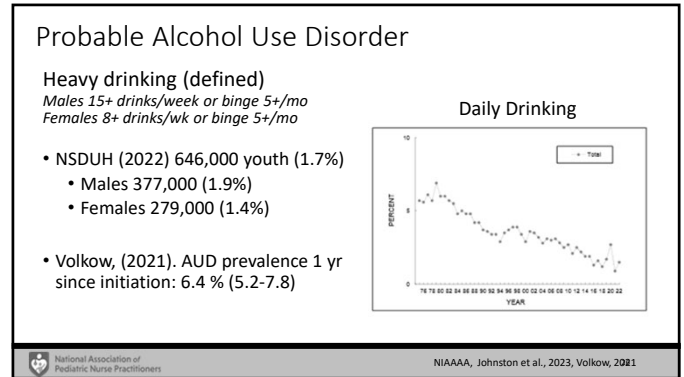


Monitoring the Future, 2023 24

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Reasons for drinking

- Unlike drug use, moderate drinking is considered acceptable in society.
- Alcohol is a prominent part of many cultures and in some cultures considered a right of passage.
- Parental implicit approval of drinking is a contributor to underage drinking

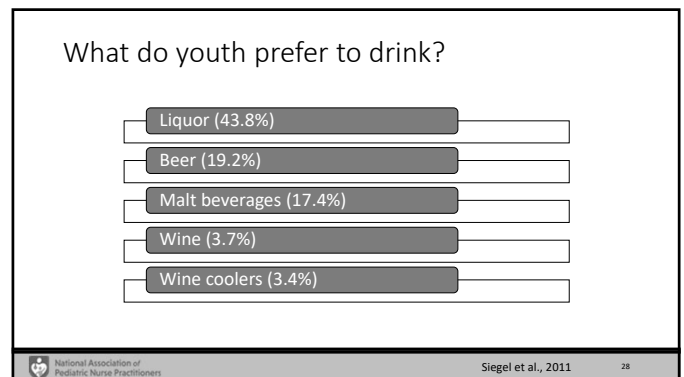
Reason's youth give

- To feel grown up
- To feel better or less socially awkward
- "Makes me happy!" "Makes me feel normal"
- Peer activity
- "How can you have fun without drinking?"

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CDC, 2022; Seigel, et al., 2011 27

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Where do they access alcohol?

72% of youth say they don't pay for their alcohol

- Parents or family members (1 in 4 parents)
- Parties at friends' homes (1 in 12)
- Parents' fridge or liquor cabinets (2/3 say easy to get)
- "Social hosting" after prom, or other big events

Adverse Effects

- Disrupts development of brain areas that control impulse control, attention, learning, and mood
- School problems
- Legal problems
- Violence (physical and sexual)
- Unwanted, unplanned, unprotected sexual activity
- Falls, burns, drowning, alcohol poisonings (190 deaths)
- MVA's (> 1570 deaths)
- Suicides (718 deaths)
- Homicides (1121 deaths)
- Earlier age initiation → increased risk addiction

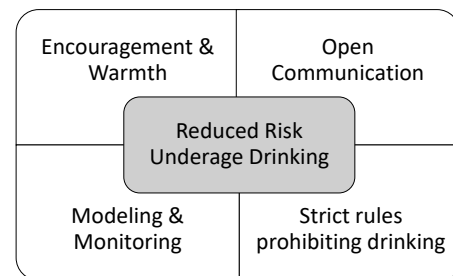
Parenting to Prevent Underage Drinking

Quiz:

Which of the following parent behaviors reduce the risk of alcohol-related problems in youth?

1. Allow teens to drink under parental supervision to help them develop an appropriate relationship with alcohol
2. Enforce strict rules forbidding underage drinking

Parenting to Prevent Underage Drinking



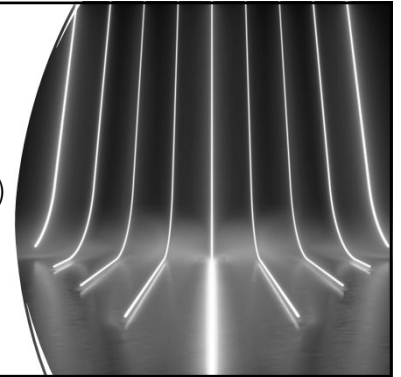
Public Health measures to prevent/reduce drinking

- Regulating the number & concentration of alcohol outlets
- Increasing alcohol taxes
- Youth focused media campaigns
- Laws holding commercial hosts liable
- Enforcing laws prohibiting sales to minors
- Screening in primary care



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Marijuana (Cannabis)



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Quiz Fact or myth?

1. Marijuana is not as addictive as other drugs
 - Fact
 - Myth

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Cannabis plant (> 100 compounds "cannabinols")



- Tetrahydrocannabinol (THC)
psychogenic (euphoria or high)
- Cannabidiol (CBD)
non-psychogenic (protective)
- Potency related to
 - THC concentration
 - THC/CBD ratio
 - Route of ingestion

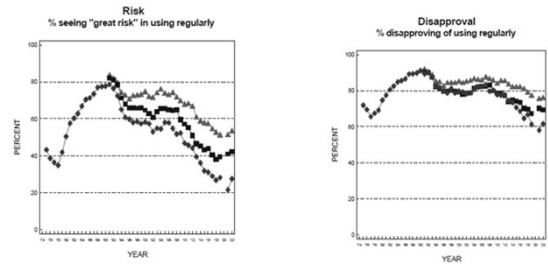
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Marijuana use is trending down

- Use in the past year 19.4% (↓ from 24.6% in 2019)
- Regular use (2022) 12.3% (↓ from 15.6% in 2019)
- Daily use (2022) 3.2% (↓ from 4.1% in 2019)

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Perceived Risk & Disapproval Regular Use

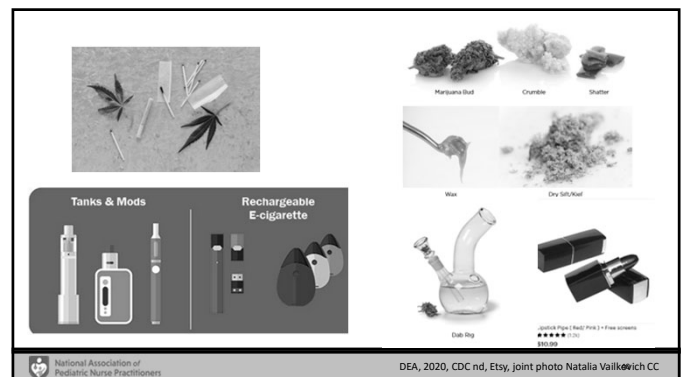


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How cannabis is consumed

- | | |
|-----------|--|
| Smoking | • Combustion/burning |
| Vaping | • Heating plant or concentrate without combustion |
| Dabbing | • Heating THC concentrate or extracts through a glass "dab rig" or vape device |
| Ingestion | • Edibles or drinkables |

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Ingested

Delayed unpredictable onset

- Increased toxicity
- Poisonings in children



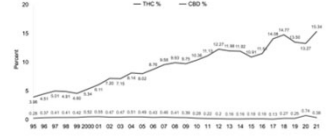
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Cannabis is Addictive



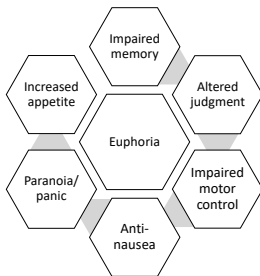
Cannabis use disorder is the primary reason for treatment admissions among adolescents

Percentage of THC and CBD in Cannabis Samples Seized by the DEA, 1995-2021



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Marijuana's impact on the brain



Substantial Evidence:

- Early initiation of use associated with structural brain alterations
- Cannabis use associated with development of psychosis

Moderate Evidence:

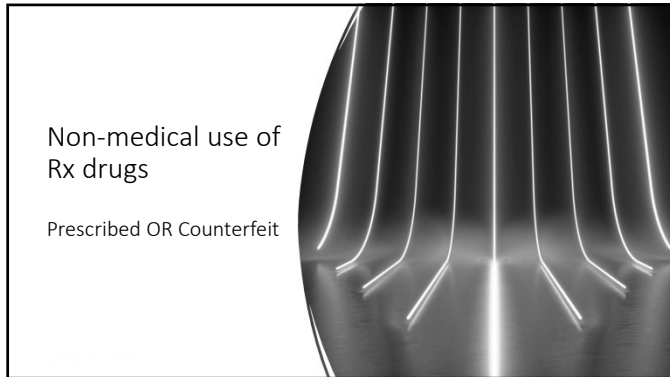
- Early initiation of use associated with developing CUD
- ↑ suicide ideation, attempts & completion
- ↑ incidence social anxiety disorder
- Small ↑ risk developing depression

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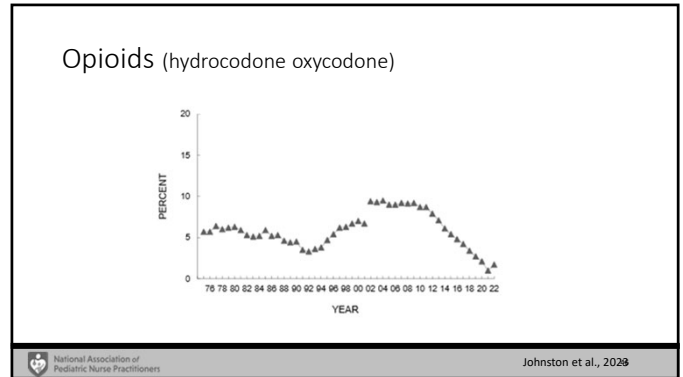
Adverse Effects

- Permanent effects on developing brain (*especially regular prolonged use*)
- Risk for severe CUD if start ages 12-20 and use regularly for
 - < 12 m = 6.6%
 - 12-23 m = 14.6%
 - 24-36 m = 16.8%
 - 36+ m = 20.1%
- Overdose (nausea, vomiting, extreme anxiety, paranoia, short-term psychosis)
- Injury or death from MVA. Impaired driving skills (reaction time, coordination, concentration) lasts after the euphoria is gone
- Cannabinoid hyperemesis syndrome: cyclical vomiting, nausea, abdominal pain relieved by hot showers. The only cure is cannabis cessation

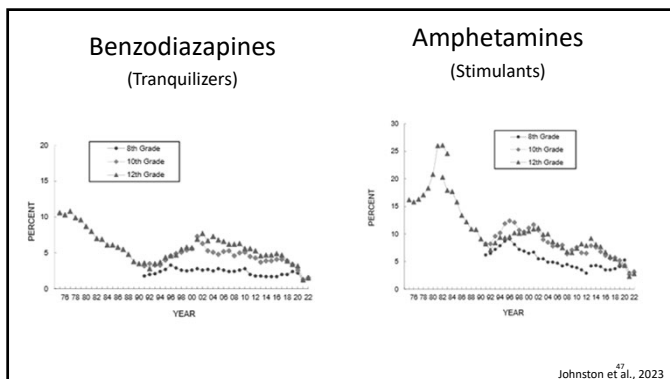
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Why teens misuse Rx drugs

- Curiosity
- To get high
- To feel better ("helps my anxiety"; "makes me happy")
- Improve school performance or stay alert
- Gender differences
 - Boys may use Rx stimulants to get high
 - Girls to lose weight or stay alert
- Perception that Rx drugs "safer" has changed since 2019

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Counterfeit Rx pills

- Counterfeit Rx trafficking the fastest growing criminal enterprise
- An international crisis. Not just drugs of abuse
- Mass produced in illicit labs with poor quality control
- In 2023 DEA seized > 78.4 million fentanyl-laced pills and > 30,000 lb. fentanyl powder
- Newer contaminants like Xylazine



Blakely, 2022; DEA.gov; Ofori-Parku, 2022; Image: DEA One Pill flickr, 2021

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Counterfeit Rx pills



Oxycontin M 30s
Top Authentic 30 mg
Bottom Counterfeit
contain fentanyl)



Adderall
Top Authentic 20 mg
Bottom Counterfeit
contain methamphetamine



Alprazolam (Xanax)
Left Authentic (2 mg)
Right Counterfeit
Contain fentanyl or combo of
chemicals or illicit analogs)

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DEA, 2021 50

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How they use and where they get them

Where obtained

- Family & friends
- In school
 - Other students
 - Drug dealers
- Social media sites
- Small, non-chain pharmacies on the border
- The dark web

How they use

- Swallowed
 - Often in combo with other AODs
- Crushed and snorted
- Crushed and smoked
- Crushed and injected

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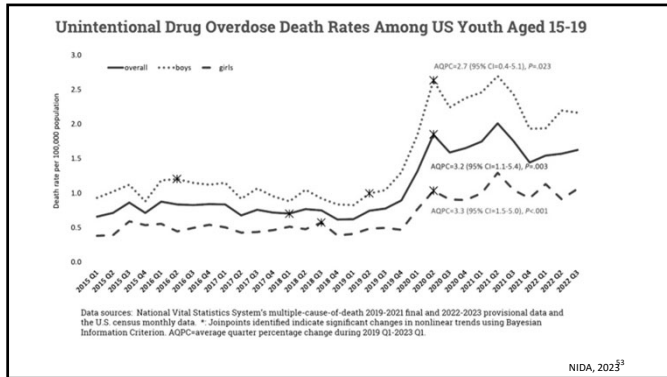
Adverse effects

- Disrupts development of brain areas that control impulse control, attention, learning, and mood
- Unintentional overdose deaths (fentanyl ~75% and other synthetic opioid and benzodiazepine analogs)
- Addiction
- Withdrawal
- MVA crashes
- Drug-specific adverse effects
 - Respiratory depression
 - Constipation
 - Brady or tachycardia
 - Hypo or hypertension
 - Hyperthermia
 - Panic, paranoia

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DEA, nd; Friedman, et al., 2022; Friedman and Hadland; 2024

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Reaching youth

- Be humble and respectful
- Lectures always backfire!
- Listen
 - Give them your full attention
 - Reflect what you hear
- Recognize their strengths
 - They are the experts on their own lives
 - Elicit their hopes and aspirations
- Ask permission to give talk about their use

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Ginsberg & Kinsman, 2014 55

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Effective Conversation 1 Jacob Alcohol

- **Youtube Video:** Here is the embed code for video 1 Jacob
<https://youtu.be/GvaOXREcCHI?si=thXRr4Z-jzIT7pGV9>

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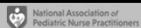
SBIRT Oregon: Jacob <https://www.youtube.com/watch?v=GvaOXREcCHI>

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Effective Conversation 2 Natasha Marijuana

- Youtube Video:
- Here is the embed code for video 2 Natalia
<https://youtu.be/zPomDCFwjs?si=KM3oKfKMWSO6HuJqR>

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<https://www.youtube.com/watch?v=zPomDCFwjs> SBIRT Oregon on YouTube

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