

Preventing Overdoses in Adolescents: Clinical and Public Health Approaches

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National Center for Injury Prevention and Control
Centers for Disease Control and Prevention

University of Arizona
Pediatric Grand Rounds
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Objectives

At the conclusion of the presentation, participants should be able to:

1. Understand the scope and driving forces of drug overdose deaths among adolescents in the United States.
2. Describe public health approaches to reduce overdose deaths in the community.
3. Describe elements of screening, treatment and harm reduction that clinicians can implement to reduce the risk of overdose for your patients.

Agenda



Overdose Epidemiology



Youth Substance Use
and Overdose



Public Health Approaches

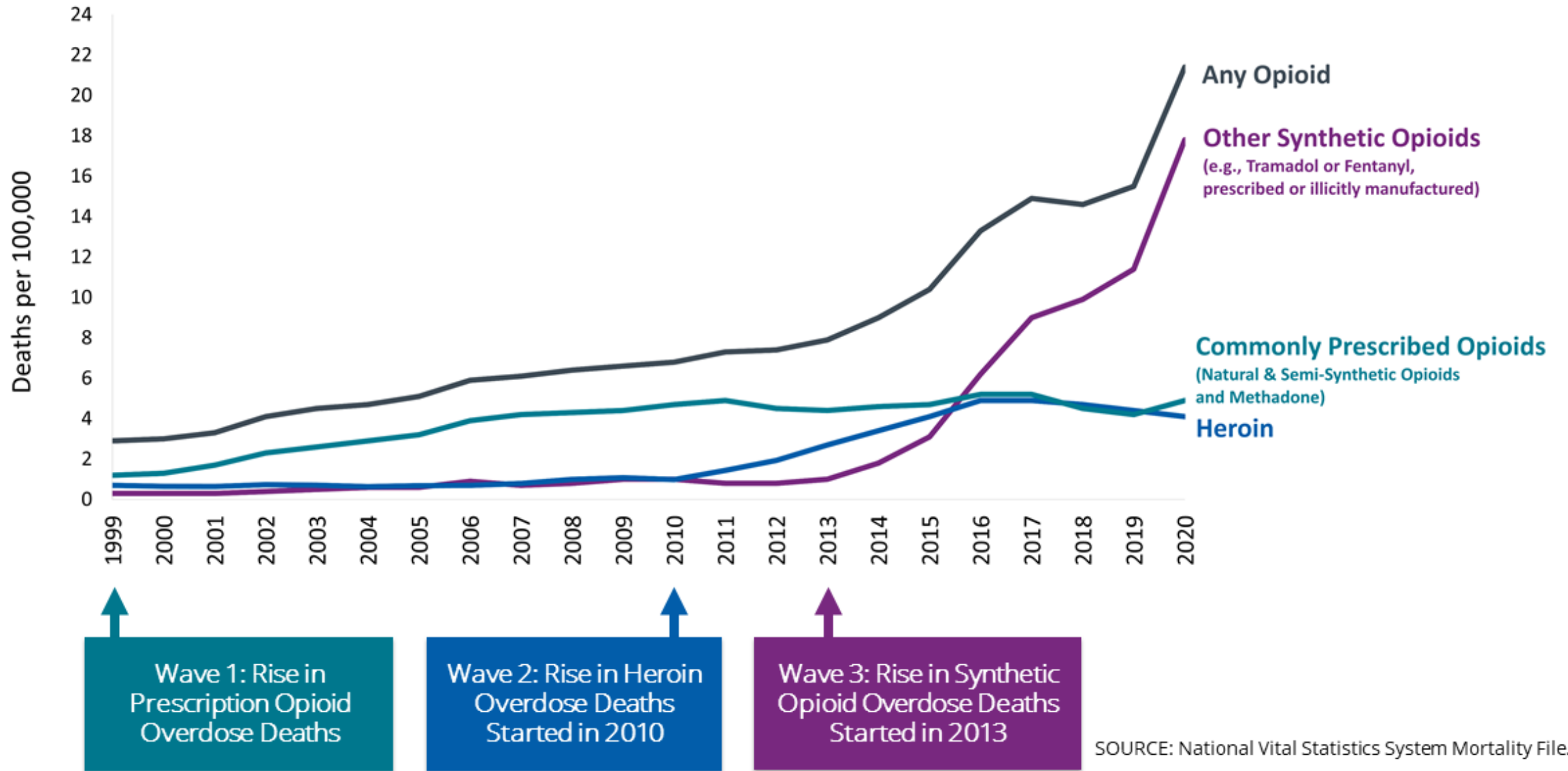


Overdose Prevention in
Clinical Practices

Overdose Epidemiology

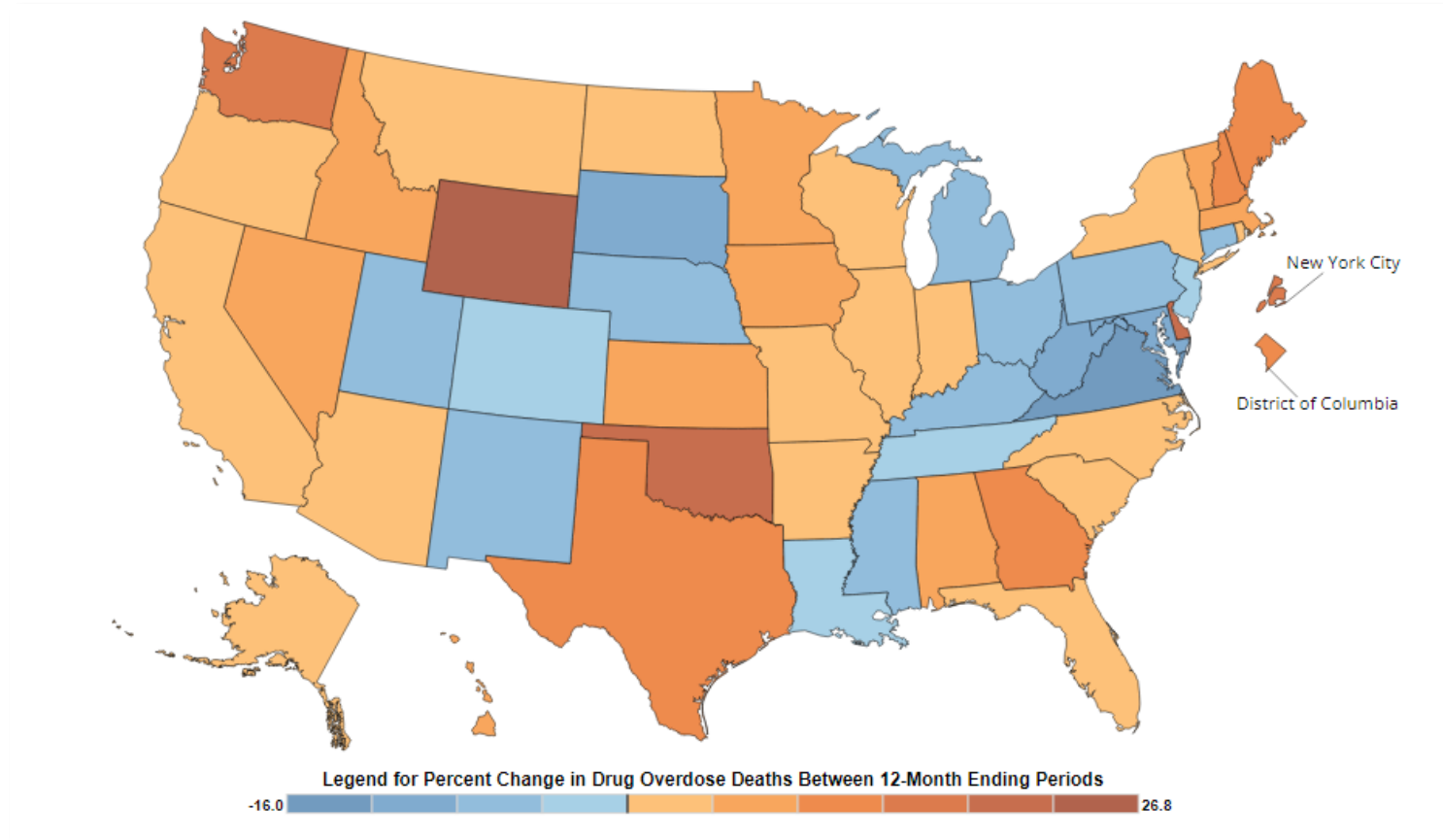


Three Waves of Opioid Overdose Deaths



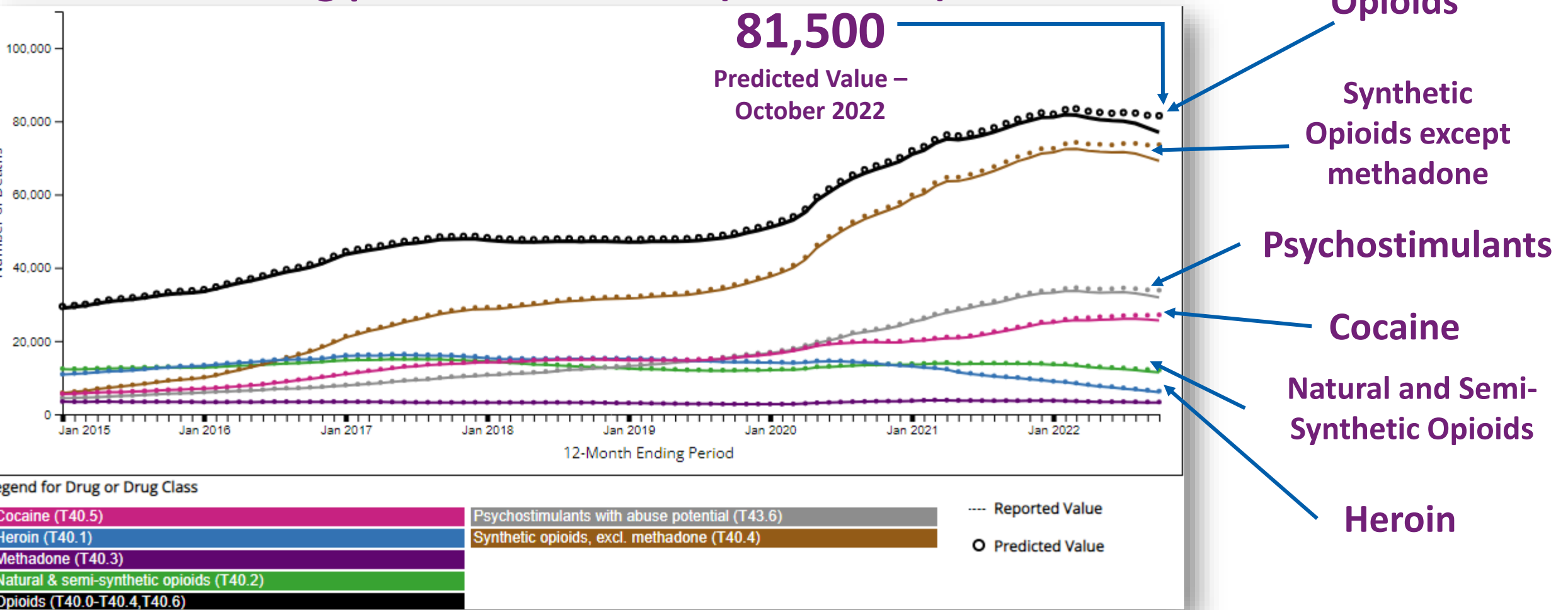
Drug overdose deaths at historic levels in the United States -

Percentage change in 12 month-ending predicted provisional counts (November 2021-October 2022)



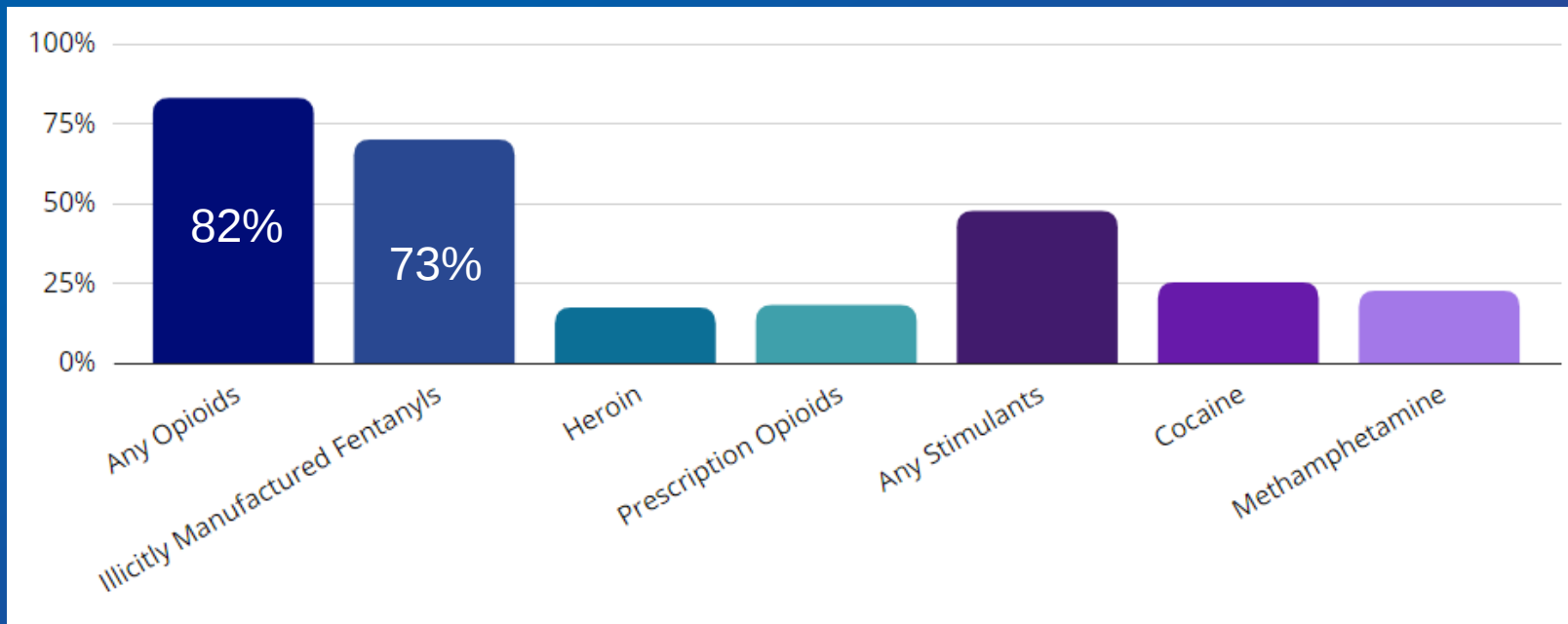
**107,689
predicted
overdose
deaths in 12
months ending
October 2022 -
53% increase
relative to
October of
2019**

Synthetic opioids are the largest driver of overdose deaths in the United States – 12 month-ending provisional counts (2015-2022)



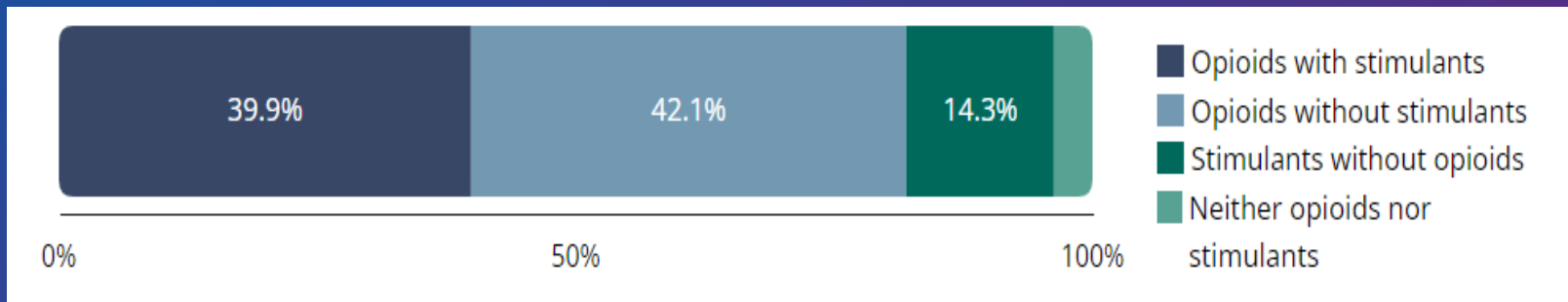
Ahmad FB, Cisewski JA, Rossen LM, Sutton P. Provisional drug overdose death counts. National Center for Health Statistics. 2022

CDC SUDORS, 32 Jurisdictions - Overdose Deaths, 2020



82%
of overdose deaths
involved opioids

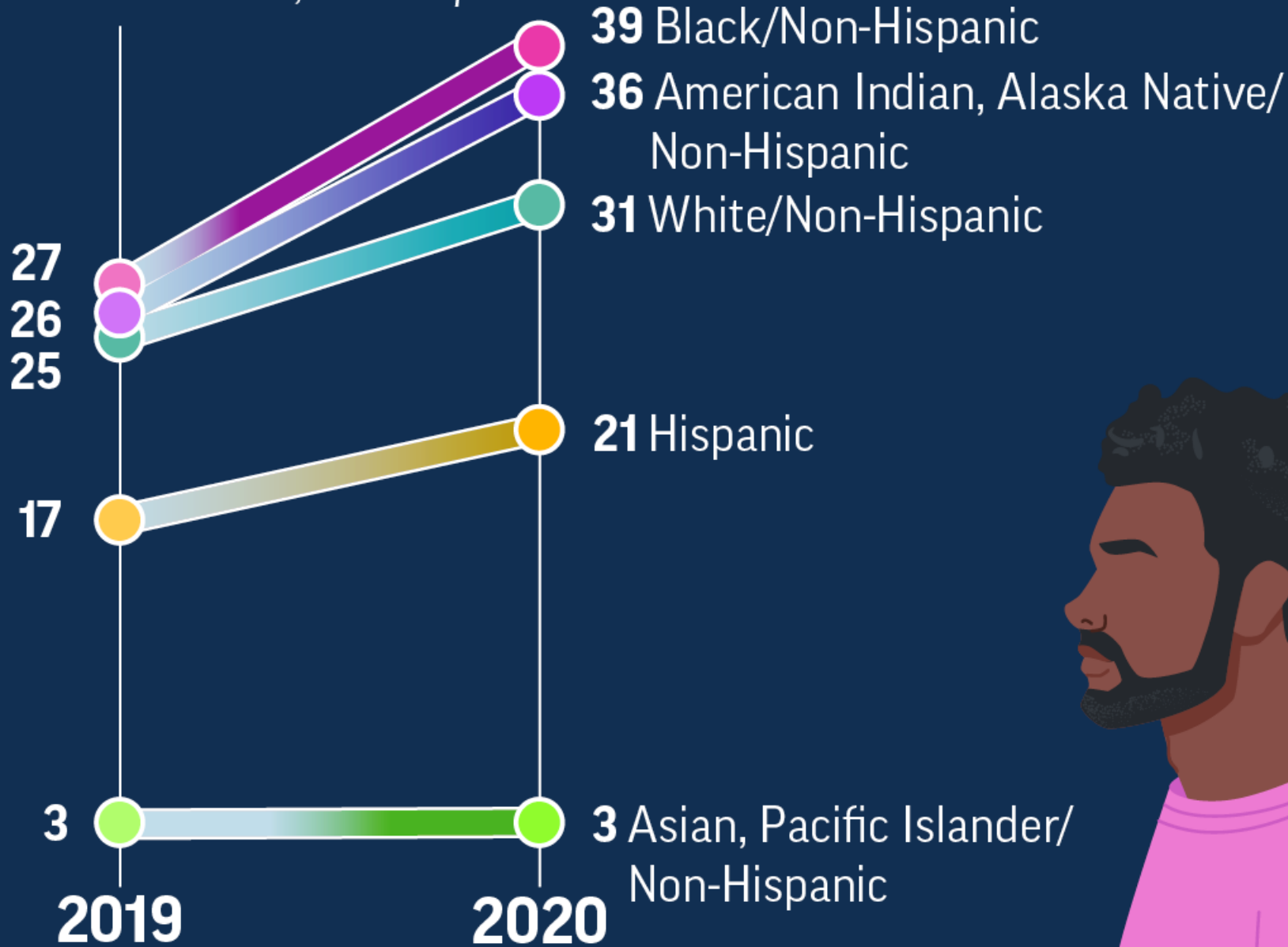
73%
involved illicitly
manufactured fentanyl



40%
involved both opioids and
stimulants

OVERDOSE DEATHS

Per 100,000 People



CDC Vital Signs

<https://www.cdc.gov/vitalsigns/overdose-death-disparities/index.html>

Youth Substance Use and Overdose Trends



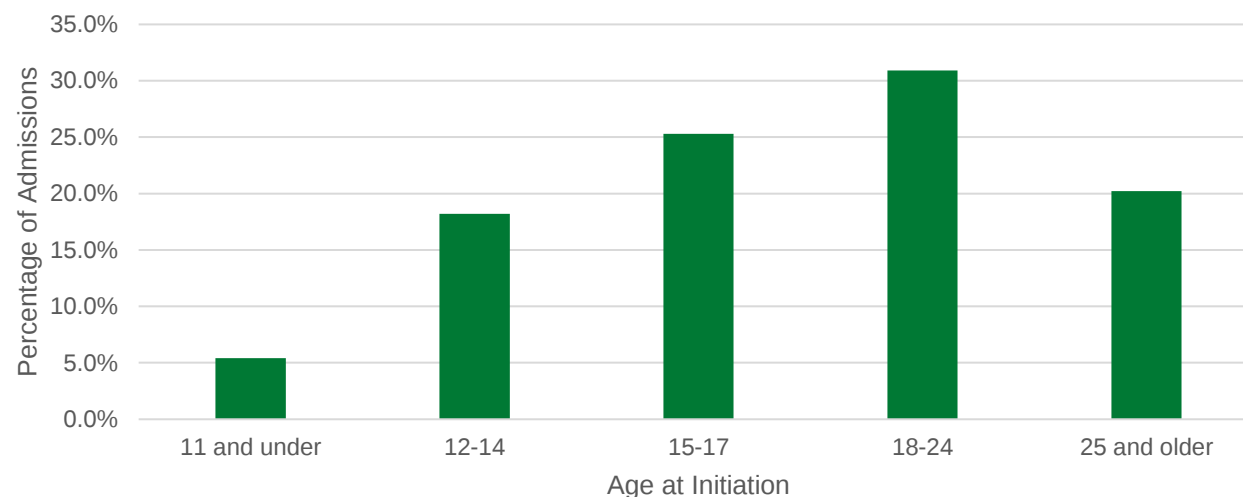


Substance use, including opioids and psychostimulants, can begin in adolescence

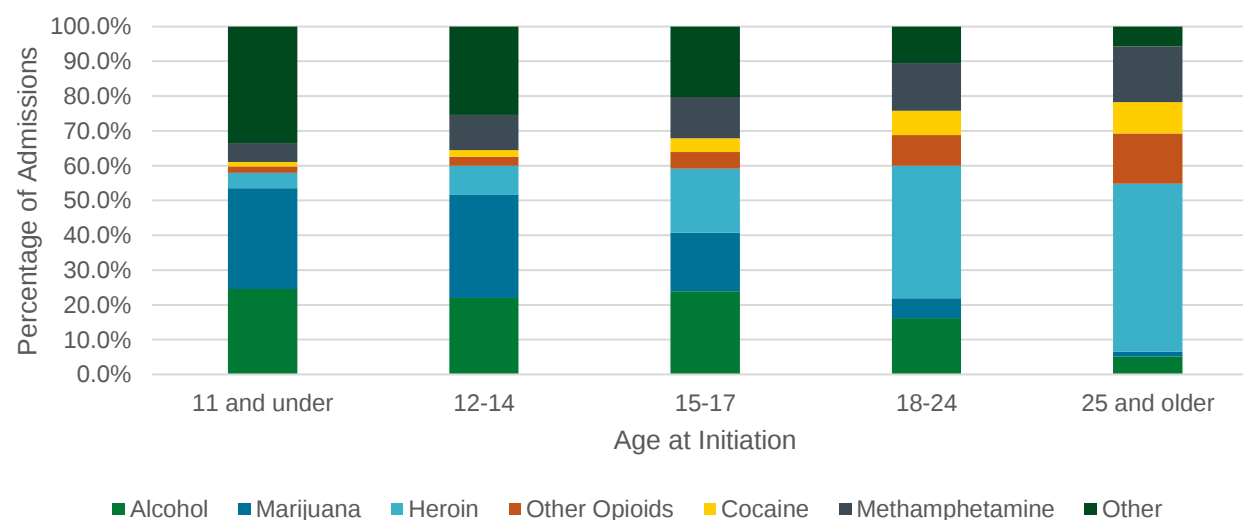
Risks of early initiation:

- ❑ Risky sexual behaviors and early initiation of sexual behaviors
- ❑ Increased risk of STI
- ❑ Pregnancy
- ❑ Interpersonal violence

Proportion of inpatient admissions for substance use disorder by age of initiation

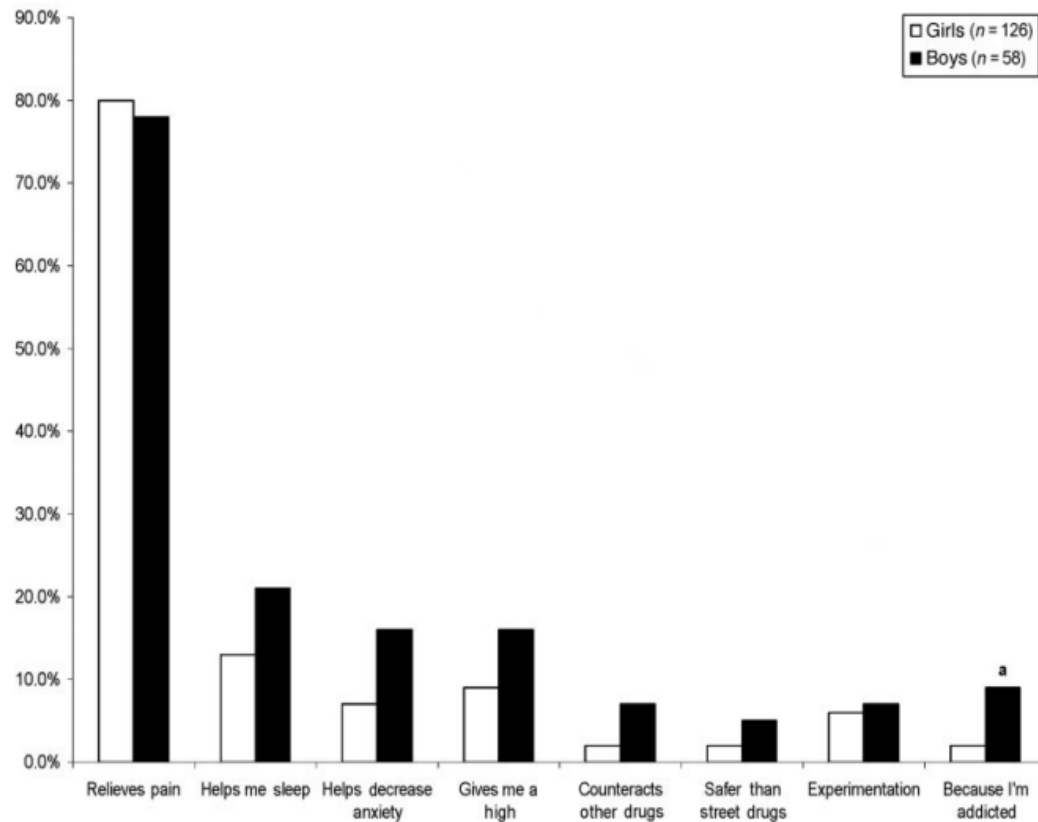


Proportion of inpatient admissions for substance use disorder by age of initiation and substance



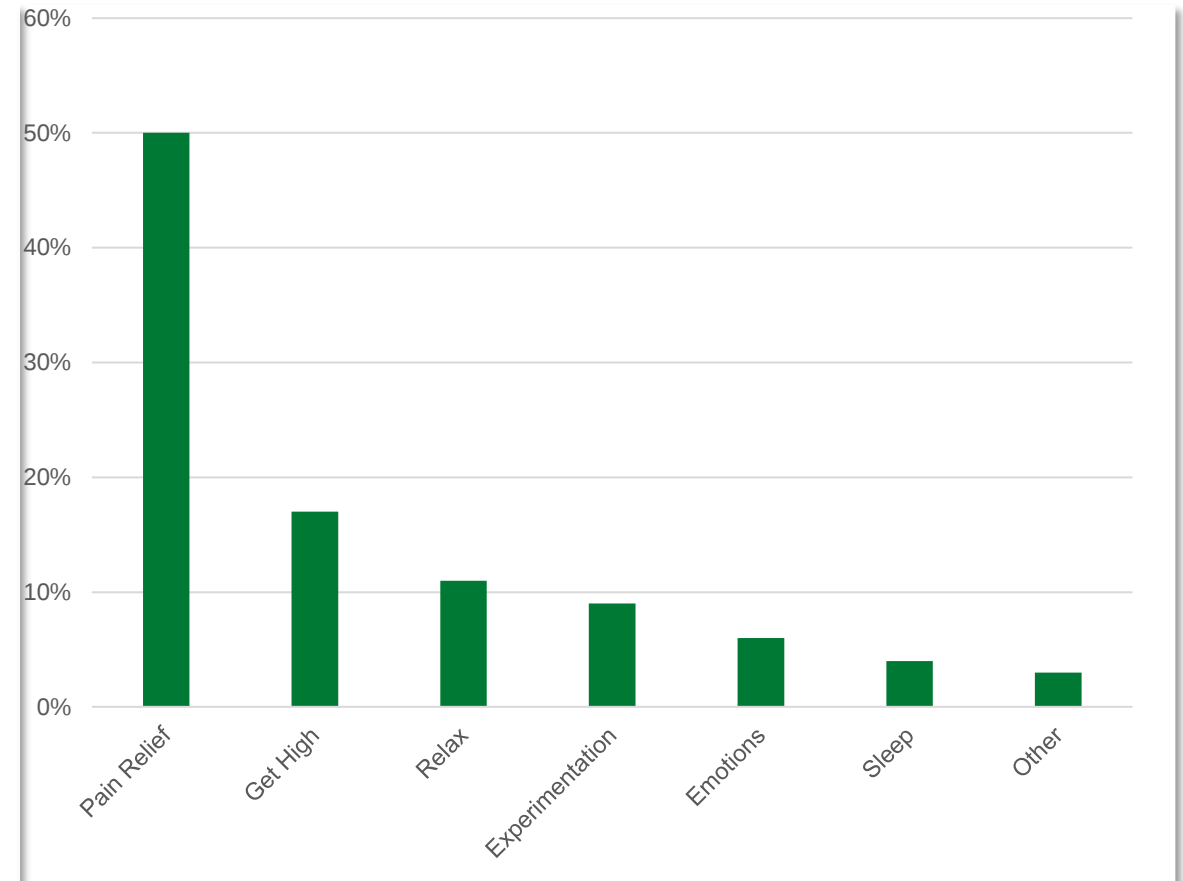
Pain relief is the most frequent reason adolescents misuse prescription opioids

Reported motivations for prescription opioid misuse in adolescents – 2005 and 2016



2005

Boyd et al. Adolescents' Motivations to Abuse Prescription Medications. *Pediatrics* 2006 Vol. 118 Issue 6 Pages 2472-2480



2016

Groenewald, Cornelius B et al. Correlates and motivations of prescription opioid use among adolescents 12 to 17 years of age in the United States. *Pain* vol. 161,4 (2020): 742-748

2021 YRBS - While substance use trends are improving, use among high school students remains persistently high

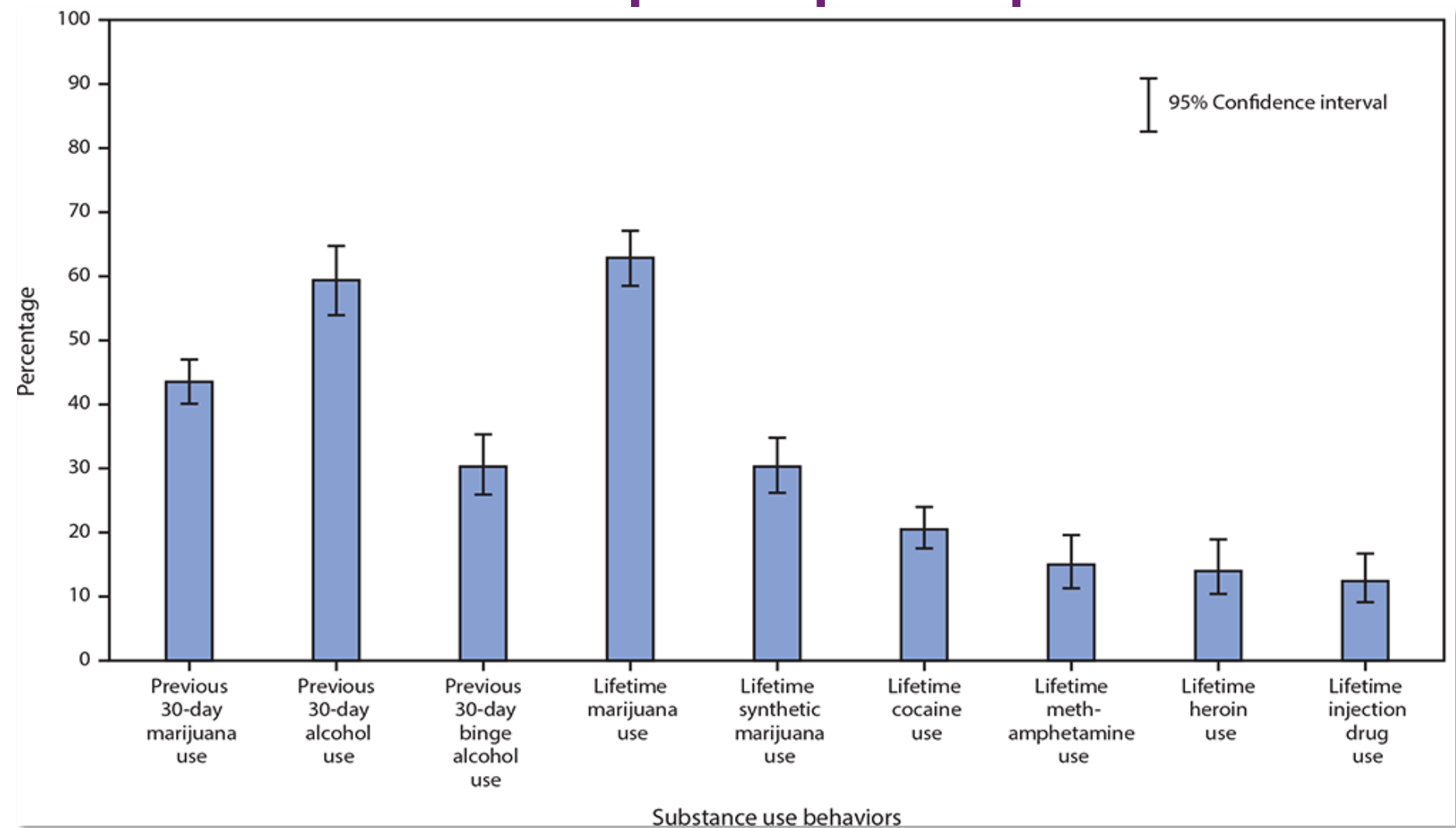
The Percentage of High School Students Who:*	2011 Total	2013 Total	2015 Total	2017 Total	2019 Total	2021 Total	Trend
Currently drank alcohol	39	35	33	30	29	23	
Currently used marijuana	23	23	22	20	22	16	
Currently used an electronic vapor product†	–	–	24	13	33	18	
Ever used select illicit drugs	19	16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

[Youth Risk Behavior Survey Data Summary & Trends Report: 2011-2021 \(cdc.gov\)](https://www.cdc.gov/youthrisk/youth-risk-behavior-survey-data-summary-trends-report-2011-2021)

- 13% ever misused select illicit drugs†
- 1 in 8 ever misused prescription opioids
- 1 in 17 currently misusing prescription opioids

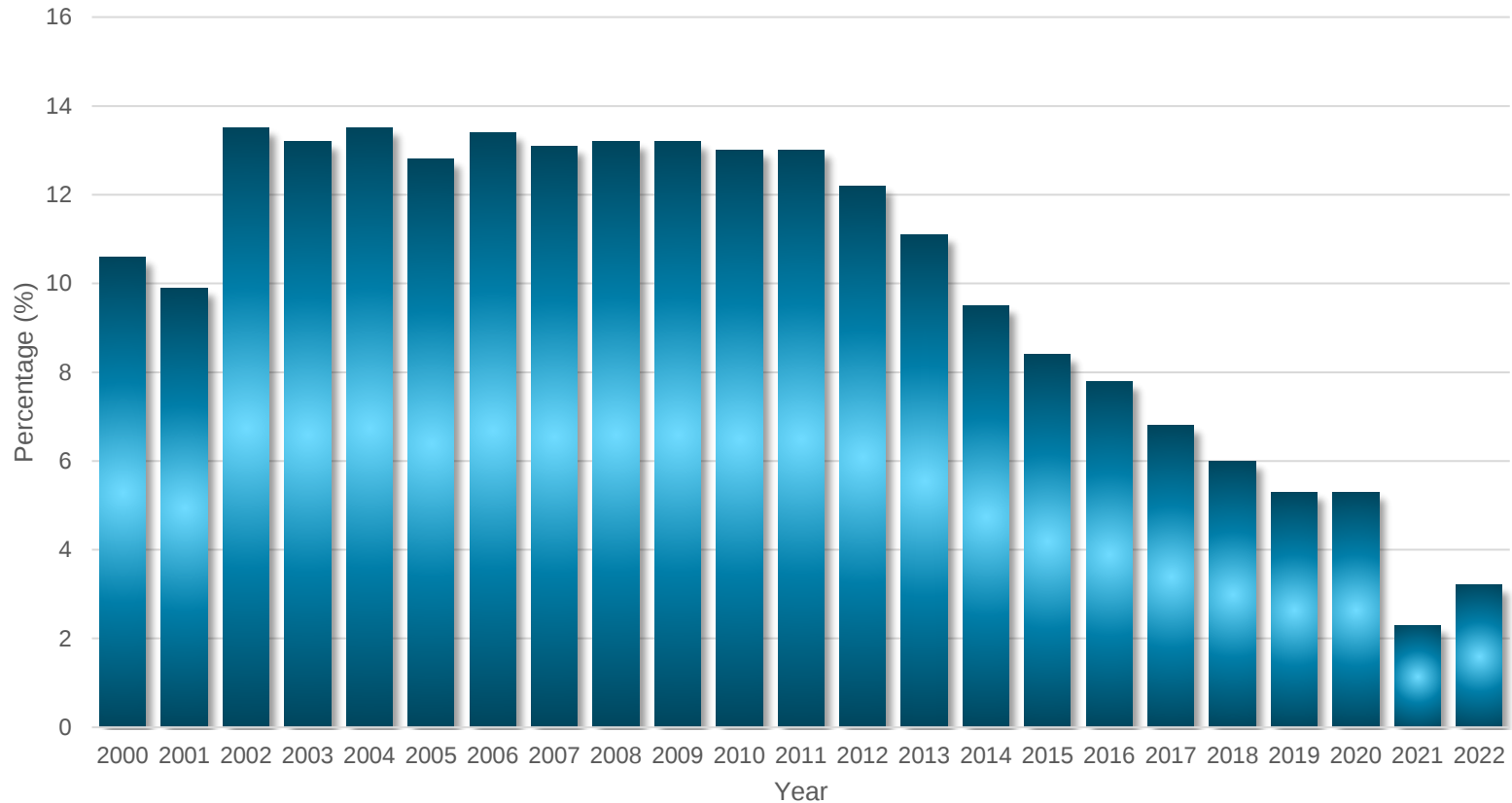
† Cocaine, inhalants, heroin, methamphetamines, hallucinogens, or ecstasy

Co-occurring substance use is common among adolescents who misuse prescription opioids



Jones CM, Clayton HB, Deputy NP, et al. Prescription Opioid Misuse and Use of Alcohol and Other Substances Among High School Students — Youth Risk Behavior Survey, United States, 2019. MMWR Suppl 2020;69(Suppl-1):38–46.

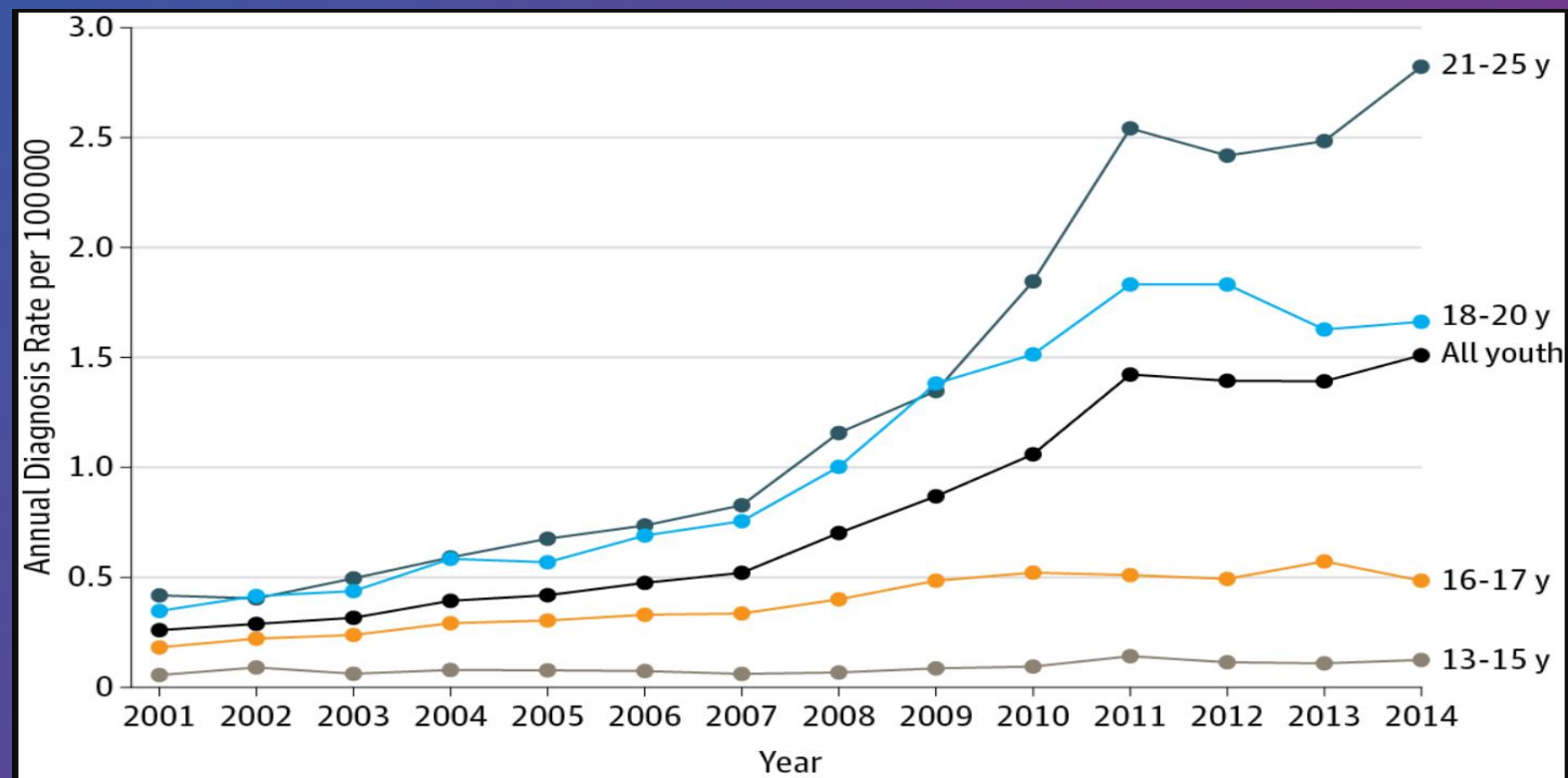
Lifetime Use of Illicit Opioids Other Than Heroin – High School Seniors



**Illicit opioid use
is declining
among youth**



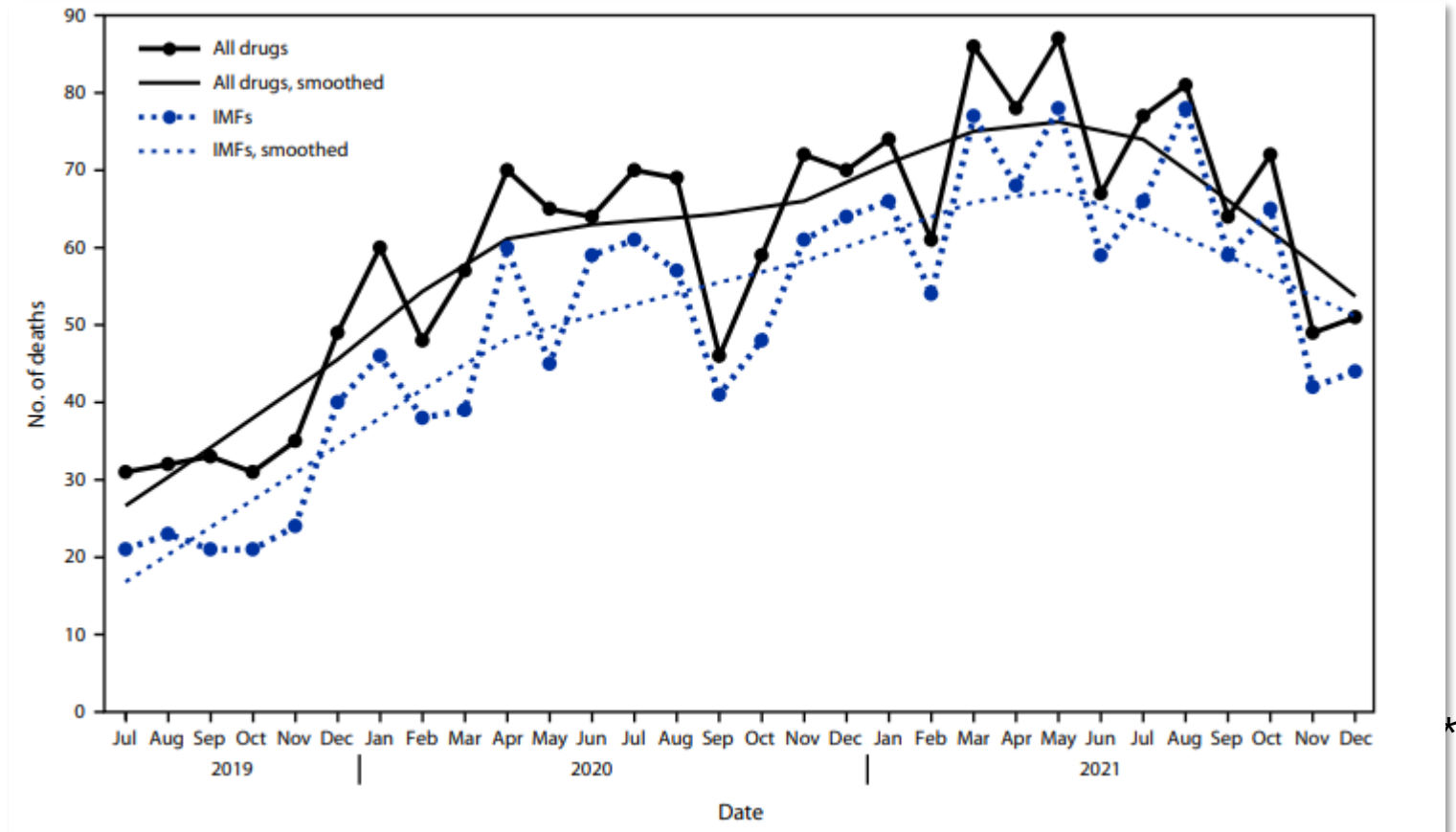
From 2001-2014,
diagnosis of opioid
use disorder in
adolescents has
increased nearly
6-fold



Hadland SE, et al. Trends in Receipt of Buprenorphine and Naltrexone for Opioid Use Disorder Among Adolescents and Young Adults, 2001-2014. *JAMA Pediatr.* 2017;171(8):747-755.

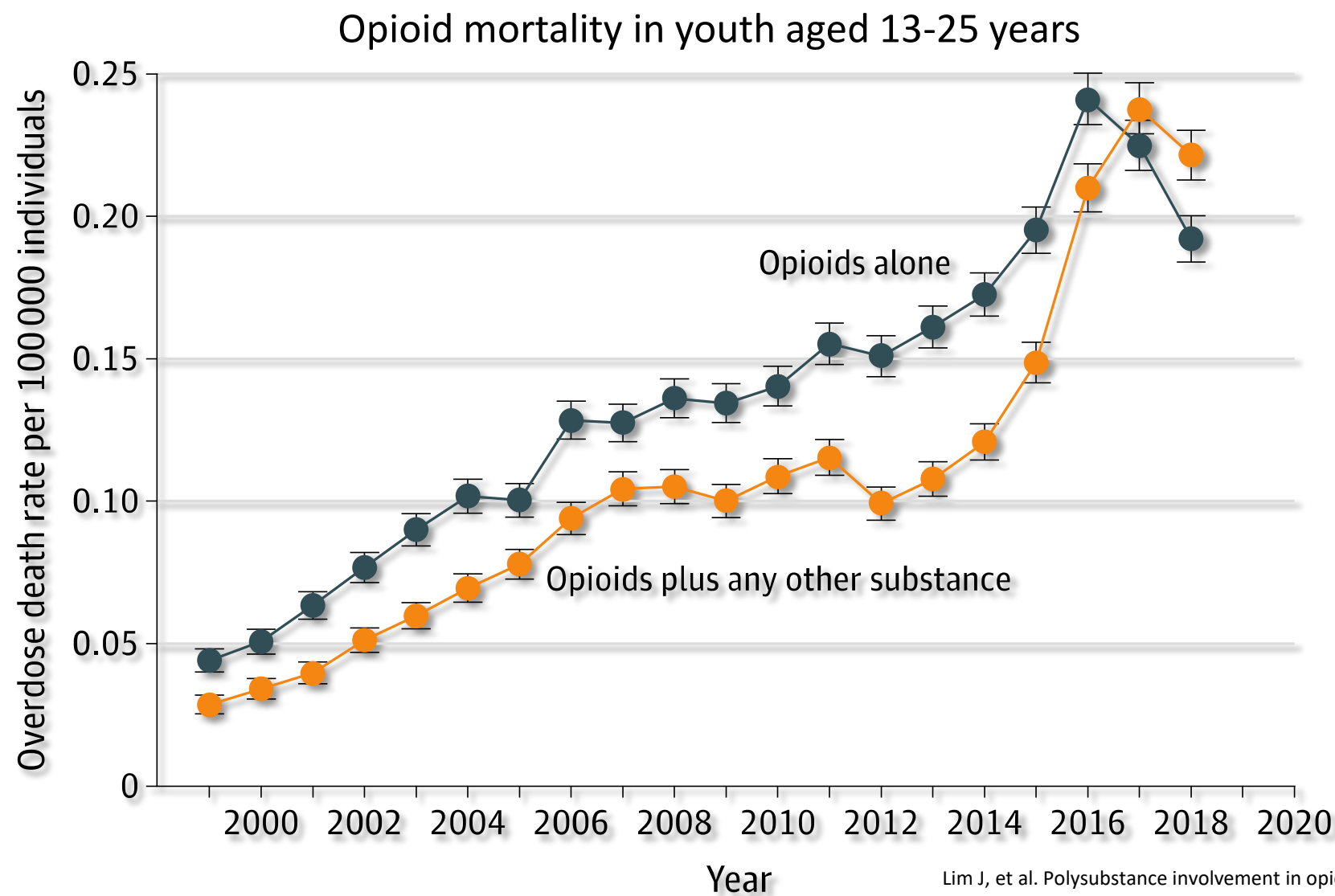
Overdose mortality
in adolescents has
risen dramatically
in recent years,
driven by synthetic
opioids including
illicitly-
manufactured
fentanyl

Overdose mortality among youth aged 10-19 years, State Unintentional Drug Overdose Reporting System, 32 Jurisdictions, July 2019-December 2021



Tanz, et al. Drug overdose deaths among persons aged 10-19 years – United States, July 2019-December 2021. MMWR, December 16 2022. [Drug Overdose Deaths Among Persons Aged 10–19 Years — United States, July 2019–December 2021 \(nih.gov\)](#)

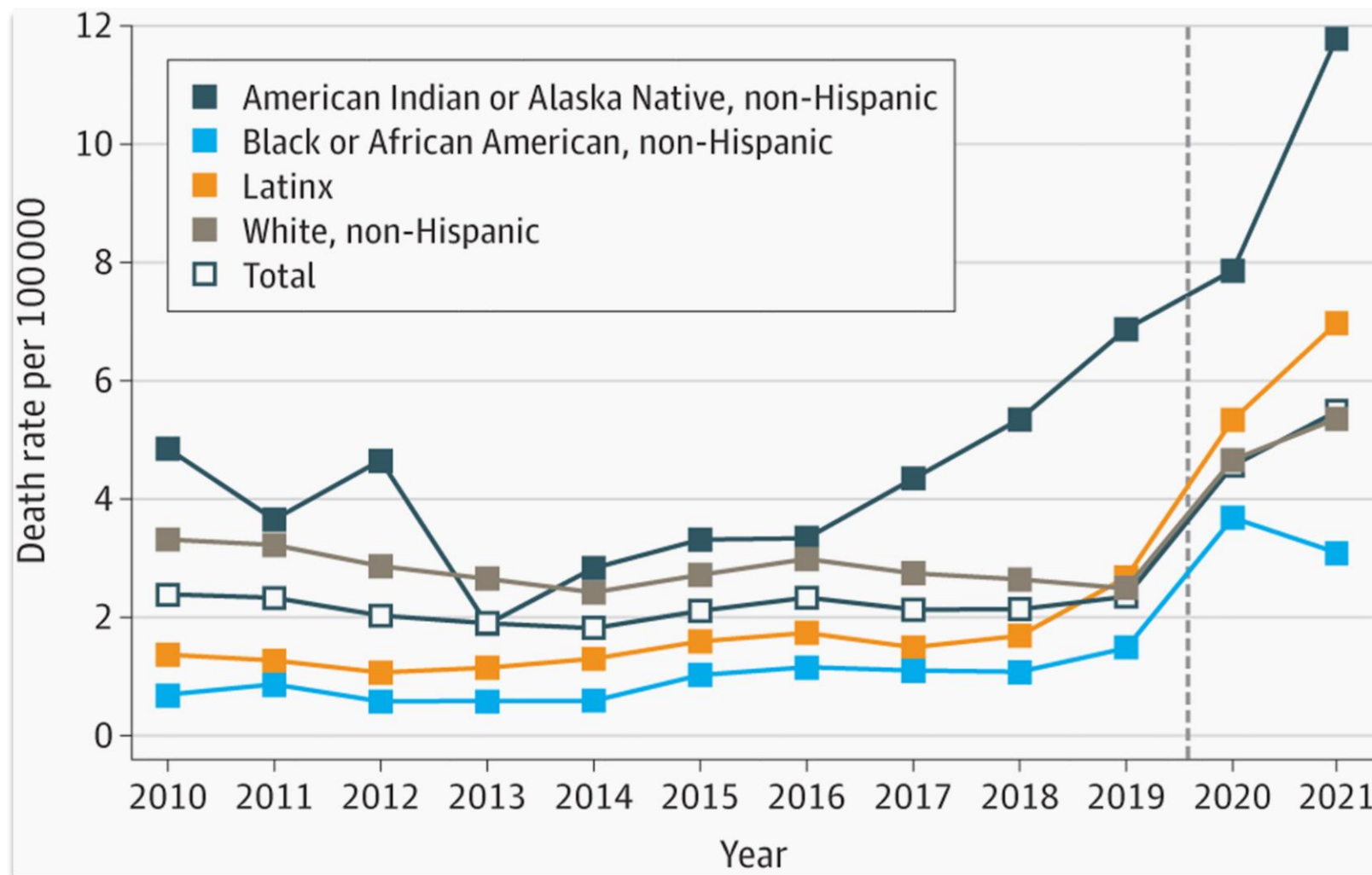
Overdose deaths associated with polysubstances are now more prevalent than deaths involving opioids alone



Lim J, et al. Polysubstance involvement in opioid overdose deaths in adolescents and young adults 1999-2018. *JAMA Pediatr.* 2021;175(2):194-196

AI/AN adolescents and Latino adolescents have higher overdose mortality rates relative to White adolescents than among the population as a whole

Wide racial disparities in overdose death rates among adolescents in the United States



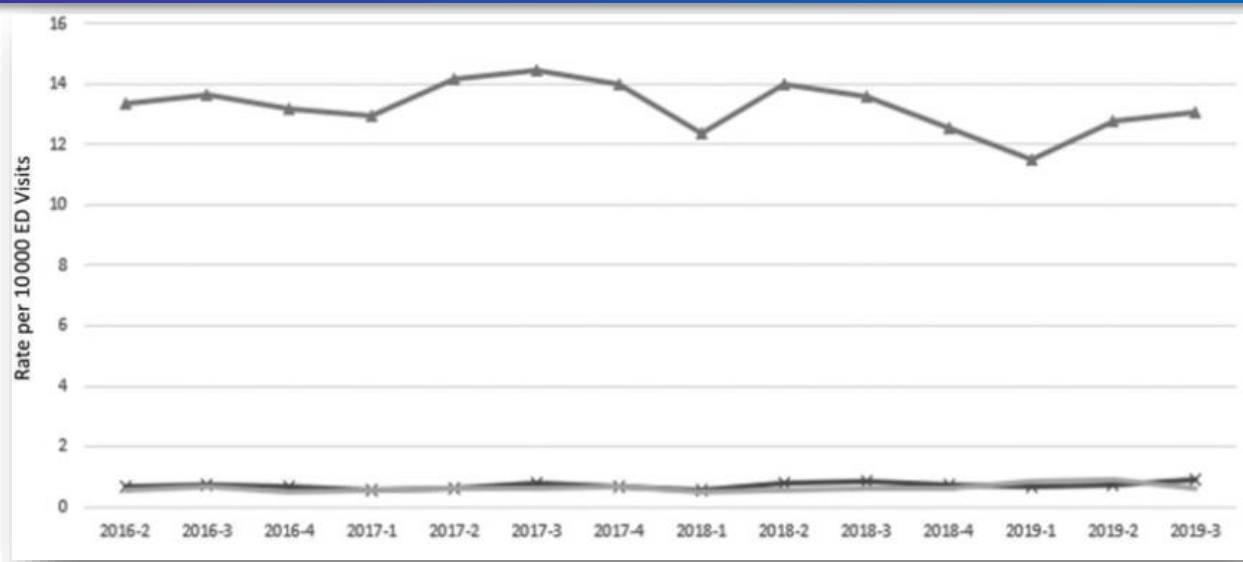
Friedman J, Godvin M, Shover CL, Gone JP, Hansen H, Schriger DL. Trends in Drug Overdose Deaths Among US Adolescents, January 2010 to June 2021. *JAMA*. 2022;327(14):1398–1400.

Nonfatal suspected opioid overdoses are prevalent among youth.

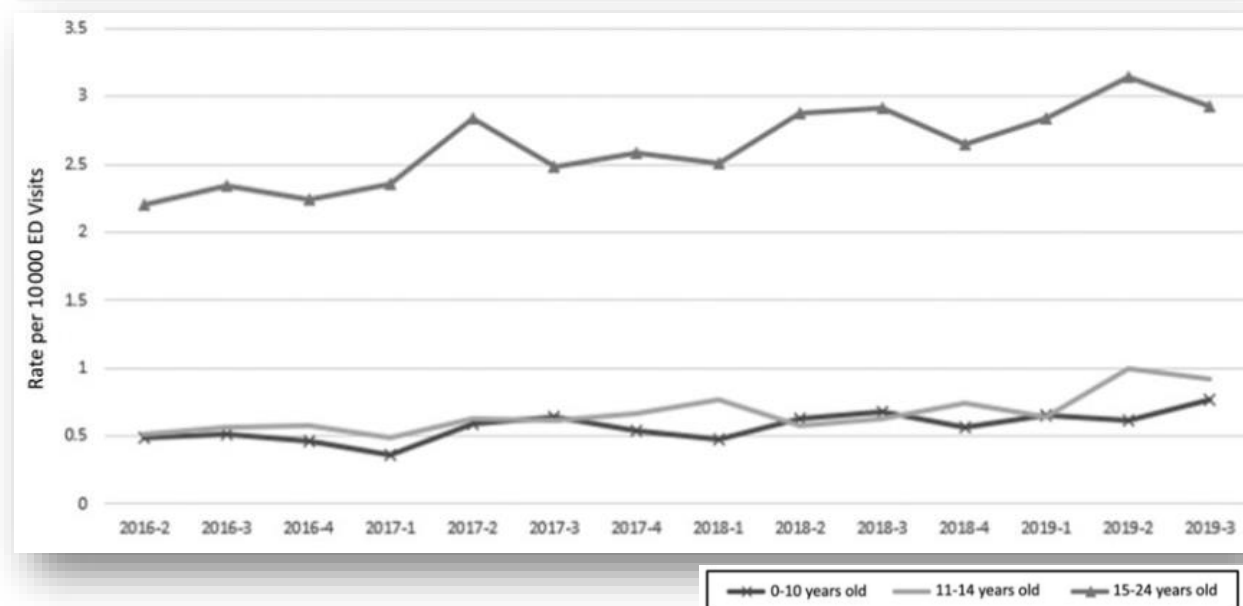
Suspected stimulant-involved overdoses are rising.



Nonfatal Opioid Overdoses Among Youth 0-24 Years



Nonfatal Stimulant Overdoses Among Youth 0-24 Years



Roehler DR, et al. Suspected Nonfatal drug-related overdoses among youth in the US: 2016-2019. Pediatrics, 2021;147(1)

Public Health Approaches



CDC's Guiding Principles



CDC's Strategic Priorities



An illustration showing several hands of different skin tones placing colorful puzzle pieces onto a dark blue background. The puzzle pieces are arranged in a circular pattern, each containing a text label. The labels represent various strategies to address overdose death disparities. The colors of the pieces include purple, pink, teal, orange, and light green.

Use
culturally
appropriate
practices

Provide
support
groups

Link
people to
care and
recovery

Expand
insurance
coverage

Offer
telehealth

Reduce
criminalization

Build
structural
support

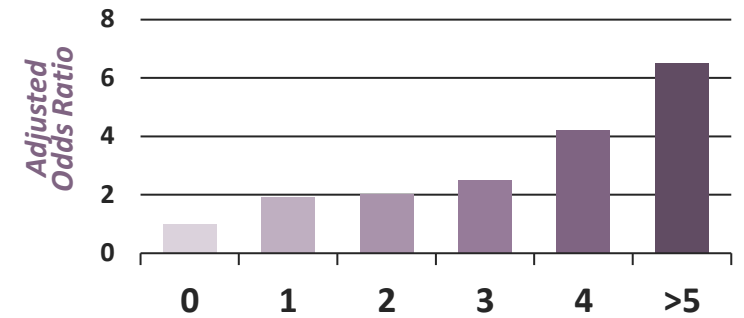
Reduce
stigma

Support Providers, Health Systems, Payors, and Employers

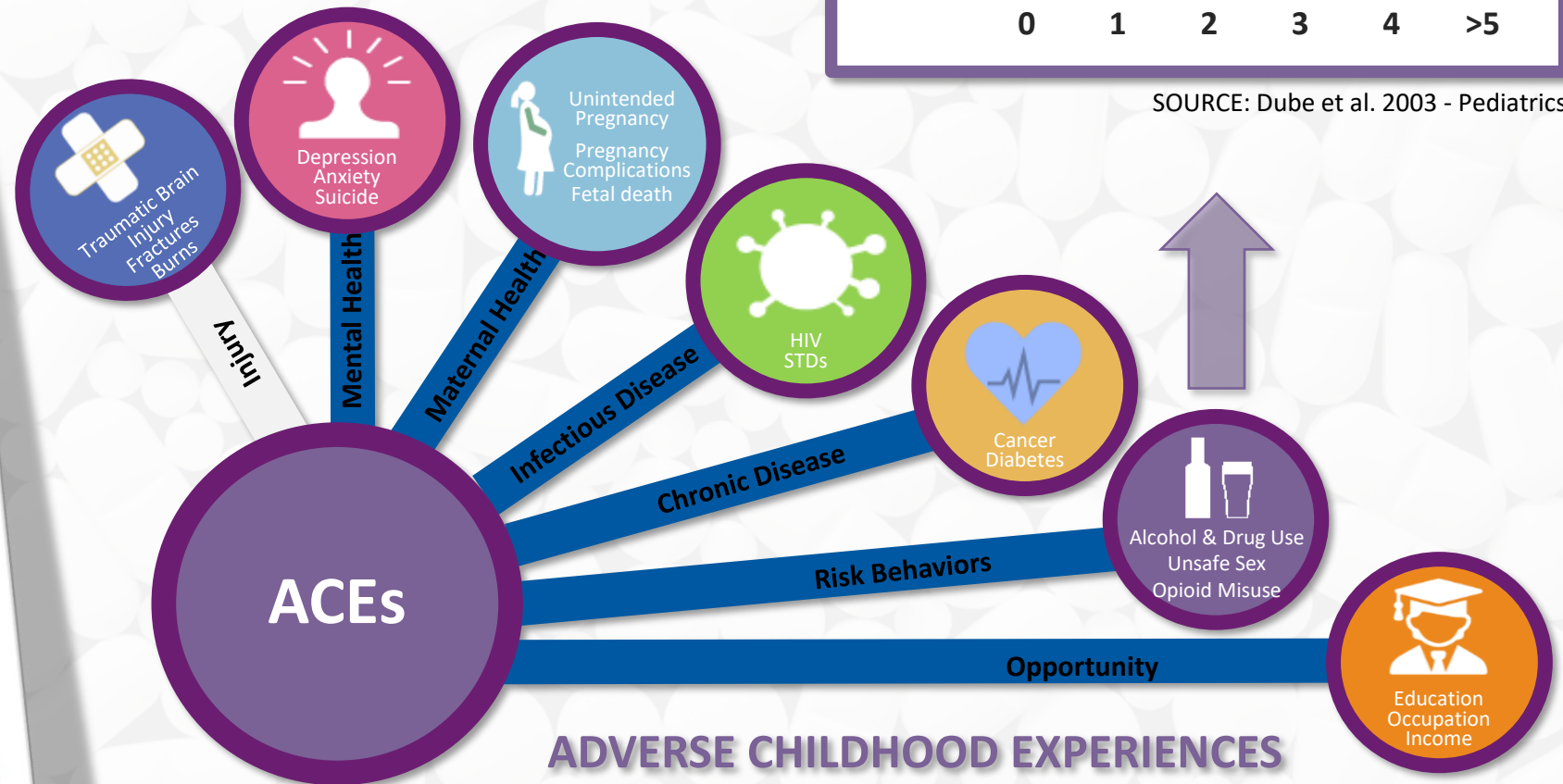


A Lasting Impact

Relationship of ACE Score
& Ever Having a Drug Problem



SOURCE: Dube et al. 2003 - Pediatrics



ADVERSE CHILDHOOD EXPERIENCES



Promotion of Safer Opioid Prescribing through Health System and Clinician Support

-  **CDC's Clinical Practice Guideline for Prescribing Opioids for Pain—2022**
-  **Information technology (IT) tools for safer prescribing**
-  **Health system implementation of quality improvement efforts**
-  **Address barriers to treatment for substance use disorders (SUD)**

Linking People with Opioid Use Disorder to Medication Treatment

 **Compilation of promising strategies to support linkage to care for OUD**

 **“Every door is the right door”**

- ☐ Primary care
- ☐ Emergency departments
- ☐ Inpatient hospitalization
- ☐ Syringe services programs
- ☐ Prenatal and postpartum care
- ☐ Outpatient mental health and behavioral health care
- ☐ Healthcare settings during incarceration and community supervision

Linking People with Opioid Use Disorder to Medication Treatment:

A Technical Package of Policy, Programs, and Practices

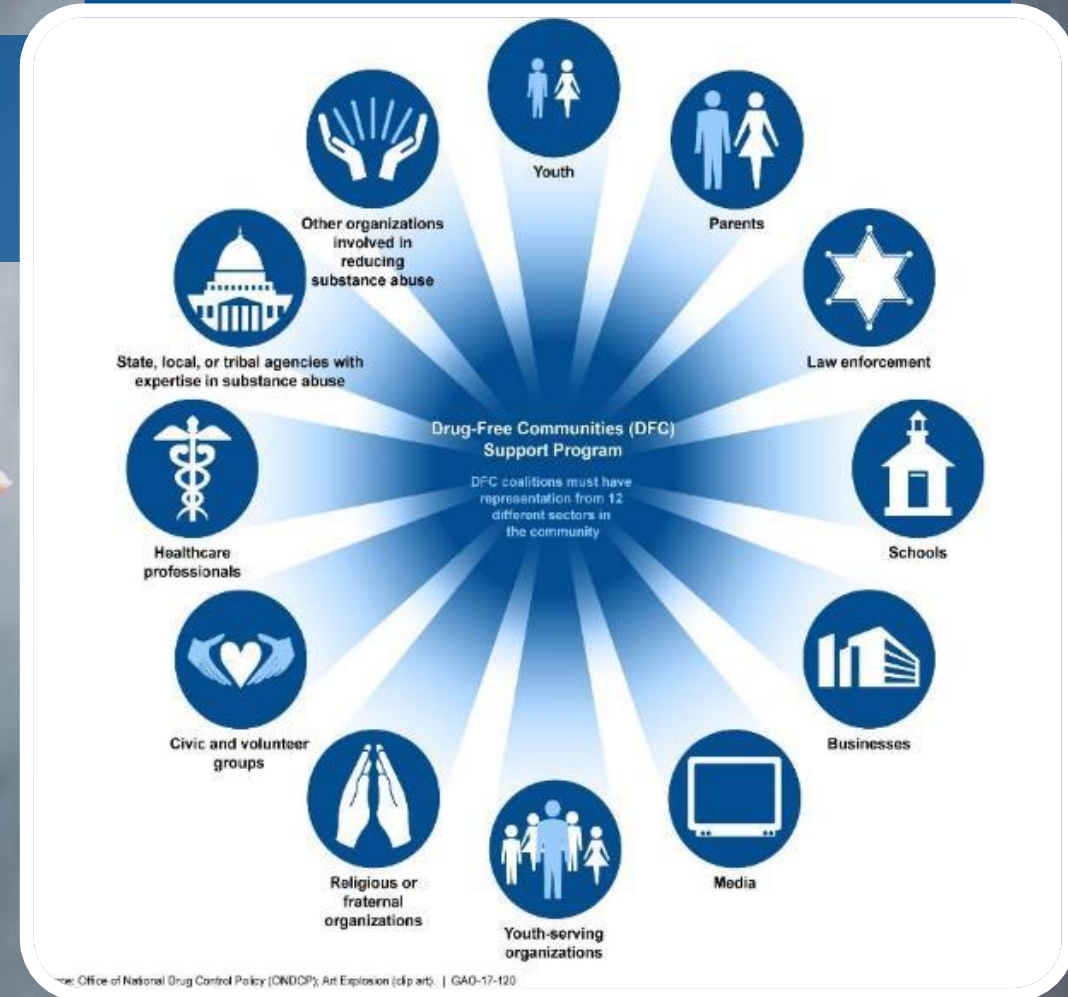


Build State, Tribal, Local and Territorial Capacity



700+ COMMUNITY COALITIONS

Preventing and reducing substance use among youth 18 and younger

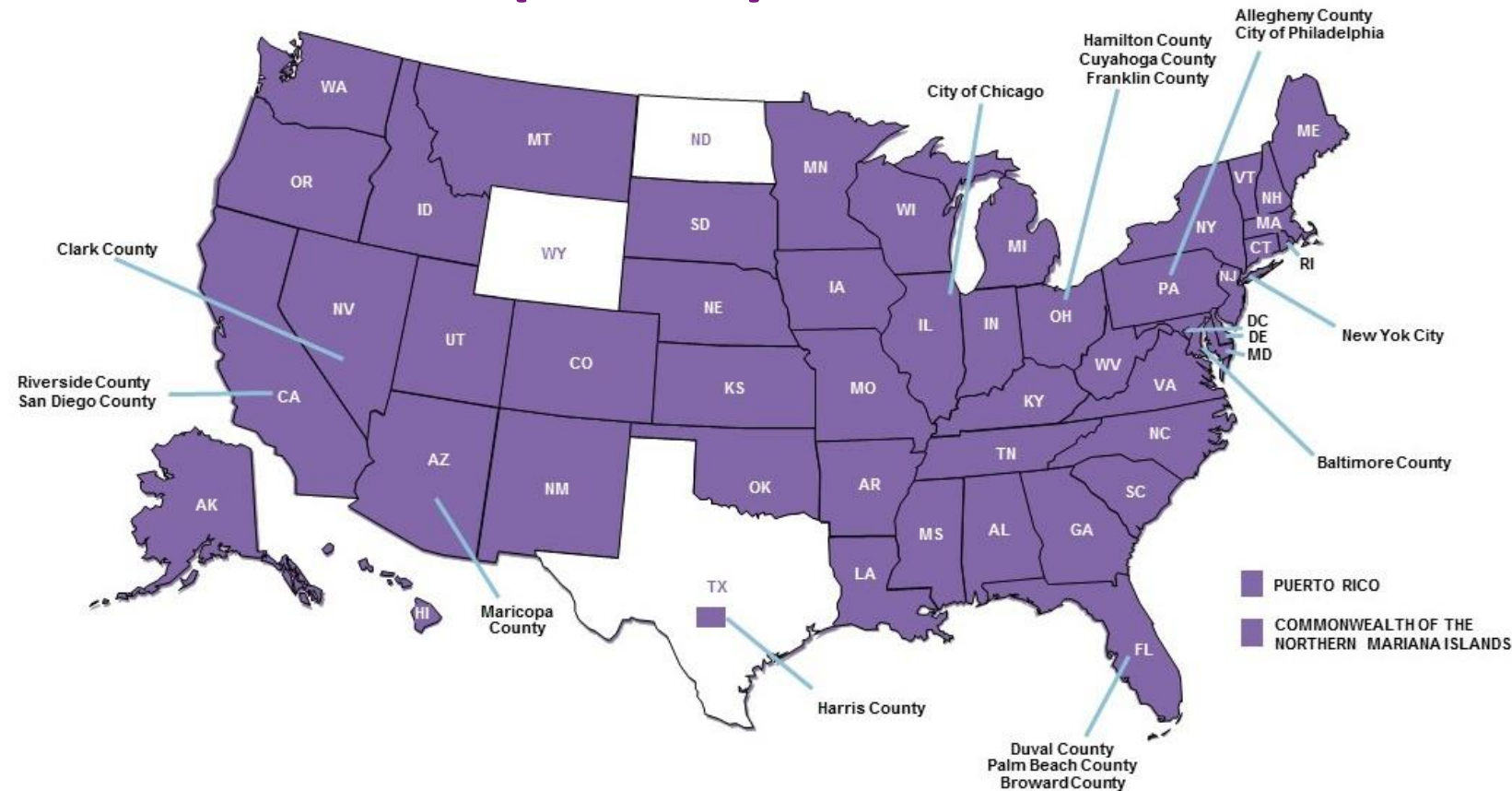


www.cdc.gov/drugoverdose/drug-free-communities/index.html



Overdose Data to Action (OD2A)

- \$300M per year for 4 years (2019-2023)
- Seamless integration of data and prevention programs
- 66 jurisdictions funded including 47 states and 16 hard hit cities and counties
- At least twenty percent of state funds go to the local level as well to spur innovation and multisector collaboration.



Surveillance



PDMPs



Health System



Public Safety



Linkage to Care



Empower
Consumers



Local Response



Youth-Centered Activities by OD2A-Funded Jurisdictions

Naloxone

- School-based curriculum development
- Stigma reduction campaigns
- Community naloxone training
- First responder training

Fentanyl Awareness

- Fentanyl education in school curricula
- Funding fentanyl test strip distribution in the community

Linkage to Care and Treatment

- Partnerships with first responders
- Development of community outreach teams
- Expanding access to medications for opioid use disorder (MOUD)

Raise Public Awareness and Reduce Stigma



Prescription opioids can be
addictive and **dangerous**.

It only takes a little to lose a lot.



cdc.gov/RxAwareness



Rx AWARENESS CAMPAIGN

**STOP
OVERDOSE**

“There is a way out of addiction. You don’t have to do this alone.”

—David



If you’re struggling with prescription opioids, there is hope. Recovery is possible.



www.cdc.gov

CDC Rx AWARENESS CAMPAIGN

“IT’S IMPORTANT TO SHARE MY STORY OF LOVING SOMEONE WITH AN OPIOID USE DISORDER.”

—KATIE



**STIGMA
REDUCTION**

[Stop Overdose \(cdc.gov\)](https://cdc.gov)

Rx Awareness | CDC Injury Center

Prevention, Screening & Treatment



Getting Candid – A Messaging Guide for Clinicians

MIDDLE SCHOOL YOUTH	HIGH SCHOOL YOUTH
THE FUTURE Don't let drug and alcohol use change or control your plans for the future.	
RISK OF ADDICTION Drugs and alcohol change parts of your brain that impact how you think and act. The more you use them, the harder it can be to stop even if you want to.	
RELATIONSHIPS* There are people in your life who matter to you and care about you. And you try hard not to let them down.	RELATIONSHIPS* There are people in your life who matter to you and care about you. And you try hard to make them proud.
ACTIVITIES Participating in sports, music, hobbies or other activities can help you build friendships, stay in shape, get into college and receive scholarships, and have fun.	
SELF-AFFIRMATION You respect yourself and want to make decisions that are best for you. Trust yourself and your choice not to use drugs or alcohol.	

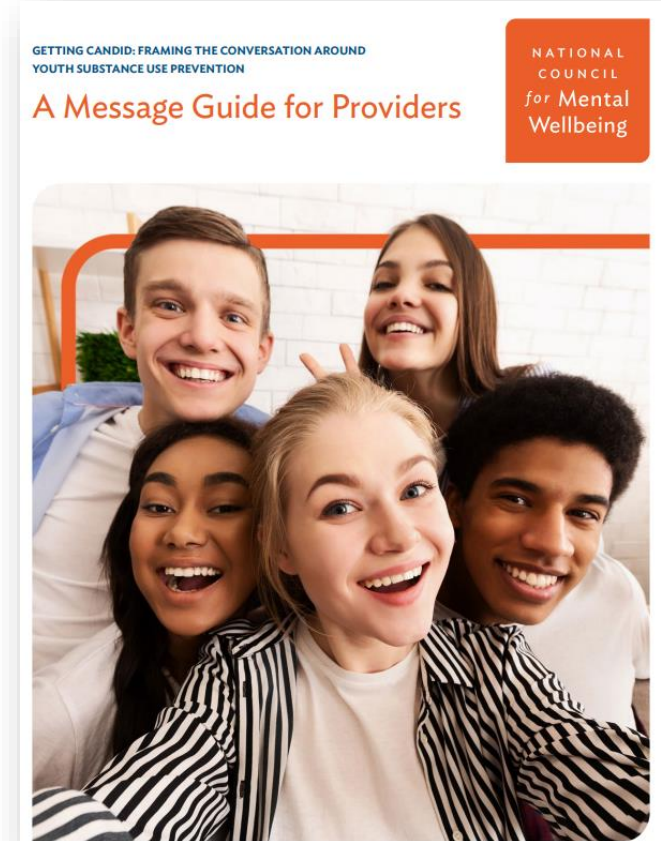
* Note the difference in how middle and high school youth respond to the relationship messaging. While middle school youth care very much about not disappointing the people in their lives, high school youth respond better to the idea of making the people they care about proud.

PURPOSE

- ❑ Equip youth-serving providers with substance use prevention messaging that appeals to a large and broad population of youth
- ❑ Share guidance on how to effectively deploy the messaging with middle and high school age youth (12 – 18 years)

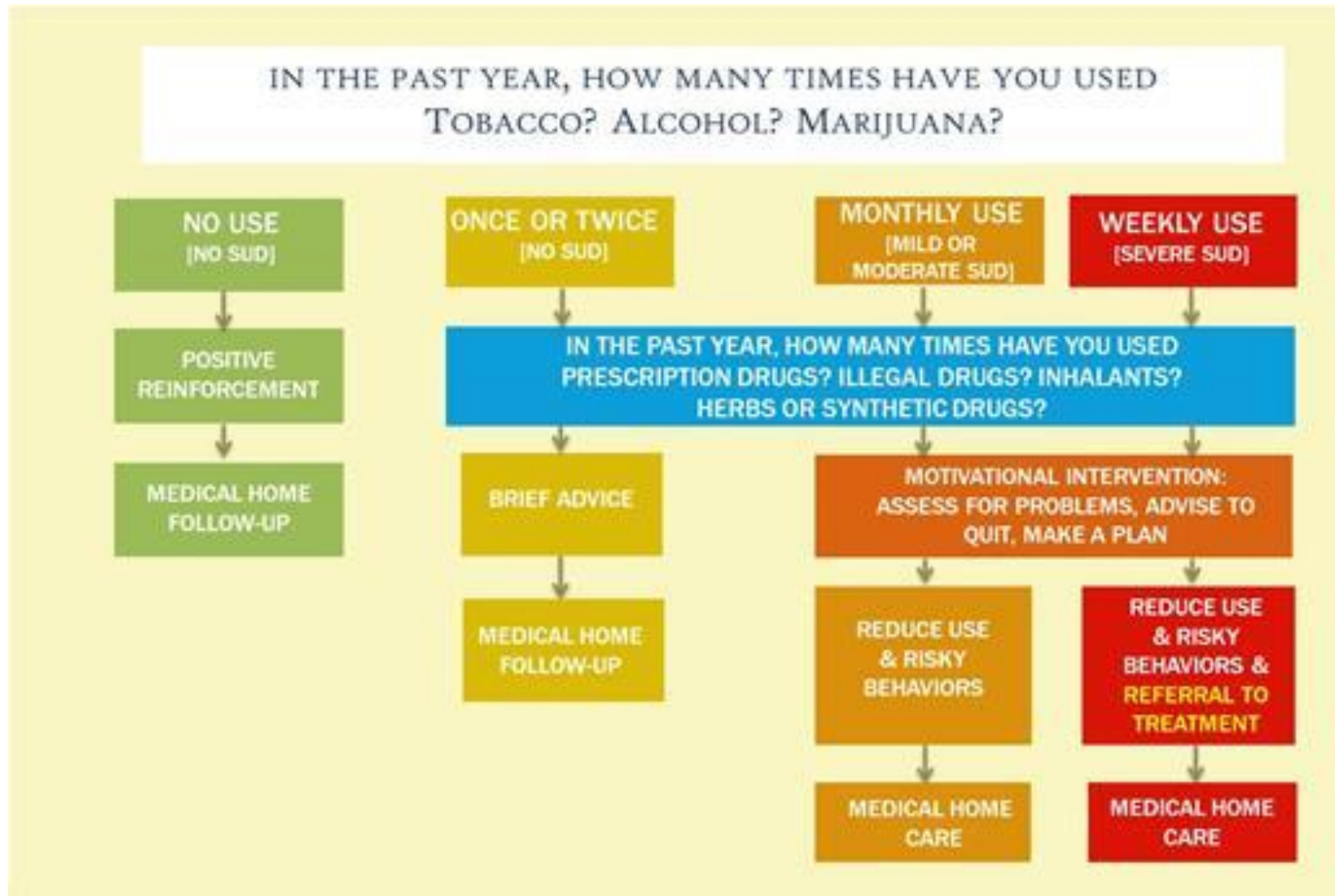
CONTENT

- ❑ Getting grounded in the attitudes and beliefs of young people
- ❑ Message framework when communicating with youth
- ❑ Communication pathway



<https://www.thenationalcouncil.org/program/getting-candid/>

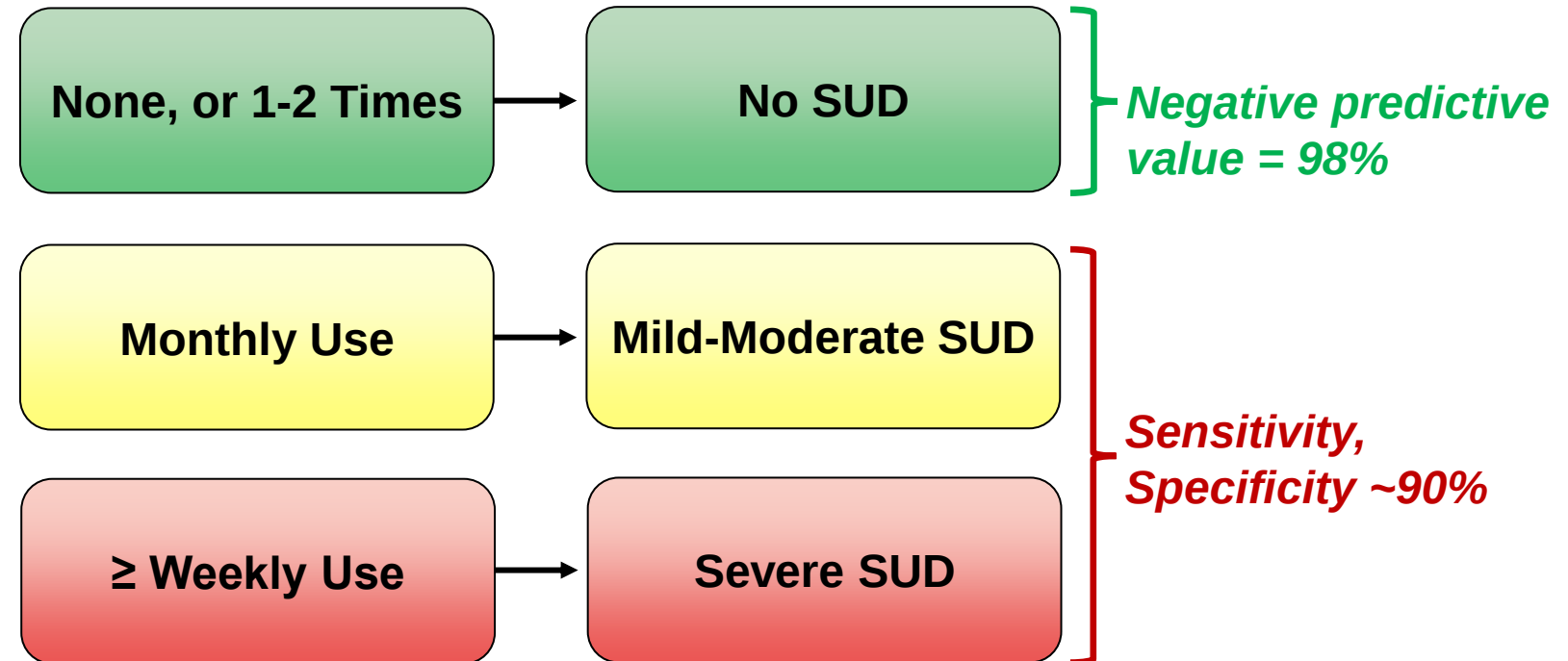
Screening to brief intervention (S2BI) tool



Risk Identification and Linkage to care

- ❑ Substance use assessment is recommended by American Academy of Pediatrics for SUD screening
- ❑ Opportunity to link patients to community care

Frequency of substance use & accuracy for detecting SUD in adolescents

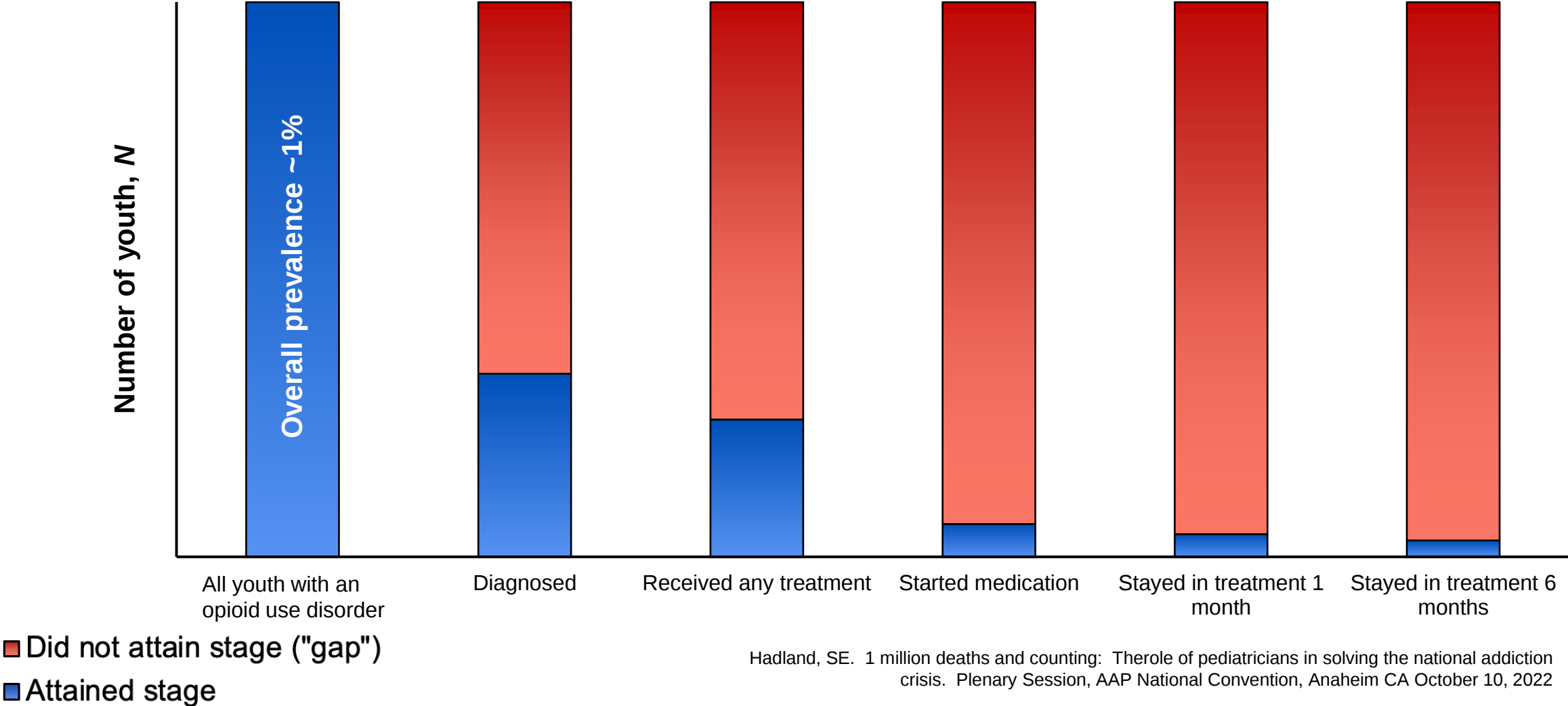


Levy S, Weiss R, Sherritt L, et al. An Electronic Screen for Triaging Adolescent Substance Use by Risk Levels. *JAMA Pediatr.* 2014;168(9):822–828. doi:10.1001/jamapediatrics.2014.77

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Sharon Levy, Elissa R. Weitzman, et al. (2021) Sensitivity and specificity of S2BI for identifying alcohol and cannabis use disorders among adolescents presenting for primary care, *Substance Abuse*, 42:3, 388-395, DOI: [10.1080/08897077.2020.1803180](https://doi.org/10.1080/08897077.2020.1803180)

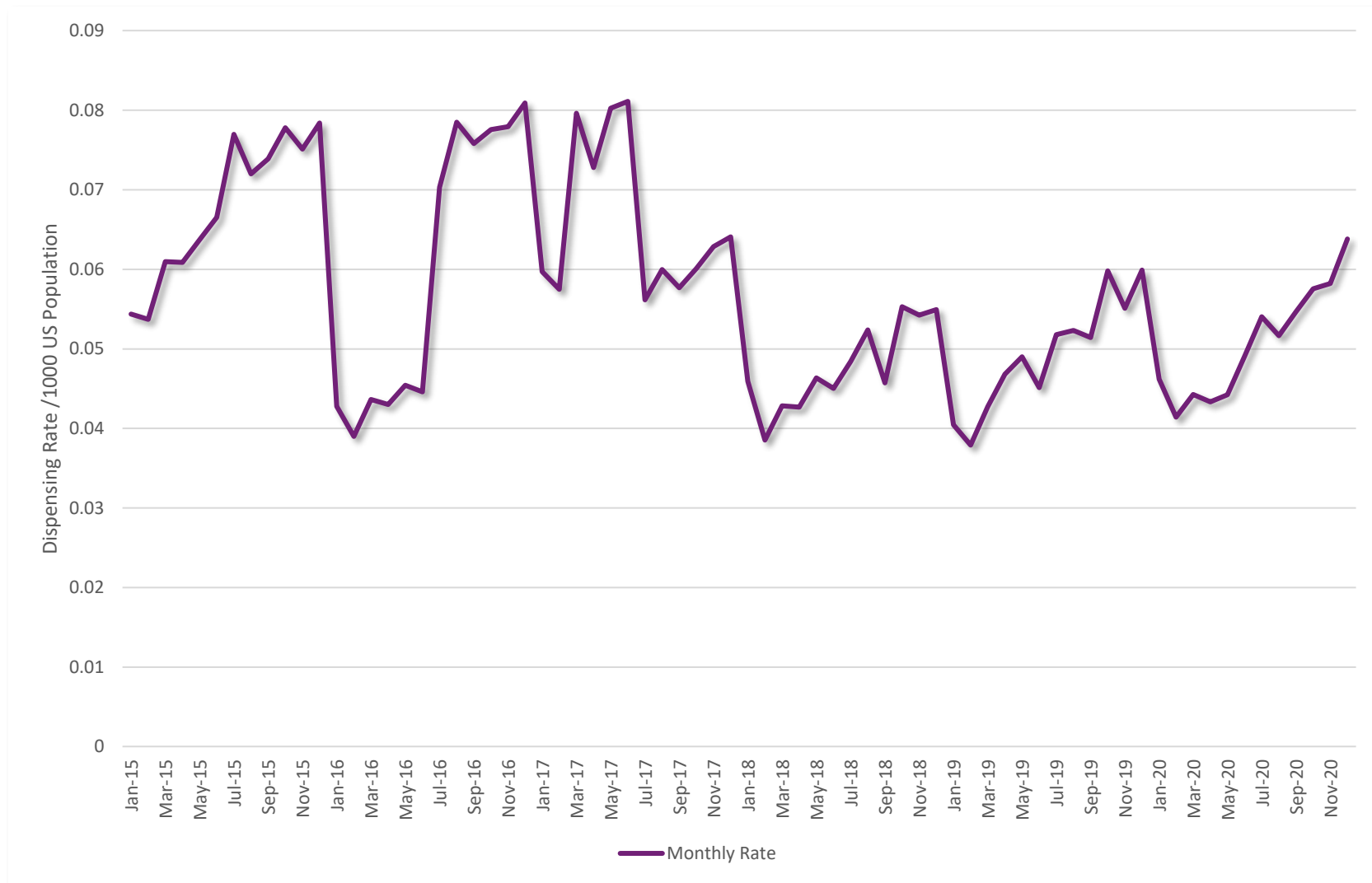
Cascade of care for youth opioid use disorder: Most youth with an OUD do not receive evidence-based care



Buprenorphine prescriptions dispensed to youth age 0-19 years, 2015-2020

Buprenorphine dispensing rates to adolescents suggest a large unmet treatment need

Buprenorphine dispensing among youth aged ≤19 years in the US: 2015-2020. *Pediatrics* (2023) 151 (2): e2022058755. <https://doi.org/10.1542/peds.2022-058755>



What Does Evidence-Based Treatment Look Like?

Medication

1. **Buprenorphine:**
Partial opioid agonist
2. **Naltrexone:**
Opioid antagonist
3. **Methadone:**
Full opioid agonist

Supported by AAP^a, SAHM^b & ASAM^c; clinical trials show fewer relapses, fewer cravings for opioids, longer retention in care

Behavioral Therapy

- Motivational enhancement
- Cognitive behavioral therapy
- Contingency management

Best modality not known, and a combo may work best; critical component of treatment, since dual diagnoses rule, not exception

^aAmerican Academy of Pediatrics, Medication-Assisted Treatment of Adolescents with Opioid Use Disorders. *Pediatrics*, 138:2016

^bSociety for Adolescent Health & Medicine, Medication for Adolescents and Young Adults with Opioid Use Disorder. *Journal of Adolescent Health*, 68:2021

^cAmerican Society of Addiction Medicine, The ASAM National Practice Guideline for the Treatment of Opioid Use Disorder. *Journal of Addiction Medicine*, 14:2015

Approved Medications for Opioid Use Disorder

	Methadone	Buprenorphine	Naltrexone
Mechanism	Full opioid agonist	Partial opioid agonist	Opioid antagonist
FDA Approval	Limited in ages <18 yrs*	FDA-approved ≥16 yrs	FDA-approved ≥18 yrs
Dosing frequency	Daily dose	Daily dose (film/tablet); monthly dose (injection)	Daily dose (tablet); monthly dose (injection)
Access	Only administered in person at qualified methadone center	Can be provided by any clinician with a current DEA registration with Schedule III authority	Can be provided by primary care clinician

*While technically FDA approved for adolescents, strict rules for administration limit the use of methadone in youth

ASAM, Principles of Addiction Medicine, 2015

Harm Reduction & Addressing Stigma



Harm Reduction

- ❑ Remember that addiction is a chronic illness that often has cycles of recovery and recurrence
- ❑ Even when young people are not interested in eliminating or reducing their substance use, engaging them in services can reduce the harms of substance use
 - ❑ Screening and treatment for HIV, hepatitis C, sexually transmitted infections
 - ❑ Education about safe injection and syringe exchange
 - ❑ Pre-exposure prophylaxis (PrEP)
 - ❑ Overdose education and naloxone distribution
- ❑ Engagement in these services allows youth to more easily obtain treatment when they are ready

Overdose Prevention and Reversal with Naloxone

- ❑ **To reduce the risk of overdose, youth can:**
 - ❑ Never use alone
 - ❑ Avoid polysubstance use, esp. with sedatives
 - ❑ Call 911 in the event of overdose
- ❑ **Offer naloxone to all youth and families**
 - ❑ Overdose reversal agent (opioid antagonist)
 - ❑ Different from naltrexone for OUD treatment
 - ❑ Easy-to-use nasal spray
 - ❑ May need multiple administrations to reverse fentanyl overdose
 - ❑ Given out free from health departments
 - ❑ Can be prescribed; typically covered by insurance
- ❑ **Narcan™ approved 3/2023 for over the counter use and will be available soon**



[Lifesaving Naloxone \(cdc.gov\)](https://www.cdc.gov/naloxone/)
[Polysubstance Use Facts \(cdc.gov\)](https://www.cdc.gov/poison-prevention/poison-prevention-facts/)
[Stop Overdose \(cdc.gov\)](https://www.cdc.gov/overdose-prevention/)

Stigma & Language of Addiction

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Recommended Terminology for Substance Use Disorders in the Care of Children, Adolescents, Young Adults, and Families

Rachel H. Alinsky, MD, MPH, FAAP,^a Scott E. Hadland, MD, MPH, MS, FAAP,^b Joanna Quigley, MD, FAAP,^c
Stephen W. Patrick, MD, MPH, MS, FAAP,^d COMMITTEE ON SUBSTANCE USE AND PREVENTION

American Academy of Pediatrics Recommended Terminology for Stigma Reduction

Say This

- Substance use disorder
- Intoxicated or in withdrawal
- Using
- Drinking
- Person with an SUD
- Person who injects drugs
- Treatment not effective
- Concerned loved one
- Treatment, medications for addiction treatment
- Remission, recovery

Not This

- Drug abuse, drug dependence
- Strung out, tweaking, high, drunk
- Getting high
- Getting drunk
- Addict, junkie, user
- Injection drug user
- Non-compliant, failed treatment
- Enabler
- Medication assisted treatment, opioid replacement
- Clean or “Got clean”

Alinsky, etal. Recommended Terminology for Substance Use Disorders in the Care of Children, Adolescents, Young Adults, and Families. *Pediatrics* June 2022; 149

A group of diverse young people, including a Black man, a Black woman with braids, and a white woman, are smiling and looking towards the camera. They are outdoors, and the background is slightly blurred.

Conclusions



Overdose deaths are at historic levels – driven by illicitly-manufactured fentanyl and increasingly psychostimulants



Despite declining drug use in adolescents, overdose mortality among youth has increased



A public health approach to overdose deaths is critical and clinicians can play an important role

Thank you for your participation!



For more information, please contact:

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- E-mail: cdcinfo@cdc.gov
- Web: www.cdc.gov

Disclaimer: The findings and conclusions in this presentation are those of the presenter and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

SUPPLEMENTAL SLIDES



Nationwide

nearly **1 in 7 students**
reported misusing prescription opioids

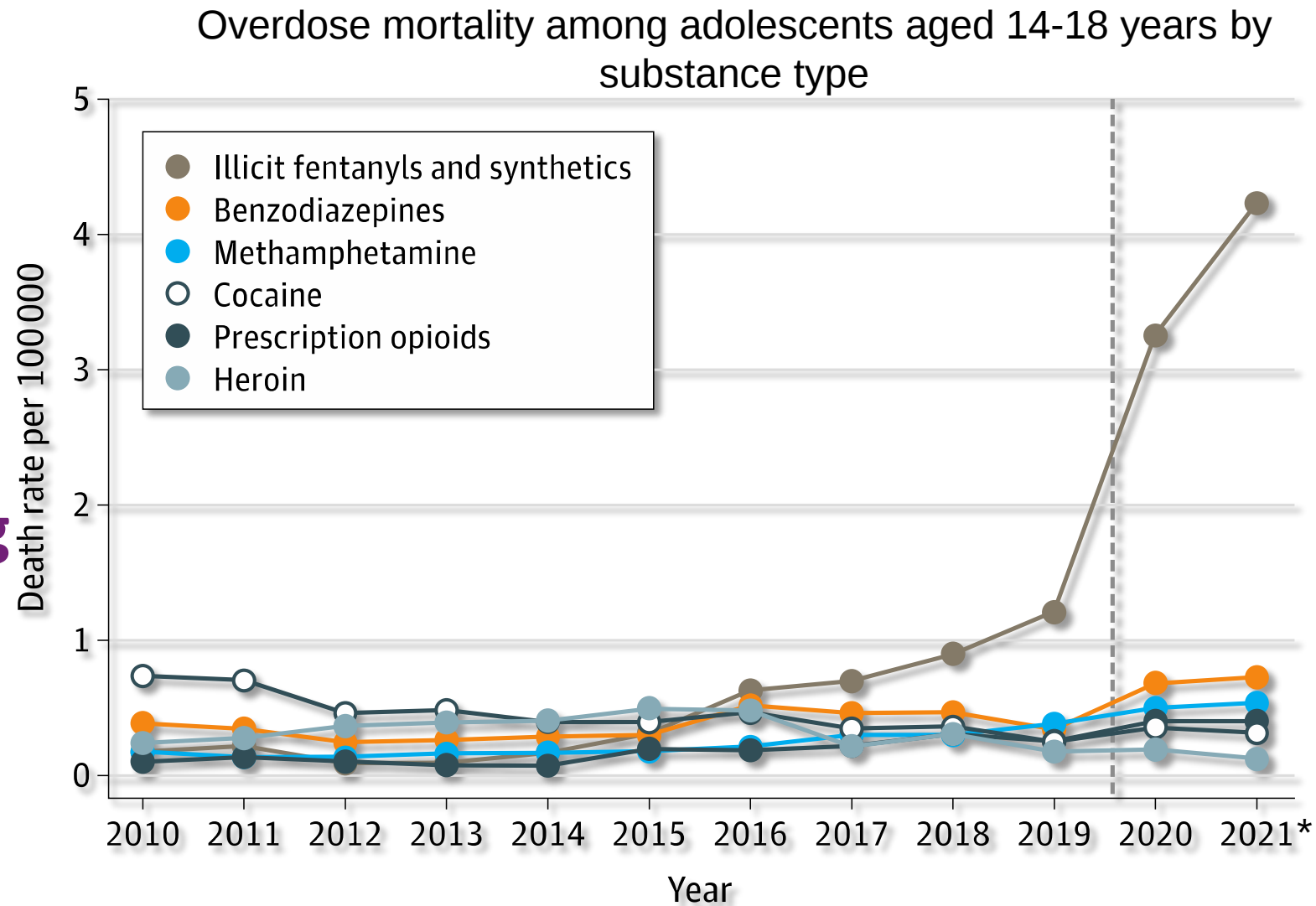
**Schools
can:**

- ✓ Develop substance use prevention programs
- ✓ Implement programs with individual, school and family interventions



Youth Risk Behavior Survey, 2019

Overdose mortality in adolescents has risen dramatically, driven by synthetic opioids including illicitly-manufactured fentanyl



*2021 data Based on 6 months of data annualized to an annual rate.

Friedman J, Godvin M, Shover CL, Gone JP, Hansen H, Schriger DL. Trends in Drug Overdose Deaths Among US Adolescents, January 2010 to June 2021. *JAMA*. 2022;327(14):1398–1400