

TRANSITIONAL AGE YOUTH (TAY)
webinar series

Who's Doing What?: The Epidemiology of Adolescent Substance Use

Produced in Partnership by:



ATTC
Network Coordinating Office
Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration



AMERSA
Interdisciplinary Leaders in
Substance Use Education,
Research, Care and Policy

ADOLESCENT
S B I R T by  **NORC** at the
University of Chicago

Screening, Brief Intervention & Referral to Treatment

1

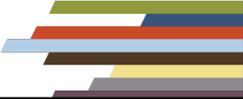
Webinar Moderator

Tracy McPherson, PhD
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Network Coordinating Office

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TRANSITIONAL AGE YOUTH (TAY)
webinar series

- 1) The Impact of Substance Use on the Developing Adolescent Brain
- 2) Who's Doing What?: The Epidemiology of Adolescent Substance Use
- 3) Substance Use Interventions for Adolescents and Transitional Age Youth
- 4) Integrating Loss and Grief into the SBIRT Model

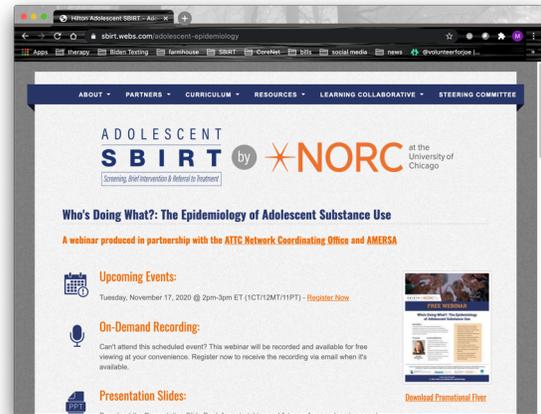
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Access Materials

- Bookmark the website
- Follow-up email
- On-demand access 24/7
- Brief survey
- Certificate of Completion brief application (1 NAADAC CE)

sbirt.webs.com/adolescent-epidemiology

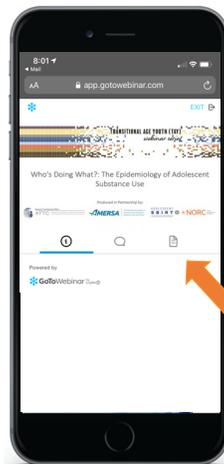


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Or, download them from the website.

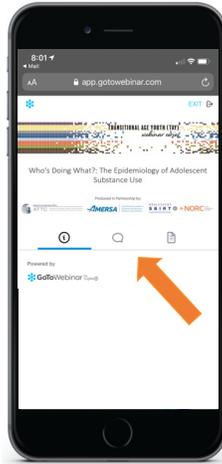


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Ask Questions

Ask questions at any point through the “Chat” pane of your GoToWebinar Control Panel on your computer or mobile device.

Answers will be posted on the website.



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Webinar Presenter

Veronika Mesheriakova, MD

Assistant Professor

Pediatrics and Adolescent Medicine,
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Director

UCSF Youth Outpatient Substance Use
Program (YoSUP)



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Objectives

After completing this activity, learners will be able to:

- Discuss trends in identification and treatment of adolescent substance use
- Describe the implications of adolescent substance use
- Outline substances most commonly used by adolescents in the U.S. and describe trends in adolescent substance use over time
- Relate how the family and positive social supports serve as protective factors.

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A Case

- Breanne is a 16yo young woman who moved to a new town with her family and presented to establish care with a local pediatrician.
- During the initial visit, she complained of insomnia, fatigue, loss of appetite (with a 20lb weight loss), she reported that she quit her volleyball team, and has been failing her classes.
- She reported that she had been using cannabis to help with insomnia.
- She was diagnosed with a depressive disorder and started on fluoxetine at that time.

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Case Continued

- Two weeks later, Breanne saw her pediatrician again and reported doing a bit better in school, was less irritable, and was sleeping a bit better.
- She was also excited about a family trip to Europe but expressed significant anxiety about flying.
- Her pediatrician discussed non-pharmacologic options and prescribed alprazolam for flight anxiety and counseled parents to keep the medication locked, and in their possession at all times.

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Case Continued

- Two months later, Breanne had another office visit. She had a great time on vacation and reported that her mood was much better.
- She stated that she hadn't used cannabis for a few weeks because she couldn't buy it while on vacation.

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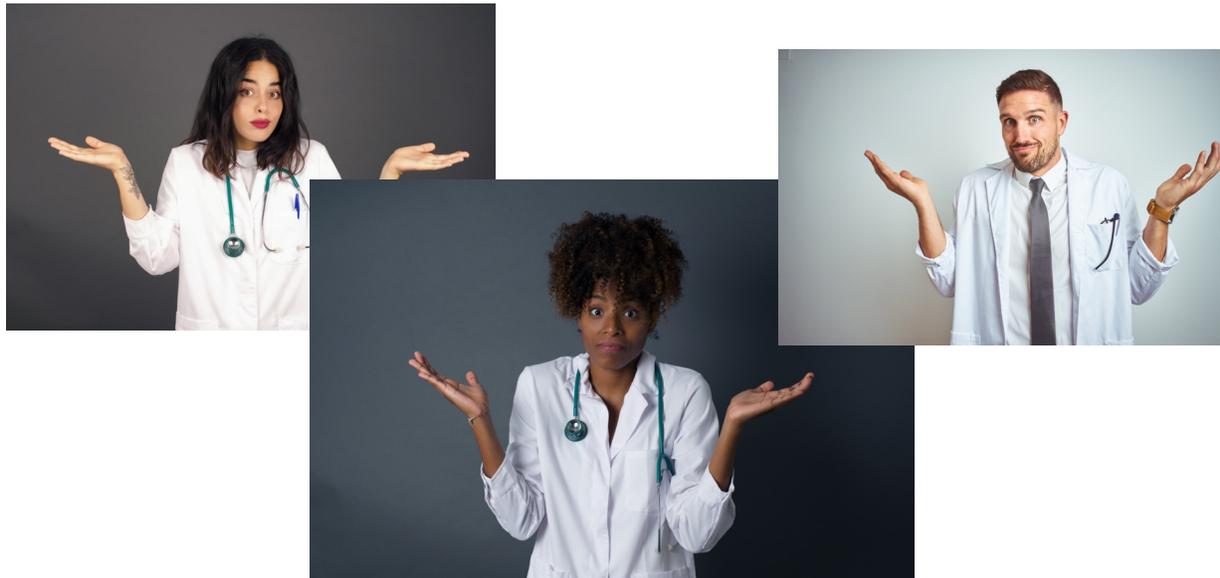
12

Case Continued

- Six months later, Breanne continued to struggle in school and started coming home visibly high. She eventually admitted to her parents that she had been using opioids that she purchased from friends.
- During private interview, Breanne reported a 4 year history of substance use that started with cannabis but later came to include nicotine, alcohol, cocaine, LSD, and various prescription medications.
- She was eventually diagnosed with:
 - Opioid use disorder
 - Cannabis use disorder
 - Benzodiazepine use disorder
 - Stimulant use disorder

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Detection and Treatment of Youth SUDs

- Only about 45% of pediatricians routinely screen adolescents for substance use
- Only 16% of pediatricians screen using a validated screening tool
- Pediatricians tend to underestimate the severity of adolescents' substance use problems
 - One study revealed that only 4.8% of patients with problematic substance use were correctly identified
- Even when problem substance use is identified, up to 20% of those patients receive no intervention

Sterling 2012

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Medical Education on SUDs: Medical School

- On average, medical school curricula offer a total of 12 hours to education on substance use and addiction
 - Most of this training is related to scientific pathophysiology and very little is focused on attitudes/stigma, screening, or evidence-based treatment of addiction
- Only 12 medical schools in the U.S. require a course on addiction
- Only 45 medical schools in the U.S. offer an elective course on addiction
- Medical students' attitudes about people with addiction tend to become increasingly negative as they progress through training.

Ram 2014

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Medical Education on SUDs: Residency

Pediatrics ACGME requirements:

- ...instruction and experience in pain management if applicable for the specialty, including recognition of the signs of addiction

Accreditation Council for Graduate Medical Education 2019

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Substance Use and Addiction is a Pediatric Priority

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A Pediatric Priority: Burden of Disease

- Worldwide, mental and substance use disorders are the **#1** contributors to health burden among 10-24 year-olds (19% of all disease burden)
- Among young adults aged 20-24, alcohol use is the largest worldwide contributor to disease burden (10% of all disease burden).
- In the U.S. almost $\frac{1}{4}$ of all deaths are attributable to (directly or indirectly) to the use of substances.

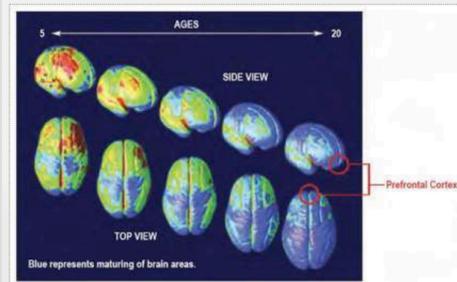
Degenhardt 2016; Ram 2016

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A Pediatric Priority: Adolescents' Vulnerability

- Adolescence is a neurobiologically vulnerable time period for the development of substance use disorders
 - Fully developed pain and reward pathways
 - Immature prefrontal cortex

Images of Brain Development in Healthy Children and Teens (Ages 5-20)



The brain continues to develop through early adulthood. Mature brain regions at each developmental stage are indicated in blue. The prefrontal cortex (red circles), which governs judgment and self-control, is the last part of the brain to mature.
Source: PNAS 101:8174-8179, 2004.

Dennis 2002

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A Pediatric Priority: Adolescents' Vulnerability

Adolescents are the group that is most likely to experience health consequences related to substance use

- Accidents
- Dating violence
- Risky sexual practices
- Development of substance use disorders

Vagi 2015; Ritchwood 2015; Monahan 2014; Nelson 2015; Levy 2016

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Addiction as a Pediatric-Onset Illness

- 90% adults who suffer from a substance use disorder started using substances before age 18 and developed their substance use disorder before age 20
 - 50% started using substances before age 15
- Younger age at first substance use is a strong risk factor for the development of substance use disorders
 - 15.4% of people who had their first drink before age 14 will develop a use disorder vs. only 2.1% of people who had their first drink after age 21
 - 25% of people who first misuse Rx drugs before age 13

Dennis 2002; McCabe 2017

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Addiction as a Pediatric-Onset Illness

Predictors of illness duration

- Age of first use
 - Started using after age 20 → 18 years of illness
 - Started using before age 15 → 29 years of illness
- Duration of use before first treatment
 - 10 years of use before first treatment → 15 years of illness
 - 20 years of use before first treatment → 35+ years of illness

Dennis 2007

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Epidemiology of Substance Use in the United States

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Poll

How many people aged 12 and older in the United States reported using substances in the past month (tobacco, alcohol, other drugs)?

A. 165 million (60%)

B. 140 million (51%)

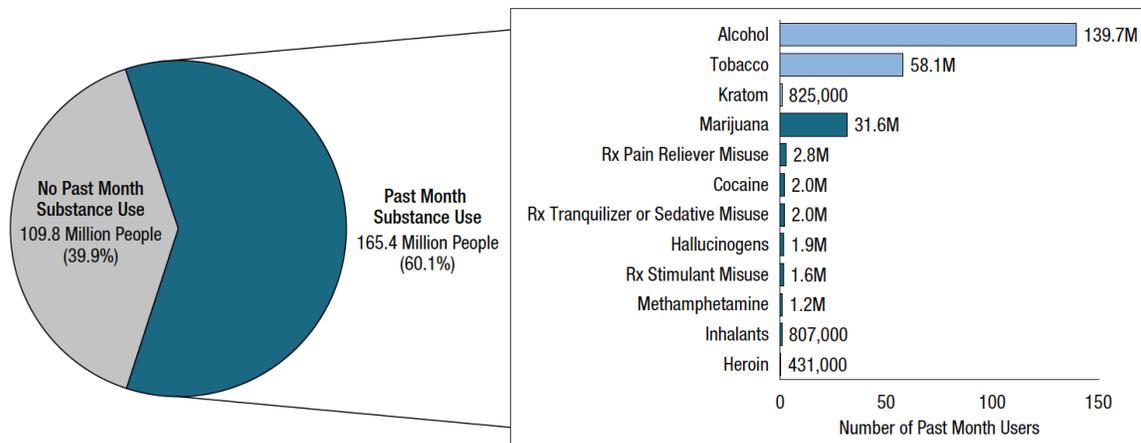
C. 58 million (21%)

D. 36 million (13%)

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Figure 1. Past Month Substance Use among People Aged 12 or Older: 2019



Rx = prescription.

Note: Substance Use includes any illicit drug, kratom, alcohol, and tobacco use.

Note: The estimated numbers of current users of different substances are not mutually exclusive because people could have used more than one type of substance in the past month.

2019 National Survey on Drug Use and Health

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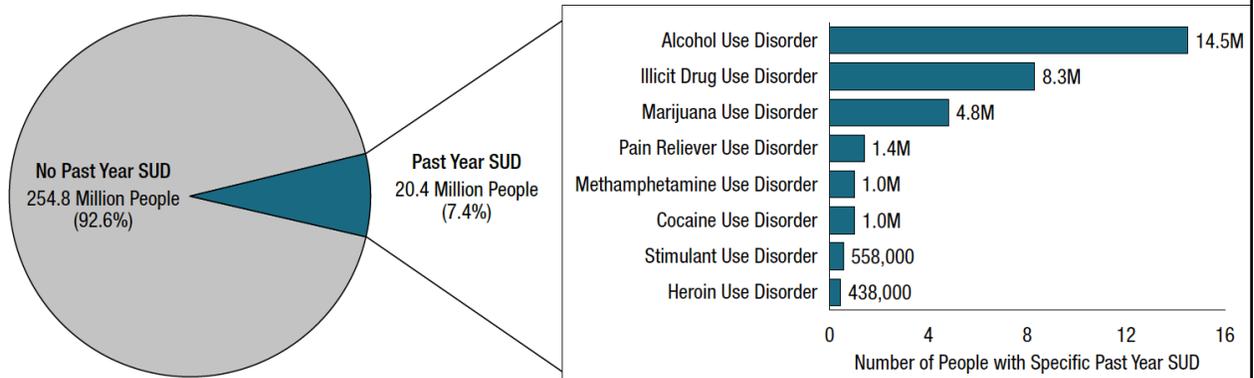
Poll

How many people aged 12 and older in the United States have had a substance use disorder in the past year?

- A. 5 million
- B. 10 million
- C. 15 million
- D. 20 million**

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Figure 46. People Aged 12 or Older with a Past Year Substance Use Disorder (SUD): 2019



Note: The estimated numbers of people with substance use disorders are not mutually exclusive because people could have use disorders for more than one substance.

2019 National Survey on Drug Use and Health

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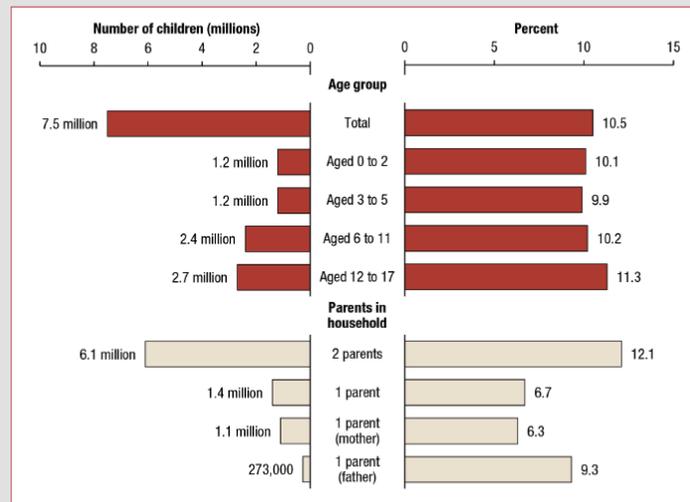
Addiction as an Intergenerational Issue

- 1 in 8 of all U.S. children are living in a household where at least one parent has struggled with a substance use disorder (SUD) in the past year.

Lipari 2017

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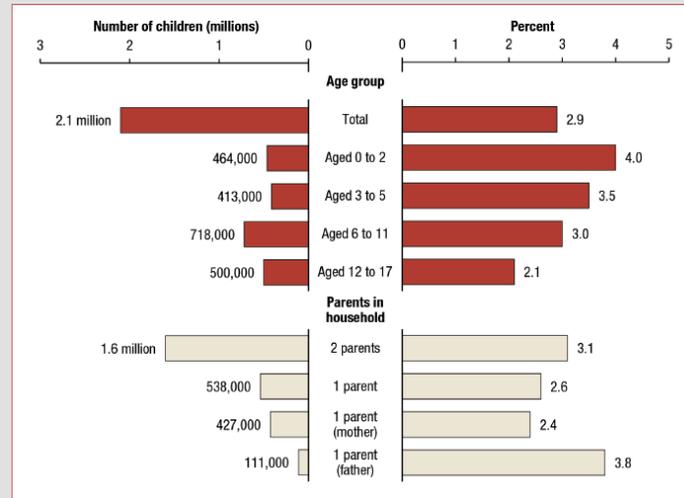
Figure 2. Number and percentage of children aged 17 or younger living with at least one parent with a past year alcohol use disorder, by age group and household composition: annual average, 2009 to 2014



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2009 to 2014.

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Figure 3. Number and percentage of children aged 17 or younger living with at least one parent with a past year illicit drug use disorder, by age group and household composition: annual average, 2009 to 2014



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2009 to 2014.

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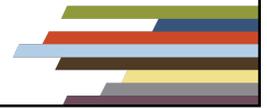
Addiction as an Intergenerational Issue

- Children with parents struggling with SUDs are more likely to:
 - Have low socio-economic status
 - Struggle more with academic, social, and family functioning
 - Experience mental and behavioral disorders
 - Develop SUDs themselves
 - Children of parents with alcohol use disorder (AUD) are 4x more likely to develop AUD than their peers who don't have a parent with AUD
 - Parental marijuana use increases risk of adolescent marijuana, tobacco, and alcohol use and opioid misuse

Lipari 2017; Madras 2019

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Epidemiology of Adolescent Substance Use



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TEEN DRUG USE
MONITORING THE FUTURE 2019

COCAINE HOOKAHS SYNTHETICS ALCOHOL
PRESCRIPTIONS CIGARETTES COLD MEDICINES
ECSTASY VAPING MARIJUANA STEROIDS RITALIN
CRACK "BATH SALTS" INHALANTS ADDERALL
HEROIN SEDATIVES TRANQUILIZERS
CRYSTAL METHAMPHETAMINES SALVIA VICODIN

Monitoring the Future is an annual survey of 8th, 10th, and 12th graders conducted by researchers at the Institute for Social Research at the University of Michigan, Ann Arbor, under a grant from the National Institute on Drug Abuse, part of the National Institutes of Health. Since 1975, the survey has measured how teens report their drug, alcohol, and cigarette use and related attitudes in 12th graders nationwide, 8th and 10th graders were added to the survey in 1991.

42,531 STUDENTS FROM 396 PUBLIC AND PRIVATE SCHOOLS PARTICIPATED IN THE 2019 SURVEY.

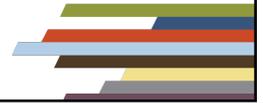
National Institute on Drug Abuse
DRUGABUSE.GOV

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Poll

Which substance is most commonly used by adolescents

- A. Nicotine
- B. Alcohol
- C. Cannabis
- D. Prescription drugs

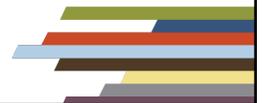


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Poll

What has been the trend in rates of alcohol use among 12th graders over the past 10 years?

- A. Rates have decreased
- B. Rates have increased
- C. Rates have stayed about the same

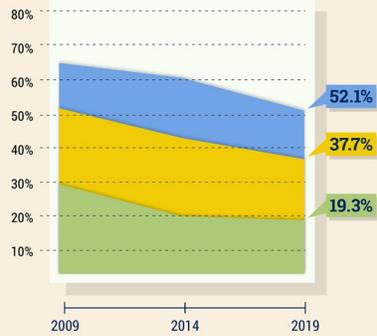


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ALCOHOL USE CONTINUES ITS DECLINE

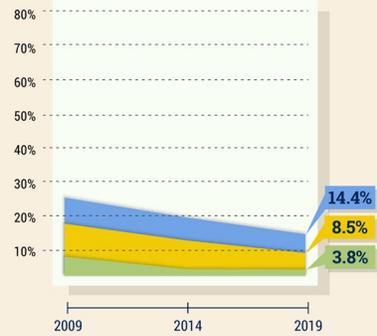
PAST YEAR ALCOHOL USE

Significant long-term decrease in all grades



BINGE DRINKING*

Significant long-term decrease in all grades



8th graders 10th graders 12th graders

*5 or more drinks in a row in the past two weeks



DRUGABUSE.GOV

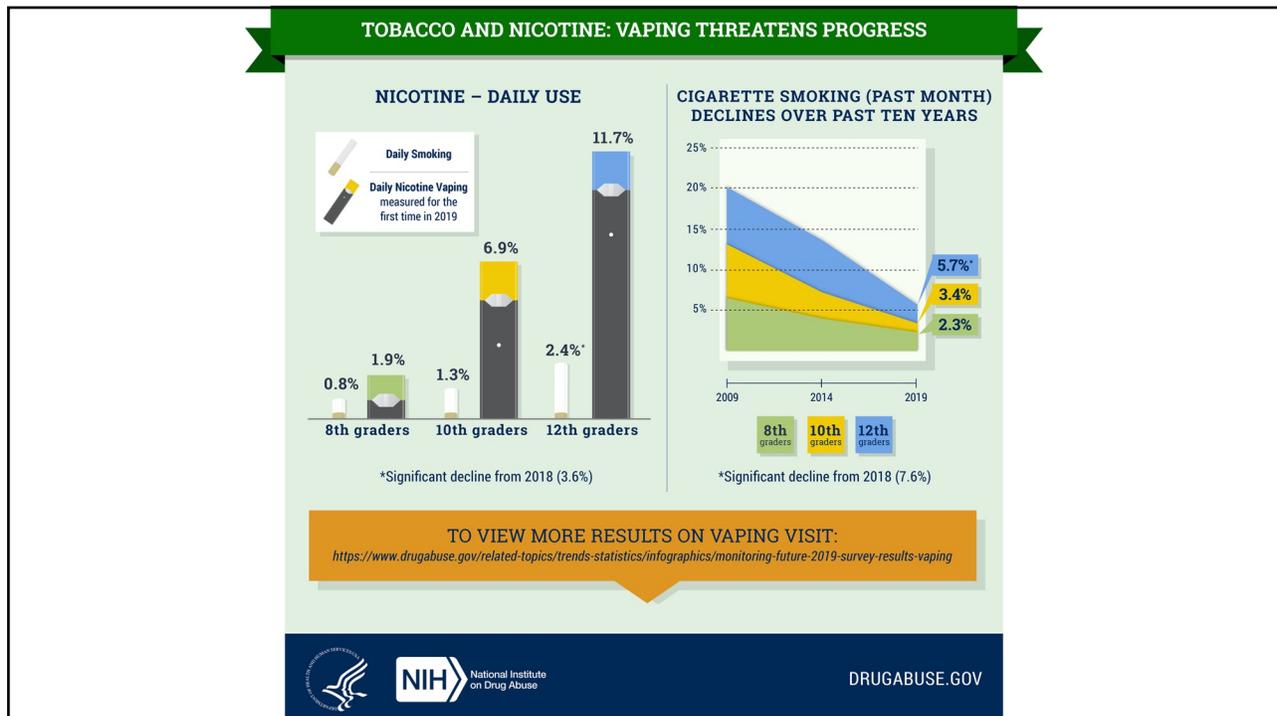
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Poll

What percentage of 12th graders reported vaping nicotine on a daily basis?

- A. Almost 7%
- B. Almost 12%
- C. Almost 20%

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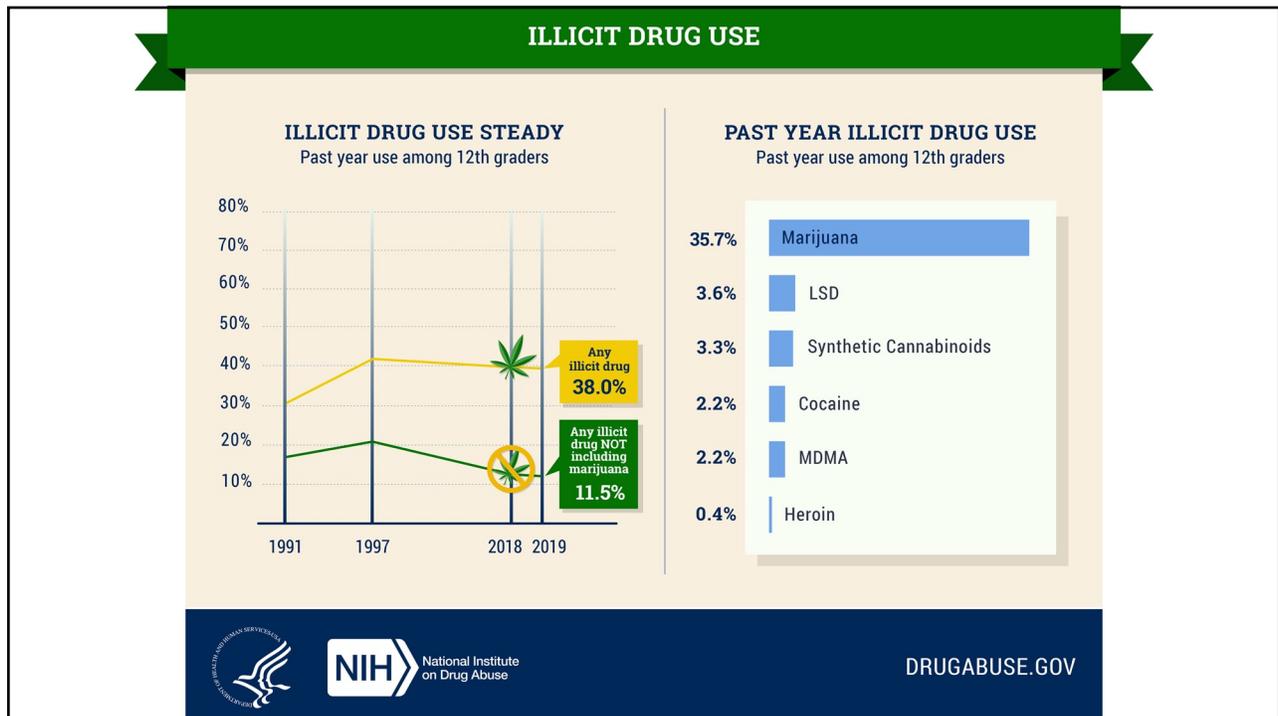
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Poll

What has been the trend in rates of illicit substance use (including cannabis) among 12th graders over the past 20?

- A. Rates have decreased
- B. Rates have increased
- C. Rates have stayed about the same

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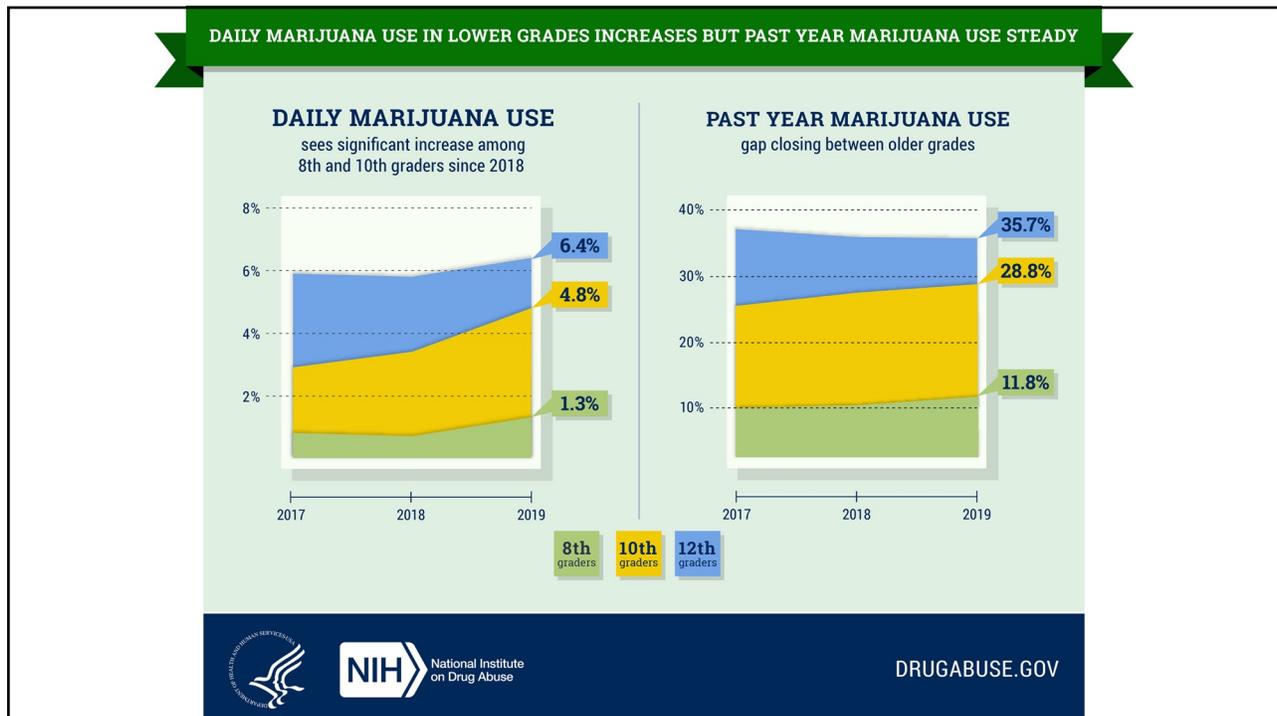
41

Poll

What has been the trend in rates of daily cannabis use among adolescents since 2017?

- A. Rates have increased in younger adolescents
- B. Rates have decreased in older adolescents
- C. Rates have stayed about the same in younger adolescents

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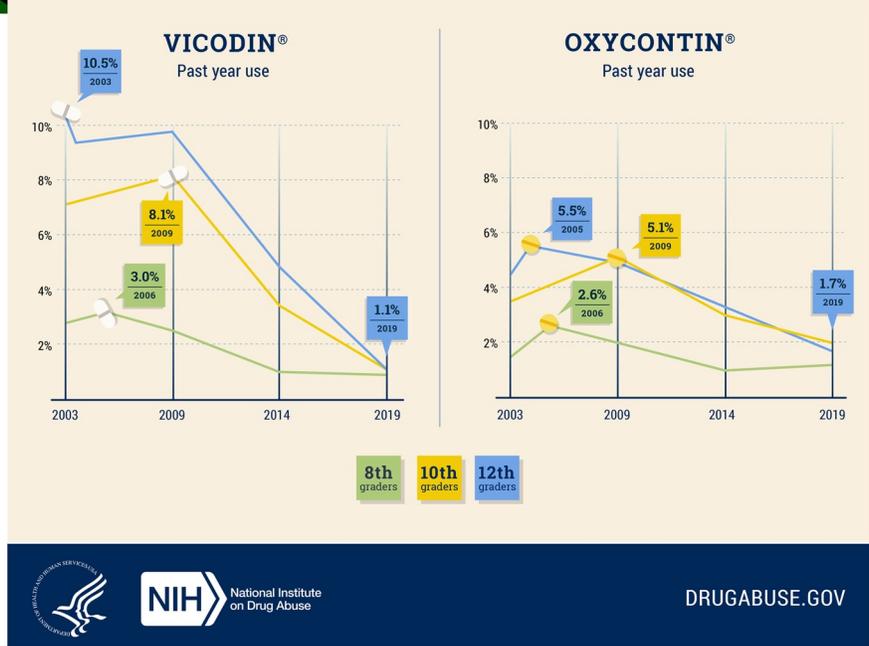
Poll

What has been the trend in prescription drug misuse among adolescents over the past 10 years?

- A. Rates have increased
- B. Rates have decreased
- C. Rates have stayed about the same

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PRESCRIPTION DRUG MISUSE CONTINUES DECLINE FROM PEAK YEARS

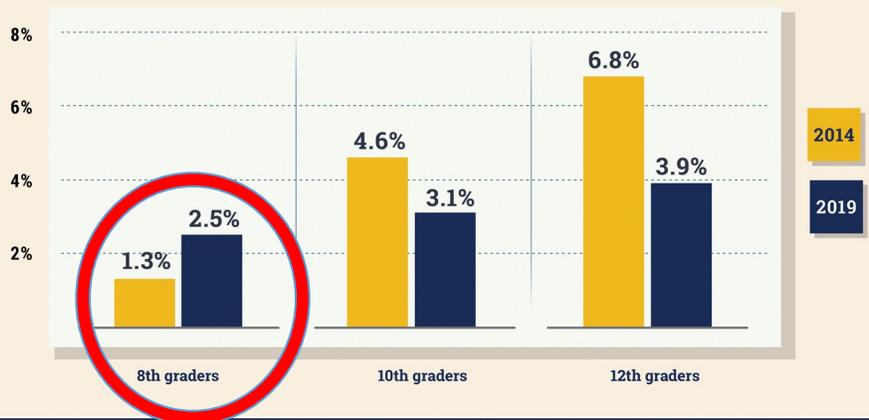


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PRESCRIPTION DRUG MISUSE CONTINUES DECLINE FROM PEAK YEARS

ADDERALL MISUSE SEES SIGNIFICANT CHANGES IN PAST 5 YEARS

a decrease in 10th and 12th grades, but an increase in 8th grade

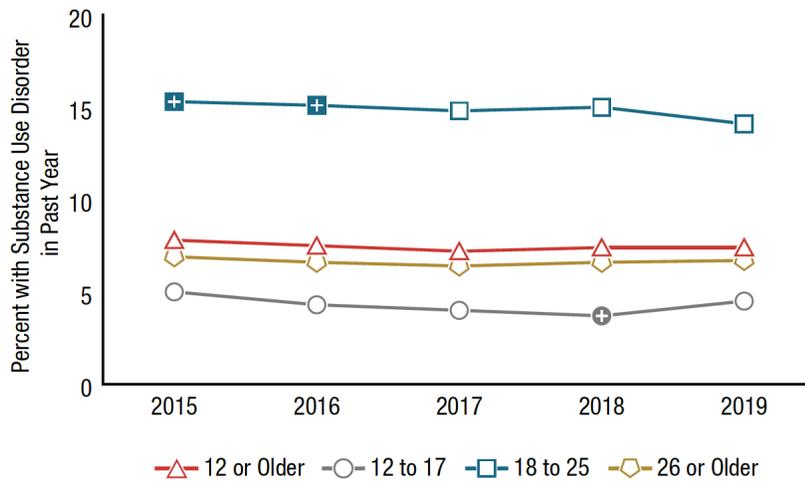


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Substance Use Disorders Among Adolescents

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Figure 45. Substance Use Disorder in the Past Year among People Aged 12 or Older: 2015-2019

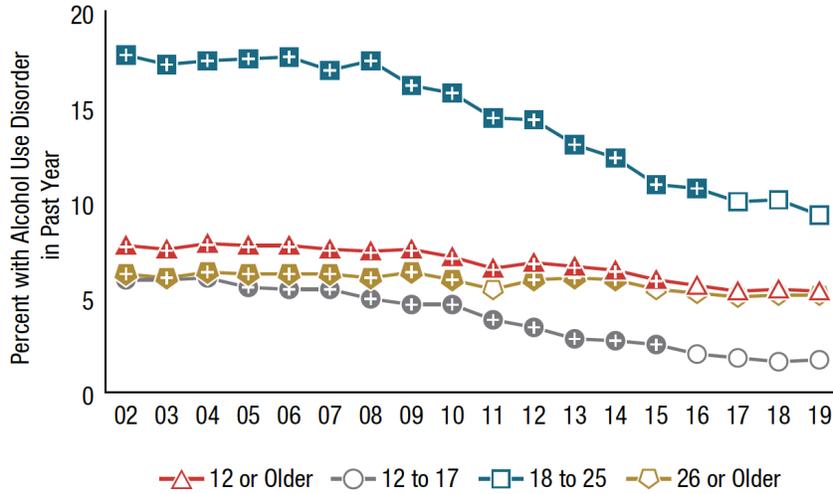


+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

2019 National Survey on Drug Use and Health

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Figure 37. Alcohol Use Disorder in the Past Year among People Aged 12 or Older: 2002-2019

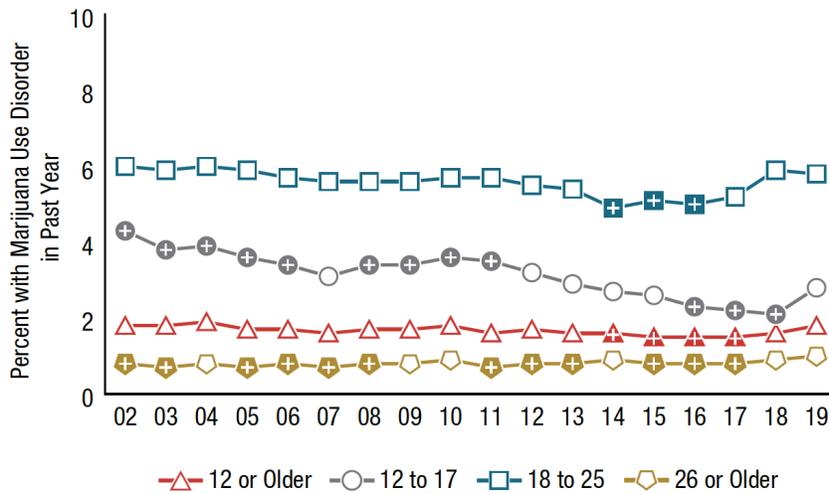


+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

2019 National Survey on Drug Use and Health

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Figure 39. Marijuana Use Disorder in the Past Year among People Aged 12 or Older: 2002-2019

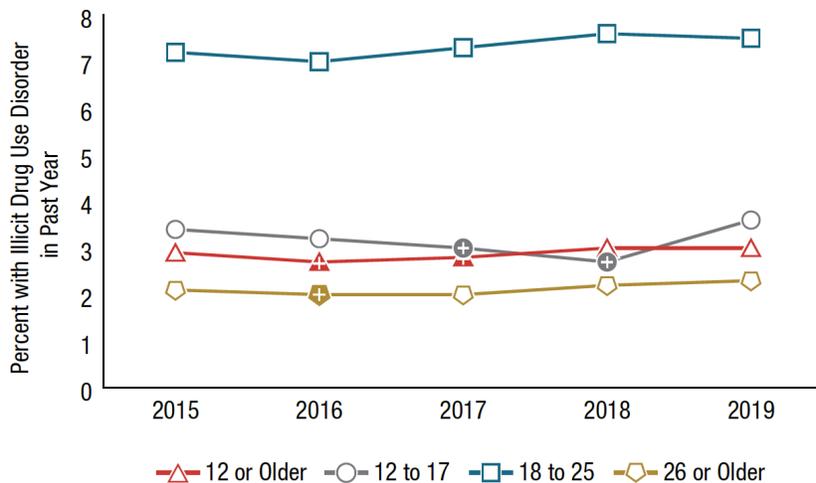


+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

2019 National Survey on Drug Use and Health

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Figure 38. Illicit Drug Use Disorder in the Past Year among People Aged 12 or Older: 2015-2019

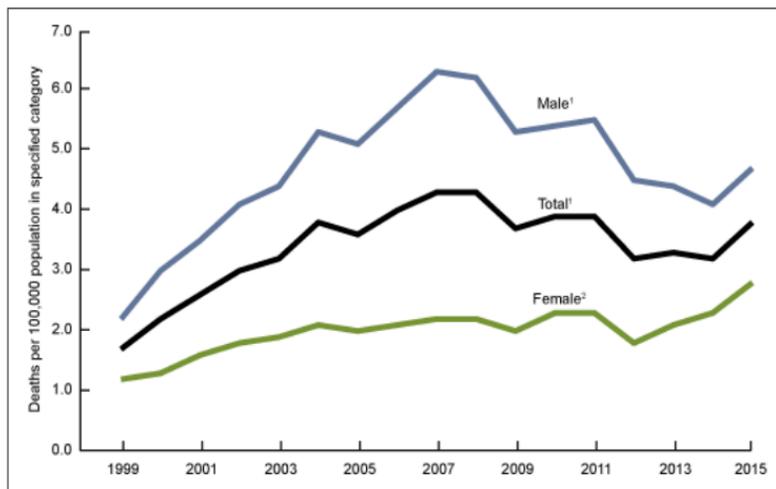


+ Difference between this estimate and the 2019 estimate is statistically significant at the .05 level.

2019 National Survey on Drug Use and Health

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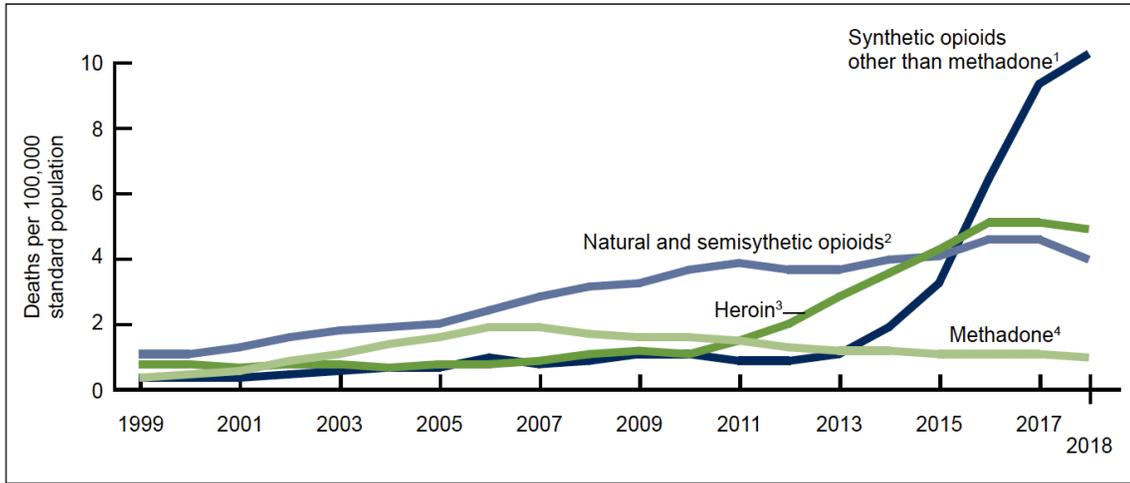
Figure 1. Drug overdose death rates for adolescents aged 15–19, by sex: United States, 1999–2015



Curtin 2017

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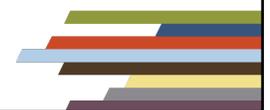
Figure 3. Age-adjusted drug overdose death rates involving opioids, by type of opioid: United States, 1999–2018



CDC National Center for Health Statistics, 2020

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Positive Social Supports and Family Engagement



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Rationale

- Family factors that reduce substance use in adolescents:
 - Warm and supportive family environment
 - Parental monitoring
- School factors that reduce substance use in adolescents:
 - Warm, supportive, nonpunitive school environment that promotes prosocial behavior
 - Schools that promote opportunities for positive socialization and interrupt deviant peer clustering
- Community factors that reduce substance use in adolescents:
 - Absence of substance-based advertising
 - Juvenile justice approaches that promote restorative practices, skill building, counseling and multiple coordinated services

Biglan 2019

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Family Engagement

- Reduction of parent-child conflict
- Improved care-giver mental health
- Improved rates of treatment adherence and completion
- Longer duration of abstinence from substance use
- Fewer relapses



Kumpfer 2003; Liddle 2004; Steinglass 2009; Copello 2005; Smith 2004

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Barriers to Family Engagement

- Family member ambivalence about need for treatment
 - Most youth in need of treatment, do not consider their substance use problematic
 - Perception that substance use is a normative behavior in adolescence
- Lack of understanding of what treatment entails

Rieckman 2011

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Barriers to Family Engagement

- Family member disengagement after initiation of treatment
 - Family members see substance use disorders as episodic, rather than as a chronic relapsing-remitting illness
- Perception that substance use is “the child’s problem/fault”
- Transportation and scheduling issues
- Care givers’ own addiction or mental illness

Rieckman 2011

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Family Engagement and SUD Treatment

- In a survey of adolescents with various mental health problems 91% cited that their **parent(s)** were the most influential to their decision to enter treatment (vs. teachers, counselors, doctors, etc).
- Parental involvement in adolescent treatment predicts improved treatment retention
- Greater parental utilization of treatment services is associated with decreased adolescent substance use

Wahlin 2012; Bertrand 2013

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Family Engagement and SUD Treatment

- Differences in the subjective perception of external treatment pressures result in different therapeutic alliance outcomes
 - Parental threats → fear of consequences (**less internal motivation**) → less therapeutic alliance
 - Parental concern → acceptance that treatment is necessary for a better future (**more internal motivation**) → more therapeutic alliance

Ryan 2000

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Provider Guidance on Family Engagement

- Educate families on neurodevelopmental issues related to substance use
 - Provide definitions of substance use disorders (when is substance use problematic?)
 - Educate families on SUD as a chronic, remitting-relapsing illness
 - Counsel families about evidence-based treatment options for SUDs
 - Provide guidance on externally motivated treatment
 - Recommend local treatment programs that utilize evidence-based treatment strategies
- 

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Conclusions

- Problematic substance use among adolescents is often underrecognized by healthcare providers due to lack of education on this topic
 - Mental illness and substance use are major contributors to health burden among youth and negatively impact outcomes in adulthood
 - Rates of alcohol use and cigarette smoking among U.S. adolescents continue to decline
 - Nicotine vaping and daily cannabis use are areas of concern
 - While rates of Rx drug misuse are on the decline, rates of overdose death are rising among youth
 - Positive social supports and family engagement are key factors for addressing problematic substance use in adolescents
- 

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Thank You!

Veronika Mesheriakova, MD

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Pediatrics and Adolescent Medicine,
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Director

UCSF Youth Outpatient Substance Use
Program (YoSUP)

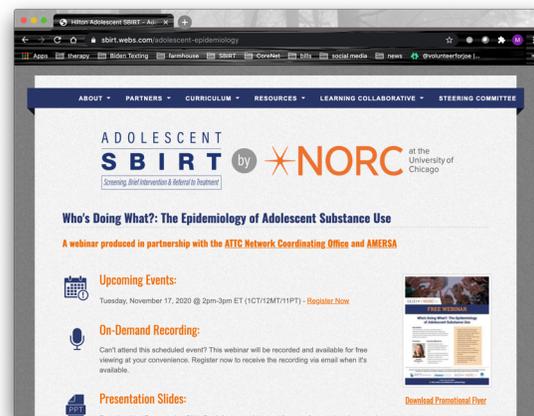


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- Follow-up email
- PowerPoint slides
- On-demand access 24/7
- Brief survey
- Certificate of Completion brief application (1 NAADAC CE)

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- [Understanding Latino Youth Recovery: Issues, Assets and Creating Resiliency](#) (Recorded webinar)
- Adolescent Brain Maturation and Health: Intersections on the Developmental Highway
 - [Recorded presentation](#)
 - [Handouts](#)
- [Effects on Marijuana Use on Developing Adolescents](#) (Recorded webinar)
- [Vaping Overview and CATCH My Breath Program](#) (Recorded webinar)
- [Vaping 2: Education vs Punishment Using Deferred Citation](#) (Recorded webinar)
- [Understanding Suicide Part 2 Adolescents and the Changing Brain](#) (Recorded webinar)

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- [Underage Alcohol Use: An Overview of Data and Strategies](#) (Recorded webinar)
- [Youth Opioid Addiction: What Preventionists Need to Know](#) (Recorded webinar)
- [Selecting and Implementing Evidence-Based Practices to Address Substance Misuse Among Young Adults: Webinar on SAMHSA's Resource Guide](#)
- [Preventing Youth Vaping \(Webinar Series\) Part 1 of 2: The Extent and Risk Factors for Youth Vaping](#) (Recorded webinar)
- [Preventing Youth Vaping Part 2 of 2: Policy Recommendations and Promising Practices for Addressing Youth Vaping](#) (Recorded webinar)
- [The Benefits of Engaging Youth in Communities: Insights and Evidence from Developmental Science](#) (Recorded webinar)
- [Vaping and LGBTQ Youth](#) (Recorded webinar)
- [Informing Prevention 6-Part Webinar Series on Adolescents: Mountain Plains PTTC](#)
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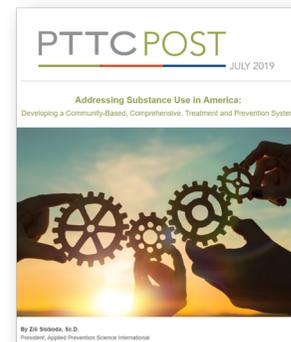
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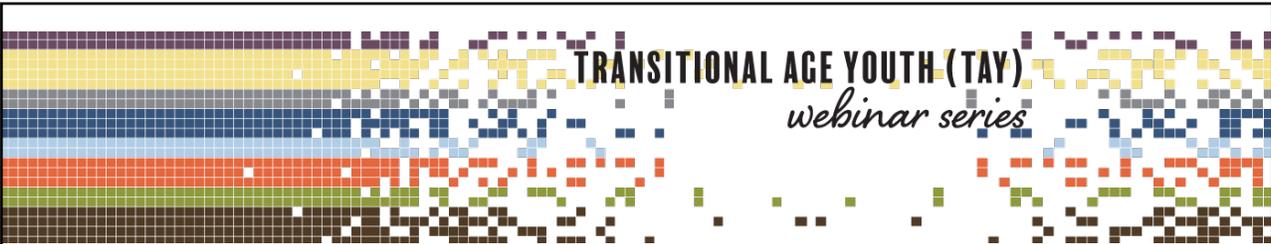


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TRANSITIONAL AGE YOUTH (TAY)

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