Approaches to Substance Use Disorders in Adolescents

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Faculty Disclosure

- **Dr. Wilens:** Consultant—Ironshore, KemPharm, Neurovance/Otsuka; Grant Support—National Institutes of Health, National Institute on Drug Abuse; Licensing Agreement—Ironshore; Published Books—Cambridge University Press, Elsevier, Guilford Press.

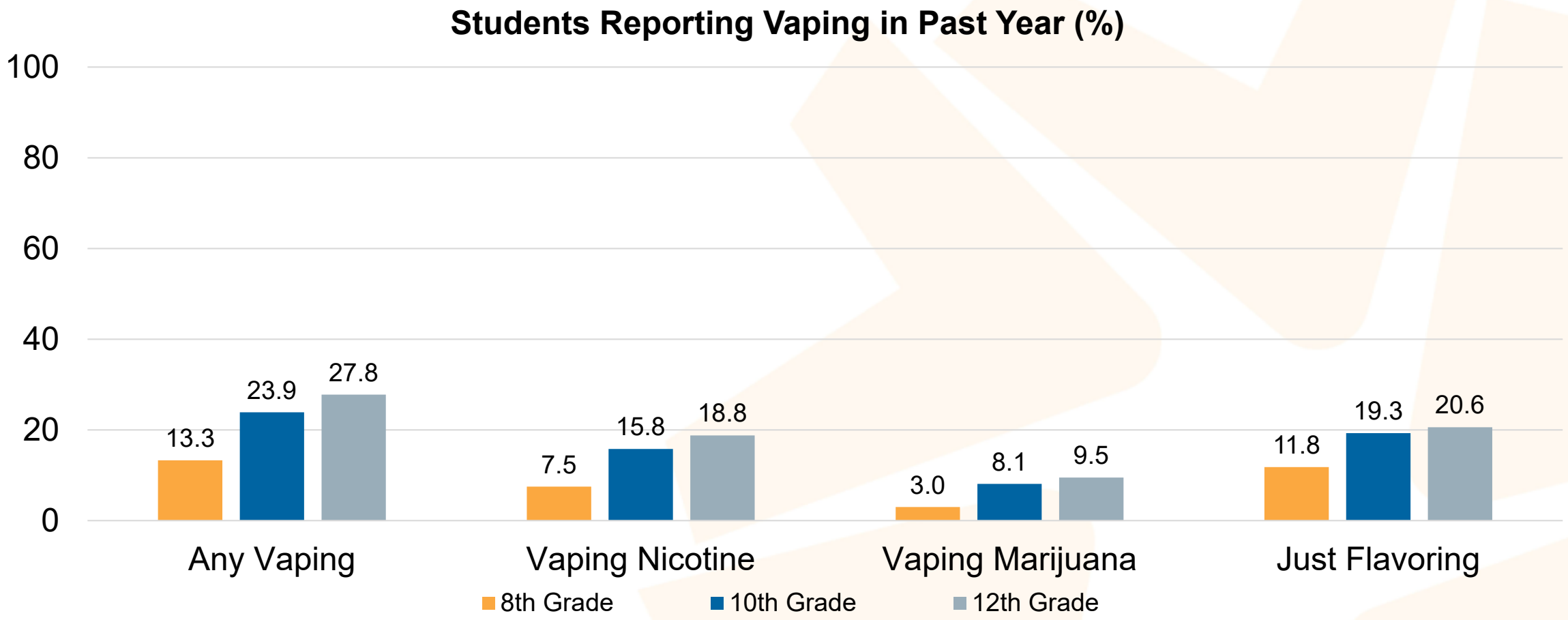
Disclosure

- The faculty have been informed of their responsibility to disclose to the audience if they will be discussing off-label or investigational use(s) of drugs, products, and/or devices (any use not approved by the US Food and Drug Administration).
  - Some of the medications discussed may not be FDA approved in the manner in which they are discussed including diagnosis(es), combinations, age groups, dosing, or in context to other disorders (eg, substance use disorders).
- Applicable CME staff have no relationships to disclose relating to the subject matter of this activity.
- This activity has been independently reviewed for balance.
- Brand names are included in this presentation for participant clarification purposes only. No product promotion should be inferred.

Learning Objectives

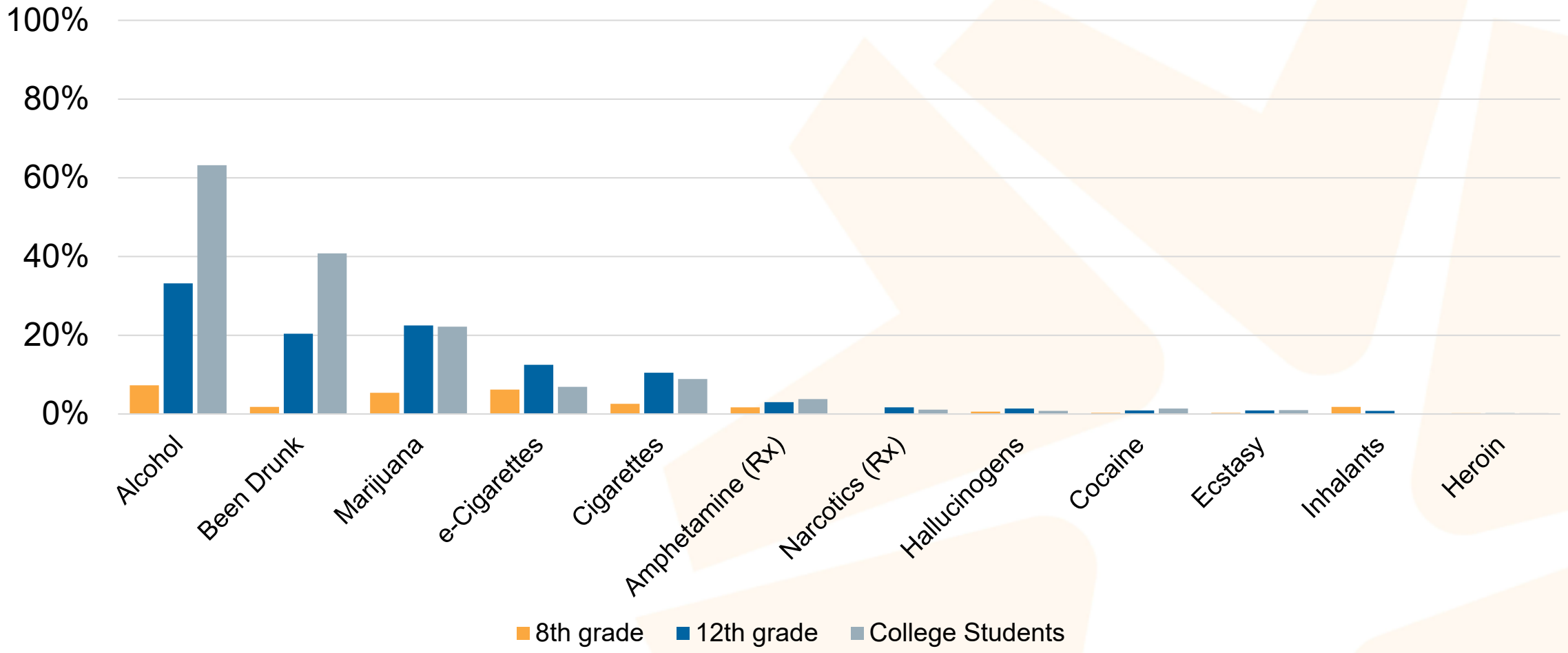
- Utilize a recently developed screener for identifying youth at risk for a substance use disorder (SUD)
- Describe the relationship between the main neurocircuits related to addiction and the use of treatments (psychotherapy, pharmacotherapy)
- List medications utilized in the treatment of various SUDs

Vaping is Common and Increasing Rapidly in Kids



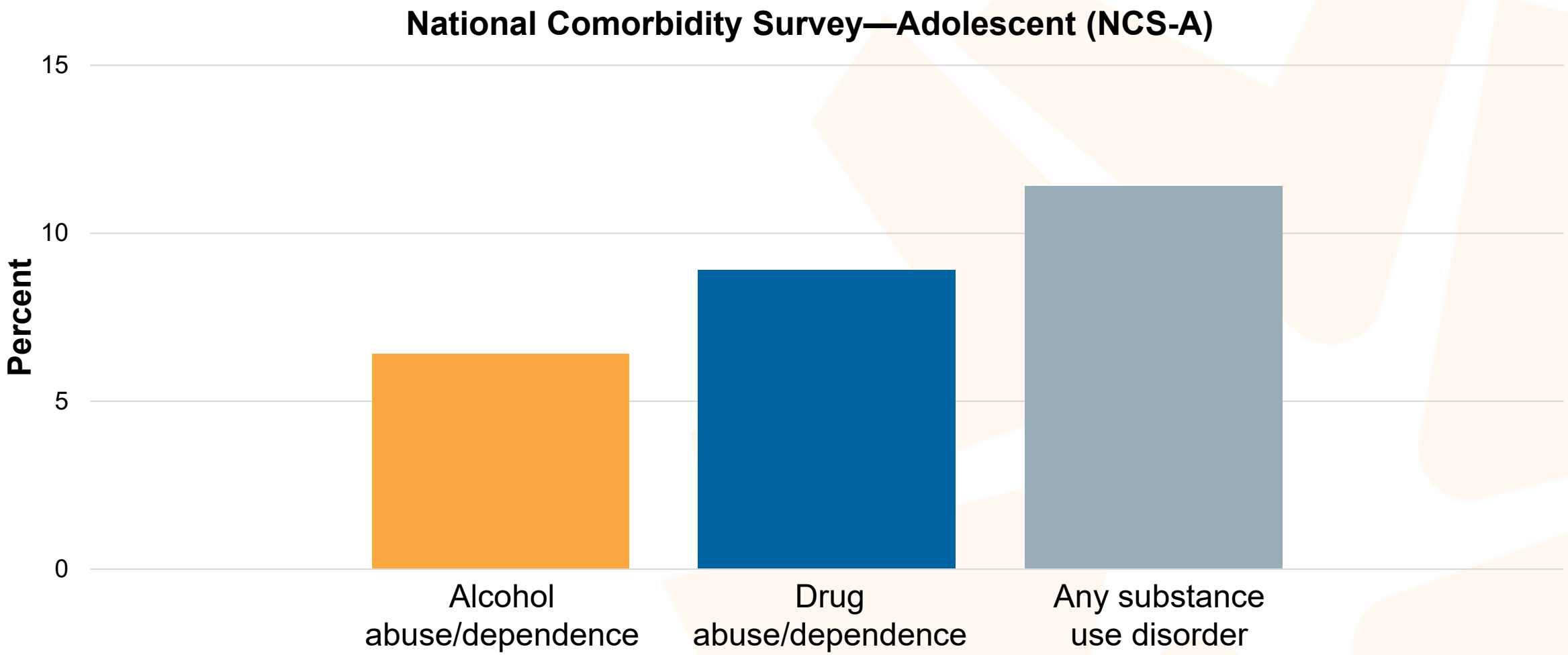
National Institute on Drug Abuse. Monitoring the Future Survey: High School and Youth Trends. December 2018. www.drugabuse.gov/publications/drugfacts/monitoring-future-survey-high-school-youth-trends. Accessed June 13, 2019.

2017 Past Month Substance Use in Adolescents



Johnston LD, et al. Monitoring the Future national survey results on drug use: 1975–2017: Overview, key findings on adolescent drug use. January 2018. Ann Arbor, MI: Institute for Social Research, The University of Michigan. www.monitoringthefuture.org/pubs/monographs/mtf-overview2017.pdf. Accessed June 13, 2019.

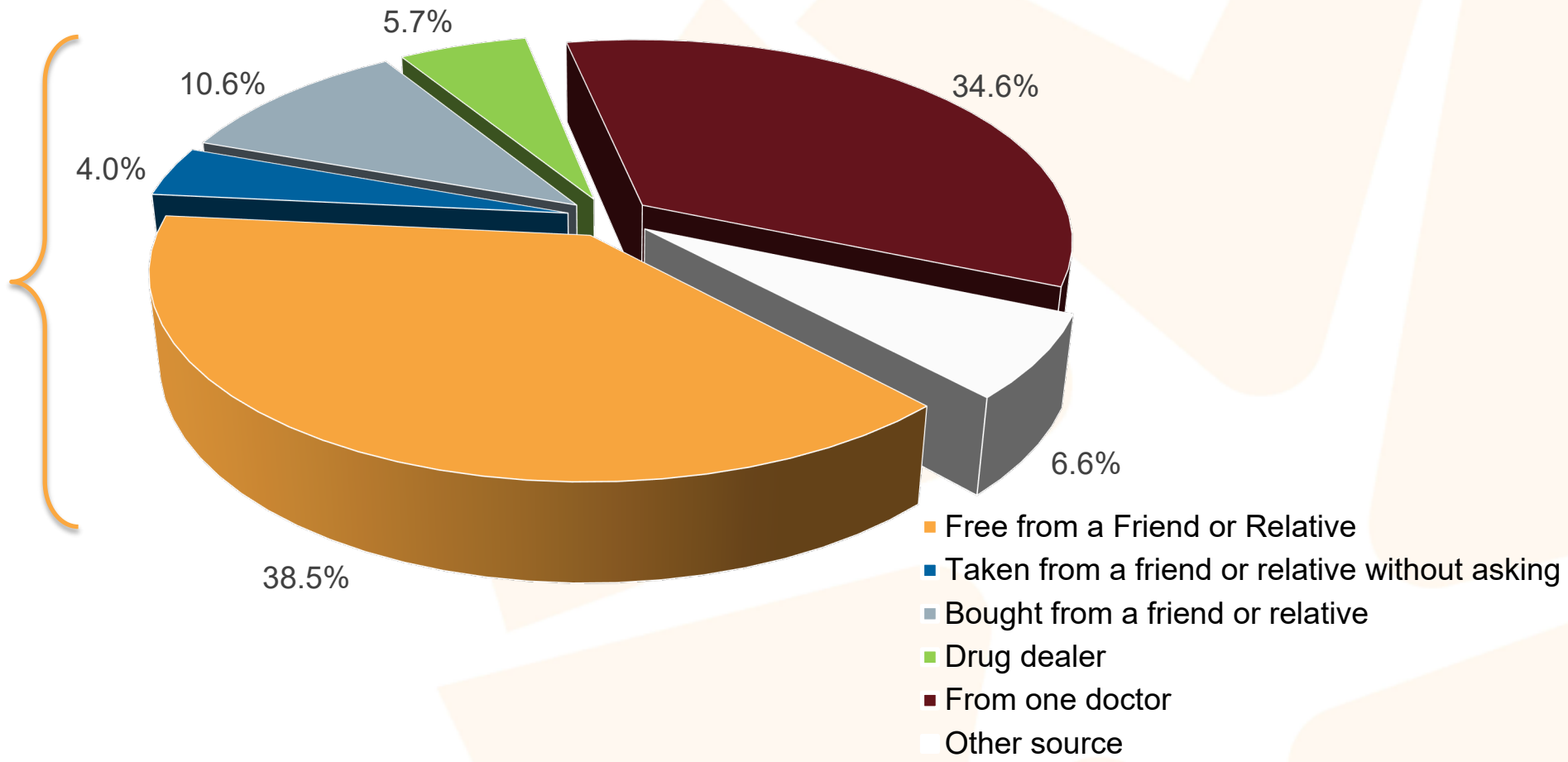
Lifetime Prevalence of *DSM-IV* Substance Use Disorders in Adolescents



Merikangas KR, et al. *J Am Acad Child Adolesc Psychiatry*. 2010;49(10):980-989.

Sources of Pain Relievers for Most Recent Nonmedical Use among Past Users

53% from friends and family



Center for Behavioral Health Statistics and Quality. (2018). 2017 National Survey on Drug Use and Health: Detailed Tables. Substance Abuse and Mental Health Services Administration, Rockville, MD. www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHDetailedTabs2017/NSDUHDetailedTabs2017.pdf. Accessed June 13, 2019.

Stimulants Mainly Misused for Focus/Energy in College Students

Reasons for Using Stimulants Nonmedically	
To help concentrate or focus better	77 (79%)
To stay awake	61 (62%)
To reduce distraction	55 (56%)
To get more energy	47 (48%)
To experiment – to see what it's like	42 (42%)
To have a good time with my friends	22 (22%)
To feel good or get high	21 (21%)
To get through the day	12 (12%)

Wilens TE, et al. Understanding the Context of Stimulant Misuse in College Students. Presented at: American Academy of Child and Adolescent Psychiatry 65th Annual Meeting; October 22–27, 2018; Seattle, WA.

Review

The source and diversion of pharmaceutical drugs for non-medical use: A systematic review and meta-analysis

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Pharmaceutical drug misuse
Non-medical use
Prescription sharing
Pharmaceutical black market

ABSTRACT

Background: The non-medical use (NMU) of pharmaceutical drugs is an increasing public health concern. This systematic review consolidates current knowledge about how pharmaceutical drugs are obtained for NMU and the processes and people involved in diversion.

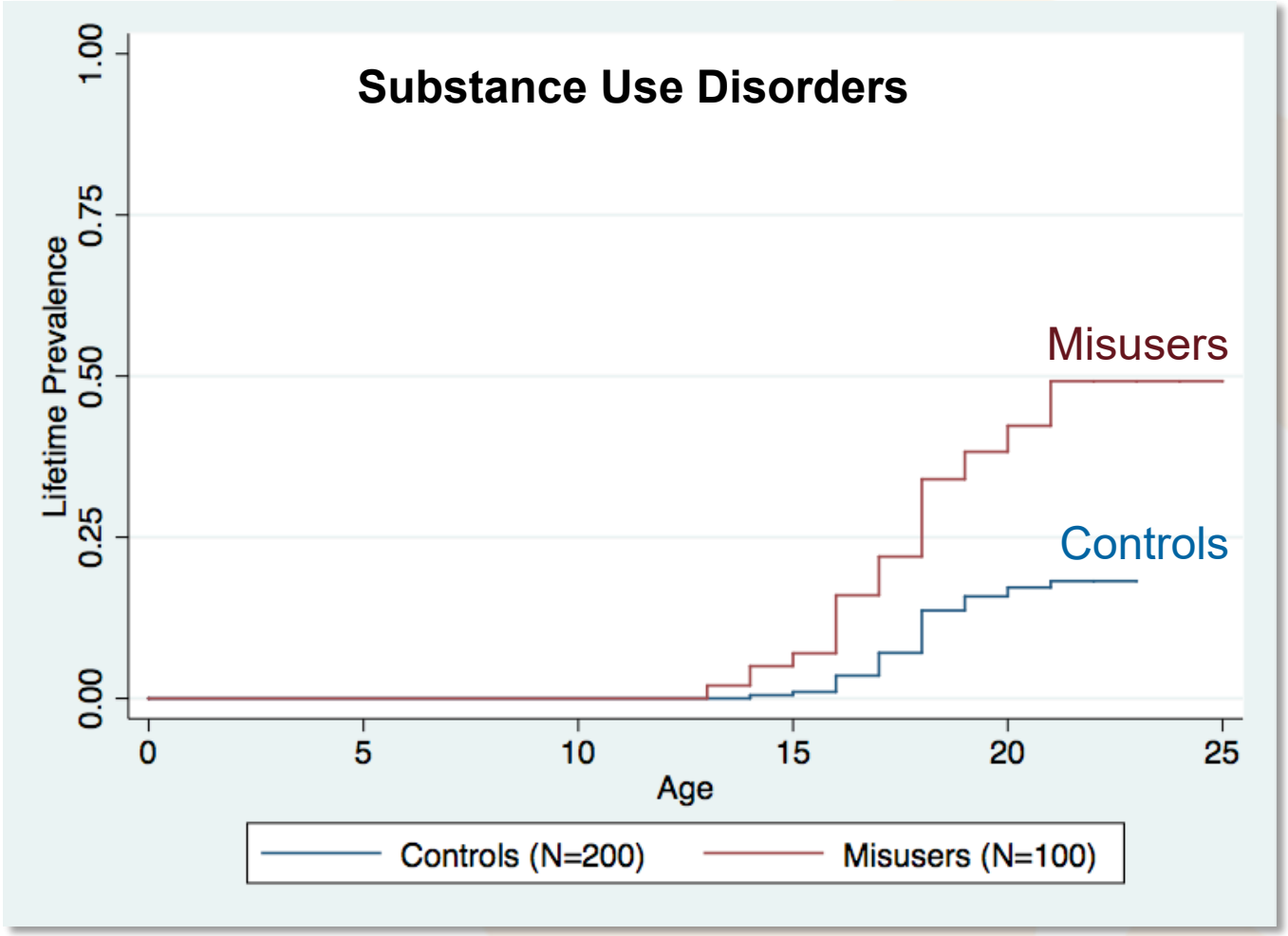
Methods: Peer-reviewed and grey literature databases were searched for empirical studies published between 1996 and 2017 that examined the source or diversion of pharmaceutical opioids, sedatives or stimulants for NMU in countries with reported misuse problems. Pooled prevalence meta-analyses using random effects models were used to estimate the prevalence of medical and non-medical sourcing reported by end-users, and gifting, selling and trading by various populations.

Results: This review synthesizes the findings of 54 cross-sectional studies via meta-analyses, with a remaining 95 studies examined through narrative review. Pharmaceutical drugs are primarily sourced for NMU from friends and family (57%, 95% CI 53%–62%, $I^2 = 98.5$, n = 30) and despite perceptions of healthcare professionals to the contrary, illegitimate practices such as doctor shopping are uncommon (7%, 95% CI 6%–10%, $I^2 = 97.4$, n = 29). Those at risk of diversion include patients displaying aberrant medication behaviors, people with substance use issues and students in fraternity/sorority environments. Sourcing via dealers is also common (32%, 95% CI 23%–41%, $I^2 = 99.8$, n = 25) and particularly so among people who use illicit drugs (47%, 95% CI 35%–60%, $I^2 = 99.1$, n = 15). There is little to no organized criminal involvement in the pharmaceutical black market.

Conclusion: Pharmaceutical drugs for NMU are primarily sourced by end-users through social networks. Future research should examine how dealers source pharmaceutical drugs.

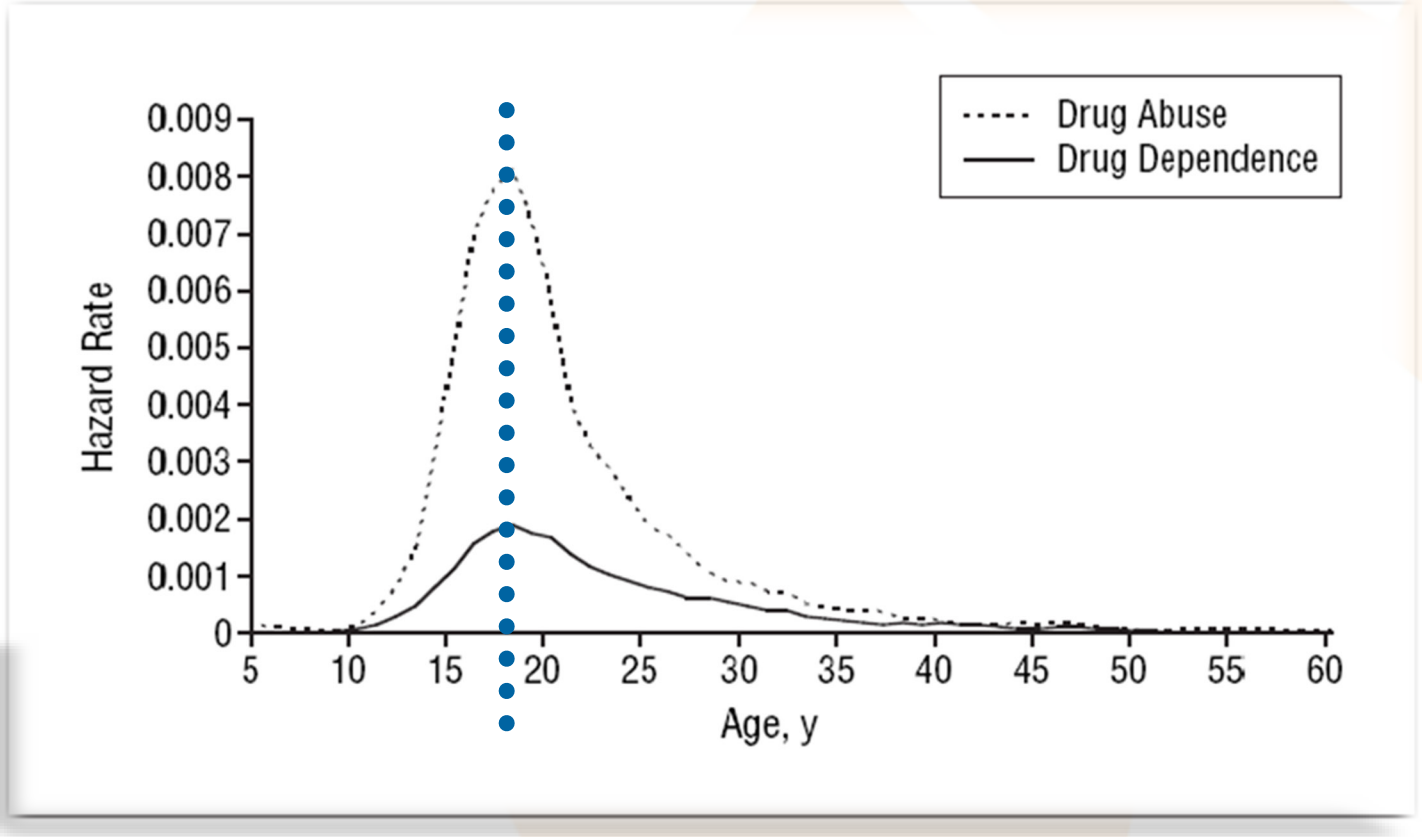
Hulme S, et al. *Drug Alcohol Depend*. 2018;186:242-256.

Rates of Substance Use Disorders are High in College Students Who Misuse Stimulants



Wilens T, et al. *J Clin Psychiatry*. 2016;77(7):940-947.

Age at Onset of *DSM-IV* Drug Abuse and Dependence

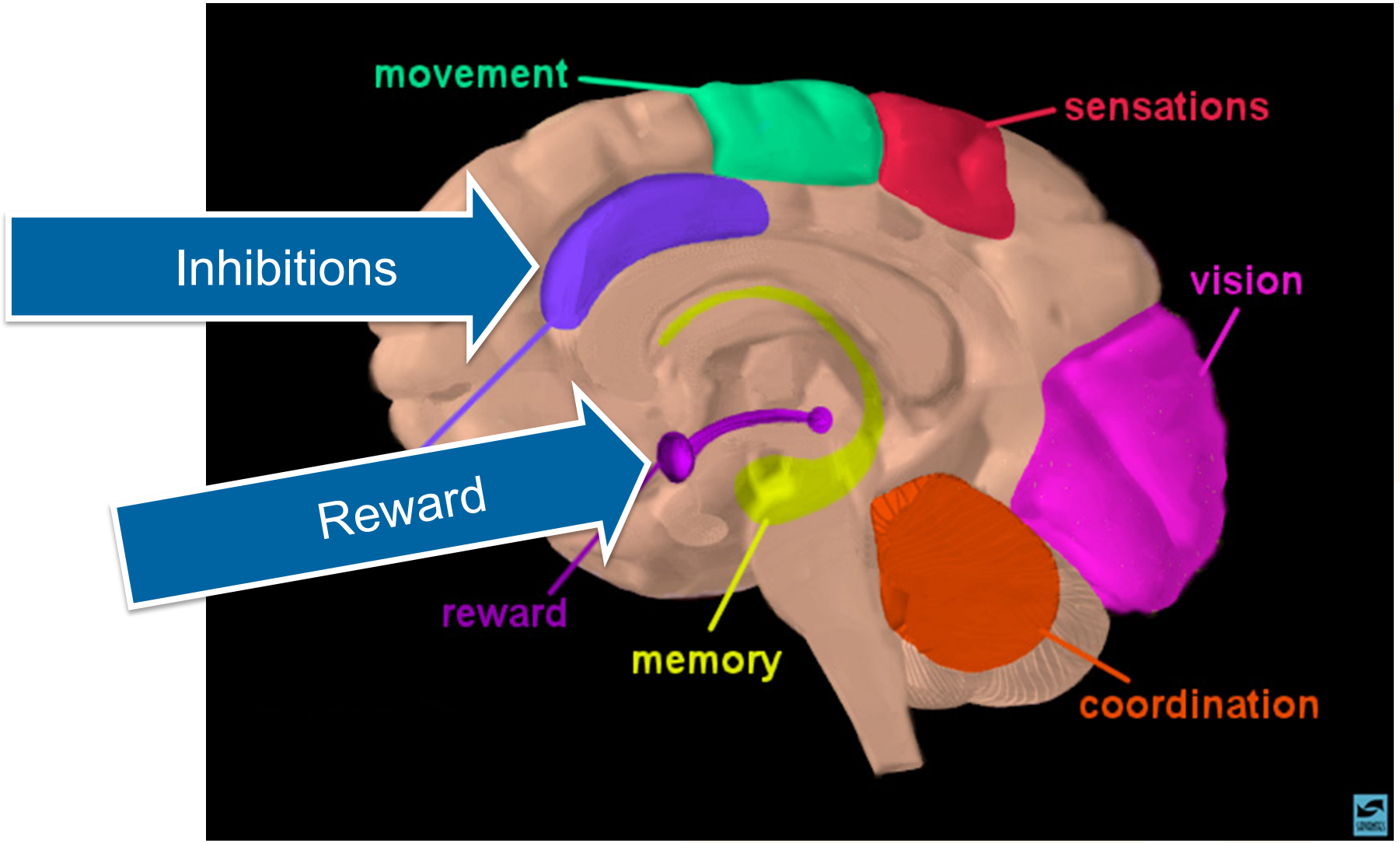


Compton WM, et al. *Arch Gen Psychiatry*. 2007;64(5):566-576.

Juvenile Substance Use Disorder: *Overview*

- Definitions
  - **Use** – At least once [often stratified in reports as past 30 days, past year]
  - **Misuse** – Emergence of pattern of use
  - **Substance Use Disorder (*DSM-5*)** – Pattern of misuse with impairment and/or consequences, inability to control use, use despite consequences, physiological symptoms
    - Graded mild–severe
    - No differentiation between abuse vs dependence

Major Brain Circuits Involved in Addiction



National Institute on Drug Abuse. The Brain & the Actions of Cocaine, Opioids and Marijuana. www.drugabuse.gov/brain-actions-cocaine-opioids-marijuana. Accessed June 13, 2019.

Addiction Pharmacology

Substance	Mechanism of Action
Alcohol	GABA
Cocaine	Blocks reuptake of dopamine
Amphetamines	Stimulate dopamine release
PCP, ketamine	NMDA antagonist
Opioids	μ, δ, and κ agonism
Cannabis	CB_1 agonist
MDMA (“ecstasy”)	5-HT release and reuptake inhibition; mild DA and NE reuptake inhibition
LSD (“acid”)	$5\text{-}HT_{2A}$ agonism leading to increased glutamate?

CB_1 = cannabinoid receptor 1; DA = dopamine; GABA = gamma-aminobutyric acid; NE = norepinephrine; NMDA = N-methyl-D-aspartate.

Galanter M, et al (Eds). *Textbook of Substance Abuse Treatment*. Fifth Edition. American Psychiatric Association Publishing; 2013.

Juvenile Substance Use Disorder: *Risk and Protective Factors*

Familial – Runs in families

Genetic – 50% accounted for by “genes”

Environmental – Values, patterns, availability

Self-medication – Symptoms, affect intolerance

Wilens TE, et al. *Am J Addict*. 2000;9(3):187-195. Wilens TE, et al. *Am J Addict*. 2002;11(1):41-51. Wilens TE, et al. *Am J Addict*. 2005;14(2):179-187. Wilens TE, et al. *Drug Alcohol Depend*. 2013;132(1-2):114-121. Nunes EV, et al. *JAMA*. 2004;291(15):1887-1896. Rhee SH, et al. *Arch Gen Psychiatry*. 2003;60(12):1256-1264. Yule AM, et al. *Am J Addict*. 2013;22(5):460-465.

Juvenile Substance Use Disorder: *Risk and Protective Factors* (cont'd)

Self-esteem issues

- Poor self-esteem or image linked to later SUD
- Poor ego development linked to SUD
- SUD exacerbates self-esteem issues

Dynamic issues

- Self-medication – Amelioration of specific symptoms
- Affect tolerance – Use of substance to blunt affect states
- Familial patterns and modeling

SUD = substance use disorder.

Khantzian EJ. *Am J Addict*. 2012;21(3):274-9; discussion 279. Kendler KS, et al. *Am J Psychiatry*. 2014;171(2):209-217.

Child Psychopathology Increases Risk for Later Substance Use Disorder

Disorder	Outcome	Type of Model	*k*	Pooled OR	95% CI	*Z*	*p*
ADHD	Addiction	Random	23	**2.27**	1.98–3.67	0.27	<.001
	Alcohol	Random	13	**2.15**	1.56–2.97	4.64	<.001
	Drugs	Random	12	**1.52**	1.52–5.27	3.28	.001
	Nicotine	Random	14	**2.52**	2.01–3.15	8.03	<.001
	SUD	Random	8	**2.61**	1.77–3.84	4.87	<.001
ODD or CD	Addiction	Random	9	**3.38**	1.97–5.80	4.41	<.001
	Alcohol	Fixed	4	**1.73**	1.51–2.00	7.72	<.001
	Drugs	Fixed	4	**4.24**	3.21–5.59	10.19	<.001
	Nicotine	Fixed	3	**4.22**	3.21–5.55	10.27	<.001
	SUD	Fixed	3	**4.86**	3.09–7.56	6.89	<.001
Anxiety	Addiction	Random	14	1.15	0.90–1.55	1.21	.27
	Alcohol	Random	5	0.85	0.64–1.13	−1.14	.26
	Drugs	Fixed	3	**1.60**	1.12–2.29	2.58	.01
	Nicotine	Fixed	3	1.23	0.08–1.97	0.88	.38
	SUD	Random	8	1.22	0.82–1.81	0.96	.34
Depression	Addiction	Random	13	**2.03**	1.47–2.81	4.26	<.001
	Alcohol	Fixed	3	**1.10**	1.02–1.19	2.39	.017
	Drugs	—	2	—	—	—	—
	Nicotine	Fixed	3	**2.56**	1.89–3.48	5.98	<.001
	SUD	Random	7	**2.20**	1.41–3.43	3.52	.001

Boldface figures = significant results; Dashes = analyses were not performed because of a limited number of data points; CD = conduct disorder; ODD = oppositional defiant disorder.

Groenman AP, et al. *J Am Acad Child Adolesc Psychiatry*. 2017;56(7):556-569.

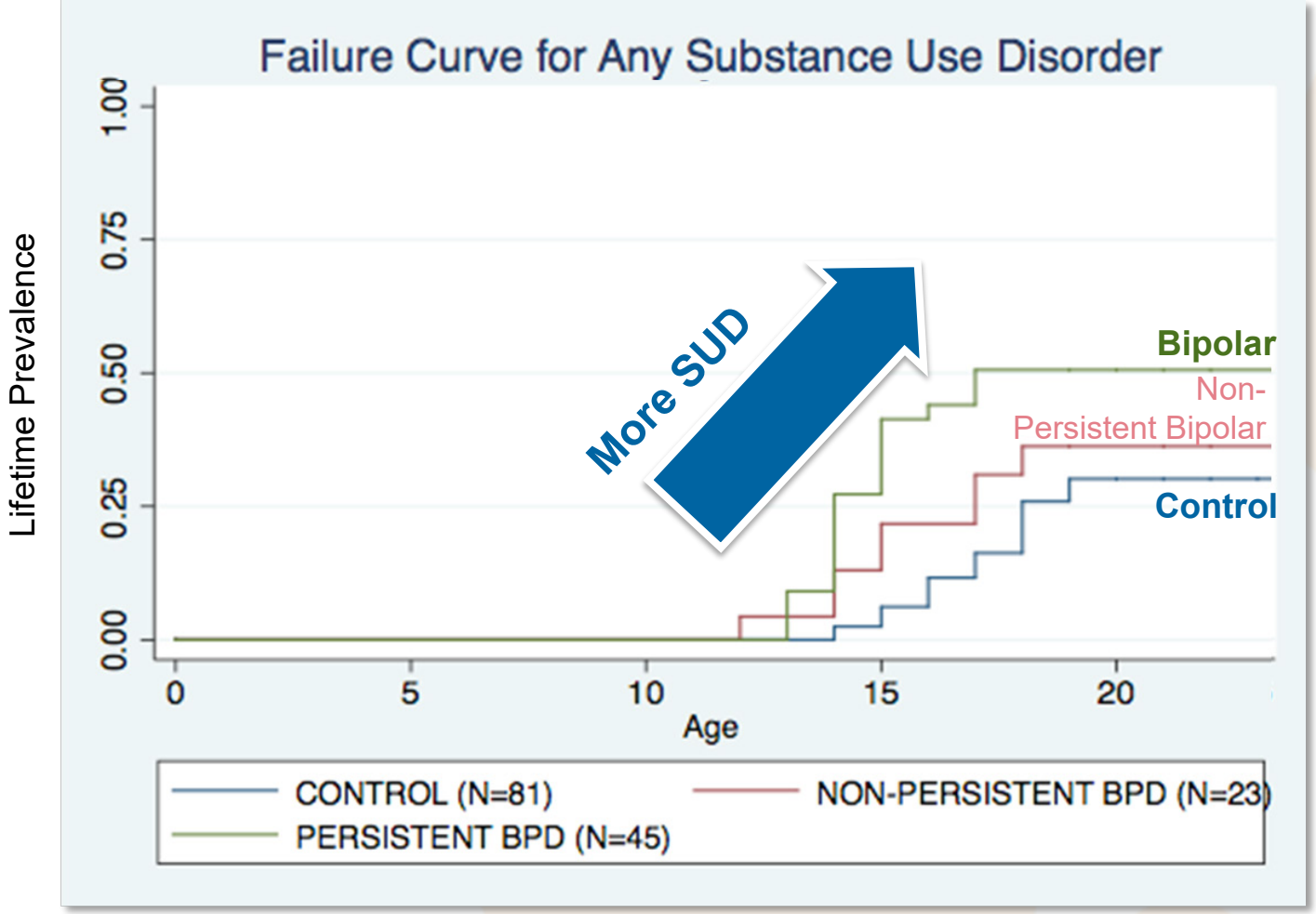
Common Psychopathology in Adolescent Substance Use Disorder

- Conduct Disorder
  - High risk for SUD (80%–90%)
  - Examine for comorbid mood
- ADHD
  - 2-fold risk for SUD
  - 50% of adolescent SUD with ADHD
  - Treatment reduces SUD
- Anxiety/PTSD
  - 2-fold risk for SUD
  - Anxiety frequent “cue” for substance use
  - PTSD precedes, or is result of SUD
- Depression
  - 2-fold risk for SUD (precedes SUD)

PTSD = posttraumatic stress disorder.

Wilens TE. *J Am Acad Child Adolesc Psychiatry*. 2011;50(1):6-8. Hussong AM, et al. *Psychol Addict Behav*. 2011;25(3):390-404. Riggs PD, et al. *Drug Alcohol Depend*. 2007;91(2-3):306-311.

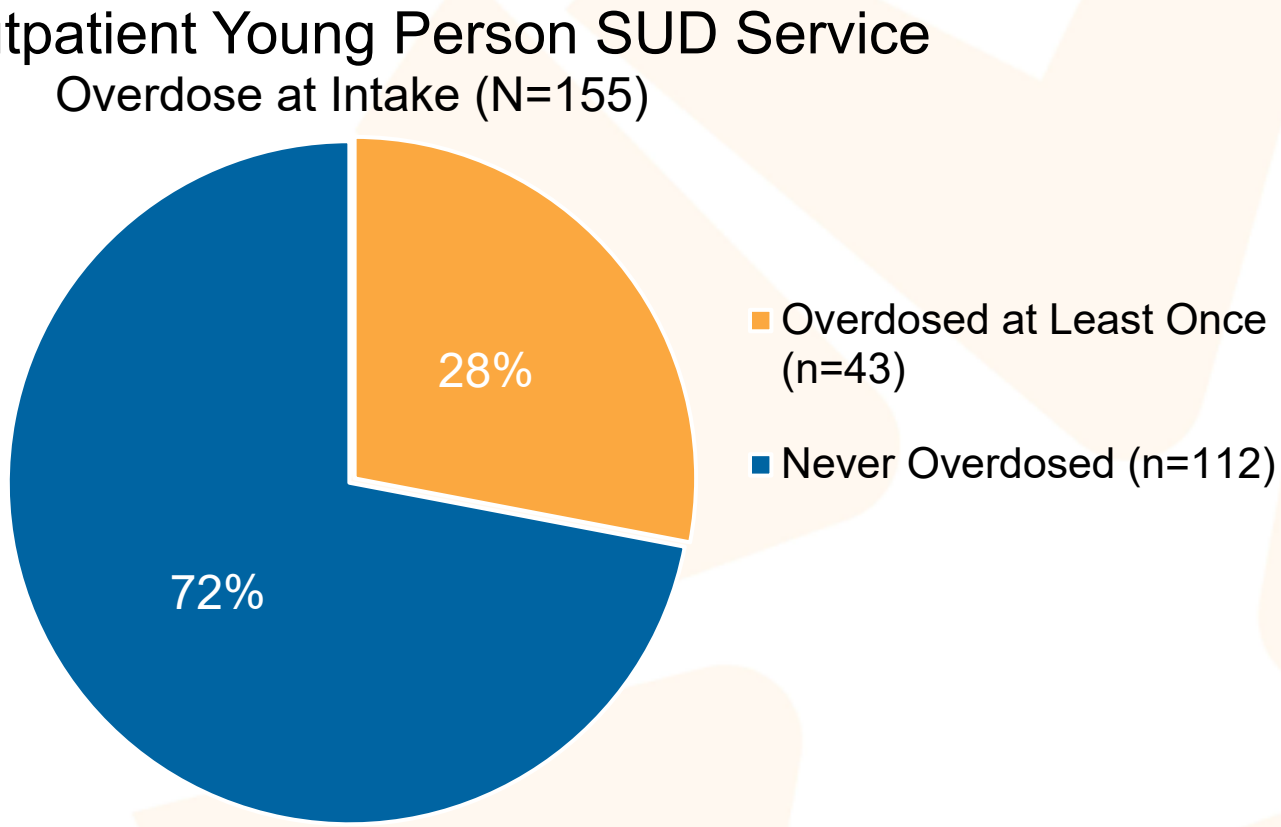
Bipolar Disorder/Conduct Disorder in Adolescence Increases the Risk of Substance Use Disorder in Young Adults



Wilens TE, et al. *J Clin Psychiatry*. 2016;77(10):1420-1427.

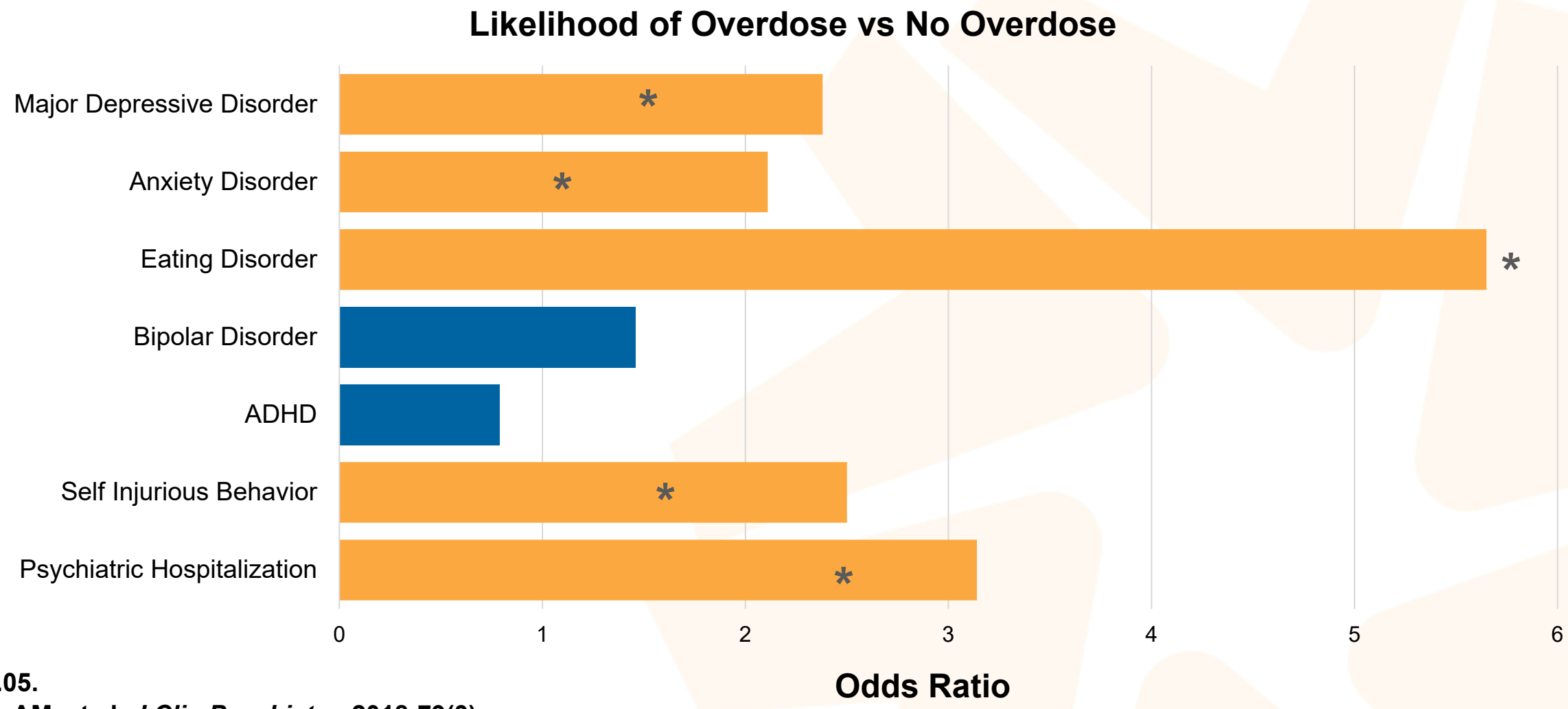
Overdose Rates are High in Young People

Overdose Linked to Psychopathology



Yule AM, et al. *J Clin Psychiatry*. 2018;79(3).

Psychiatric Characteristics



***P*<.05.**

Yule AM, et al. *J Clin Psychiatry*. 2018;79(3).

Juvenile Substance Use Disorder: *Diagnostics*

- Evaluate medical condition including complications (LFT, STDs)
- Generate differential diagnosis for psychiatric/medical symptoms
- Utilize urine, saliva, or hair toxicology screens

LFT = liver function tests; STD = sexually transmitted disease.

Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

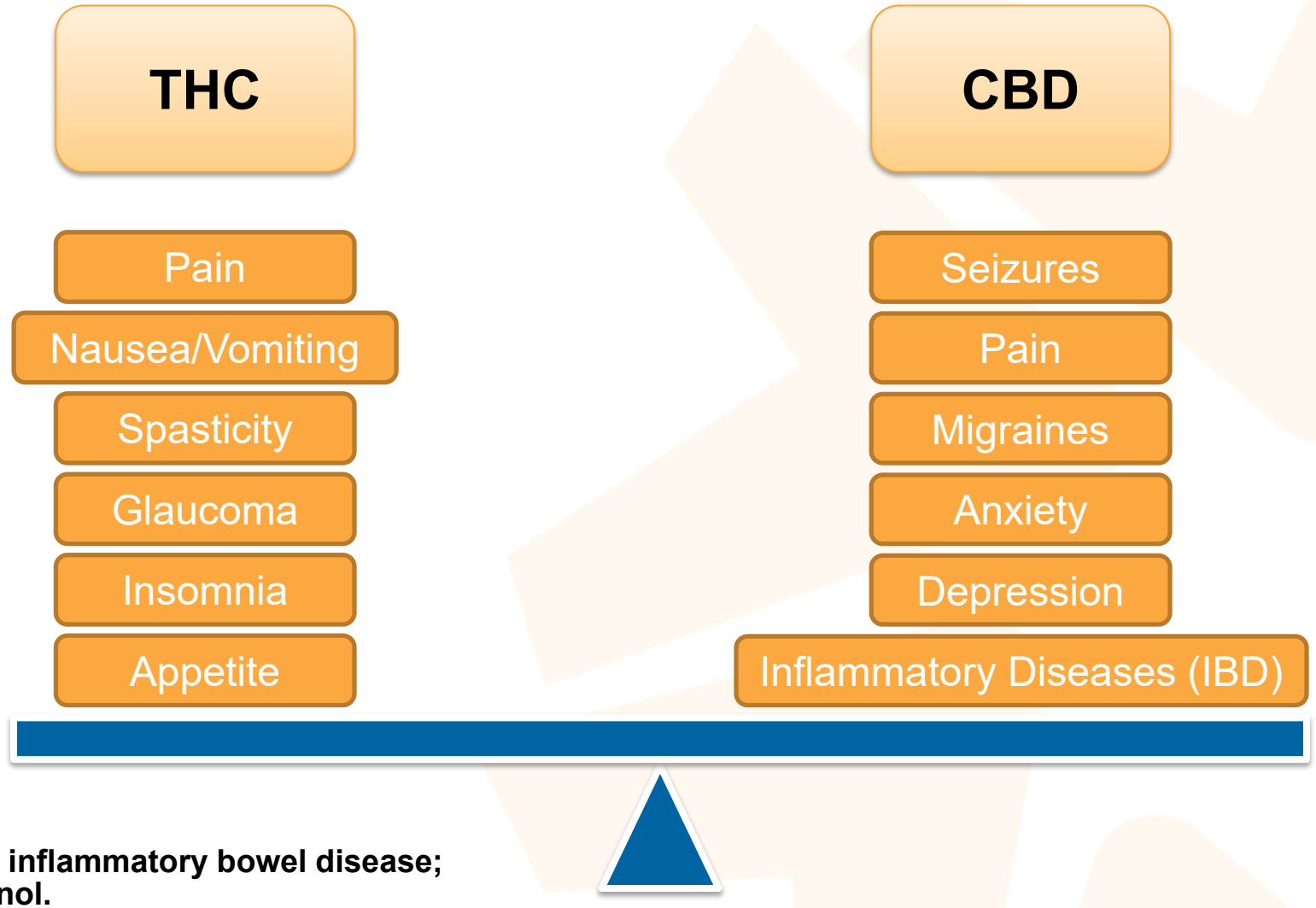
Medical Cannabis in Children and Adolescents: A Systematic Review

- Evidence for benefit was strongest for chemotherapy-induced nausea and vomiting, and for treatment-refractory epilepsy

- At this time, there is insufficient evidence to support use for spasticity, neuropathic pain, PTSD, Tourette syndrome, or any psychiatric disorder in childhood

Wong SS, et al. *Pediatrics*. 2017;140(5).

Putative Medical Uses of THC vs CBD



CBD = cannabidiol; IBD = inflammatory bowel disease; THC = tetrahydrocannabinol.

Annals of Internal Medicine

ORIGINAL RESEARCH

Acute Illness Associated With Cannabis Use, by Route of Exposure

An Observational Study

Andrew A. Monte, MD, PhD; Shelby K. Shelton, MPH; Eleanor Mills, BS; Jessica Saben, PhD; Andrew Hopkinson, BS; Brandon Sonn, MS; Michael Devivo, BA; Tae Chang, MD; Jacob Fox, BA; Cody Brevik, MD; Kayla Williamson, MS; and Diana Abbott, PhD

Conclusion:
Visits attributable to inhaled cannabis are more frequent than those attributable to edible cannabis, although the latter is associated with more acute psychiatric visits and more ED visits than expected.

Background:
and inhalable

Objective: To
ment (ED) visits

Design: Chart
31 December

Setting: A larg

Participants:
national Classif
cal Modificatio

Measurement
exposure, dose, symptoms, length of stay, disposition, discharge diagnoses, and attribution of visit to cannabis.

Results: There were 9973 visits with an ICD-9-CM or ICD-10-CM code for cannabis use. Of these, 2567 (25.7%) visits were at least partially attributable to cannabis, and 238 of those (9.3%) were related to edible cannabis. Visits attributable to inhaled cannabis were more likely to be for cannabinoid hyperemesis syndrome

cannabis were
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for 10.7% of
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bility of dose

s are more fre-
, although the
isits and more
ED visits than expected.

Primary Funding Source: Colorado Department of Public Health and Environment.

Ann Intern Med. doi:10.7326/M18-2809 **Annals.org**
For author affiliations, see end of text.
This article was published at Annals.org on 26 March 2019.

ED = emergency department.

Monte AA, et al. *Ann Intern Med*. 2019 Mar 26;[Epub ahead of print].

“Synthetic” Drugs: Synthetic Marijuana

- Synthetic marijuana **(spice, K2, herbal incense)**
  - Cannabis-like high
  - Chemicals sprayed on herbs
  - As of 2011: Many components are Schedule 1 Controlled Substance Act (illegal)
  - Reactions: Agitation, convulsions/seizures, psychosis, withdrawal states after persistent use
  - Not detected by routine drug screens (does NOT result in positive cannabis)

Adolescent Substance Use Disorder Part II

Diagnosis and Treatment

Screening Adolescents for Drugs and Alcohol: Screening to Brief Intervention (S2BI)

In the past year, how many times have you used:

- Tobacco?
- Alcohol?
- Marijuana?

STOP if all "Never"

Otherwise, CONTINUE:

- Prescription drugs that were not prescribed for you (such as pain medication or Adderall®)?
- Illegal drugs (such as cocaine or ecstasy)?
- Inhalants (such as nitrous oxide)?
- Herbs or synthetic drugs (such as salvia, "K2", or bath salts)?

National Institutes of Health. www.drugabuse.gov/ast/s2bi/#/. Accessed June 13, 2019. Levy SJ, et al. *Pediatrics*. 2016;138(1).

Documentation

According to Group Health's standards for SUD documentation, clinical staff may and should document the following information related to substance use:

- Patient disclosures about substance use, abuse, or dependence
- Patient disclosures about current or past chemical dependency treatment
- Completed screening tools including
  - Adolescent substance use screening tool (CRAFFT) and CRAFFT results
  - Others
  - A *DSM* diagnosis of substance abuse or dependence and the pertinent clinical information that supports the diagnosis
  - Referrals for a chemical dependency evaluation (includes all levels of care, behavioral, medical, inpatient, partial, outpatient)

Protection of chemical dependency information begins at the start of a treatment program, not at the time of screening, identification, or referral (as outlined in confidentiality regulation 42 CFR Part 2)

Adapted from: Group Health (now owned by Kaiser Permanente). Alcohol Use in Adolescents (13 through 17) Screening and Intervention Guideline. https://wa.kaiserpermanente.org/static/pdf/public/guidelines/alcohol-adolescent.pdf. Accessed July 5, 2019.

Juvenile Substance Use Disorder: *Treatment*

Stabilization of alcohol / drug misuse

- Harm reduction: Lowering use
- Absolute sobriety: None
- Basic self-help philosophy
  - Give multiple referrals
  - Alcoholics Anonymous/Narcotics Anonymous for teens
  - Rational Recovery
  - Avoid “tough love” as initial step

Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

Juvenile Substance Use Disorder: *Treatment*

Psychotherapy

- Groups: For youth and for their parents
- Motivational interviewing
  - Engage/collaborative connection with patient
  - Discuss issues that are problematic (don't focus on SUD)
- Cognitive Behavioral modification
  - Reduction in impairing behaviors
  - Coping skills
  - Reduce SUD "cues"
  - Relapse prevention (eg, reducing cues, balance in life)

Wilens TE, et al. Transitional-aged youth and substance use: Teenaged addicts come of age. *Contemporary Pediatrics*. November 1, 2013. www.contemporarypediatrics.com/modern-medicine-feature-articles/transitional-aged-youth-and-substance-use-teenaged-addicts-come-age. Accessed June 13, 2019.

Psychopharmacologic Strategies with Juvenile Substance Use Disorders

- Aversive treatment (antimetabolism)
- Reduce urge or craving
- Substitution therapy
- Treat underlying psychiatric comorbidity
- Preventive therapy

Gignac M, et al. Psychopharmacology and substance use disorders: a pediatric approach. In: Martin A, et al (Eds). *Pediatric Psychopharmacology, Principles and Practice*. Second Edition. New York, NY: Oxford; 2010:587-599. Yule AM, et al. Substance use disorders in adolescents with psychiatric comorbidity: When to screen and how to treat. *Current Psychiatry*. 2015;14(4):36-39, 47-51. Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

Pharmacotherapies to Reduce Urge or Cravings

- **Nicotine** (less effect than adults)
  - Nicotine patch (most effective in teens), inhaled nicotine, nicotine gum, nicotine lozenges
  - Bupropion (Wellbutrin®, Zyban®)
  - Varenicline (nicotinic modulator)
  - Cytisine (acacia seed extract, nicotinic partial agonist) – used in Europe
  - Experimental: Rimonabant (CB_1 antagonist); nicotinic partial/full agonists – various nicotinic subunits
  - E-cigarettes not recommended (eg, encourage cigarettes use)

Lerman C, et al. *J Clin Oncol*. 2005;23(2):311-323. West R, et al. *N Engl J Med*. 2011;365(13):1193-1200. Dutra LM, et al. *JAMA Pediatr*. 2014;168(7):610-617.

Pharmacotherapies to Reduce Urge or Cravings

- **Alcohol**
  - Naltrexone (Revia®) – Reduces alcoholic drinking: 25–50 mg QD to BID
  - Acamprosate (Campral®) – Helps with abstinence: 333 mg 1–2 TID
  - Topiramate (Topamax®) – Helps reduce alcoholic drinking, maintain abstinence: < 300 mg/day
  - Ondansetron (Zofran®) – Helps reduce urges and drinking in early onset alcohol use disorders; 2–8 mg/day
  - Baclofen – GABA derivative, anecdotally reported to reduce drinking urges and edginess; 10–20 mg/day
  - Disulfiram (Antabuse®) – Reaction to alcohol (use for passes, highly motivated youth); blocks aldehyde dehydrogenase

Basil B, et al. *Psychiatry*. 2005;2(12):49-52. More information can be found within NIH Publication 07–3769. https://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/PrescribingMeds.pdf. Accessed July 5, 2019.

Pharmacotherapy for Marijuana Use Disorders

- N-Acetyl Cysteine (NAC) – Nutraceutical: 1200 mg BID
  RCT; **Gray KM, et al. *Am J Psychiatry*. 2012;169(8):805-812. Gray KM, et al. *Drug Alcohol Depend*. 2017;177:249-257.**
  - In adult trials, only early-onset cannabis use disorder responded
    Gray KM, et al. *Drug Alcohol Depend*. 2017;177:249-257.
- Buspirone
  pilot RCT; **McRae-Clark AL, et al. *Drug Alcohol Depend*. 2009;105(1-2):132-138.**
- Gabapentin
  pilot RCT; **Mason BJ, et al. *Neuropsychopharmacology*. 2012;37(7):1689-1698.**
- Topiramate
  adult addiction studies
- Rimonabant – experimental (CB_1 receptor blocker; EU approval and withdrawal: mood/suicidal ideation)
  Huestis MA, et al. *Psychopharmacology*. 2007;194(4):505-515.

RCT = randomized controlled trial.

Pharmacotherapies to Reduce Urge or Cravings

- **Heroin, Opiates (Oxycontin®)**
  - Naltrexone (oral: Revia®; intramuscular: Vivitrol®)
    - Approved in adults; used off-label in adolescents
  - Buprenorphine (Subutex®; Suboxone® [buprenorphine+naloxone])
    - Approved for individuals > 16 years
    - Qualified physician
  - Methadone
    - Approved for individuals > 18 years
    - Administered via clinics

Welsh C, et al. *Psychiatry*. 2005;2(12):29-39. Kampman KM. *Psychiatry*. 2005;2(12):44-48. Marsch LA, et al. *Arch Gen Psychiatry*. 2005;62(10):1157-1164. Woody GE, et al. *JAMA*. 2008;300(17):2003-2011.

Young People Substance Use Disorder: *Comorbidity*

- ADHD
  - Consider addressing both conditions
  - Low level substance use ➔ continue to treat ADHD
  - More severe SUD ➔ address SUD first, if possible
  - Can treat ADHD through SUD (nonstimulant, XR stimulants only)
- Depression
  - Cotreat Depression and SUD
  - May need to improve SUD to see residual mood symptoms

Gignac M, et al. Psychopharmacology and substance use disorders: a pediatric approach. In: Martin A, et al (Eds). *Pediatric Psychopharmacology, Principles and Practice*. Second Edition. New York, NY: Oxford; 2010:587-599. Yule AM, et al. Substance use disorders in adolescents with psychiatric comorbidity: When to screen and how to treat. *Current Psychiatry*. 2015;14(4):36-39, 47-51. Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

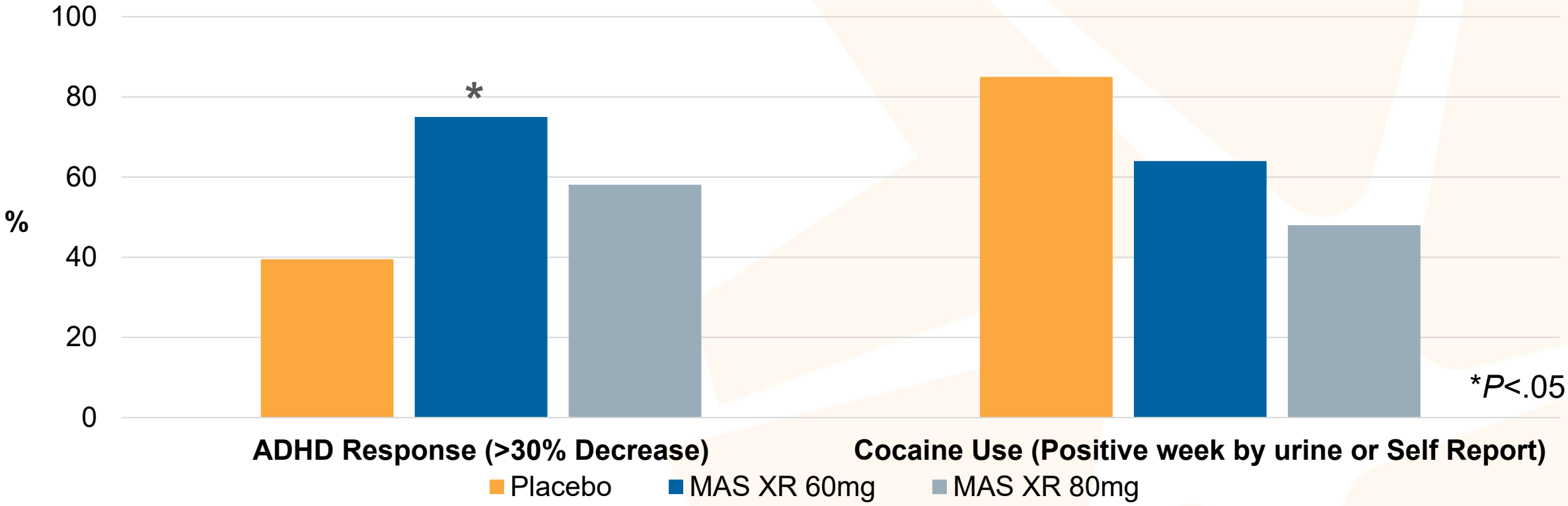
ADHD and Substance Use Disorder: *Pharmacotherapy*

- Treat through cannabis use/misuse
- Use disorder ➔ sequence treatment to address substance use, then restart ADHD treatment
- In refractory SUD cases ➔ Treat ADHD
- Nonstimulants
  - Atomoxetine
  - Guanfacine XR/Clonidine XR
  - Bupropion
- Stimulants (use extended-release; avoid immediate-release)
  - Methylphenidate (eg, Concerta® and equivalent)
  - Amphetamine (eg, Vyvanse®, add XR and equivalent)

Wilens TE, et al. *Curr Opin Psychiatry*. 2011;24(4):280-25. Wilens TE, et al. Attention-deficit hyperactivity disorder and the substance use disorders in ADHD. In: Adler LA, et al (Eds). *Attention-Deficit Hyperactivity Disorder in Adults and Children.* Cambridge University Press; 2015. Levin FR, et al. *JAMA Psychiatry*. 2015;72(6):593-602.

Higher Dose Mixed Amphetamine Salts XR Helpful in ADHD and Cocaine Use Disorder

13-week Randomized Controlled Trial (n=126)
Diagnosis: Cocaine Use Disorder and ADHD
Treatment: CBT +/- MAS XR



CBT = cognitive-behavioral therapy; MAS = mixed amphetamine salts.

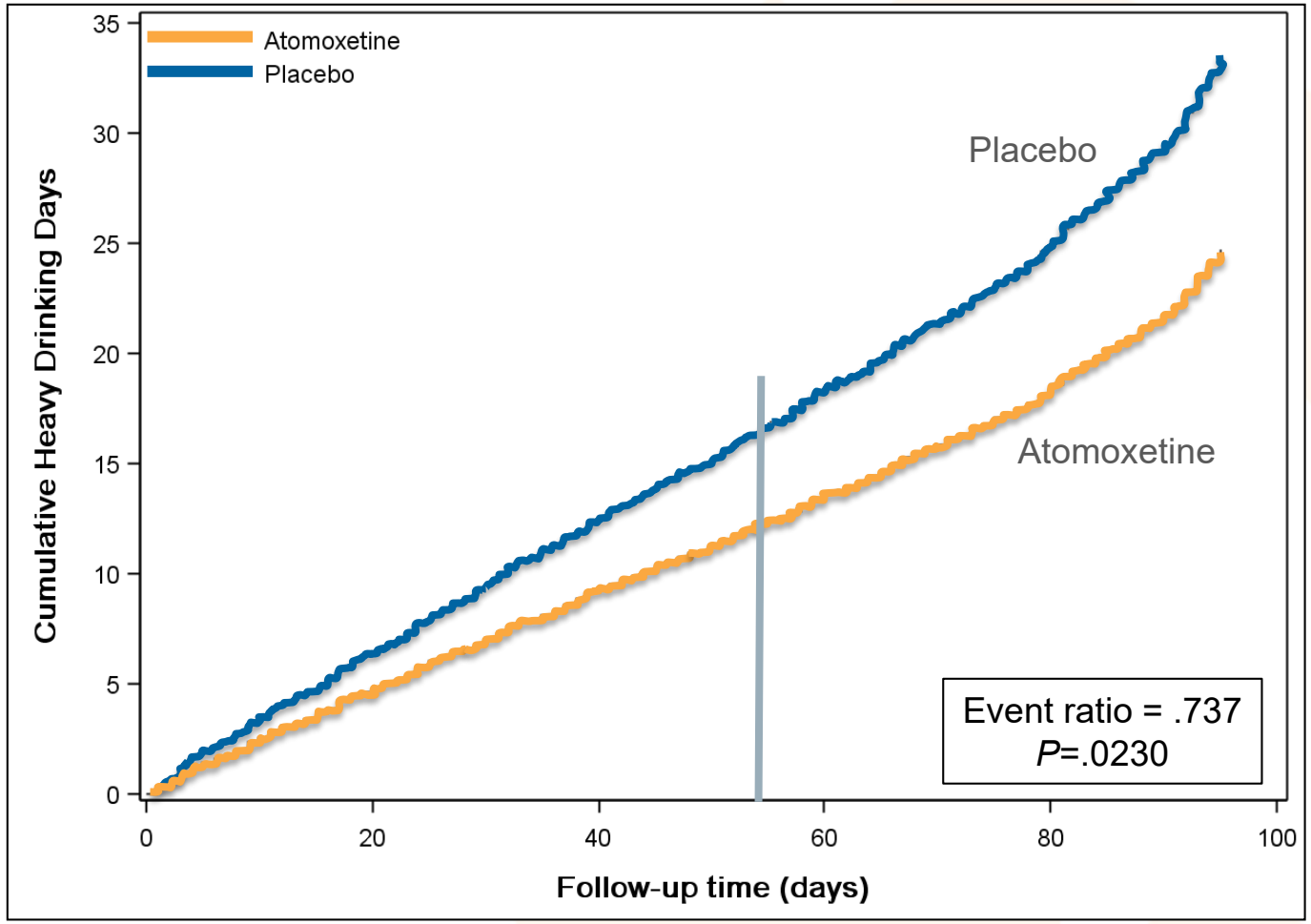
Levin FR, et al. *JAMA Psychiatry*. 2015;72(6):593-602.

Atomoxetine Improves Outcome in Recently Abstinent Adults

12-week placebo-controlled study (N=147)
Abstinent from 4–30 days

Findings: (ATX vs placebo)
- Improved ADHD Scores
- No differences in relapse rate
- Improved OCD scores
- Improved heavy drinking (shown)

Follow-up study:
- Few side effects with alcohol



An event ratio of .737 indicates that, relative to patients treated with placebo, atomoxetine-treated patients experienced an approximately 26.3% greater reduction in the rate of heavy drinking. Separation between groups first occurred at day 55.

ATX = atomoxetine.

Wilens TE, et al. *Drug Alcohol Depend*. 2008;96(1-2):145-154. Adler L, et al. *Am J Addict*. 2009;18(5):393-401.

Young People Substance Use Disorder: *Comorbidity*

- Anxiety
  - Address SUD initially, then anxiety
  - Can treat anxiety through SUD (use SSRI/SNRI, buspirone)
- Depression
  - Co-treat Depression and SUD
  - May need to improve SUD to see residual mood symptoms
- Severe mood dysregulation
  - Treat mood dysregulation and SUD simultaneously
  - Use safer agents (eg, SGAs for mood)

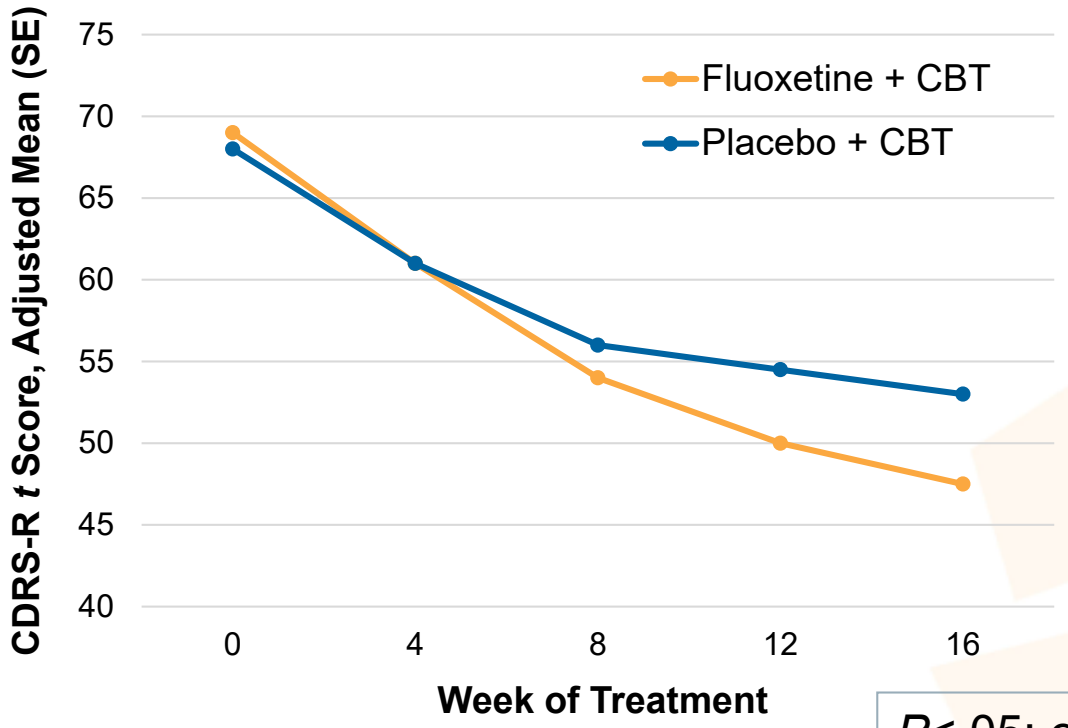
SSRI = selective serotonin reuptake inhibitor; SNRI = serotonin–norepinephrine reuptake inhibitor; SGA = second-generation antipsychotic.

Gignac M, et al. Psychopharmacology and substance use disorders: a pediatric approach. In: Martin A, et al (Eds). *Pediatric Psychopharmacology, Principles and Practice*. Second Edition. New York, NY: Oxford; 2010:587-599. Yule AM, et al. Substance use disorders in adolescents with psychiatric comorbidity: When to screen and how to treat. *Current Psychiatry*. 2015;14(4):36-39, 47-51. Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

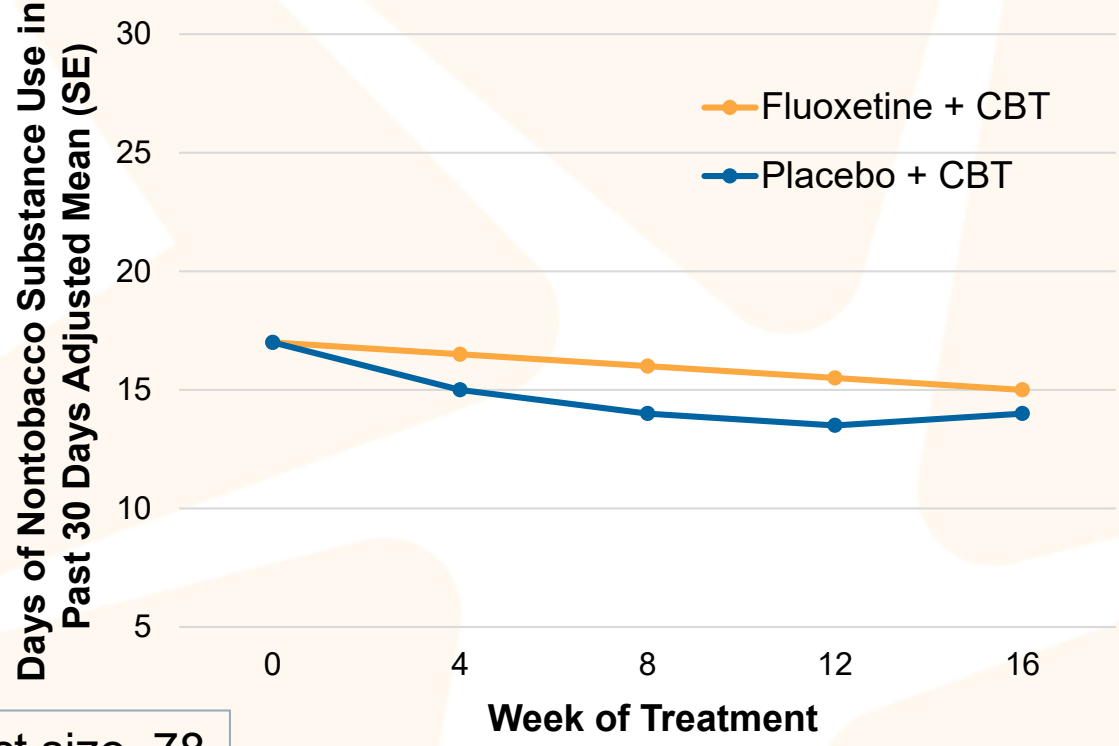
An RCT of Fluoxetine and CBT in Adolescents with Major Depression and Substance Use Disorder

N=126 adolescents (13–19 years)
Fluoxetine dose = 20 mg

Depression



Substance Use



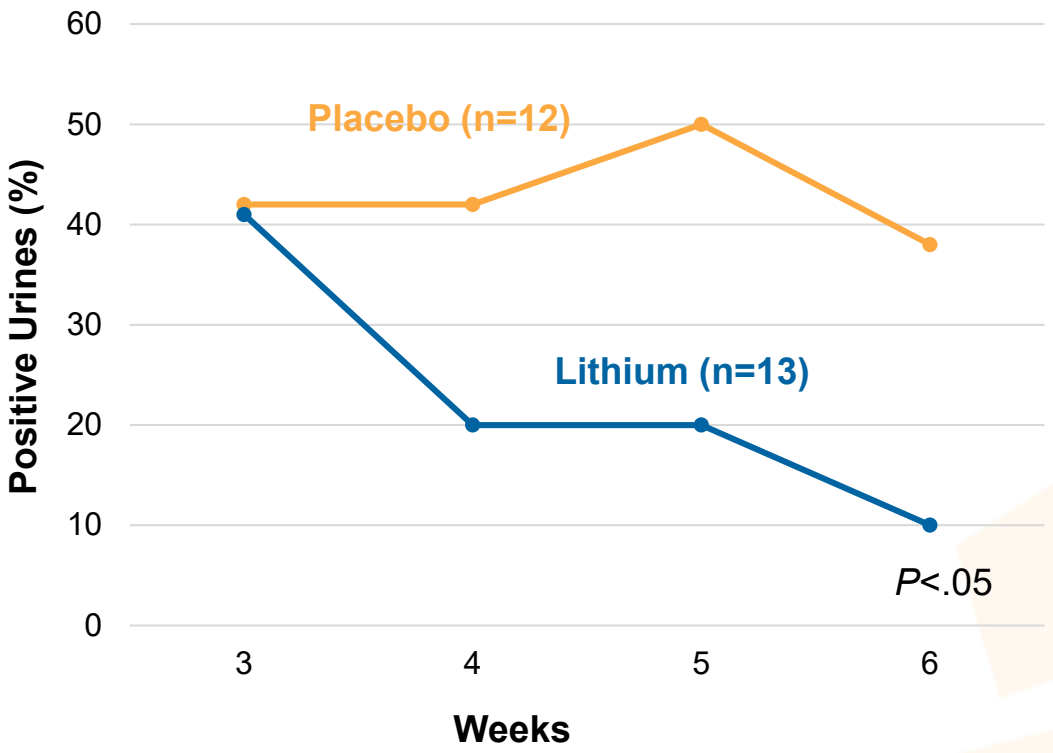
P<.05; effect size .78

CDRS-R = Childhood Depression Rating Scale–Revised.

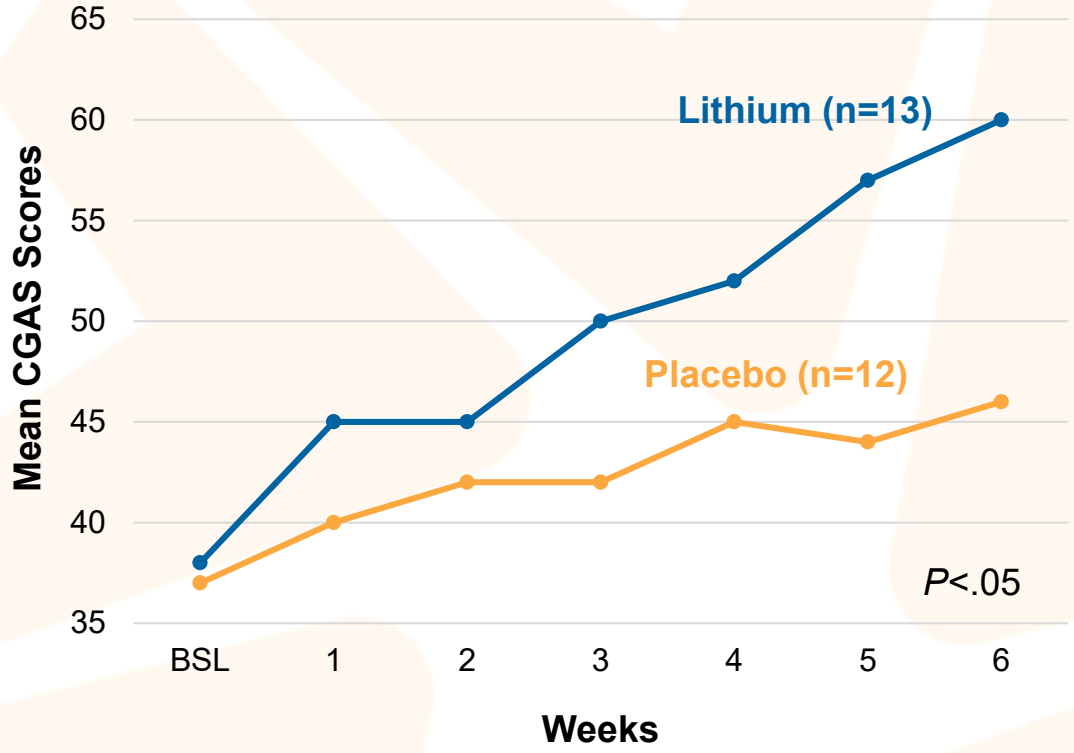
Riggs PD, et al. *Arch Pediatr Adolesc Med*. 2007;161(11):1026-1034.

Lithium Improves Substance Use Disorder in Adolescents with Bipolar Disorder

Substance Use



Functioning

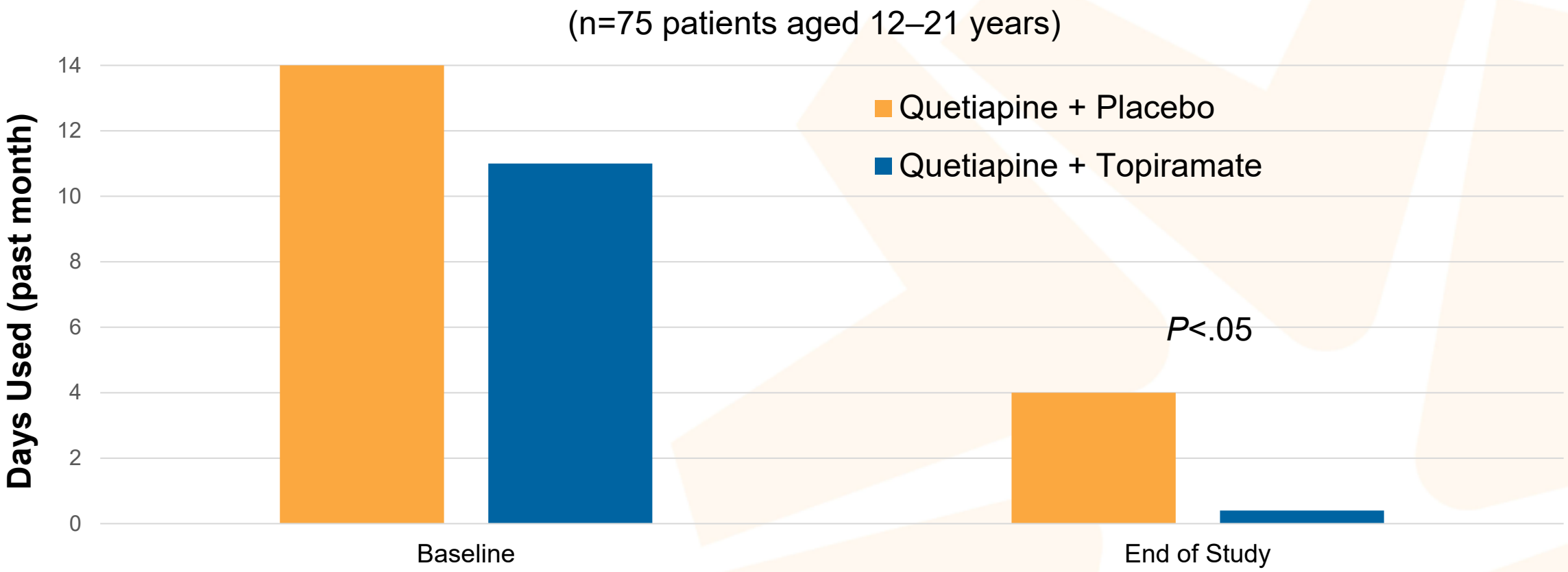


Mean age: 16 years; Substance: Alcohol and/or drugs (marijuana); Dose: [Lithium] = 0.9 to 1.3 mEq/L.

BSL = baseline; CGAS = Children's Global Assessment Scale.

Geller B, et al. *J Am Acad Child Adolesc Psychiatry*. 1998;37(2):171-178.

Quetiapine + Topiramate Reduces Cannabis Use in Adolescents with Bipolar Disorder



Quetiapine dosing: 800 mg; Topiramate dosing: 75–150 mg BID; BPD YMRS Scores improved with both treatments: -14 quetiapine + topiramate, -16 quetiapine + placebo.

YMRS = Young Mania Rating Scale

DelBello M, et al. Presented at: 2011 American Academy of Child and Adolescent Psychiatry Annual Meeting; October 2011; Toronto, ON, Canada.

Juvenile Substance Use Disorder

- Clinical management guidelines
- Frequent communication with parents, therapist, counselor, or other caregivers
- Clear expectations
- Documentation of clinical course, efforts, risk behaviors
- Monitoring of appropriate adherence with prescription (and other follow-up recommendations)
- Frequent follow-up visit
- Involvement of legal system if necessary

Gignac M, et al. Psychopharmacology and substance use disorders: a pediatric approach. In: Martin A, et al (Eds). *Pediatric Psychopharmacology, Principles and Practice*. Second Edition. New York, NY: Oxford; 2010:587-599. Yule AM, et al. Substance use disorders in adolescents with psychiatric comorbidity: When to screen and how to treat. *Current Psychiatry*. 2015;14(4):36-39, 47-51.

Juvenile Substance Use Disorder: *Confidentiality*

- Need to discuss SUD with patient and parent
  1) Adolescent discussion with parent
  2) Practitioner + adolescent discussion with parent(s)

- Need for immediate disclosure
  – Dangerousness or severe SUD (eg, IV)
  – Incompetent adolescent

Gignac M, et al. Psychopharmacology and substance use disorders: a pediatric approach. In: Martin A, et al (Eds). *Pediatric Psychopharmacology, Principles and Practice*. Second Edition. New York, NY: Oxford; 2010:587-599. Jackson P, et al. Adolescent Substance Use and Prevention. In: Goldstein MA (Ed). *The MassGeneral Hospital for Children Adolescent Medicine Handbook*. Second Edition. Springer; 2017.

Juvenile Substance Use Disorder: *Summary*

- Juvenile SUD is commonly comorbid with psychopathology
- Screening, discussion, and documentation constitute components of care of these youth
- Treatment of psychiatric disorders may reduce ultimate SUD
- Treatment of comorbid youth requires both SUD and psychiatric intervention
- Pharmacotherapy can be effective in youth with SUD problems