

# Medication Assisted Treatment for Adolescents with Opioid Use Disorder

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# Housekeeping

A recording of this webinar and slides will be posted on:  
<https://idph.iowa.gov/substance-abuse/families-in-focus>

Survey following the webinar and 30-day follow-up

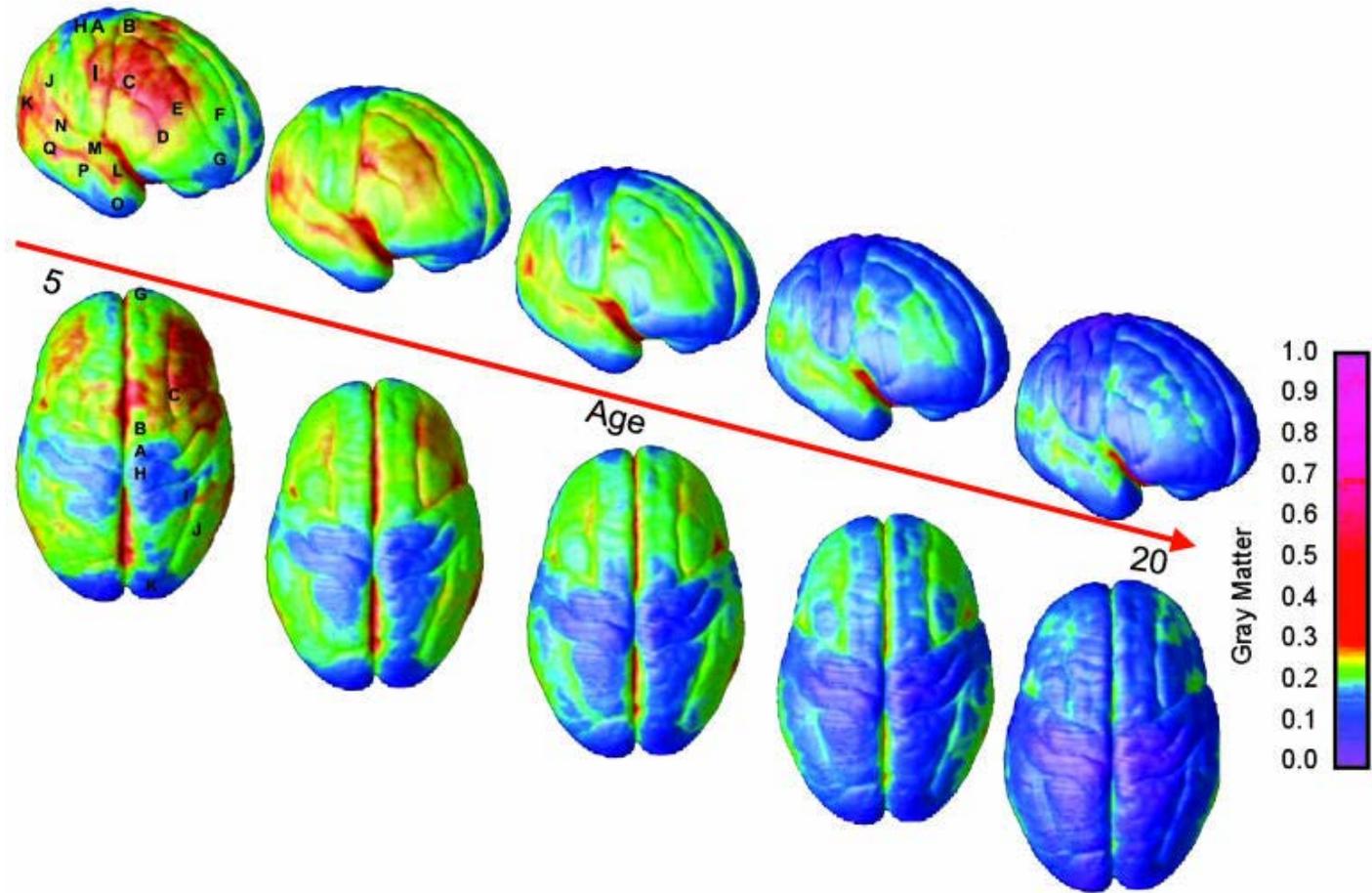
Approved for 1 hour Substance Abuse Continuing Education Units

# What is an adolescent?

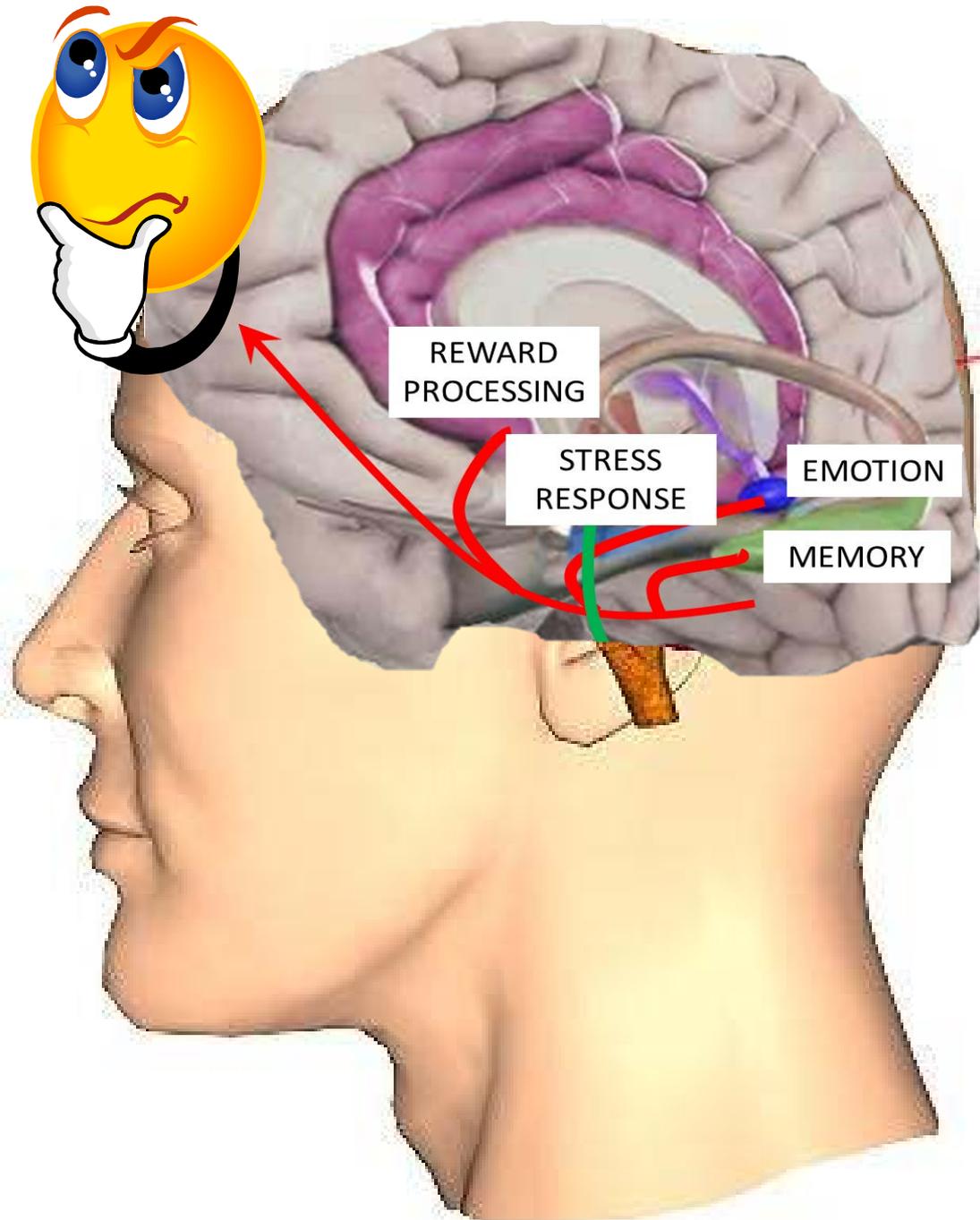
Ages 10 – 24

Time of immense physical, cognitive, emotional, and social change

# The Adolescent Brain



Gogtay, Nitin, et al. "Dynamic mapping of human cortical development during childhood through early adulthood." *Proceedings of the National Academy of Sciences of the United States of America* 101.21 (2004): 8174-8179.



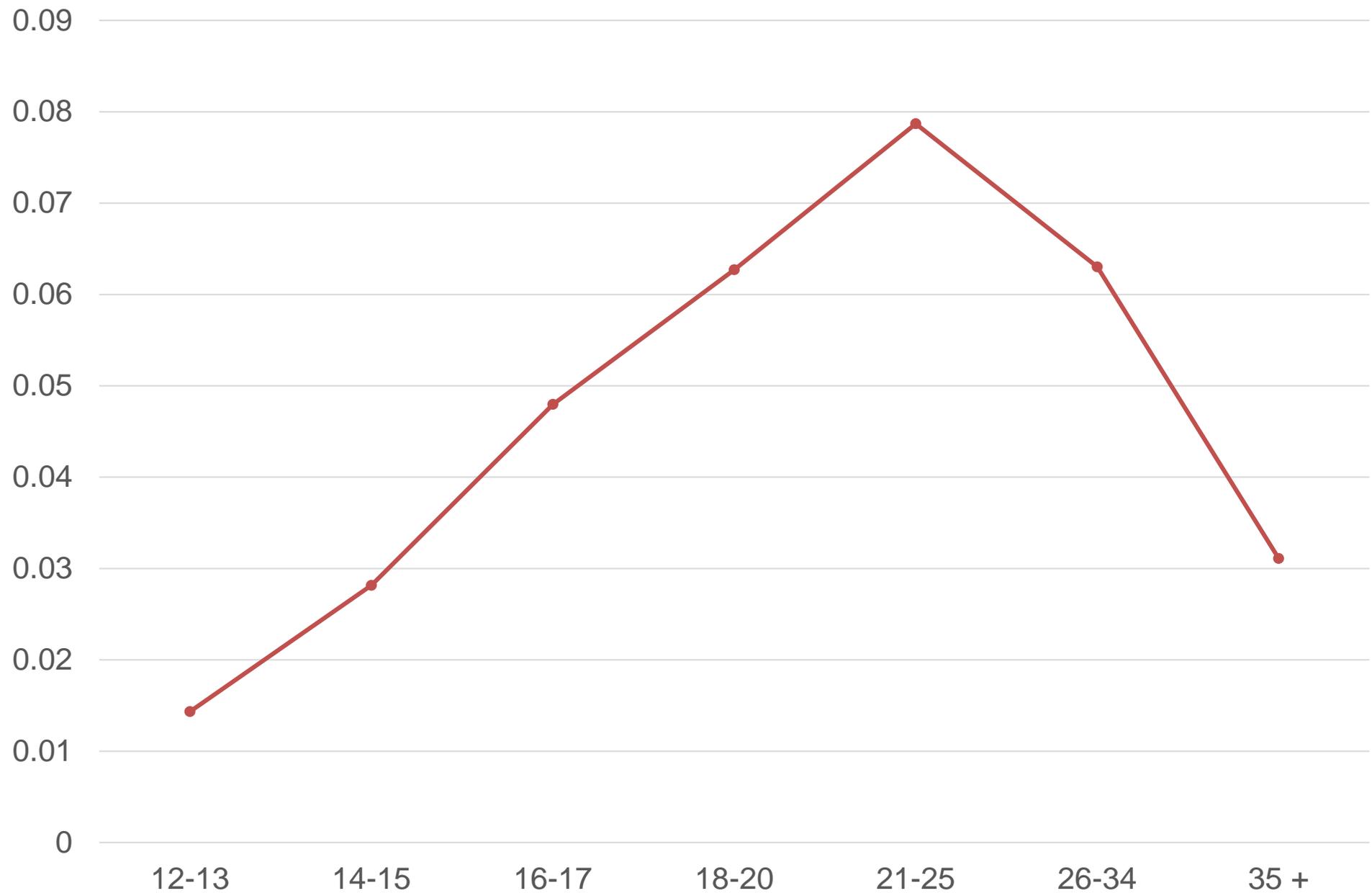
REWARD  
PROCESSING

STRESS  
RESPONSE

EMOTION

MEMORY

# Past Year Prescription Opioid Misuse by age group, 2017



## **Universal prevention and population interventions**

- Structural (eg, laws, policies, taxation)
- School based
- Family based

## **Early intervention and harm reduction**

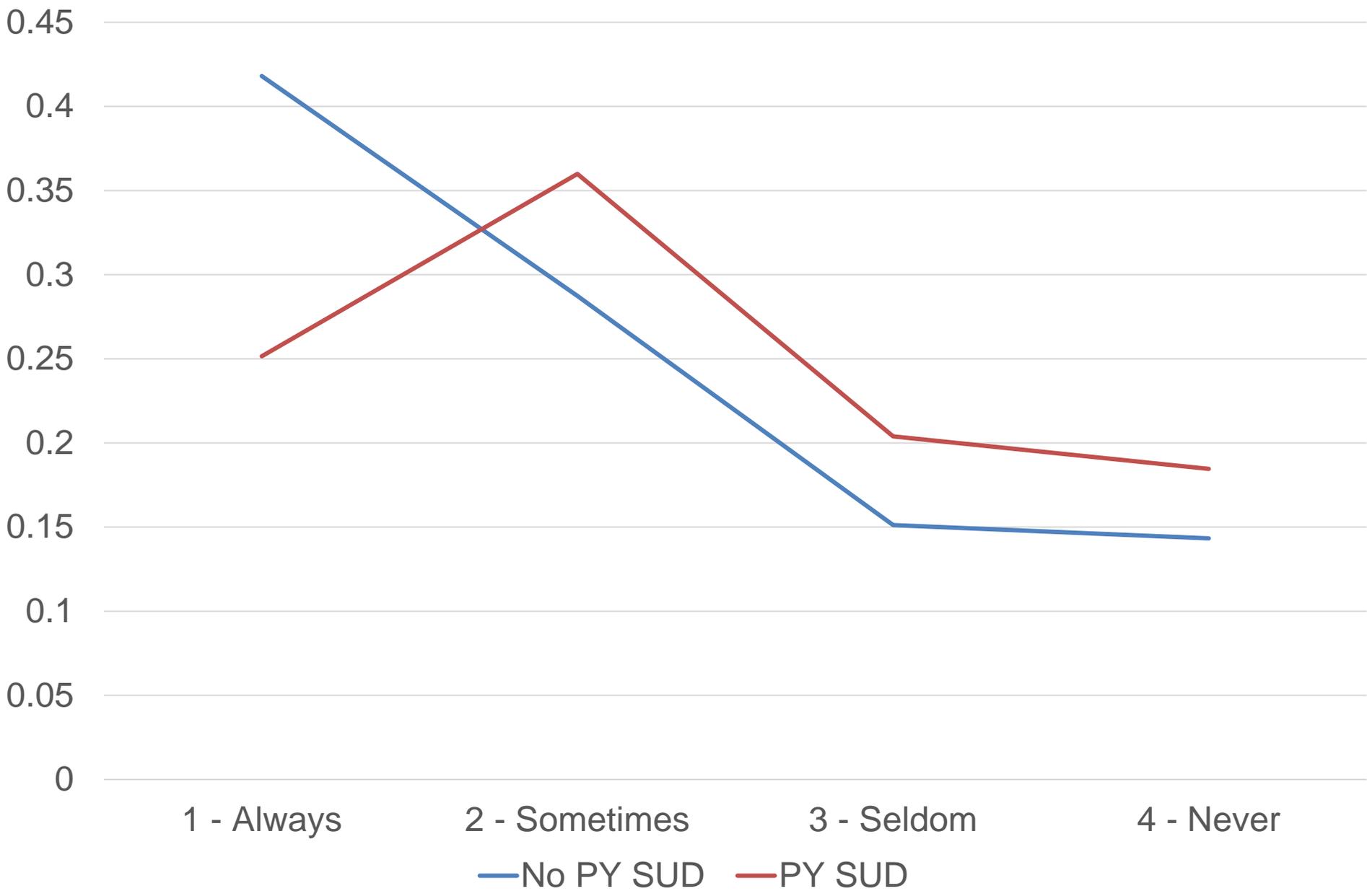
- Selective prevention
- Indicated prevention
- Screening and brief intervention
- Harm reduction (eg, roadside drug testing, prevention of injection-related harms)

## **Treatment**

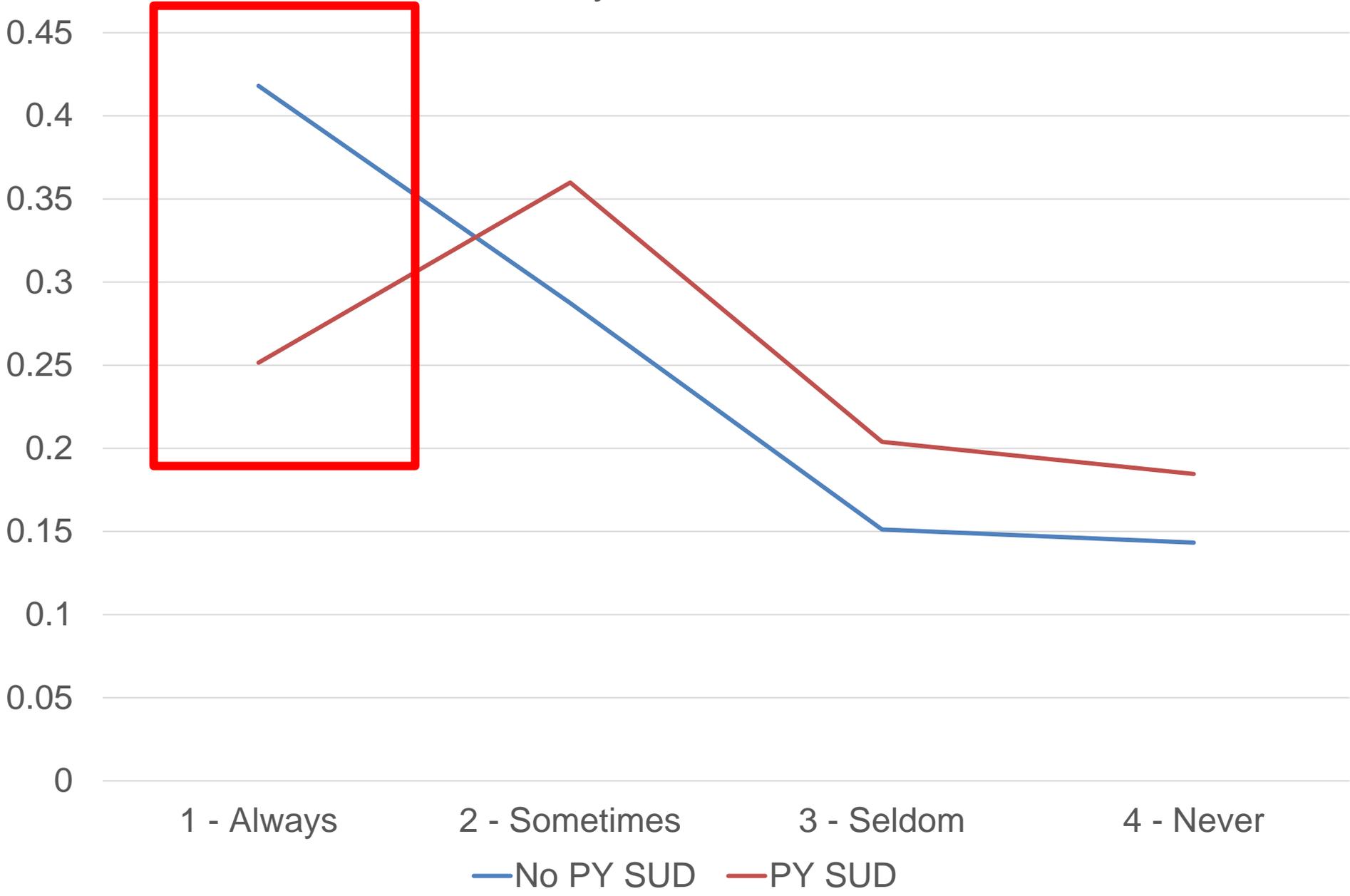
- Peer-based self-help organisations
- Psychosocial approaches
- Pharmacotherapy
- Family-based and multisystemic therapy
- Specialised treatment services



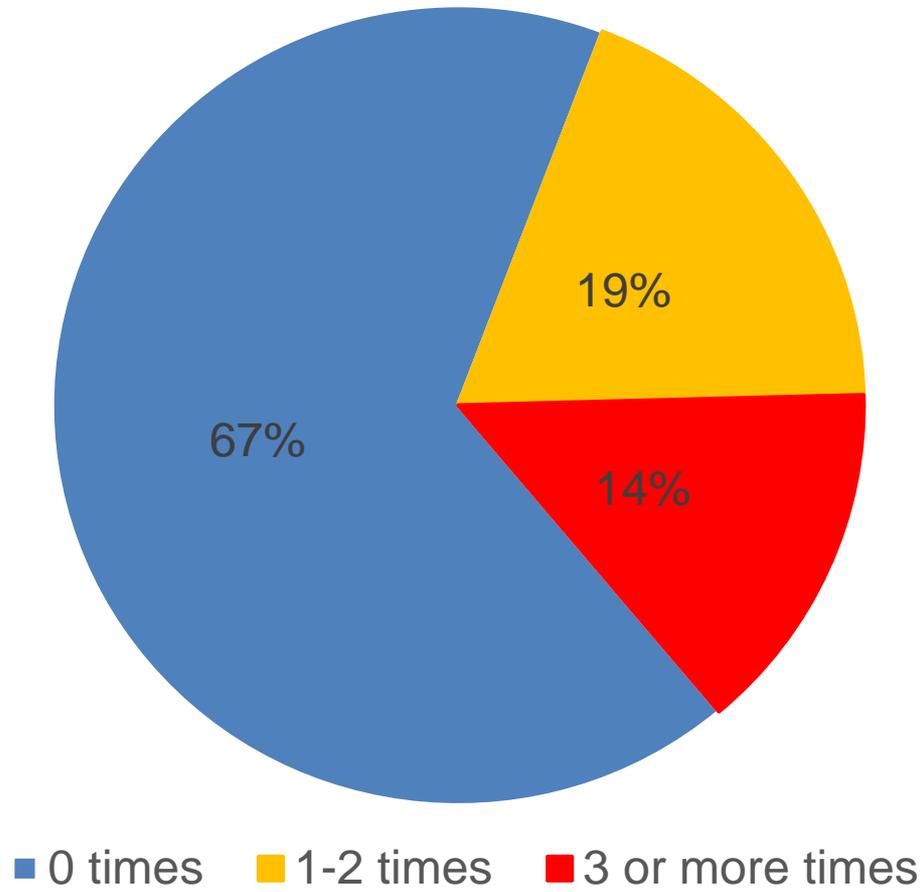
# Parents limited time with friends in the past year by past year SUD



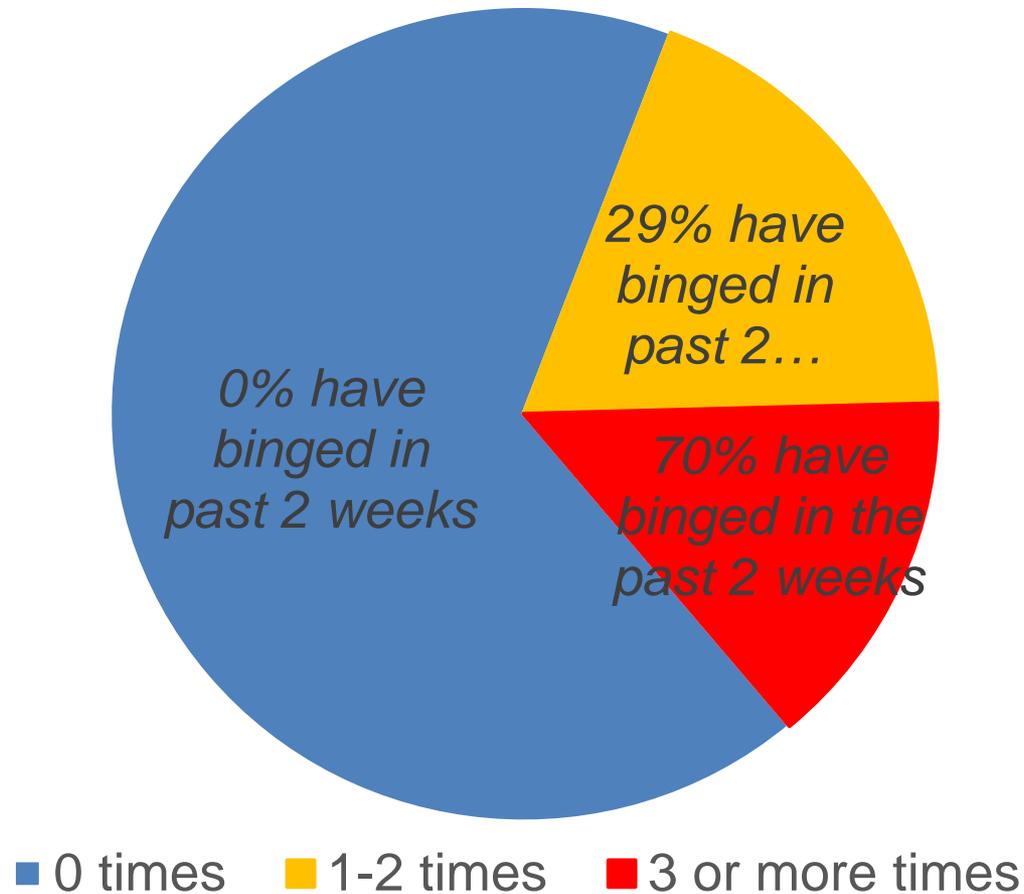
Parents limited time with friends in the past year by past year SUD



# High school Seniors past month alcohol frequency, MF 2016



# High school Seniors past month binge frequency, MF 2016

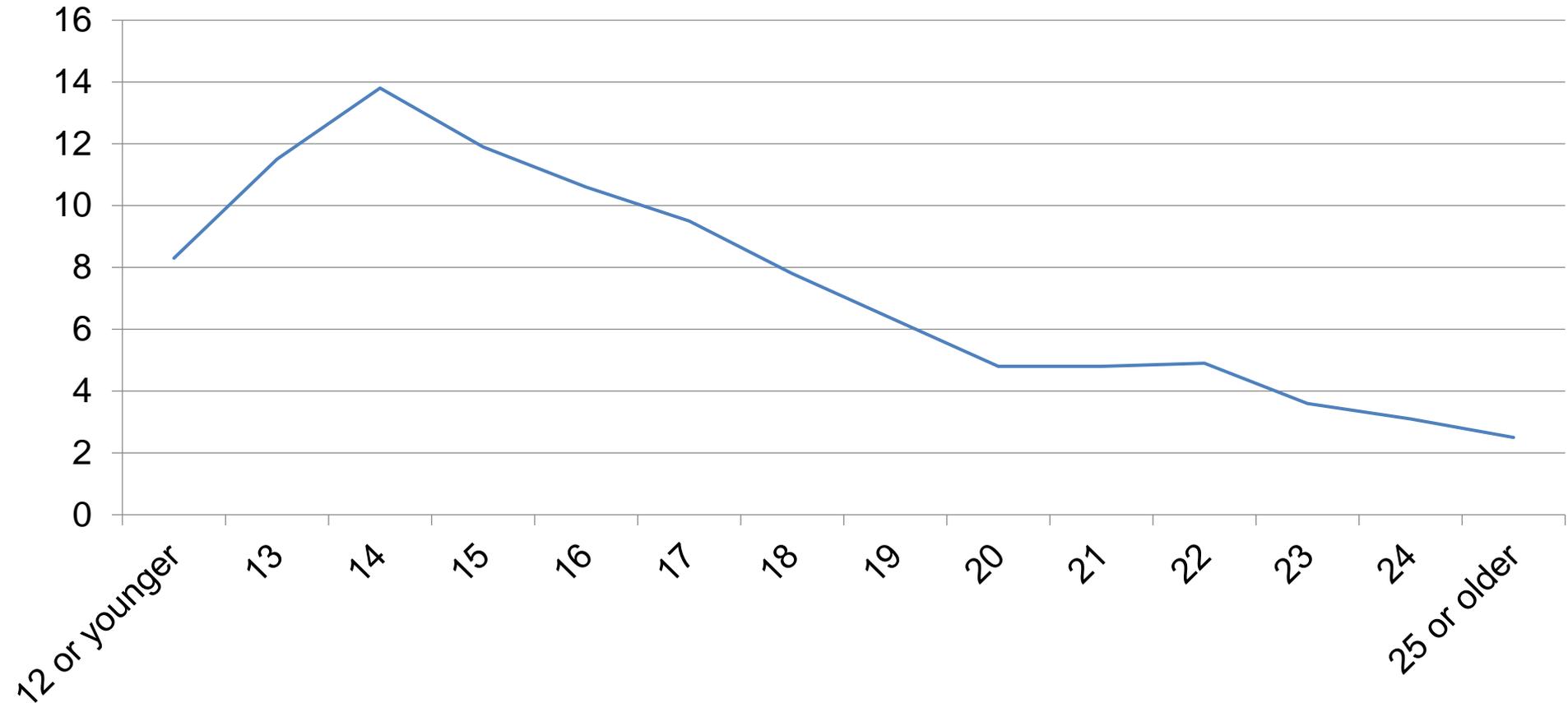


# Parental rules / Student self-efficacy

Brief intervention aimed at increasing restrictiveness of parental rules about drinking and adolescent's perception of those rules as well as adolescent self-efficacy decreased the onset of weekly drinking in adolescents.

Koning, Ina M., et al. "Why target early adolescents and parents in alcohol prevention? The mediating effects of self-control, rules and attitudes about alcohol use." *Addiction* 106.3 (2011): 538-546.

# Age at first use and prevalence of lifetime alcohol abuse



Grant, Bridget F., and Deborah A. Dawson. "Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey." *Journal of substance abuse* 9 (1997): 103-110.

# Parent training in high risk kids

Parent-training showed equivalent positive effects on child externalizing behavior in children (aged 3-8) with and without a family history of antisocial behavior.

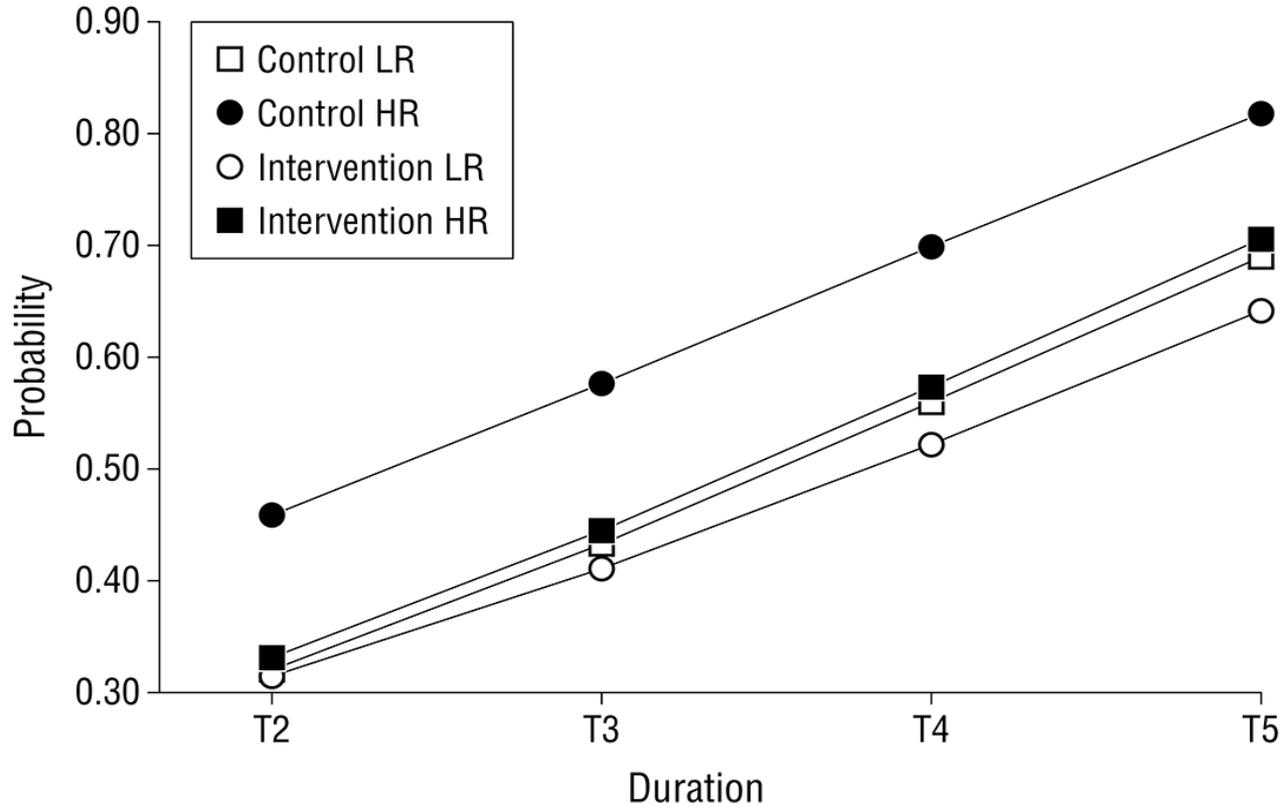
Presnall, N., Webster-Stratton, C. H., Constantino, J. N. "Parent Training: Equivalent improvement in Externalizing Behavior for Children With and Without Familial Risk." *JAACAP* (in press).

# Targeted Prevention

- Hopelessness
- Anxiety Sensitivity
  - Impulsivity
- Sensation Seeking

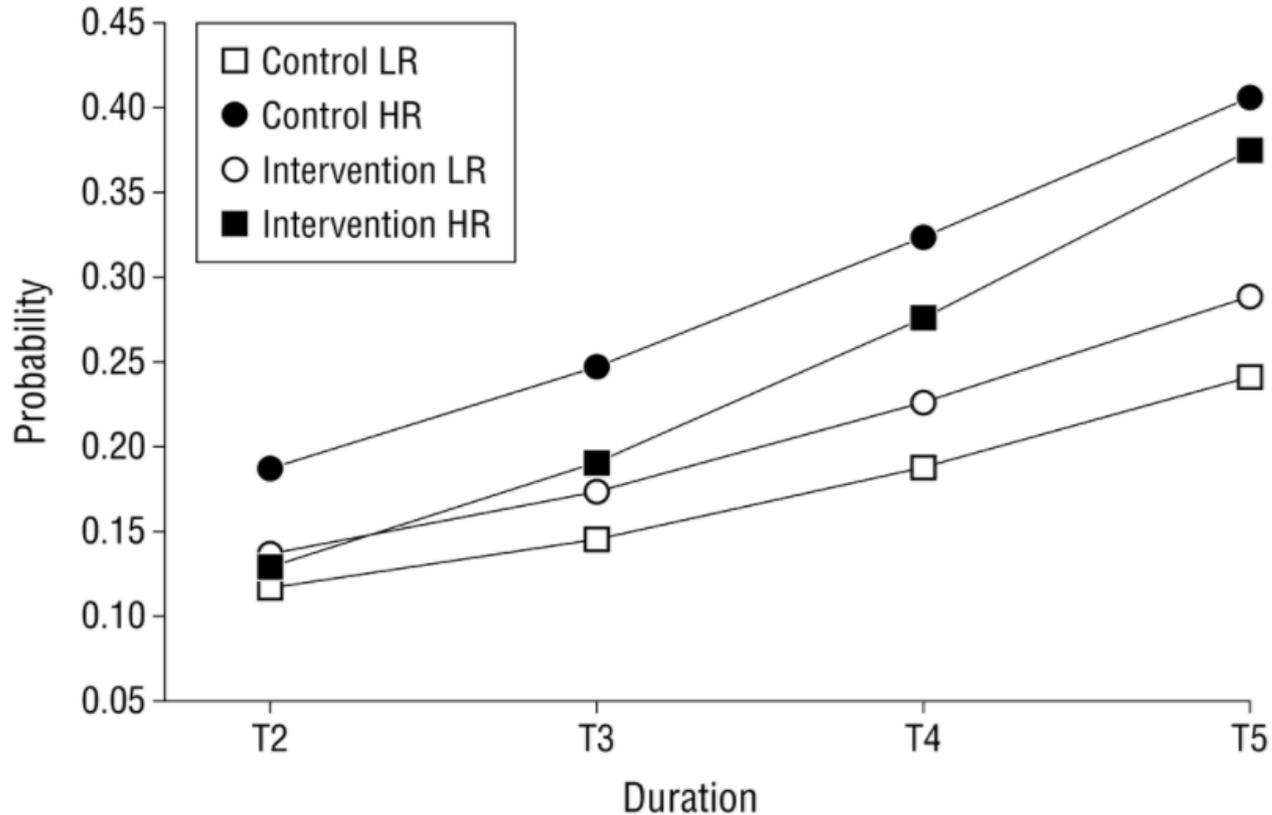
Conrod, Patricia J., et al. "Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse: a cluster randomized controlled trial." *JAMA psychiatry* 70.3 (2013): 334-342.

# Quantity of Drinking



Conrod, Patricia J., et al. "Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse: a cluster randomized controlled trial." *JAMA psychiatry* 70.3 (2013): 334-342.

# Binge Drinking



Conrod, Patricia J., et al. "Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse: a cluster randomized controlled trial." *JAMA psychiatry* 70.3 (2013): 334-342.

# Psychiatric treatment

Stimulant therapy of attention-deficit/hyperactivity disorder is associated with a 1.9 fold reduction in risk for SUD in youths treated with stimulants compared with youths who did not receive pharmacotherapy.

Wilens, Timothy E., et al. "Does stimulant therapy of attention-deficit/hyperactivity disorder beget later substance abuse? A meta-analytic review of the literature." *Pediatrics* 111.1 (2003): 179-185.

# Prescribing of Controlled Medications to Adolescents and Young Adults in the United States

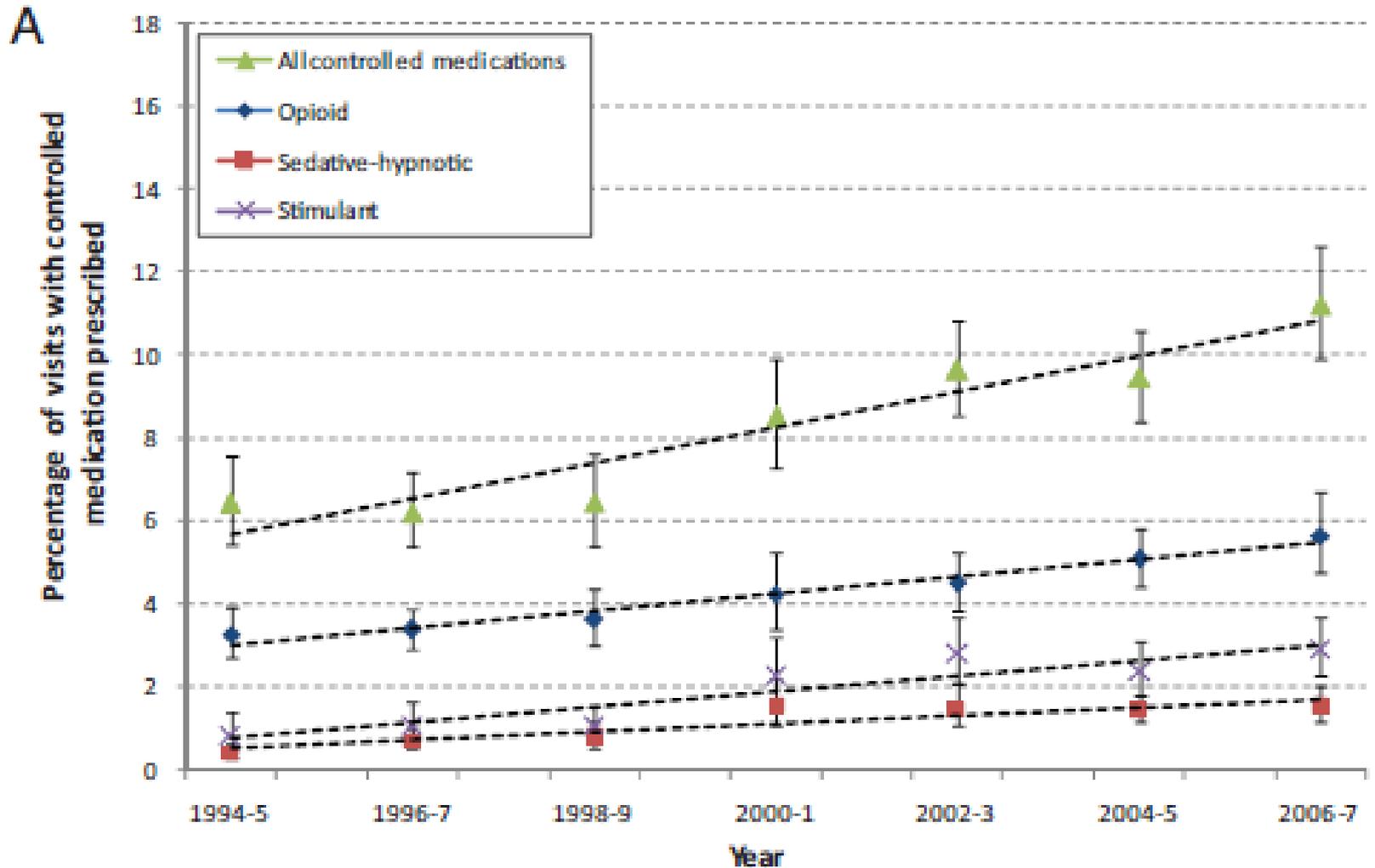
Robert J. Fortuna, Brett W. Robbins, Enrico Caiola, Michael Joynt, Jill S. Halterman

Pediatrics

December 2010, VOLUME 126 / ISSUE 6

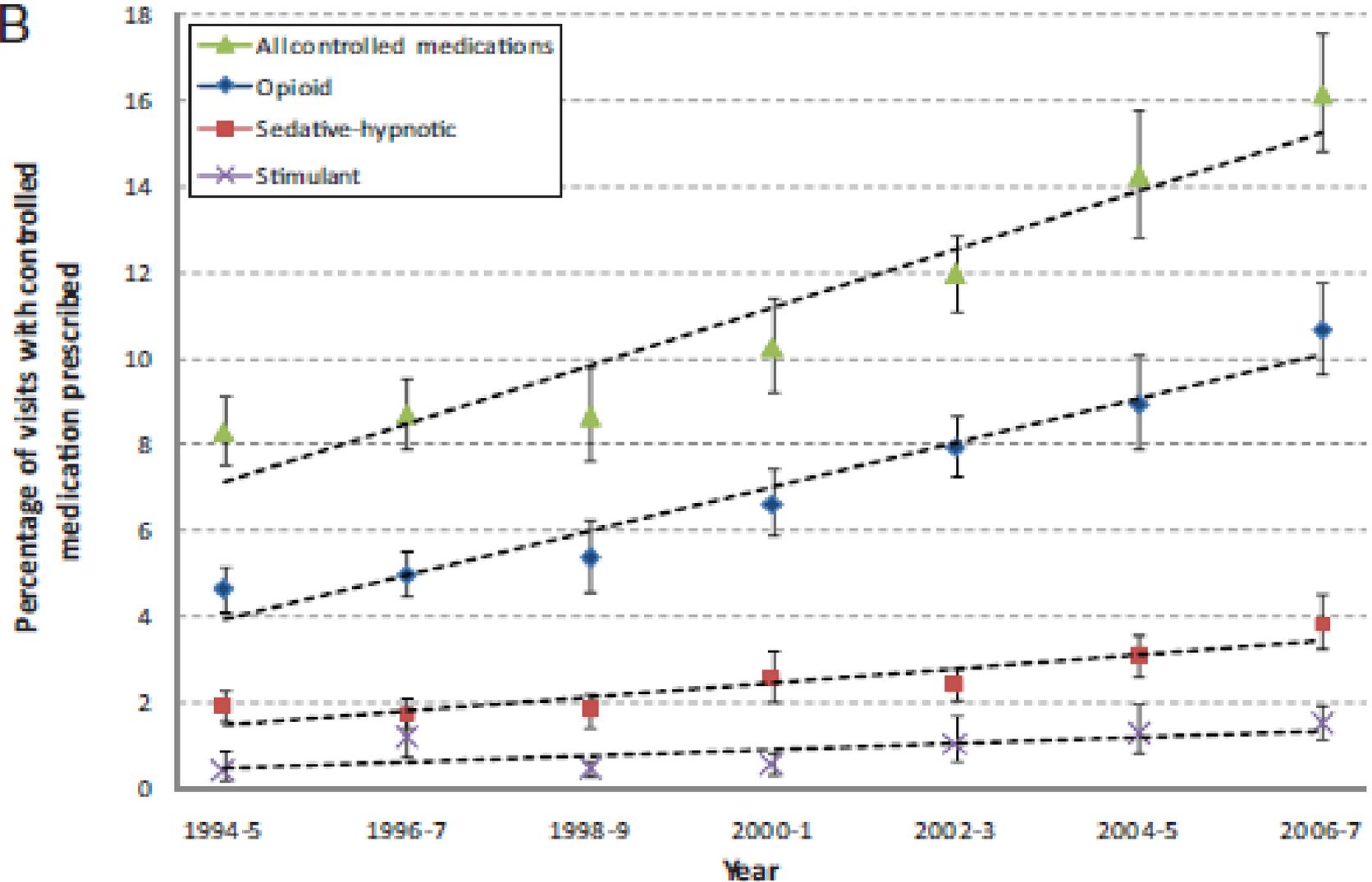
Article

# Prescribing to adolescents



# Prescribing to Young Adults

B



# Prescription Opioids in Adolescence and Future Opioid Misuse

Richard Miech, Lloyd Johnston, Patrick M. O'Malley, Katherine M. Keyes, Kennon Heard

Pediatrics

November 2015, VOLUME 136 / ISSUE 5

Article

Using Monitoring the Future Data (n=6220 High School Seniors)

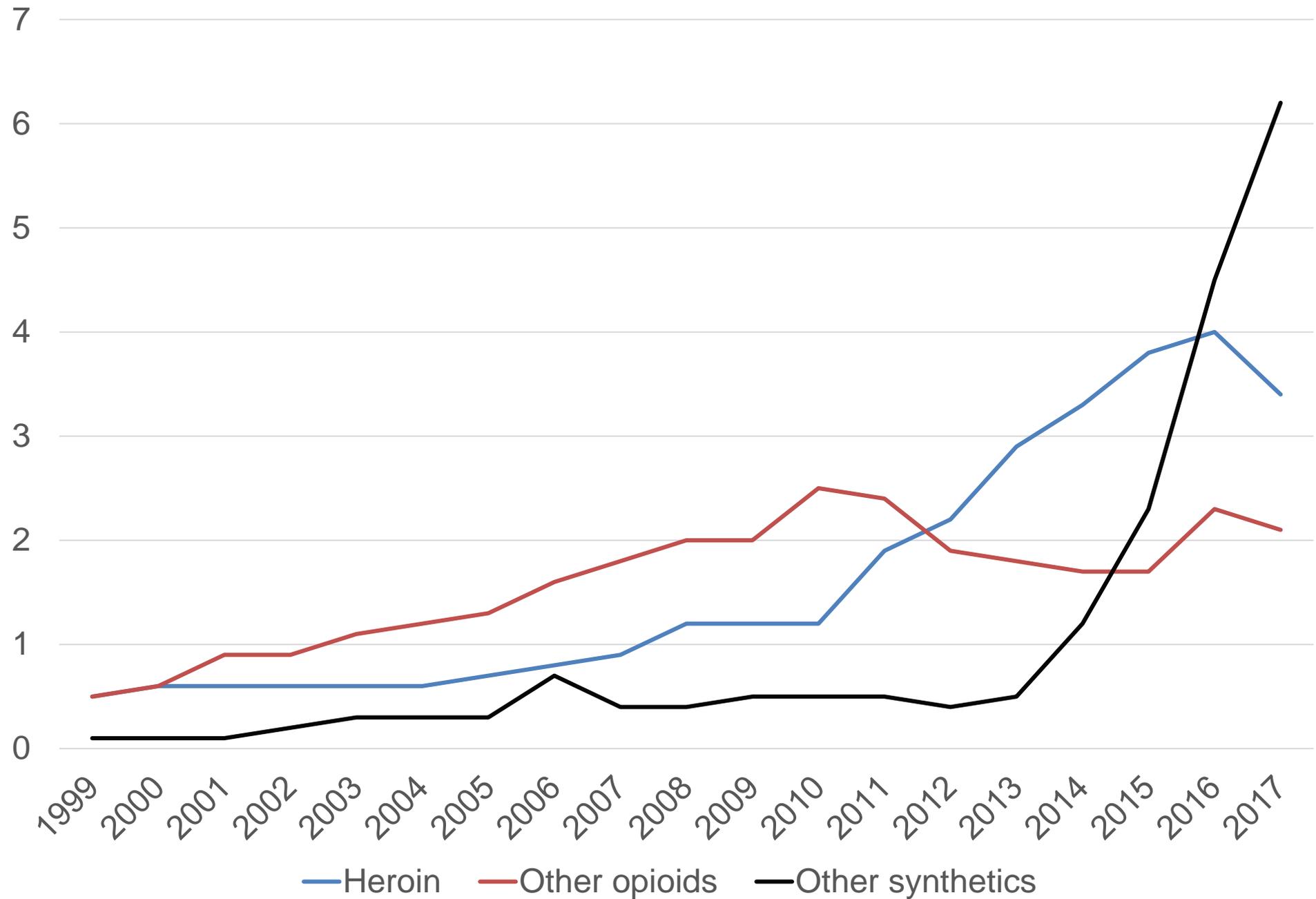
Legitimate opioid use before high school graduation is independently associated with a 33% increase in the risk of future opioid misuse after high school.

Legitimate opioid use before high school graduation is independently associated with a 33% increase in the risk of future opioid misuse after high school. **This association is concentrated among individuals who have little to no history of drug use and, as well, strong disapproval of illegal drug use at baseline.**

# The Opioid Crisis

In adolescents and young adults

# Deaths per 100,000, ages 15-24, U.S.



# Causes of Death, 1999, Ages 15 to 24, CDC Wonder

S09.9 (Unspecified injury of head)			11.4
X95 (Assault by other and unspecified firearm discharge)			8.9
S01.9 (Open wound of head, part unspecified)			8.7
T07 (Unspecified multiple injuries)			8.7
V89.2 (Person injured in unspecified motor-vehicle accident, traffic)			7.8
T14.9 (Injury, unspecified)			4.3
S21.9 (Open wound of thorax, part unspecified)			3.8
T71 (Asphyxiation)			3.8
X74 (Intentional self-harm by other and unspecified firearm discharge)			3.6
S29.9 (Unspecified injury of thorax)			3.2
T14.1 (Open wound of unspecified body region)			3.1
I46.9 (Cardiac arrest, unspecified)			2.8
S06.9 (Intracranial injury, unspecified)			2.8
T01.9 (Multiple open wounds, unspecified)			2.6
X70 (Intentional self-harm by hanging, strangulation and suffocation)			2.5
T75.1 (Drowning and nonfatal submersion)			2.4
A41.9 (Septicaemia, unspecified)			1.7
R99 (Other ill-defined and unspecified causes of mortality)			1.7
T50.9 (Other and unspecified drugs, medicaments and biological substances)			1.7
V87.7 (Person injured in collision between other specified motor vehicles (traffic))			1.7
V47.5 (Car occupant injured in collision with fixed or stationary object, driver injured in traffic accident)			1.6
J96.9 (Respiratory failure, unspecified)			1.5
S02.9 (Fracture of skull and facial bones, part unspecified)			1.5
V43.5 (Car occupant injured in collision with car, pick-up truck or van, driver injured in traffic accident)			1.5
S09.8 (Other specified injuries of head)			1.4

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T40.4 (Other synthetic narcotics)	6.2
T71 (Asphyxiation)	6
S09.9 (Unspecified injury of head)	5.9
V89.2 (Person injured in unspecified motor-vehicle accident, traffic)	5.8
X42 (Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified)	5.8
T50.9 (Other and unspecified drugs, medicaments and biological substances)	5.5
X70 (Intentional self-harm by hanging, strangulation and suffocation)	5.4
X44 (Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances)	5
T14.9 (Injury, unspecified)	4.9
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T01.9 (Multiple open wounds, unspecified)	3.1
F19.1 (Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances, harmful use)	2.8
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T42.4 (Benzodiazepines)	2.4
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T40.2 (Other opioids)	2.1
F19.9 (Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances, unspecified mental and behavioral disorder)	2
T43.6 (Psychostimulants with abuse potential)	2

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# Treating Opioid Use Disorder

In adolescents and young adults

# Standard Psychosocial Treatments for SUDs

Motivational Interviewing  
Cognitive Behavioral Therapy  
Contingency Management  
(Multisystemic Therapy)

# Standard Psychosocial Treatments for SUDs

Motivational Interviewing

Cognitive Behavioral Therapy

Contingency Management

Adolescents: Multisystemic Therapy

No evidence that these reduce mortality risk in adults with OUD; limited evidence in adolescents

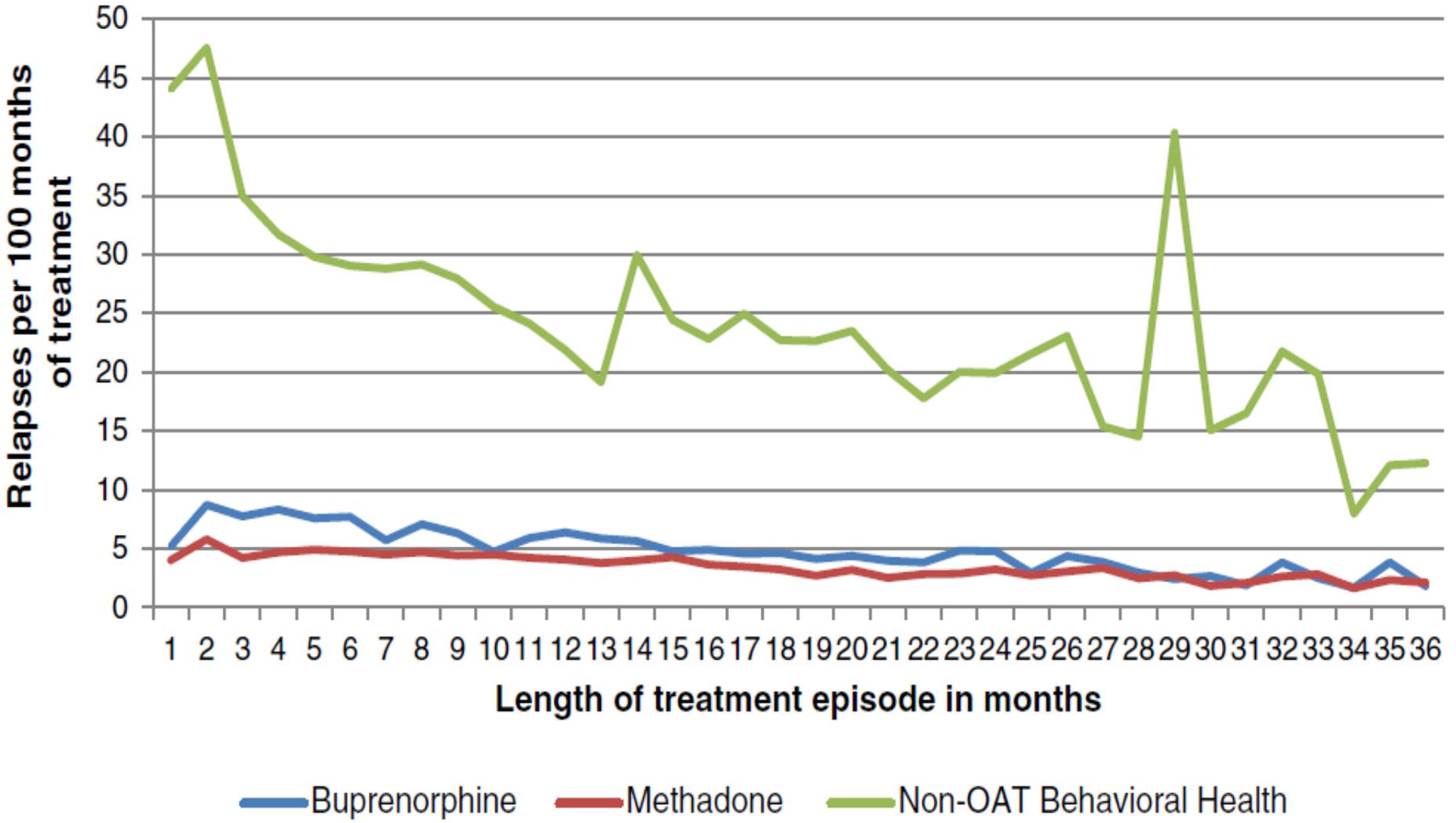


Figure 4. Clark, Robin E., et al. "Risk factors for relapse and higher costs among Medicaid members with opioid dependence or abuse: opioid agonists, comorbidities, and treatment history." *Journal of substance abuse treatment* 57 (2015): 75-80.



## Substance use in young people 3

# Prevention, early intervention, harm reduction, and treatment of substance use in young people

*Emily Stockings, Wayne D Hall, Michael Lynskey, Katherine I Morley, Nicola Reavley, John Strang, George Patton, Louisa Degenhardt*

*Lancet Psychiatry* 2016;  
3: 280–96

## Treatment of substance use problems or dependence in young people (ages 10-24)

	Reduce use	Reduce problematic use	Reduce harms related to use
Motivational enhancement therapy	X?	—	—
Self-help interventions (via written or online)	X	X	—
Self-help interventions with peers	?	?	?
Cognitive Behavioral Therapy	X	—	—
Family-based treatment interventions	?	—	—
Therapeutic communities	?	?	?
<b>Pharmacotherapy</b>	<b>✓?</b>	<b>✓?</b>	<b>✓?</b>
Juvenile drug courts or diversion	?	?	?

X=not effective

?=inconclusive or mixed evidence in reduction of negative outcomes.

X?=mostly no effect in reduction of negative outcomes, but findings are mixed.

✓=small effect in reduction of negative outcomes.

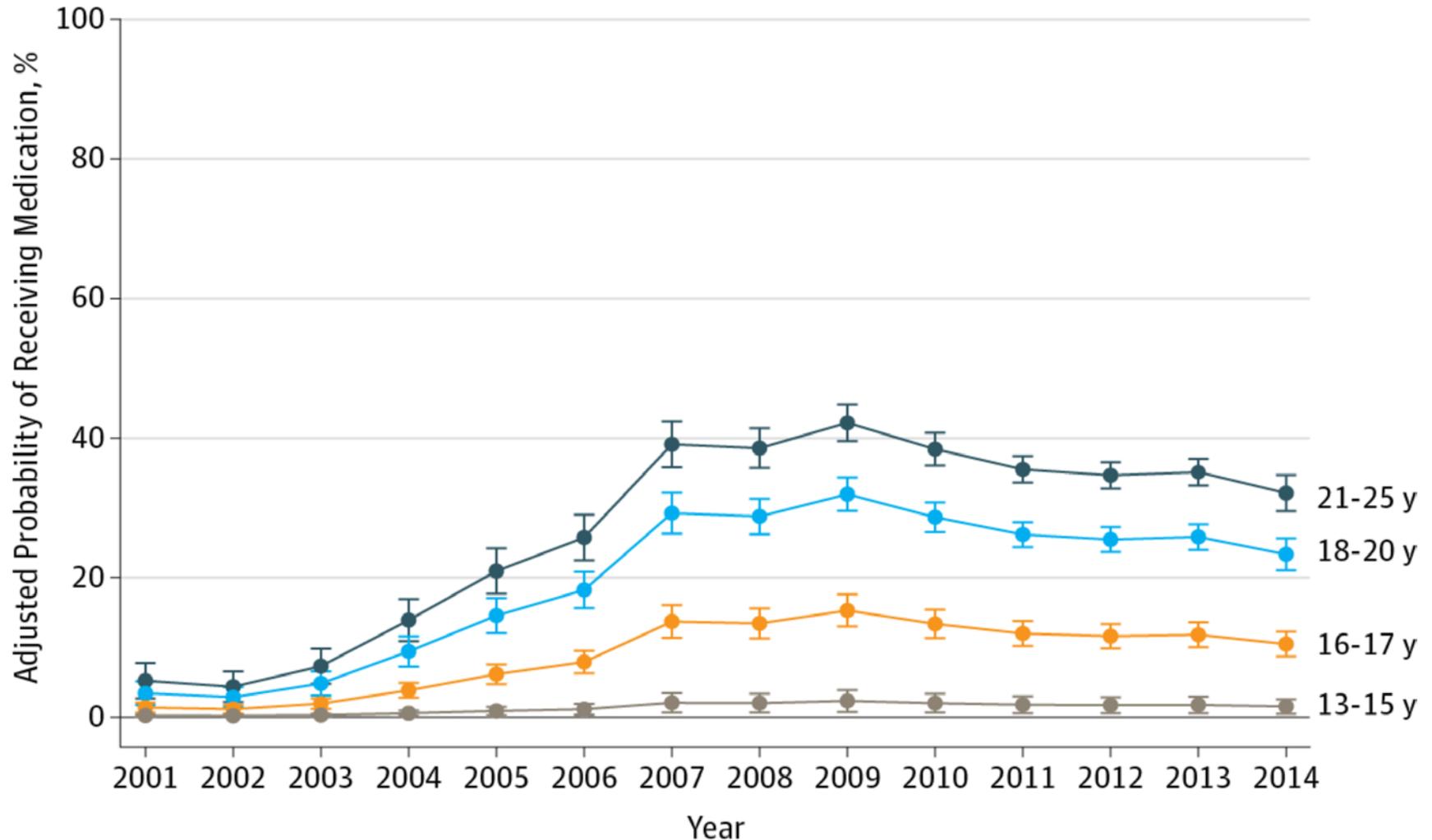
✓?=mostly small effects in reduction of negative outcomes, but findings are mixed.

✓✓=moderate effect in reduction of negative outcomes.

✓✓✓=large effect in reduction of negative outcomes.

— = insufficient evidence.

# Proportion of Youth With a Claim Containing an Opioid Use Disorder Diagnosis Who Were Dispensed Any Buprenorphine or Naltrexone According to Age at First Diagnosis Data obtained



JAMA Pediatr. 2017;171(8):747-755. doi:10.1001/jamapediatrics.2017.0745

From: **Trends in Receipt of Buprenorphine and Naltrexone for Opioid Use Disorder Among Adolescents and Young Adults, 2001-2014**

# American Academy of Pediatrics – 2016 Statement

1. The American Academy of Pediatrics (AAP) advocates for increasing resources to improve access to medication assisted treatment of opioid addicted adolescents and young adults. This recommendation includes both increasing resources for medication-assisted treatment within primary care and access to developmentally appropriate substance use disorder counseling in community settings.

2. The AAP recommends that pediatricians consider offering medication-assisted treatment to their adolescent and young adult patients with severe opioid use disorders or discuss referrals to other providers for this service.

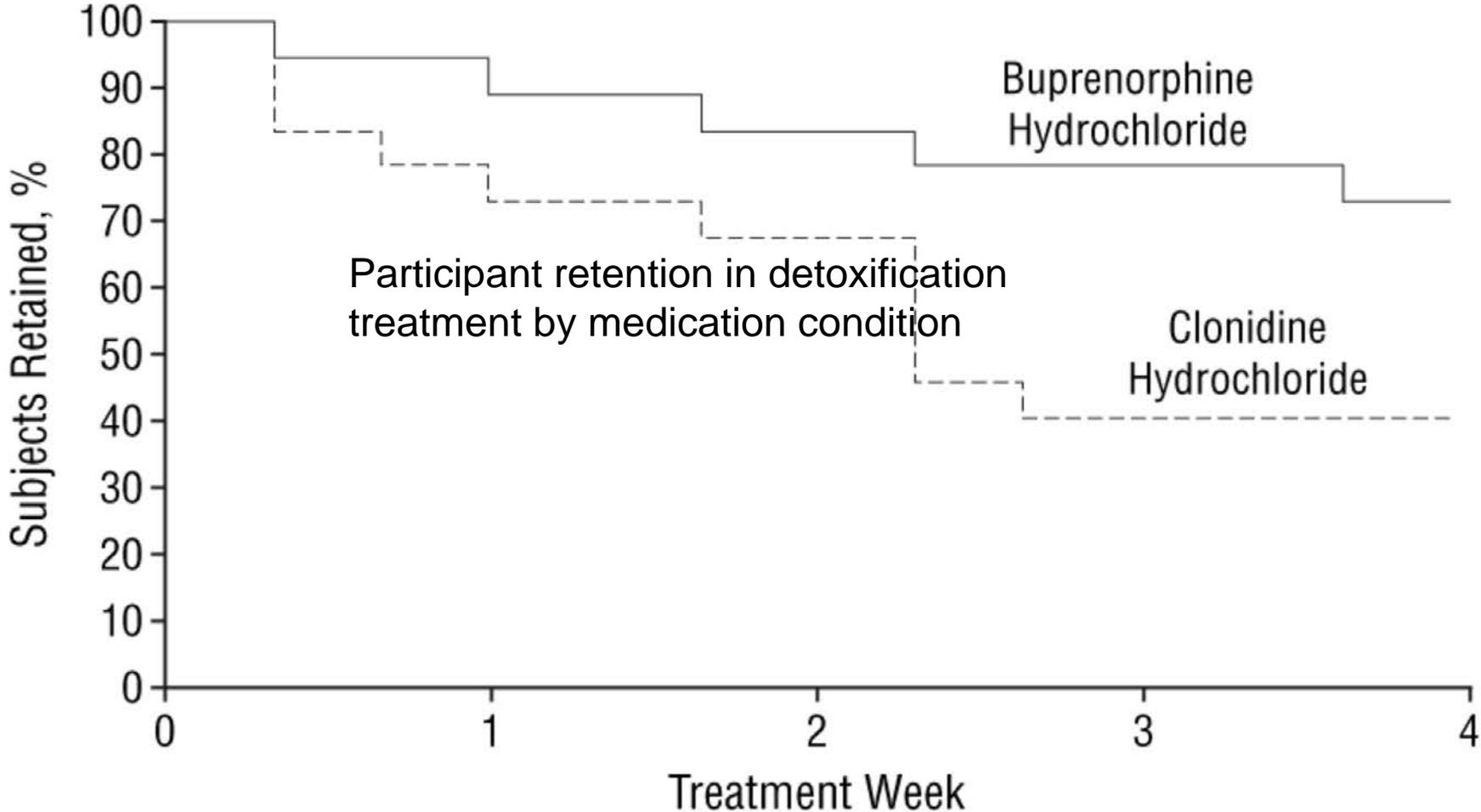
3. The AAP supports further research focus on developmentally appropriate treatment of substance use disorders in adolescents and young adults, including primary and secondary prevention, behavioral interventions, and medication treatment

# **Comparison of Pharmacological Treatments for Opioid-Dependent Adolescents: A Randomized Controlled Trial**

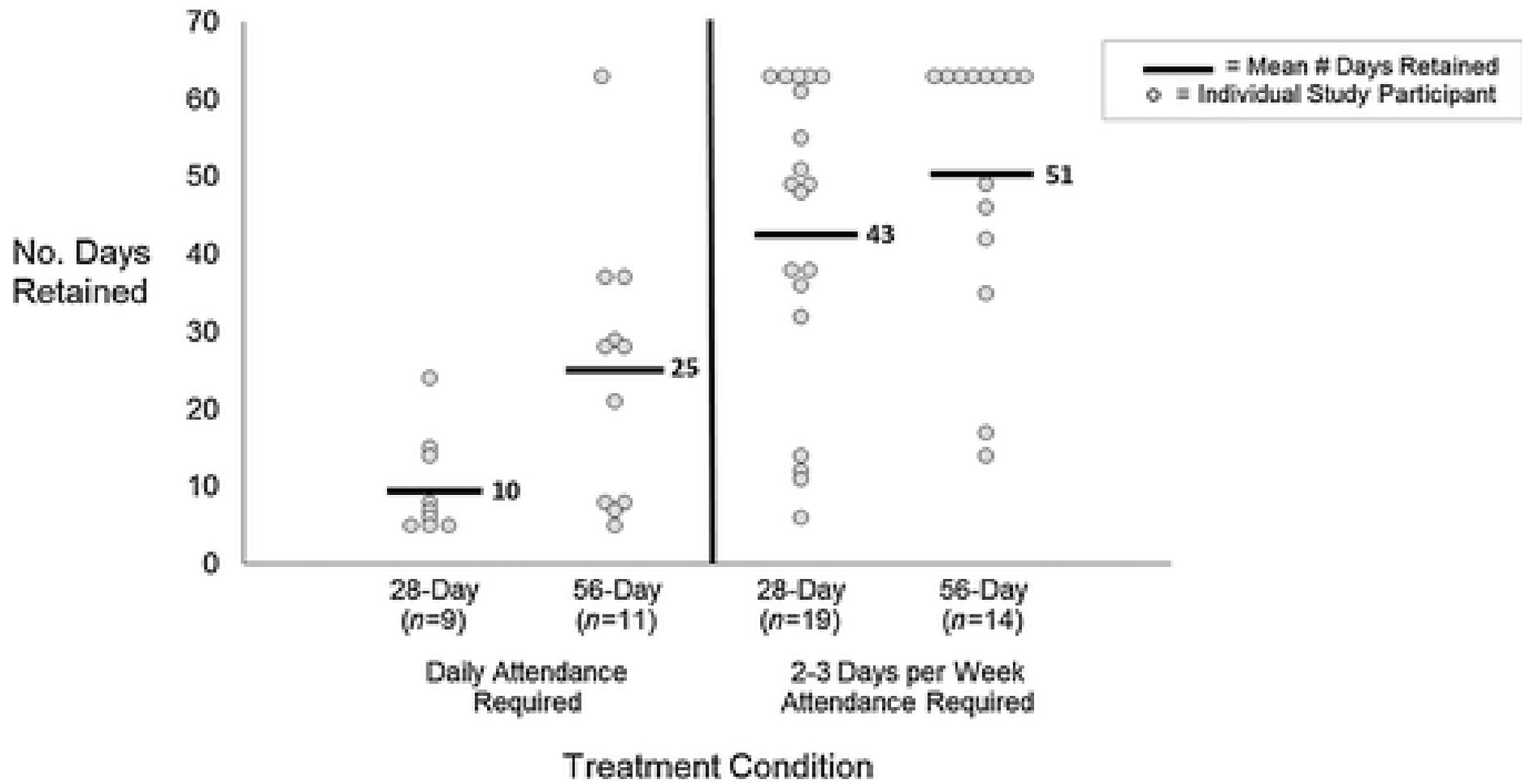
Arch Gen Psychiatry. 2005;62(10):1157-1164. doi:10.1001/archpsyc.62.10.1157

36 adolescents who met DSM-IV criteria for opioid dependence (ages 13-18 years eligible).

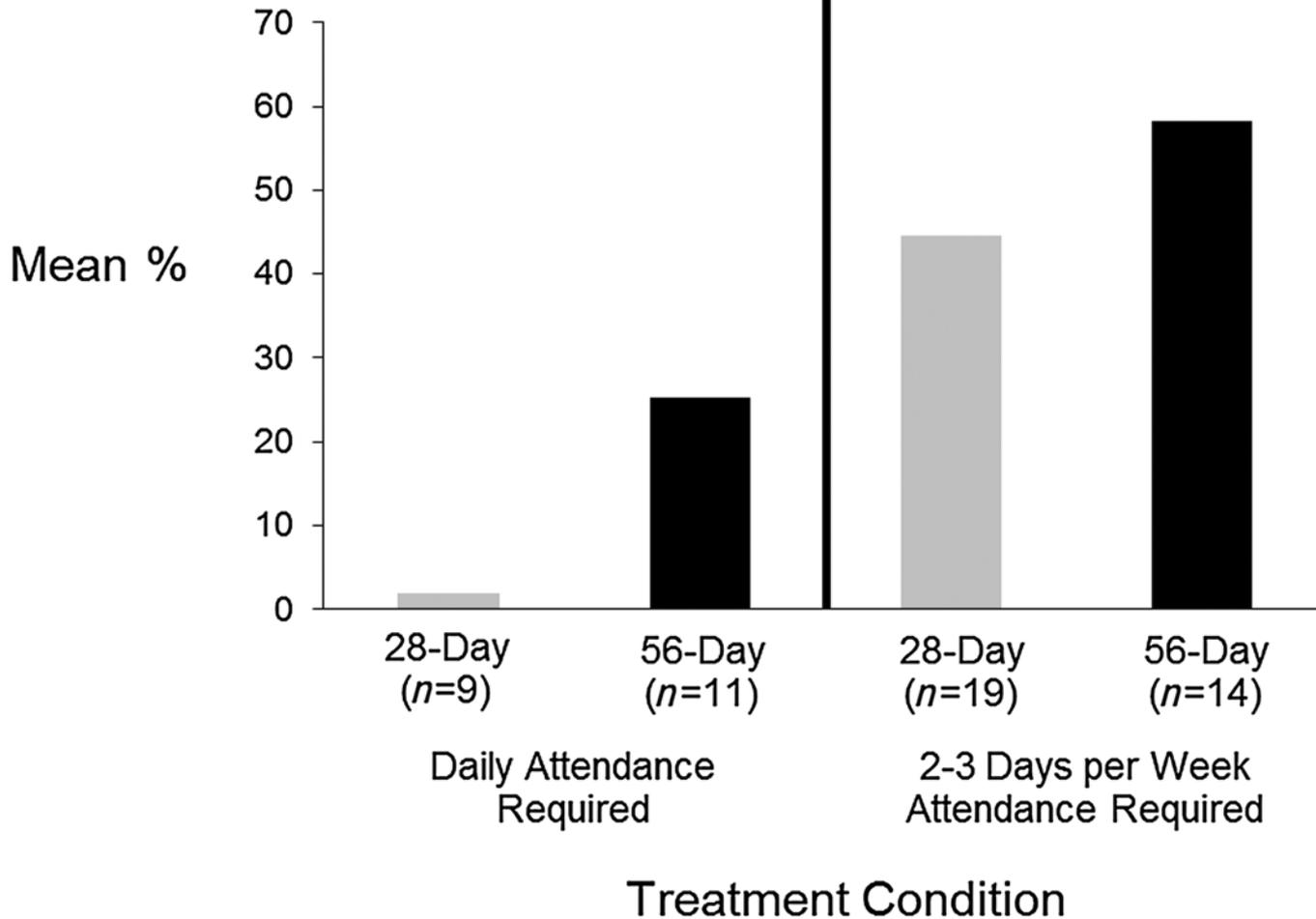
# Participant retention in detoxification treatment by medication condition



# Retention by buprenorphine treatment condition before and after changes in attendance requirement



# Mean percentage of urine screens documented as opioid negative by buprenorphine treatment condition before and after changes in attendance requirement

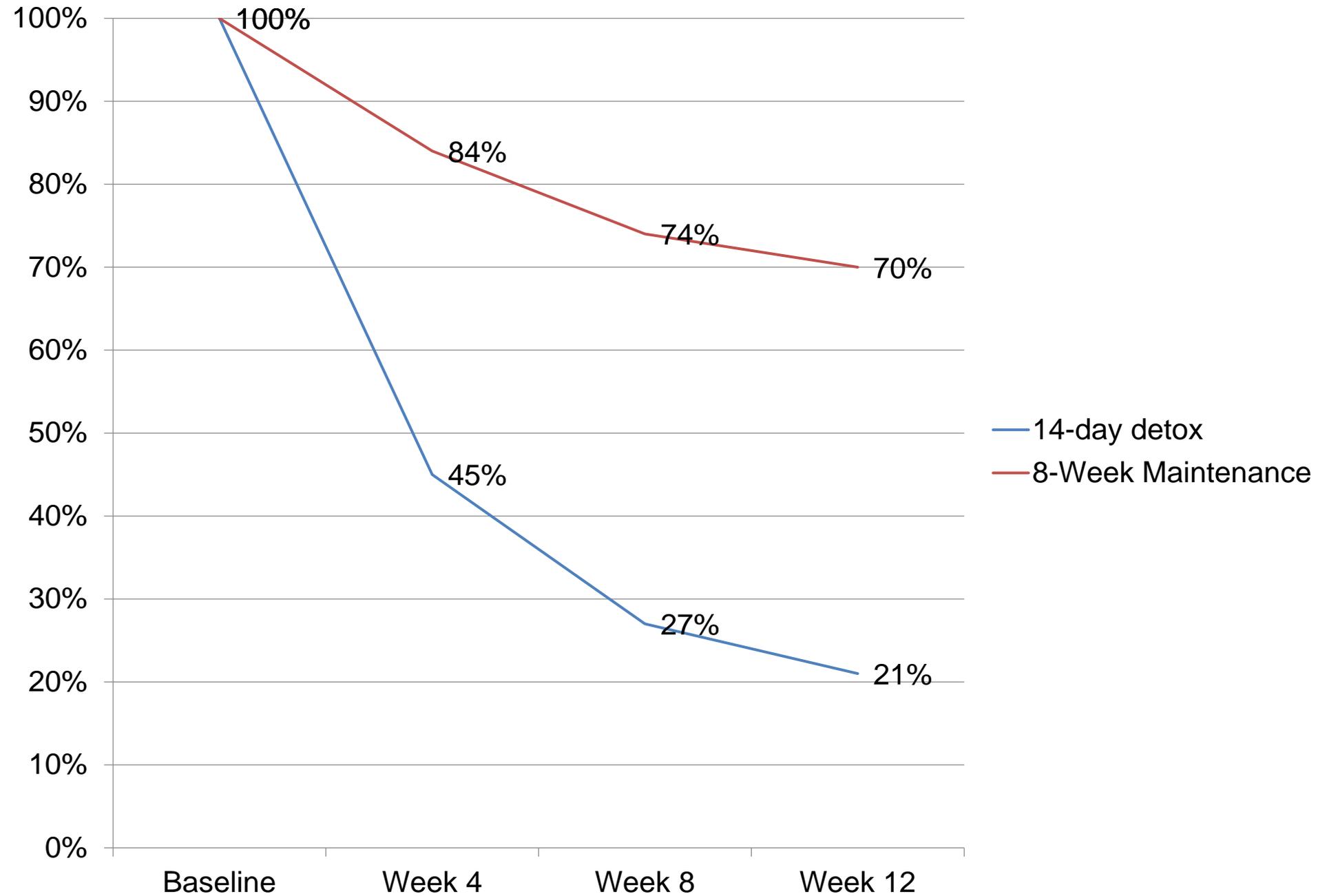


# Buprenorphine-Naloxone for Treatment of Opioid-Addicted Youth: A Randomized Trial. *JAMA*, 2008. Woody et al.

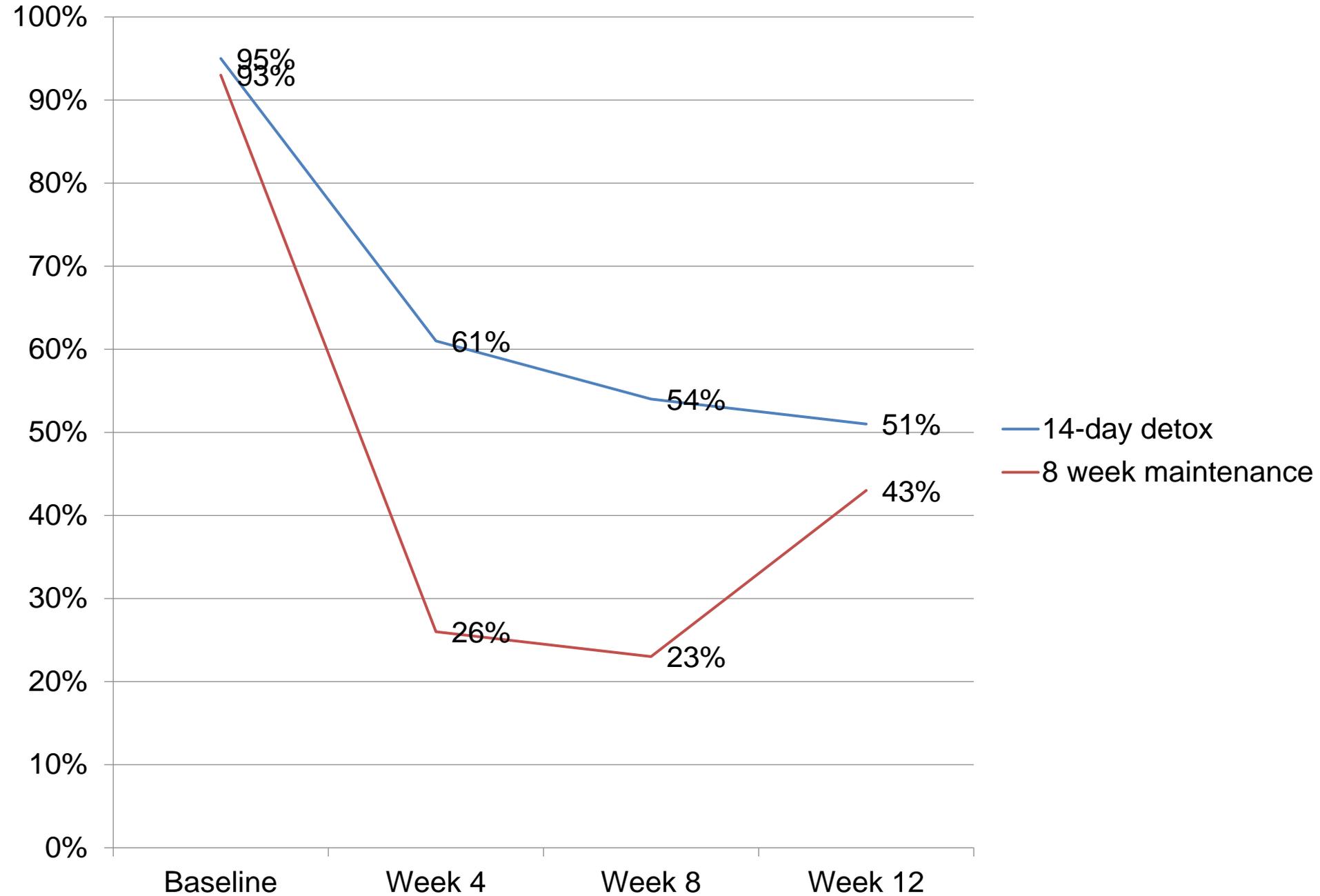
154 youth age 14-21 enter psychosocial treatment for opioid dependence randomized to:

- 14-day suboxone detox
- 8 weeks of maintenance followed by a 4 week taper

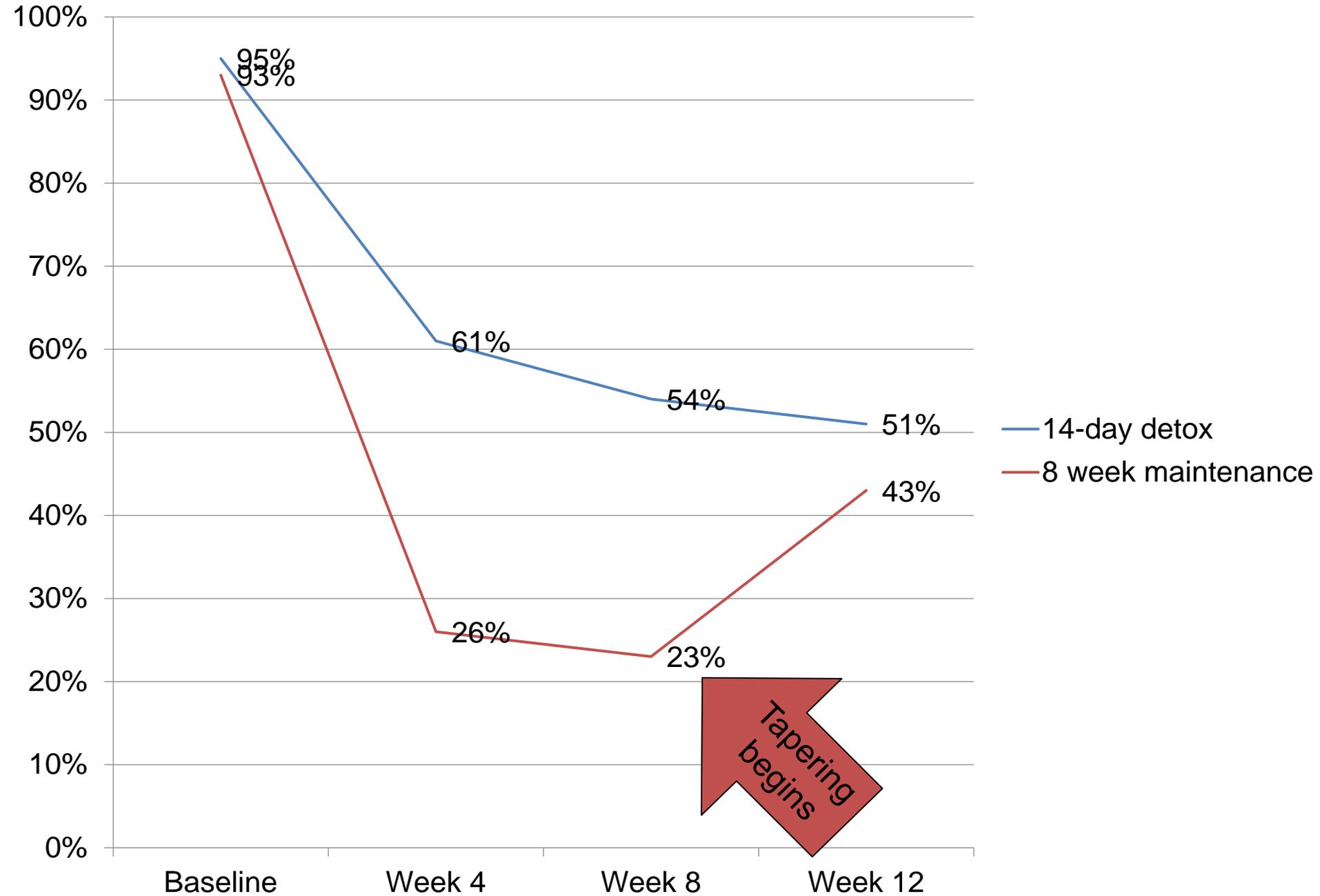
# Retention in Treatment



# Opioid Positive Urine Screens

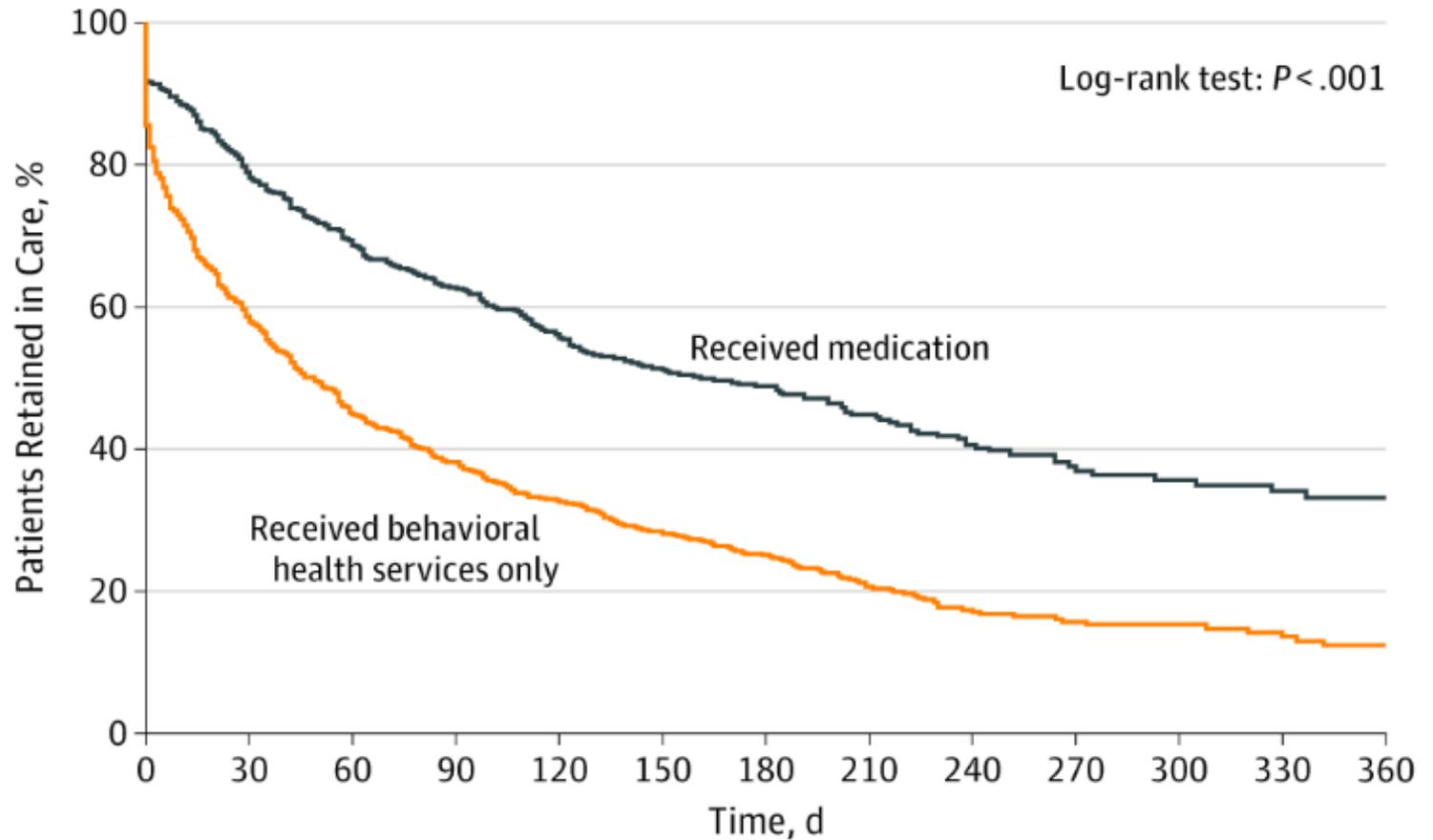


# Opioid Positive Urine Screens



# Retention in Care According to Timely Receipt of Opioid Use Disorder Medication Within 3 Months of Diagnosis Among Youths (n=3654 who received any treatment)

**A** Any addiction treatment



From: **Receipt of Timely Addiction Treatment and Association of Early Medication Treatment With Retention in Care Among Youths With Opioid Use Disorder**

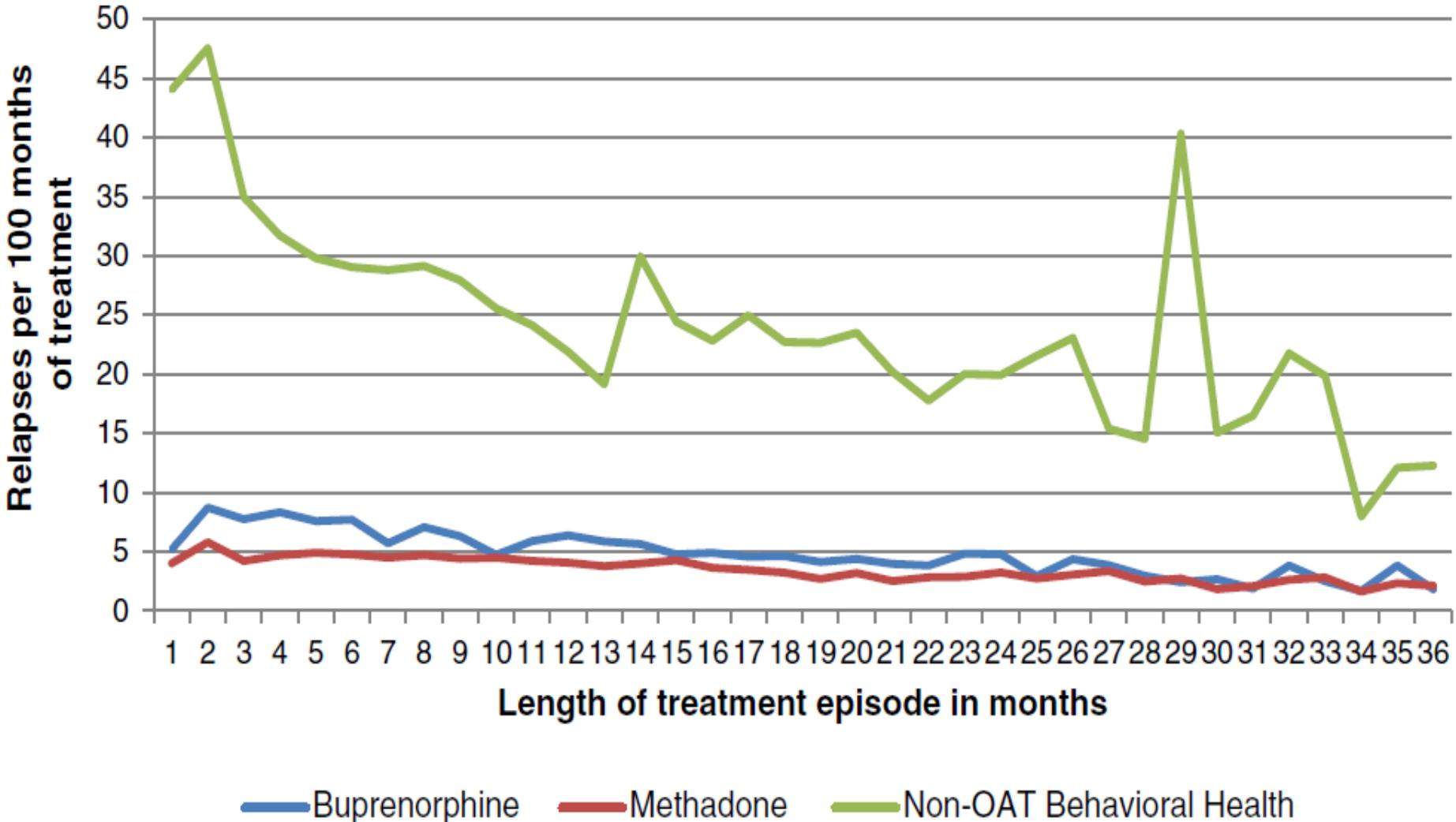
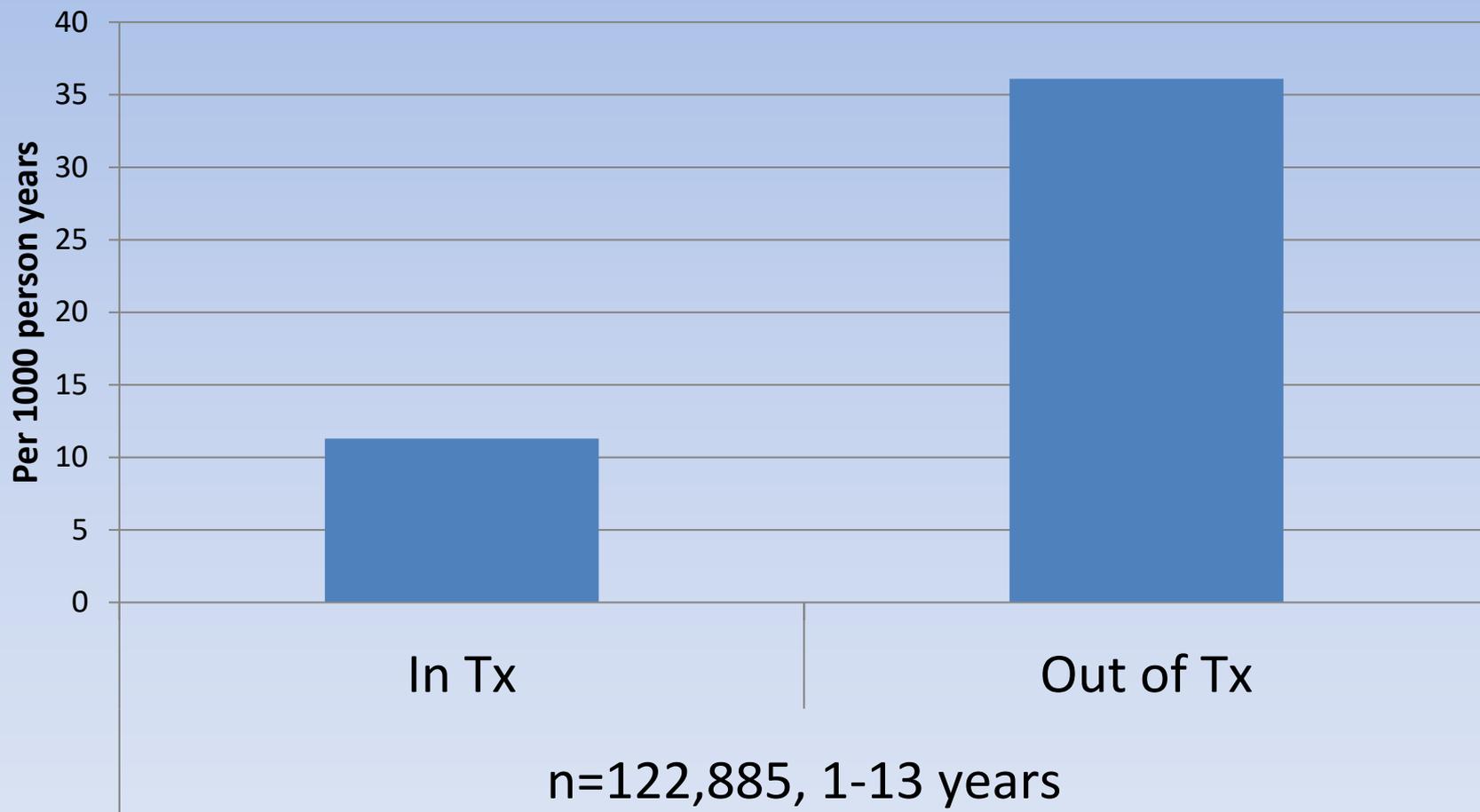


Figure 4. Clark, Robin E., et al. "Risk factors for relapse and higher costs among Medicaid members with opioid dependence or abuse: opioid agonists, comorbidities, and treatment history." *Journal of substance abuse treatment* 57 (2015): 75-80.



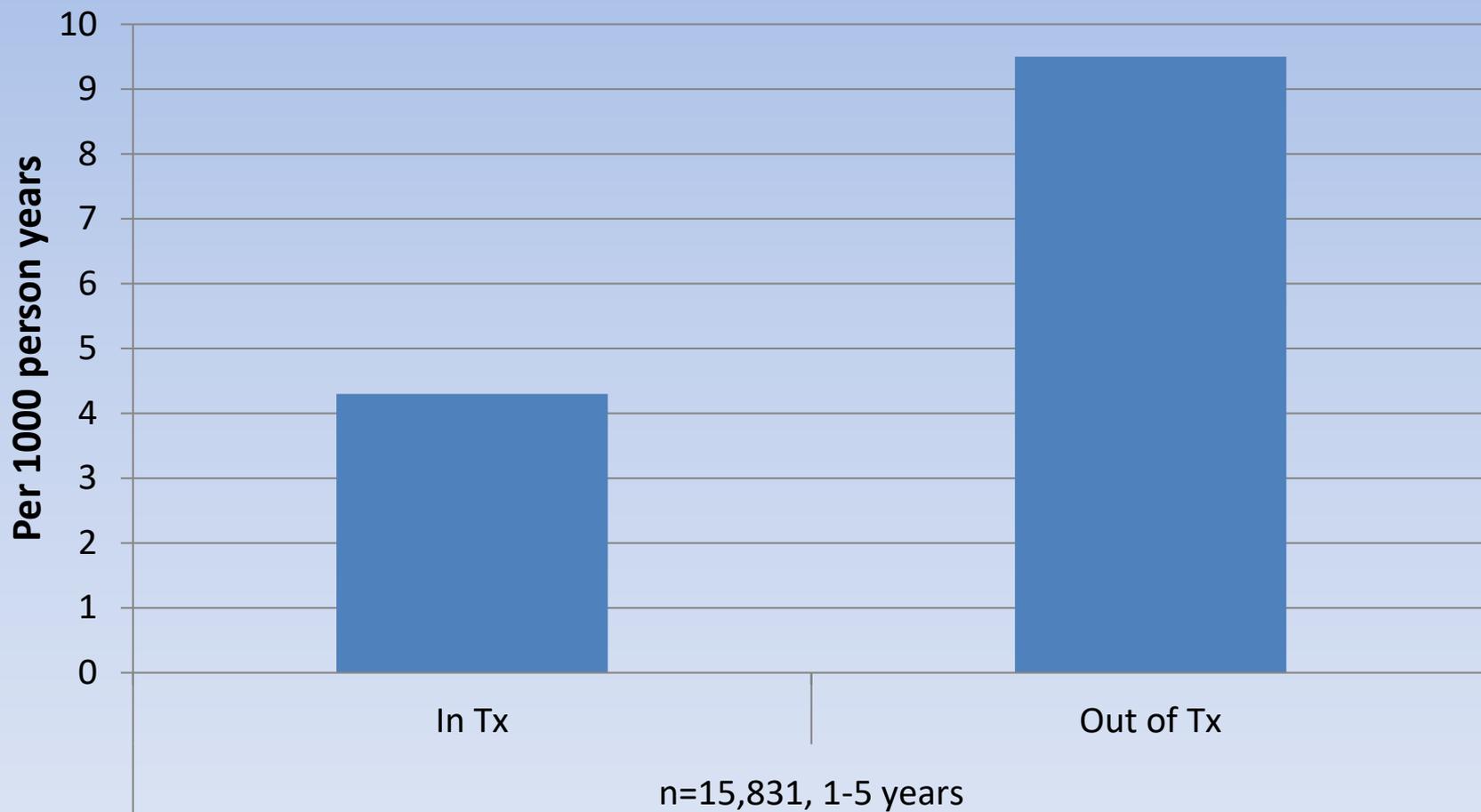
# Mortality Risk in and out Methadone Treatment



Sordo, Luis, et al. "Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies." *bmj* 357 (2017): j1550.



# Mortality Risk in and out Buprenorphine Treatment



Sordo, Luis, et al. "Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies." *bmj* 357 (2017): j1550.