

Opioid Misuse and Opioid Use Disorders in Adolescents

The background features a stack of white, round pills resting on a medical form. The form has a large 'RX' symbol and the words 'NOM DU PATIENT' and 'DOCTEUR' visible. The pills are scattered across the form, with some overlapping.

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Harvard Medical School*

*Director, Adolescent Substance Abuse Program
Boston Children's Hospital*

Disclosures

I, Sharon Levy, have no relevant financial or commercial relationships to disclose.

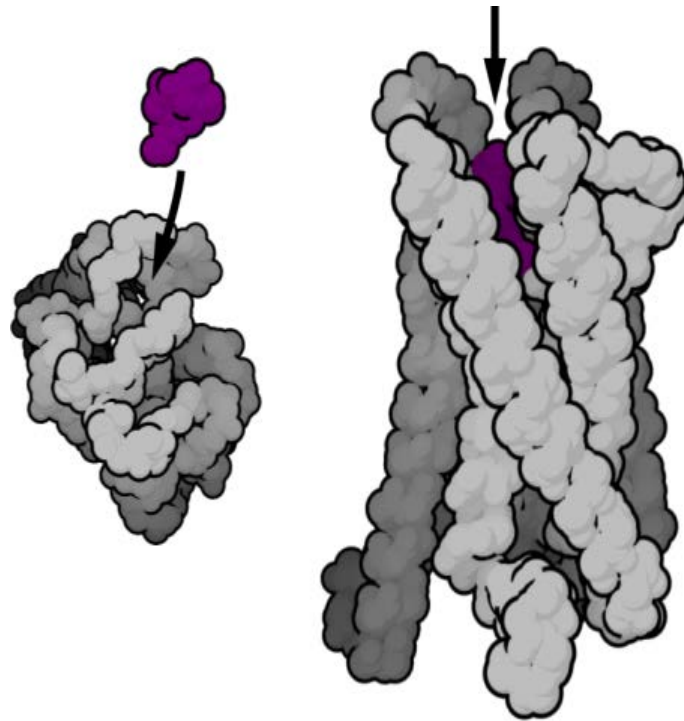


Opiates (Codeine)

Opioids (Hydrocodone)

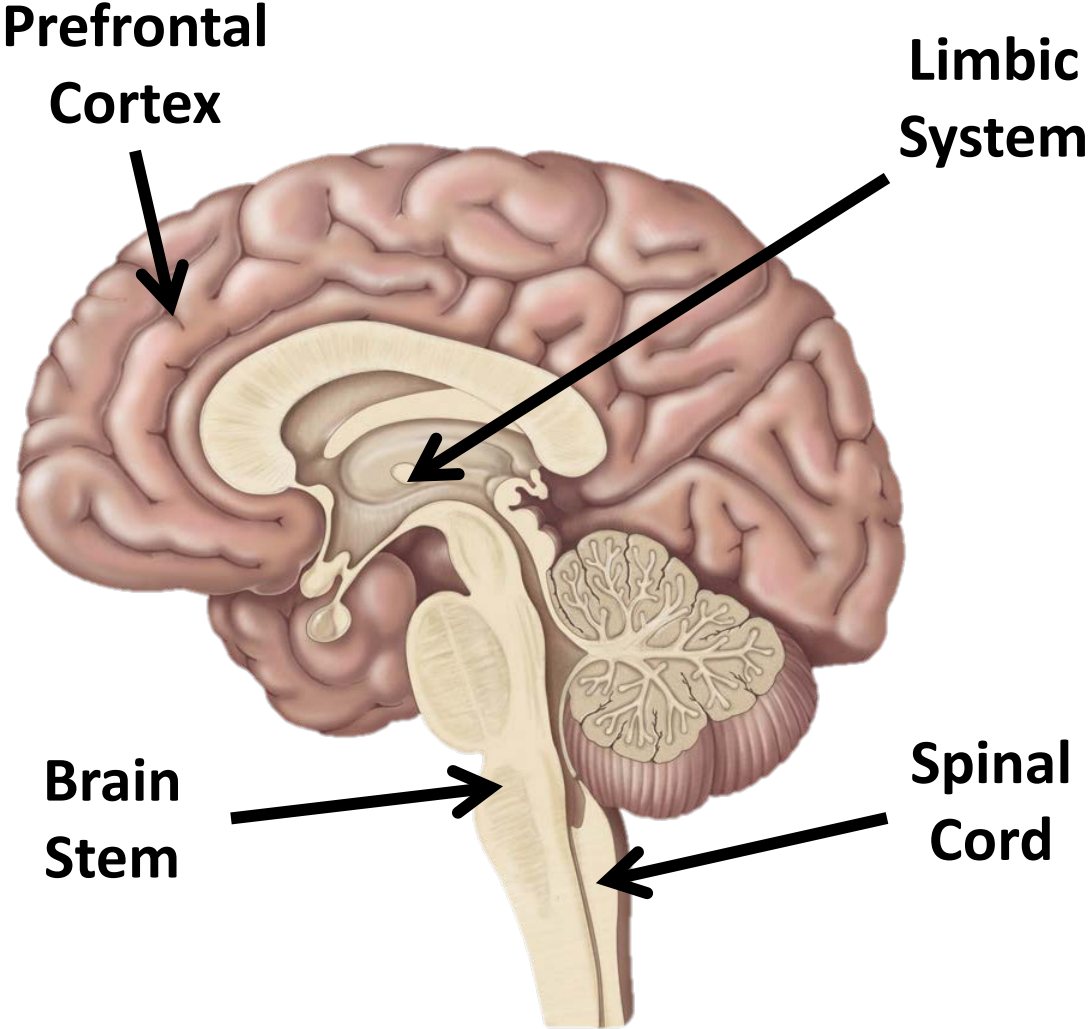


Opioid pharmacology



Opioid μ -receptor and agonist

Opioid neurobiology

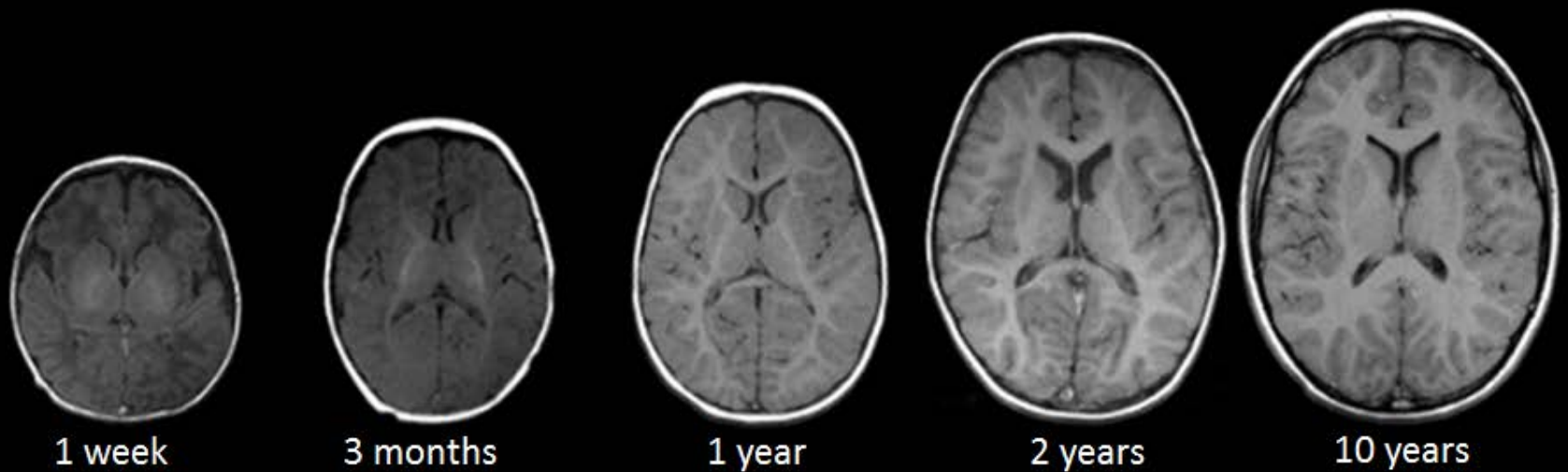






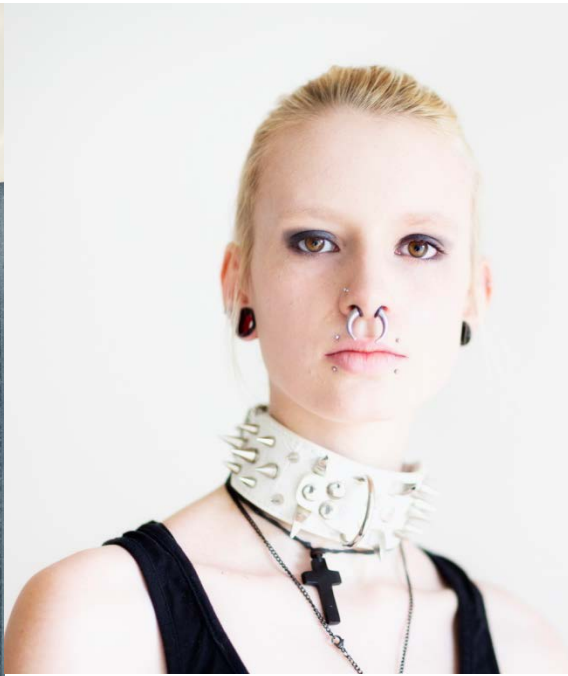
Adolescents are **developmentally primed** to use drugs



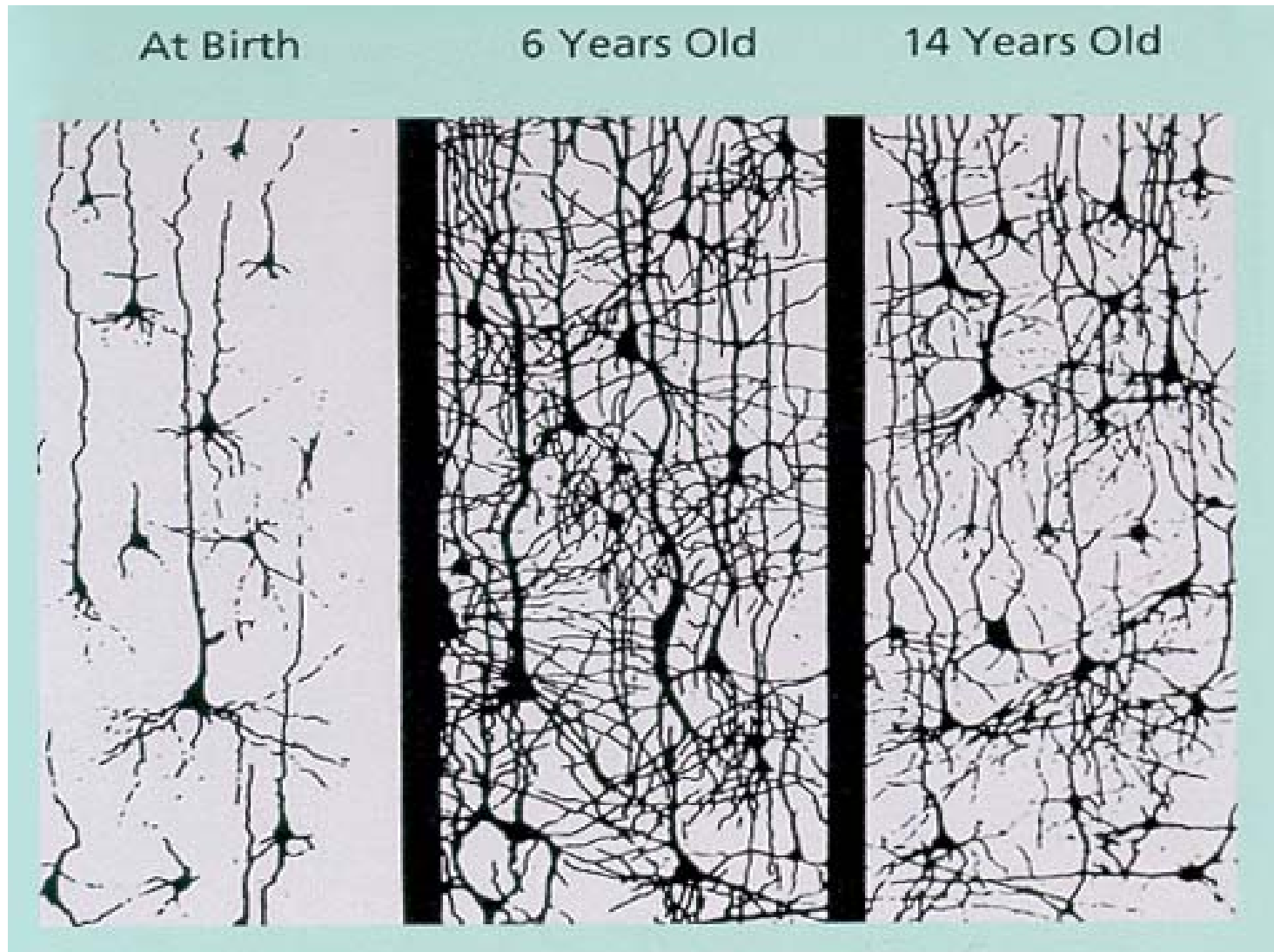


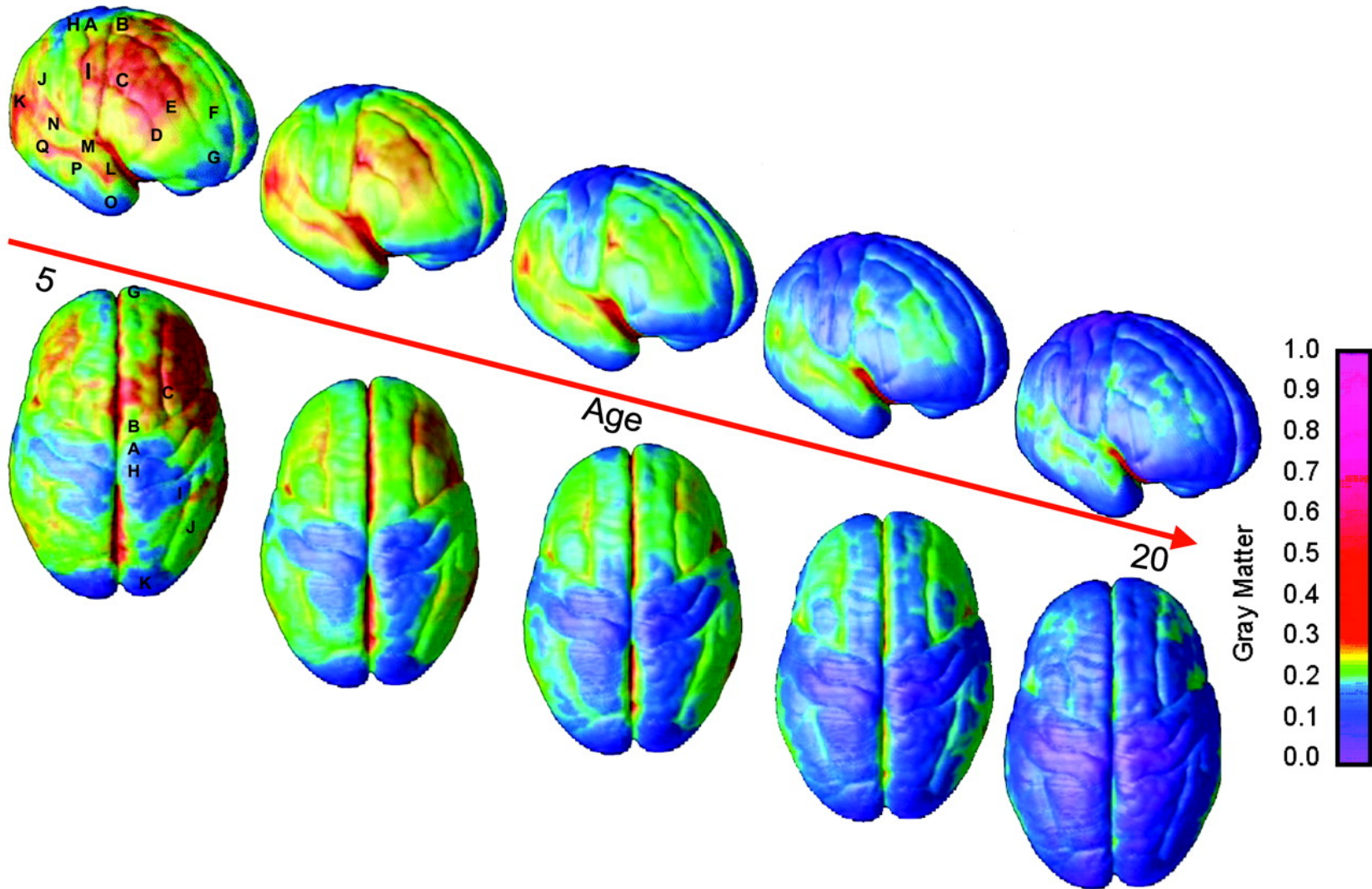
MRI scans of human brain development

T1W

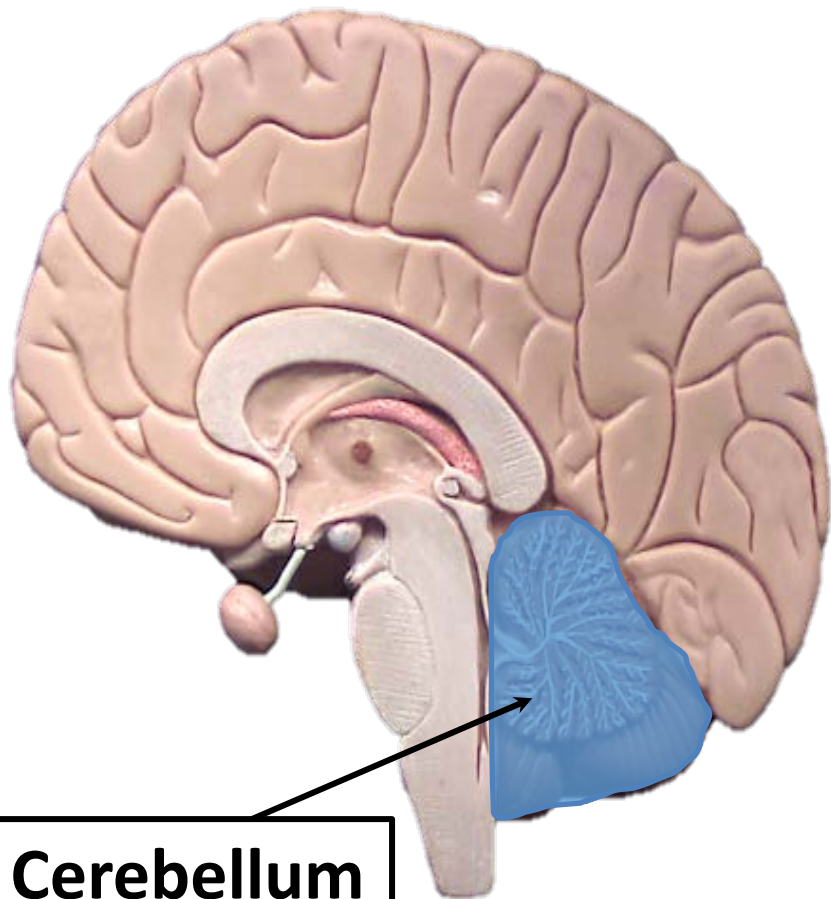


Neuron growth in brain development



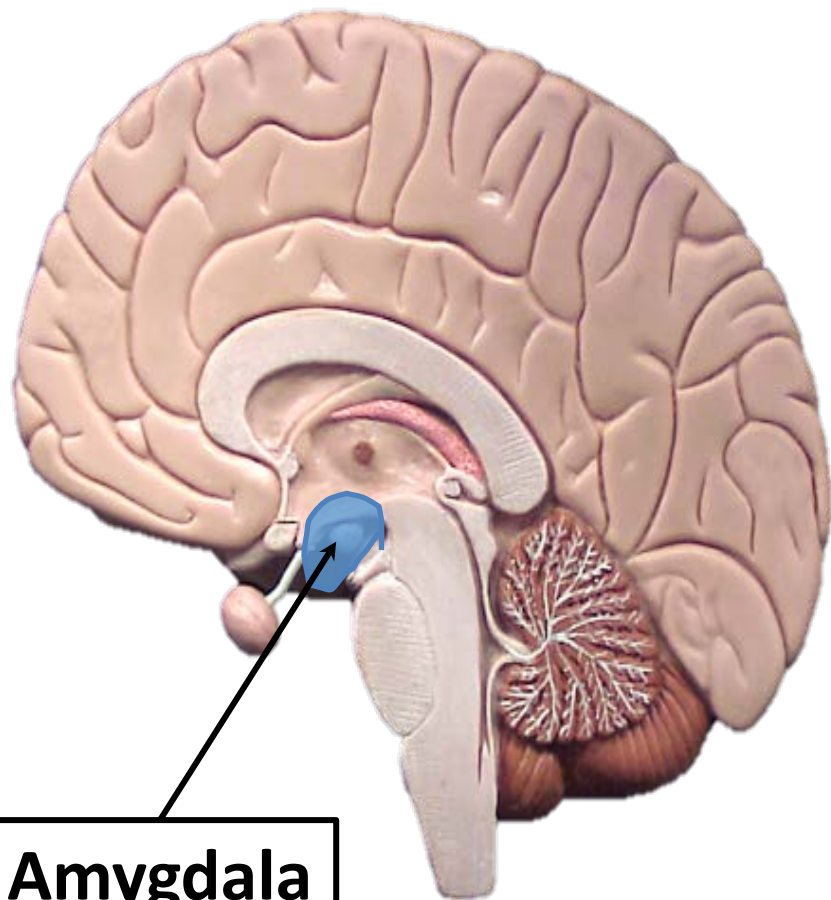


Source: Copyright (2004) National Academy of Sciences, U.S.A
 Gogtay et al. PNAS. 2004;101(21):8174-8179. Retrieved on February 17, 2015 from
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC419576/figure/fig3/>
 Permission received from PNAS



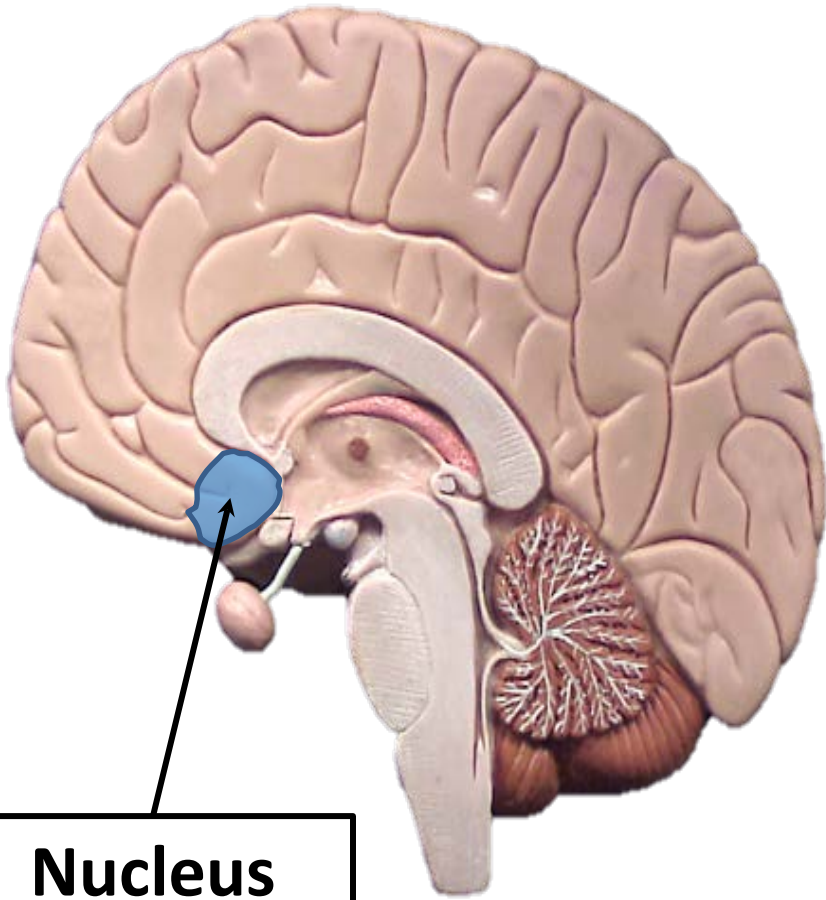
Cerebellum



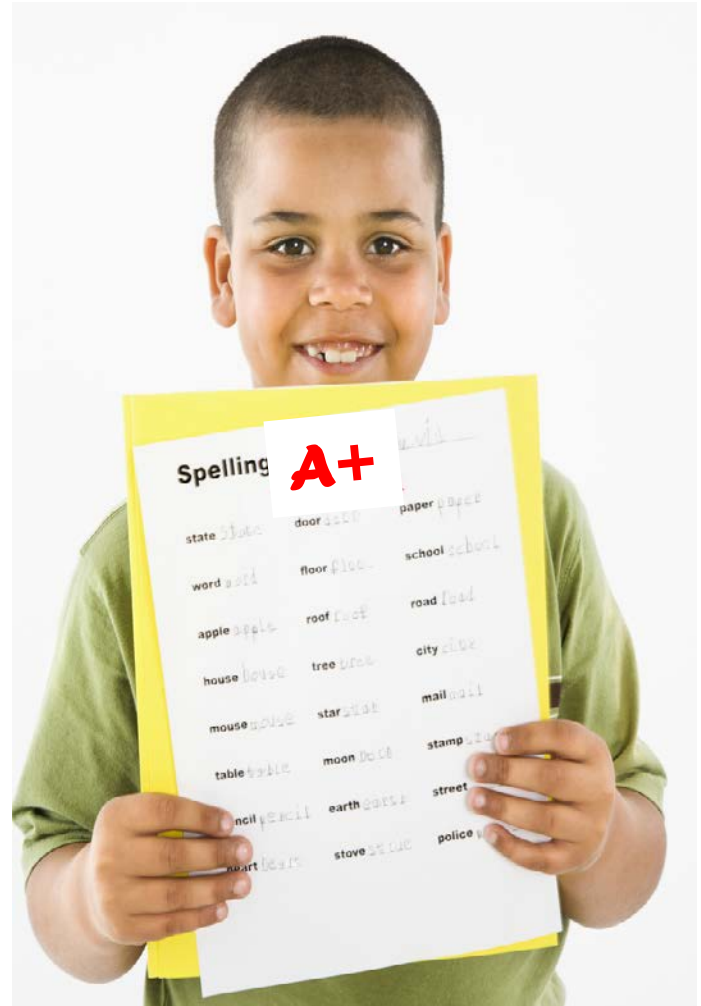


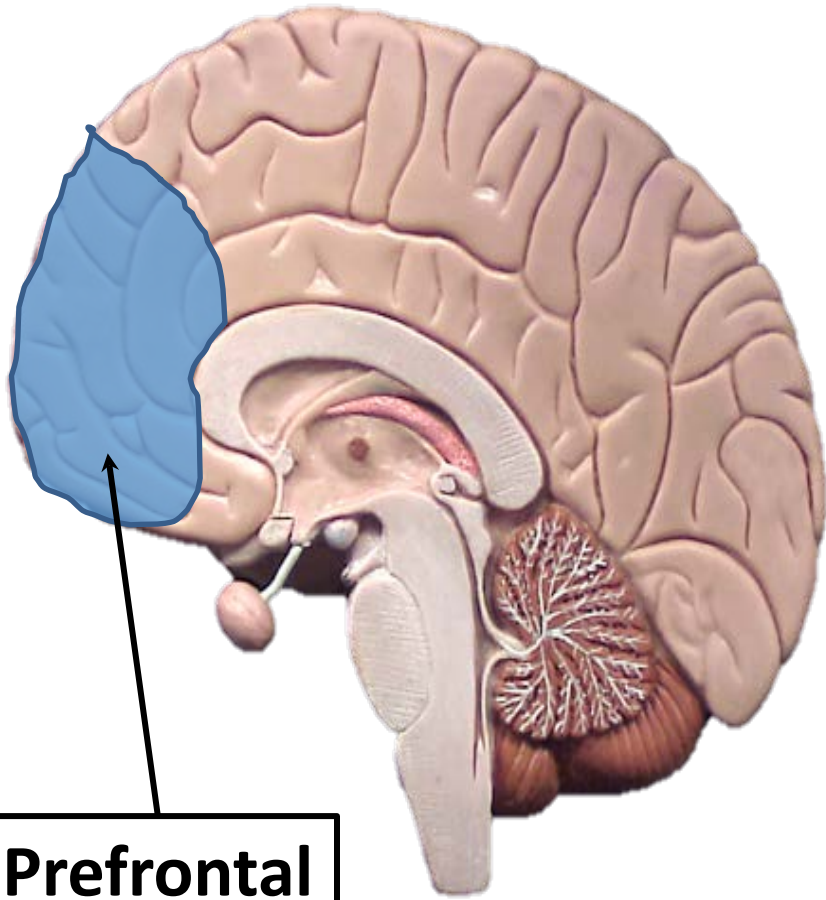
Amygdala



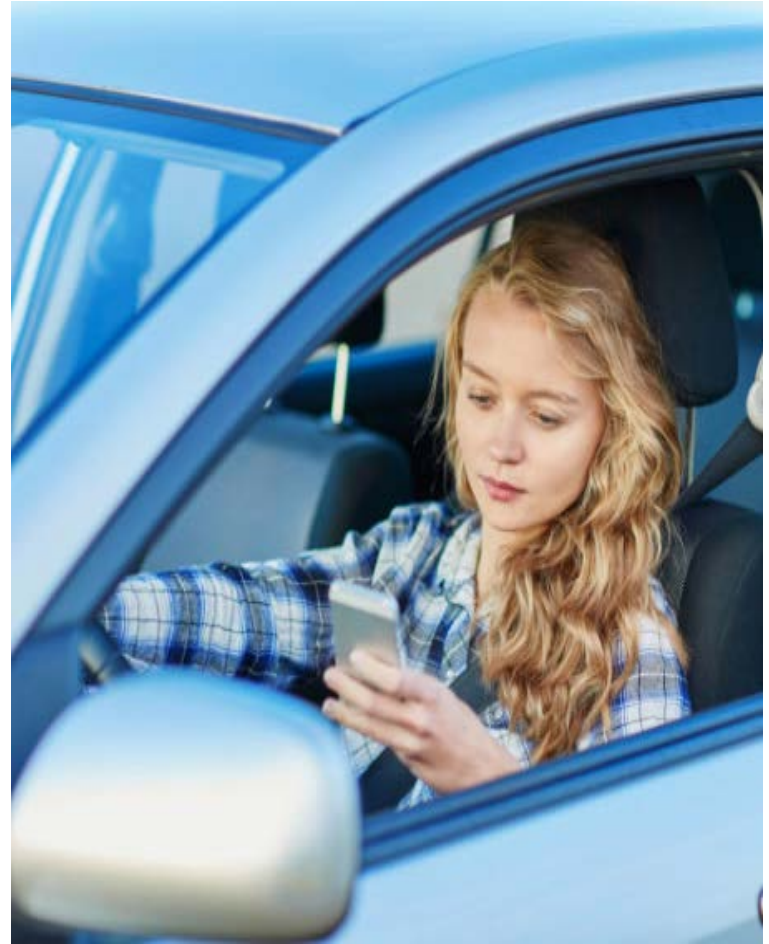


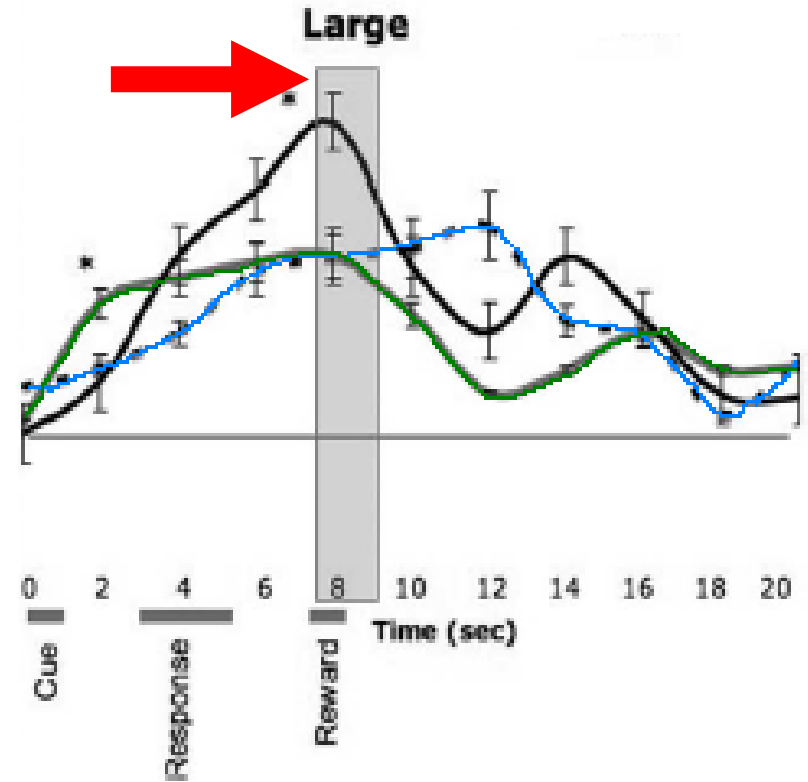
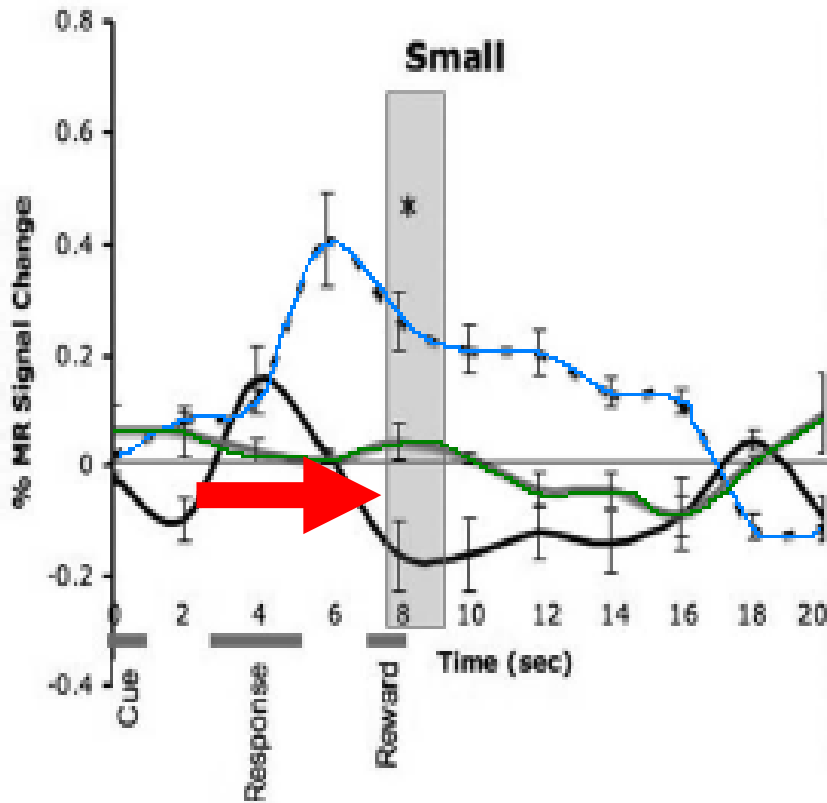
**Nucleus
accumbens**





**Prefrontal
cortex**



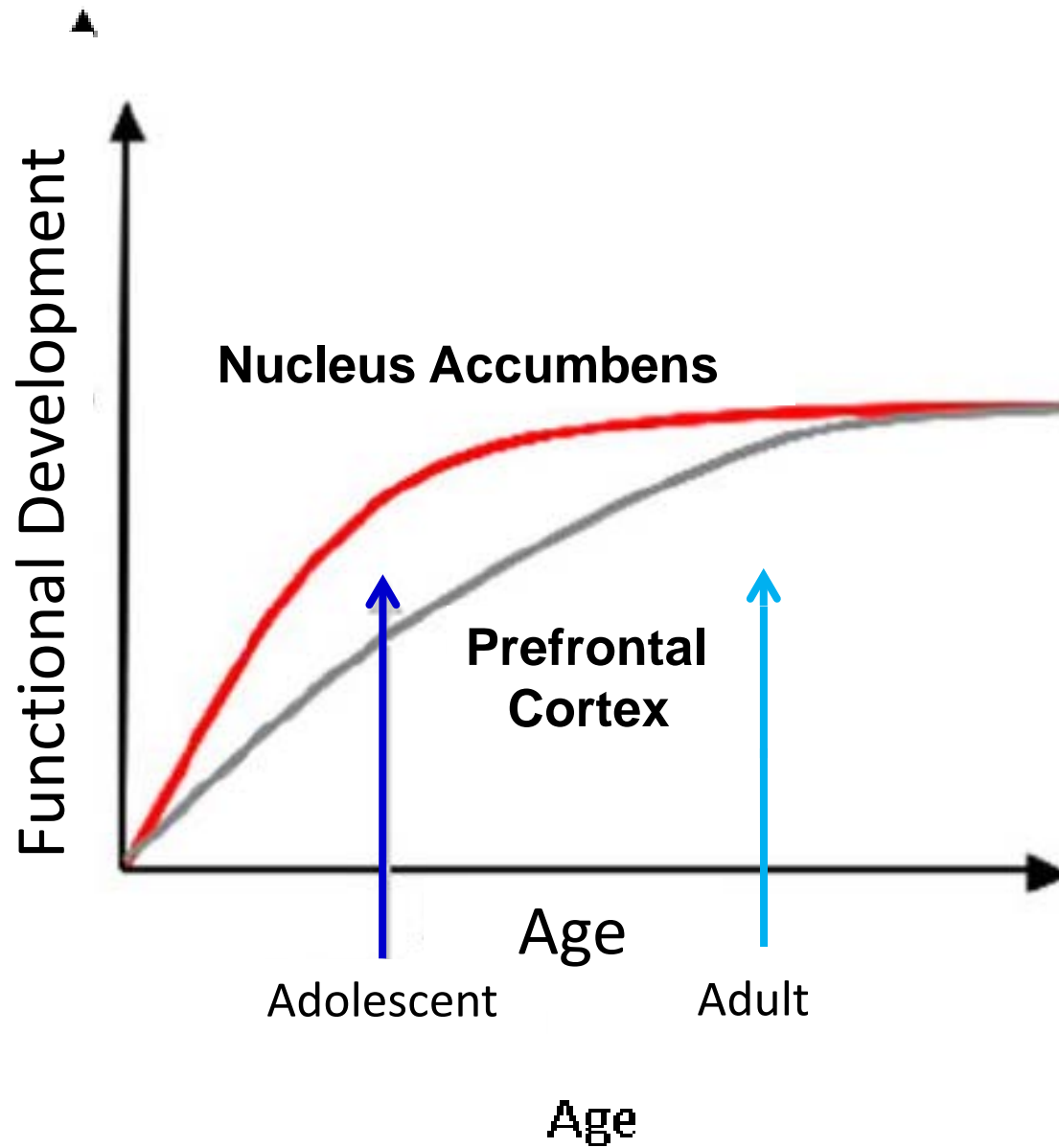


Children, ages 7-11

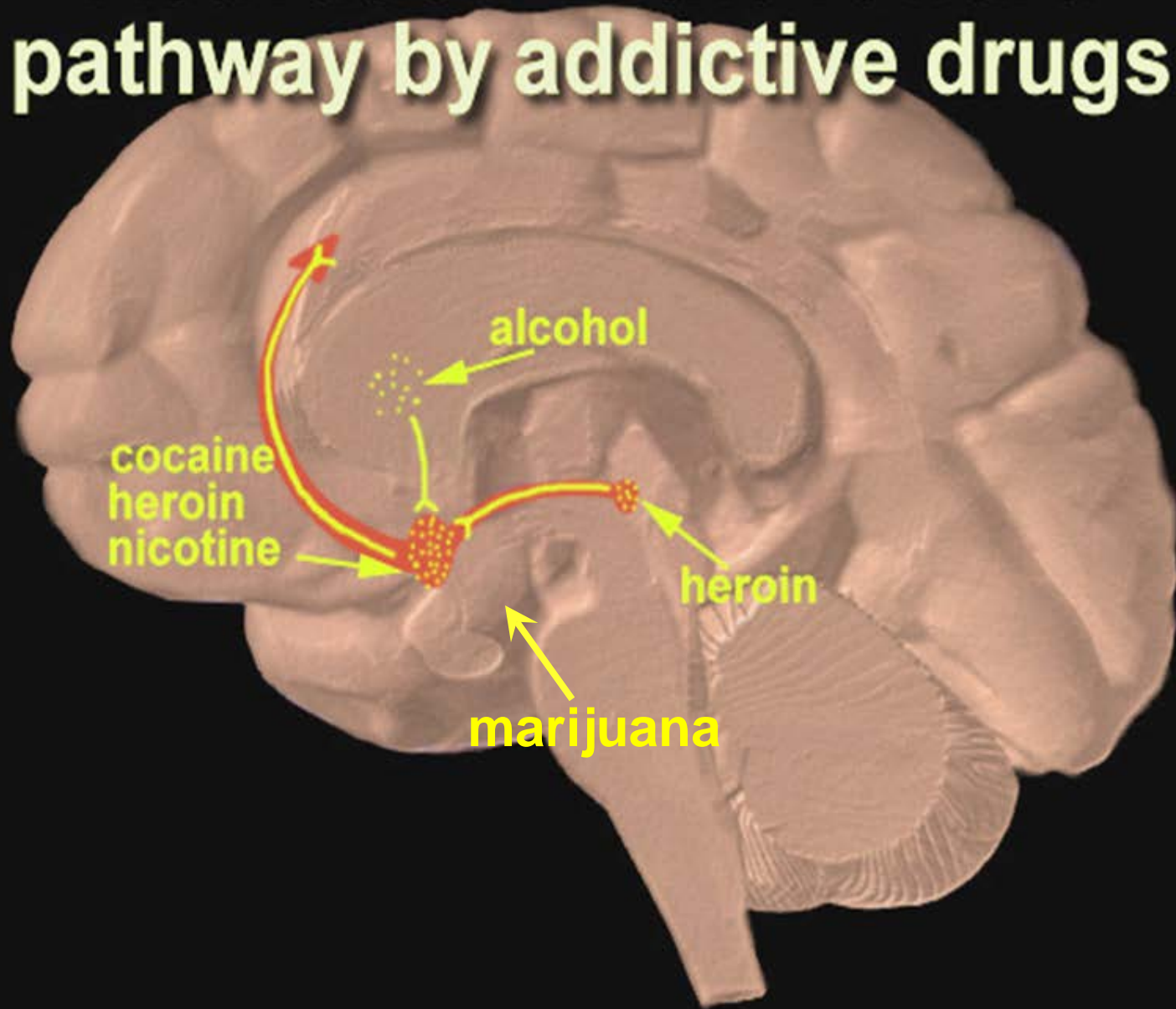
Teens, ages 13-17

Adults, ages 23-29

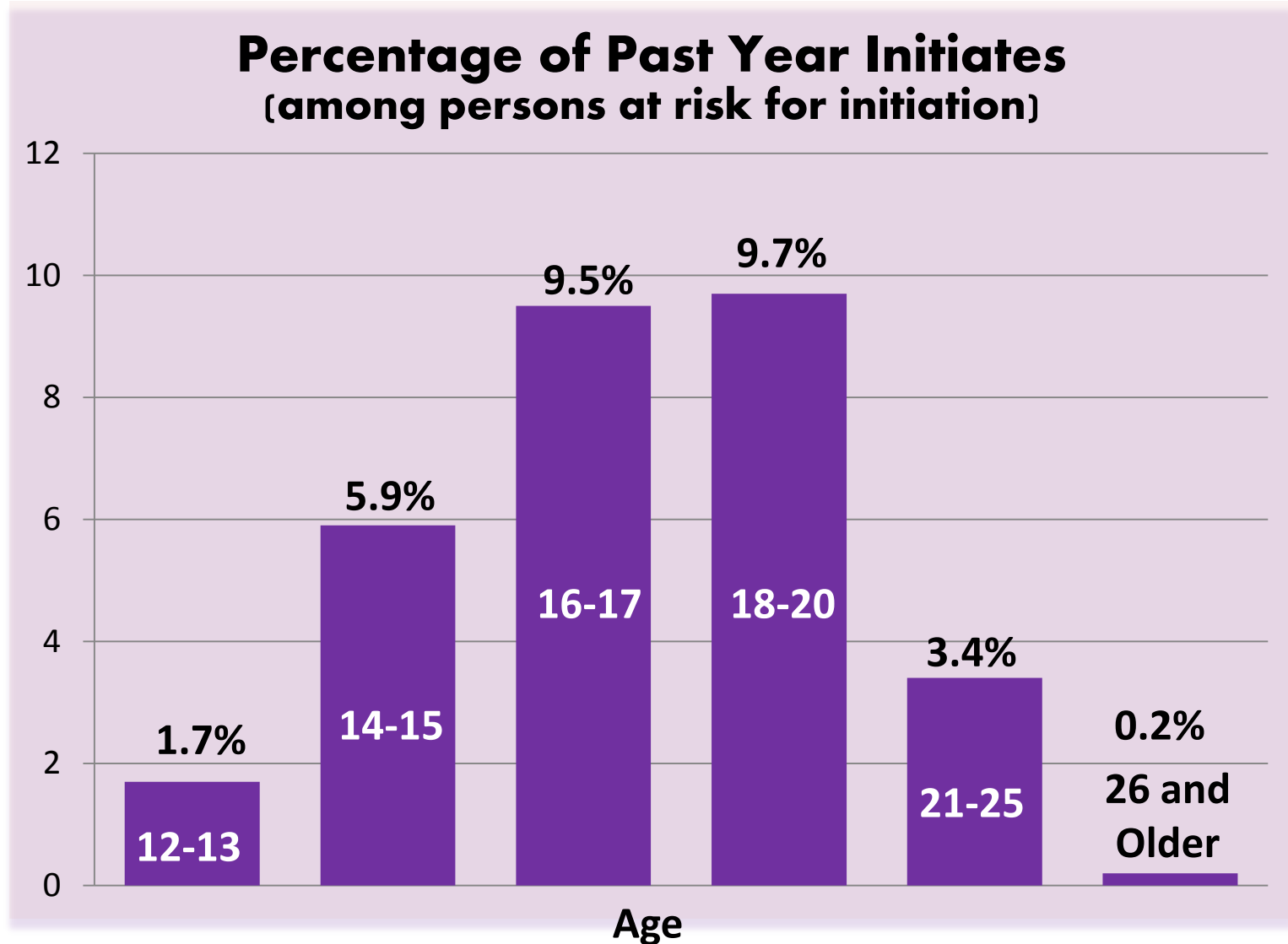
Adriana Galvan et al. J. Neurosci. 2006;26:6885-6892



Activation of the reward pathway by addictive drugs

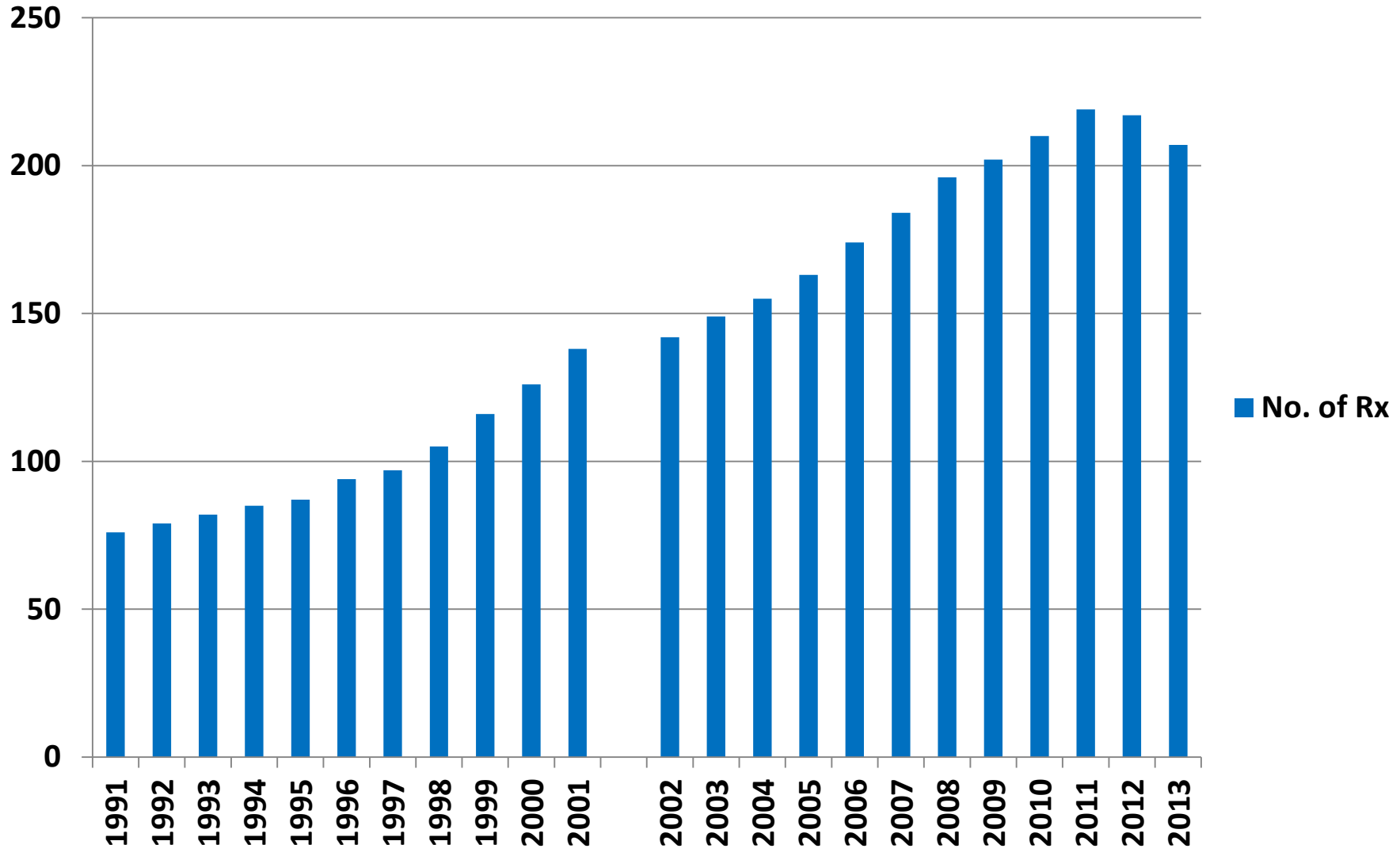


Most drug use starts in adolescence



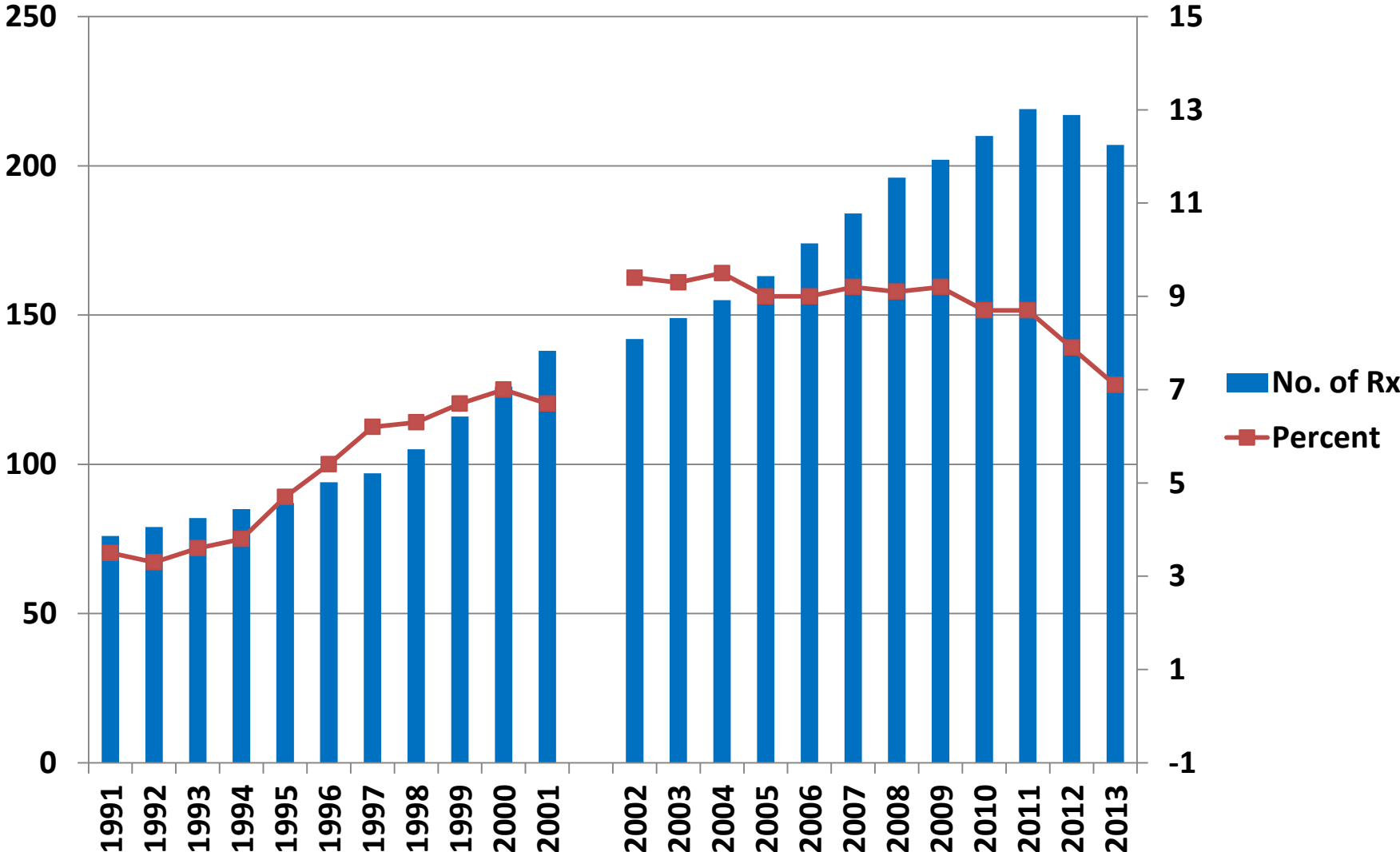
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2014

Growth in Opioid Prescriptions



Sources: 1) Volkow ND. America's Addiction to Opioids: Heroin and Prescription Drug Abuse. *Natl. Inst. Drug Abus.* 2014.
2) <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2013.pdf>.

Opioid Prescriptions by proportion of 12th graders misusing of opioids



Sources: 1) Volkow ND. America's Addiction to Opioids: Heroin and Prescription Drug Abuse. *Natl. Inst. Drug Abus.* 2014.
 2) <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2013.pdf>.

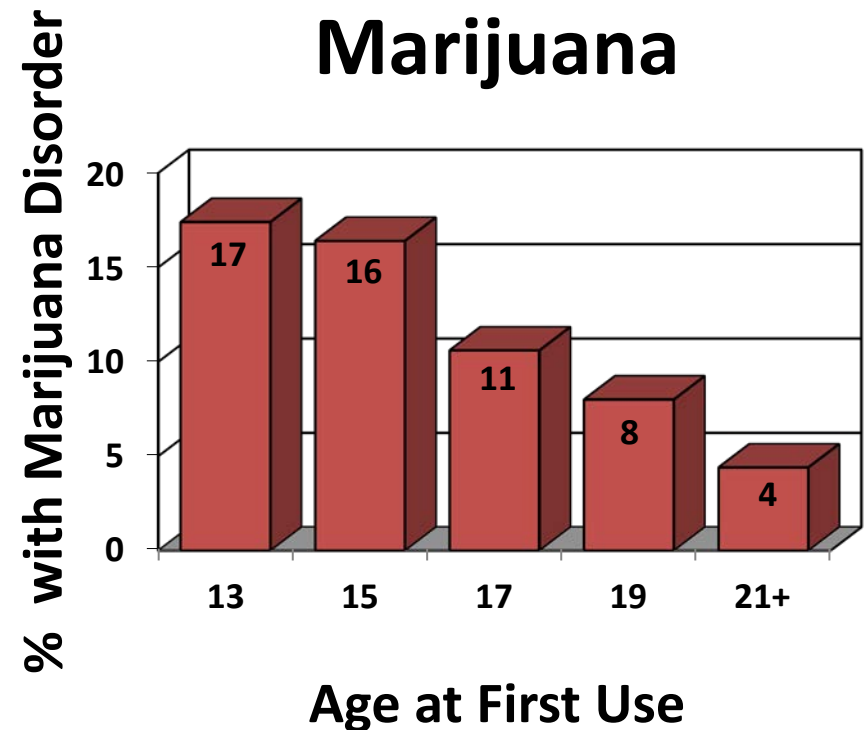


Adolescents are **developmentally vulnerable** to develop substance use disorders

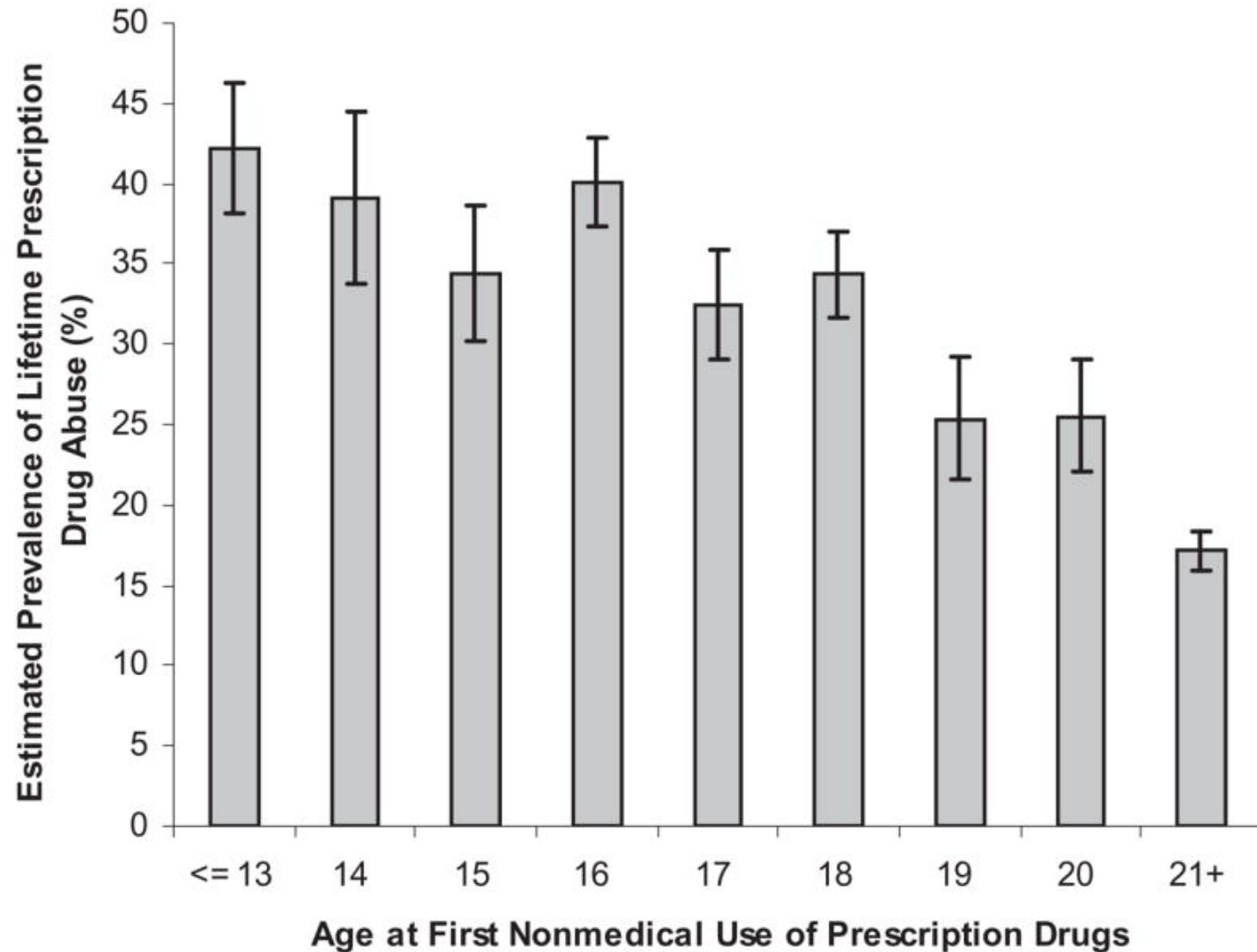





Age at first use and later risk



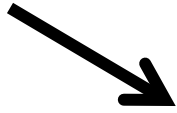
Age of onset of non-medical use of prescription drugs



Source: McCabe et al. Does early onset of non-medical use of prescription drugs predict subsequent prescription drug abuse and dependence? Results from a national study. *Addiction* 2007 102(12):1920-1930.



Prescribed
opioid use



Opioid misuse

Association between prescribed opioids and opioid misuse



Prescribed pain relief

AOR: 1.33

(95% CI 1.04-1.70)

Prescribed
opioid use



Opioid misuse



Alc/MJ/tobacco use

Gateway to Opioid Misuse



**Lifetime
Marijuana use**

AOR: 2.44
(95% CI 2.22-2.67)



Lifetime Cigarette use

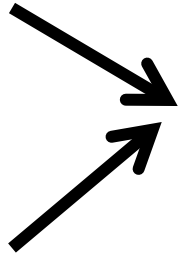
AOR: 1.25
(95% CI 1.16-1.36)



Lifetime Alcohol use

AOR: 1.23
(95% CI 1.11-1.36)

Prescribed
opioid use



Alc/MJ/tobacco use

Younger age
Genetic vulnerability
Mental health disorders
Motivation

Opioid misuse



Opioid addiction

Younger age*



*AOR decreases by 5% each year
that non-medical use is delayed
(after one year, **AOR: 0.95**
with 95% CI 0.94-0.97)

Mental health and opioid use



**Familial alcohol
problem/drug use**
Drug abuse/Dependence
OR: 7.89-7.92



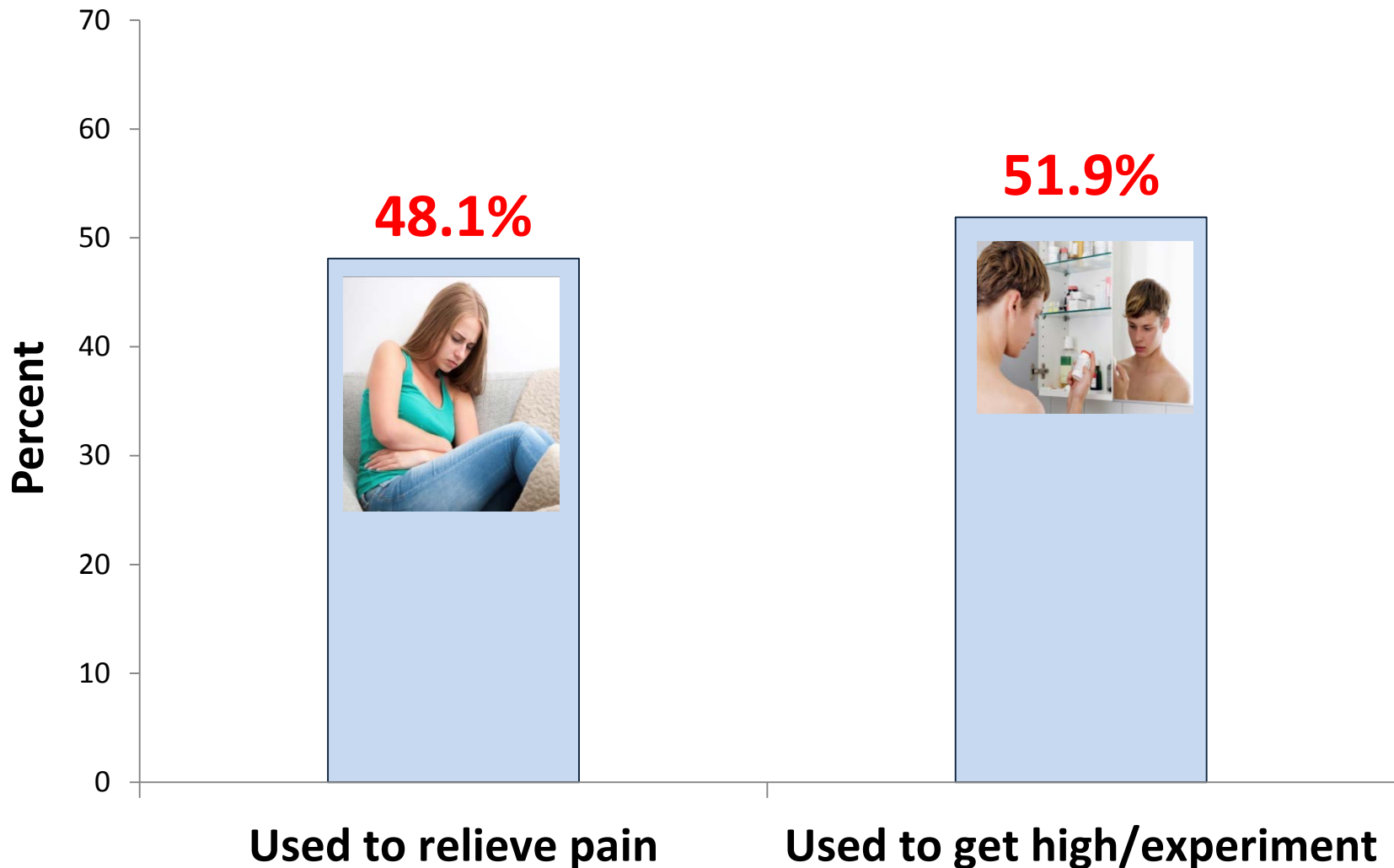
PTSD
Drug abuse/Dependence
OR: 8.68

**Major depression,
anxiety disorder, or
panic disorder**

Opioid use **OR: 4.43**
(95% CI 3.64-5.38)

Sources: 1) Kilpatrick DG, Acierno R, Saunders B, Resnick HS, Best CL, Schnurr PP (2000). 2) Risk Factors for Adolescent Substance Abuse and Dependence: Data From a National Sample. *J Consult and Clin Psych* 63(1):19-30. 3) Sullivan MD, Edlund MJ, Zhang L, Unützer J, Wells KB (2006). Association Between Mental Health Disorders, Problem Drug Use, and Regular Prescription Opioid Use. *Arch Intern Med* 166(19):2087-2093.

Motivations for opioid misuse



Association between motivation for use and Opioid Use Disorder



Unprescribed pain relief

AOR: 1.8

(95% CI 1.20-2.60)



Recreational use

AOR: 3.42

(95% CI 1.45-8.07)



Benefits

Risks

Think your patients aren't at risk of having an opioid use disorder?

Think Again.



This is the Face of Opioid Use Disorder

