

Science To Inform Addiction Prevention, Treatment, and Policy

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Three Major Addiction Themes Where Science is Needed to Inform Policy

- **MARIJUANA:** The shifting legal landscape suggests possible population impacts



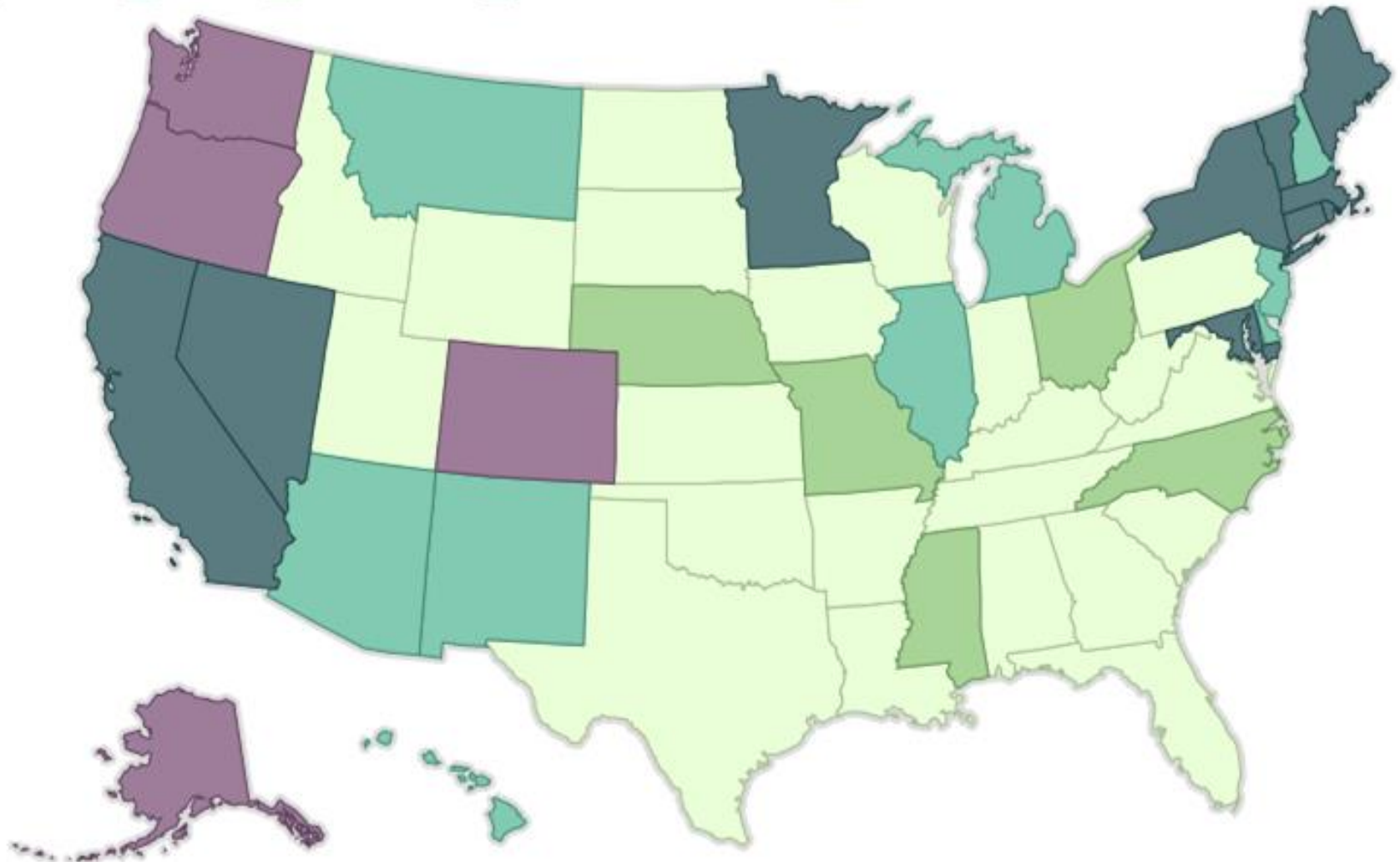
- **E-CIGARETTES:** Both potential promise for established tobacco users and concern for increasing adolescent use

- **OPIOIDS:** Impacts on public health in the USA starting with over-exposure to prescription opioids



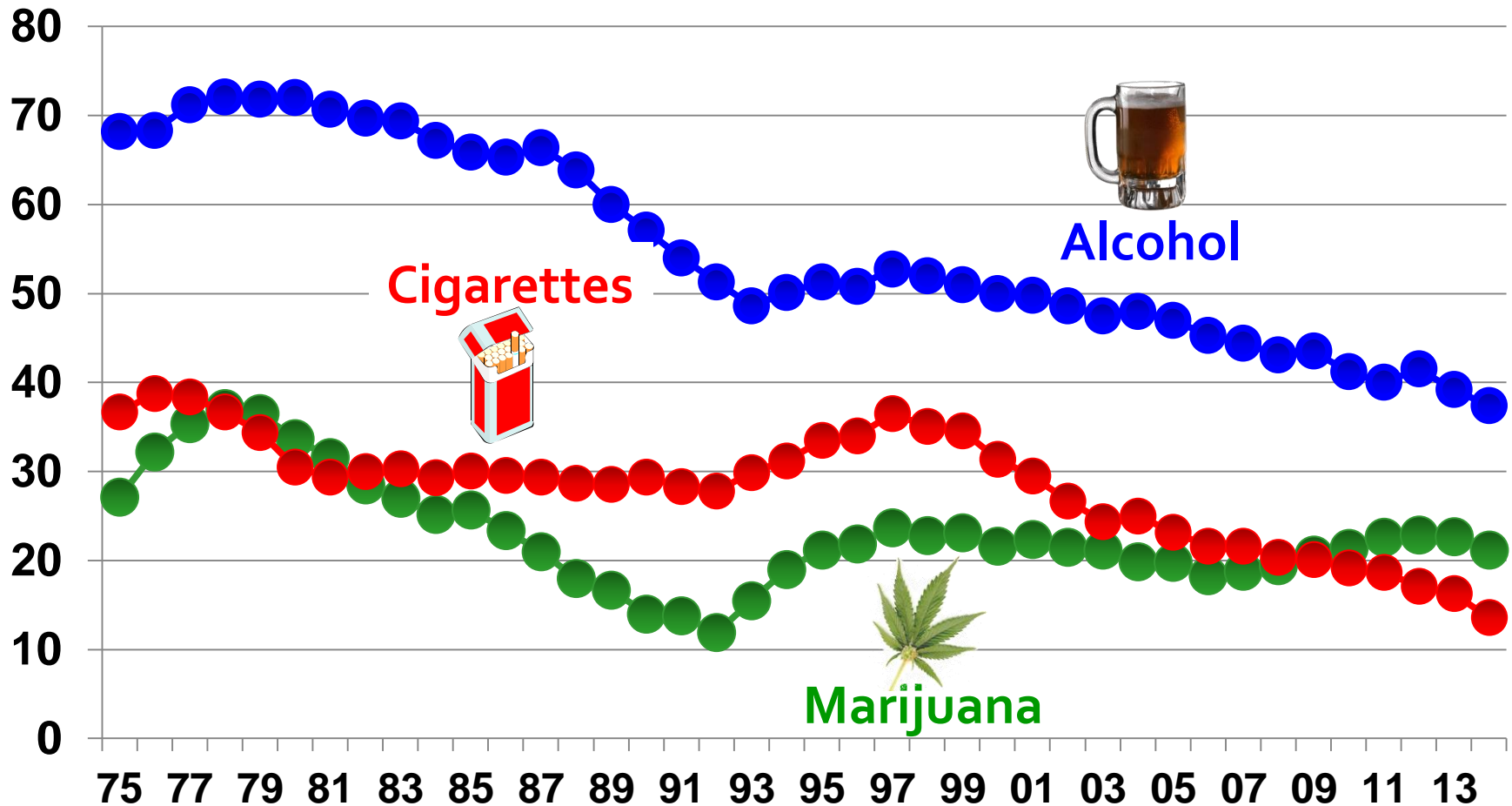
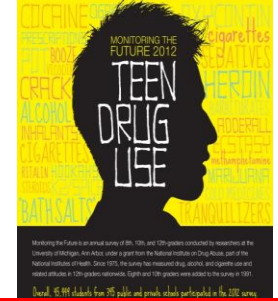
Status of *Marijuana Laws* in the USA

Legalized Medical Decriminalized Medical and decriminalized Fully illegal



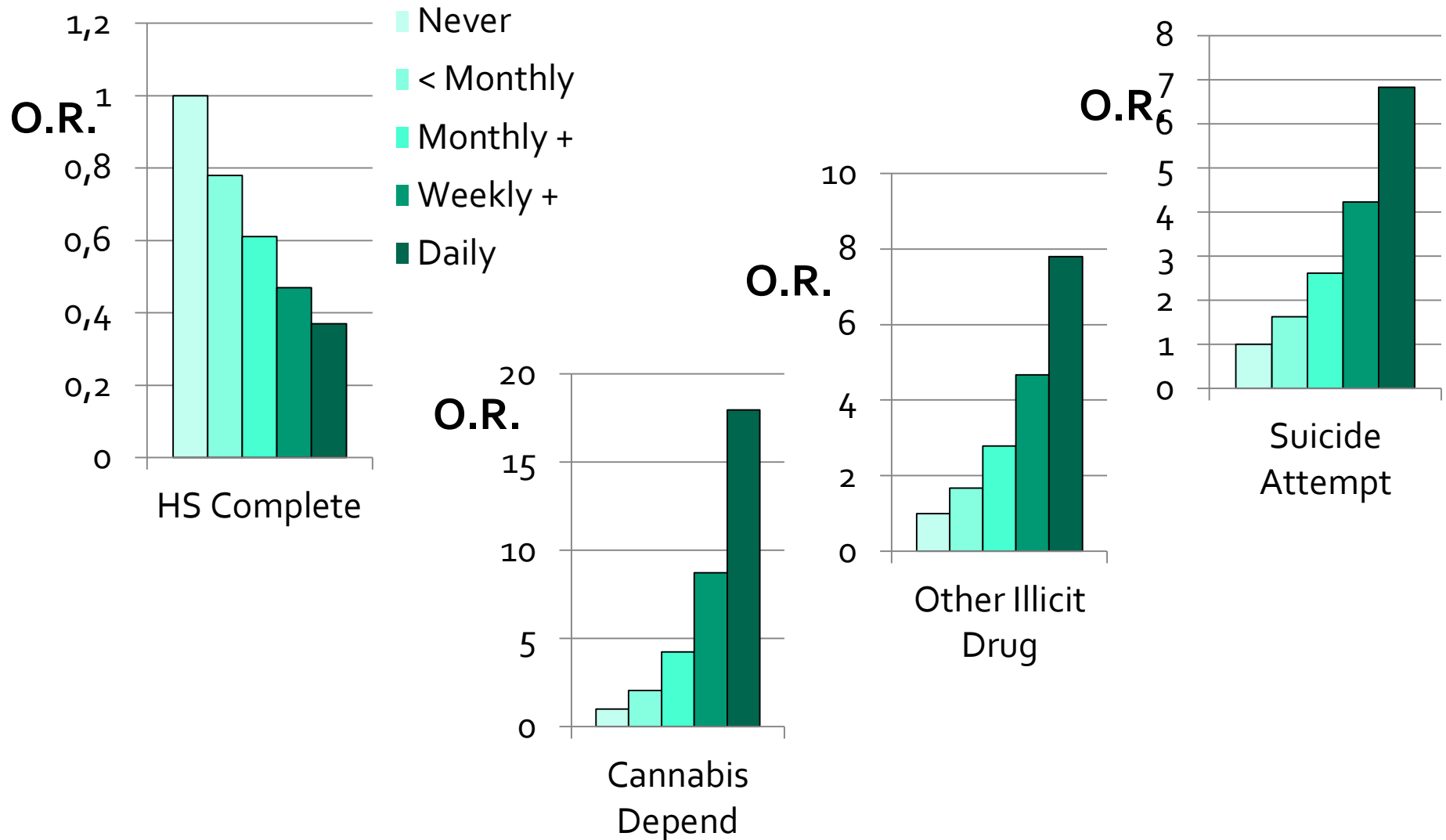
Source: NORML, Drug Policy Alliance, and the Marijuana Policy Project

Percentage of U.S. 12th Grade Students Reporting Past Month Use of Alcohol, Cigarettes and *Marijuana*



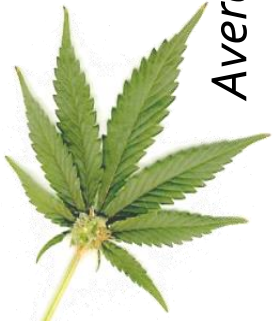
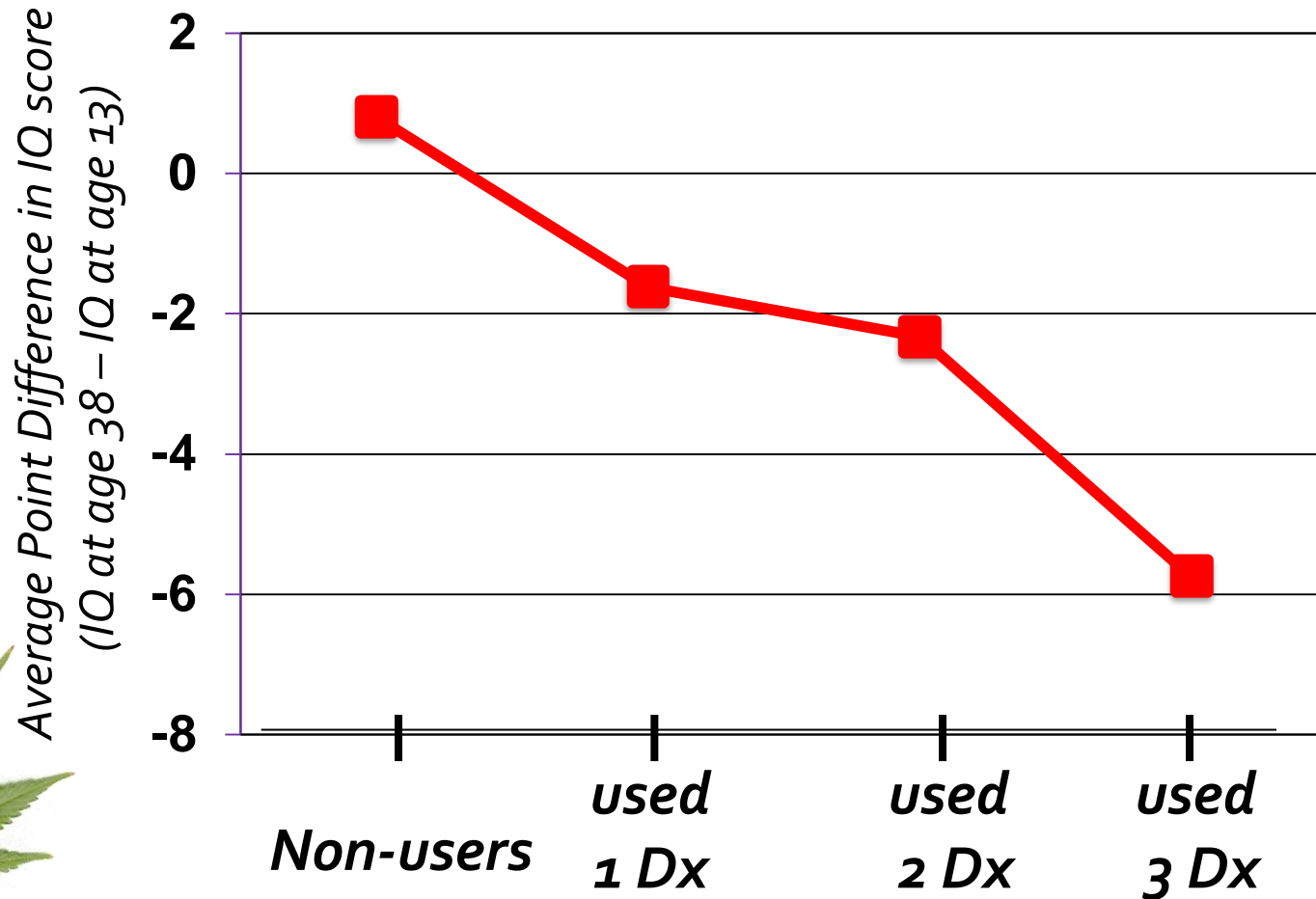
SOURCE: University of Michigan, 2014 Monitoring the Future Study.

More Teenage Use of Marijuana Associated with **Worse Outcomes** in 20's (3 Australia/New Zealand Studies)



Persistent Marijuana Users Show Significant ***IQ Drop*** between Childhood and Midlife

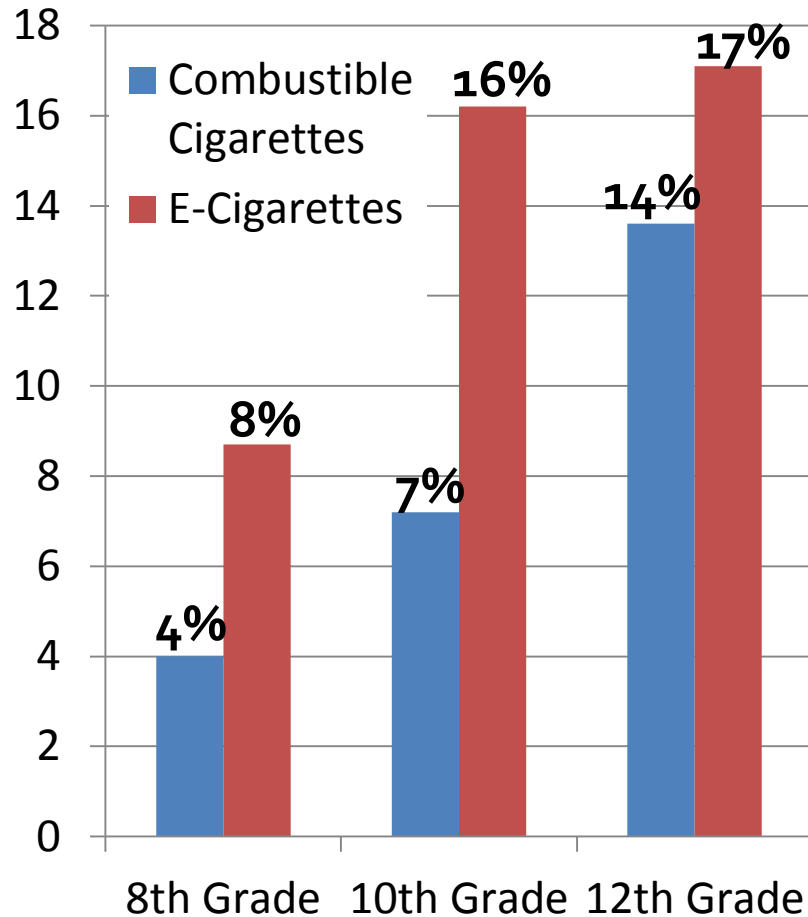
Followed 1,037 individuals from birth to age 38. Tested marijuana use at 18, 21, 26, 32 and 38. Tested for IQ at ages 13 and 38



Source: Meier MH et al., PNAS Early Edition 2012

More U.S. Youth Use E-Cigs Than Combustible Cigs

2014 Past Month E-Cig vs. Combustibles in USA Students



*Monitoring the Future Study 2014,
University of Michigan*

In a prospective study of 14 year old students, ***E-Cigarette use predicting onset*** of:

- Any combustible 2.75 AOR
- Combustible cigs 1.73 AOR

Leventhal, et al. *JAMA* 2015;314(7):700-707.

2012-2013 U.S. study of 12-17 year olds (n=13,561), ***first tobacco product was flavored*** among users:

- Cigarettes 50%
- Smokeless 69%
- E-Cigarettes 81%

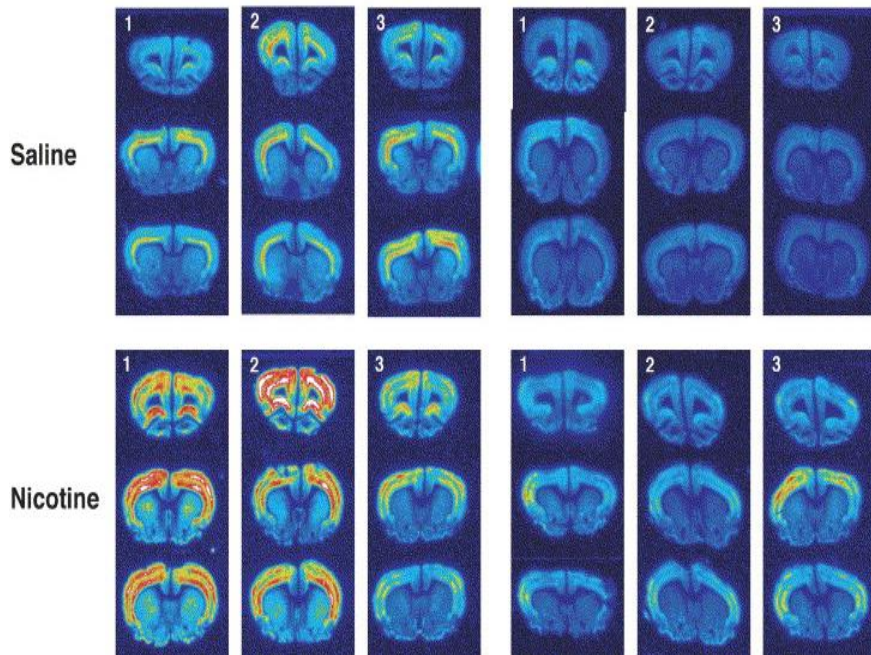
Ambrose, et al. *JAMA*, 26 October 2015ggggggggg

Nicotine Effects Particularly Impacts **Adolescent Brain**

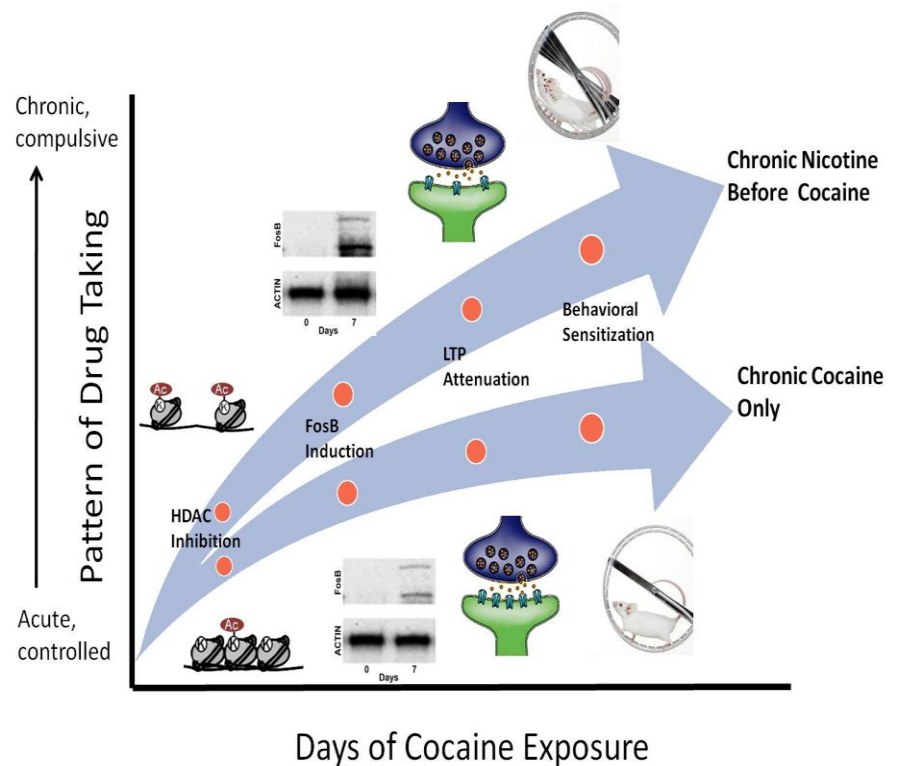
*Nicotine up-regulates arc
(involved in synaptic plasticity)
in adolescents but not
adults (rodent models)*

Adolescent

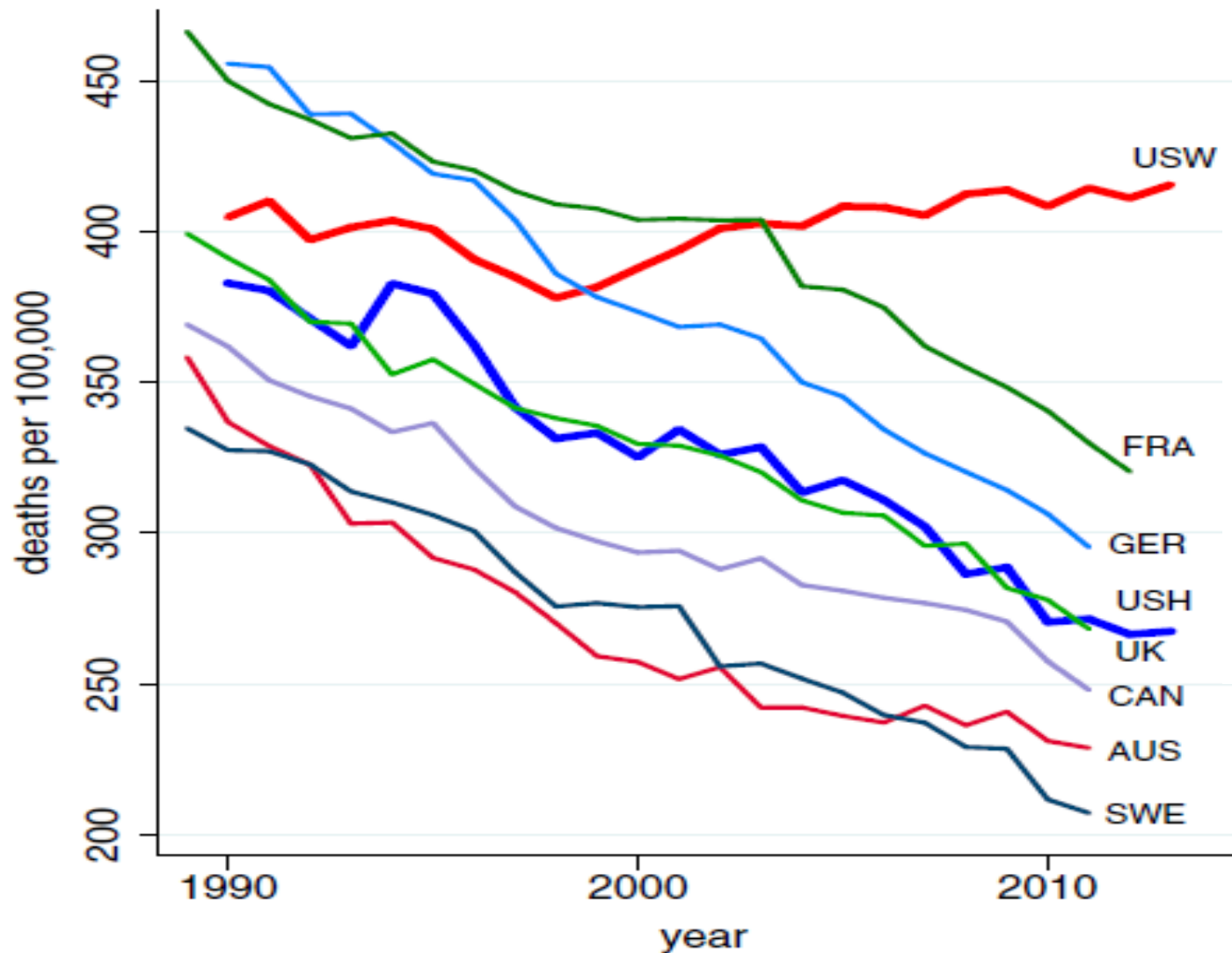
Adult



*Nicotine enhances
response to cocaine in
adolescents but not
adults (rodent models)*



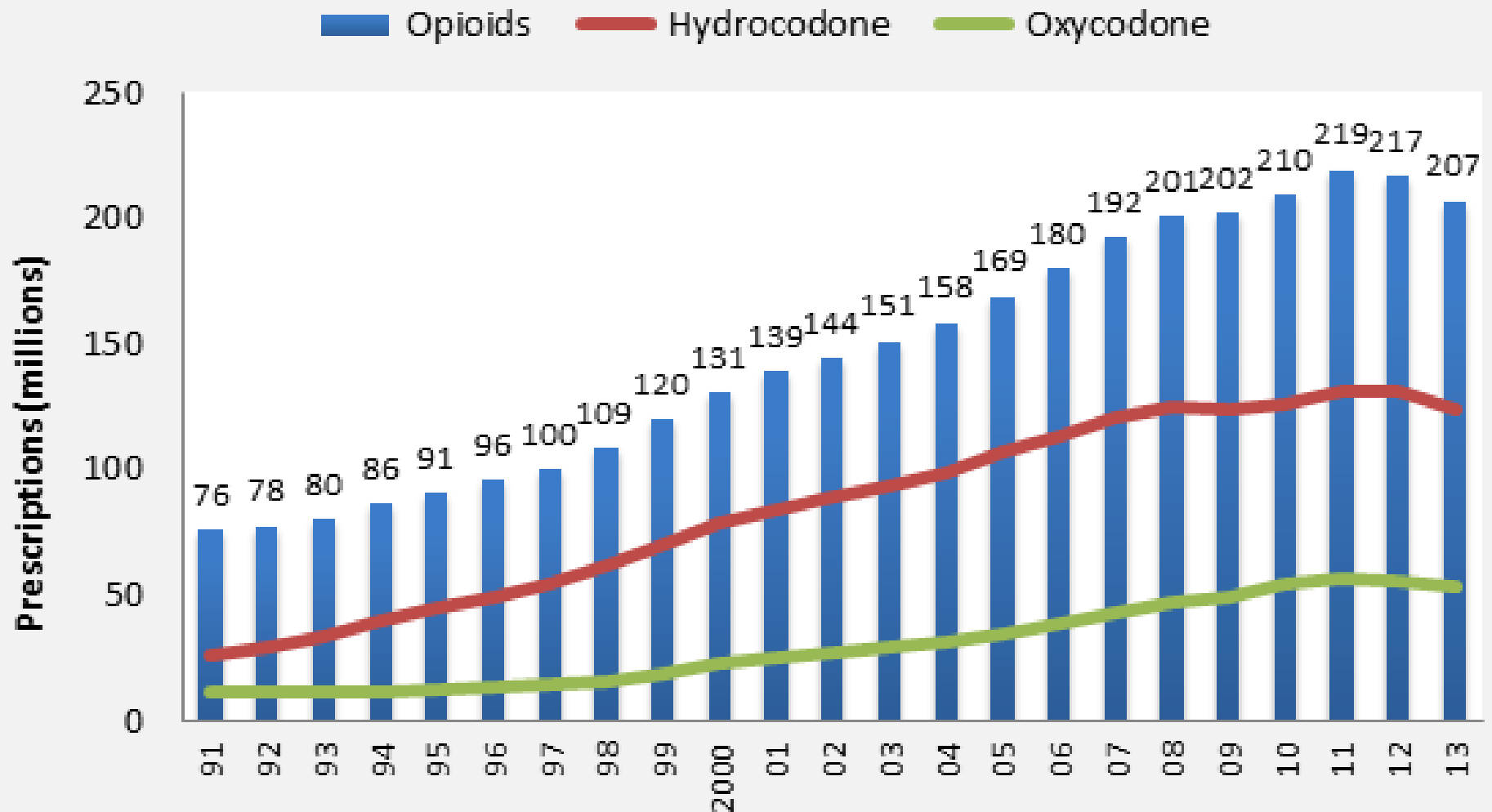
Overall Increases in Deaths in 45-54 Year Old, White, Non-Hispanics in USA (Compared to Others)



Major Causes:

- Drug Overdose
- Alcohol
- Suicide

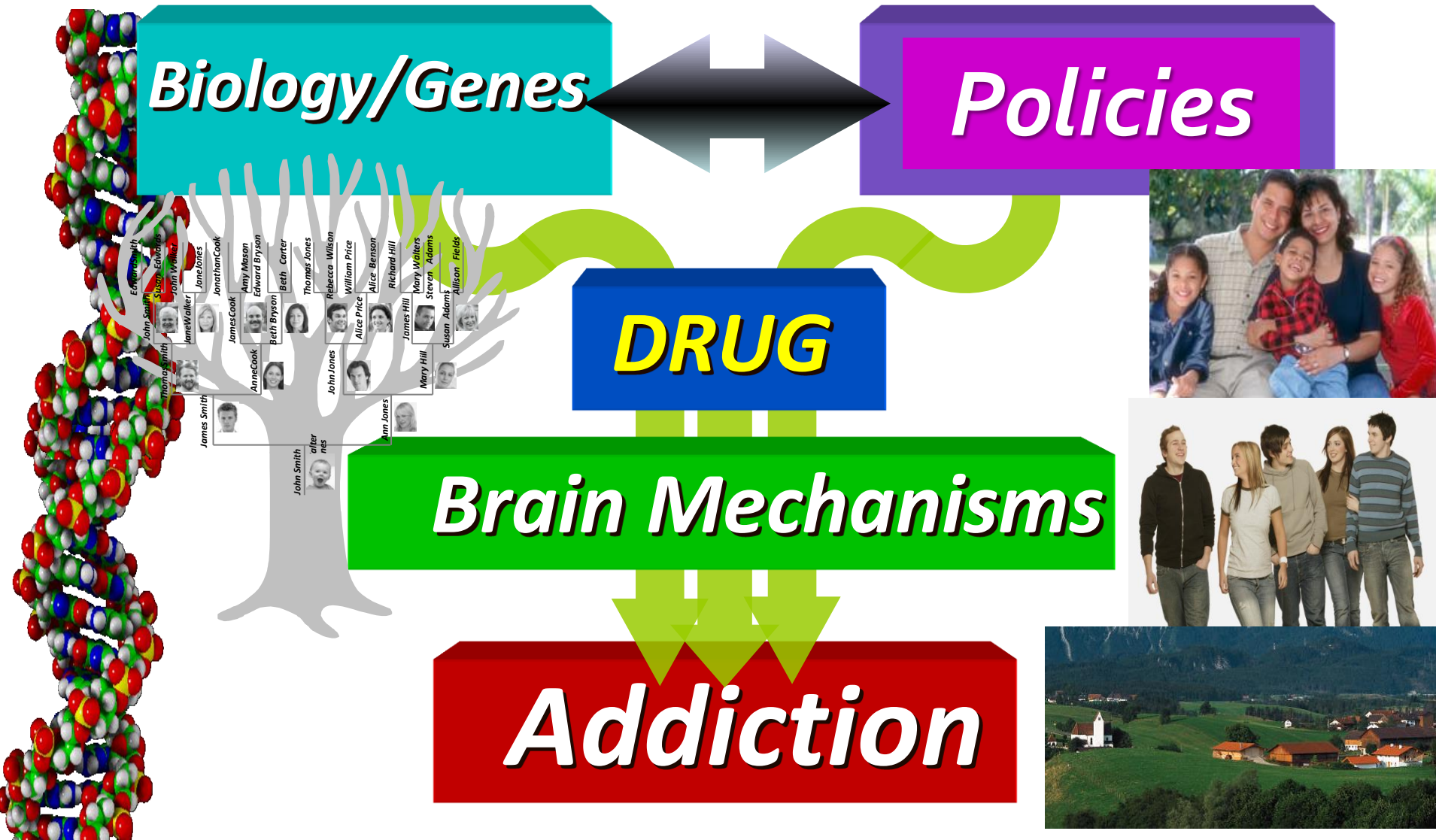
Near Tripling of Opioid Prescriptions Dispensed by U.S. Retail Pharmacies, Years 1991-2013



IMS Health, Vector One®: National, Years 1991-2011, Data Extracted 2012

IMS Health, National Prescription Audit, Years 2012-2013, Data Extracted 2014

Many Factors Lead to Drug Abuse and Addiction



www.drugabuse.gov

Now NIDA resources are with you wherever you go!

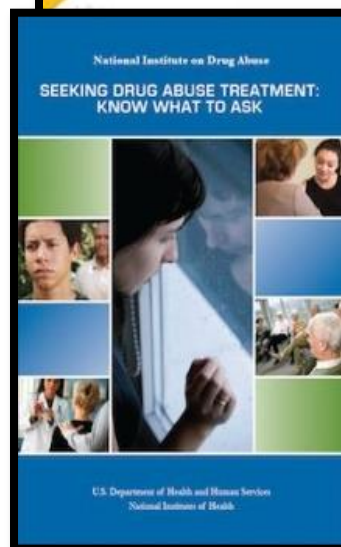
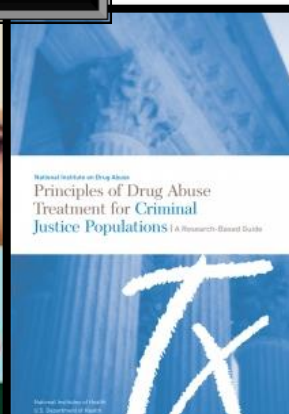
We're connecting communities with a new mobile Web site that gives you drug-related information by topic, audience, and format—when you need it, where you need it.

The new mobile site (m.drugabuse.gov) provides:

- ✓ Easy access to NIDA's resources through iPhone, Android, iPad, and other smartphones and tablets.
- ✓ A convenient way to find, view, request, and share publications—right in the palm of your hand.
- ✓ E-books of all publications to allow offline reading on all major e-readers, including Kindle and NOOK.
- ✓ New Spanish-language content on drugs of abuse and related topics.



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