

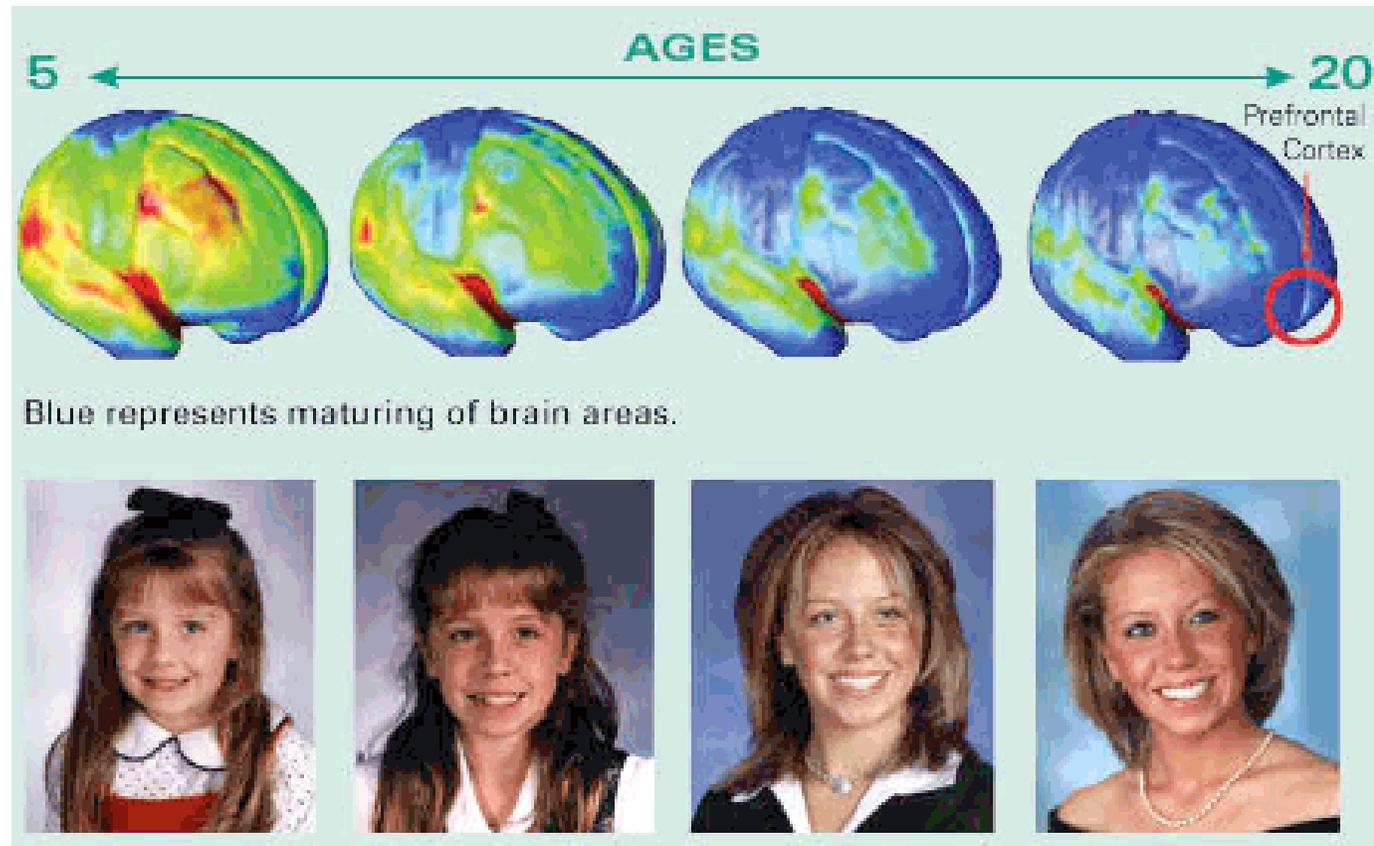


Adolescent Substance Use Disorder Prevalence and Trends

Kenneth Zoucha, M.D.
Nebraska Department of Health and Human Services
Division of Behavioral Health
Hastings Juvenile Chemical Dependency Program

The Teen Brain

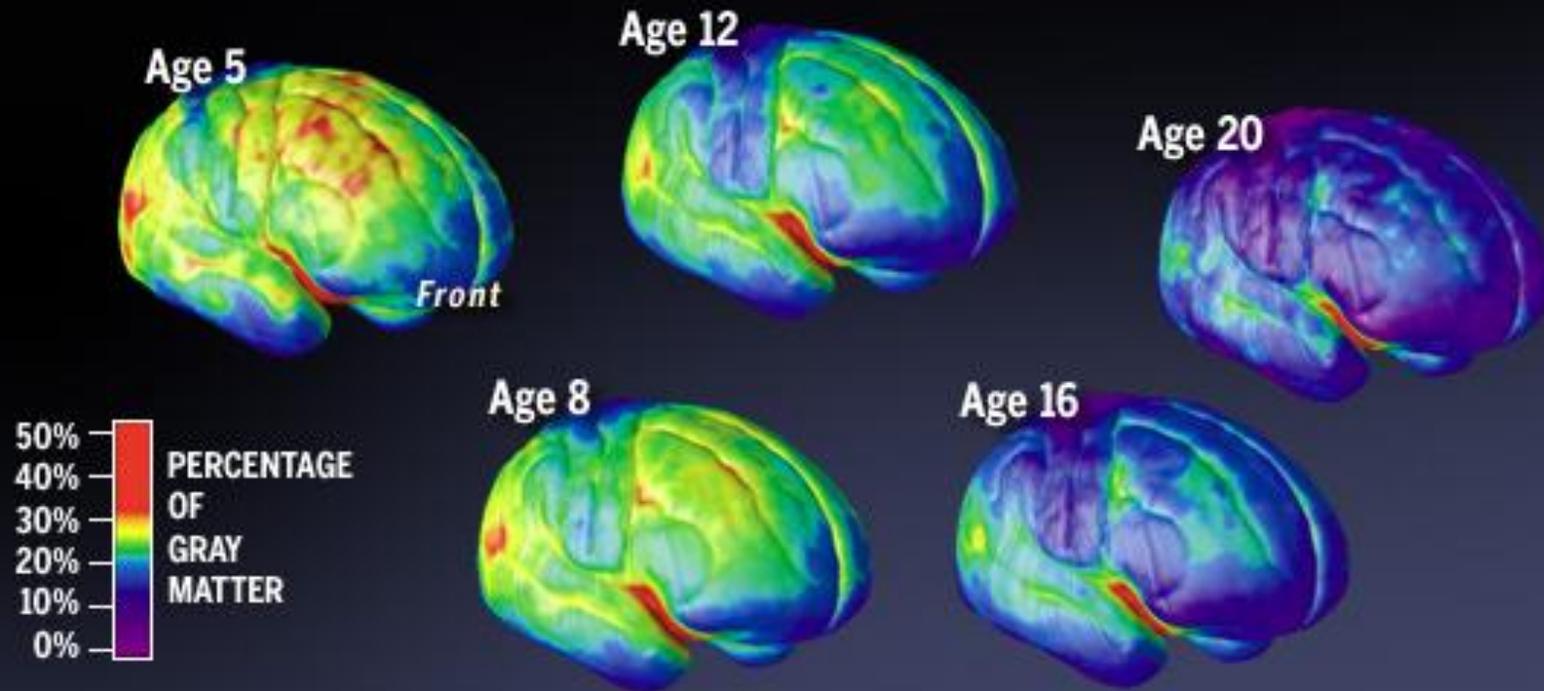
It's Just Not Grown Up Yet



Brain Maturation

Time-Lapse Brain

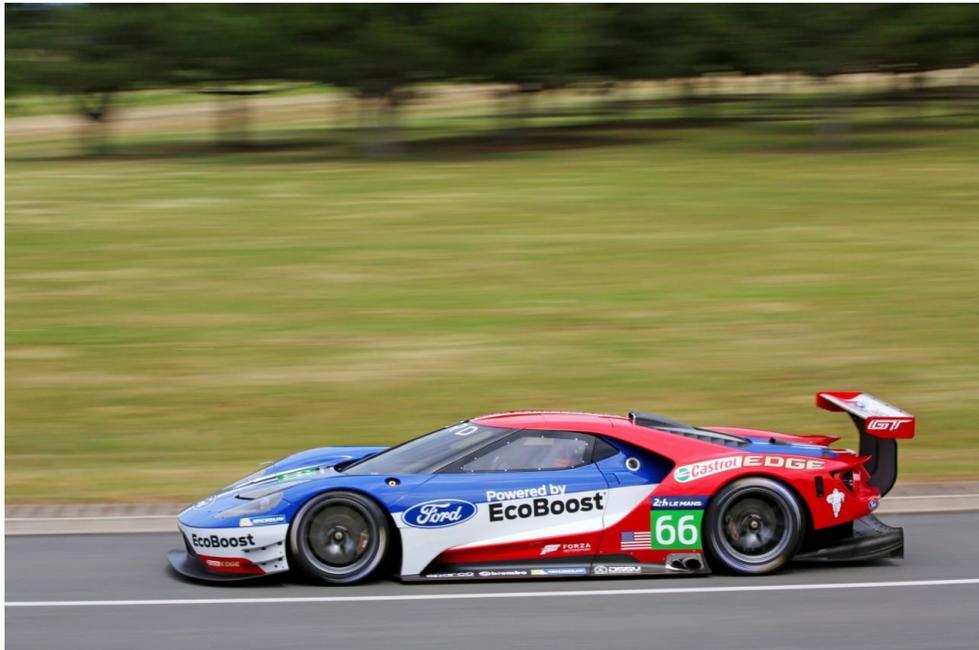
- Gray matter wanes as the brain matures. Here 15 years of brain development are compressed into five images, showing a shift from red (least mature) to blue.



[« PREVIOUS](#)

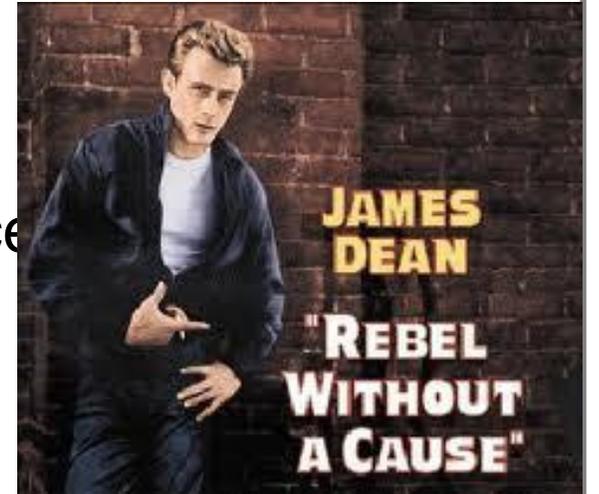
[NEXT: Launch Flash Movie »](#)

Gas Pedal versus Brakes



Developmental Aspects of Substance Use

- Separating away from parents
- Gaining acceptance and popularity with peers
- Developing a sense of autonomy and independence
- Establishing a personal identity and self-image
- Seeking fun and adventure
- Rebelling against authority



MONITORING *the* FUTURE

NATIONAL SURVEY RESULTS
ON DRUG USE
1975–2015

2015 Overview

Key Findings on Adolescent Drug Use

Lloyd D. Johnston
Patrick M. O'Malley
Richard A. Miech
Jerald G. Bachman
John E. Schulenberg

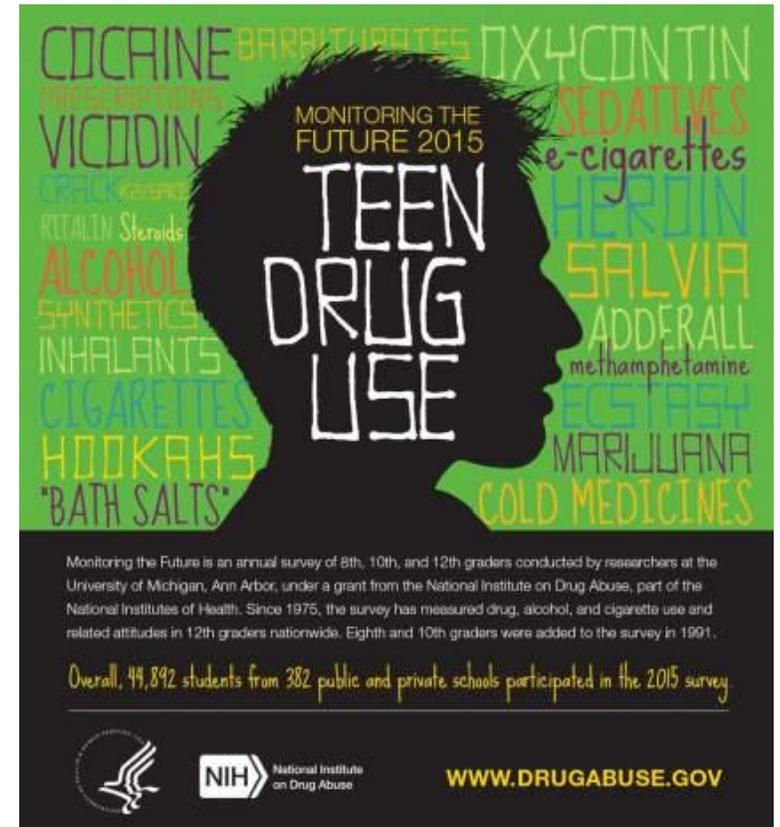
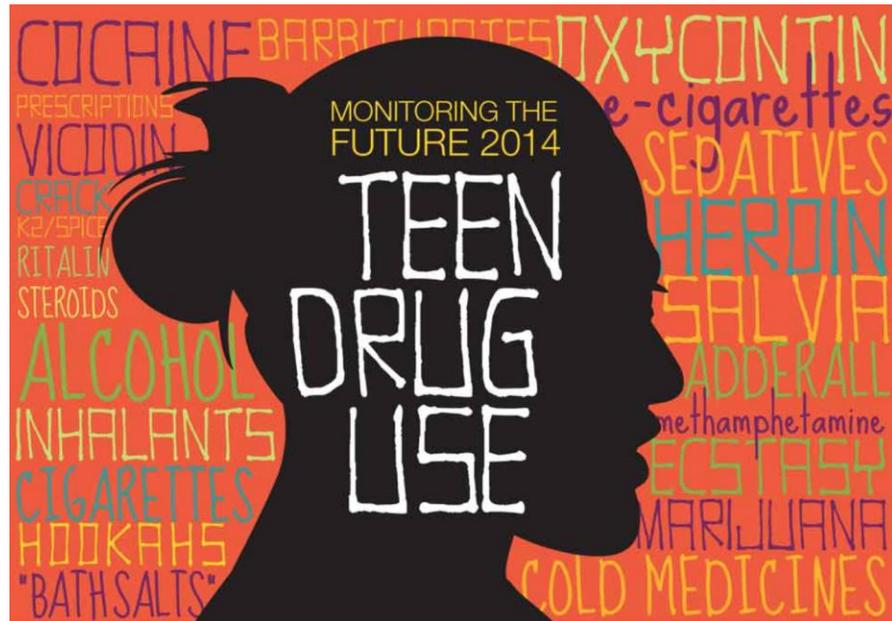




Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health



Hip Statistics

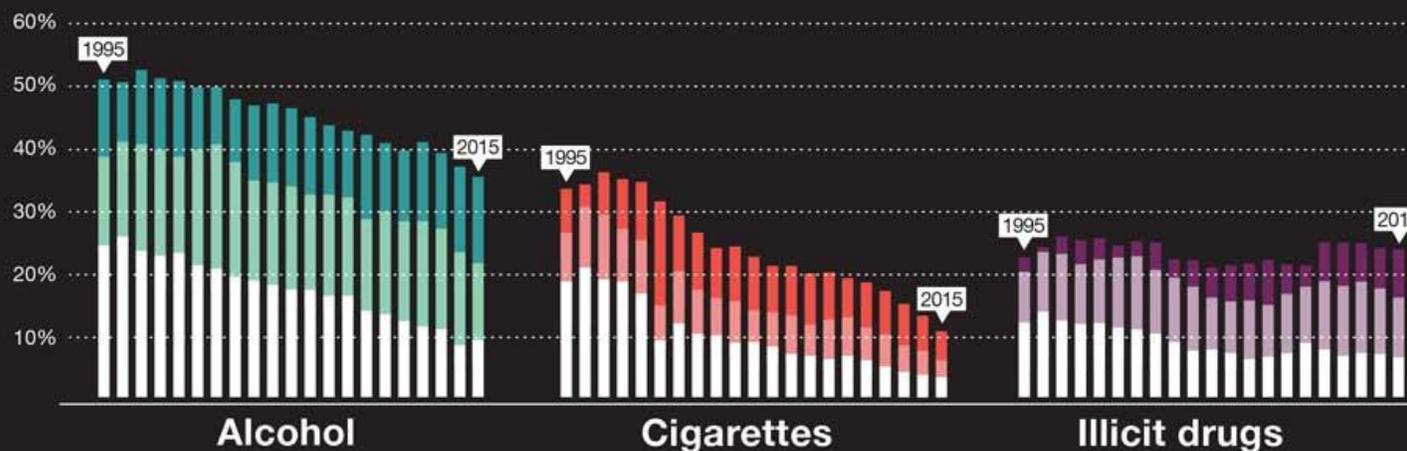


<https://youtu.be/C-793V9zjA>

Monitoring the Future

LAST TWO DECADES OF ALCOHOL, CIGARETTE, AND ILLICIT DRUG USE*

*Past-month use



2015

 35.3% OF 12TH GRADERS
 21.5% OF 10TH GRADERS
 9.7% OF 8TH GRADERS

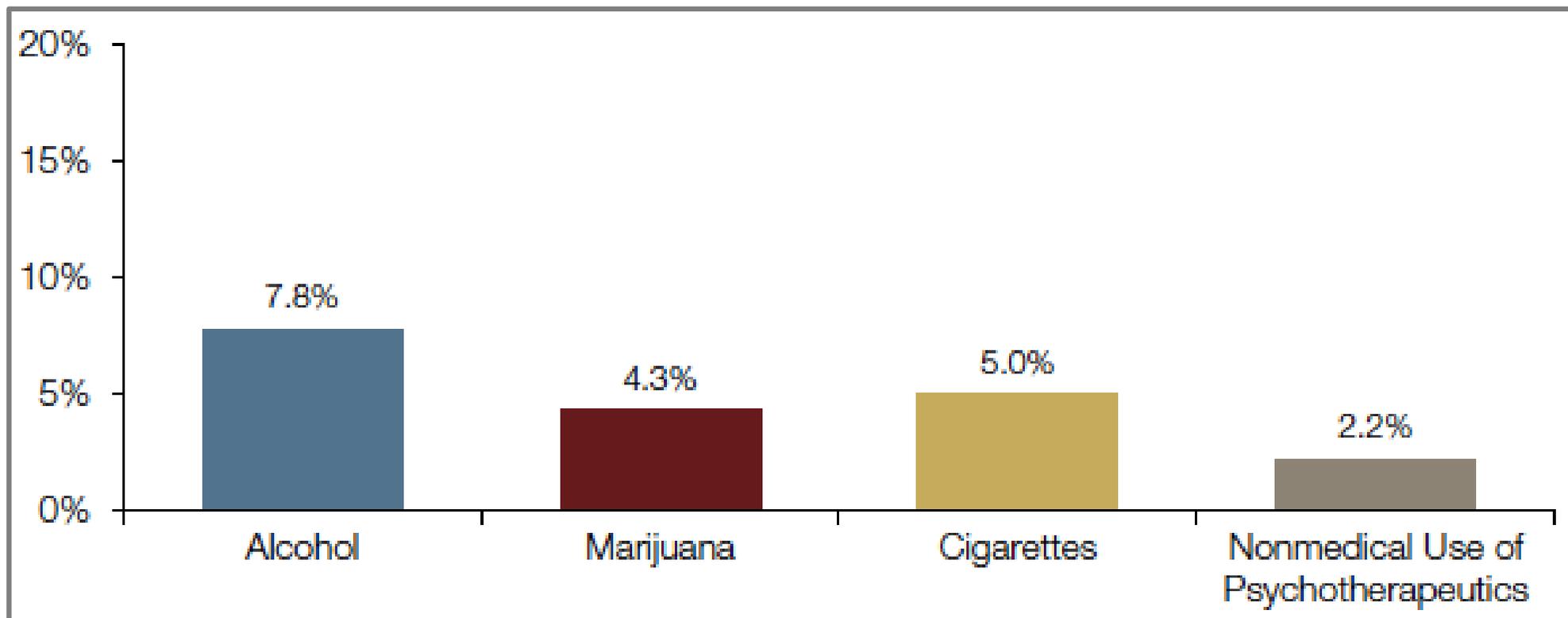
 11.4% OF 12TH GRADERS
 6.3% OF 10TH GRADERS
 3.6% OF 8TH GRADERS

 23.6% OF 12TH GRADERS
 16.5% OF 10TH GRADERS
 8.1% OF 8TH GRADERS

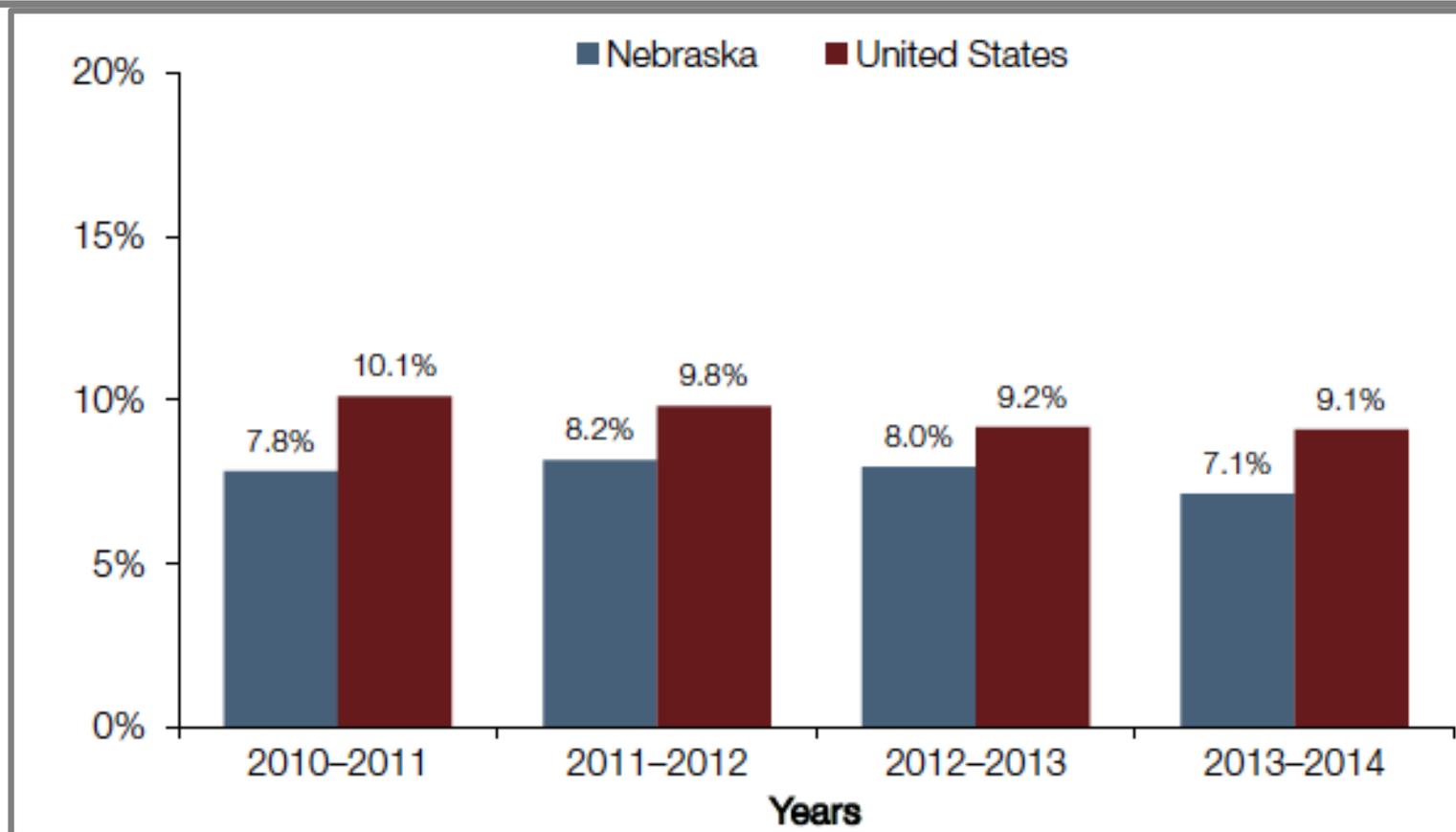


WWW.DRUGABUSE.GOV

Past Year Initiation (First Use) of Selected Substances Among
Adolescents Aged 12-17 in Nebraska, by Substance Type
(Annual Averages, 2010-2014)



Past Month Illicit Drug Use Among Adolescents Aged 12-17 in Nebraska and the United States (2010-2011 to 2013-2014)



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010-2011 to 2013-2014.

**ONE PERSON
DIES**

EVERY 6 SECONDS
FROM A TOBACCO-
RELATED DISEASE.



That's 10 people per minute.

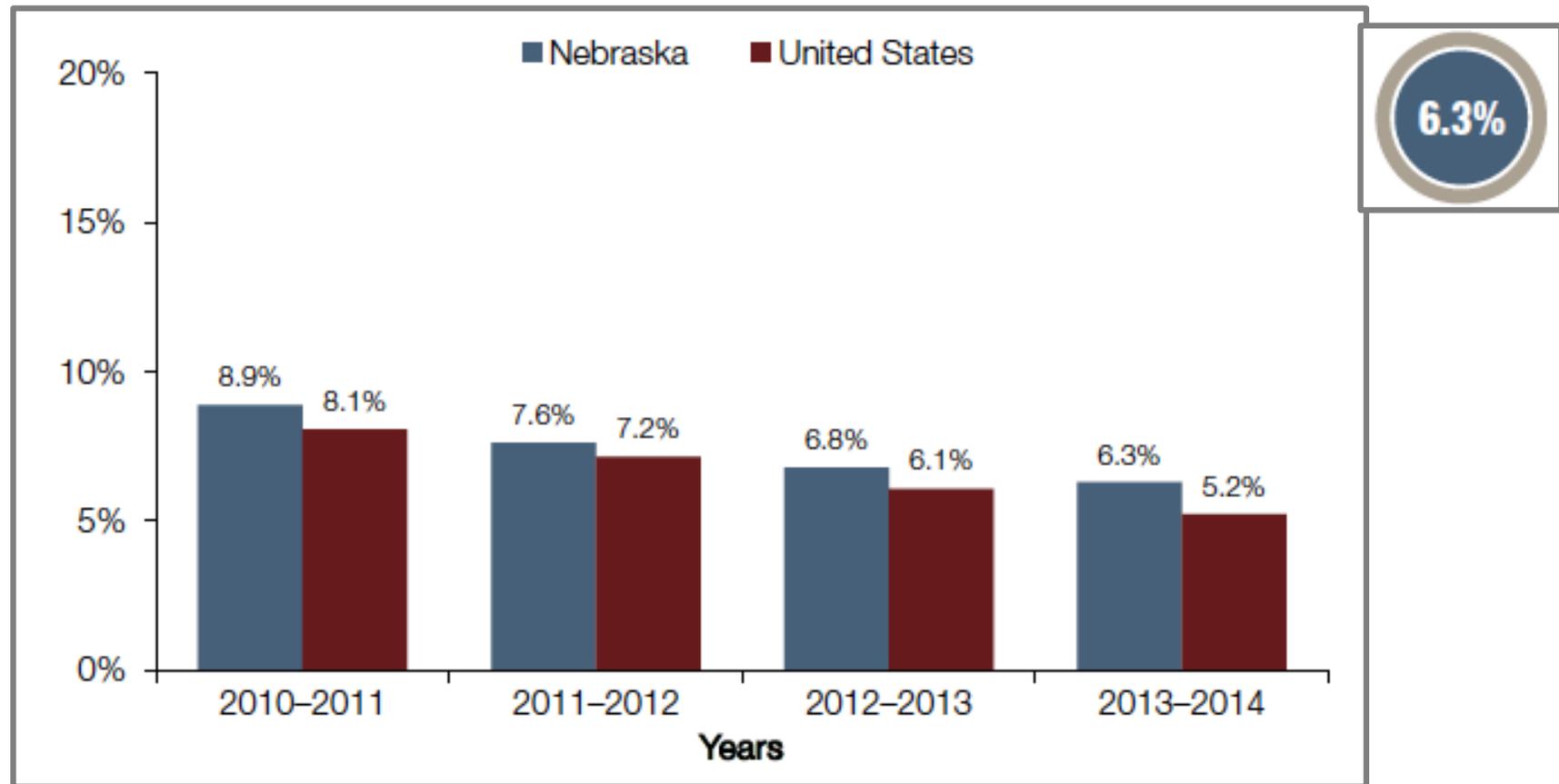
Each day, nearly 3,300 youth
under the age of 18 try their
1st cigarette.

Learn the facts about the dangers of
tobacco use at teen.smokefree.gov.



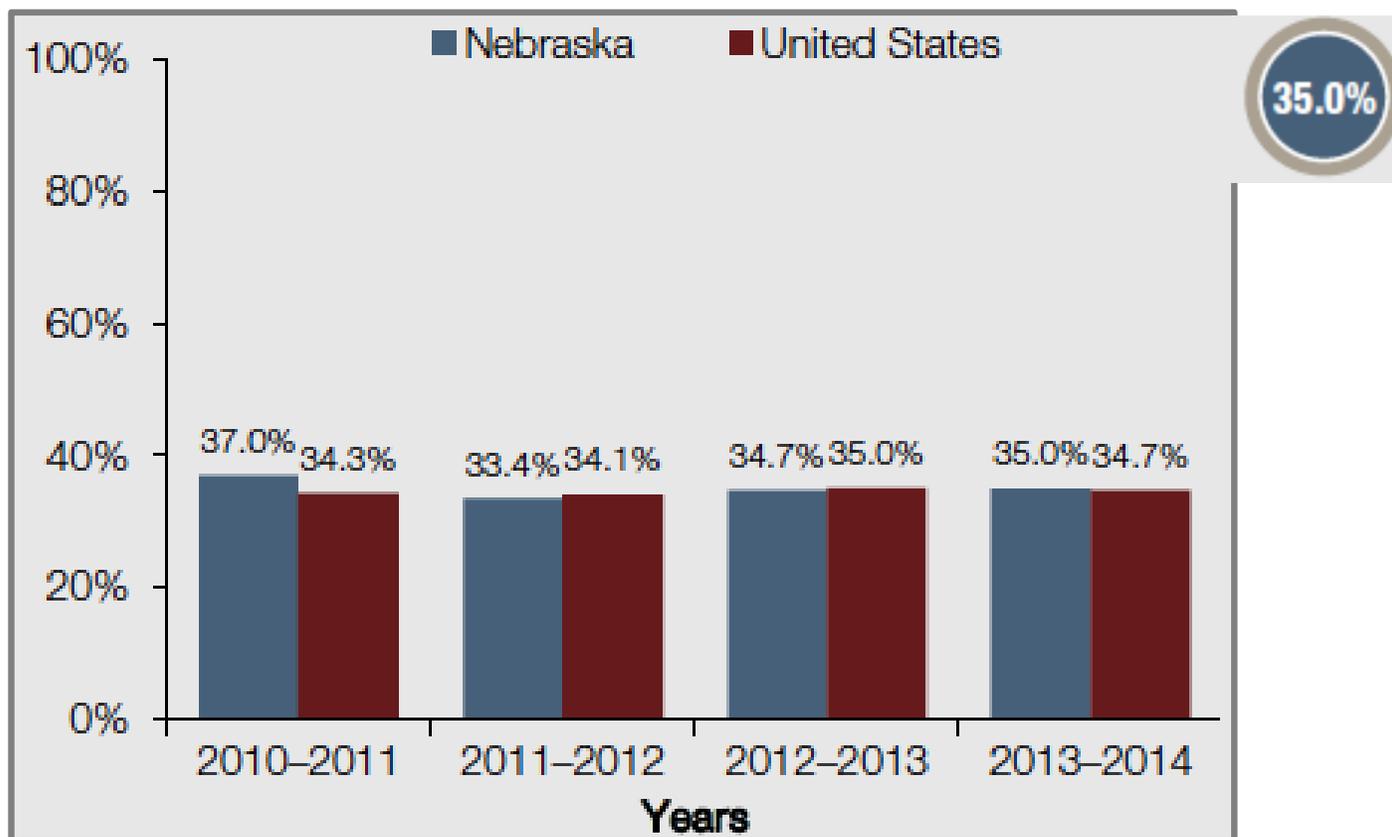
Source: CDC.gov

Past Month Cigarette Use Among Adolescents Aged 12-17 in Nebraska and the United States (2010-2011 to 2013-2014)



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010-2011 to 2013-2014.

Adolescent Aged 12-17 in Nebraska and the United States Who Perceived No Great Risk from Smoking One or More Packs of Cigarettes a Day (2010-2011 to 2013-2014)



E-Cigs and Vapor Pens

TEENS ARE MORE LIKELY TO USE E-CIGARETTES THAN CIGARETTES

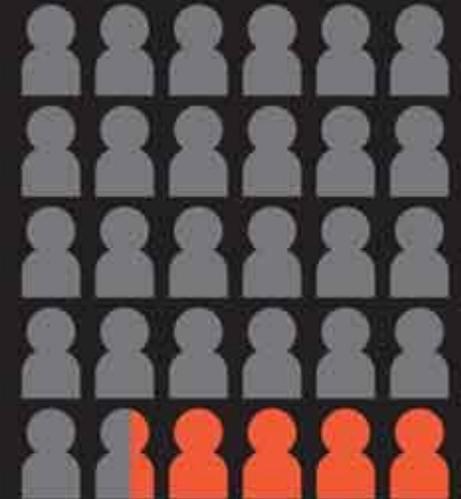
*Past month use



CIGARETTES



E-CIGARETTES



ONLY 14.2% OF 12TH GRADERS VIEW E-CIGARETTE USE AS HARMFUL, WHICH IS LESS THAN 5 STUDENTS IN THE AVERAGE CLASS.



National Institute on Drug Abuse

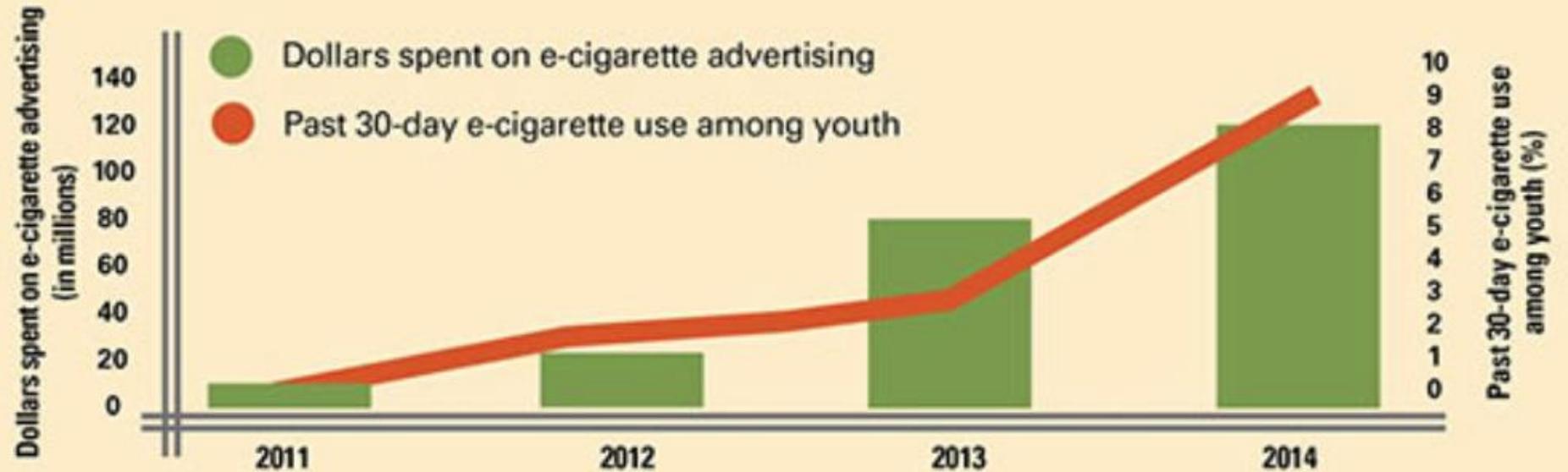
The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. Fact sheets on the health effects of drugs of abuse and information on NIDA research and other activities can be found at www.drugabuse.gov.

Cigarette Advertising



E-cigarette Advertising

E-cigarette use among youth is rising as e-cigarette advertising grows



SOURCE: National Youth Tobacco Survey, 2011-2014; Kim et al (2014), Truth Initiative (2015).

How an electronic cigarette works

The electronic cigarette contains a battery that activates a heating device, atomizing liquid nicotine inside a cartridge and producing a vapor that is inhaled.



Liquid nicotine cartridge

Inhaler

Atomizer/heating device

Lithium battery

Tip lights up



Source: allhookah.net

Tim Summers / The Detroit News

Cartomizers



Vapor Pen

How It Works.

LED Light:
Indicates when charged,
when in use and when
needs recharging.

Lithium Ion Battery:
Larger batteries last
up to three days.

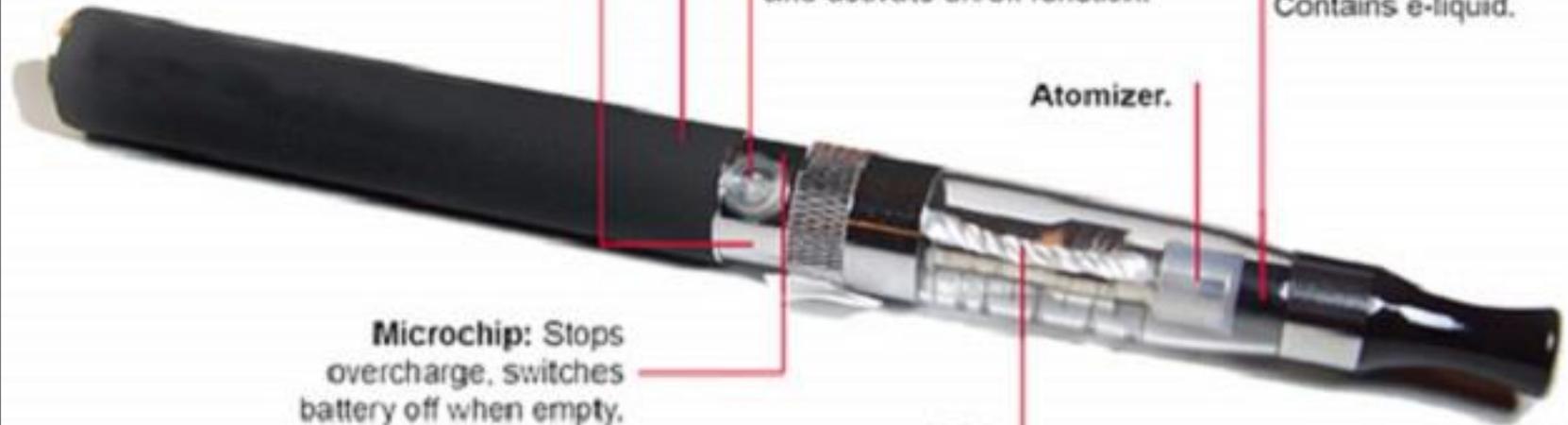
Button:
Push to vapourize e-liquid
and activate on/off function.

Clearomiser:
Contains e-liquid.

Atomizer.

Microchip: Stops
overcharge, switches
battery off when empty.

Wick:
Soaks e-liquid
prior to vapourizing.



Vaping Liquids



Marijuana Vaping

Pyrex / Stainless BUD Vaporizer

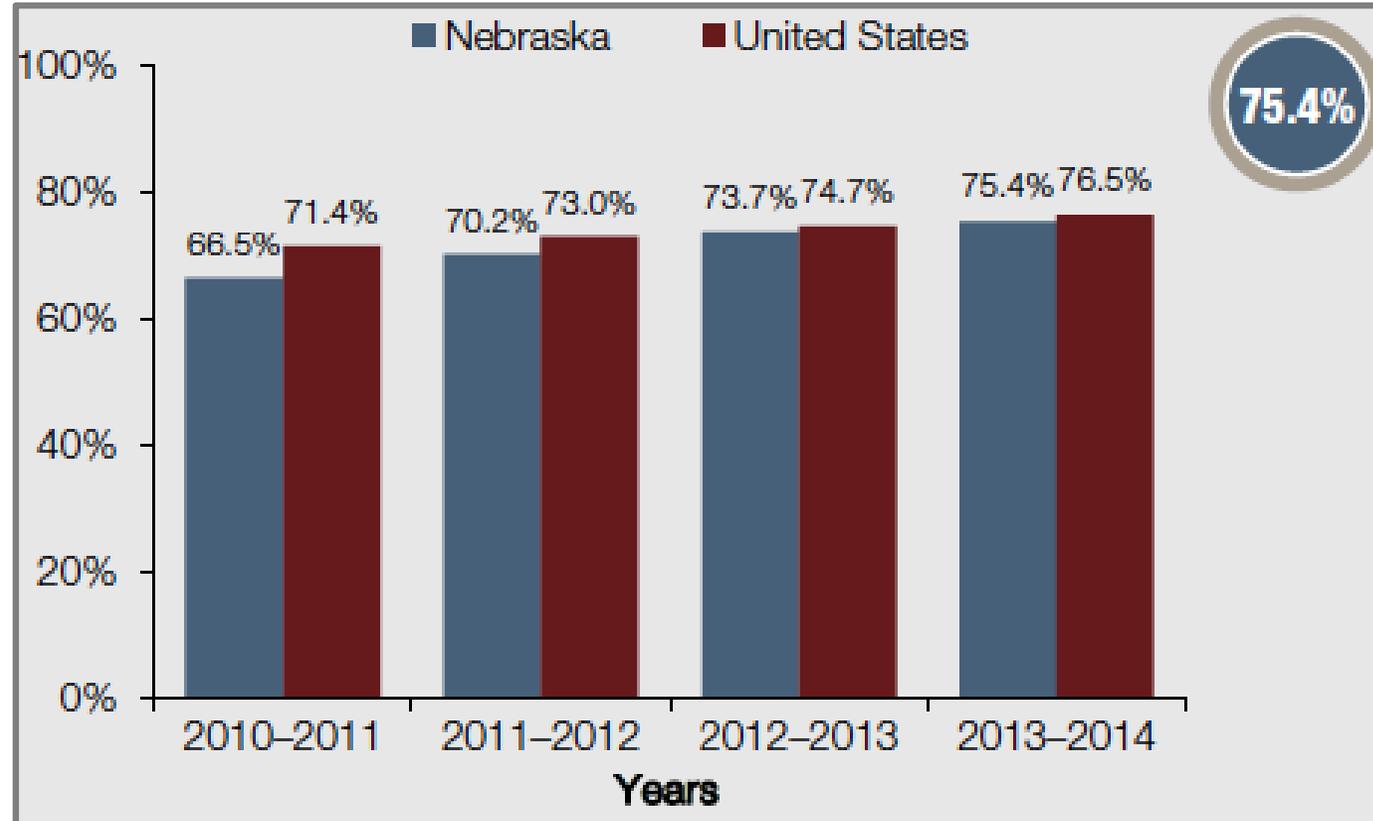
- 0.3ml
- 0.5ml
- 1.0ml



Huge Vapor

No Leaking

Adolescents Aged 12-17 in Nebraska and the United States Who Perceived No Great Risk from Smoking Marijuana Once a Month (2010-2011 to 2013-2014)



Marijuana: Perceived Risk and Use

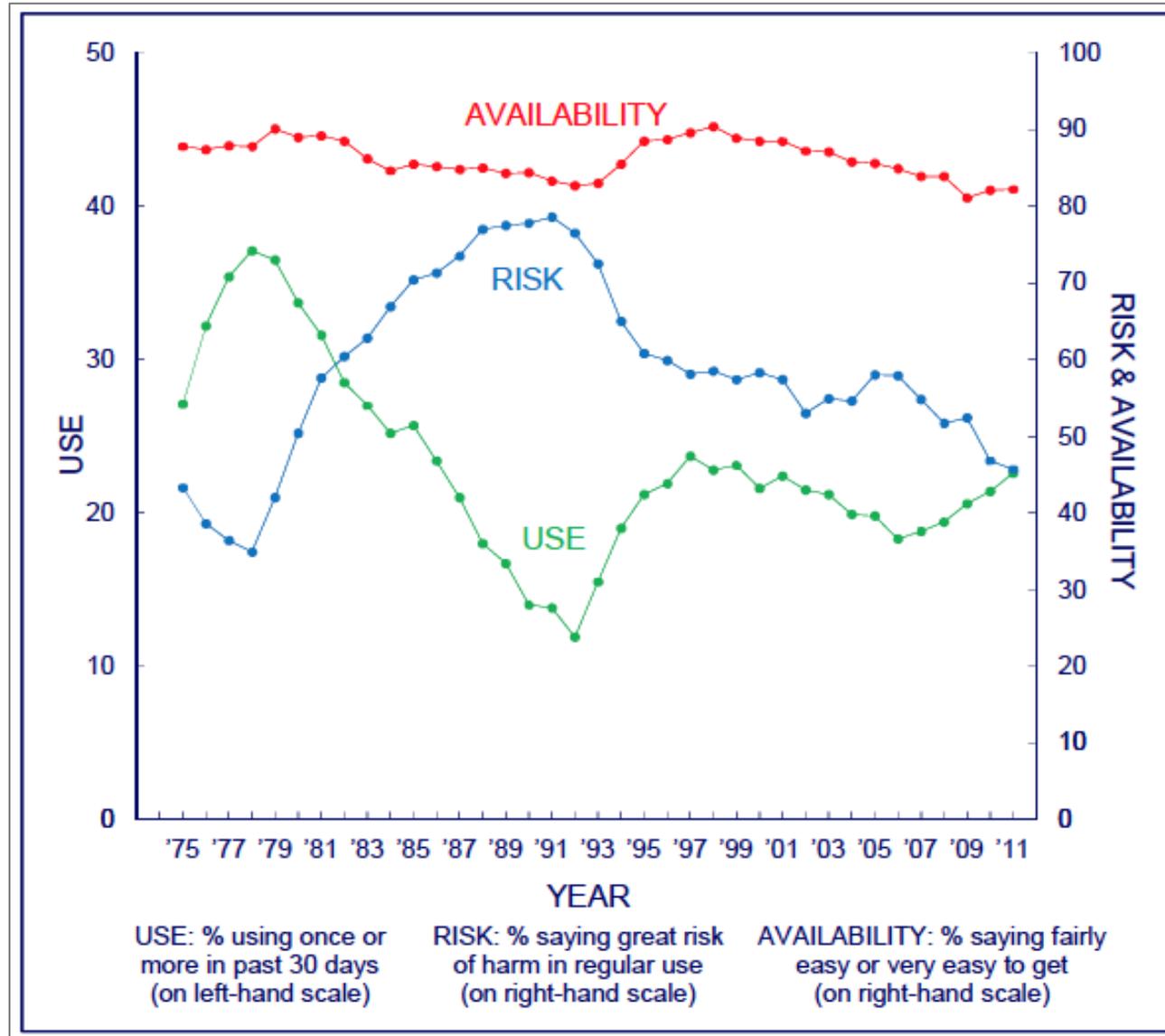
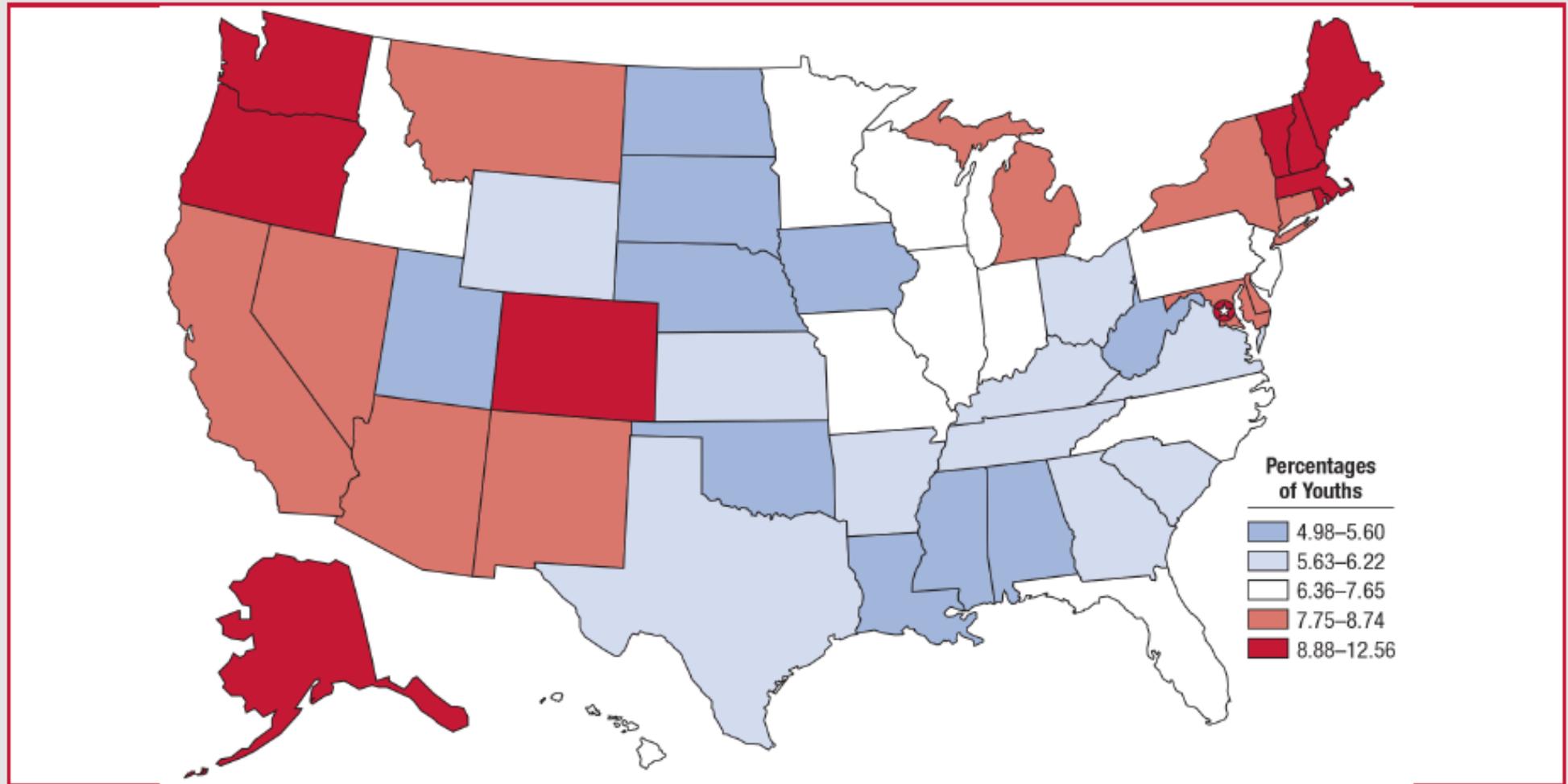


Figure 1. Marijuana use in the past month among youths aged 12 to 17, by state: percentages, annual averages, 2013–2014



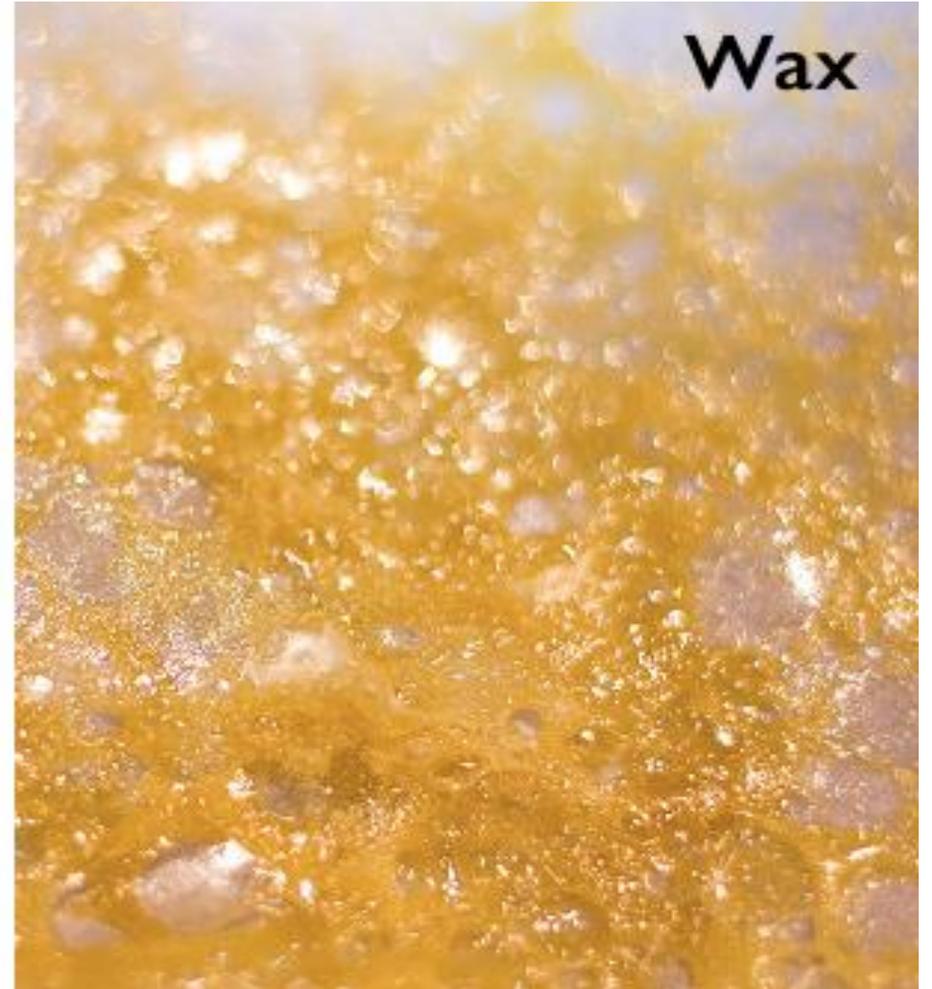
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.

DABS (Butane Hash Oil)

Shatter



Wax



How Dabs Are Used



HEAVY MARIJUANA USE BY TEENS IS LINKED TO⁴:

Educational Outcomes



lower
grades and
exam scores



less likely
to graduate
from HS or
college



less likely
to enroll in
college

Life Outcomes



lower
satisfaction
with life



more
likely to be
unemployed



more likely to
earn a **lower**
income



National Institute
on Drug Abuse

1. [NSDUH, SAMHSA, 2014](#); 2. [MTE Survey](#); 3. [Meier et al 2012](#); 4. [MTE Survey](#); [Cobb-Clark et al, 2013](#); [Silins et al 2014](#); [Tucker et al 2005](#); [Homel et al, 2014](#); [Volkow et al 2014](#); [Fergusson and Boden 2008](#); [Brook et al 2013](#)

Risks of Adolescent Marijuana Use

- Cognitive Effects
 - Deficits in:
 - Visuospatial working memory
 - Verbal encoding,
 - Attention
 - Information processing speed
 - Inhibitory control
 - Drop in IQ up to 8 points!³



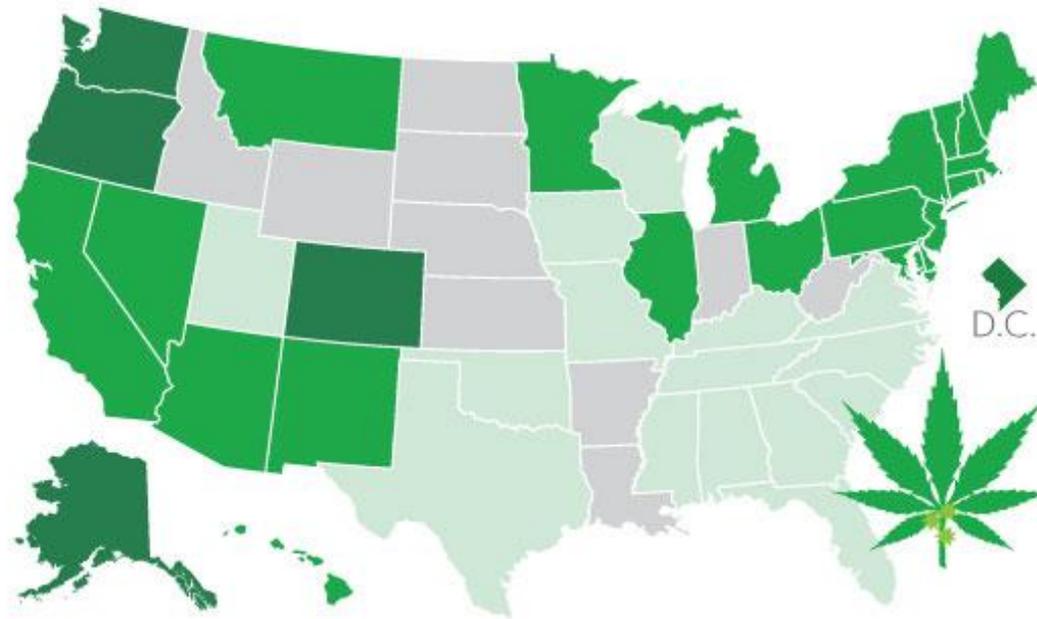
Risks of Adolescent Marijuana Use

- Psychological/Emotional effects:
 - Psychotic disorders, such as schizophrenia
 - Major Depression
 - Anxiety Disorders
- Substance Use Disorders
- Other Risky Behaviors

States with Medical Marijuana Laws

HOW STATES DIFFER ON LEGAL USE OF MARIJUANA

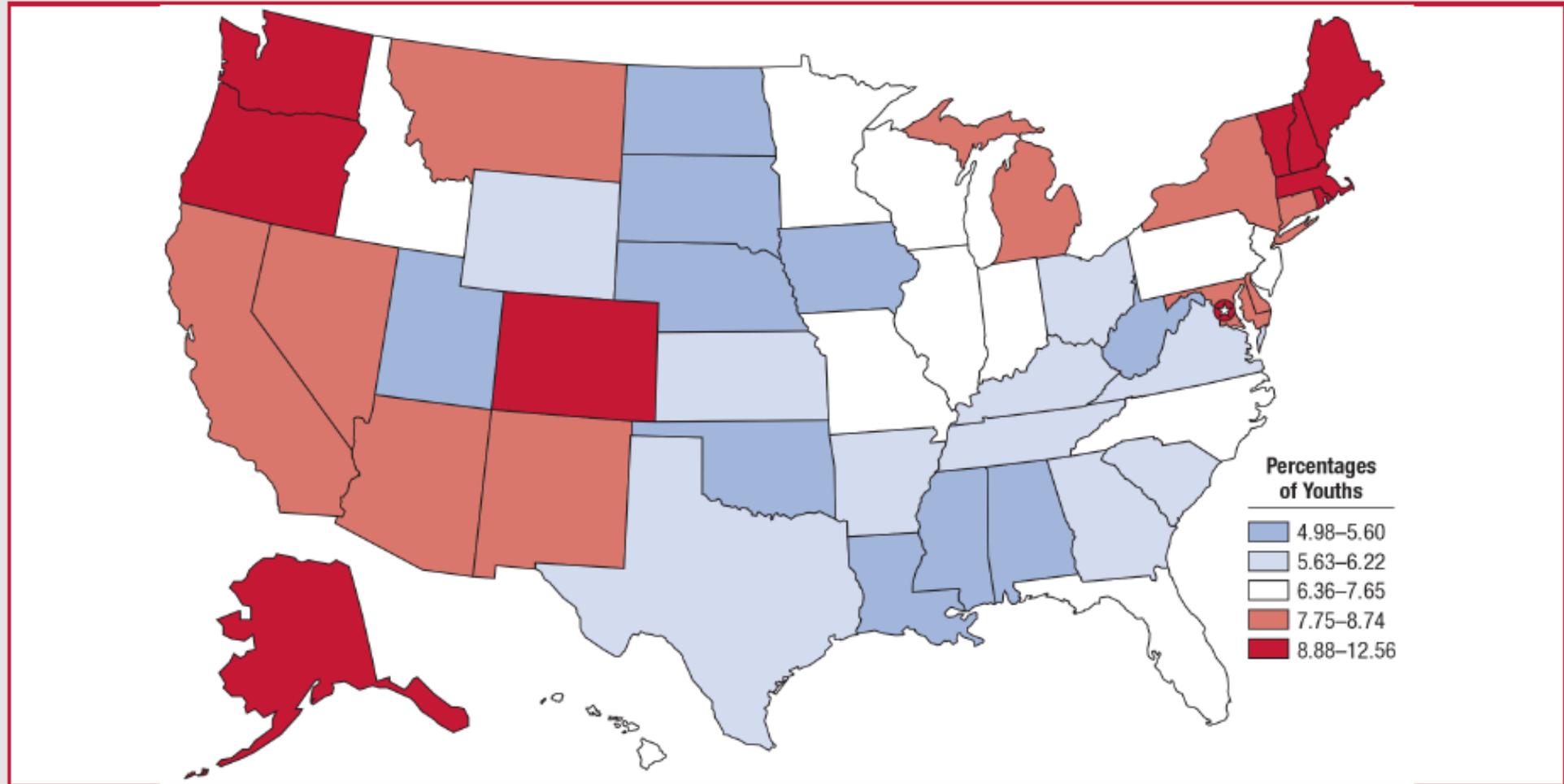
- ADULT USE & MEDICAL
- MEDICAL
- CANNABIDIOL ONLY
- NO LAWS



NOTE As of June 8

SOURCE USA TODAY NETWORK research
BY KARL GELLES, USA TODAY

Figure 1. Marijuana use in the past month among youths aged 12 to 17, by state: percentages, annual averages, 2013–2014



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.

Medical Evidence for Use of Marijuana

- Nausea and Vomiting-Cancer
- Appetite Loss-Cancer/HIV
- Neuropathic Pain
- Muscle Spasticity

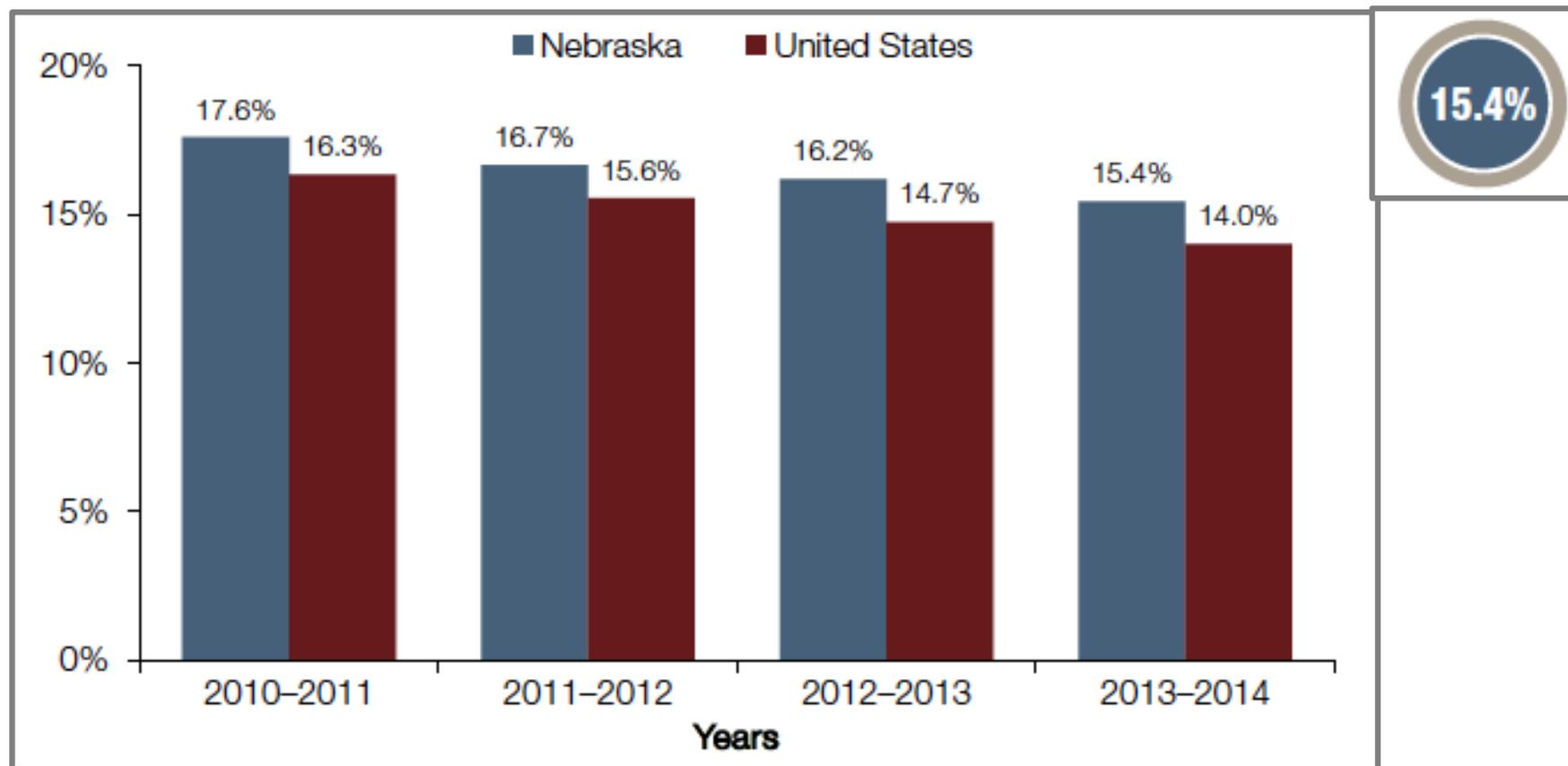
- Effects tend to be modest; risks of long term use; addiction; smoke inhalation as a delivery system

Alcohol

- #1 Used Substance by Adolescents in Nebraska
- 35,000 Report Binge Use Within Past Month
- 26.1% 8th Grade; 47.1% 10th Grade; 64% 12th Grade report use within the last month.



Past Month Binge Alcohol Use Among Individuals Aged 12-20 in Nebraska And the United States (2010-2011 to 2013-2014)



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010-2011 to 2013-2014.

Nebraska

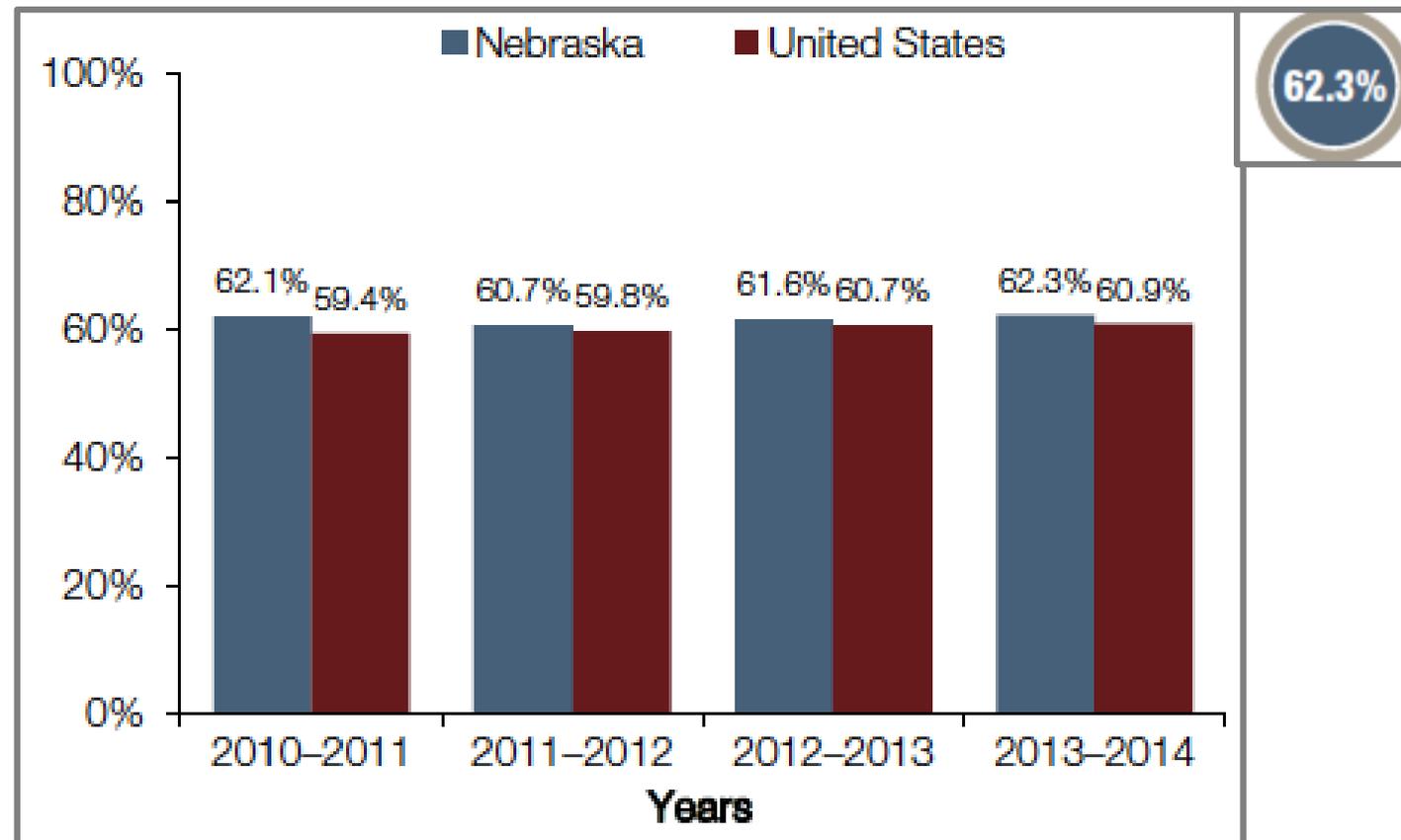
State Profile and Underage Drinking Facts*

State Population: 1,842,641

Population Ages 12–20: 230,000

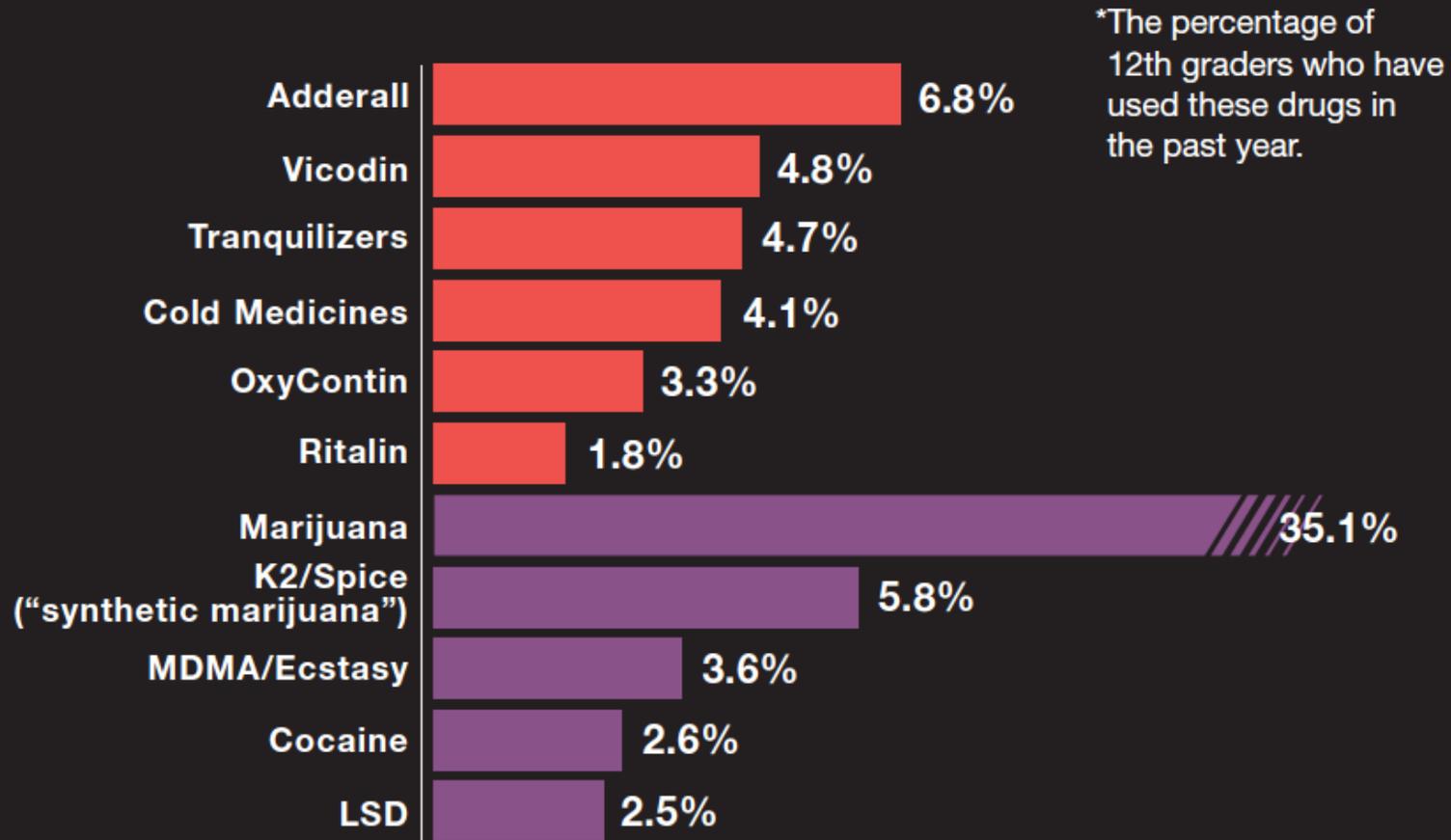
	Percentage	Number
Ages 12–20		
Past-Month Alcohol Use	24.6	57,000
Past-Month Binge Alcohol Use	16.7	38,000
Ages 12–14		
Past-Month Alcohol Use	3.9	3,000
Past-Month Binge Alcohol Use	2.2	2,000
Ages 15–17		
Past-Month Alcohol Use	20.1	14,000
Past-Month Binge Alcohol Use	12.0	9,000
Ages 18–20		
Past-Month Alcohol Use	46.1	39,000
Past-Month Binge Alcohol Use	33.1	28,000
Alcohol-Attributable Deaths (under 21)		26
Years of Potential Life Lost (under 21)		1,549
	Percentage of All Traffic Fatalities	Number
Traffic Fatalities, 15- to 20-Year-Old Drivers with BAC > 0.01	32.0	11

Adolescents Aged 12-17 in Nebraska and the United State Who Perceived No Great Risk from Having Five or More Drinks Once or Twice a Week
(2010-2011 to 2013-2014)



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010-2011 to 2013-2014.

PRESCRIPTION/OVER-THE-COUNTER VS. ILLICIT DRUGS*



After marijuana, prescription and over-the-counter medications account for most of the top drugs abused by 12th graders in the past year.



PRESCRIPTION



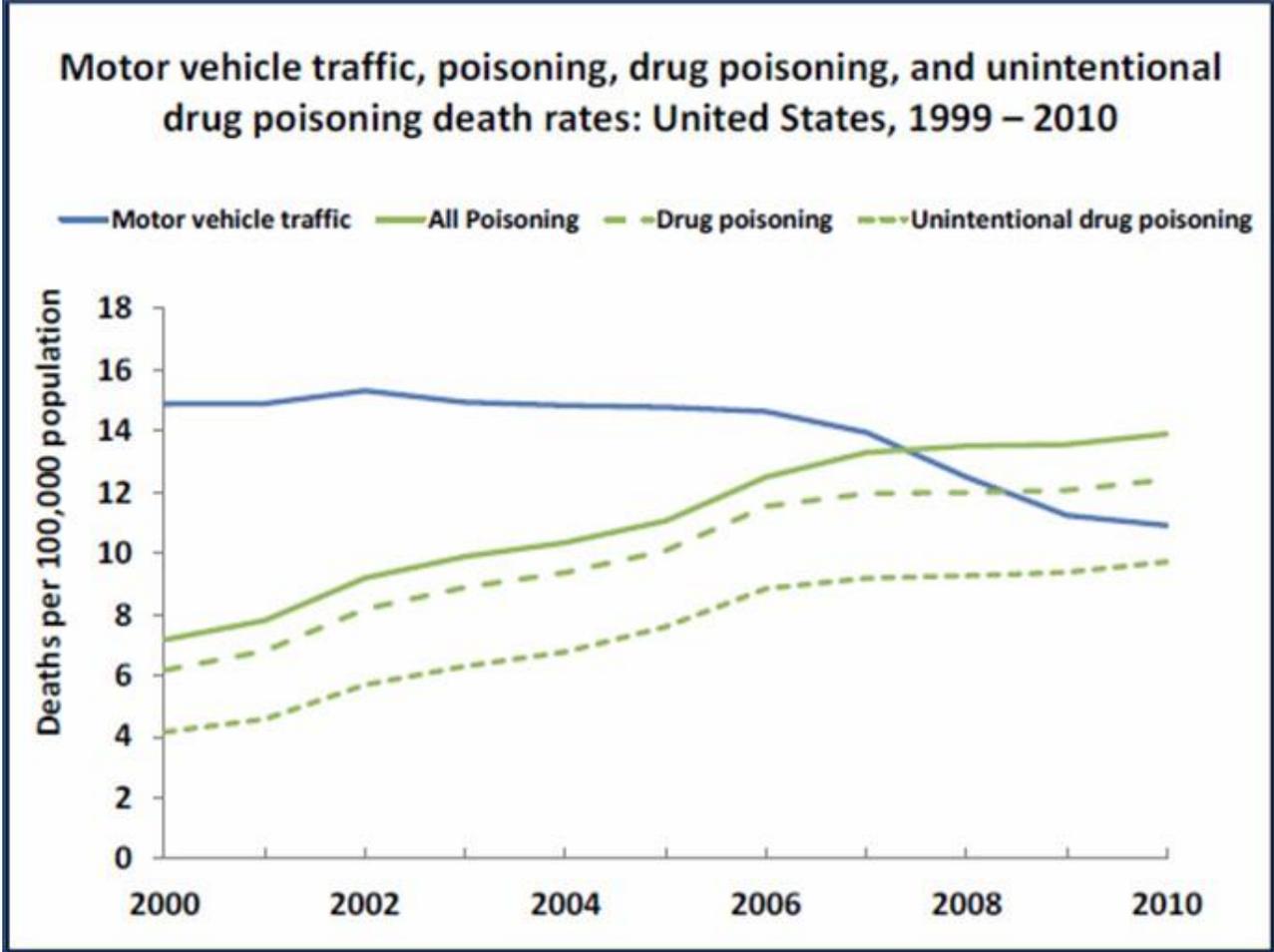
ILLICIT DRUGS

NIH

National Institute
on Drug Abuse

The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. Fact sheets on the health effects of drugs of abuse and information on NIDA research and other activities can be found at www.drugabuse.gov.

Overdose Deaths VS Traffic Accidents



— DRUG OVERDOSES —
KILL MORE
THAN CARS, GUNS, AND FALLING.



Falling **28,360** deaths



Guns **32,351** deaths



Traffic accidents **33,692** deaths



Drug overdoses **41,340** deaths

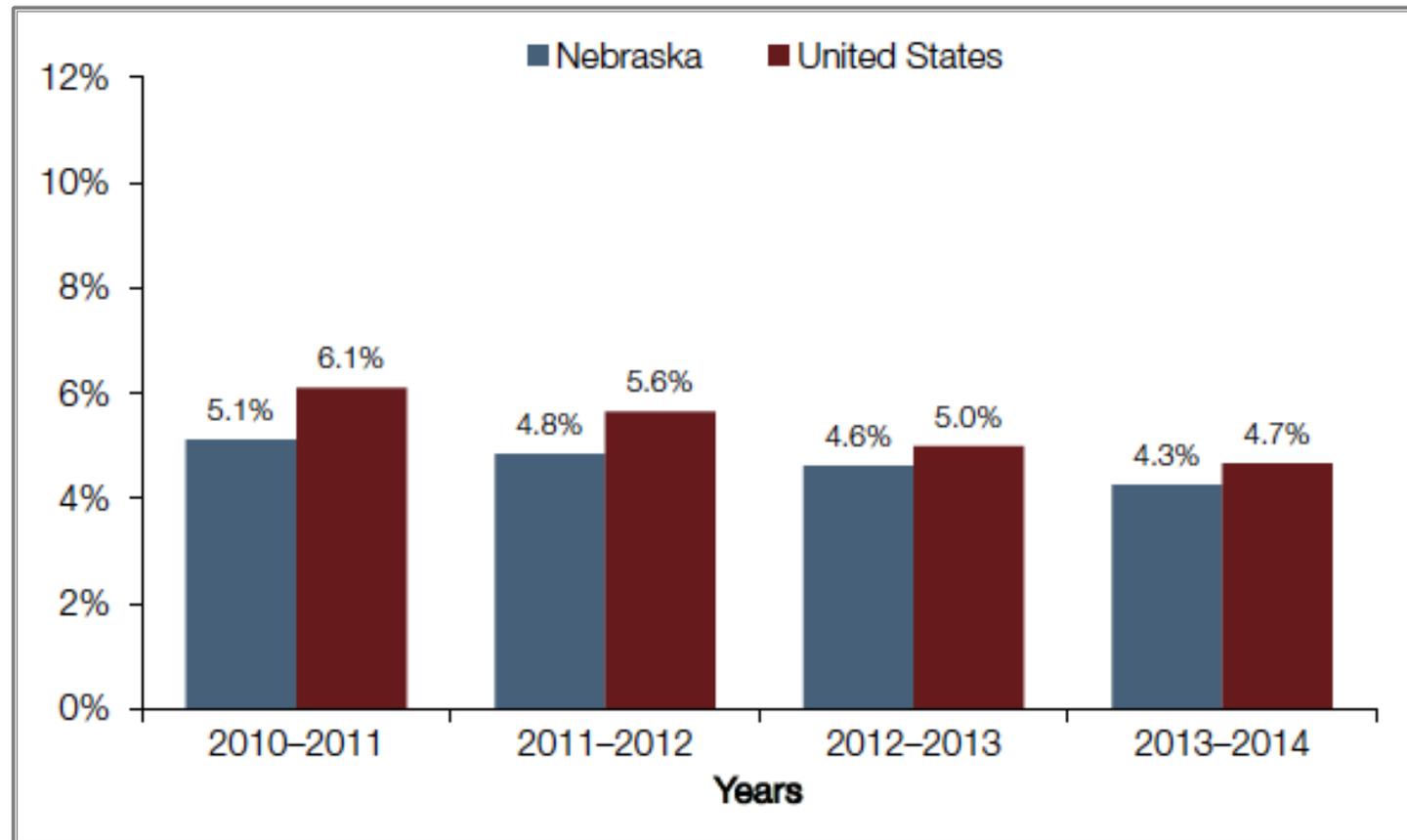
(16,917 from opioid
pain medicine)

Source: CDC Wide-ranging OnLine Data for Epidemiologic Research
(WONDER) on Mortality: <http://wonder.cdc.gov/mortsql.html> (2011)

Opioid Medications

- ❑ Every day, 2,500 American youth abuse a prescription pain reliever for the first time
- ❑ Nearly 1 in 20 high school seniors has taken Vicodin, 1 in 30 has abused OxyContin
- ❑ Over 50% of individuals 12 years or older used pain relievers nonmedically from a friend or relative
- ❑ Adolescent abuse of prescription drugs is frequently associated with other risky behavior, including abuse of other drugs and alcohol
- ❑ The number of opioids prescribed to adolescents and young adults (ages 15 to 29) nearly doubled between 1994 and 2007

Past Year Nonmedical Use of Pain Relievers Among Adolescents Aged 12-17 in Nebraska and the United States (2010-2011 to 2013-2014)



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010-2011 to 2013-2014.

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

- AAP Policy Recommends Pediatricians Offer Medication for Opioid Addiction
- Medication-Assisted Treatment of Adolescents With Opioid Use Disorders
- COMMITTEE ON SUBSTANCE USE AND PREVENTION

Stimulants

How are Methamphetamines Used?

- Orally
- Snorted
- Smoked
- Injected
- Smoking or injecting the drug delivers it very quickly to the brain, where it produces an immediate, intense euphoria.



Nonmedical Use of Prescription Stimulant Medications

**ADHD Medications
for Children
Medication List, Side-
effects, Research**



Reasons Adolescents Use Medications

Self-Treatment

Experimentation

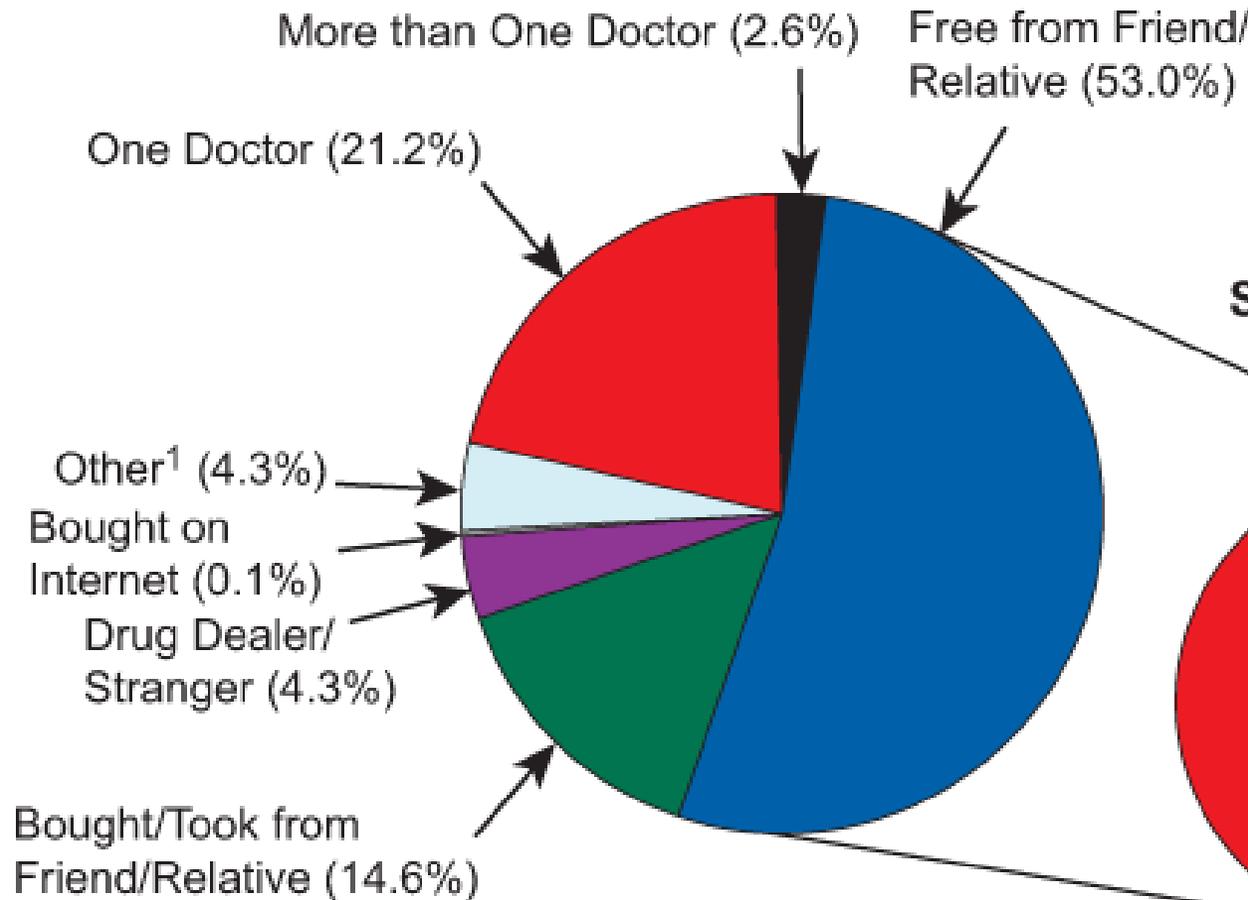
Euphoria

Intoxication

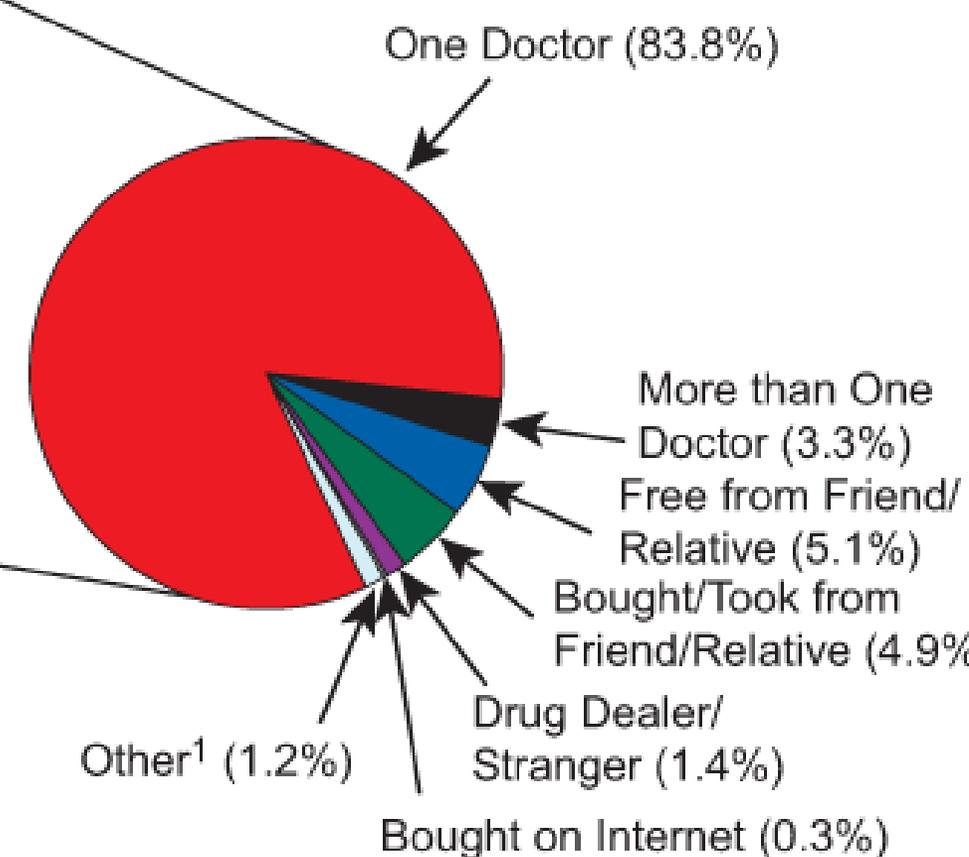
Effects of Stimulant Medications

- Produce extra brain activity
- Increase alertness
- Improve energy
- Promote a sense of well-being

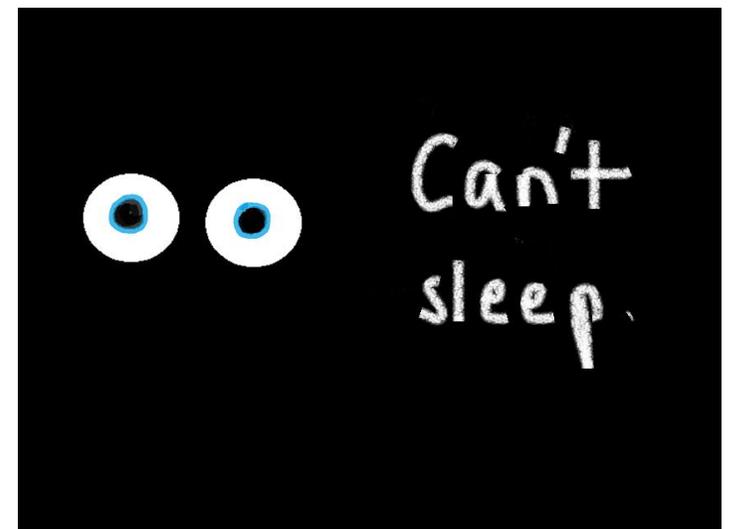
Source Where User Obtained



Source Where Friend/Relative Obtained



Signs of Stimulant Use

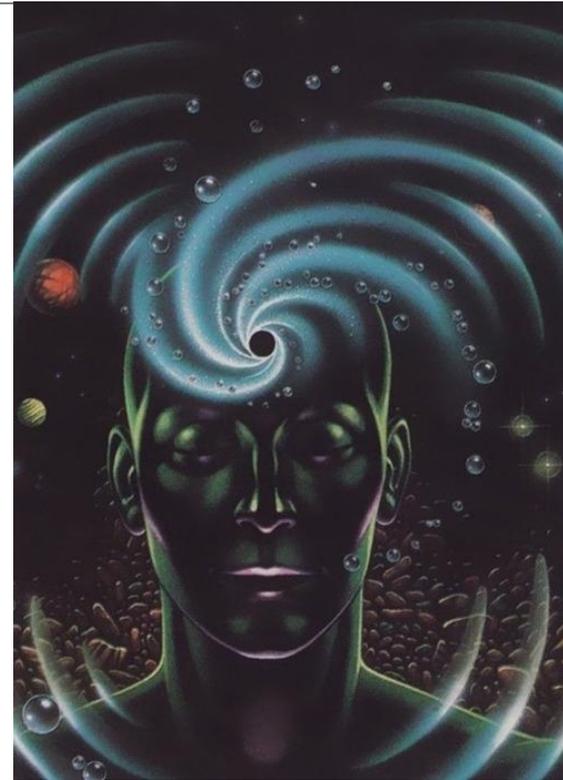


What's the Big Deal?

- Medically used for cough suppression and safe if used according to label instructions
- **At high doses**, causes mild distortions of color and sound to visual hallucinations, “out-of-body” dissociative sensations, and loss of motor control
- **Street names:** Triple C;s, Robotripping, Orange Crush, Skittles, Red Devils

Dextromethorphan (DXM)

- DXM is easy to get
- DXM is cheap
- Cough medicine seems safer
- DXM is popular
- Their parents don't know



Effects of DXM

- Impaired vision
- Nausea and vomiting
- Sweating and fever
- Rapid breathing
- Increased and irregular heart rate and blood pressure
- Slurred speech
- Impaired judgement and mental function
- Rapid eye movements

EVIDENCE-BASED PREVENTION PROGRAMS FOR ADOLESCENT AND CHILDREN SUBSTANCE USE DISORDERS

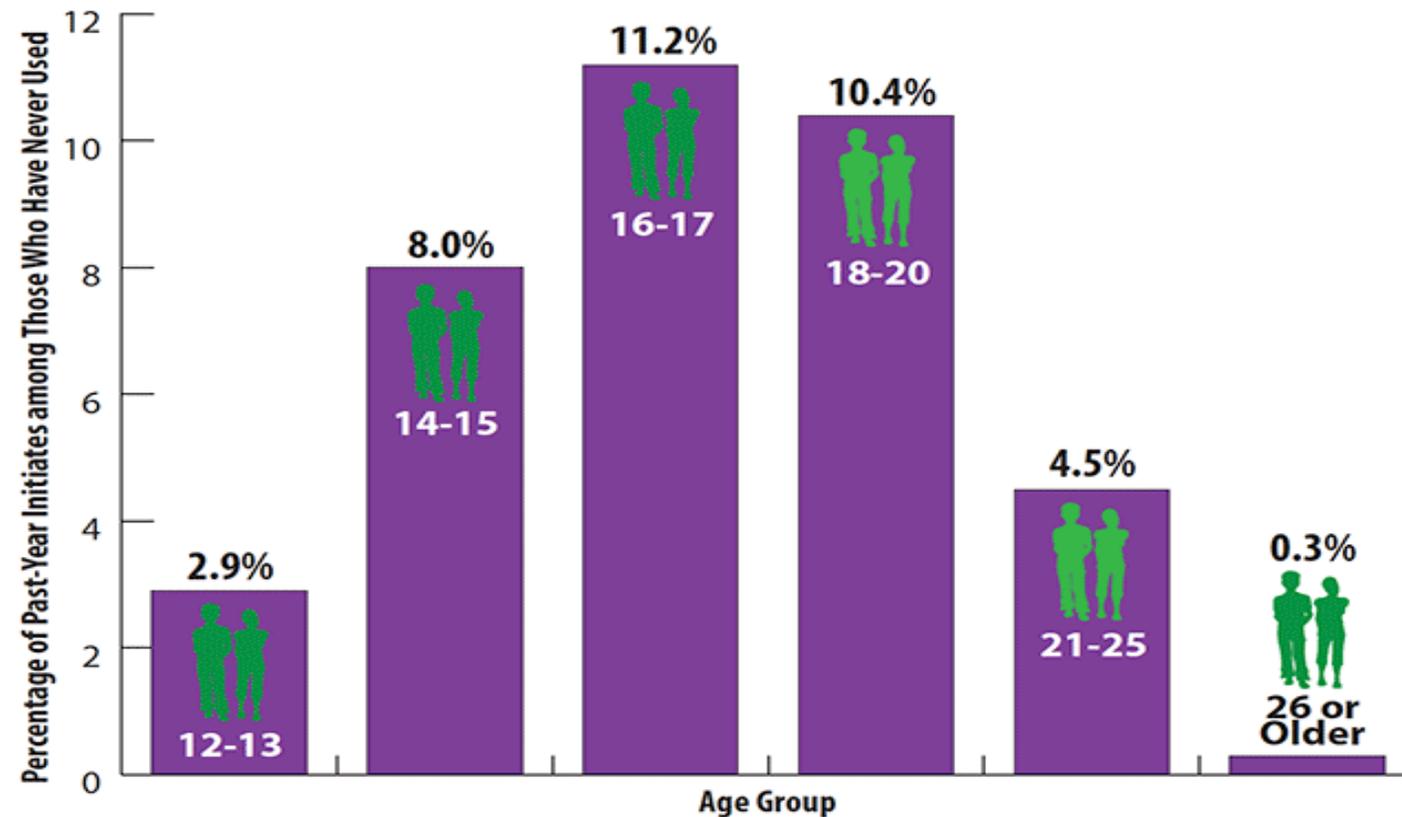


REDUCE *the* RISK



Prevention

The Drug Danger Zone: Most Illicit Drug Use Starts in the Teenage Years



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 and 2012.

Prevention

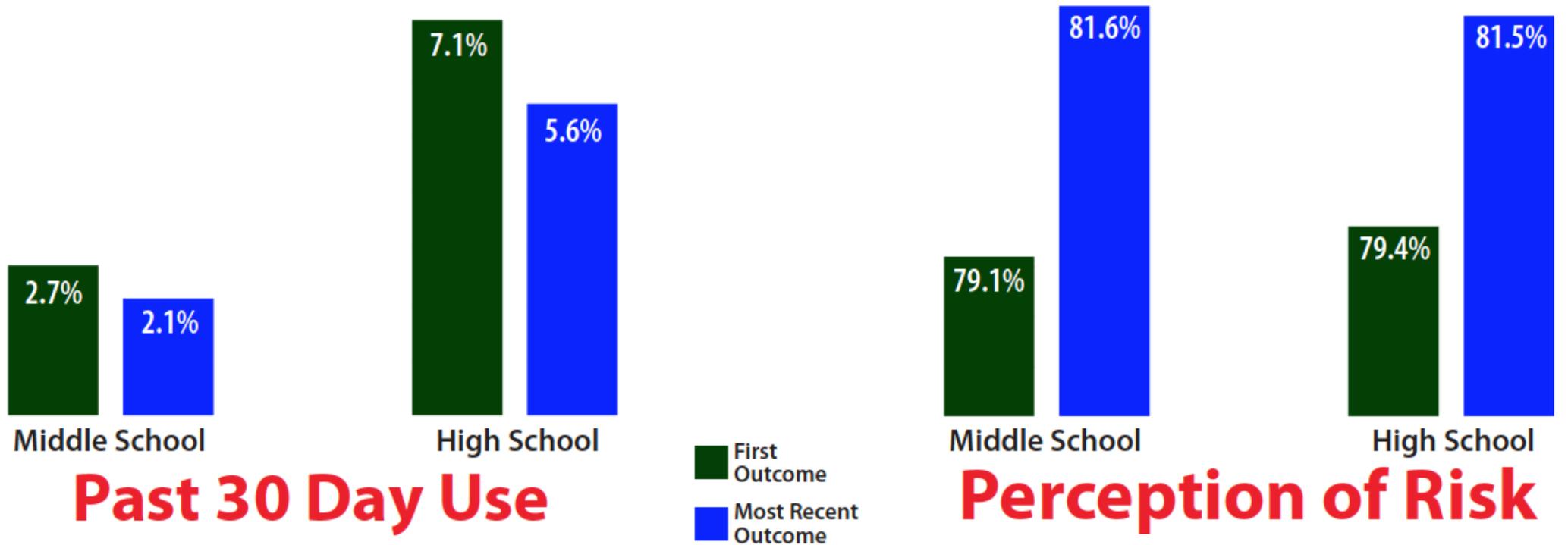


9 OUT OF 10

**PEOPLE WITH SUBSTANCE
PROBLEMS STARTED USING
BY AGE 18**

Drug-Free Communities (DFC) Support Program Findings on Illicit Use of Prescription Drugs from the 2014 National Evaluation

Core Measure Data for FY 2013 Grantees



Prevention Works!

What Does Effective Prevention Look Like?

- Interactive
- Focus on building skills in:
 - Drug Resistance
 - General Competence Skills
- Implemented over multiple years!



School-Based Prevention Approaches

- Social Resistance Skills
- Normative Education
- Competence Enhancement

Social Resistance Skills

- Recognize Risky Situations
 - Ways to Avoid These Situations
 - Ways to Effectively Deal With the Situations
- Ways to Handle Peer Pressure
- Education About Advertising Promotion



Normative Education

- Correct Inaccurate Perceptions
 - Actual Local Prevalence Rates
 - National Surveys
- Undermine Popular Beliefs That Substance Use Is:
 - Acceptable
 - Not Particularly Dangerous

Competence Enhancement

- General Problem-Solving and Decision-Making Skills
- Skills to Resist Interpersonal and Media Influences
- Skills to Increase Self-Control and Self-Esteem
- Coping to Relieve Stress and Anxiety
 - Cognitive Coping Skills
 - Behavioral Relaxation
- Social and Assertiveness Skills