



# Marijuana

Impact on:

The Brain

The Body

The Future

---

# Learning Objectives

Increase knowledge of the effects of marijuana in the areas of:

- Impairment
- Health
- Future Success
- Addiction
- Perception of Harm



# Marijuana: The Basics

# Marijuana Basics

## Common Forms

- Marijuana is a green, brown, or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the cannabis plant.
- Marijuana contains more than 400 chemicals.
- Buds have higher THC\* content (the main active chemical in marijuana.)

\*Delta-9-Tetrahydrocannabinol – main psychoactive – mind altering chemical in marijuana.

# Marijuana Basics

## Common Forms





# Marijuana Basics

## Common Forms

- Hashish' (or 'hash') is the pure resin separated and collected from the flowering tops of the cannabis plant.
- Depending on purity it varies in color from golden brown to black. It can be smoked, eaten or vaporized.
- Hashish oil is produced by removing the cannabinoids from the plant material with a liquid.
- In the U.S., marijuana, hashish and hashish oil are Schedule I controlled substances.

# Marijuana Basics

## Common Forms



Marinol® is a Schedule III controlled substance that has the active chemical CBD\* and comes in pill form. Marinol is obtained through a prescription.

\*Cannabidiol – The second main ingredient in cannabis used widely for medical purposes.

# Marijuana Basics

- Marijuana is usually smoked as a cigarette ('joint'), a cigar ('blunt'), or through a water pipe or bong.
- Marijuana can also be orally ingested. (Baked into food, boiled in water to make tea, or pill form in the case of Marinol.)
- Marijuana can be heated with a liquid until the active ingredients turn to vapor which can be inhaled.
- Can be laced with or combined with other drugs such as PCP.



# Slang/Street Names

- Pot
- Ganja
- Herb
- Weed
- Mary Jane
- Grass
- Chronic
- Kif
- Reefer
- Skunk
- Boom
- Gangster
- And more than 200 others
- Different strains of marijuana have their own "brand" names

# Marijuana Basics

Common effects include:

- Paranoia
- Short term memory loss
- Relaxation
- Heightened sensory perception (brighter colors)
- Laughter
- Altered perception of time
- Increased appetite
- Euphoria

# Marijuana Basics

- Over 111 million Americans have tried it at least once.
- An estimated 2.4 million Americans used it for the first time in 2012.

# Marijuana Basics

- The FDA does not get involved to ensure safety of marijuana due to marijuana being federally illegal.
- Marijuana is not inspected or certified, making it impossible to assess its safety for ingestion.
- Chemicals such as insecticides and pesticides may be applied to marijuana plants to enhance the growing process.
- Marijuana can sometimes be laced with other drugs and/or substances (such as bath salts/cocaine) making the use of marijuana much more dangerous.

# Marijuana Basics

- K2 or spice = a synthetic cannabinoid.
- Does not come from the cannabis plant.
- Mixture of herbs and spices sprayed with a synthetic compound chemically similar to THC.
- Dangerous because toxicity of the components can vary and be unknown.
- It is smoked or added to food and drinks.

# New drug under FDA Investigation

- **Sativex** – contains both THC and CBD (non-psychoactive).
- FDA is investigating drug as an analgesic treatment for patients with advanced cancer whose pain cannot be controlled with FDA approved opioids.
- Product not available for purchase in U.S. and used only for FDA approved clinical trials.

# New Trends - Dabbing

- Hash oil
- Budder
- Honey Oil
- Wax or Ear Wax
- Smoked in oil rig
- 1 dab = 5 joints\*



# New Trends: Wax

- Made by removing the THC from the marijuana by using butane which is highly flammable. Similar methods are used in the production of methamphetamine, cocaine and crack.
- Wax may contain 70% to 90% of THC. Users may have a high that lasts up to 24 hours.
- Wax is legal in CO, for anyone over the age of 21 and can be bought in recreational marijuana dispensaries.



# New Trends - Vaporizers

- Teens have discovered the "G-Pen" which is used for medical marijuana.
- Gives the appearance of a pen or electronic cigarette.
- Does not produce smoke or any odor.





# Marijuana: Impairment

# Impairment

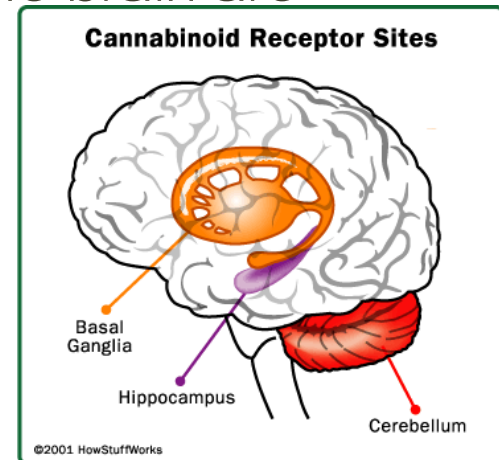
Effects of marijuana vary as a result of:

- Individual physical characteristics  
metabolism/weight/age
- Dose (quantity and frequency)
- Route of administration
- Experience of user
- Other substance use



# Marijuana, the Brain, and Impairment

- The human brain is not fully developed until age 25.
- The teen brain is more vulnerable to the negative effects of marijuana use.
- THC affects the **(cannabinoid receptors)** parts of the brain that influence pleasure, memory, thinking, sensory, time perception, coordinated movement and concentration. A “high” is produced when these parts of the brain are overstimulated.
- The effects of being high creates:
  - Memory problems
  - Problems with processing information
  - Poor sensory & time perception
  - Poor concentration & coordination



Lasting impairment after use can result in difficulty with:

- Complex tasks
- Learning new skills
- Alertness and attention
- Ability to recall information
- Decision making

When using, impaired decision-making can result in:

- Risky sexual behavior – STD's, HIV and unintended pregnancy
- Increased risk of exposure to other substances

Source: Jacobus, J, Bava, S. et. al. (2009) Functional Consequences of Marijuana Use in Adolescence. *Pharmacology, Biochemistry and Behavior* 92(4).

# Impairment: Coordination

THC disrupts coordination and balance by binding to receptors in the part of the brain that regulates balance, posture, coordination, and reaction time.

Therefore **learning** and doing **complicated tasks**, like **driving** and participating in **athletics**, are affected.

# Impairment: Driving

- Teens are at a high risk of being involved in vehicle accidents. When combined with their lack of experience, being under the influence of marijuana increases this risk even further.
- Studies found that driving ability became impaired after marijuana use.
- Drivers under the influence of marijuana have shorter attention spans and reduced reaction times.
- Driving while or after smoking marijuana is illegal.

Source: Asbridge, M & Hayden, JA (2012) Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *British Medical Journal* , 344:e536

# Impairment: Driving (1 of 2)

Since 2000, Liberty Mutual Insurance and Students Against Destructive Decisions (SADD) has been conducting a study of teens driving under the influence. Data from the most recent report, released in February 2012 shows:

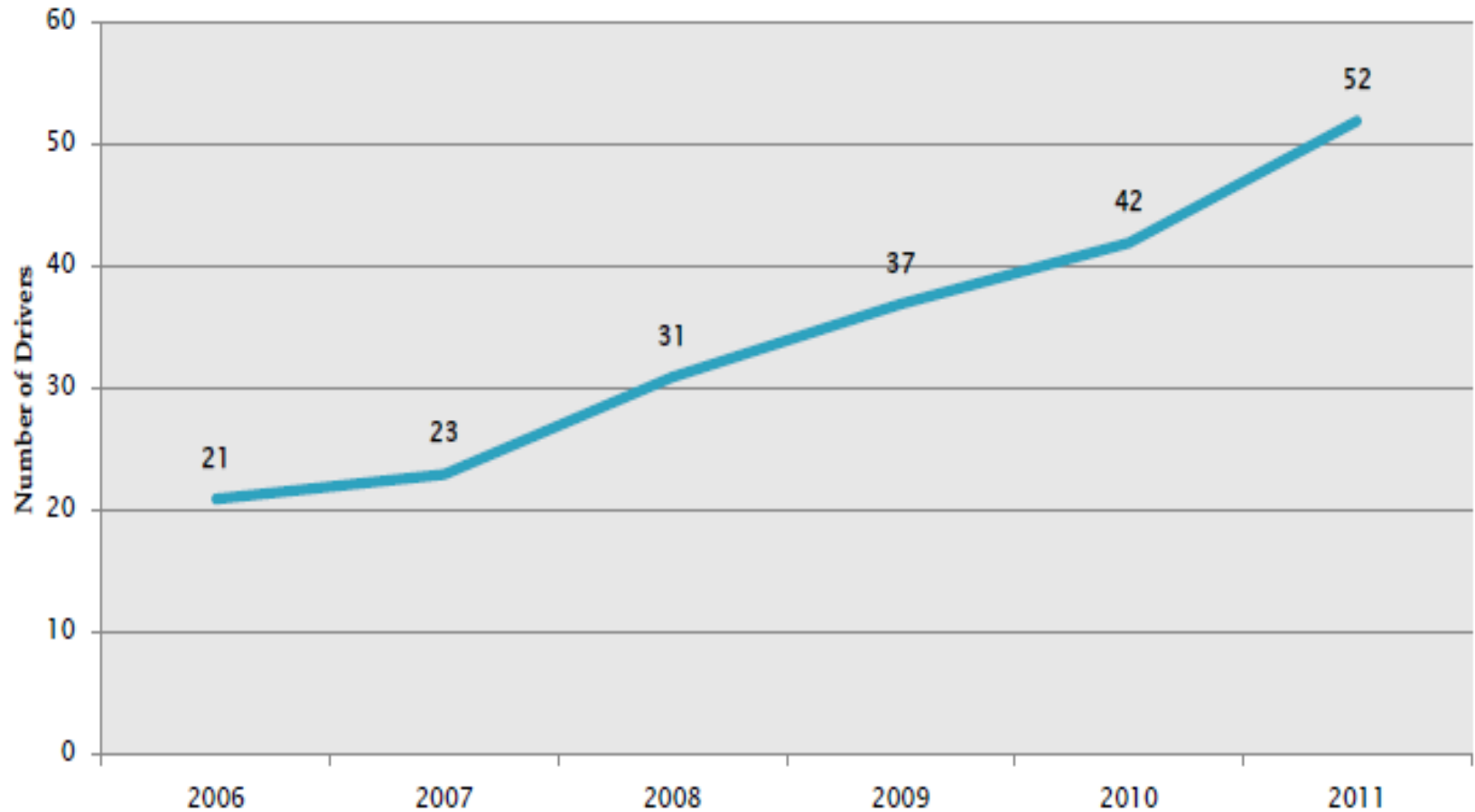
- Nearly 1 in 5 teens have gotten behind the wheel after smoking marijuana.



# Impairment: Driving (2 of 2)

- Driving under the influence of marijuana (19%) is a greater threat than driving under the influence of alcohol (13%). Study findings show that teens don't consider **marijuana use a distraction to their driving.**
- Study also found that most teen drivers would not drive while under the influence if asked by their passengers not to. However, **teen passengers are less concerned about riding in a car with a driver who has smoked marijuana than one who has used alcohol.**
- Source: "Hazy Logic: Liberty Mutual Insurance/SADD Study Findings Driving Under the Influence of Marijuana a Greater Threat to Teen Drivers than Alcohol." Liberty Mutual Press Release. February 22, 2012.  
<http://www.sadd.org/press/presspdfs/marijuana%20Teen%20Release.pdf>

## Number of Drivers Testing Positive for Marijuana Only Involved in Fatal Crashes

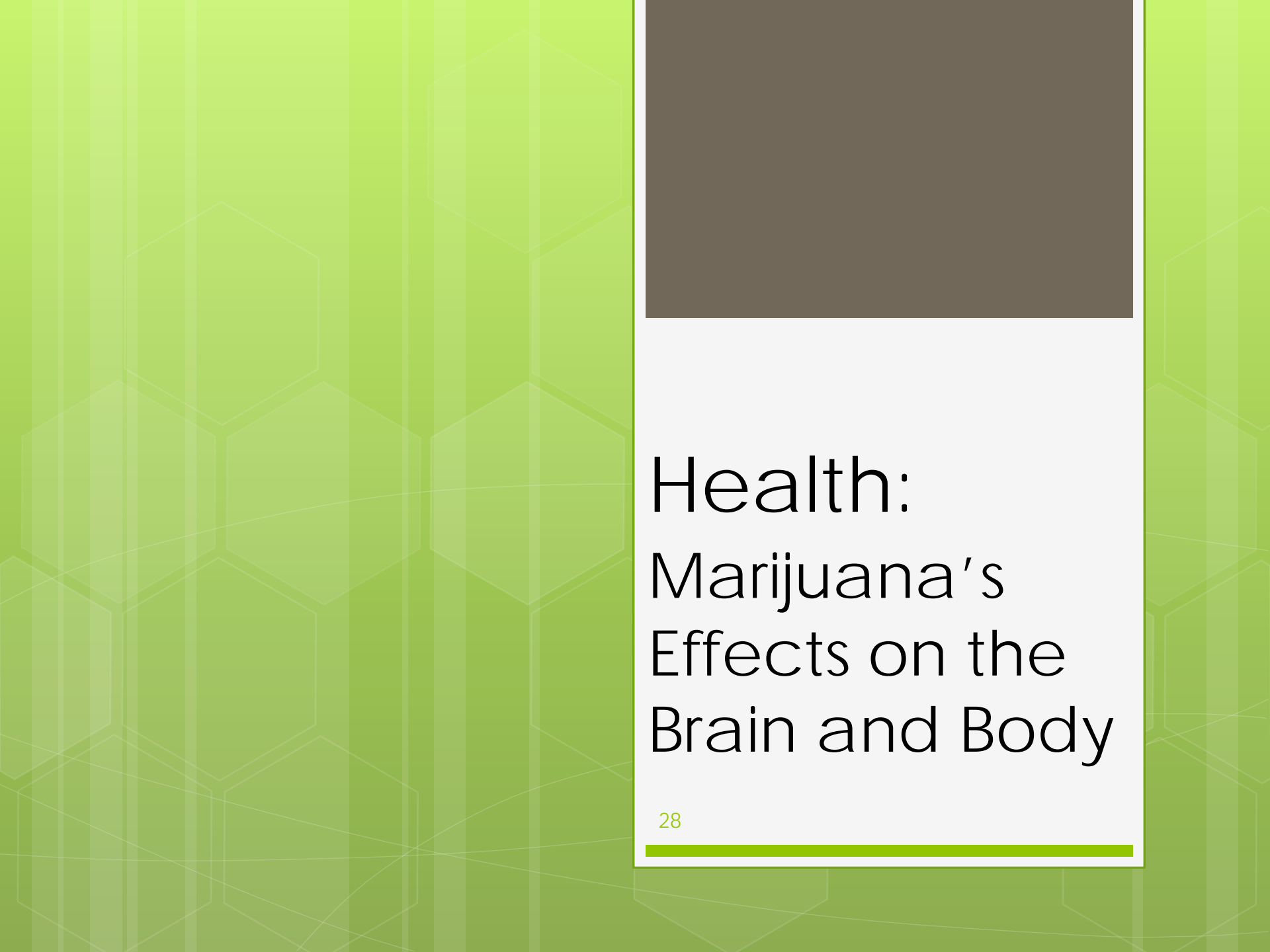


# Impairment: Memory

- Marijuana use impairs a person's ability to form new memories and to shift focus.
- Memory impairment from marijuana use occurs because THC alters how information is processed.
- Adolescents who used marijuana regularly:
  - Had compromised processing abilities when learning new information
  - Had difficulty with retaining new memory
  - Made more errors on tests
  - Had more difficulty paying attention



Source: Jacobus, J, Bava, S. et. al. (2009) Functional Consequences of Marijuana Use in Adolescence . *Pharmacology, Biochemistry and Behavior* 92(4).



# Health: Marijuana's Effects on the Brain and Body

# Health: Effects on the Brain

## Recreational doses\* may cause:

Disorientation	Altered time/space perception	Panic reactions
Euphoria	Poor Concentration	Paranoia
Sedation	Impaired learning/memory	Drowsiness
Relaxed Inhibitions	Altered thought formation	More vivid senses

\*Recreational dose: used without medical justification for its effects often in the belief that occasional use of such a substance is not habit-forming or addictive. The only medical justification of marijuana by the FDA is in the form of Marinol.

([www.merriam-webster.com/dictionary/recreational%20drug](http://www.merriam-webster.com/dictionary/recreational%20drug))

# Health: Effects on the Brain

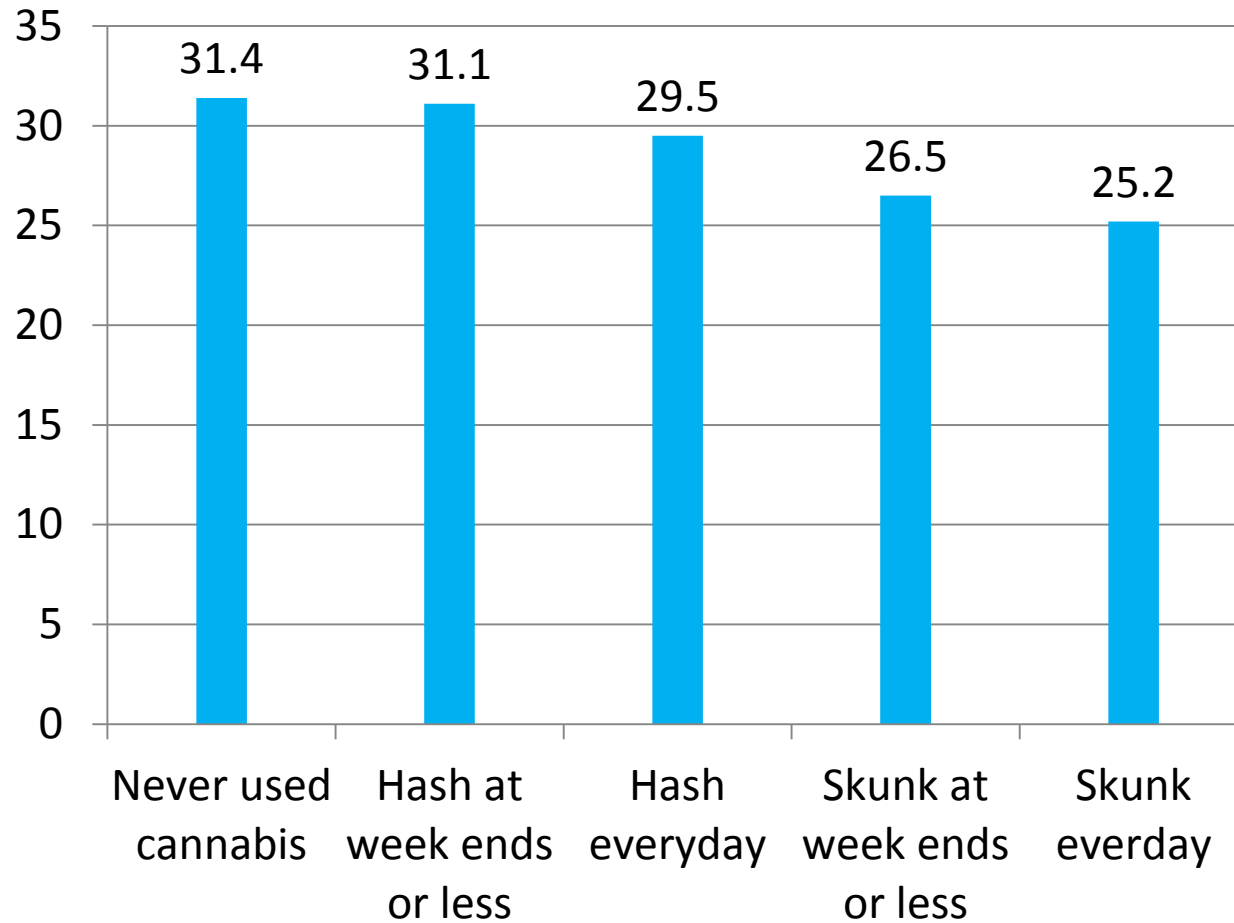
## Frequent doses may cause:

- Intensified reactions
- Fluctuating emotions
- Fragmentary thoughts with disassociations
- Dulling of attention
- Image distortion
- Acute psychosis\* (including hallucinations, delusions, and a lost sense of personal identity)

Symptoms occur more frequently when a high dose of cannabis is consumed in food or drink rather than smoked.

\*Short-term psychotic reactions to high concentrations of THC are distinct from longer-lasting, schizophrenia-like disorders that have been associated with the use of cannabis in vulnerable individuals.

# Mean (age) Years of Onset of Psychosis by Degree of Exposure to Cannabis

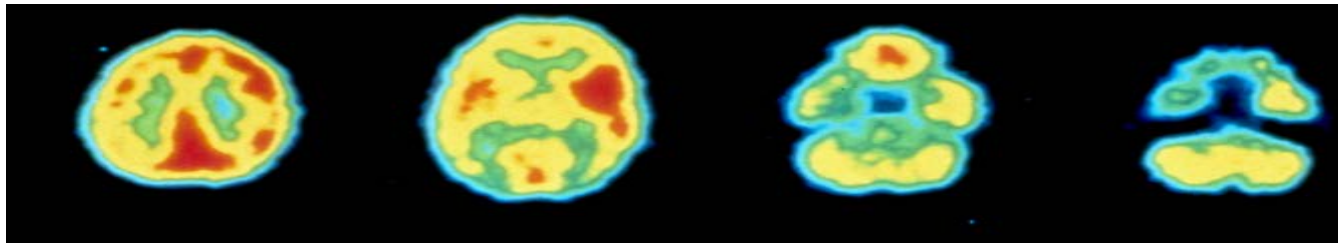


Source: M. Di Forti et al. (2013). Daily Use, Especially of High-Potency Cannabis, Drives the Earlier Onset of Psychosis in Cannabis Users. *Schizophrenia Bulletin*.

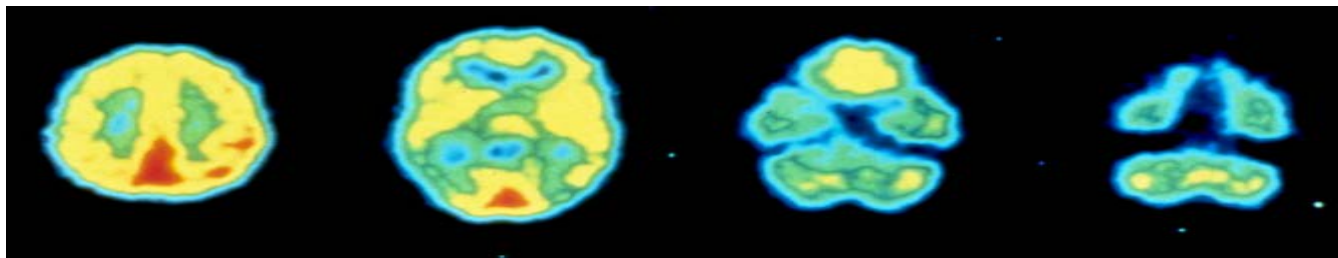
# Health: Effects on the Brain

Over time, regular exposure to THC can permanently alter how the brain works, even if the drug is not currently being used.

Control



Marijuana Abuser



Source: Volkow et al., *Psychiatry Research: Neuroimaging*, 67, pp. 29-38 (1996). This slide is from: Volkow, ND (2011) *Marijuana's Effects on Brain, Body and Behavior*. Presentation March 8, 2011.

<http://www.apa.org/about/gr/science/spin/2011/03/volkow-marijuana-presentation.pdf>



# Health: Effects on the Body

Marijuana use can cause teens to overestimate their abilities & impair good judgment resulting in risky behaviors such as:

- Unplanned and/or unprotected sex
- Dangerous stunts/actions
- Operating a car, ATV, snowmobile, boat, bike while under the influence

# Health: Effects on the Body

Marijuana can cause the heart rate to increase by 20 to 50 beats per minute. This increase can last for hours after use has stopped.



Increased heart rates can be even greater if other drugs are used at the same time.

Source: Mittleman MA, Lewis RA, Maclure M et al. (2001) Triggering myocardial infarction by marijuana. *Circulation*, 103(23) 2805-2809.

# Health: Effects on the Body

Researchers found that marijuana users with pre-existing conditions have an increased risk for a heart attack compared to the general risk of heart attack when not smoking.

Source: Mittleman MA, Lewis RA, Maclure M et al. (2001) Triggering myocardial infarction by marijuana. *Circulation*, 103(23) 2805–2809.

# Health: Effects on the Body

The amount of tar inhaled by marijuana smokers and the level of carbon monoxide absorbed are three to five times greater than from tobacco smoke.

Drugs and Human Performance Fact Sheets - Cannabis / Marijuana. National Highway Traffic Safety Administration, n.d. Accessed at: <http://www.nhtsa.gov/people/injury/research/job185drugs/cannabis.htm> .

Marijuana contains more cancer causing chemicals than tobacco. Marijuana smokers inhale deeply and hold the smoke in their lungs longer which may increase their risk for developing lung cancer.

The British Lung Foundation (2012) *The Impact of Cannabis on Your Lungs*. Accessed at: <http://www.blf.org.uk/Files/8ec171b2-9b7e-49d9-b3b1-a07e00f11c05/The-impact-of-cannabis-on-your-lungs---BLF-report-2012.pdf>

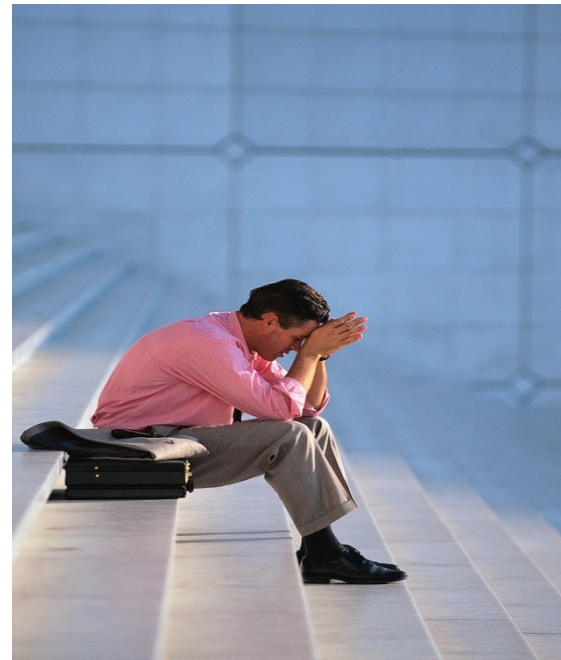
# Health: Effects on the Body

- The California's Office of Environmental Health Hazard Assessment placed marijuana smoke on its official list of known carcinogens in 2009.

Tomar, R. S., Beaumont, J., & Hsieh, J. C. Y. (2009). Evidence on the Carcinogenicity of Marijuana Smoke. California Environmental Protection Agency. Reproductive and Cancer Hazard Assessment Branch, Office of Environmental Health Hazard Assessment.

# Health: Effects on the Body

Recent studies have shown a link between frequent marijuana use and the occurrence of testicular cancer.



Lacson, J., Carroll, J., Tuazon, E., Castelao, E., Bernstein, L., & Cortessis, V. (2012). Population – based case-control study of recreational drug use and testis cancer risk confirms an association between marijuana use and nonseminoma risk. *Cancer*, 118(21) 5374-5383.

*Did you know marijuana use can interfere with the safety and/or effectiveness of medicines people take to treat health problems??*

*Marijuana use can interfere with medicine prescribed by a doctor.*

Resources:

[www.rxlist.com/marijuana-page3/supplements.htm](http://www.rxlist.com/marijuana-page3/supplements.htm)

or

<http://www.webmd.com/drugs/index-drugs.aspx>



# Impact on the Family

- For parents who use marijuana, their ability to parent may be impacted by “difficulty picking up on their babies’ cues because marijuana dulls response time and alters perceptions.”
- “When parents repeatedly miss their babies’ cues, the babies eventually stop providing them which results in disengaged parents with disengaged babies.”

Source: Protecting Children in Families Affected by Substance Use Disorders: Child Abuse and Neglect User Manual Series,” U.S. Department of Health and Human Services Administration for Children and Families, Administration on Children, Youth and Families Children’s Bureau, Office on Child Abuse and Neglect, 2009.



# Impact on the Family

- Some parents may choose to grow marijuana in their home or live in a marijuana growing operation which has negative impacts on children's health:
  - Mold exposure
  - Possible electric shock
  - Exposure to high levels of carbon monoxide
  - Explosion risks
  - Bobby traps and weapons
  - Potential eye damage from ultraviolet lights
  - Exposure to dangerous chemicals used in the growing process

Source: "Capital Health, Edmonton Area: Public Health Division, Environmental Public Health Services Fact Sheet."

# Unintentional Pediatric Marijuana Exposures

- 985 calls to US poison centers in children ages 9 and younger between 2005 and 2011.
- Rate of calls in states that passed legislation legalizing marijuana use (recreational or medicinal purposes) before 2005 increased from 3.9 calls per 100,000 population in 2005 to 14.8 calls per 100,000 population in 2011.

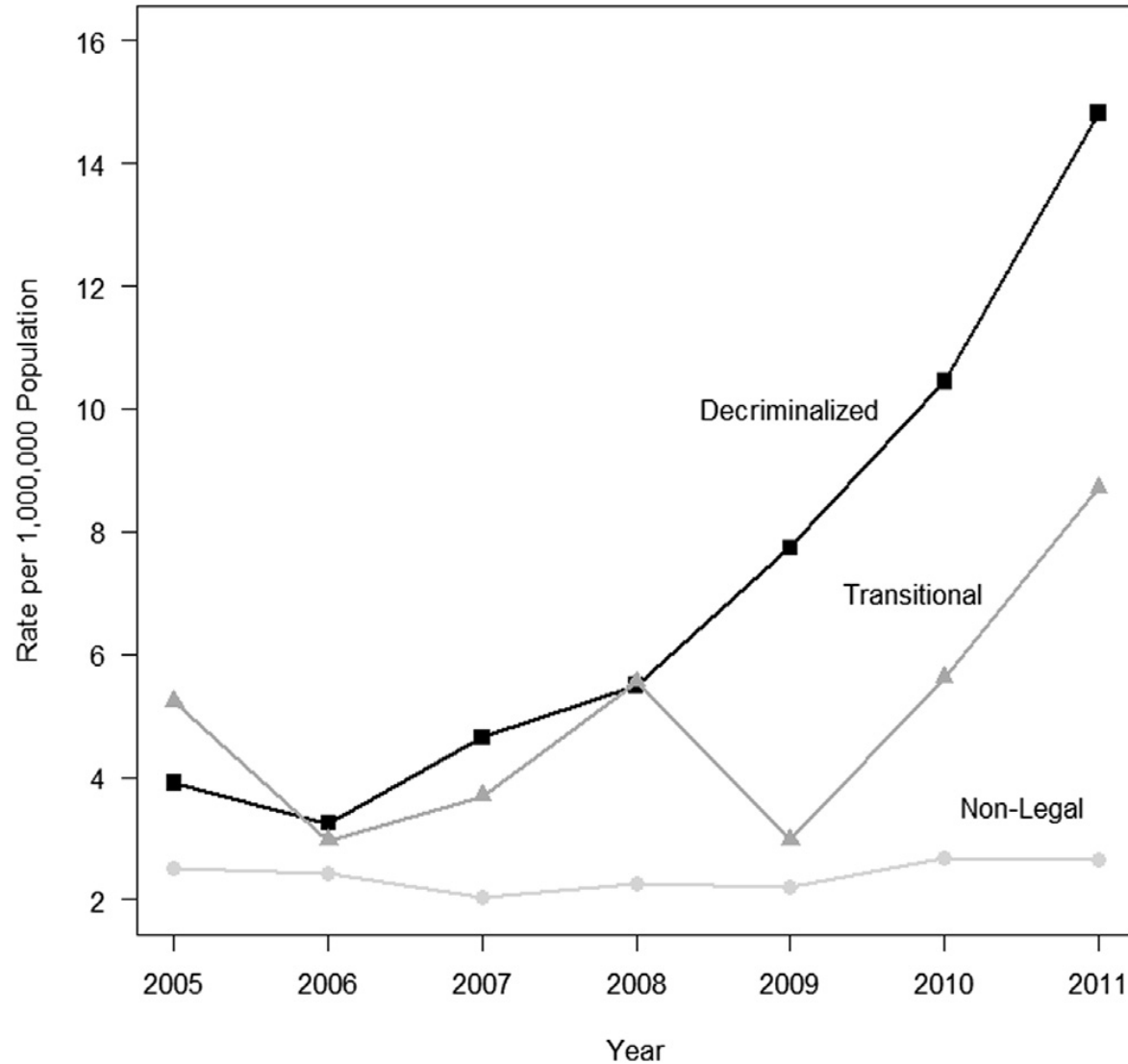
# Unintentional Pediatric Marijuana Exposures


- Rate of calls in transitional states (enacted legislation to legalize marijuana) between 2005 and 2011 increased from **5.2 calls** per 100,000 population to **8.7 calls** per 100,000 population.
- Rate of calls in states that did not pass legislation saw **no change** in the rate of poison center calls.

# Unintentional Pediatric Marijuana Exposures

- “Increased call rate may be caused by increase in:
  - use by family members
  - likelihood of ingestion
  - potency of ingestion
  - likelihood of caregivers calling poison centers or presenting to health care facilities for help.”
- Need for “child-resistant packaging, warning labels and public education, when drafting marijuana legislation.”

### Marijuana Unintentional Exposure Rate per 1,000,000 Population in Children 9 Years and Younger between 2005-2011





Future  
Success:  
Getting High  
Can Really  
Bring You Down

# Future Success

- Teen marijuana use has negative consequences in the areas of education, skill training and job opportunities.
- Marijuana use among teens has been linked to lower school performance and reduced job prospects.

Source: Jacobus, J, Bava, S. et. al. (2009) Functional Consequences of Marijuana Use in Adolescence . *Pharmacology, Biochemistry and Behavior* 92(4).

# Future Success: Impact on Education

Research shows that teen marijuana use affects their education by:

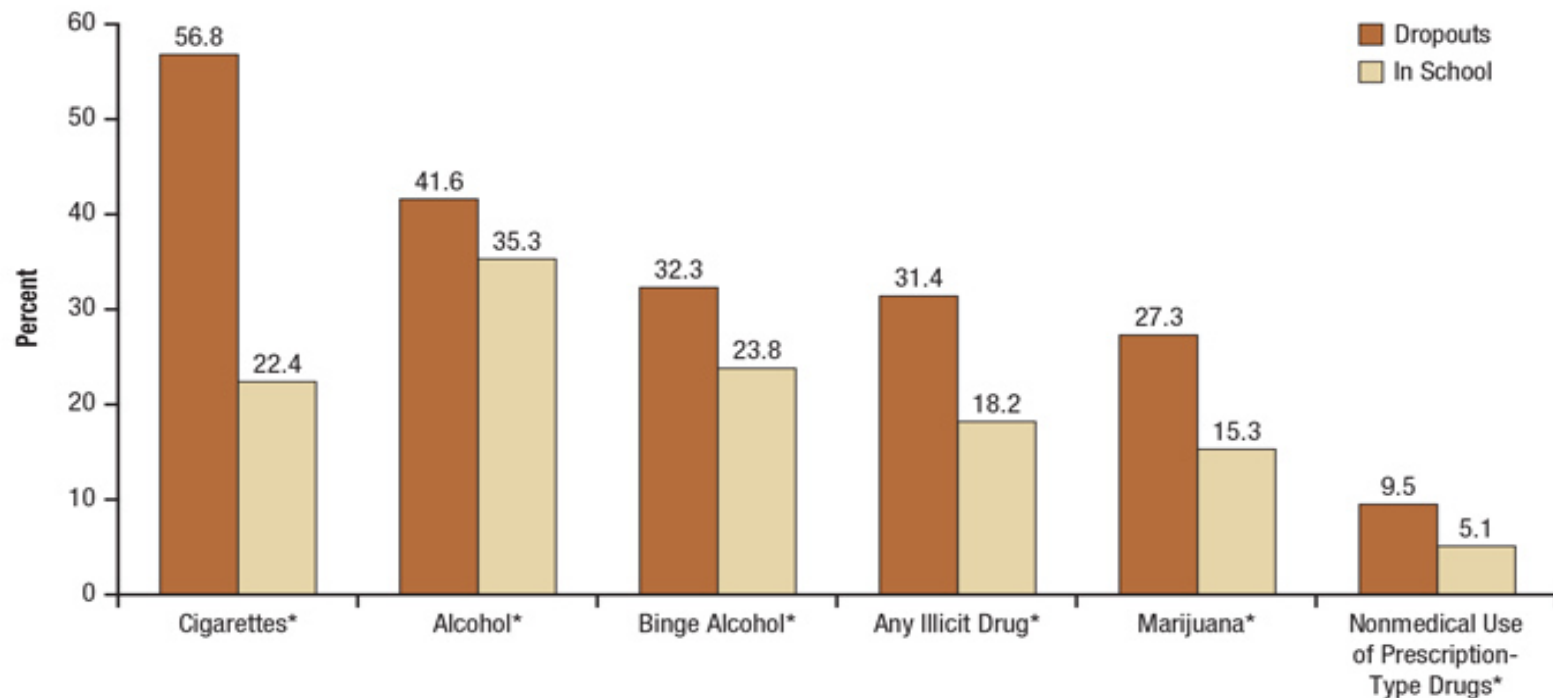
- Lowering academic performance
- Increasing truancy & drop out
- Reducing likelihood of graduation
- Interfering with future goal setting or life planning
- Higher risk of future unemployment

Source: Jacobus, J, Bava, S. et. al. (2009) Functional Consequences of Marijuana Use in Adolescence . *Pharmacology, Biochemistry and Behavior* 92(4).



# Marijuana Use and School Drop Out

- ❖ Dropping out of high school is related to a number of negative socioeconomic and health outcomes.
- ❖ One in seven 12th graders dropped out of high school and had higher rates of current substance use than similar aged peers who were still in school.



\* Difference between 12th grade students and 12th grade aged youths who had dropped out of school is significant at the .05 level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2002 to 2010 (revised March 2012).

## Future Success: Impact on Education

Students who are cited for illegal drug use/possession while receiving student financial aid may be at risk for losing their financial aid and/or federal student loans.



Source: U.S. Dept. of Education "Students with Criminal Convictions Have Limited Eligibility for Federal Student Aid." Accessed Aug. 12, 2013 at: <http://studentaid.ed.gov/eligibility/criminal-convictions#drug-convictions>

# Future Success: Impact on Education

Those with a drug possession conviction may be asked to complete substance abuse treatment prior to acceptance to college or technical schools.



Source: U.S. Dept. of Education "Students with Criminal Convictions Have Limited Eligibility for Federal Student Aid." Accessed Aug. 12, 2013 at: <http://studentaid.ed.gov/eligibility/criminal-convictions#drug-convictions>

# Future Success: Impact on Education

In a study of college students, heavy marijuana users:

- Made more errors
- Had more problems paying attention to changes in the environment
- Had more problems learning than students who used less often or not at all

Source: Harvey M.A, Sellman J.D., Porter R.J., Frampton C.M., (2007) The relationship between non acute adolescent cannabis use and cognition. *Drug and Alcohol Rev.* 2007 Vol.6 309-19



# Marijuana and IQ

- Researchers in New Zealand conducted a prospective study with 1,037 individuals from birth till age 38.
- IQ tests were administered at ages 13 and 38.
- Marijuana use was gathered in interviews at ages 18, 21, 26, 32 and 38.
- IQ scores were compared as a function of marijuana use.

Meier et al. (2012). Persistent Cannabis Users Show Neuropsychological Decline from Childhood to Midlife. *Proceedings of the National Academy of Science*, vol. 109, no 40 (E2657 – E2664).

# Marijuana and IQ



- Study findings showed individuals who used marijuana heavily in their teens and continued through adulthood had a drop in IQ between ages 13 to 38.
- Average of 8 points for those who met a diagnosis of marijuana dependence.
- “Loss of 8 IQ points could drop a person of average intelligence into the lowest third of the intelligence range.”

# Future Success: Impact on Employment

- Several studies have linked workers' marijuana smoking with:
  - Increased absences
  - Tardiness
  - Accidents
  - Workers' compensation claims
  - Job turnover
- Individuals who tested positive for marijuana on pre-employment urine screens had:
  - 55% more industrial accidents
  - 85% more injuries
  - 75% increase in absenteeism compared with those who tested negative for marijuana use.

# Future Success: Impact on Intimate Partner Violence

- Studies show that regular use of marijuana by teens and young adults increases their risks of becoming victims or offenders of intimate partner violence.

Source: Reingle, J. et al. (2012) The Relationship Between Marijuana Use and Intimate Partner Violence in a Nationally Representative Longitudinal Sample. *Journal of Interpersonal Violence*, 27(8): 1562-1578.



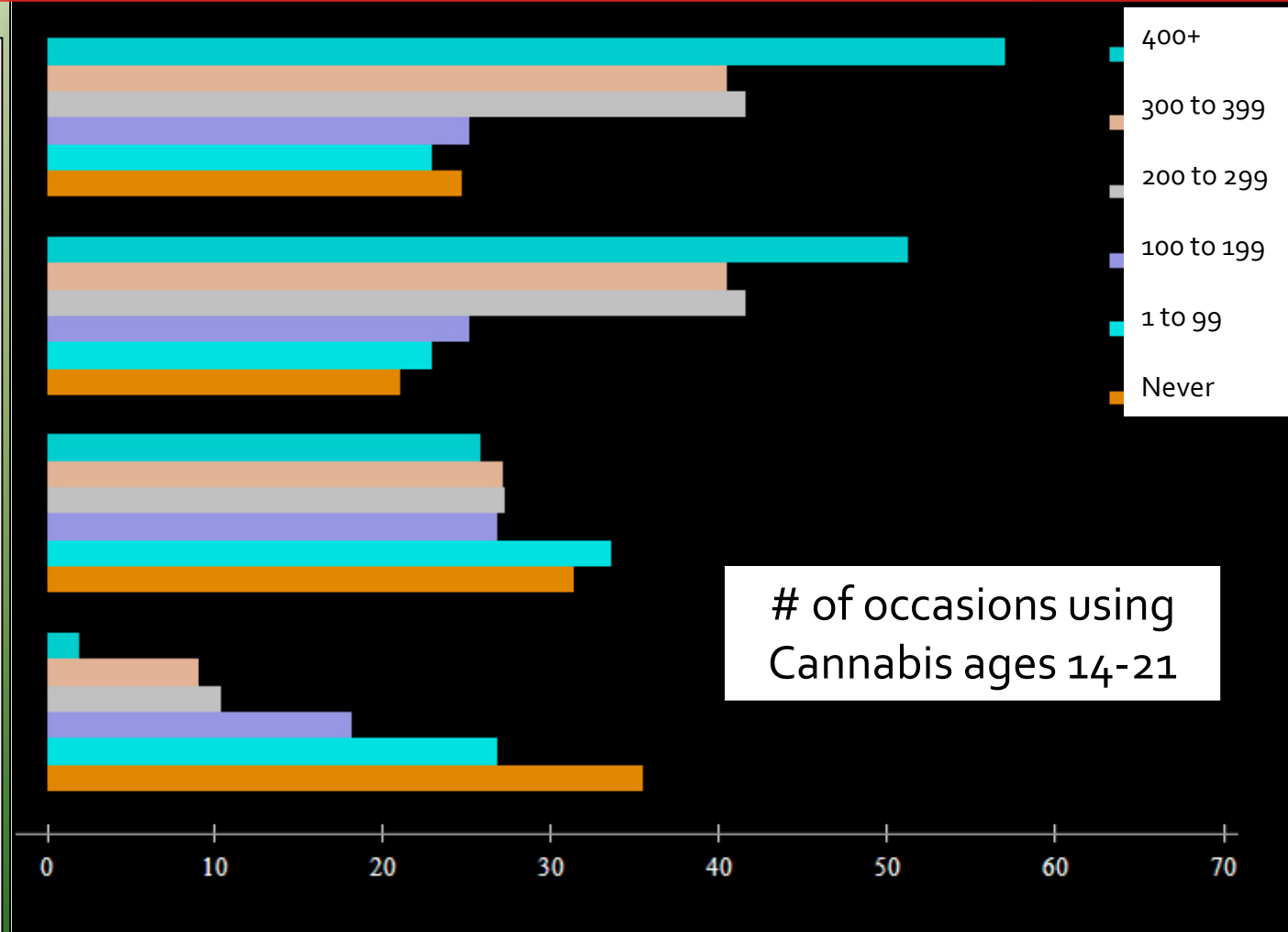
# Cannabis Use and Later Life Outcomes Are Dose Dependent

% welfare dependent  
(ages 21-25)

% Unemployed  
(ages 21-25)

mean personal  
income  
in thousands of \$  
at age 25

% gained university  
degree  
by age 25



Source: Fergusson and Boden. *Addiction*, 103, pp. 969-976, 2008.

# Drug Testing and Synthetic Cannabinoids

- Known as K2 or Spice.
- Usually not included in routine drug tests due to the need for specialized expensive testing.
- Great variation between products so difficulty with identifying what metabolites should be included in testing.

Source: CESAR Fax. July 8, 2013 Vol. 22, Issue 27.

# Drug Testing and Synthetic Cannabinoids

- “Some synthetic cannabinoid users use the drug as a substitute for marijuana to avoid positive drug tests.”
- Most of the users returned to marijuana once the drug-testing period ended.
- Per a study participant “spice would give you a weed like effect without the positive test.”



# Marijuana and Addiction

# Marijuana and Addiction

## Addiction:

- A state in which a person engages in a compulsive behavior that may be reinforcing and initially pleasurable.
- Loss of control when trying to limit intake.
- Continued use despite negative consequences.

## Dependence:

- A person physically and mentally needs a drug in order for their body to function normally.
- The body becomes dependent on a drug physically and psychologically.
- Stopping the use of the drug leads to physical withdrawal symptoms.

# Marijuana and Addiction

## Signs of Addiction:

- Experiencing difficulty controlling the urge to use
- Using before school/work/other activities
- Seeking out others who use
- Spending time thinking about using/talking about using/seeking out the drug
- Continued use despite the negative consequences

It is suspected that the early use of marijuana by youth coupled with a higher potency of the drug contributes to greater rates of addiction.

# Marijuana and Addiction

Those who are addicted experience withdrawal symptoms:

- Irritability
- Anxiety
- Insomnia or sleep disturbances
- Appetite Disturbance
- Depression



Most studies suggest that withdrawal symptoms start on the first day of abstinence, and usually peak within the first 2 to 3 days of quitting, with the exception of sleep disturbance.

Withdrawal symptoms are usually over after 2 weeks, but this depends on how dependent someone is on cannabis before trying to quit.

# Marijuana and Addiction

- ❖ Marijuana dependence is the 3<sup>rd</sup> most common type of drug dependence in many parts of the world, including the U.S. and Canada. (Tobacco and alcohol are 1<sup>st</sup> and 2<sup>nd</sup>)

- ❖ Source: United Nations Office on Drug and Crime. ND. *Cannabis A Short Review*

- ❖ 1 in 6 who start using marijuana in their teens become addicted.

- ❖ Source: National Institute of Drug Abuse. Dec. 12,2012.  
<http://www.nih.gov/news/health/dec2012/nida-19.htm>

- ❖ Marijuana is the primary drug of abuse in 18 % of U.S. treatment admissions.

- ❖ Source: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. *Treatment Episode Data Set (TEDS): 2000-2010. National Admissions to Substance Abuse Treatment Services.*





# Marijuana: Perception of Harm

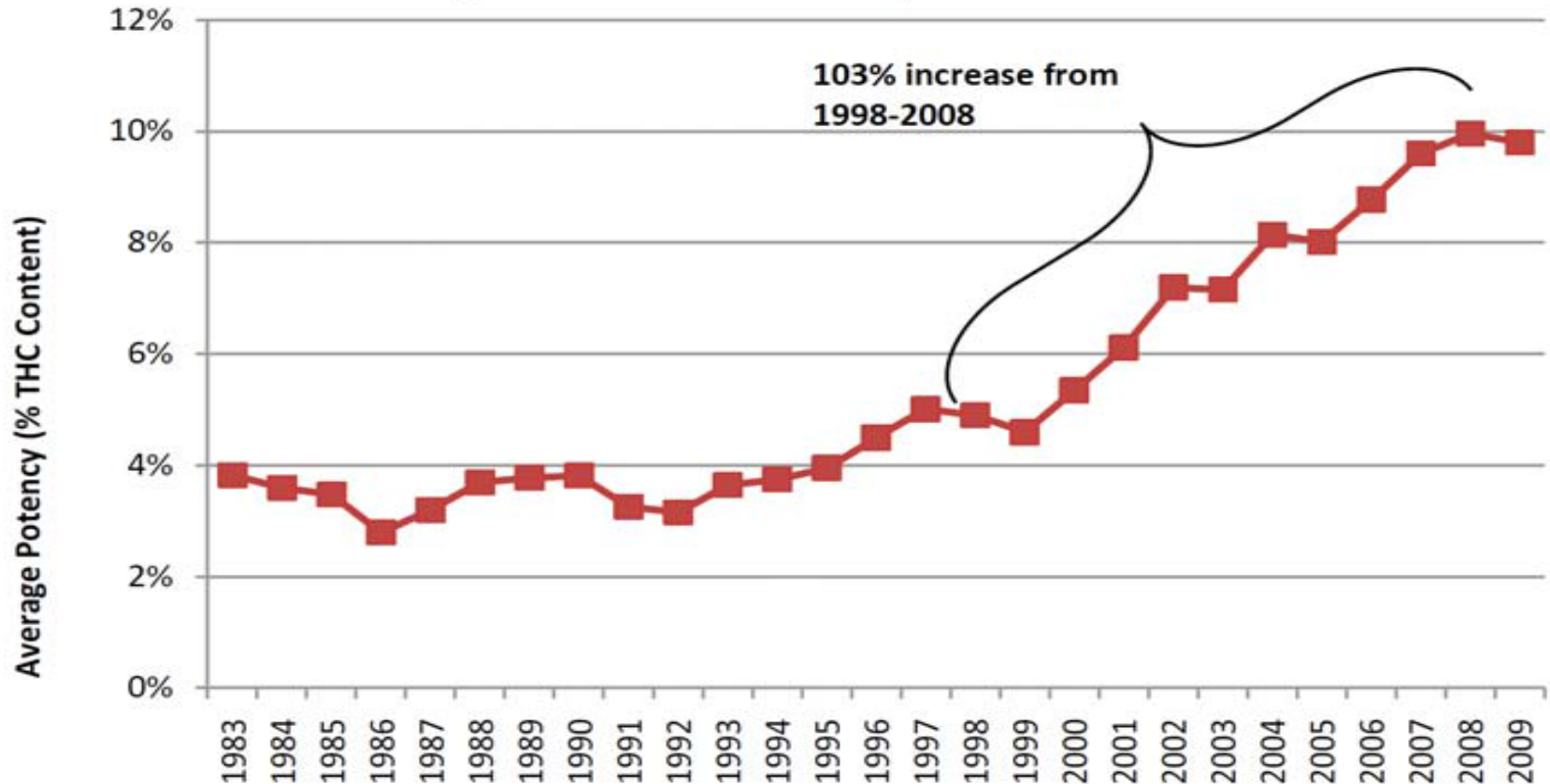
# Marijuana: Then and Now

- ❖ Marijuana has become more potent over the years.
- ❖ The increase in marijuana potency means a smaller amount can induce a greater level of intoxication, making it easier to get higher, faster.
- ❖ With legalization of medical marijuana, emphasis is on growing plants with higher THC content and the quickest way possible.
- ❖ This leads to a type of “Hybrid” plant which is more likely to be abused.

Source: Mehmedic Z, Chandra S, Slade D. et. al. (2010) Potency Trends of THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993-2008. *Journal of Forensic Sciences*, 55(5) 1209-17.

# Marijuana: Then and Now

## Potency of Seized Marijuana in the U.S.



Source: University of Mississippi, National Center for Natural Products Research, *Potency Monitoring Project Quarterly Report 107 (January 2010)*

# Perception of Harm

- People often pose the rhetorical question: "Has anyone ever died from using marijuana?"
- The answer is YES, when it is caused by:
  - ✓ Motor vehicle collisions
  - ✓ Fatal accidents caused by impaired judgment
  - ✓ Marijuana laced with another drug

# Marijuana and the Environment

- Illegal marijuana growers use chemicals, high amounts of energy and make changes to land structure leaving lasting damage to our surroundings.
- They also use poisons to keep animals from destroying their crops and equipment.

Source: Gabriel MW, Woods LW, Poppenga R, Sweitzer RA, Thompson C, et al. (2012) Anticoagulant Rodenticides on our Public and Community Lands: Spatial Distribution of Exposure and Poisoning of a Rare Forest Carnivore. PLoS ONE 7(7): e40163

# Marijuana and the Environment

- The poison not only affects small animals that eat it but also larger animals that prey on them.
- Wildlife studies show that endangered animals are also being exposed and killed by these poisons.

Source: Gabriel MW, Woods LW, Poppenga R, Sweitzer RA, Thompson C, et al. (2012) Anticoagulant Rodenticides on our Public and Community Lands: Spatial Distribution of Exposure and Poisoning of a Rare Forest Carnivore. PLoS ONE 7(7): e40163

# Marijuana and the Environment

- August 2009 – LaBrea Wildfire: began in the Los Padres National Forest within the San Rafael Wilderness area in Santa Barbara County, CA and included surrounding county and private lands.
- Destroyed 89,000 acres of land.

# Marijuana and the Environment

- Per the US Forest Service, this fire was caused by an illegal cooking fire at the site of a recurring outdoor marijuana grow site.
- The grow site contained 20,000 marijuana plants.
- Per the US Forest Service the fire cost \$35 million (putting it out and resource damage).



# Restoring Mother Nature

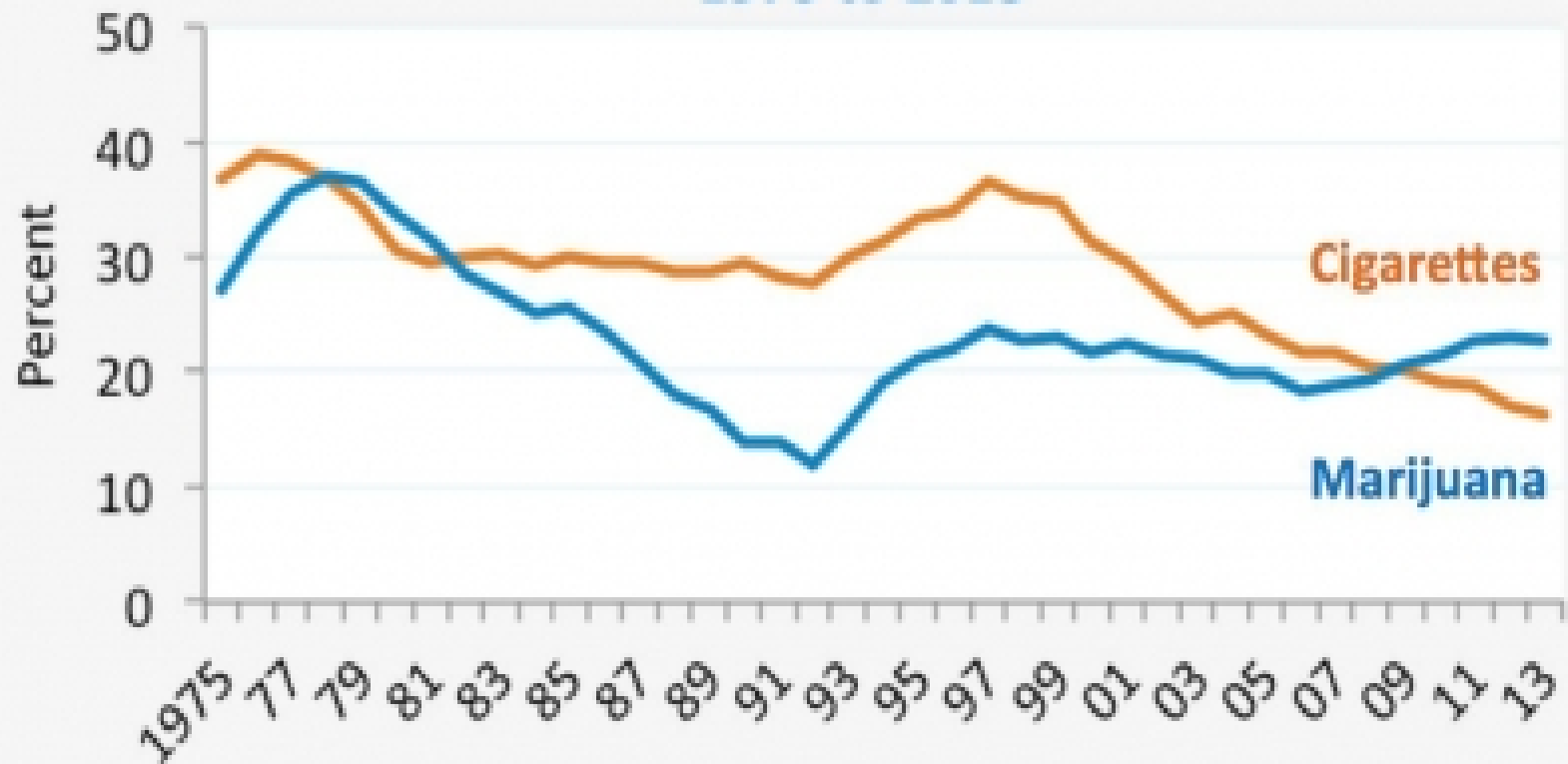
- Per the US Park Service it costs \$14,900 to \$17,700 per acre to clean-up and restore land damaged by illegal marijuana growing.
- Costs include removing and disposing hazardous waste, removing camp facilities, irrigation hoses and garbage, etc.

Source: Marijuana Site Reclamation and Restoration Cost Analysis." U.S. Department of Interior, National Park Service. December 9, 2010(unpublished data).

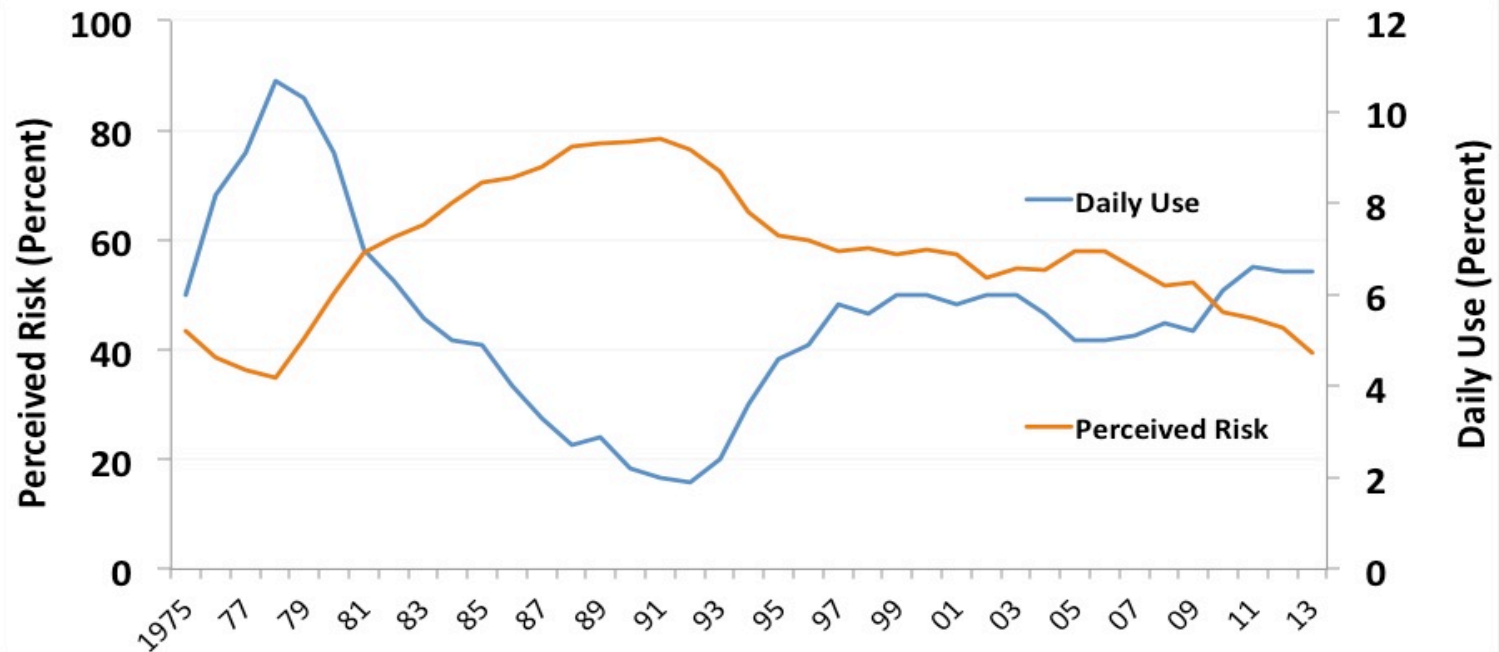


# Youth Marijuana Use in the United States: A Look at the Data

## Percentage of U.S. 12th Grade Students Reporting Past Month Use of Cigarettes and Marijuana, 1975 to 2013

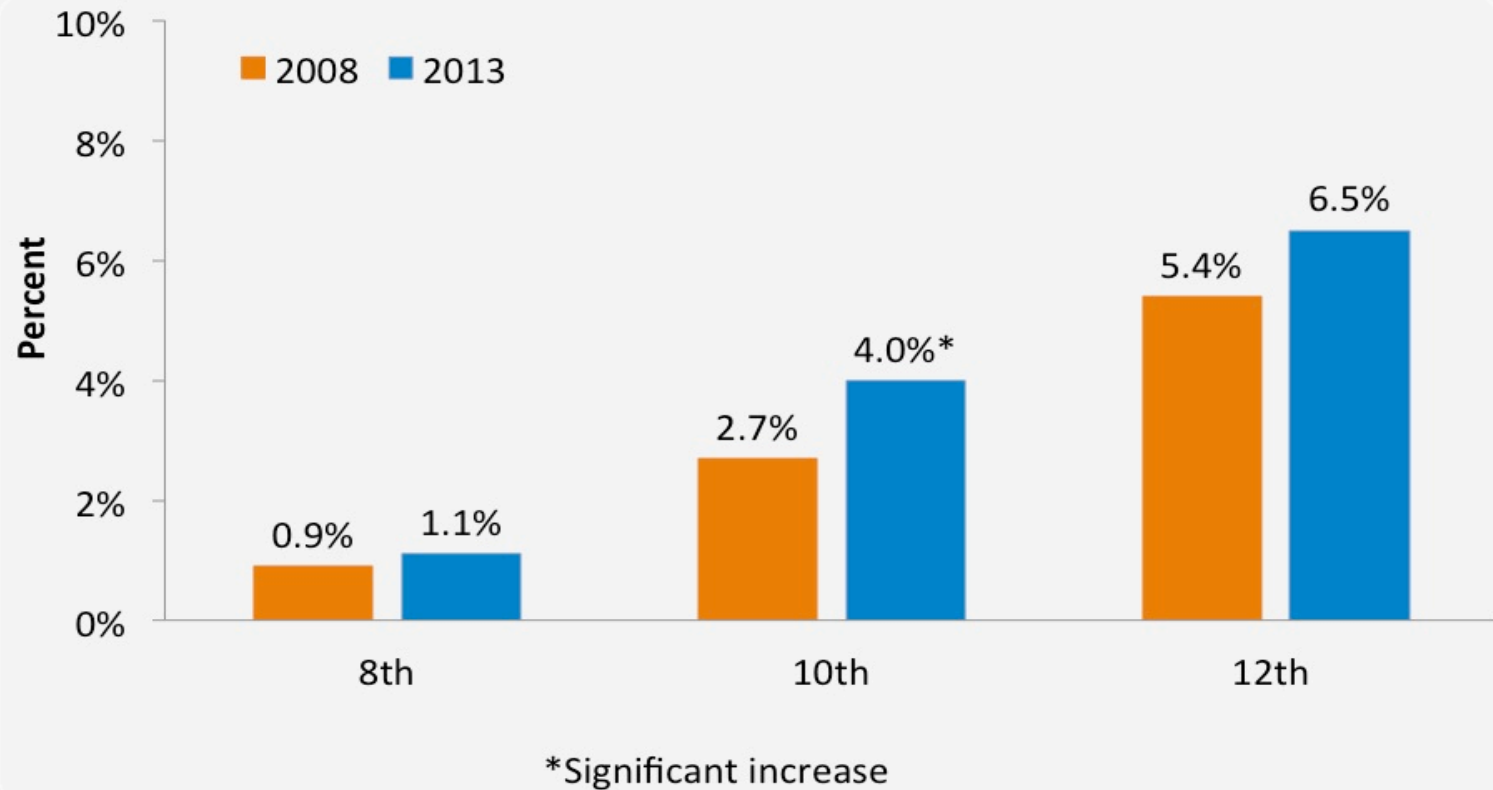


## Daily Marijuana Use vs. Perceived Risk of Regular Marijuana Use among 12<sup>th</sup> Graders, 1975-2013



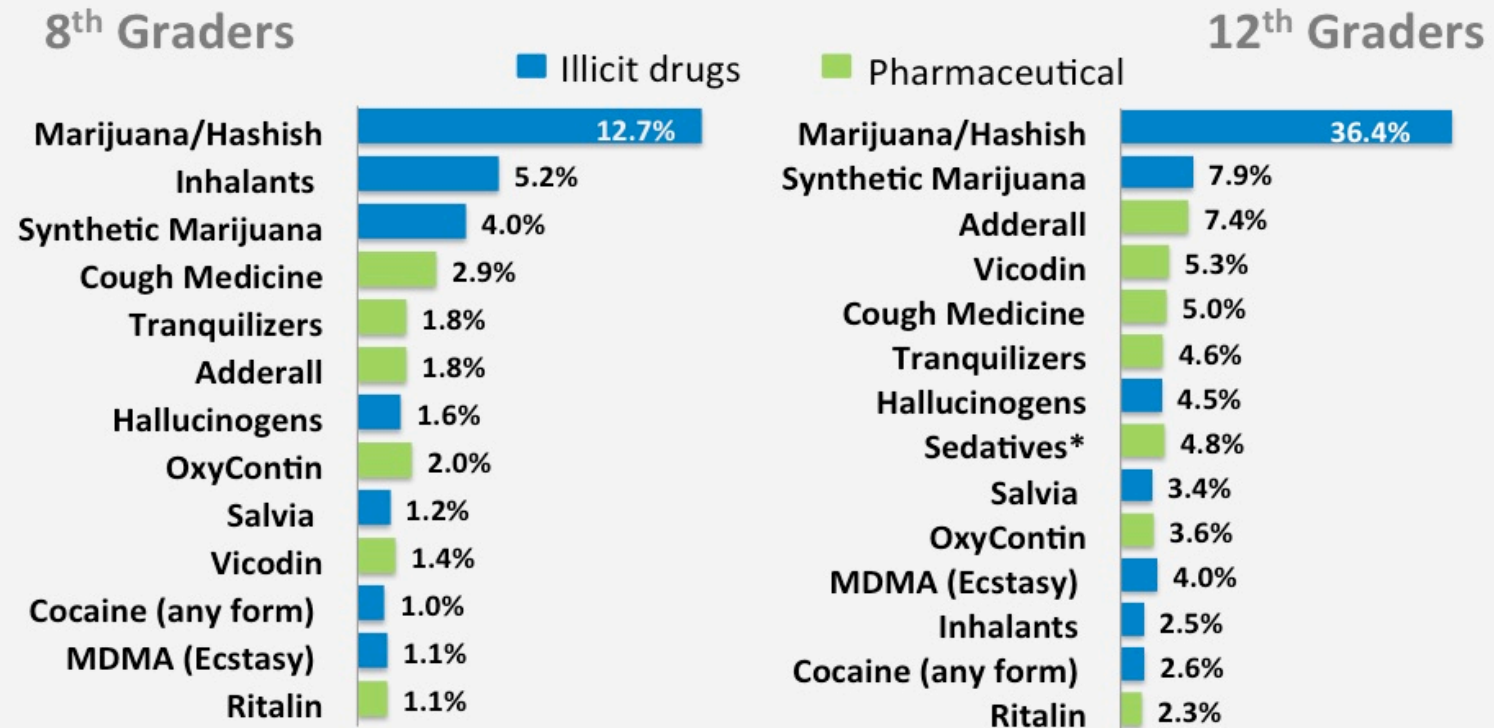
Source: University of Michigan, 2013 Monitoring the Future Study

## Five-Year Increase in Daily Marijuana Use among 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> graders



Source: University of Michigan, 2013 Monitoring the Future Study

## Top Drugs among 8<sup>th</sup> and 12<sup>th</sup> Graders, Past Year Use



\* Only 12<sup>th</sup> graders surveyed about sedatives use

Source: University of Michigan, 2013 Monitoring the Future Study



# Marijuana Use in Maine: A Look at the Data

# Youth and Young Adults

- ❖ **One in five** high school students reported using marijuana within the past month (*Maine Integrated Youth Health Survey , 2013*).

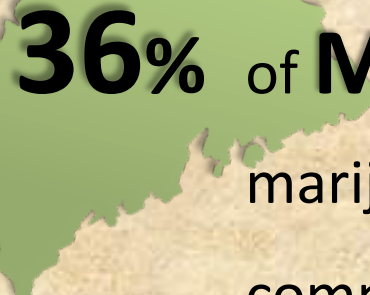


- **Similar rates** are seen within the young adult (18-25) population (*Behavioral Risk Factors Surveillance System, 2012*).

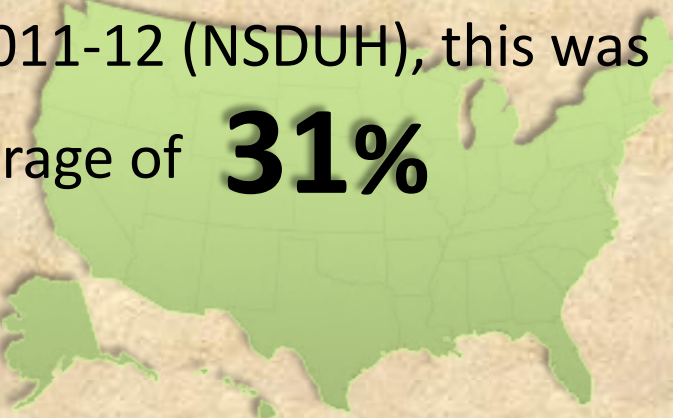




# National Comparison



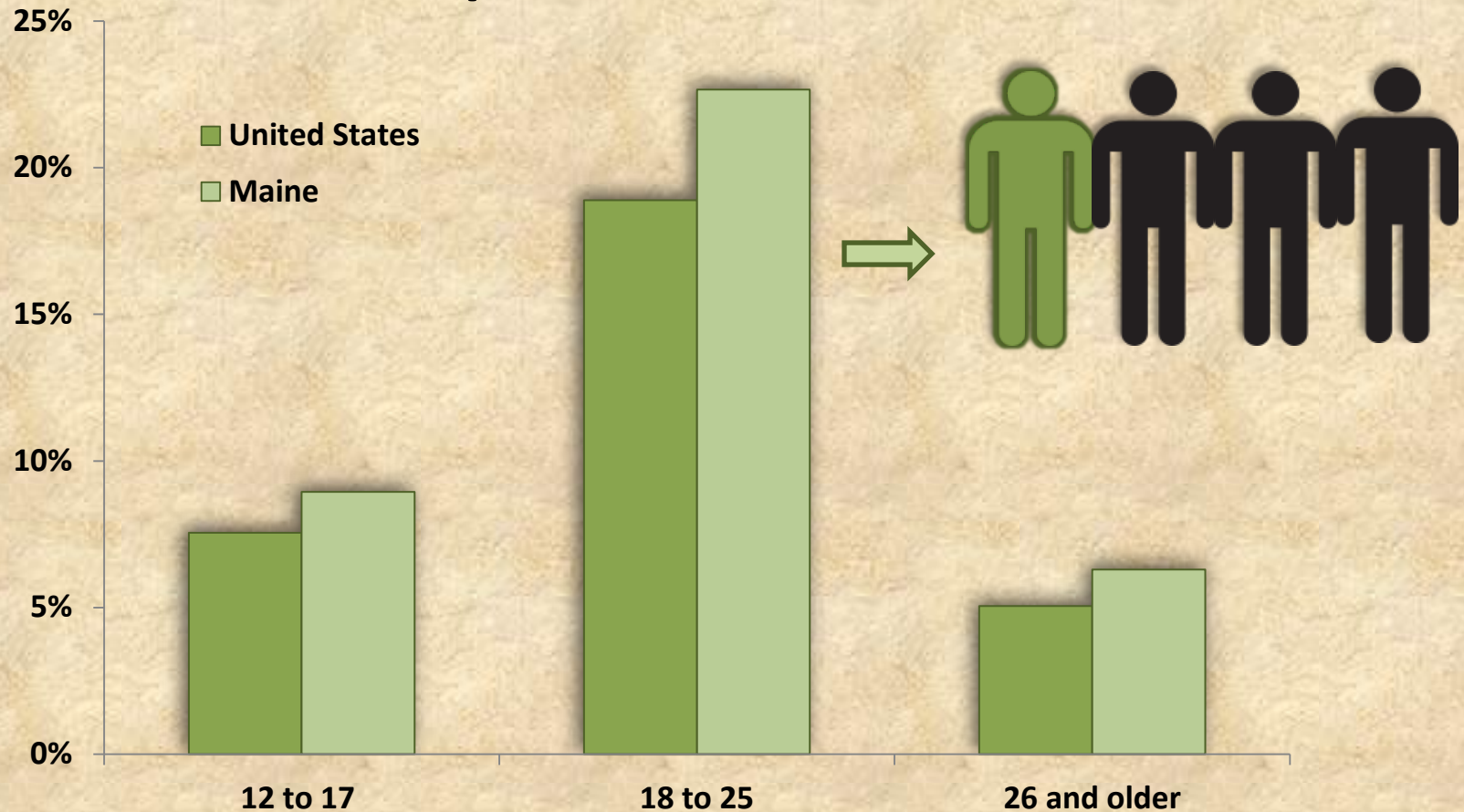
**36%** of **Maine** residents between **18 and 25** used marijuana in the **past year** in 2011-12 (NSDUH), this was compared to the **National** average of **31%**



❖ In 2011-12, **11%** of residents ages **26+** had used marijuana in the past year, compared to **8%** nationally .

# National Comparison

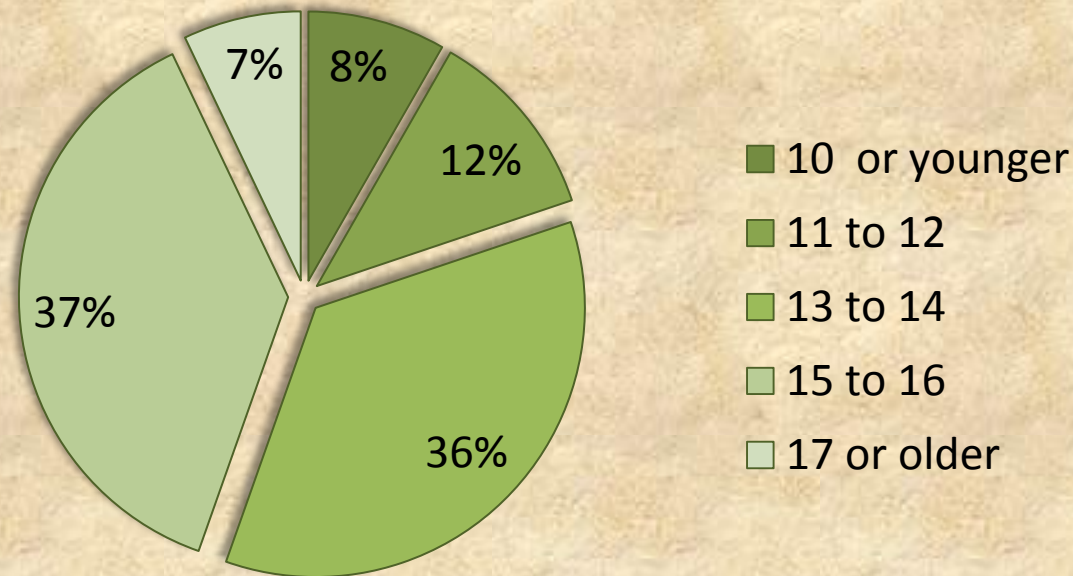
- ❖ About **One in four** (23%) Maine 18 to 25 year olds had used marijuana in the **past month** (NSDUH, 2011-12).



➤ Rates are expected to increase with the inception of medical marijuana.

# Initiation of Use

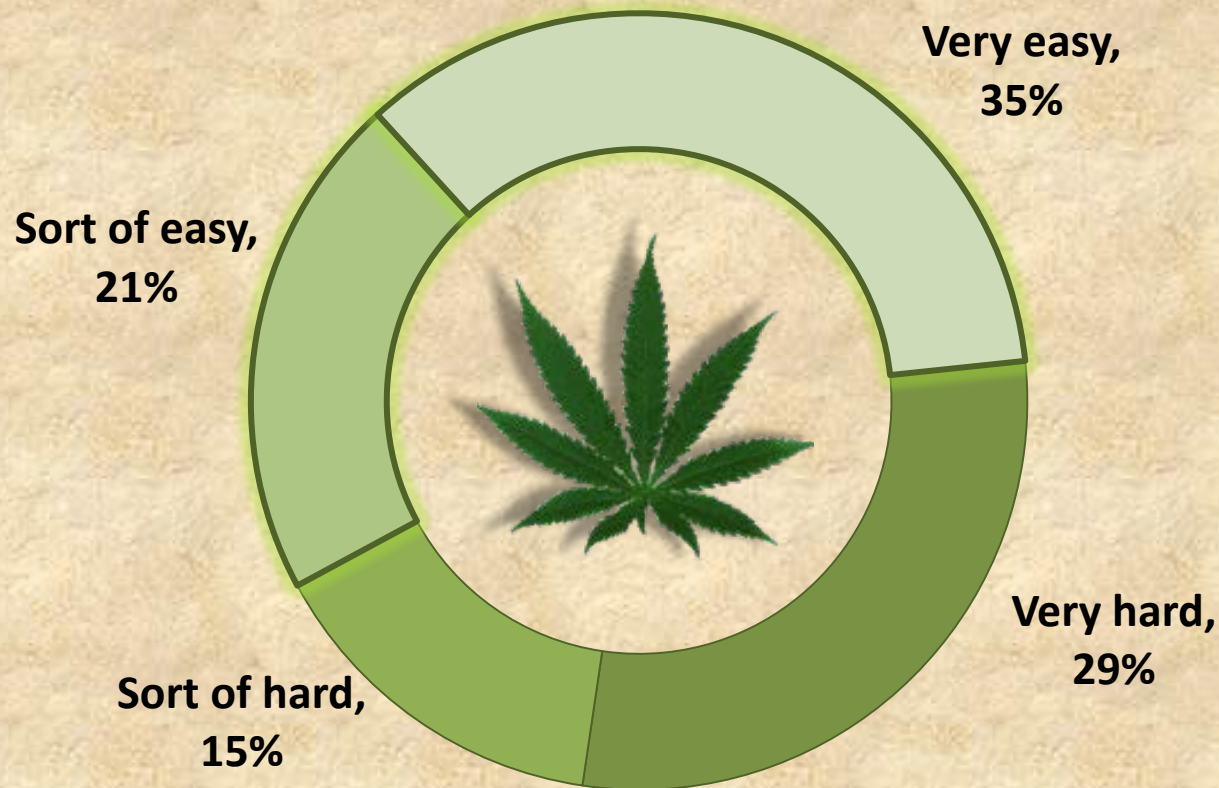
- ❖ In 2013, **73%** of high school students who had ever used marijuana first did so when they were between the ages **13 and 16** (MIYHS).



- **One in Five** tried marijuana for the first time **before the age of 13**.

# Availability

2013



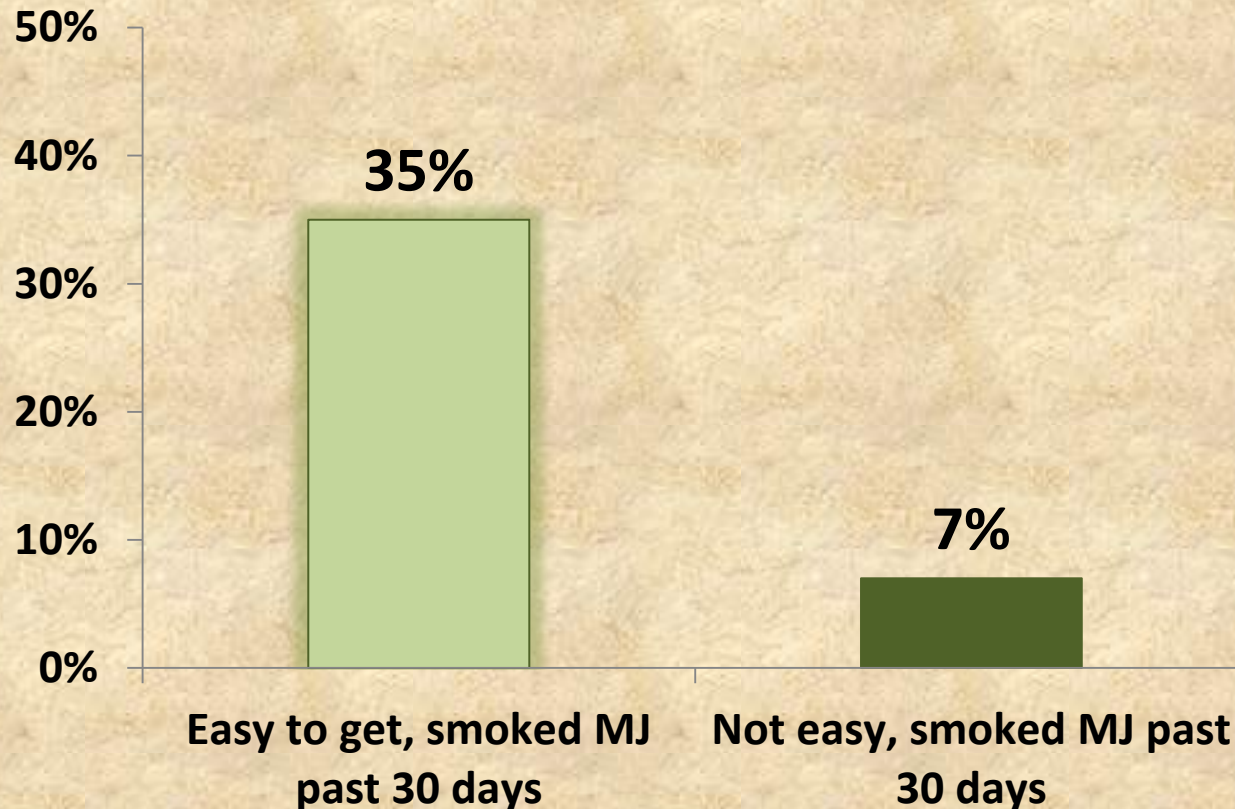
❖ In 2011, **over half (56%)** of high school students felt it would be **easy to get** (MIYHS).

❖ Remained stable since 2009



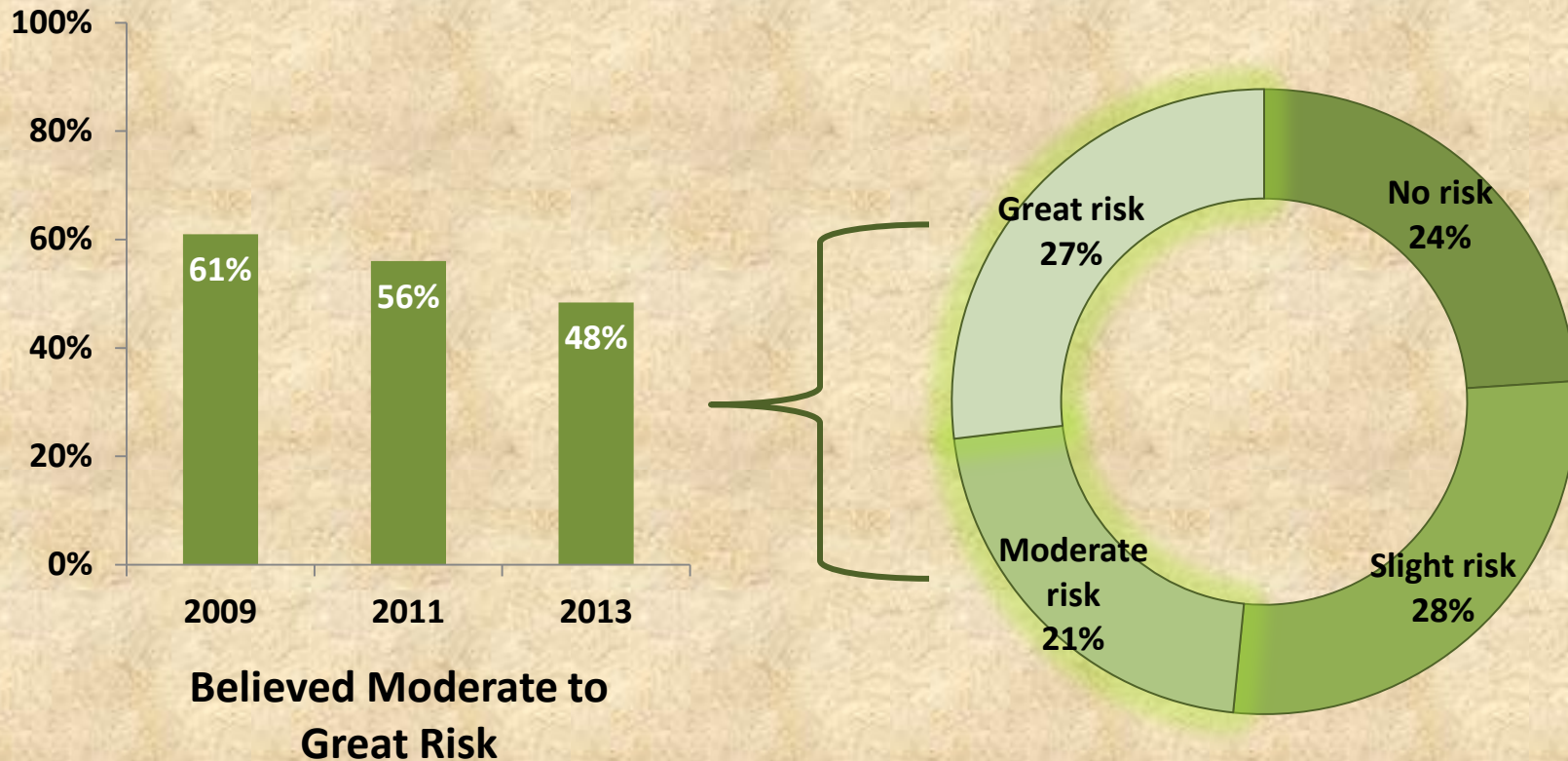
# Availability

❖ Students who thought marijuana was **easy to obtain** were **7x** as likely to use marijuana (MIYHS, 2013).



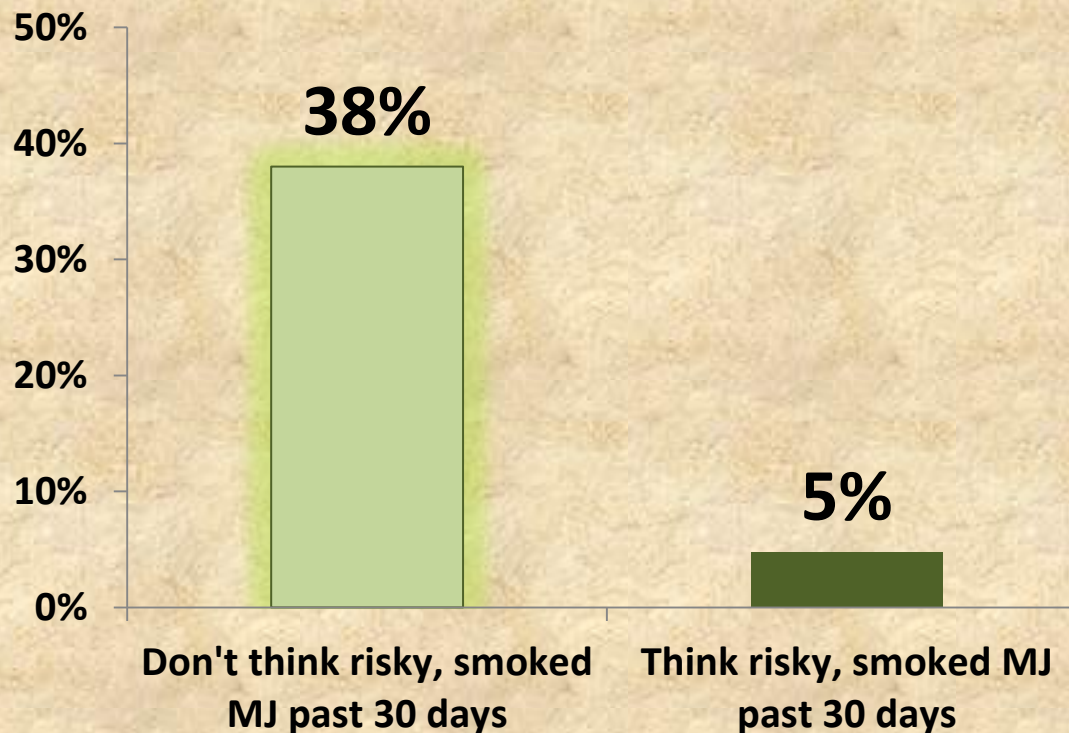
# Perception of Harm

❖ Students who thought smoking marijuana regularly was **risky** decreased from **61%** in 2009 to **48%** in 2013 (MIYHS).



# Perception of Harm

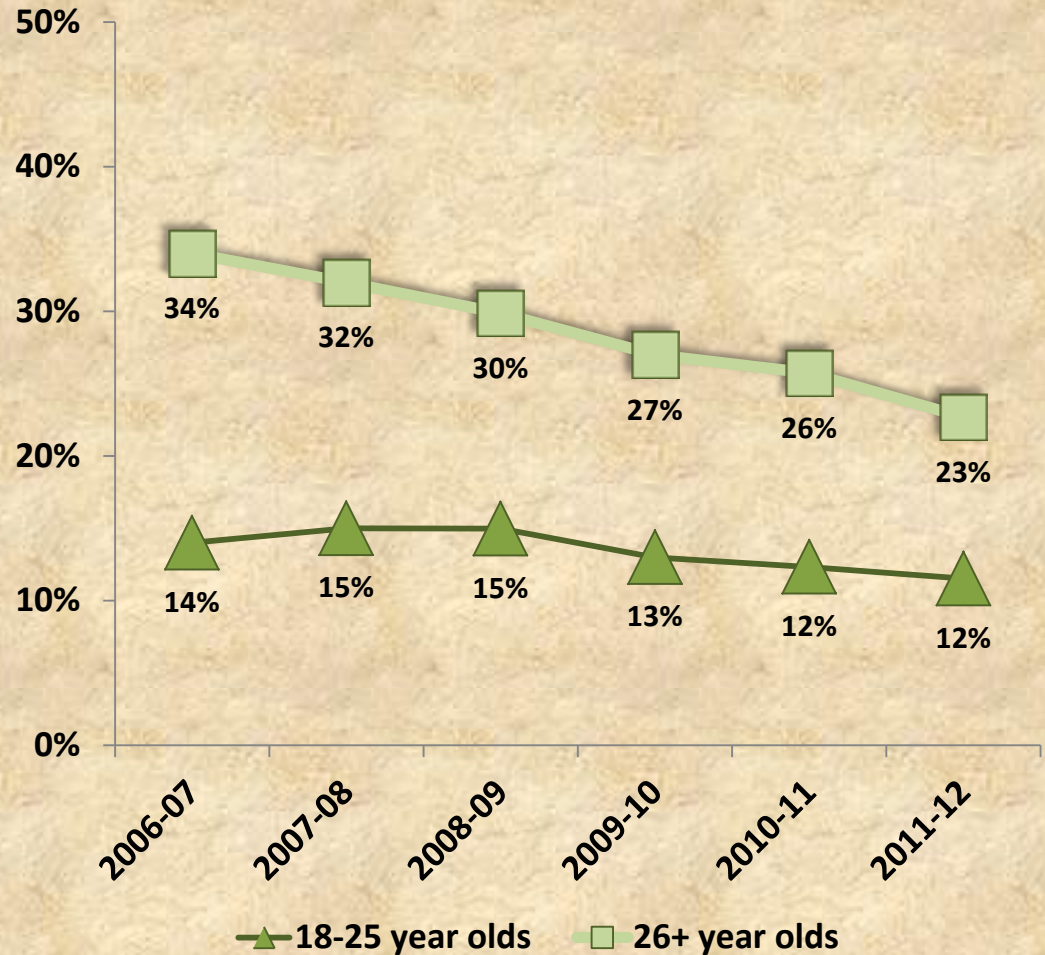
❖ High school students who think there is **no risk** to a **slight risk** in smoking marijuana regularly are **7.6x** as likely to smoke marijuana (MIYHS, 2013).



# Perception of Harm

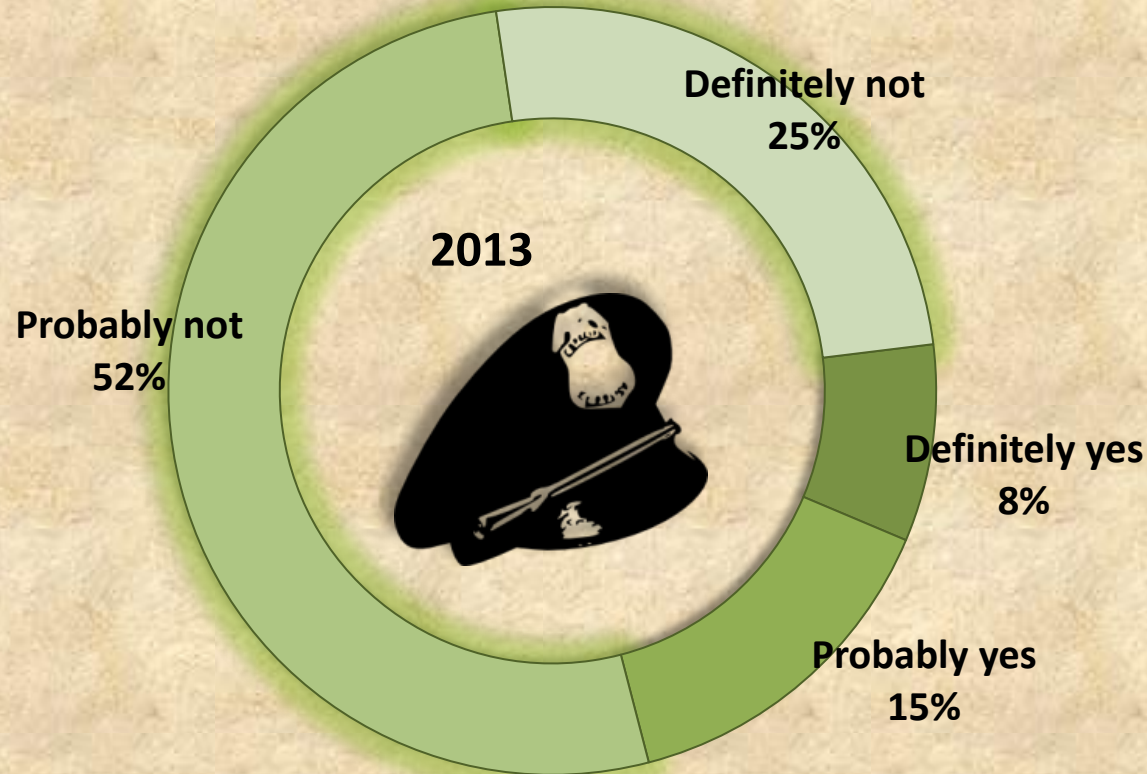
▲ In the 2011-12, **12%** of adults ages **18 to 25** perceived a **great risk** in smoking marijuana once per month (NSDUH).

■ Among adults aged **26+**, perceptions of **risk** have decreased by 11 percentage points since 2006-07.





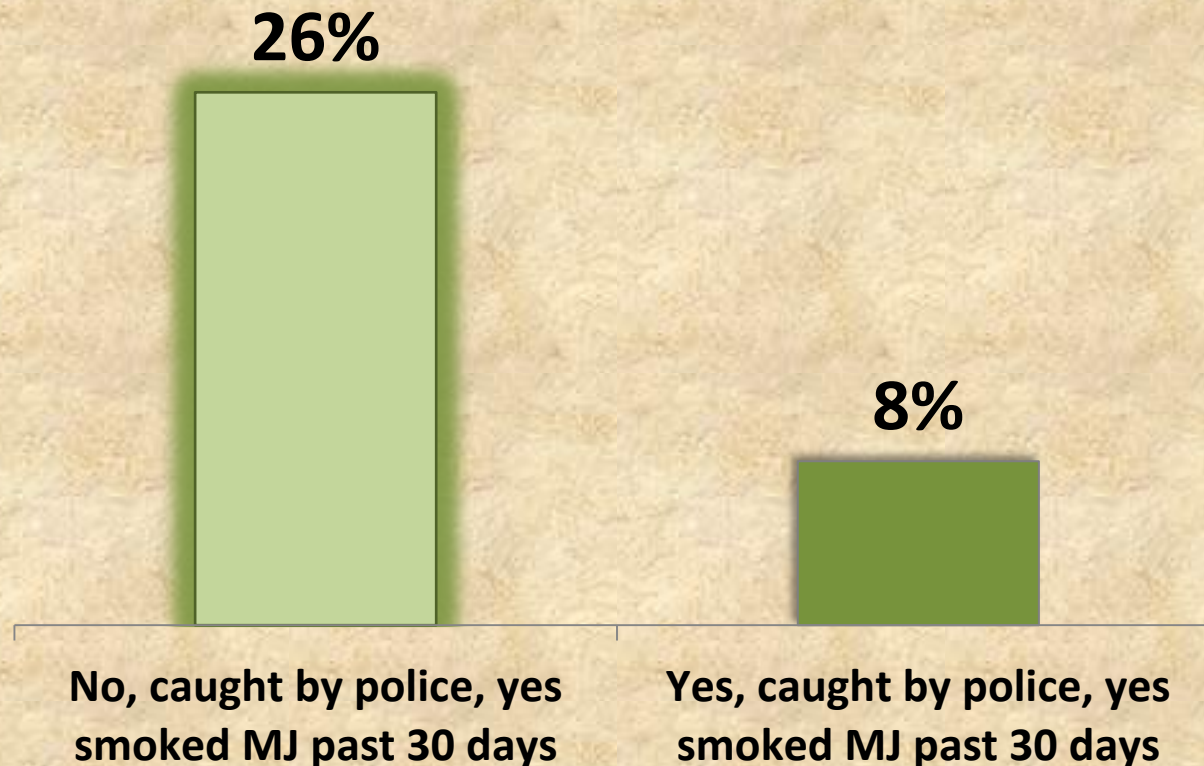
# Perception of Enforcement



❖ In both 2013, **77%** of high school students felt kids in the community would **not be caught by police** for smoking marijuana (MIYHS).

# Perception of Enforcement

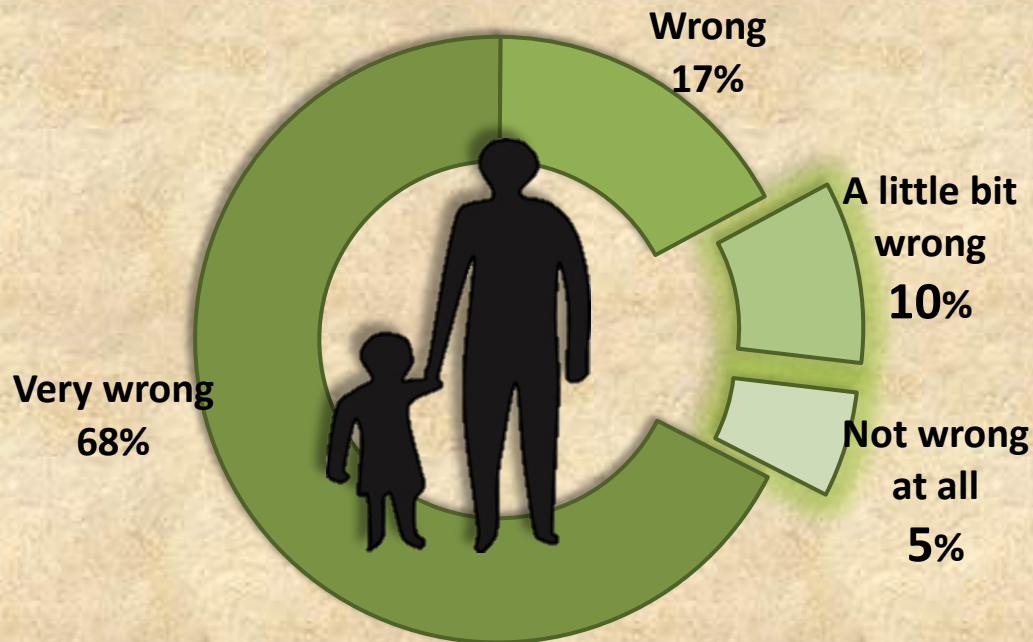
- ❖ Students who did **not** think that they would be **caught by the police** were more than **3x** as likely to smoke marijuana.



# Community and Social Norms



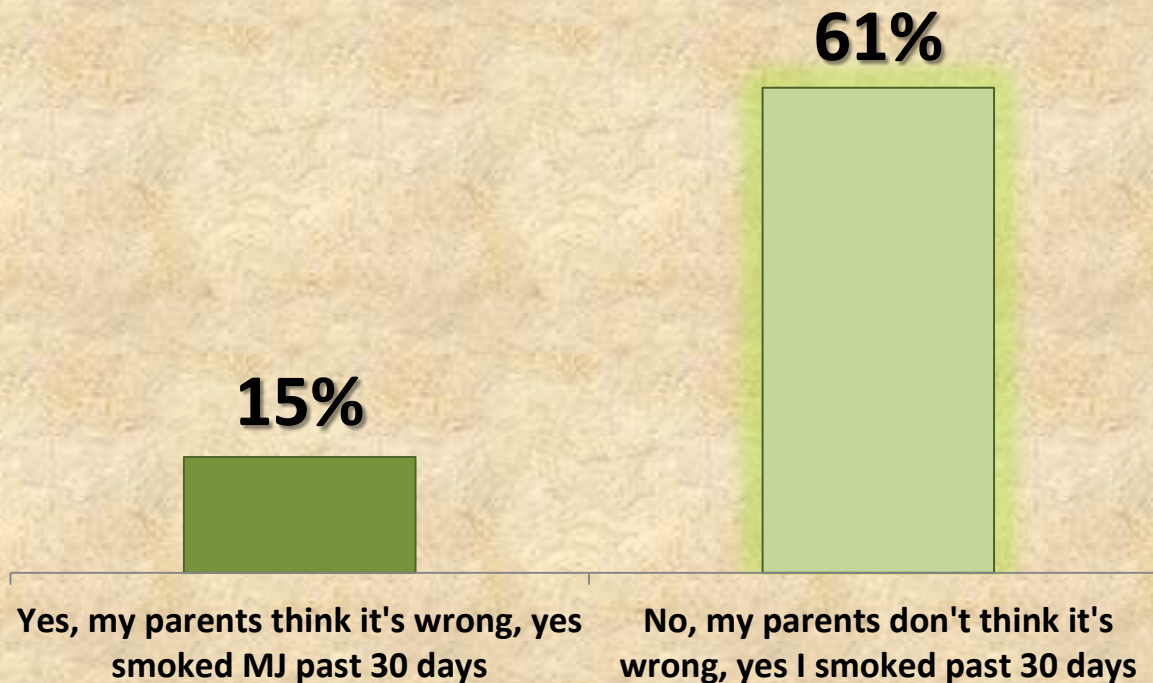
❖ In 2013, **39%** of students thought they would be seen as **“cool”** if they smoked marijuana (MIYHS).



❖ In 2013, **15%** of students reported that their **parents** would **not** feel it would **be wrong** for them to smoke marijuana (MIYHS).

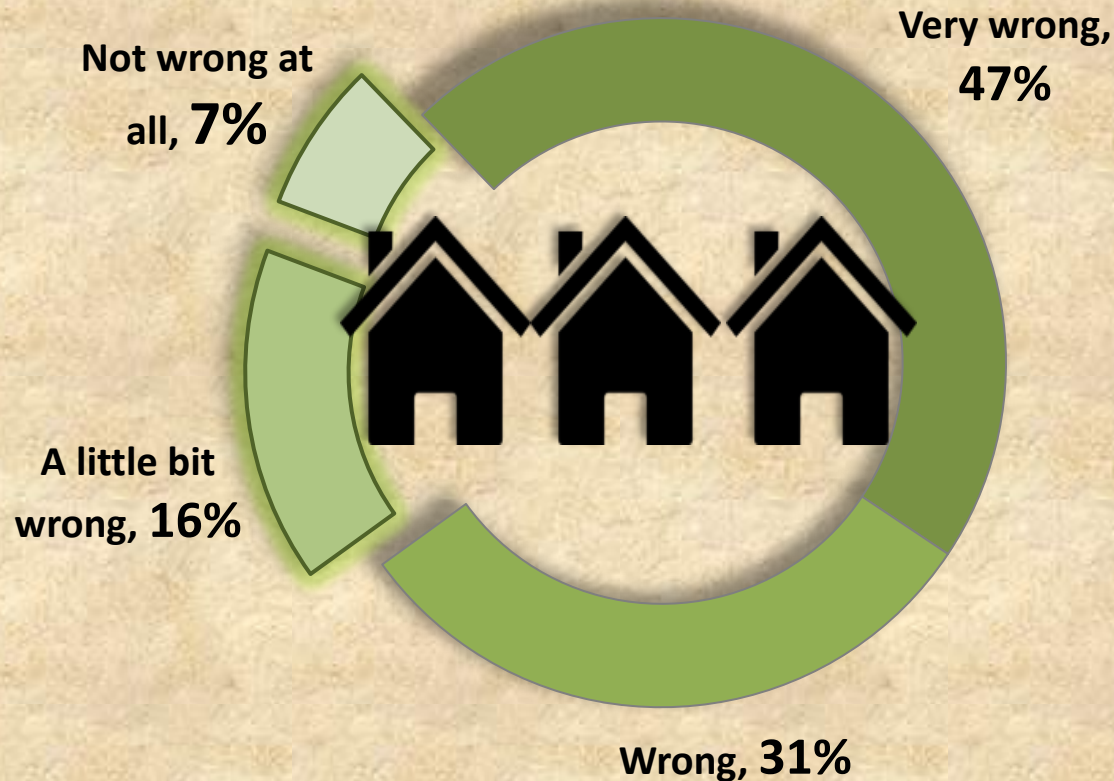
# Community and Social Norms

- ❖ High school students who believe their parents **don't** feel it is wrong for them to smoke marijuana were **4x** as likely to use (MIYHS, 2011).





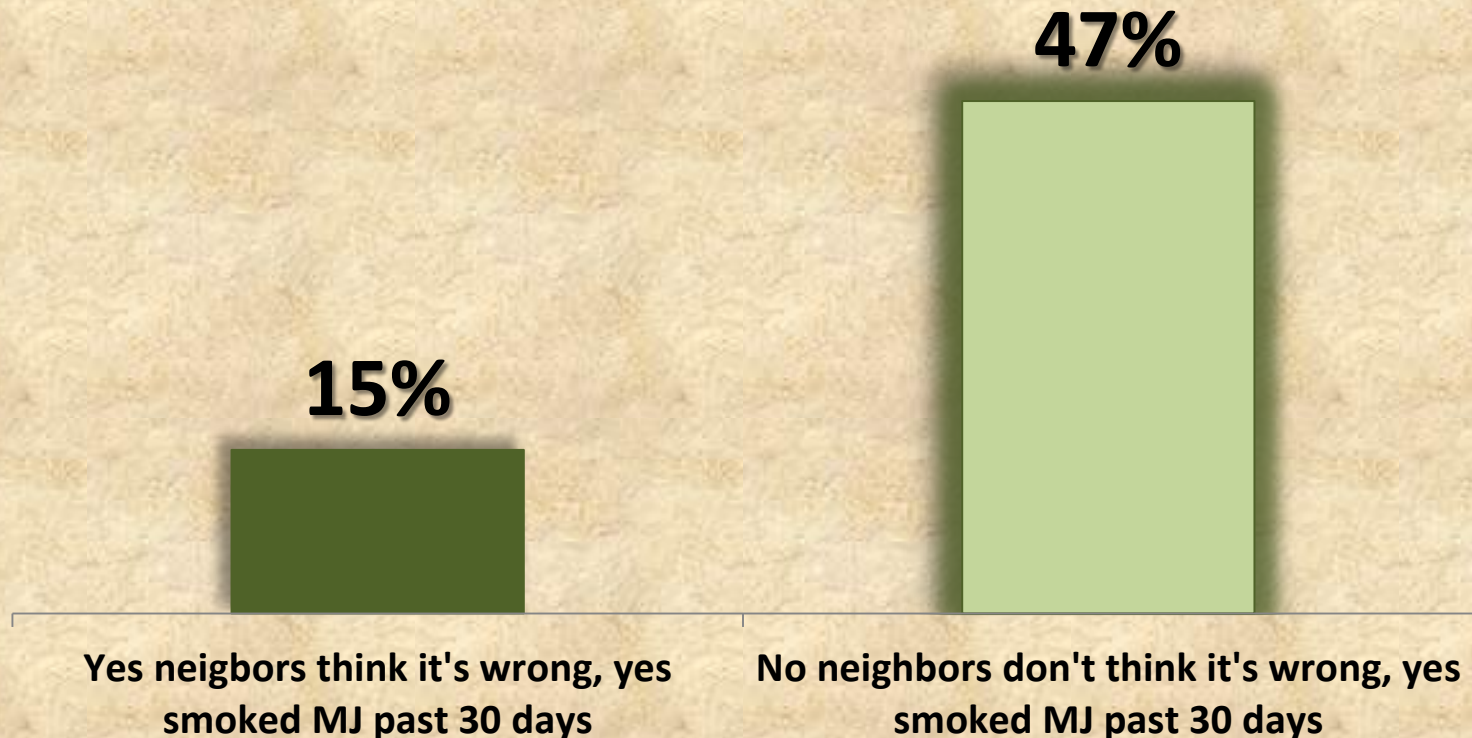
# Community and Social Norms



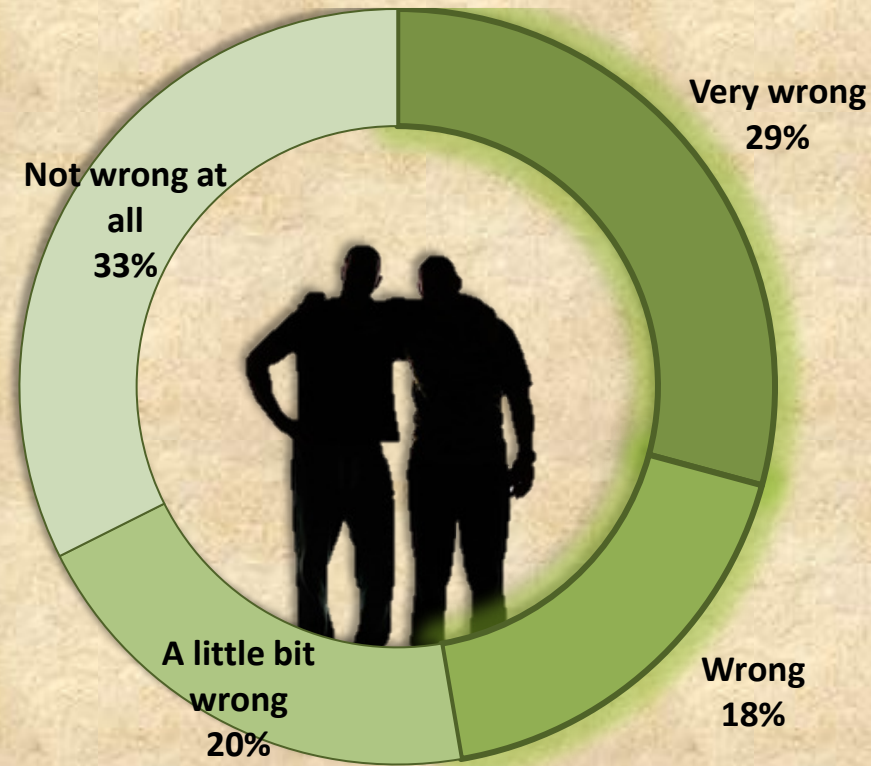
- ❖ Almost **one in four** students thought that **adults in their community** would **not** feel it would be wrong to smoke marijuana (MIYHS, 2011).

# Community and Social Norms

❖ Students who think adults in their neighborhood do not think it is wrong for kids to use marijuana are **3X** as likely to use it as their peers (MIYHS, 2011).



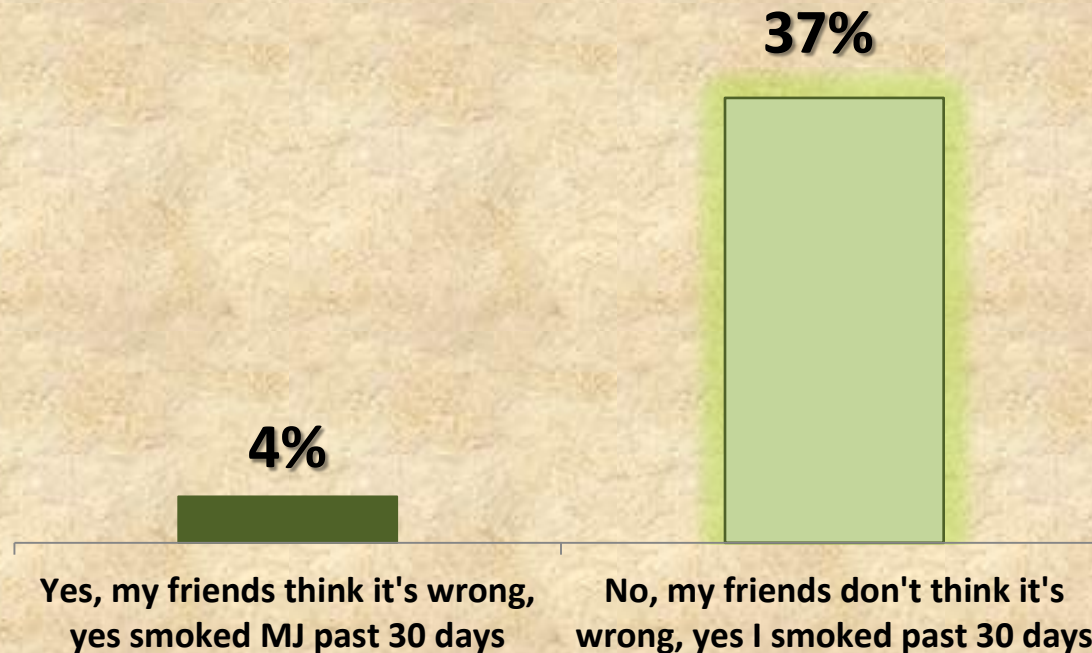
# Community and Social Norms



❖ More than **half** (53%) of students thought that **their friends would not** feel it would be wrong to smoke marijuana (MIYHS, 2013).

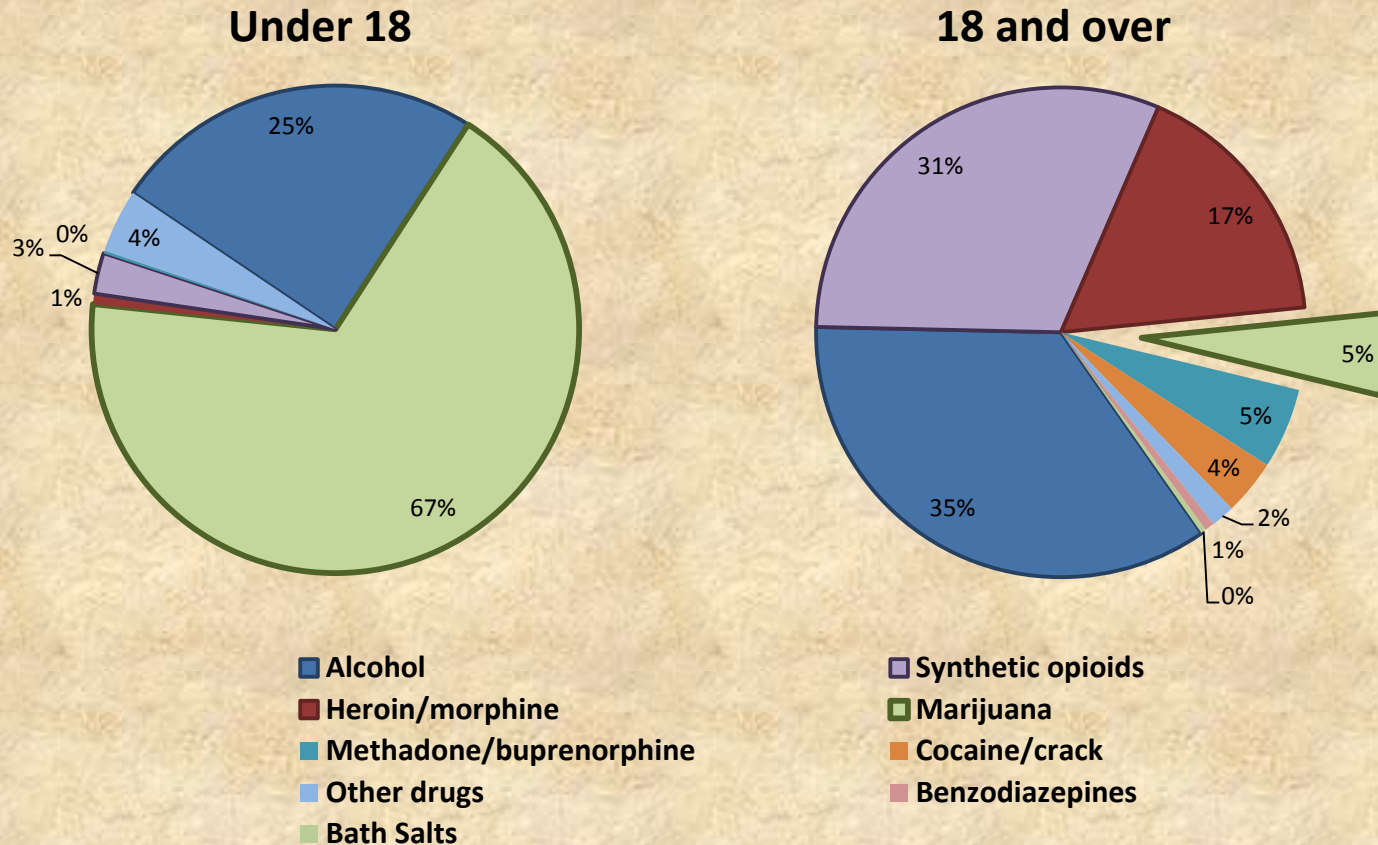
# Community and Social Norms

❖ Students who think **friends do not** think it is wrong for them to use marijuana are almost **10x** as likely to use it as their peers (MIYHS, 2013).



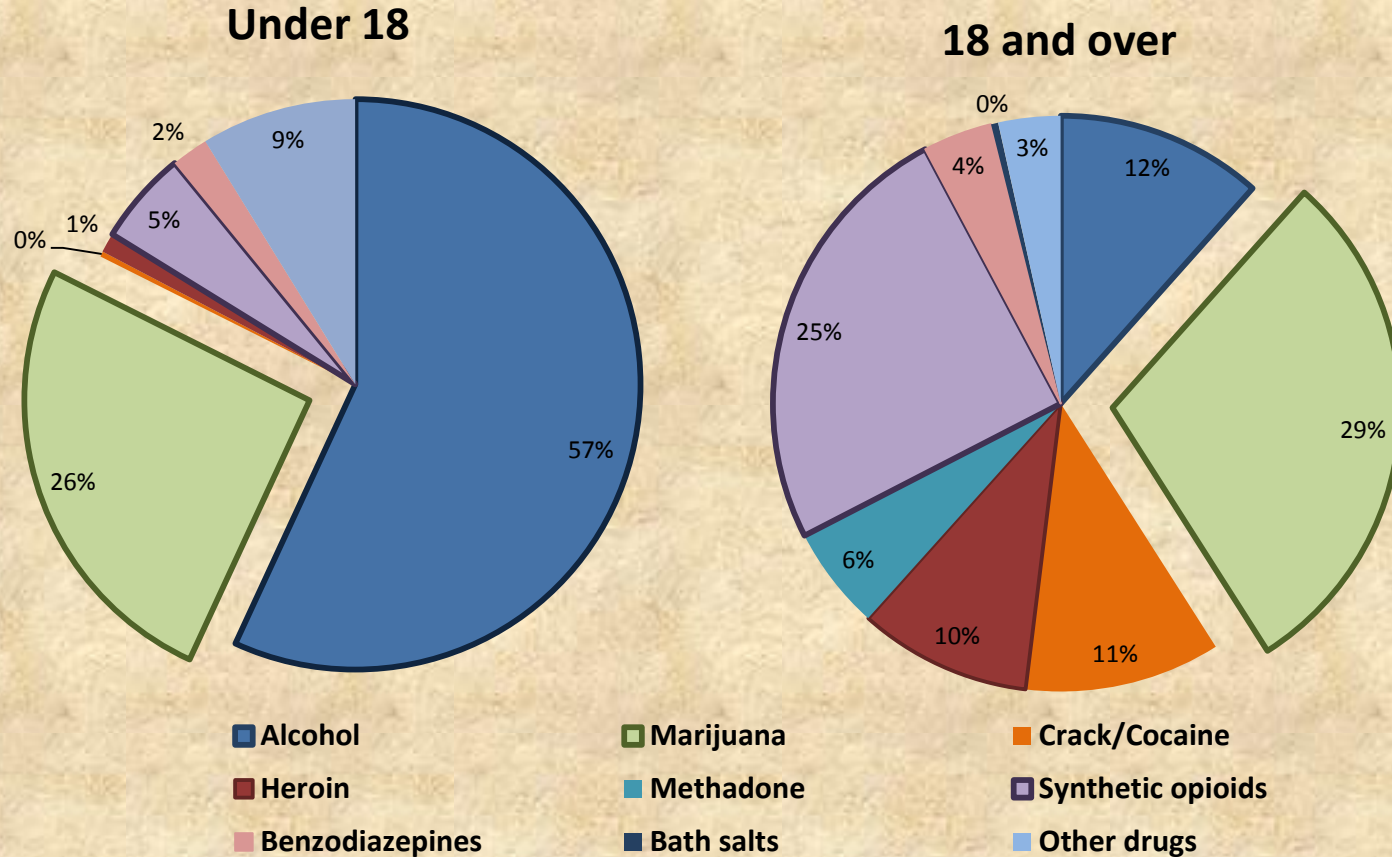


# Primary Drug Admissions (TDS, 2013)



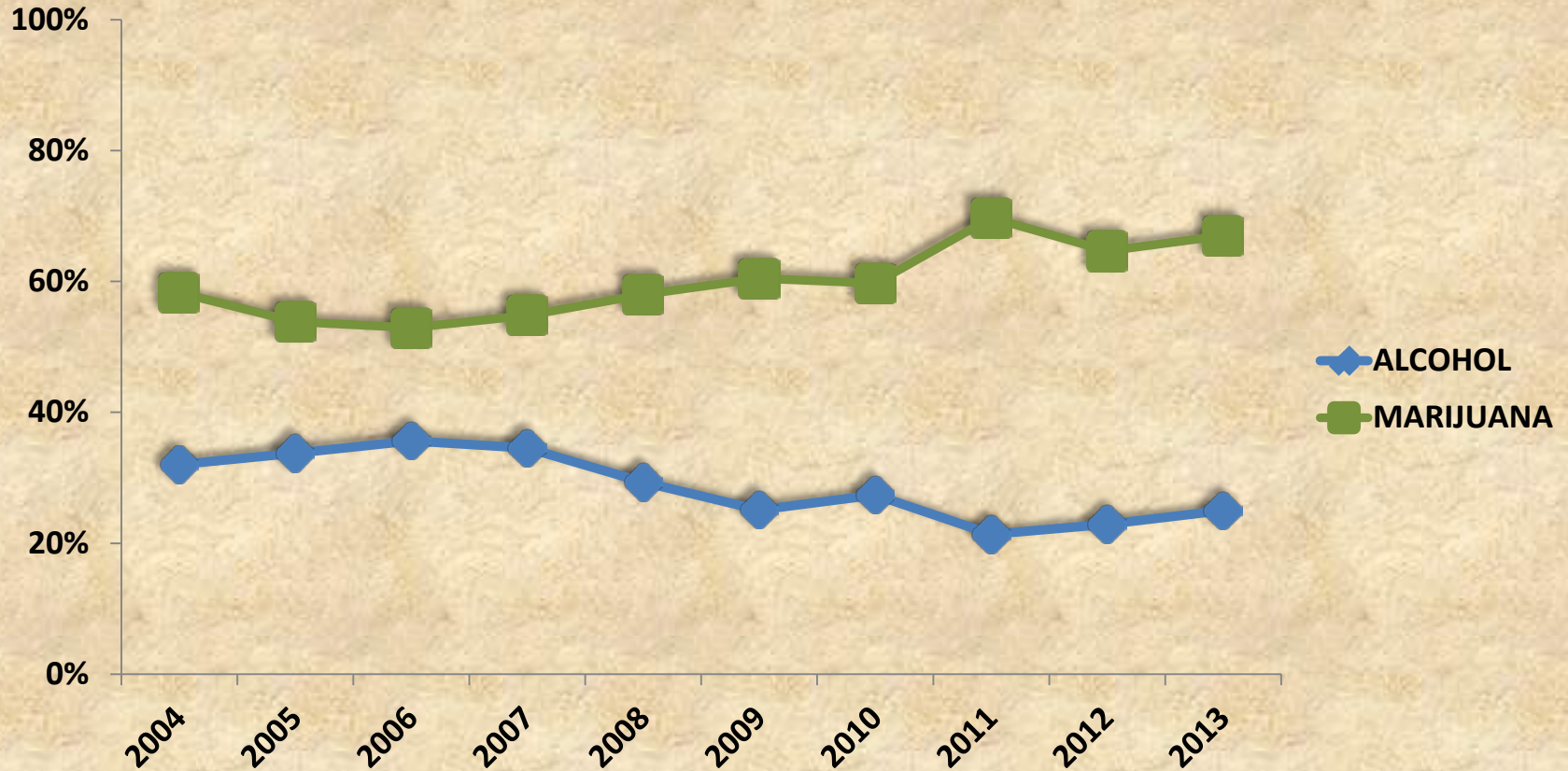
❖ In 2013, **Marijuana** accounted for **67%** of primary treatment admissions for **under 18** and **5%** for adults **18 and over**.

# Secondary Drug Admissions (TDS, 2013)



❖ In 2012, **Marijuana** accounted for **26%** of secondary treatment admissions for **under 18** and **29%** for adults **18 and over**.

# Percentage of Primary Admissions for 18 and Under by Substance (TDS, 2004-2013)



◆ Since 2006, as the proportion of primary admissions related to **alcohol** have **decreased** and admissions related to **marijuana** have been **steadily increasing**.



# Marijuana Use and Prevention:

What can parents do to help  
prevent Marijuana use ?

What can the community do  
to help prevent Marijuana use?

## Parents

### Talk to your child about MJ use

- ❖ Talk to your child about marijuana BEFORE you suspect they are experimenting. Studies show that youth are most likely to initiate marijuana use between the ages of 13 and 15 - and during this time parents have the most influence over their behavior. After age 15, teens tend to base their decisions more on peer influences.
- ❖ Before you talk to your teen, make sure you speak their language. Visit the virtual teen room to learn more:

<http://www.maineparents.net/Teenroom/index.shtml>

## Parents:

### Talk to your child about MJ use

- ❖ If you think your child has been using marijuana, ask them about it immediately. Kids say that losing their parents' respect and trust are the most important reasons not to use drugs.



- ❖ Help your child to understand ALL of the consequences of marijuana use – including physical, legal, learning, and future success.

# Parents

## Tips for talking with your child

- Encourage your teen to tell you how he or she thinks and feels about the issue you're discussing.
- If you hear something you don't like, try not to respond with anger. Instead, take a few deep breaths and acknowledge your feelings in a constructive way.
- If you show respect for your teen's viewpoint, he or she will be more likely to listen to and respect yours.

# Parents

## Tips for talking with your child

- Your kids may know more about marijuana than you expect. Be prepared; educate yourself and listen.
- Encourage conversation including talking about his or her interests.
- Listen without interruption and control your emotions.



# Parents

## Tips for talking with your child:

- Give your child a chance to teach you something new.
- Active listening paves the way for conversations about topics that concern you.
- Ask open-ended questions and avoid questions with a simple yes or no answer.

## Parents

### Tips for talking with your child:

- **What if they ask "did you use?"**
- Tell the truth.
- Don't glamorize or detail.
- Focus on your child's present and future decisions.
- If you didn't use explain why and what you saw with those who did.

# Parents

## Signs your child may be using

Marijuana produces a wide variety of signs and symptoms. Some acute symptoms of use are:

Dry mouth

Intense food cravings

Red eyes

Panic attacks  
demeanor

Sweaty palms

Dazed/slow

# Parents

## Signs your child may be using

- Withdrawn, depressed, tired, and careless about personal grooming.
- Hostile and uncooperative; and frequently breaks curfews.
- Relationships with family members have deteriorated.
- Hanging around with a new group of friends.
- Grades have slipped, and his or her school attendance is irregular.
- Lost interest in hobbies, sports, and other favorite activities.
- Eating or sleeping patterns have changed; he or she is up at night and sleeps during the day.
- Has a hard time concentrating.

# Community Members

- Become a member of your local Healthy Maine Partnership.
- Learn more about the risks of marijuana use.
- Educate others about the risks of marijuana use.
- Understand what is happening in your community and get involved in spreading awareness.



# SAMHS Resources

- Drug fact sheets:

[http://www.maine.gov/dhhs/samhs/osa/irc/drugfact\\_sheets.htm](http://www.maine.gov/dhhs/samhs/osa/irc/drugfact_sheets.htm)

Adolescent Risk with Marijuana Use (pdf)

Marijuana and Driving (pdf)

Marijuana Use in Maine --CESN, 2012 (pdf)

NASADAD Marijuana Fact Sheet (pdf)

- Find Out More, Do More: Maine Parents page:

[www.maineparents.net](http://www.maineparents.net)

- Teen Room

[www.maineparents.net/Teenroom/index.shtml](http://www.maineparents.net/Teenroom/index.shtml)

These slides contain research findings of the originators, should you need the articles, please contact your SAMHS project officer.

# COMMENTS?