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Cannabis Roundtable

Impact of Cannabis legalization on Public Health

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A New Frontier

“Unlike with substances such as alcohol or tobacco, no accepted standards exist to help guide individuals as they make choices regarding if, when, where, and how to use cannabis safely and, in regard to therapeutic uses effectively.”

-National Academies of Sciences, Engineering, and Medicine



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Objectives

- Outline Public Health issues
 - Pregnancy and breastfeeding
 - Youth use
 - Drugged driving and motor vehicle crashes
 - Overdoses
- Discuss medical evidence that demonstrates support or harm of use
- Education and policies to consider to mitigate risks



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Public Health Issues



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Pregnancy and Breastfeeding

- Substantial evidence of statistical association between maternal cannabis smoking and lower birth weight
- Limited evidence for NICU admission or pregnancy complications
- Tetrahydrocannabinol (THC) can potentially affect fetal brain development and future cognition
- THC can also be present in breast milk for a long time





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Cannabis Youth Use: Napa County Baseline

Cannabis Use in Lifetime by Grade Level, 2011-2013

	7 th Grade	9 th Grade	11 th Grade	TOTAL
CA	10.0%	25.8%	41.9%	27.8%
Napa	10.1%	32.2%	49.2%	34.3%
Marin	9.4%	27.5%	54.4%	30.8%
Sonoma	6.5%	30.1%	50.1%	37.0%
Solano	12.8%	31.2%	45.8%	29.5%

*Source: California Healthy Kids Survey (CHKS) 2011-2013





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Youth Use in Colorado

Figure 1. Prevalence of Ever and Current Marijuana Use For High School Students in Colorado Compared to the National Prevalence, 2005-2015.



Produced by: EEOHT, CDPHE 2016

*Black bars indicate margins of error (95% Confidence Intervals).

†Ever Use is defined as marijuana use at least one time during a student's lifetime and Current Use is defined as marijuana use at least once in the past 30 days.

‡Data Source: Healthy Kids Colorado Survey (HKCS) prevalence estimates for 2005-2015 and Youth Risk Behavioral Survey prevalence estimates for 2005-2015. Note: Data for the year 2007 was not included due to low sample size.



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Drugged Driving and Motor Vehicle Crashes

- Substantial evidence of association between cannabis use and increased risk of motor vehicle crashes
- Some studies have shown that drivers with THC twice as likely to be responsible for a deadly crash or be killed than drivers who had not used drugs or alcohol.
- Large NHTSA study found no significant increased crash risk traceable to marijuana after controlling for drivers' age, gender, race, and presence of alcohol.





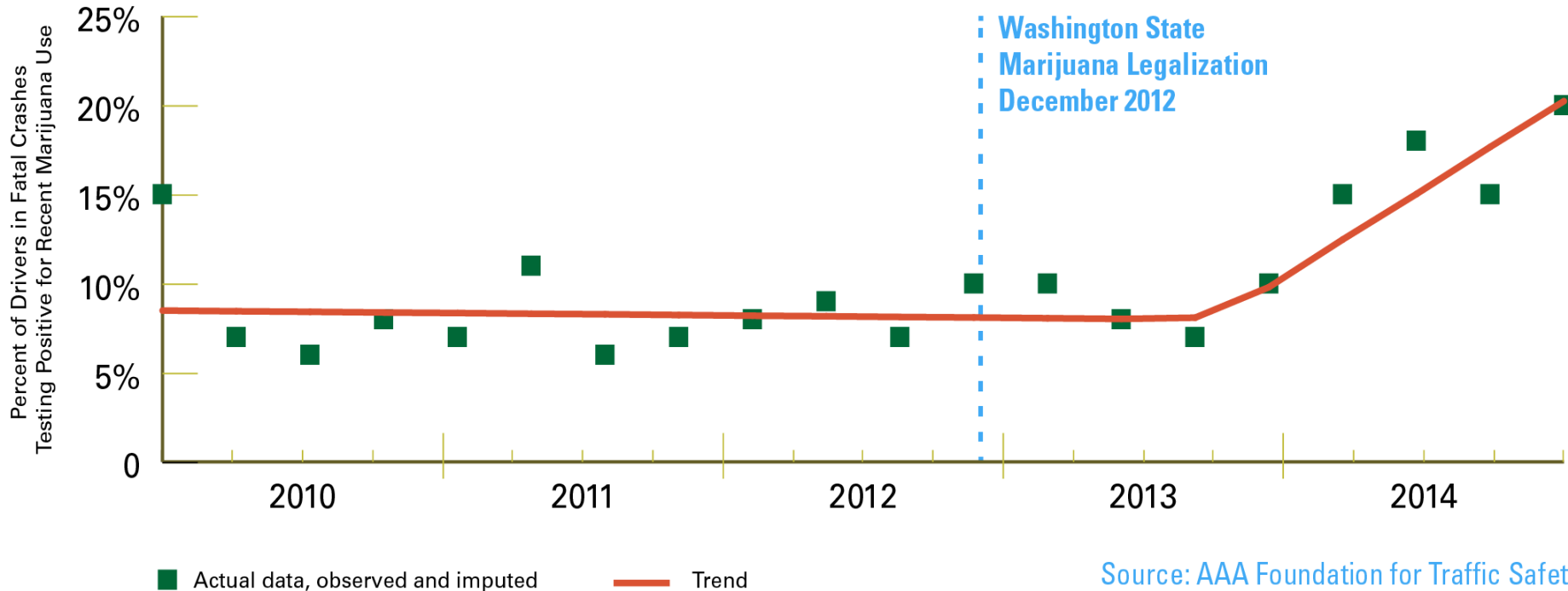
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Drugged Driving and Motor Vehicle Crash Fatalities – Washington State

Fatal Road Crashes Involving Marijuana Double After State Legalizes Drug



FATAL CRASHES INVOLVING DRIVERS WHO RECENTLY USED MARIJUANA DOUBLED IN WASHINGTON AFTER THE STATE LEGALIZED THE DRUG IN 2012.

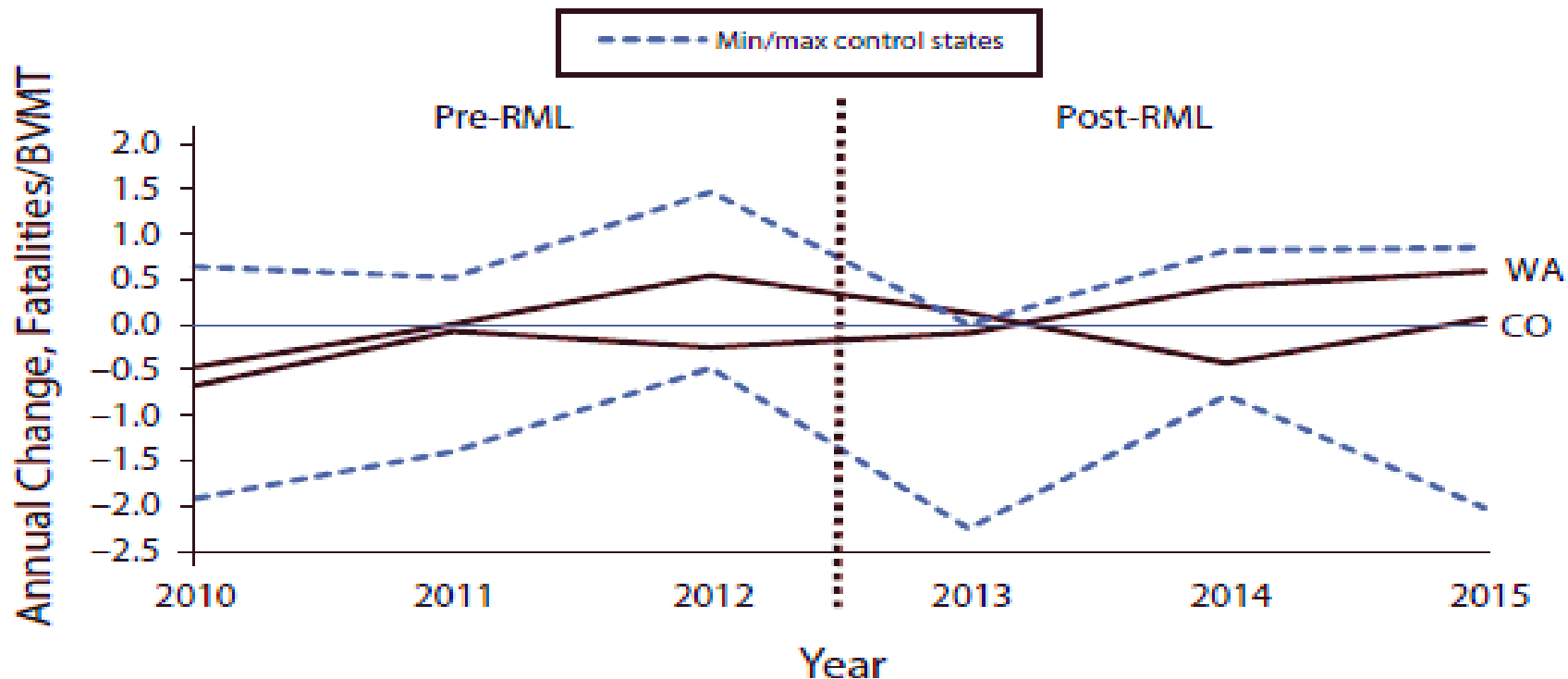


Source: AAA Foundation for Traffic Safety



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Drugged Driving and Motor Vehicle Crash Fatalities



Note: min = minimum; max = maximum.

FIGURE 1—Annual Year-Over-Year Changes in Motor Vehicle Crash Fatality Rates per Billion Vehicle Miles Traveled (BVMT) Before and After Recreational Marijuana Legalization (RML): Washington (WA), Colorado (CO), and 8 Control States, 2010–2015



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Cannabis Use Risk of Physical Injuries and Death

- There is no or insufficient evidence to support or refute an association between cannabis use and all cause mortality (self-reported cannabis use)
- No evidence or insufficient evidence for occupational accidents or injuries for general, non-medical cannabis use





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Overdose Injuries

- There is moderate evidence of a association between cannabis use and increased risk of overdose injuries, including respiratory distress, among pediatric populations in US States where cannabis is legal

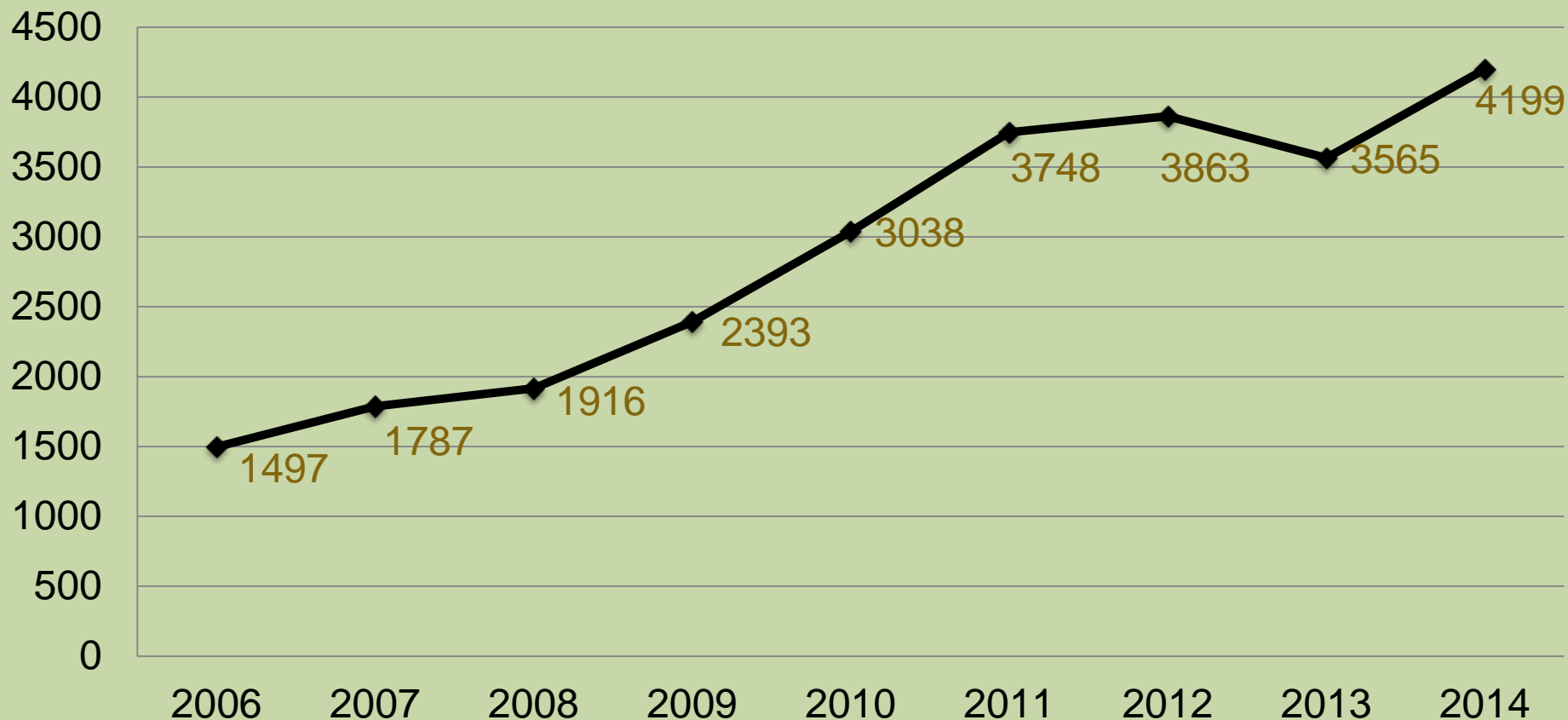




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California Non-Fatal ED Visits

California Non-Fatal Emergency Department Cannabis-related visits 2006-2014





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The Colorado Experience: Overdose Injuries

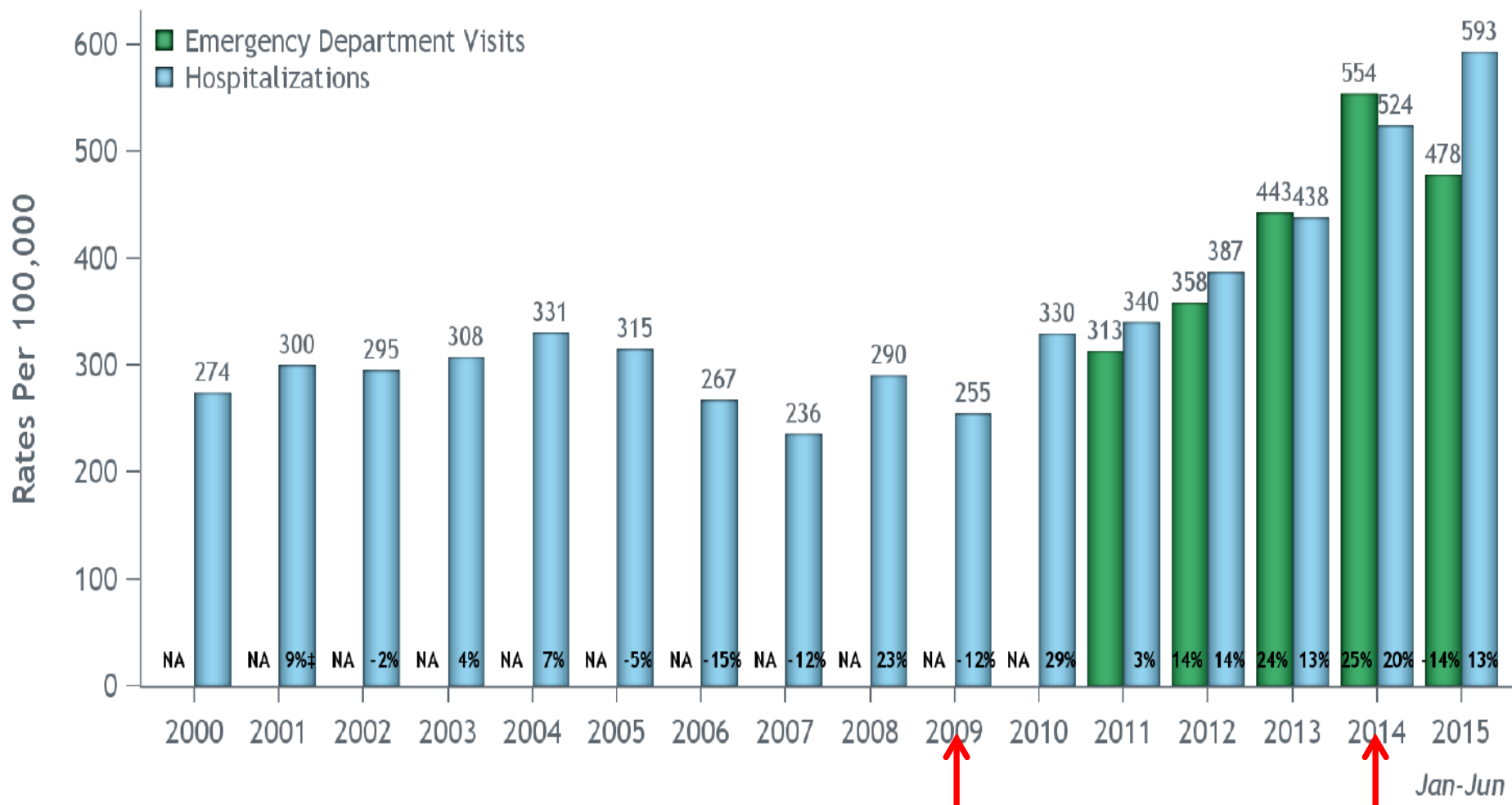
- Increases in emergency department visits and hospitalizations related to cannabis
- Increases in unintentional poisonings among children
- Increases in cannabis exposure calls to the poison control center



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Hospitalizations and ED visits (All Ages)

Figure 3. Rates of Hospitalizations (HD) and Emergency Department (ED) Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes† in First Three Diagnosis Codes per 100,000 HD and ED Visits by Year in Colorado.

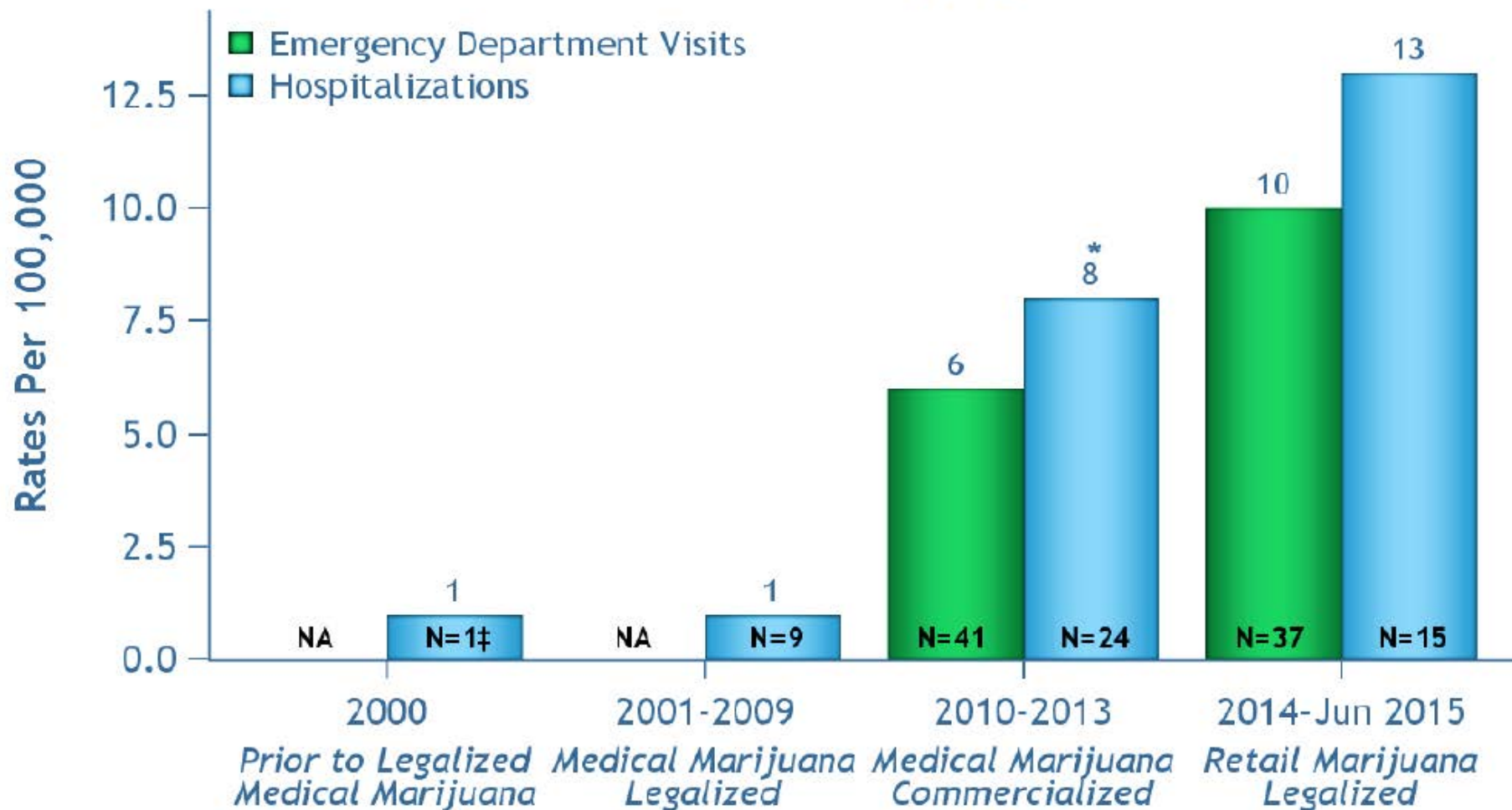




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Child Marijuana Exposures

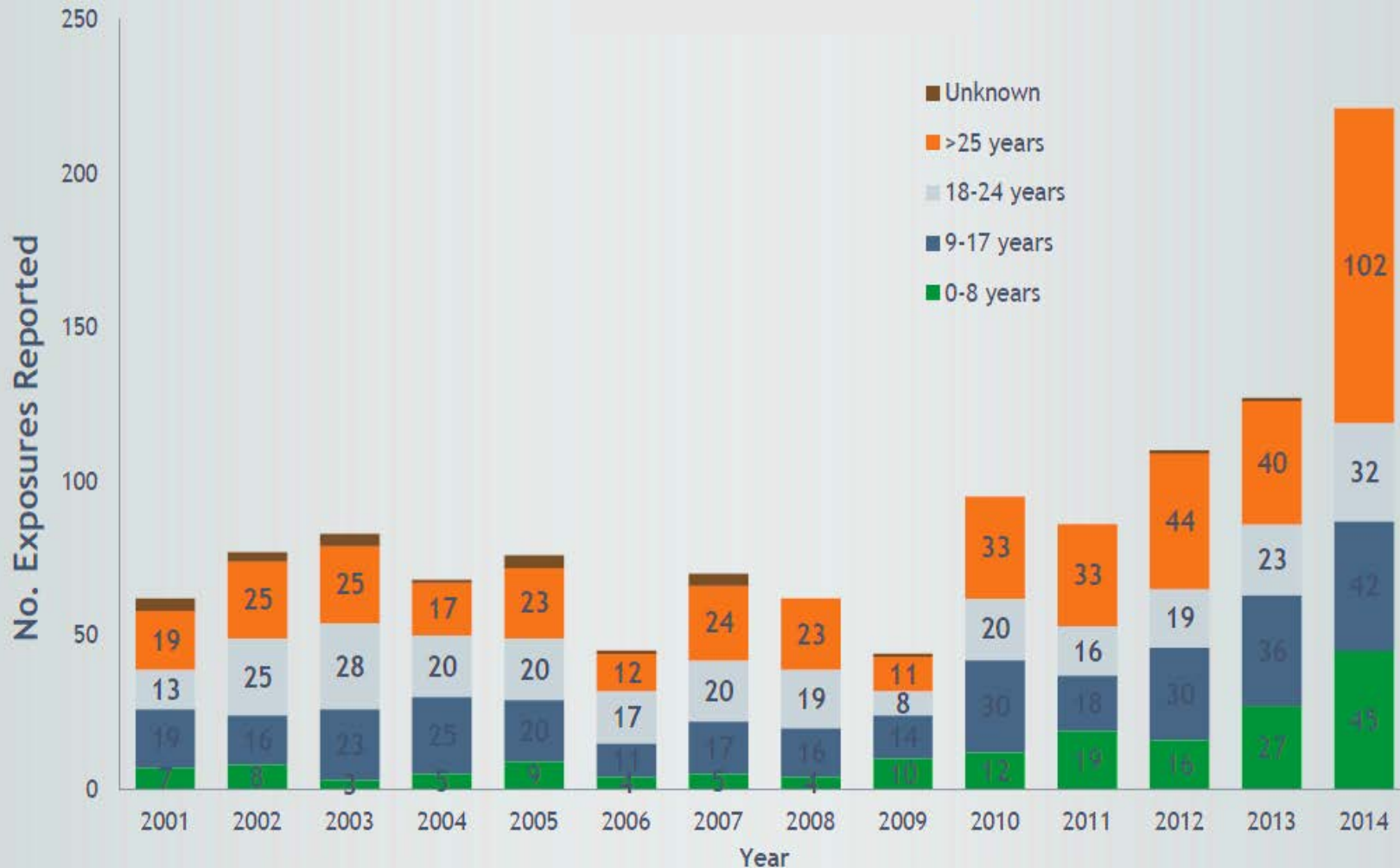
Figure 1. Rates of Hospitalizations (HD) and Emergency Department (ED) Visits with Possible Marijuana Exposures† in Children Under 9 Years Old per 100,000 HD and ED Visits in Children Under 9 Years Old by Legalization Eras in Colorado.





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Cannabis-related poison control calls



Marijuana
Legalization
Era

Medical Marijuana Legalized

Medical Marijuana
Commercialized

Retail
Marijuana
Legalized



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Medical evidence that demonstrates support or harm of use



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National Academies of Science Study Approach

- Weight of evidence:
 - Conclusive
 - Substantial
 - Moderate
 - Limited
 - No or insufficient



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Therapeutic Use: Most established

- Adults with chemotherapy-induced nausea and vomiting
- Adults with chronic pain experienced a clinically significant reduction in pain symptoms
- Adults multiple sclerosis (MS) related spasticity, short-term use improves patient-reported spasticity symptoms
- Children with seizure disorders



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Effects on Respiratory Disease

- Substantial evidence of long-term cannabis smoking and more frequent chronic bronchitis episodes
- Moderate evidence between cessation of cannabis smoking and improvements in respiratory symptoms.
- Limited evidence between occasional cannabis smoking and increased risk of COPD
- Insufficient evidence between cannabis smoking and hospital admissions for COPD, asthma development or asthma exacerbation



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Effects on Cancer

- Moderate evidence that there is NO association between cannabis smoking and lung, head or neck cancers.
- Limited evidence of association between current, frequent or chronic cannabis smoking and development of testicular cancers
- Insufficient evidence between cannabis use and new diagnosis of esophageal, cervical, prostate, brain cancer, lymphoma, penile cancer, anal cancer or bladder cancer or between parental cannabis use and childhood cancers.



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Immunity

- Lack of data on effects of cannabis on the human immune system
- Insufficient data to draw conclusions about the effects of cannabis smoke on immune function or adverse effects on the immune system of HIV positive individuals
- Limited evidence that suggests that regular exposure to cannabis smoke may have anti-inflammatory activity



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Psychosocial Effects

- Recent cannabis use (within 24 hours of evaluation) impairs performance in learning, memory and attention
- Limited studies suggest impairments in learning, memory and attention in individuals who have used cannabis
- Cannabis use during adolescence related to impairments in subsequent academic achievement and education, employment and income, social relationships and social roles



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Behavioral Health Effects

- Substantial evidence of association between cannabis use and development of schizophrenia and other psychoses, but cannabis use linked to better performance in learning and memory tasks in these individuals
- Does not appear to increase likelihood of developing depression, anxiety or PTSD
- In bipolar disorder, nearly daily cannabis use may be linked to greater symptoms



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Behavioral Health Effects

- Heavy cannabis users more likely to report suicidal ideation than non-users
- Regular cannabis use likely to increase risk for developing social anxiety disorder
- Greater frequency of cannabis use or use at a younger age increases likelihood of problem cannabis use
- Moderate evidence between cannabis use and development of substance use disorder for alcohol, tobacco and other illicit drugs



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Medical Evidence Harms/Benefits of Use

- Despite increased cannabis use and a changing state level policy landscape, conclusive evidence regarding the short- and long-term health effects—both harms and benefits—of cannabis use remains elusive.



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Barriers to Cannabis Research

- The classification of cannabis as a Schedule I substance impedes the advancement of cannabis research
- It is often difficult for researchers to gain access to the quantity, quality, and type of cannabis product necessary to address specific research questions on the health effects of cannabis use
- Legalization may increase state revenues for needed medical and epidemiological research



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Mitigating Public Health Issues

Increasing
Population
Impact

Increasing
Individual
Effort Needed

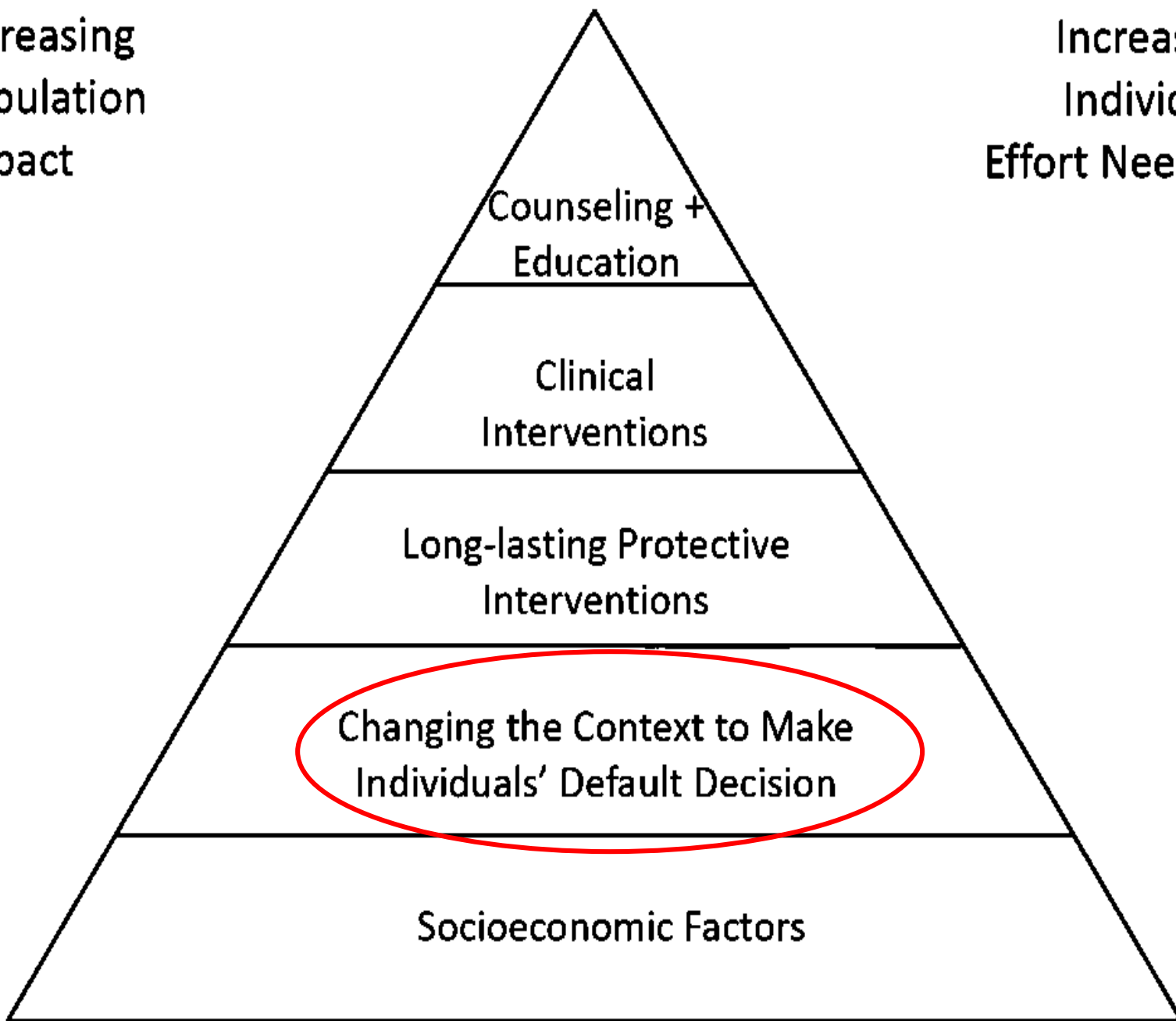
Counseling +
Education

Clinical
Interventions

Long-lasting Protective
Interventions

Changing the Context to Make
Individuals' Default Decision

Socioeconomic Factors





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Apply tobacco and alcohol prevention strategies to cannabis

- Conduct comprehensive education and prevention campaign to inform and protect young people, non-users and general public from harms of cannabis use, reflective of cultural and ethnic nuances of diverse communities
- School-based education to prevent youth and young adults from using cannabis
- Prohibit cannabis use wherever tobacco smoking is prohibited
- Apply tobacco and alcohol related types of policies to cannabis



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Tobacco-type Prevention Policies

- Consider placing cannabis businesses 1000 ft. or more of school, daycare, youth center (state law 600 ft.)
- Cannabis retail licensing (controls retail density)
- Restrict advertising for cannabis products on billboards, TV, radio, social media and main roads and prohibit advertising within 1000 feet of schools, childcare, parks
- Prohibit vending machine sales or self-service displays
- Prohibit free sampling, sponsorship of sporting and cultural events
- Prohibit coupon redemption
- Label THC levels in cannabis products; childproof packaging



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Limit cannabis use based on tobacco and alcohol control policies

- Add cannabis to all clean air ordinances
- Limit cannabis smoking in multiuse dwellings
- Add cannabis to social host ordinances



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Educational Campaign Topics

- Implications of youth use
 - Targeted to youth
 - Targeted to parents and mentors of youth
- Avoiding use in pregnancy and breastfeeding
- Promoting safe use
 - Avoid driving
 - Lock up products
 - Education on higher potency of edibles and dabs



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Educational Campaign Examples

- CDPH Let's Talk Cannabis
 - Safe use
 - Pregnant and breastfeeding women
 - Youth
 - Parents and mentors
- Other state and local campaigns
 - Good to Know Colorado
 - Oregon: <http://www.talkwiththem.info/>
 - Santa Cruz: Talk it up. Lock it up