

# Marijuana Health Impact Monitoring: Colorado

Presentation:

Kathryn DeYoung, Denver Public Health

[Kathryn.DeYoung@dhha.org](mailto:Kathryn.DeYoung@dhha.org)

Analyses by:

Katelyn Hall and others, Colorado Department of Public Health and Environment

[katelyn.hall@state.co.us](mailto:katelyn.hall@state.co.us)

# CDPHE Report on Marijuana Use and Health Effects

## Monitoring Health Concerns Related to Marijuana in Colorado: 2014

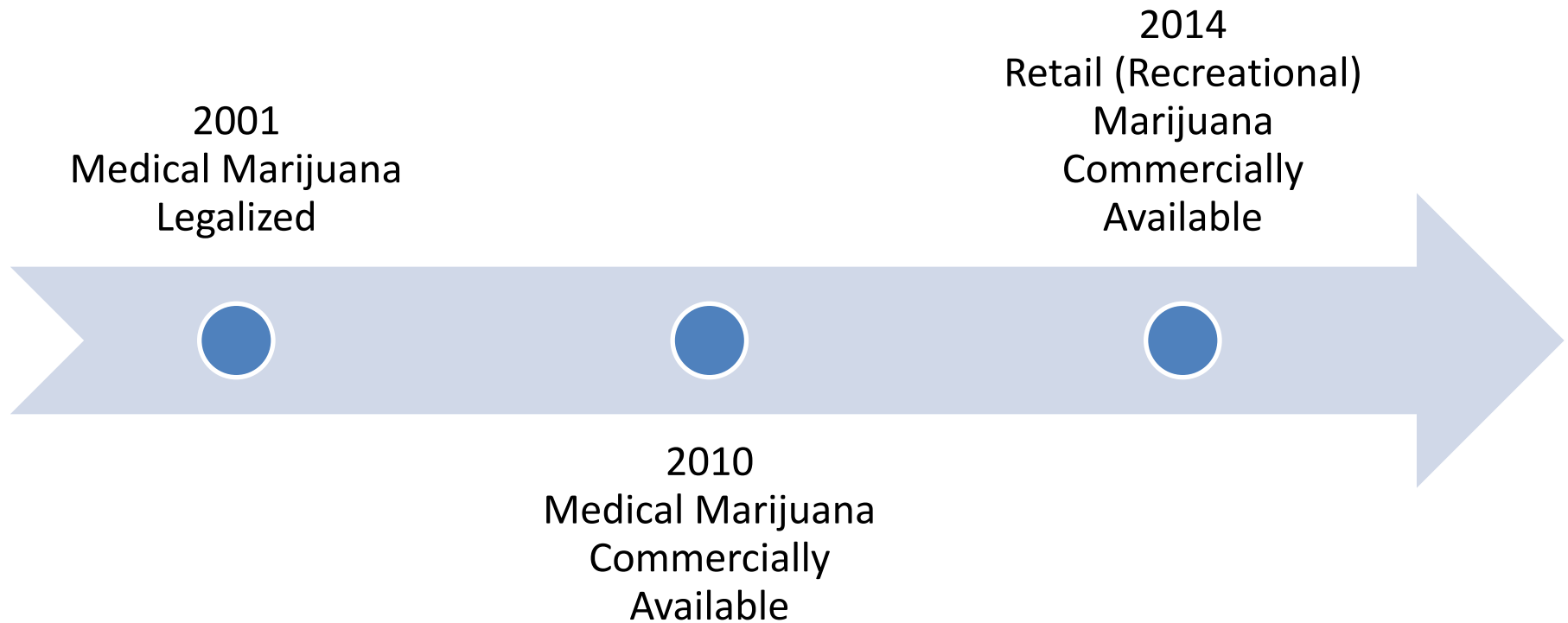
Changes in Marijuana Use Patterns, Systematic Literature Review, and Possible Marijuana-Related Health Effects



- Analysis of marijuana use, using state & national surveys
- Analysis of potential health impact, using hospital and poison center data
- Evaluation and summary of scientific evidence about health effects of marijuana
- Search “**monitoring marijuana Colorado**” to see full report, ← or use this address

[colorado.gov/pacific/cdphe/monitoring-marijuana-related-health-effects](https://colorado.gov/pacific/cdphe/monitoring-marijuana-related-health-effects)

# Timeline of Marijuana Legalization in Colorado



- Perceptions
- Behaviors

# Student Perceptions About Risk of Harm Associated with Marijuana Use

Percent of Colorado high school students who believe that...

	2013	2015	Trend
People who use marijuana regularly have moderate/great risk of harming themselves	54.0% (52.7-55.2)	47.7% (45.5-49.9)	↓
People who have one or two drinks [of alcohol] nearly every day have moderate/great risk of harming themselves	69.9% (68.7-71.0)	70.7% (68.4-73.0)	↔
People who smoke one or more packs of cigarettes per day have a moderate/great risk of harming themselves	84.4% (83.1-85.6)	84.3% (81.9-86.6)	↔

# Percent of High School Students Who Ever and Recently Used Marijuana: Colorado and US

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

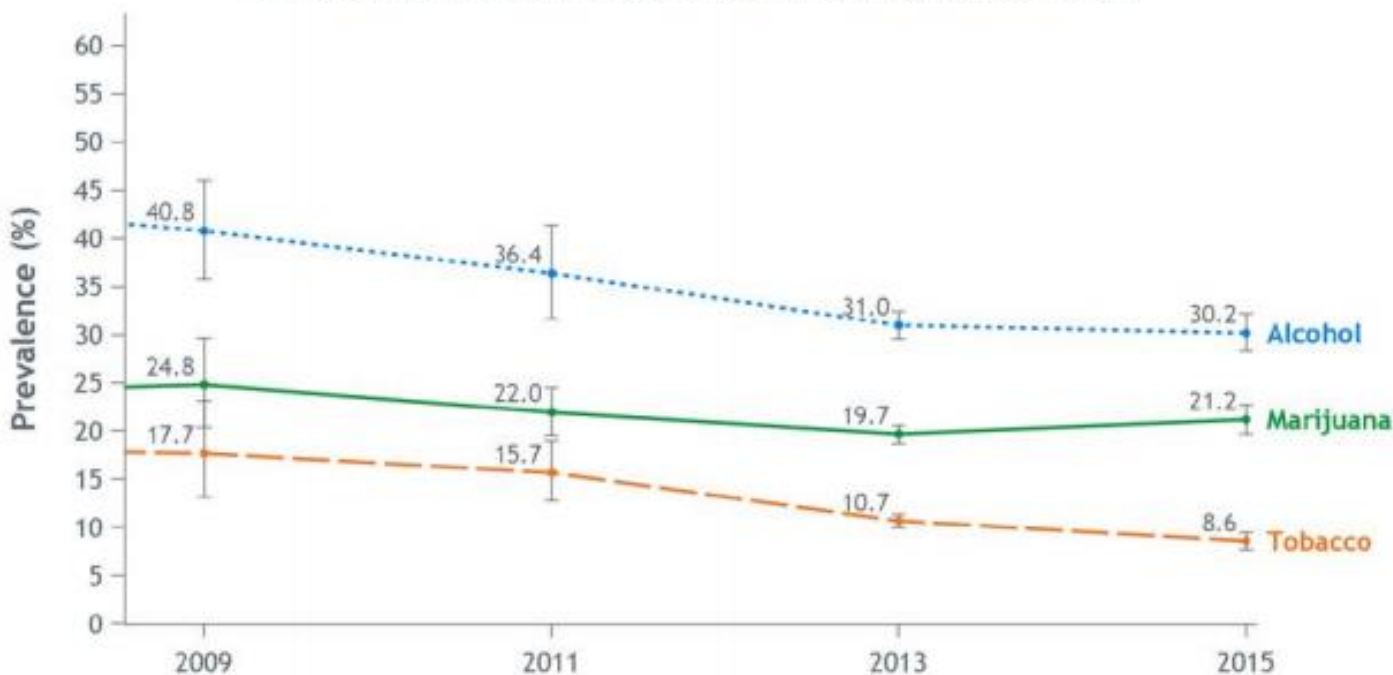
\*Black bars indicate margins of error (95% Confidence Intervals).

†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

# Percent of Colorado High School Students Who Currently Use Marijuana Compared to Alcohol and Tobacco

**Figure 3. Prevalence of Current Marijuana Use For High School Students Compared to Current Alcohol and Tobacco Use in Colorado, 2009-2015.**



Produced by: EEOHT, CDPHE 2016

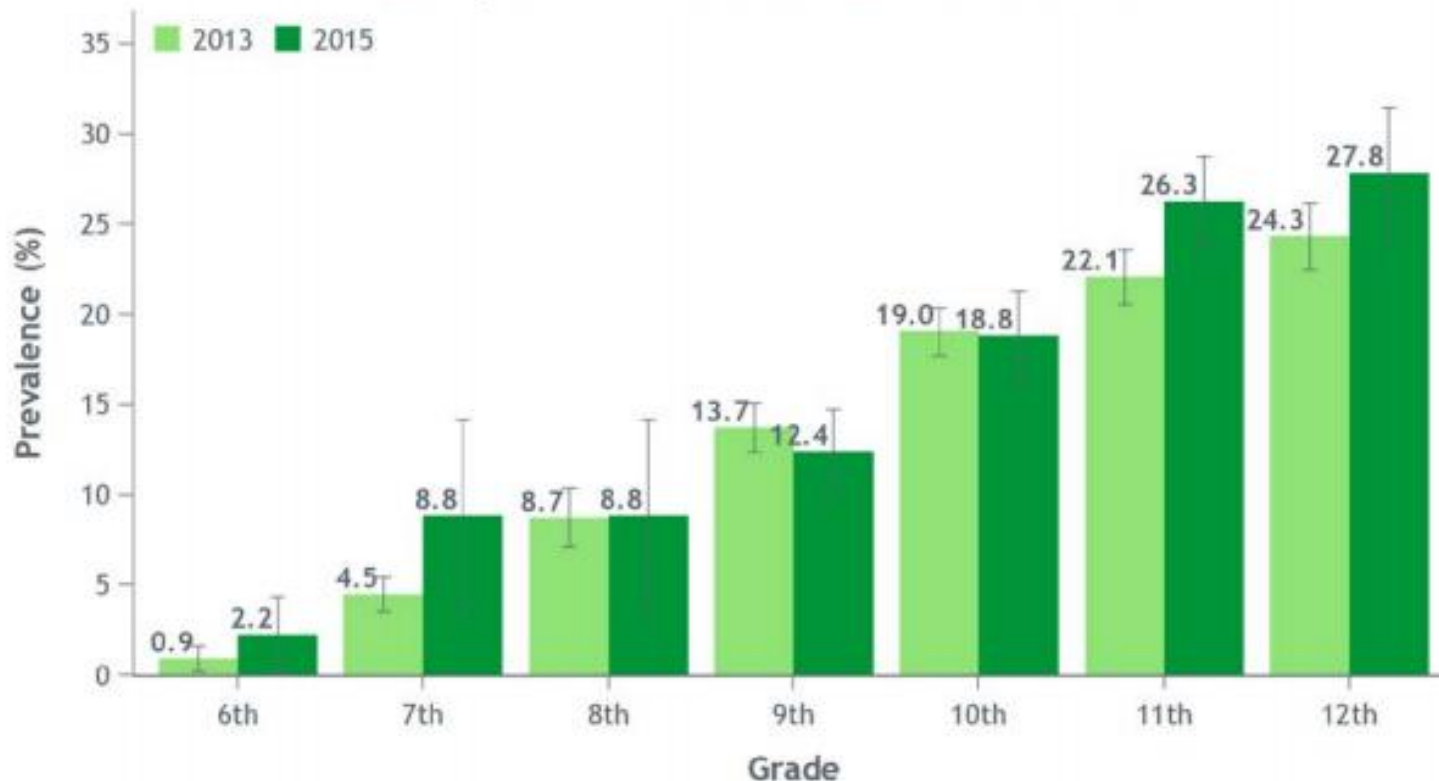
\*Black bars indicate margins of error (95% Confidence Intervals).

†Current Use is defined as marijuana/alcohol/tobacco use at least once in the past 30 days.

‡Data Source: Healthy Kids Colorado Survey (HKCS) prevalence estimates for 2009-2015. Note: Data for the years 2005 and 2007 was not included due to low sample sizes.

# Percent of Colorado High School Students Who Currently Use Marijuana

Figure 4. Prevalence of Current Marijuana Use For High School and Middle School Students by Grade and Year in Colorado, 2013-2015.



Produced by: EEOHT, CDPHE 2016

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

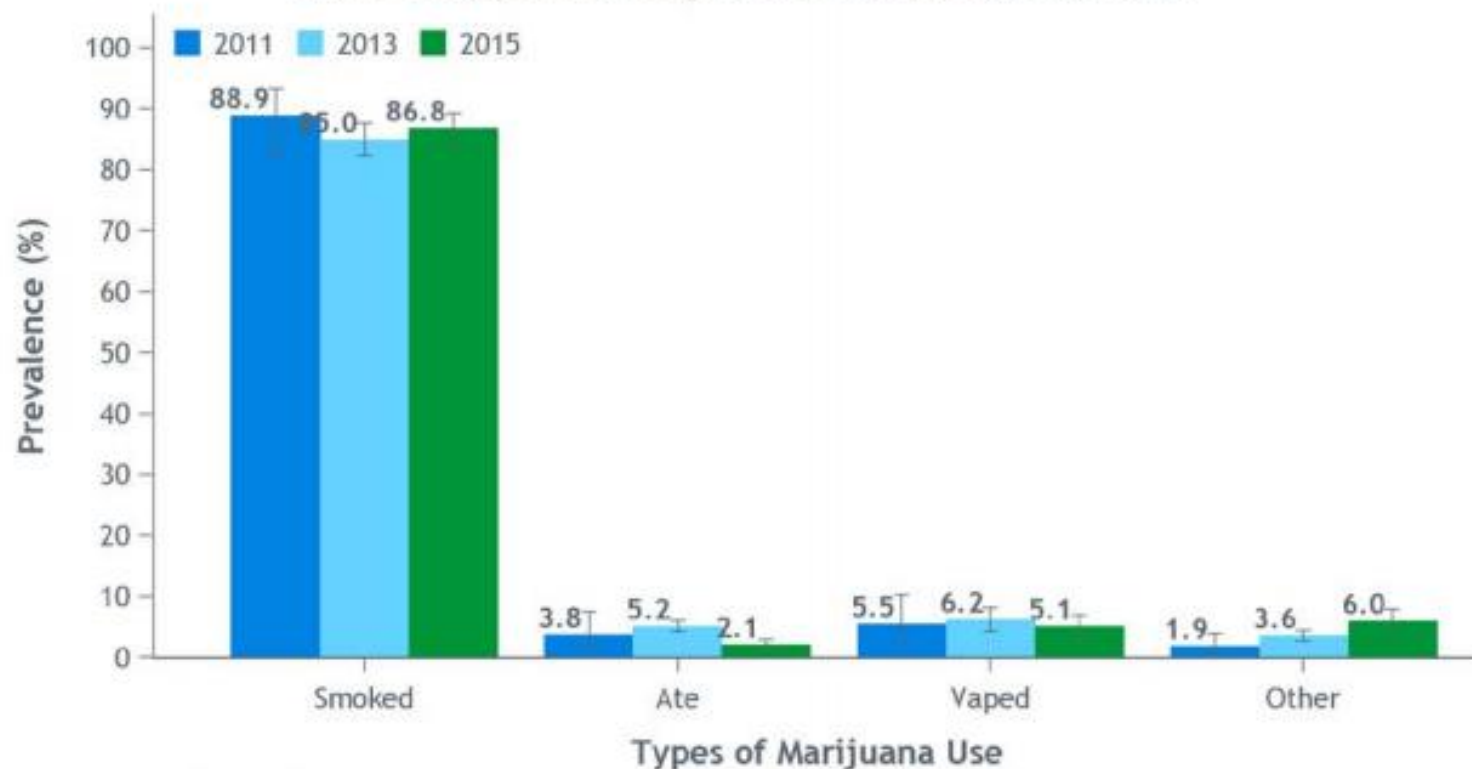
†Current Use is defined as marijuana use at least once in the past 30 days.

‡Data Source: Healthy Kids Colorado Survey (HKCS) prevalence estimates for 2013-2015.



# Marijuana Product Type Among Colorado Students Who Currently Use Marijuana

Figure 11. Usual Methods of Marijuana Use among High School Students that Reported Current Marijuana Use by Year in Colorado, 2011-2015.



Produced by: EEOHT, CDPHE 2016

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

†Current Use is defined as marijuana use at least once in the past 30 days.

‡In 2015 the 'Other' category includes 'Other' and 'Dabbing.'

§Data Source: Healthy Kids Colorado Survey (HKCS) prevalence estimates for 2011-2015.

- Among Colorado high school students who drove in the past 30 days:
  - 10.9% (10.0-11.8%) had driven after using marijuana in 2013
  - 10.4% (9.0-11.8%) had driven after using marijuana in 2015
- *Note: length of time between marijuana use and driving was not specified*

- Perceptions
- Behaviors

# Adult Perceptions About Risk of Harm Associated with Marijuana Use

Percent of Colorado adults who believe that **adults** who use marijuana daily / near daily have...

	2014
A moderate / great risk of harming themselves	54.0% (52.4-55.6%)
A slight / no risk for harming themselves	46.0% (44.4-47.5%)

# Ever and Current Marijuana Use Among Colorado Adults (18+ Years of Age)

In 2014:

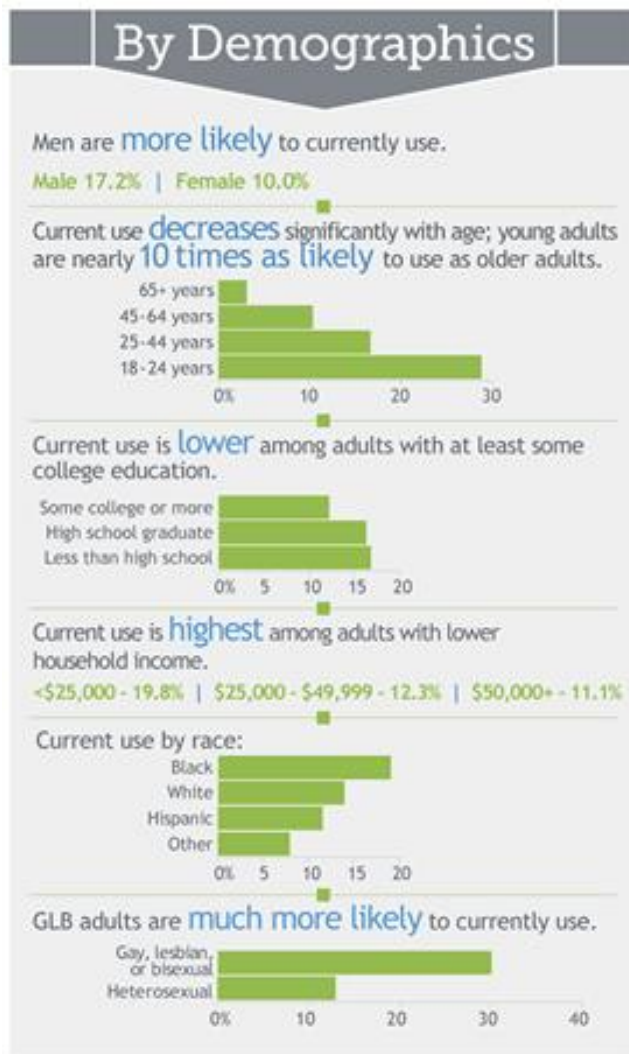
- 48.9% of Colorado adults (18+ years of age) had ever used marijuana
  - 13.6% had used marijuana in the past 30 days (“current use”)
    - 33.2% of current users reported using marijuana daily

Over time, estimates of current use among Colorado adults have increased slightly:

Estimate Source	2010	2011	2012	2013	2014
National Survey of Drug Use and Health	11.3%	11.0%	10.4%	12.9%	
Behavioral Risk Factor Surveillance System					13.6%

# Current Marijuana Use Among Colorado Adults (18+ Years of Age)

Among Colorado adults who had used marijuana in the past 30 days in 2014...



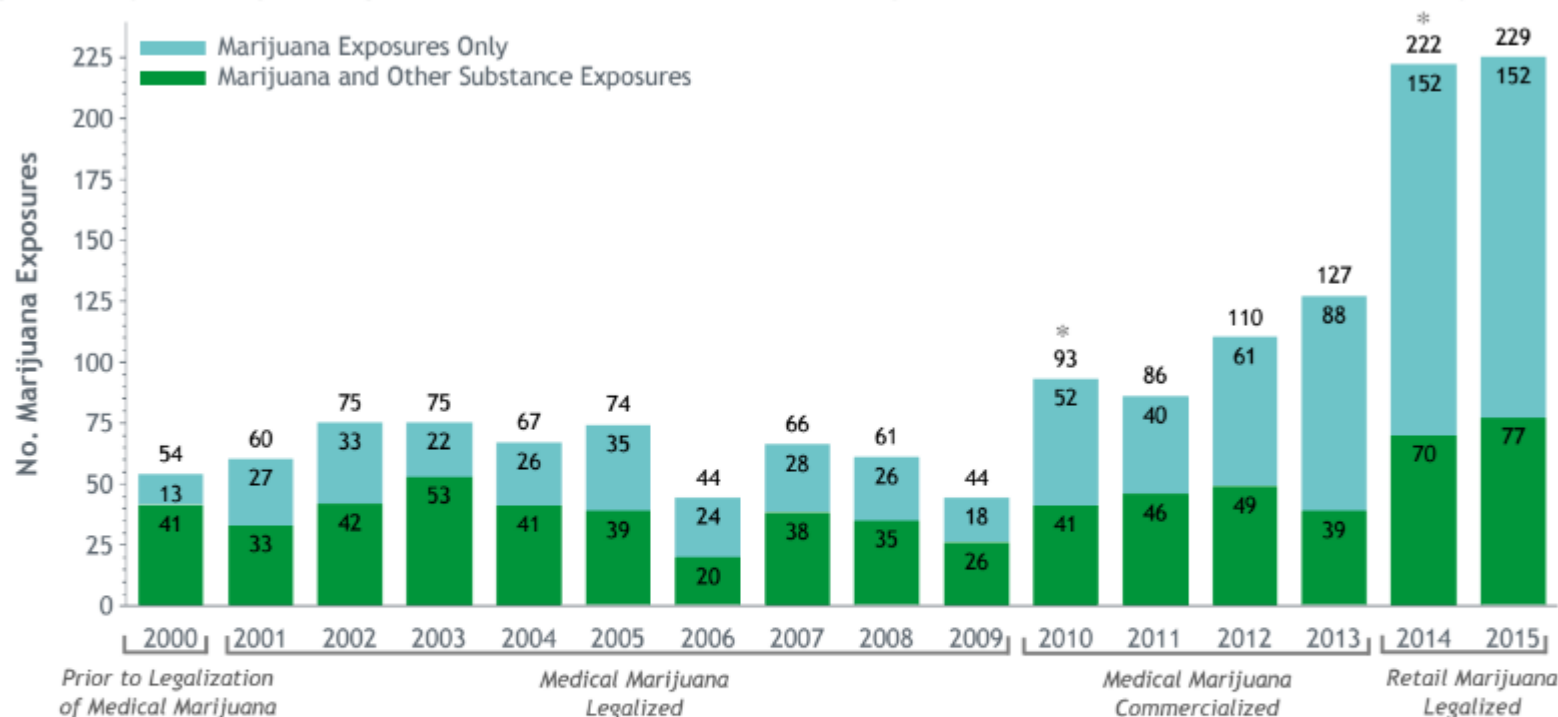
METHOD OF MARIJUANA USE (CHECK ALL THAT APPLY)	Percent
Smoked	83.1 (80.0-86.3%)
Eaten	34.4 (30.0-38.7%)
Vaporized	32.4 (28.0-36.7%)
Dabbed	17.9 (13.9-21.9%)
Other	7.4 (4.9-9.9%)
Drank	5.8 (3.3-8.1%)

18.8% reported driving after using marijuana  
*Note: length of time between marijuana use and driving was not specified*

- Calls to Rocky Mountain Poison Center
- Emergency Department Visits
- Hospitalizations

# Marijuana-Related Calls to the Rocky Mountain Poison Center Over Time

Figure 1. Number of Human Marijuana Exposure Calls† to Rocky Mountain Poison and Drug Center (RMPDC) by Marijuana Exposure Only and Marijuana Exposure with Other Substances from January 1, 2000 to December 31, 2015 in Colorado (N=1,487).



†Human marijuana exposure calls to RMPDC were determined by the presence of the generic code Marijuana - 0083000 from the National Poison Data System or marijuana exposure mentioned in RMPDC case notes.

\*Counts significantly increased from previous year with a p value <0.004.

## Major Findings

- Counts of calls remain fairly constant from 2000 to 2009.
- In 2010 calls related to marijuana significantly increased by more than double from 44 to 93 and in 2014 calls related to marijuana significantly increased by 74.8% from 127 to 222.

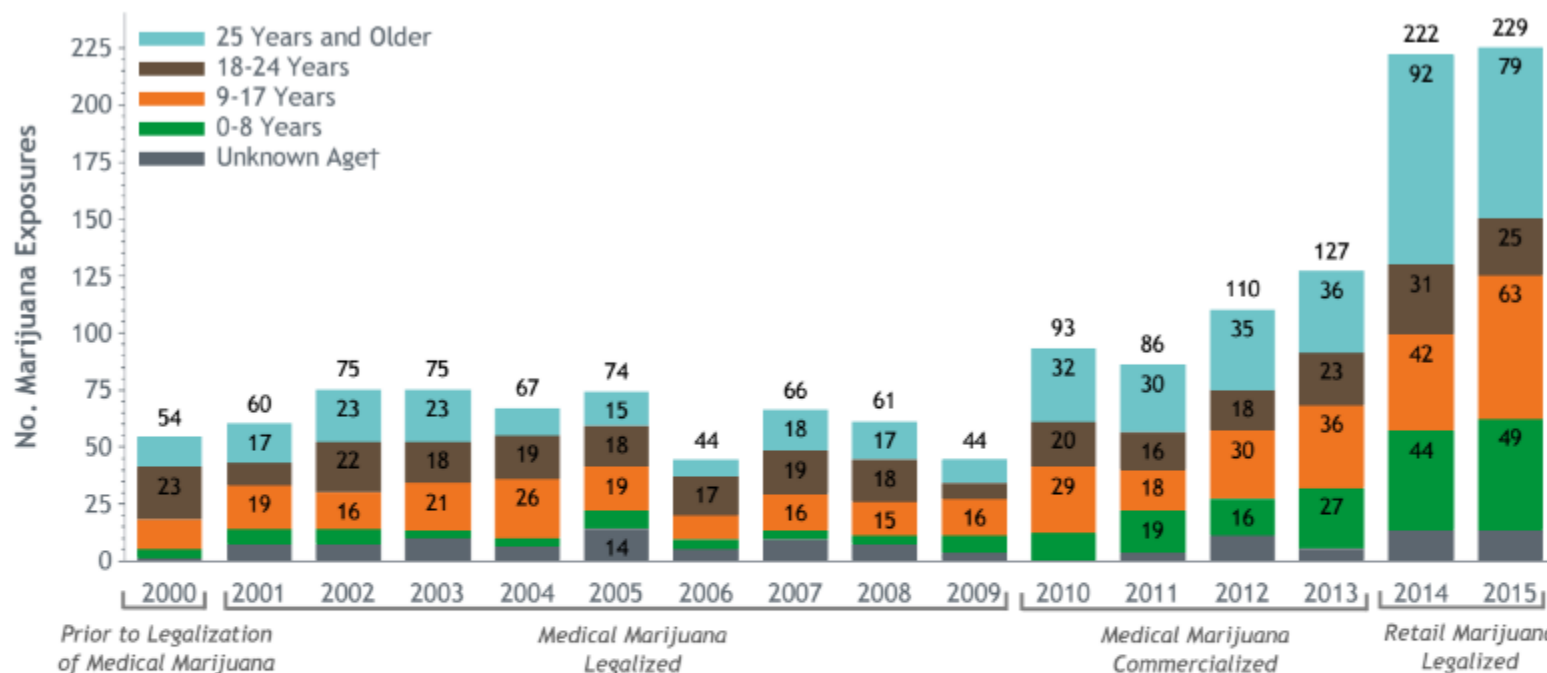
## Data Details

- Data Source: National Poison Data System, Rocky Mountain Poison & Drug Center Calls received reporting human marijuana exposure.



# Marijuana-Related Calls to the Rocky Mountain Poison Center By Age Group and Time

Figure 2. Number of Human Marijuana Exposure Calls\* to Rocky Mountain Poison and Drug Center (RMPDC) by Age Groups from January 1, 2000 to December 31, 2015 in Colorado (N=1,487).



\*Human marijuana exposure calls to RMPDC were determined by the presence of the generic code Marijuana - 0083000 from the National Poison Data System or marijuana exposure mentioned in RMPDC case notes.

†Unknown age includes calls with ages recorded as teens, 20s, unknown adult ( $\geq 20$  yrs), unknown child ( $\leq 19$  yrs), and unknown age.

## Major Findings

- Ages 0-17 years and 25 years and older showed increased numbers of marijuana exposure calls in the *Medical Marijuana Commercialized* era compared to the *Medical Marijuana Legalized* era, while ages 18-24 years remain fairly constant since the *Prior to Legalization of Medical Marijuana* era.
- In 2014 with the beginning of the *Retail Marijuana Legalized* era, all ages showed increased numbers of marijuana exposures calls compared to the *Medical Marijuana Commercialized* era.

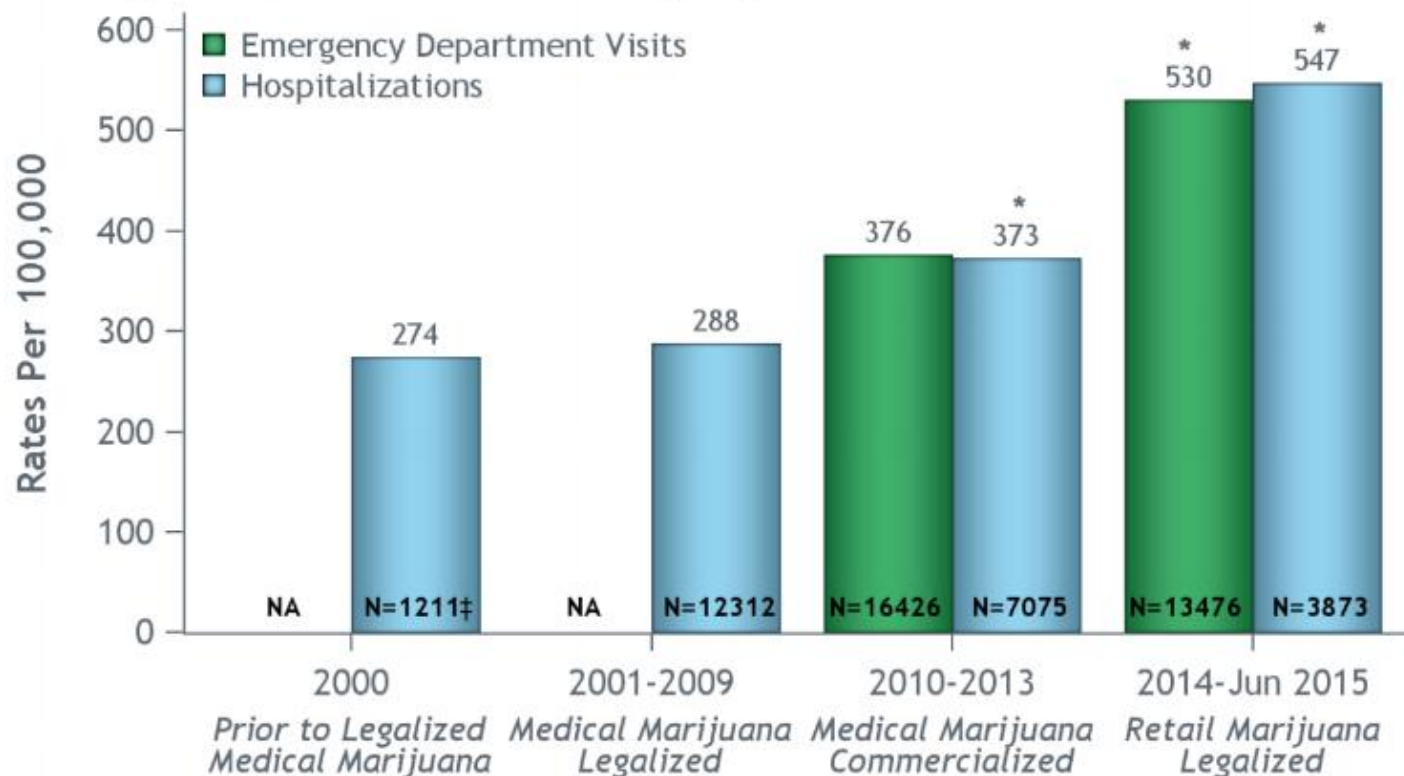
## Data Details

- Data Source: National Poison Data System, Rocky Mountain Poison & Drug Center Calls received reporting human marijuana exposure.

<https://drive.google.com/drive/folders/0BxqXhstk92Dbfm5xMDdNd1dPX1pvWWM4TkFkVHZtcTdMYWVpcWh6WVRKUXZ>

# Potentially Marijuana-Related Emergency Department Visits and Hospitalizations in Colorado Over Time

Figure 4. Rates of Hospitalizations (HD) and Emergency Department (ED) Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes† in First Three Codes per 100,000 HD and ED Visits by Legalization Eras in Colorado.



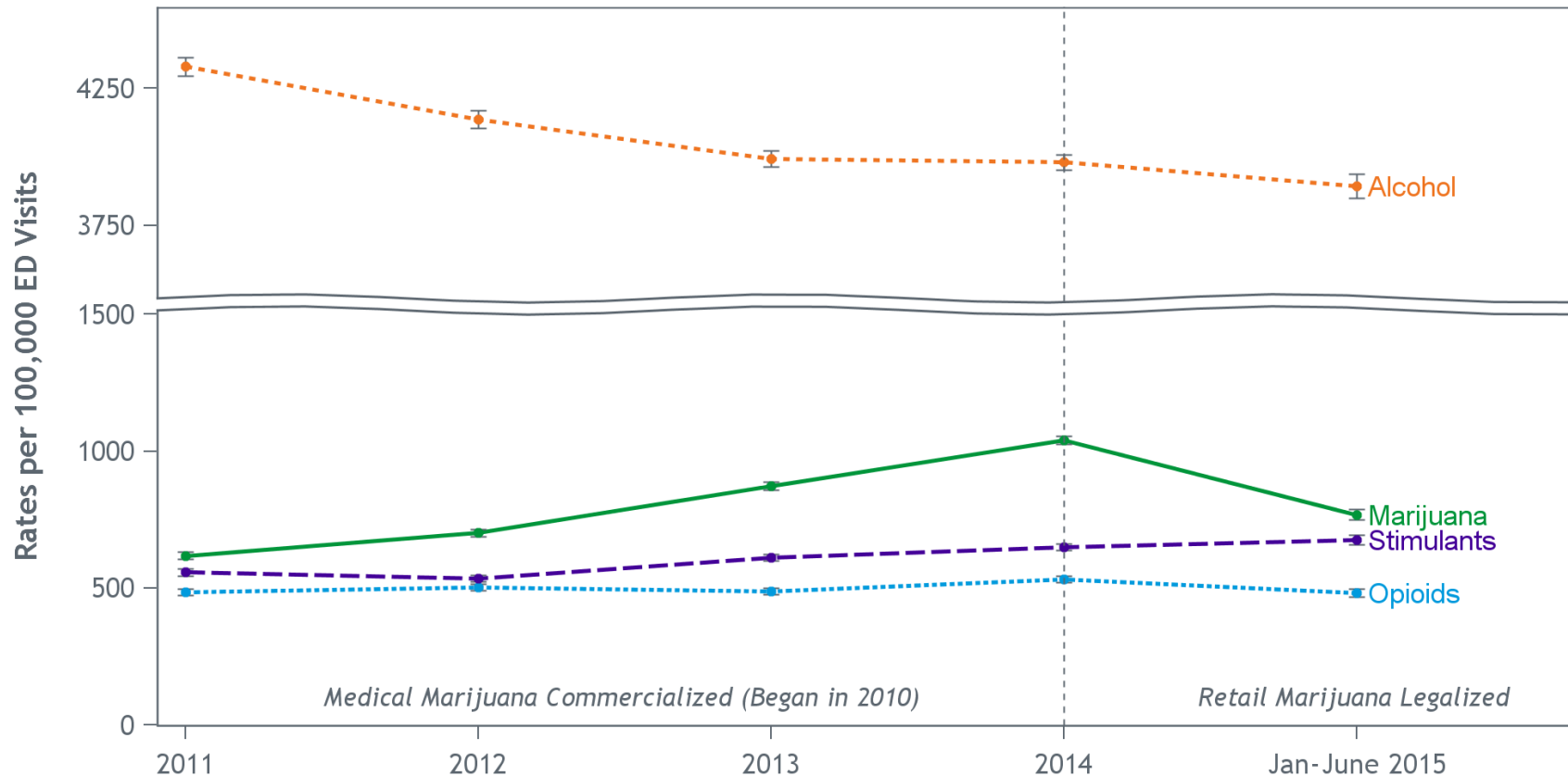
\*Rate significantly increased from previous time period with a p-value <0.001.

†ICD-9-CM codes 305.2, 304.3, 969.6, and E854.1 were used to determine HD and ED visits with possible marijuana exposure, diagnoses, or billing codes.

‡The Ns are the total number of HD or ED visits with possible marijuana exposures, diagnoses, or billing codes in the specified time period.

# Potentially Marijuana-Related Emergency Department Visits Compared to Other Substances

Substance Related ED Visits in Colorado, 2011-June 2015: Exposures, Diagnoses, Billing Codes, or Poisonings.



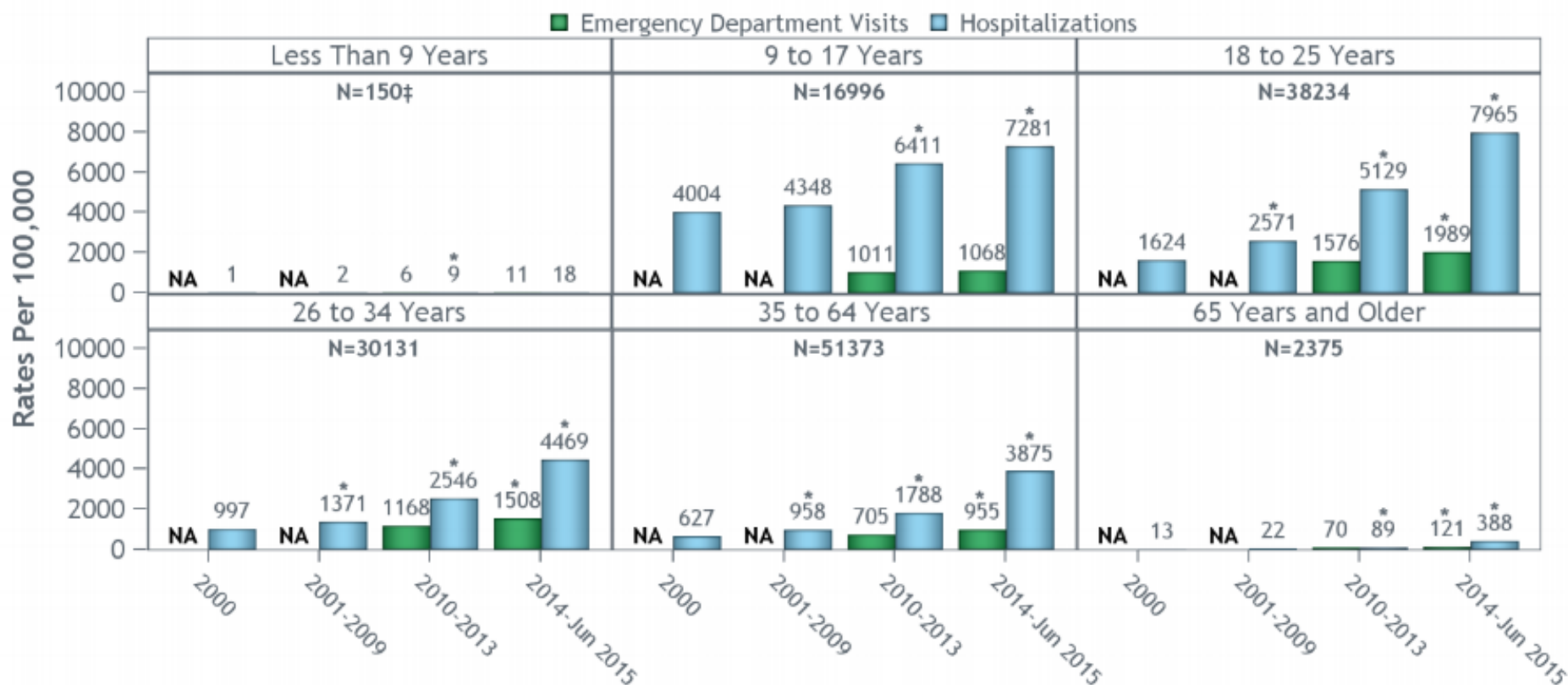
\*EEOHT, CDPHE 2016

†ICD-9-CM codes 305.2, 304.3, 969.6 and E854.1 in at least one of the 30 diagnosis codes were used to determine ED visits with possible marijuana exposures, diagnoses, billing codes or poisonings.

‡ED visits involving other substances were identified using at least one of the following ICD-9-CM codes in at least one of the 30 listed diagnosis codes: Alcohol (291[.0-.5, .8, .9], 303[.0, .9], 305.0, 425.5, 571[.0-.6, .8, .9], 790.3, 980[.0-.3, .8, .9], E860[.0-.4, .8]); Prescription Opioid Dependence and Poisoning (304[.0, .7], 305.5, 965[.00, .02, .09], E850[.1, .2]); Heroin Poisoning (E850.0, 965.01); Cocaine Dependence and Poisoning (304.2, 305.6, 970.81, E855.2); Stimulant Dependence and Poisoning (304.4, 305.7, 970.89, 969.72, E854.2, E855.5).

# Potentially Marijuana-Related Emergency Department Visits and Hospitalizations in Colorado By Age Group

**Figure 8. Rates of Hospitalizations (HD) and Emergency Department (ED) Visits with Possible Marijuana Exposures, Diagnoses, or Billing Codes† per 100,000 HD and ED Visits by Legalization Eras in Colorado and Age.**



\* Rate significantly increased from previous time period with a p-value <0.001.

† ICD-9-CM codes 305.2, 304.3, 969.6 and E854.1 were used to determine HD and ED visits with possible marijuana exposures, diagnoses, or billing codes.

‡ The Ns are the total number of HD or ED visits with possible marijuana exposures, diagnoses, or billing codes in each age group.

Kathryn DeYoung

[Kathryn.DeYoung@dhha.org](mailto:Kathryn.DeYoung@dhha.org)

Katelyn Hall

[katelyn.hall@state.co.us](mailto:katelyn.hall@state.co.us)