



# Marijuana-Related Emergency Department Visits and Hospitalizations

Trend Analysis - 2012-2017



## Background

The objective of this report is to describe trends in marijuana-related healthcare utilization among residents of the City and County of Denver. Hospitalizations and emergency department visits are presented by sex and by age group from 2012 to 2017. For reference, recreational marijuana use was legalized for purchase in Colorado at the beginning of 2014. A focused analysis of marijuana-related healthcare utilization among young people in Denver is also included. The findings included here are, through the provision of these data, intended to help inform policy and programmatic decision-making related to marijuana use.

## Methods

Colorado Hospital Association (CHA) hospitalization and emergency department (ED) discharge data for 2012-2017 among Denver residents were analyzed to describe marijuana-related hospitalizations and ED visits.<sup>1</sup> This analysis examined trends over time and comparisons by sex and by age to better understand potential differences in marijuana-related hospitalizations and ED visits by different demographic groups. Lastly, to better understand marijuana-related healthcare utilization among youth, hospitalizations and ED visits were analyzed for patients under 25 years of age. The included analyses include residents of Denver only; individuals who do not have a residence in the city and county of Denver who were treated in a Colorado hospital or ED were not included.

The 2012-2016 years of CHA data include an identifier for unique visits but do not include an identifier for unique individuals. For this reason, population rates and counts of individuals cannot be estimated and are not included in this report; instead hospitalization and ED visit rates are presented. The hospitalization rate reflects the count of marijuana-related hospitalizations per 1,000 hospitalizations with the denominator as total number of hospitalizations, specific to the sex and age group being examined. The ED visit rate reflects the count of marijuana-related ED visit per 1,000 ED visits with the denominator as the total number of ED visits, specific to the sex and age group being examined.

Diagnosis codes from the International Classification of Diseases, 9<sup>th</sup> and 10<sup>th</sup> editions (ICD9-CM for 2012 up to October of 2015 and ICD10-CM for October of 2015 through the end of 2017) were used to identify marijuana-related events. For hospital and emergency services, diagnosis code guidelines direct the order of the coding to reflect the primary problem or complaint for admissions. The first diagnosis is considered the primary diagnosis for the encounter; subsequent diagnosis codes are considered auxiliary factors that influenced the health-care utilization event, the order of which does not reflect a degree of severity or an association with the primary diagnosis. Up to 30 diagnosis codes can be associated with a hospitalization or ED visit. For example, if the primary diagnosis code for a hospitalization was F29 for psychosis and the second diagnosis code was T40.7X5S for adverse effect of cannabis (derivatives), psychosis was determined as the cause of the hospitalization and adverse

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<sup>1</sup> The CHA discourages use of data prior to 2012 due concerns about data fidelity related to incomplete hospital participation and data contribution.



effect of cannabis was an additional diagnosis made in the hospitalization, which contributed to the hospitalization.

Hospitalization or ED visits associated with marijuana were defined in two ways:

- Marijuana-caused healthcare utilization: when a marijuana diagnosis code is found in the primary diagnosis field.
- Marijuana-related healthcare utilization: when a marijuana diagnosis code is found in any diagnosis field.

All analyses conducted in this report are based on these two definitions and will be clearly labeled either marijuana-caused or marijuana-related in figure titles. *Note that all marijuana-caused healthcare visits are also captured in the marijuana-related healthcare visit counts.*

A list of marijuana-related diagnostic codes for both ICD9-CM and ICD10-CM utilized for this analysis can be found in Appendix A.

At present, hospitals code sex as male or female; as a result, no additional gender identities are reflected in these data. For the overall age group analysis, the US Census age groups were used and included: <18, 18-24, 24-44, 45-64, and 64+. For the youth focused analysis, data are presented by individual age where enough data are present.

To protect patient privacy, CHA and Denver Public Health use suppression rules to ensure that small cells could not be used to reveal confidential information about a patient. In instances where there are less than 10 observations, data are not shared to ensure that identities of individual patients are protected. When possible, multiple years of data were combined to enable analysis of specific groups.

## Results

The results include three sections: marijuana-related and marijuana-caused hospitalizations, marijuana-related and marijuana-caused emergency department visits, and a focused analysis on marijuana-related healthcare utilization among youth.

### Section 1: Marijuana-Related and Marijuana-Caused Hospitalizations

The first three figures illustrate the annualized trends of marijuana-related hospitalizations and the age and sex distribution of those hospitalizations among Denver County residents, 2012 to 2017. Across all years, 9748 marijuana-related hospitalizations were identified, 125 of which were marijuana-caused.

Figure 1.1: Annual rate of marijuana-related and marijuana-caused hospitalizations for the city and county of Denver

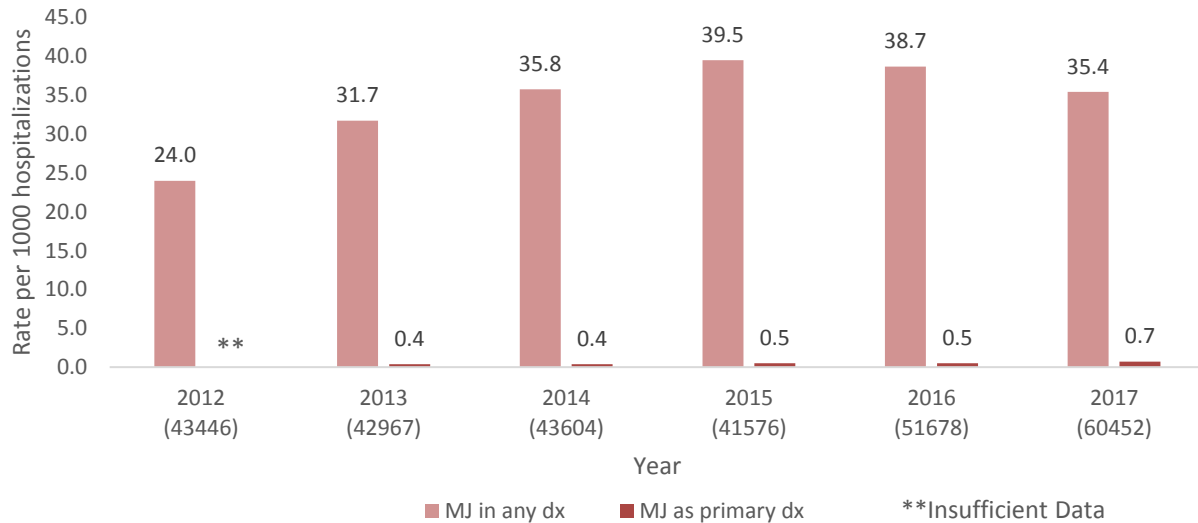


Figure 1.1 displays the annual rate of marijuana-related and marijuana-caused hospitalizations (i.e., primary diagnosis) for the city and county of Denver, with total annual hospitalizations included in parentheses. From 2012 to 2015, the annual rate of marijuana-related hospitalizations steadily increased 65% and then decreased slightly by 10% from 2015 to 2017. For context, the 2017 marijuana-related hospitalization rate was based on a denominator of 60,452 total hospitalizations for Denver residents.

From 2013 to 2017, there was a 75% increase in that rate of marijuana-caused hospitalizations. These increases may indicate an increased frequency of marijuana-related health outcomes, increase in overall use of MJ products due to recreational MJ legalization, or improved documentation by providers of MJ use screening and coding.

Figure 1.2: Annual rate of marijuana-related hospitalizations for the city and county of Denver, by sex

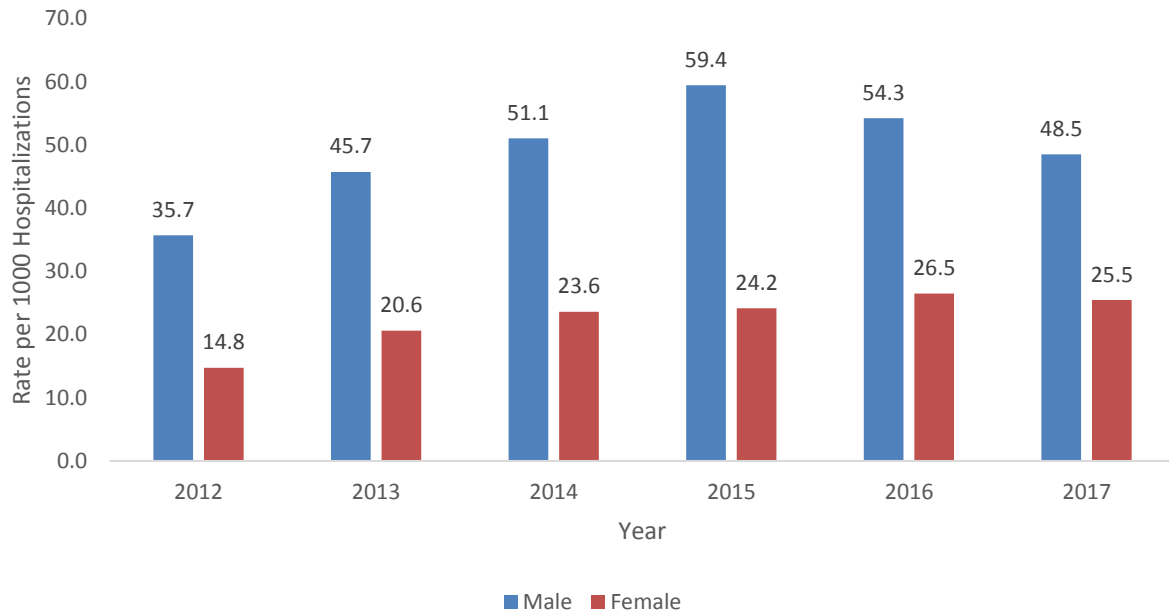


Figure 1.2 displays the annual rate of marijuana-related hospitalizations by sex. For all years, marijuana-related hospitalizations were almost twice as common among males compared to females. For males, the annual rate of marijuana-related hospitalizations increased 66% between 2012 and 2015. This rate then decreased 18% from 2015 to 2017. For females, the annual rate of marijuana-related hospitalizations increased 72% from 2012 to 2017.

Rates of marijuana-caused hospitalizations were too low to share by sex and by year. Between 2012 and 2017, there were 16 hospitalizations of females and 28 hospitalizations of males where a marijuana diagnosis was the primary cause.

Figure 1.3: Annual rate of marijuana-related hospitalizations for the city and county of Denver, by age group

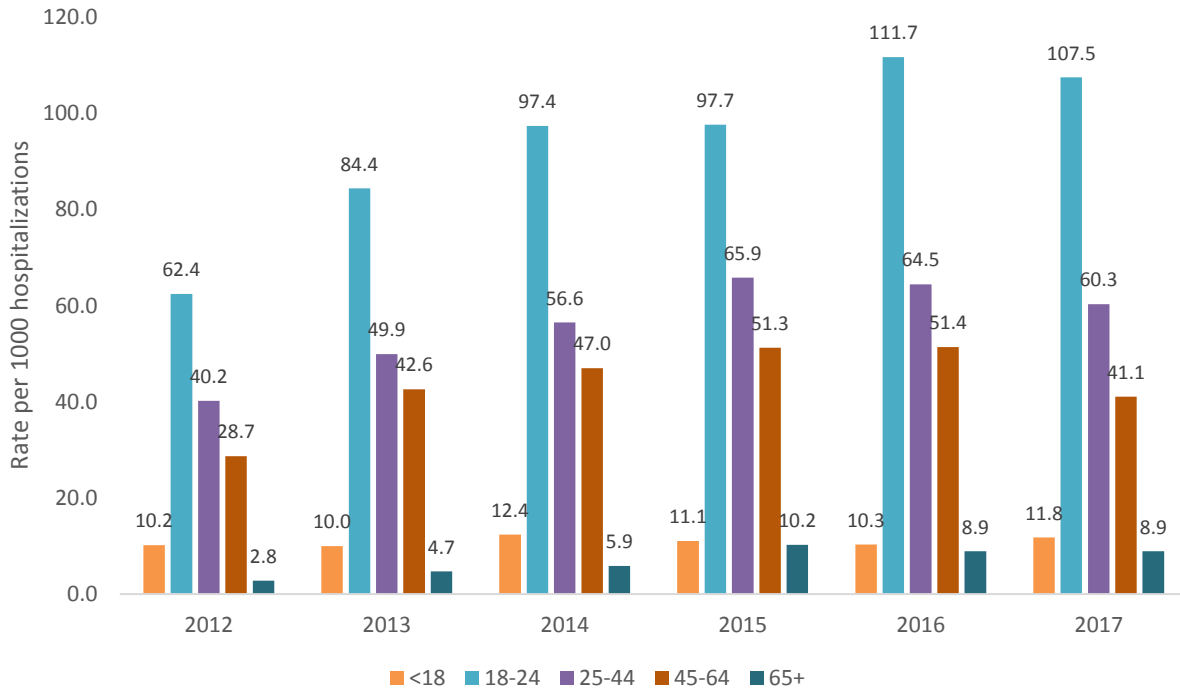
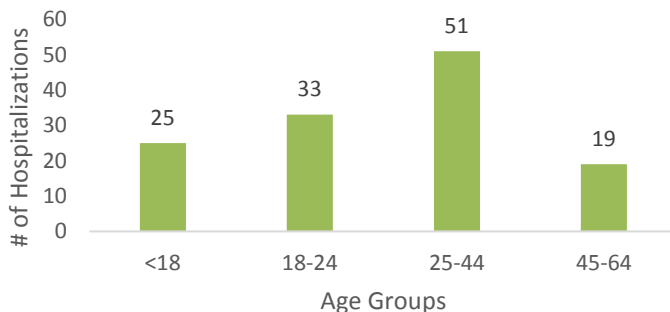


Figure 1.3 displays trends in marijuana-related hospitalizations by age group. Across all years, the rate of marijuana-related hospitalizations is higher for the 18-24 year old population, compared to all other age groups. On average, nine out of every 100 hospitalizations of 18-24 year olds was marijuana-related. Marijuana-related hospitalizations were lowest in youth under 18 years of age and adults 65+.

Figure 1.4: Number of marijuana-caused hospitalizations by age group, 2012-2017



There were too few marijuana-caused hospitalizations to be able to display them by age and by year.

Figure 1.4 demonstrates that between 2012 and 2017, the number of marijuana-caused hospitalizations was highest among the 25 to 44 year old population. The proportion of marijuana-related hospitalizations that were marijuana-caused was very low

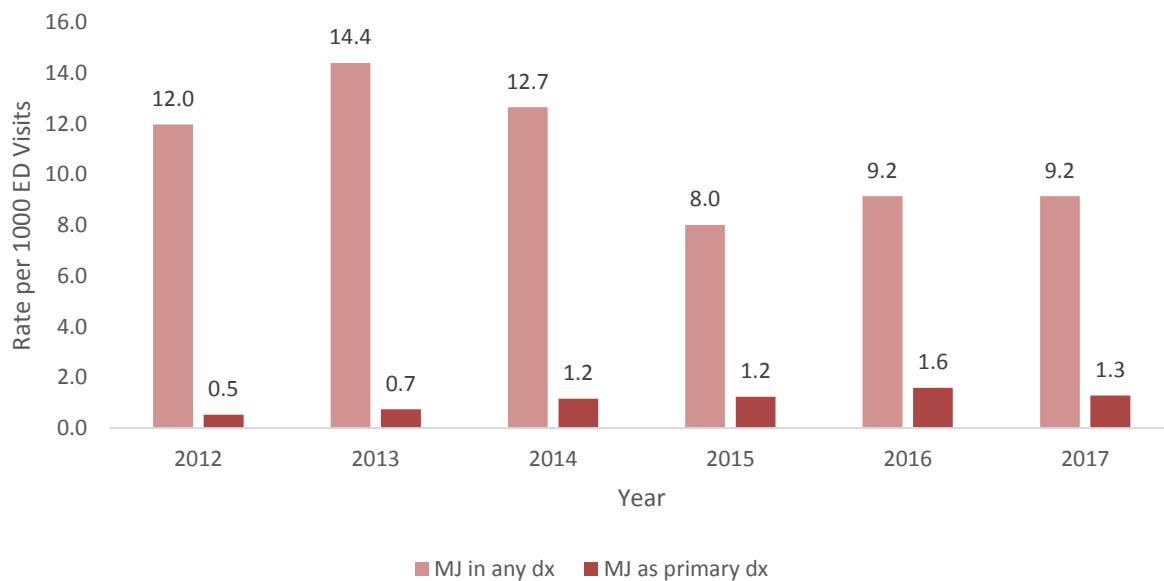
across all groups. For the 18 to 24 year old population, 2% of marijuana-related hospitalizations were marijuana-caused; for 25-44 year olds, 1%; and for 45-64 year olds, 0.6%.

The mean length of stay for marijuana-related hospitalizations was 6 days (standard deviation [SD] = 10 days) and the median was 4 days (interquartile range [IQR] = 5 days), whereas the mean length of stay for marijuana-caused hospitalizations was 9 days (SD = 13 days) and the median was 3 days (IQR = 7).<sup>2</sup>

## Section 2: Marijuana-Related and Marijuana-Caused Emergency Department Visits

The next three figures illustrate the annualized trends of marijuana-related and marijuana-caused emergency department (ED) visits overall and then by sex and by age group among Denver county residents between 2012 and 2017. Across all years, 13018 marijuana-related ED visits and 1350 marijuana-caused ED visits were identified.

Figure 2.1: Annual rate of marijuana-related and marijuana-caused emergency department visits for the city and county of Denver

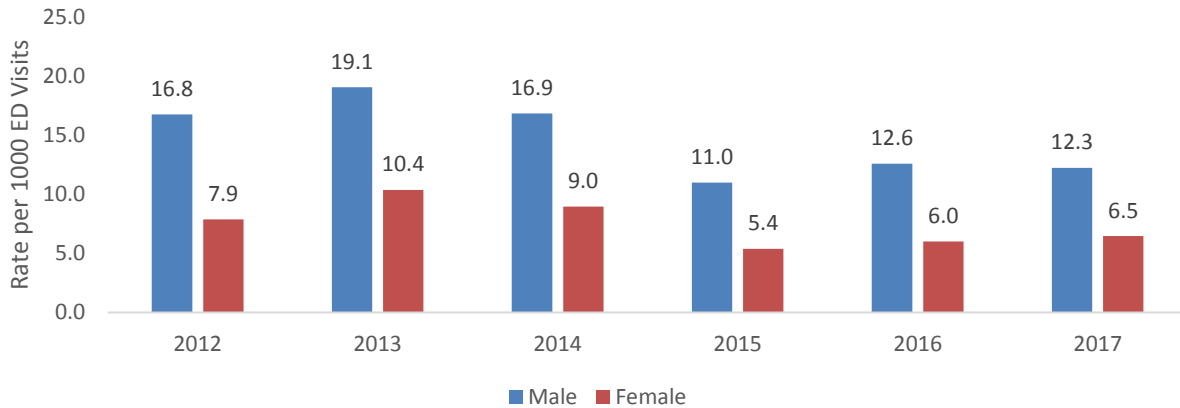


The annual rate of marijuana-related ED visits for residents of the city and county of Denver was the highest in 2013 at 14.4 per 1000 visits. These estimates were higher in 2012-2014 compared to 2015-2017. On average, the rate of marijuana-related ED visits was 10.8 per 1000 visits.

Overall, the rate of marijuana-caused ED visits increased 160% between 2012 and 2017, but began to decline between 2016 and 2017.

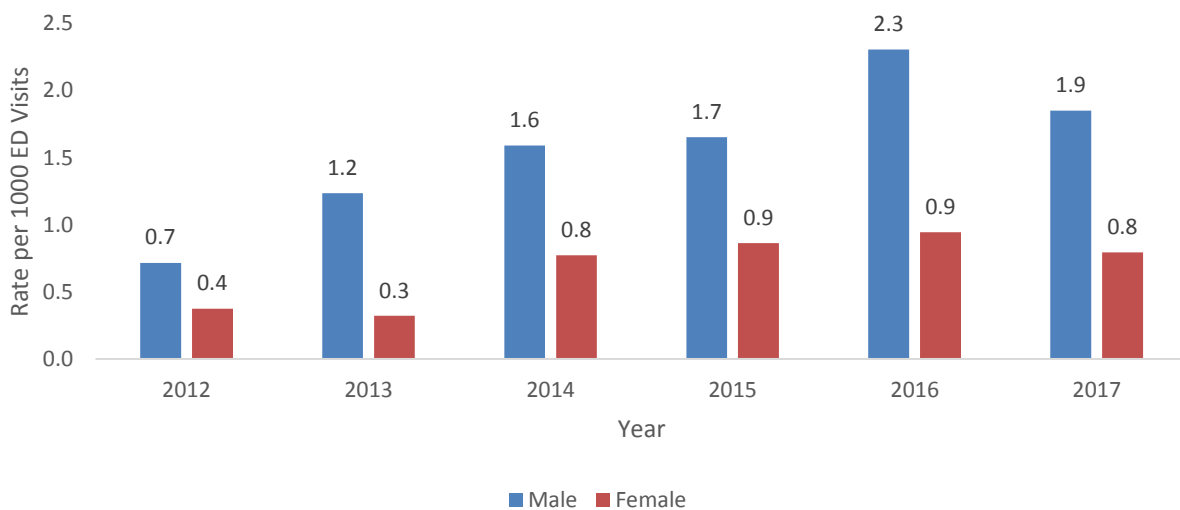
<sup>2</sup> It is important to recognize that these data do not enable the ability to determine whether or not a marijuana-related diagnosis was main determining factor in length of hospital stay.

Figure 2.2.1: Annual rate of marijuana-related emergency department visits for the city and county of Denver, by sex



As with hospitalizations, rates of potentially marijuana-related ED visits were almost two times higher for males versus females across all years. Gender specific trends did not reveal any significant increases or decreases over this time period, though the rates of marijuana-related ED visits were higher for both males and females in 2012 – 2014, compared to 2015 – 2017.

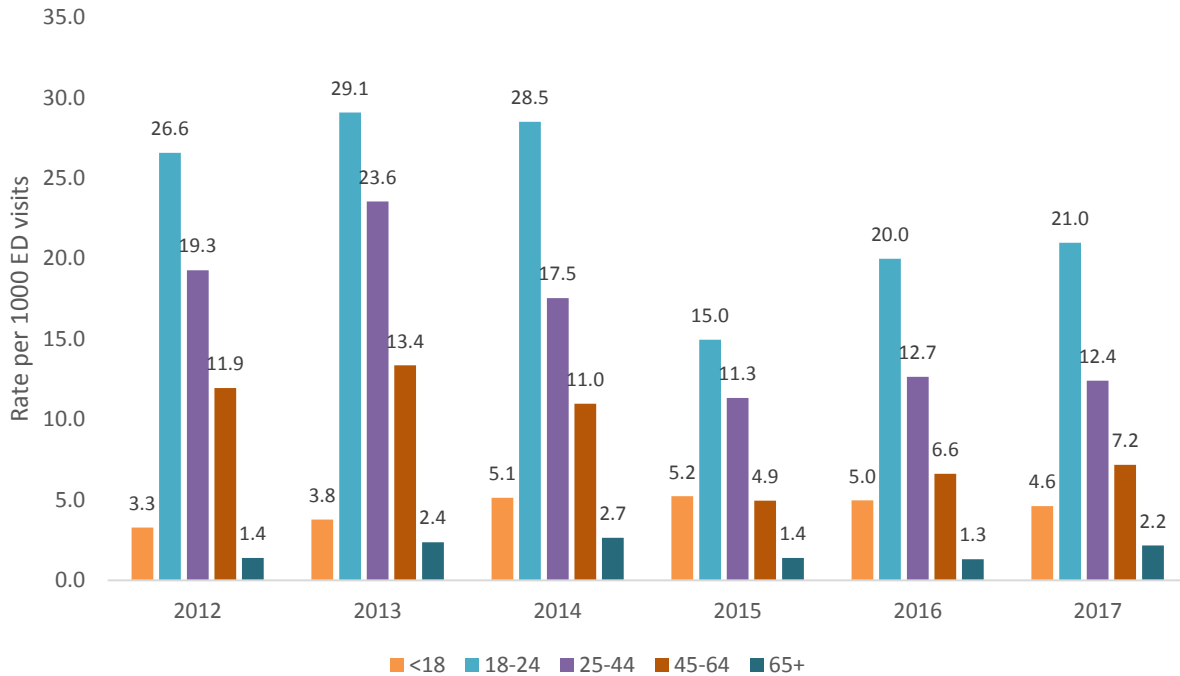
Figure 2.2.1: Annual rate of marijuana-caused emergency department visits for the city and county of Denver, by sex



The rate of marijuana-caused ED visits is higher for males compared to females, across all years. For both males and females, the rates have steadily increased from 2012 to 2016 (228% increase for males and 125% increase for females) with a slight decrease for females in 2013 and a slight decrease for both males and females in 2017.

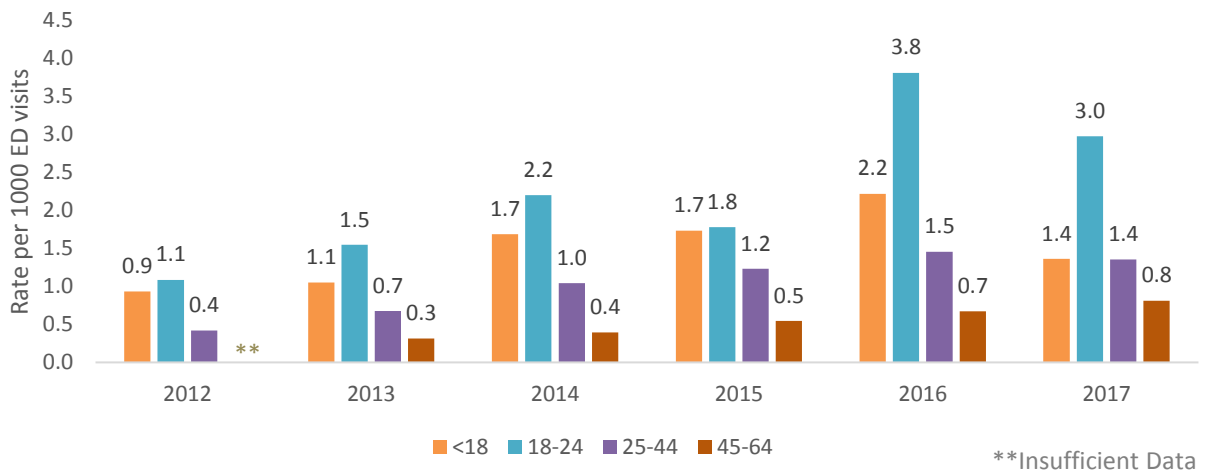


Figure 2.3.1: Annual rate of marijuana-related emergency department visits for the city and county of Denver, by age group



Similar to hospitalizations, the rate of marijuana-related ED visits was highest among the 18-24 year old population across all years. On average, across all years, approximately 23 out of every 1,000 emergency department visits by 18-24 years of age was marijuana-related.

Figure 2.3.2: Annual rate of marijuana-caused emergency department visits for the city and county of Denver, by age group



The highest rates of marijuana-caused ED visits were among the 18-24 year old population. At its highest in 2016, approximately 4 out of every 1000 ED visits for 18-24 year olds were caused by marijuana. For all other age groups, there was a steady increase in the rate of marijuana-caused ED visits from 2012-2016. Decreases between 2016 and 2017 suggest that improvements in knowledge about responsible marijuana use may have contributed to a reduction in marijuana-caused emergency department visits. This is an important trend to track going forward.

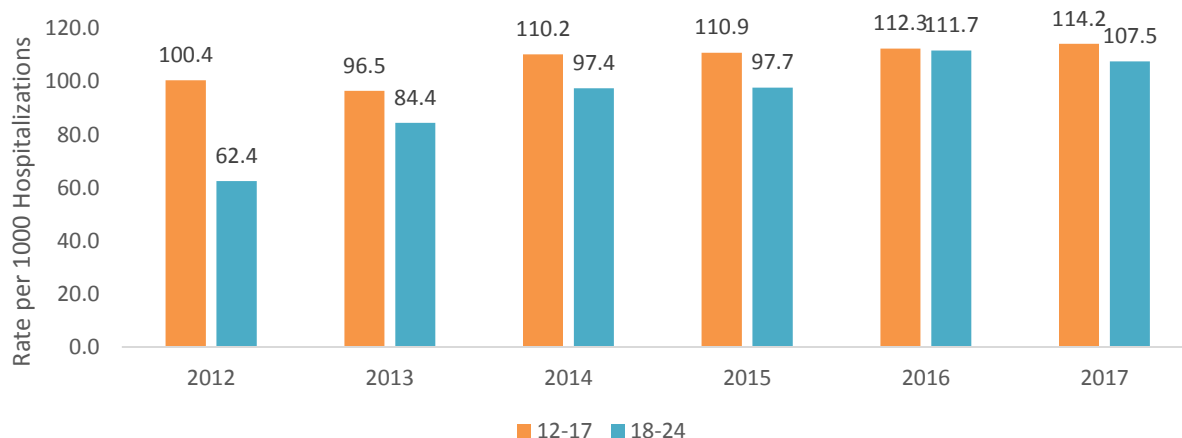
Note that the 65+ population is not included in the above figure, as there were not enough marijuana-caused ED visits annually among this population to share these data. When all marijuana-related hospitalizations are combined for all individuals 65 years of age and older, combining all years of data, the rate of marijuana-caused ED visits was 1.8 per 10,000.

### Section 3: A Focus on Youth

In an effort to understand marijuana-related healthcare utilization among young people, an additional analysis was conducted to analyze rates of marijuana-related hospitalizations and ED visits for Denver residents under the age of 25. As evidenced by the age-related analysis presented in figure 1.3 and figure 2.3.1 and 2.3.2, marijuana-related healthcare utilization is highest among the 18-24 year old population. Though marijuana-related healthcare utilization is low when the under 18 population is analyzed together, separating out specific age groups among youth helps to highlight when marijuana-related healthcare utilization begins. Most notably, once 0-11 year olds are removed from the denominator, the rates for 12-17 year olds increase drastically.

The following show annual rates of marijuana-related hospitalization and emergency department visits between 2012 and 2017 for Denver residents between the ages of 12 and 17, compared to the 18-24 population.

Figure 3.1: Annual rate of marijuana-related hospitalizations for 12-17 year olds and 18-24 year olds in the city and county of Denver

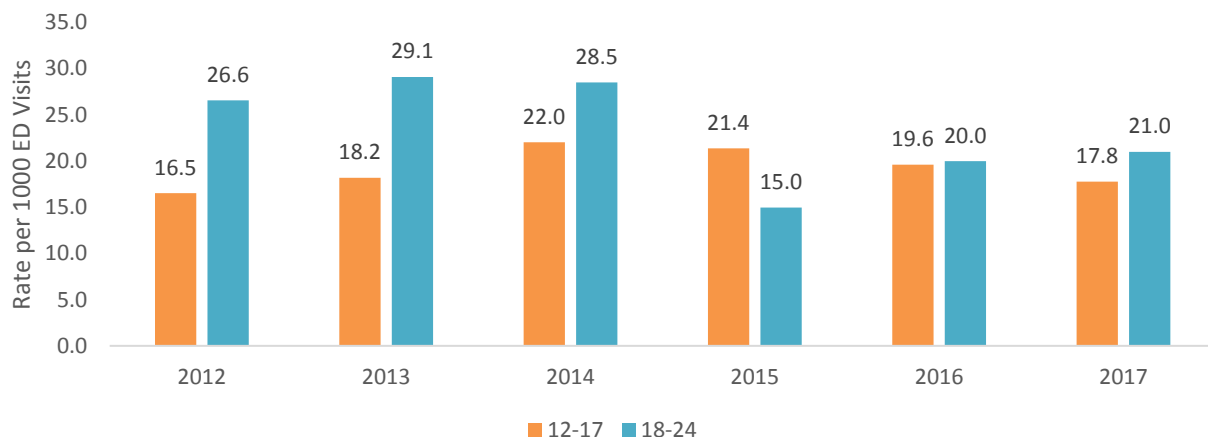


Among 18-24 year olds in Denver who have experienced a marijuana-related hospitalization, the rate increased slightly every year from 2012 to 2016. Overall, the average rate of marijuana-related hospitalizations is 93.1 per 1,000 for this population. With the exception of a decrease in 2013, there was an annual increase in the rate of marijuana-related hospitalizations among the 12-17 year old population, 14% overall. The average rate of marijuana-related hospitalizations in this population was 107.7 per 1,000, which is 14% higher than the average for the 18-24 year old population.

There were not enough marijuana-caused hospitalizations for young people between 12 and 24 to share data by year. Across all years, the rate of marijuana-caused hospitalizations was 2.9 per 1000 hospitalizations for the 12-17 population and 2.0 per 1000 hospitalizations for the 18-24 population.

Note that there were not enough marijuana-related or marijuana-caused hospitalizations for young people under the age of 12 across all years of data to estimate a rate.

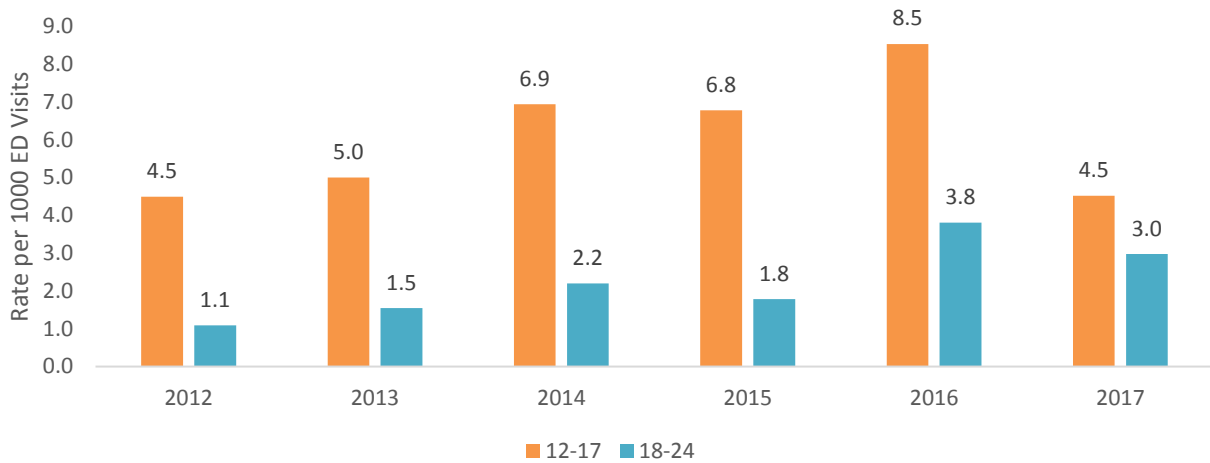
**Figure 3.2.1: Annual rate of marijuana-related emergency department visits for 12-17 year olds and 18-24 years olds in the city and county of Denver**



In most years, the annual rate of marijuana-related emergency department visits is higher in the 18-24 year old population compared to the 12-17 year old population. The key exception is 2015, where the annual rate of potentially marijuana-related emergency department visits was 21.4 per 1,000 visits for 12-17 year olds, which was 43% higher than the rate for the 18-24 year old population (15.0 per 1,000 visits).

When combined across all years of data, the rate of marijuana-related emergency department visits for young people under the age of 12 was 2.0 per 10,000 visits.

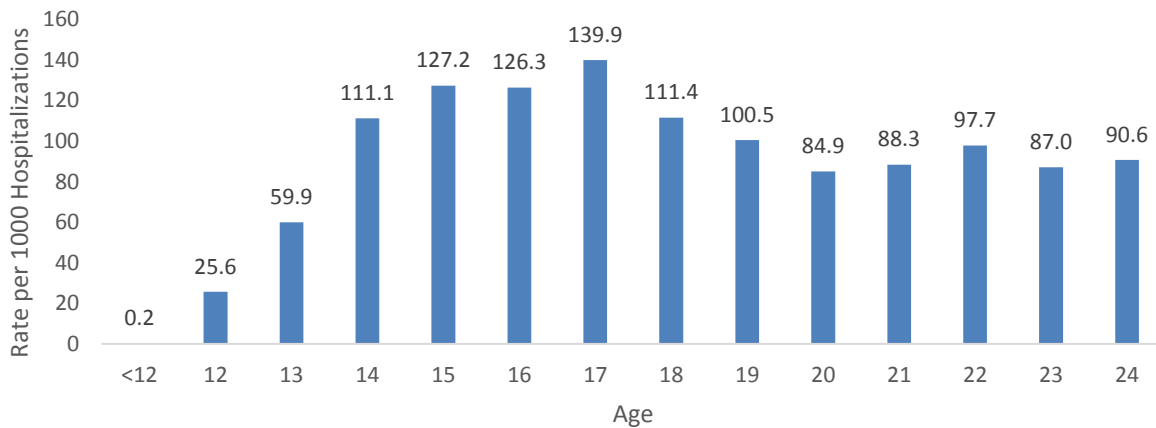
Figure 3.2.2: Annual rate of marijuana-caused emergency department visits for 12-17 year olds and 18-24 years olds in the city and county of Denver



Across most years, the annual rate of marijuana-caused ED visits was more than two times higher for 12-17 year olds compared to 18-24 year olds. For 12-17 year olds, the annual rate increased 89% from 2012-2016. With the exception of a decrease in 2015, for 18-24 year olds, the annual rate increased almost 2.5 times between 2012 and 2016. The rates for both age groups decreased in 2017; it will be important to monitor whether or not this move downward continues in the future.

To best understand how marijuana-related healthcare utilization differs by age, potentially marijuana-related hospitalizations across all data years were combined to produce age-specific rates. The same analysis was conducted for marijuana-related emergency department visits.

Figure 3.3: Marijuana-related hospitalizations among 14 to 24 year olds in Denver between 2012 and 2017



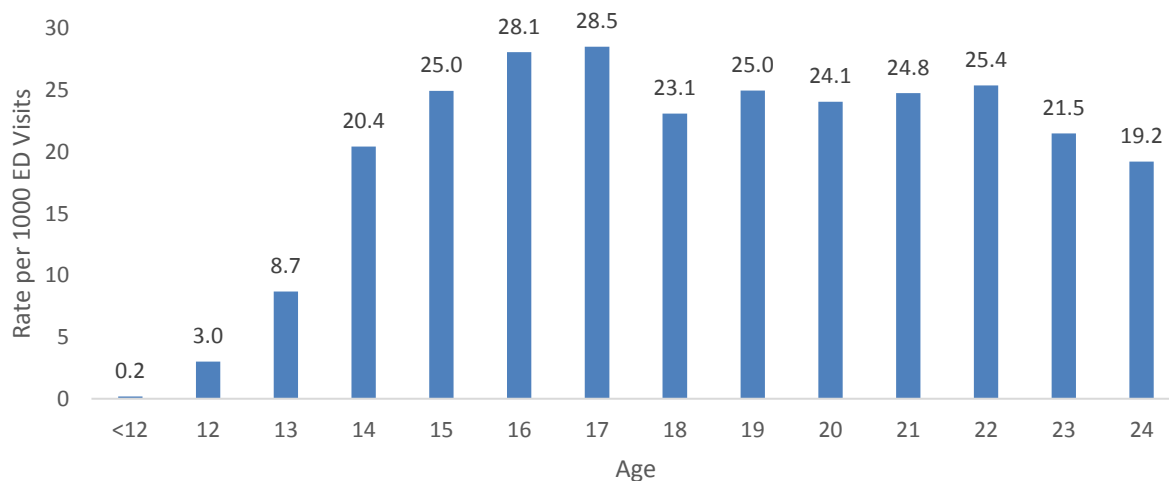
Between 2012 and 2017, the rate of marijuana-related hospitalizations was highest among 17 year olds (139.9 per 1,000 hospitalizations), but was above 100 per 1000 hospitalizations for 14-19 year olds as

well. With the exception of 22 year olds, the rates were lower for young adults 20 years old and above. The rate of hospitalizations increases more than three times from the 12 year old to 14 year old population, which may present an important signal for the timing of prevention interventions.

For young people under the age of 12, the number of marijuana-related hospitalizations was combined across all ages across all years. For all of these ages between 2012 and 2017, the rate of marijuana-related hospitalizations was 2.3 for every 10,000.

Marijuana-caused hospitalizations were too few to calculate rates by individual age.

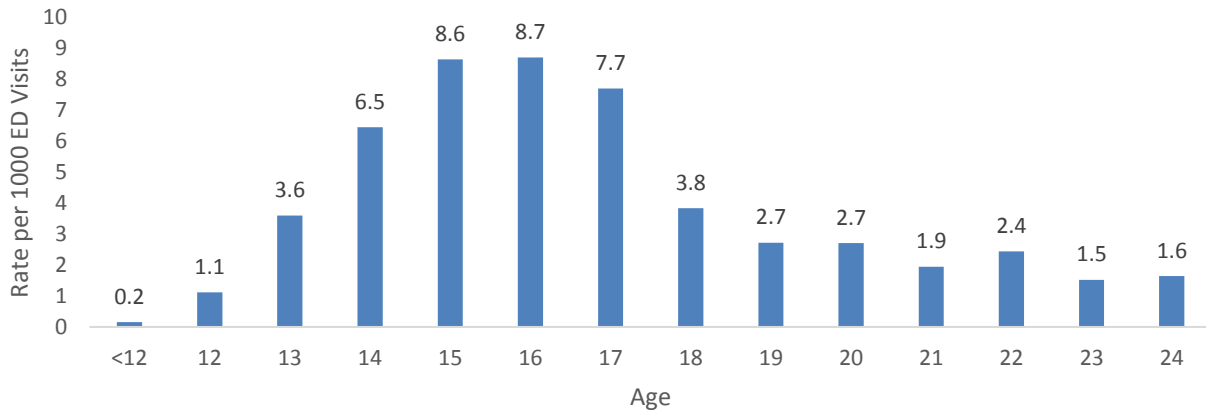
Figure 3.4.1: Marijuana-related emergency department visits among 12 to 24 year olds in Denver between 2012 and 2017



Marijuana-related emergency department visits increased steadily at every age from 12 years old to 17 years old, where 16 and 17 year olds had experienced marijuana-related emergency department visits 3 out of every 100 visits. At 18, the rate drops by 19% to 23.1 marijuana-related emergency department visits per 1,000 visits and remains relatively constant until 23 years of age, when the rate decreases again. Like with hospitalization, there is a drastic increase in rates from 12 to 14 year olds (580%), which provides further evidence of this as an age on which to focus for specific prevention interventions.

For young people under the age of 12, the number of marijuana-related ED visits was combined across all ages across all years. For young people under the age of 12 from 2012-2017, the rate of marijuana-related ED visits was 2.0 per 10,000.

Figure 3.4.2: Marijuana-caused emergency department visits among 12 to 24 year olds in Denver between 2012 and 2017



As with marijuana-related ED visits and hospitalizations, marijuana-caused ED visits increase drastically from 12 to 15 and remain high for 16 and 17 year olds. The rates decrease by 50% from 17 to 18 year olds and continue to decrease from 19 through 24 (with an exception of a slight increase for 22 year olds). As with the other figures in this section, the data show that an opportunity exists to identify prevention opportunities for young people at 13 or younger, and that additional work is required to support teenagers in avoiding marijuana-related healthcare utilization.

## Limitations

Some key limitations must be considered when interpreting the marijuana-related healthcare utilization analyses presented in this report.

### Limitations related to analyzing Marijuana-related health care utilization

Marijuana-related conditions are likely undercoded which makes it very possible that marijuana-related conditions or diagnoses are underreported. In part, this can be attributed to a personal choice made by a patient to not report usage of marijuana when seeking healthcare services. Individuals may inaccurately report the frequency, intensity or duration of their marijuana use to healthcare providers, especially those under the legal age for use. There may also be variations in the reporting of marijuana use as it gradually loses the stigma it previously had as an illegal substance. This might result in patients more freely admitting to use, or to clinicians finding use less remarkable and thus less worthy of a diagnostic code.

Providers may not have received appropriate education or guidance to understand the meaning and recommended use of marijuana diagnosis codes. Inconsistent use of diagnosis codes by provider can make it difficult to differentiate between marijuana use and potentially marijuana-related negative health outcomes. Additionally, if healthcare centers contributing data to the Colorado Hospital



Association are not consistent in the way that the principle cause of healthcare utilization is assigned to a diagnosis field, whether or not a hospitalization or ED visit were deemed marijuana-caused versus marijuana-related could be impacted.

The burden of potential marijuana-related healthcare utilization by individuals visiting Denver to partake in legal marijuana (since 2014) is not reflected here, as the observations in the data used for these analyses all identified as Denver residents. To better understand the effect of pot-tourism on Denver's healthcare system, additional analysis will be necessary.

### [Limitations of hospitalization and emergency department discharge datasets](#)

It is important to note that the hospital discharge data from 2012-2017 are not de-duplicated, which means that it is not possible to discern the uniqueness of the patient represented by each observation in the data. As a result, the rates reflect total number of visits and cannot be translated to represent the population in Denver.

The transition from the ninth revision of the International Classification of Diseases to the tenth revision (ICD9-CM to ICD10-CM) in October of 2015 presents an additional limitation, as the transition reflected a five-fold increase in diagnosis codes. This proliferation of codes allows for more detailed diagnosing, but because the clinical concepts related to marijuana are poorly understood, more time is needed for the most effective adoption of the many new coding options that have become available.

## Summary and next steps

The data presented here provide insight into marijuana-related and marijuana-caused rates of hospitalizations and emergency department visits for residents in the city and county of Denver overall, and broken down by gender and age.

### Encouraging trends

- From 2015 to 2017, the annual rate of marijuana-related hospitalizations began to decrease. Similarly, the annual rate of marijuana-related ED visits was lower in 2015-2017 compared to 2012-2014.
- When viewed by age group, decreases between 2016 and 2017 in the rate of marijuana-caused ED visits suggest that improvements in knowledge about responsible marijuana use has resulted in a reduction in marijuana-caused emergency department visits. This is an important trend to track going forward.

### Trends to continue monitoring

- Because the rate of marijuana-related hospitalizations and ED visits is highest among the 18-24 year old population, this creates another opportunity to develop age specific interventions to empower young adult marijuana users of legal age to do so responsibly and to support those under legal age of use to delay initiation.
- There is a drastic increase in the rate marijuana-related hospitalizations and marijuana-related and caused ED visits between the ages of 12 and 14 across all years of data. Focusing on this age group to prevent initiation and use of marijuana and to educate about the harms of marijuana misuse presents an excellent opportunity for intervention.

### Future analytic opportunities

- To better understand the burden non-Denver residents on Denver's healthcare system, an analysis will be conducted to understand rates of marijuana-related hospitalizations and ED visits at Denver hospitals by individuals with residences outside of the state of Colorado.
- Starting with the 2017 hospitalization and ED visit data, population rates for the city and county of Denver can be calculated to better understand the burden of marijuana-related healthcare utilization on the broader population.
- Additional analyses can be conducted to explore marijuana-related healthcare utilization in conjunction with other healthcare concerns – most notably mental health comorbidities.
- As the use of ICD10-CM diagnosis codes becomes normalized, analysis of marijuana-related healthcare utilization divided into more distinct groupings (e.g. marijuana use and abuse compared to marijuana poisoning) will be more feasible.



## Appendix A: Marijuana-Related Diagnostic Codes

Diagnostic codes included in the case definition for this analysis

<b>Condition</b>	<b>ICD-9 Code</b>	<b>ICD-9 Classification</b>
Cannabis abuse & dependence	304.3	Cannabis dependence
Cannabis abuse & dependence	304.30	Cannabis dependence (unspecified)
Cannabis abuse & dependence	304.31	Cannabis dependence (continuous)
Cannabis abuse & dependence	304.32	Cannabis dependence (episodic)
Cannabis abuse & dependence	305.2	Nondependent cannabis abuse
Cannabis abuse & dependence	305.20	Nondependent cannabis abuse (unspecified)
Cannabis abuse & dependence	305.21	Nondependent cannabis abuse (continuous)
Cannabis abuse & dependence	305.22	Nondependent cannabis abuse (episodic)
Cannabis poisoning & adverse effects	969.6	Poisoning by psychodysleptics (hallucinogens)
Cannabis poisoning & adverse effects	E854.1	Accidental poisoning by psychodysleptics (hallucinogens)
<b>Condition</b>	<b>ICD-10 Code</b>	<b>ICD-10 Classification</b>
<b>Cannabis related disorders</b>		
Cannabis abuse & dependence	F12.1	CANNABIS ABUSE, UNCOMPLICATED
Cannabis abuse & dependence	F12.10	CANNABIS ABUSE, UNCOMPLICATED
Cannabis abuse & dependence	F12.12	Cannabis abuse with intoxication
Cannabis abuse & dependence	F12.120	Cannabis abuse with intoxication, uncomplicated
Cannabis abuse & dependence	F12.121	Cannabis abuse with intoxication delirium
Cannabis abuse & dependence	F12.122	Cannabis abuse with intoxication with perceptual disturbance
Cannabis abuse & dependence	F12.129	Cannabis abuse with intoxication, unspecified
Cannabis abuse & dependence	F12.15	Cannabis abuse with psychotic disorder
Cannabis abuse & dependence	F12.150	Cannabis abuse with psychotic disorder with delusions

Cannabis abuse & dependence	F12.151	Cannabis abuse with psychotic disorder with hallucinations
Cannabis abuse & dependence	F12.159	Cannabis abuse with psychotic disorder, unspecified
Cannabis abuse & dependence	F12.18	Cannabis abuse with cannabis-induced disorder
Cannabis abuse & dependence	F12.180	Cannabis abuse with cannabis-induced anxiety disorder
Cannabis abuse & dependence	F12.188	Cannabis abuse with other cannabis-induced disorder
Cannabis abuse & dependence	F12.19	Cannabis abuse with unspecified cannabis-induced disorder
Cannabis abuse & dependence	F12.2	CANNABIS DEPENDENCE
Cannabis abuse & dependence	F12.20	CANNABIS DEPENDENCE, UNCOMPLICATED
Cannabis abuse & dependence	F12.22	Cannabis dependence with intoxication
Cannabis abuse & dependence	F12.220	Cannabis dependence with intoxication, uncomplicated
Cannabis abuse & dependence	F12.221	Cannabis dependence with intoxication delirium
Cannabis abuse & dependence	F12.222	Cannabis dependence with intoxication with perceptual disturbance
Cannabis abuse & dependence	F12.229	Cannabis dependence with intoxication, unspecified
Cannabis abuse & dependence	F12.25	Cannabis dependence with psychotic disorder
Cannabis abuse & dependence	F12.250	Cannabis dependence with psychotic disorder with delusions
Cannabis abuse & dependence	F12.251	Cannabis dependence with psychotic disorder with hallucinations
Cannabis abuse & dependence	F12.259	Cannabis dependence with psychotic disorder, unspecified
Cannabis abuse & dependence	F12.28	Cannabis dependence with cannabis-induced disorder
Cannabis abuse & dependence	F12.280	Cannabis dependence with cannabis-induced anxiety disorder
Cannabis abuse & dependence	F12.288	Cannabis dependence with other cannabis-induced disorder
Cannabis abuse & dependence	F12.29	Cannabis dependence with unspecified cannabis-induced disorder
Cannabis use	F12.9	CANNABIS USE, UNSPECIFIED
Cannabis use	F12.90	CANNABIS USE, UNSPECIFIED, UNCOMPLICATED

Cannabis use	F12.92	Cannabis use, unspecified with intoxication
Cannabis use	F12.920	Cannabis use, unspecified with intoxication, uncomplicated
Cannabis use	F12.921	Cannabis use, unspecified with intoxication delirium
Cannabis use	F12.922	Cannabis use, unspecified with intoxication with perceptual disturbance
Cannabis use	F12.929	Cannabis use, unspecified with intoxication, unspecified
Cannabis use	F12.95	Cannabis use, unspecified with psychotic disorder
Cannabis use	F12.950	Cannabis use, unspecified with psychotic disorder with delusions
Cannabis use	F12.951	Cannabis use, unspecified with psychotic disorder with hallucinations
Cannabis use	F12.959	Cannabis use, unspecified with psychotic disorder, unspecified
Cannabis use	F12.98	Cannabis use, unspecified with other cannabis-induced disorder
Cannabis use	F12.980	Cannabis use, unspecified with anxiety disorder
Cannabis use	F12.988	Cannabis use, unspecified with other cannabis-induced disorder
Cannabis use	F12.99	Cannabis use, unspecified with unspecified cannabis-induced disorder
<b>Poisoning by cannabis</b>		
Cannabis poisoning & adverse effects	T40.7X1	Poisoning by cannabis (derivatives), accidental (unintentional)
Cannabis poisoning & adverse effects	T40.7X1A	Poisoning by cannabis (derivatives), accidental (unintentional), initial encounter
Cannabis poisoning & adverse effects	T40.7X1D	Poisoning by cannabis (derivatives), accidental (unintentional), subsequent encounter
Cannabis poisoning & adverse effects	T40.7X1S	Poisoning by cannabis (derivatives), accidental (unintentional)
Cannabis poisoning & adverse effects	T40.7X2	Poisoning by cannabis (derivatives), intentional self-harm
Cannabis poisoning & adverse effects	T40.7X2A	Poisoning by cannabis (derivatives), intentional self-harm, initial encounter
Cannabis poisoning & adverse effects	T40.7X2D	Poisoning by cannabis (derivatives), intentional self-harm, subsequent encounter
Cannabis poisoning & adverse effects	T40.7X2S	Poisoning by cannabis (derivatives), intentional self-harm, sequela
Cannabis poisoning & adverse effects	T40.7X3	Poisoning by cannabis (derivatives), assault,

Cannabis poisoning & adverse effects	T40.7X3A	Poisoning by cannabis (derivatives), assault, initial encounter
Cannabis poisoning & adverse effects	T40.7X3D	Poisoning by cannabis (derivatives), assault, subsequent encounter
Cannabis poisoning & adverse effects	T40.7X3S	Poisoning by cannabis (derivatives), assault, sequela
Cannabis poisoning & adverse effects	T40.7X4	Poisoning by cannabis (derivatives), undetermined
Cannabis poisoning & adverse effects	T40.7X4A	Poisoning by cannabis (derivatives), undetermined, initial encounter
Cannabis poisoning & adverse effects	T40.7X4D	Poisoning by cannabis (derivatives), undetermined, subsequent encounter
Cannabis poisoning & adverse effects	T40.7X4S	Poisoning by cannabis (derivatives), undetermined, sequela
Cannabis poisoning & adverse effects	T40.7X5	Adverse effect of cannabis (derivatives)
Cannabis poisoning & adverse effects	T40.7X5A	Adverse effect of cannabis (derivatives), initial encounter
Cannabis poisoning & adverse effects	T40.7X5D	Adverse effect of cannabis (derivatives), subsequent encounter
Cannabis poisoning & adverse effects	T40.7X5S	Adverse effect of cannabis (derivatives), sequela
Cannabinosis	J66.2	Cannabinosis

### Diagnostic codes excluded from the case definition used for analysis:

<b>ICD-9 Code</b>	<b>ICD-9 Classification</b>
304.33	Cannabis dependence, in remission
305.23	Cannabis abuse, in remission
<b>ICD-10 Code</b>	<b>ICD-10 Classification</b>
F12.21	CANNABIS DEPENDENCE, IN REMISSION
T40.7	Poisoning by, adverse effect of and underdosing of cannabis (derivatives)
T40.7X	Poisoning by, adverse effect of and underdosing of cannabis (derivatives)
T40.7X6	Underdosing of cannabis (derivatives)
T40.7X6A	Underdosing of cannabis (derivatives), initial encounter
T40.7X6D	Underdosing of cannabis (derivatives), subsequent encounter
T40.7X6S	Underdosing of cannabis (derivatives), sequela