

# **SURVEILLANCE OF CANNABIS IN MANITOBA: BASELINE REPORT**



HEALTHY MANITOBANS THROUGH AN APPROPRIATE BALANCE OF PREVENTION AND CARE.

**TO MEET THE HEALTH NEEDS OF INDIVIDUALS, FAMILIES AND THEIR COMMUNITIES  
BY LEADING A SUSTAINABLE, PUBLICLY ADMINISTERED HEALTH SYSTEM THAT  
PROMOTES WELL-BEING AND PROVIDES THE RIGHT CARE, IN THE RIGHT PLACE, AT  
THE RIGHT TIME.**

— MANITOBA HEALTH, SENIORS AND ACTIVE LIVING

**EPIDEMIOLOGY & SURVEILLANCE**

ACTIVE LIVING, POPULATION AND PUBLIC HEALTH BRANCH

ACTIVE LIVING, INDIGENOUS RELATIONS, POPULATION AND PUBLIC HEALTH DIVISION

MANITOBA HEALTH, SENIORS AND ACTIVE LIVING

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## ABBREVIATIONS

FY	Fiscal Year
CBD	Cannabidiol
ICD	International Classification of Diseases
MHSAL	Manitoba Health, Seniors and Active Living
MPC	Manitoba Poison Centre
PHAC	Public Health Agency of Canada
RHA	Regional Health Authority
THC	Tetrahydrocannabinol
UCRS	Uniform Crime Reporting Survey

## ACKNOWLEDGEMENTS

In the spirit of honour, respect, and reconciliation, Manitoba Health, Seniors and Active Living (MHSAL) would like to acknowledge these provincial lands. We are in Treaty territories One through Five on the homelands of the Anishinaabeg Oji-Cree and Ojibwe, the Cree, Dakota, and Dené peoples, and on the homeland of the Métis Nation.

*The Surveillance of Cannabis in Manitoba: Baseline Report* is the result of the ongoing efforts of a dedicated team of individuals throughout the Province of Manitoba. Their combined efforts and expertise in the preparation for cannabis legalization was necessary to produce this valuable report.

We kindly acknowledge the collaboration of the following organizations for providing the data for this report:

- Addictions Foundation of Manitoba
- Addictions Policy and Support Branch, Manitoba Health, Seniors and Active Living
- Health Canada
- Health Links – Info Santé
- Liquor, Gaming and Cannabis Authority of Manitoba
- Manitoba Justice
- Manitoba Poison Centre
- Manitoba Public Insurance
- Partners in Planning for Healthy Living
- Statistics Canada

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## HIGHLIGHTS

- In Manitoba, youth cannabis use has remained unchanged for the past decade, with one in five of youth between grades 7 and 12 reporting using cannabis in the past year (*see page 12*).
- One in five adults in Manitoba have used cannabis in the past year; after legalization, an additional one in five adults are considering trying it (*see page 13*).
- The rate of hospitalization that included a diagnosis for a cannabis related disorders (e.g. cannabis abuse) *increased* by 45% from 2012 and 2017 (*see page 15*). Generally, males experienced higher rates than females of all cannabis related disorders for those with a cannabis related disorder diagnosed during hospitalization (*see page 16*).
- Manitobans aged 18 - 24 years experienced the highest rates of hospitalization with a cannabis related disorders, followed by those aged 25 - 34 years (*see page 17*).
- Cannabis abuse, defined as a pattern of cannabis use that is causing damage to health, is the most commonly diagnosed cannabis related disorder required hospitalization (*see page 19*). The rate of cannabis abuse related hospitalization *increased* by 27% from 2012 to 2017 (*see page 20*).
- The rate of hospitalization with reported cannabis dependence has *decreased* by 50% from 2010 to 2017 (*see page 24*).
- There were very few calls made annually to Health Links – Info Santé or to the Manitoba Poison Centre regarding cannabis over the time period reviewed (*see pages 37 to 38*).
- Rates of cannabis possession and cannabis trafficking charges have *decreased* over time from 2010 to 2017 in Manitoba (*see pages 41 and 42*).



## BACKGROUND

Public health surveillance is the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice.<sup>1</sup> It is needed to provide an accurate assessment of the scope of a problem, provide information to define priorities, inform planning of public health programs, and evaluate those programs so that they can be improved.<sup>2</sup>

Cannabis is the name for products derived from the *Cannabis sativa* and *Cannabis indica* plants, though it is commonly referred to as *marijuana*. The main psychoactive compound in cannabis is tetrahydrocannabinol (THC).<sup>3</sup> The effects of THC can include euphoria and altered perceptions, as well as anxiety and paranoia. THC is used medically to improve appetite, to relieve pain and nausea, and reduce spasms associated with conditions like multiple sclerosis. Another compound that is often found in cannabis is cannabidiol (CBD). CBD is non-psychoactive, so it does not produce the same intoxicating effects as THC.<sup>3</sup>

Cannabis has been legally available for medical use and production in Canada since 2001, following a decision made by the Ontario Court of Appeal, which found that the prohibition of cannabis for medical use infringed on Section 7 of the Canadian Charter of Rights and Freedoms.<sup>4</sup> In 2013, regulations were changed, and Health Canada began issuing licenses to commercial producers of cannabis who became responsible for providing cannabis to Canadians with approved medical documentation.<sup>3</sup>

On October 17, 2018, the sale of non-medical cannabis was legalized in Canada. Prior to legalization, cannabis had been the most widely used illicit substance in Canada.<sup>5</sup> As cannabis may become more readily available following legalization, the risks and benefits associated with its use may change, and the impacts of cannabis use on public health may be magnified. A recent 2017 survey from the Liquor, Gaming and Cannabis Authority of Manitoba found that 21% of adults in Manitoba used cannabis in the previous year, and an additional 21% were planning on trying cannabis after it is legalized. This potential increase in cannabis use requires that the necessary system be in place to monitor the impacts of legalization.<sup>6</sup> Such a system will require collaboration, coordination and data-sharing by multiple departments of government, provincial organizations, health care providers, and researchers.

While there is no fatal dose of cannabis, it is not without risk. Overconsumption of cannabis can lead to sleepiness, confusion, disorientation, clumsiness/loss of coordination, fainting, dizziness, chest pain, fast, slow or pounding heartbeat, panic attacks, loss of contact with reality, and

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1 World Health Organization. Public Health Surveillance. 2015. Available at: [http://www.who.int/topics/public\\_health\\_surveillance/en/](http://www.who.int/topics/public_health_surveillance/en/)

2 Gregg, Michael. Field Epidemiology, 3rd ed. New York, NY: Oxford University Press; 2008. Print.

3 Centre for Addictions and Mental Health. Available at: <https://camh.ca/en/health-info/mental-illness-and-addiction-index/cannabis>

4 Canadian Centre on Substance Use and Addiction. Available at: <http://www.ccdus.ca/Resource%20Library/CCSA-Medical-Purposes-Marijuana-Policy-Brief-2015-en.pdf>

5 Canadian Centre on Substance Use and Addiction. Available at: <http://www.ccdus.ca/Resource%20Library/CCSA-Canadian-Drug-Summary-Cannabis-2018-en.pdf>

6 Liquor and Gaming Authority of Manitoba. Available at: <http://lgamanitoba.ca/documents/2017-manitoba-cannabis-survey-report.pdf>

seizures.<sup>7</sup> At times, these effects may require emergency medical attention. Cannabis may also be consumed accidentally, posing risks for unsuspecting users such as children and pets. Cannabis also impairs a person's ability to safely operate a motor vehicle, increasing the risk for motor vehicle collisions. As with other recreational substances, cannabis poses a risk for dependence, with approximately one in 11 people who use cannabis (9%) developing a cannabis use disorder.<sup>4</sup>

Data from other jurisdictions that have legalized non-medical cannabis have shown that this change in legislation is associated with an increased incidence for cannabis-related adverse events, including calls to poison control centres and hospitalizations.<sup>8</sup> Given these risks, and the potential increase in cannabis consumption in Manitoba, it is essential to monitor these adverse events in an attempt to accurately quantify the impact of cannabis legalization and to develop a provincial response plan. However, as cannabis legalization affects not only the health of Manitobans, but also the business environment, and justice and education systems, this surveillance report brings together data from a variety of organizations in Manitoba.

## OBJECTIVE

The primary objective of the cannabis surveillance system is to manage, analyze, and interpret cannabis and related data from a range of stakeholders to provide epidemiological evidence to inform policy and programs in Manitoba.

The indicators presented in this surveillance report were chosen based on the findings of other jurisdictions that have legalized non-medical cannabis, as well as from a list of indicators from the Federal-Provincial-Territorial Cannabis Data Working Group to ensure nation-wide jurisdictional comparability.

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7 Health Canada. Available at: <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/licensed-producers/consumer-information-cannabis.html>

8 Wang GS, Hall K, Vigil D, Banerji S, Monte A, Van Dyke M. Marijuana and acute health care contacts in Colorado. *Preventive Medicine*. 2017;104:24-30. Available at: <https://www.sciencedirect.com/science/article/pii/S0091743517301202>

## DATA SOURCES

Manitoba Health, Seniors and Active Living (MHSAL) collaborates with a range of stakeholders to collect cannabis data. The compilation of the data creates a surveillance system where the sum of the individual parts provides a useful picture of the provincial context.

The following data sources were used to generate this report:

- Alcohol & Other Drugs: Students in Manitoba 2007 Survey, Addictions Foundation of Manitoba
- Manitoba Youth Health Survey, 2012/13, Partners in Planning for Healthy Living
- 2017 Manitoba Cannabis Survey, Liquor and Gaming Authority of Manitoba
- Hospital Separation Abstracts, Manitoba Health, Seniors and Active Living
- Addictions Policy Support Branch Program Summaries, Manitoba Health, Seniors and Active Living
- Calls to Health Links – Info-Santé
- Calls to the Manitoba Poison Centre
- Incident-Based Crime Statistics, Statistics Canada
- Manitoba Public Insurance’s 2017 Traffic Collision Statistics Report
- National Cannabis Survey, Second Quarter 2018, Statistics Canada
- Provincial Court database, Manitoba Justice

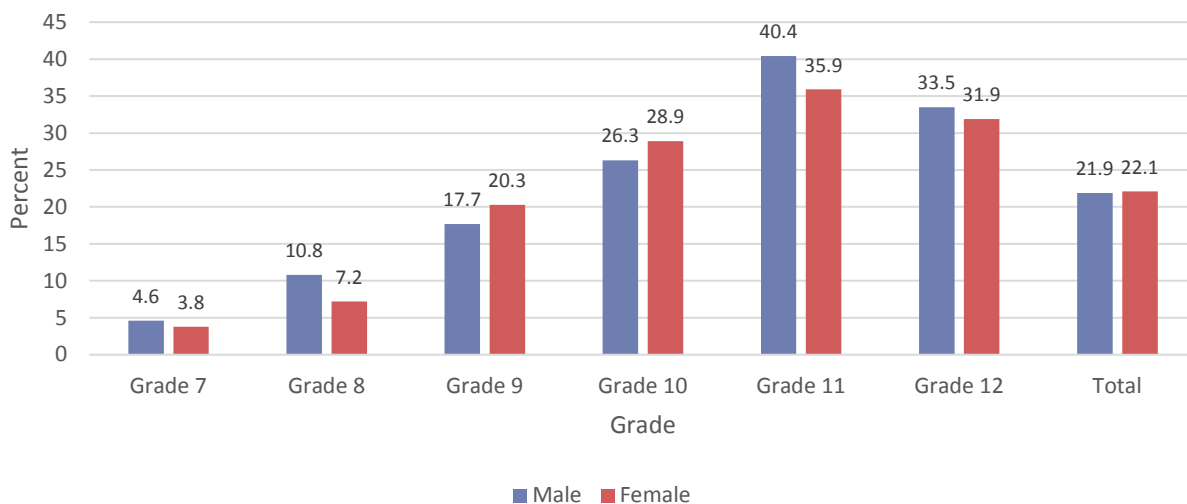
## HEALTH

### PATTERNS OF USE

#### YOUTH USE

The two most recent surveys of Manitoba youth regarding their use of cannabis are the Addiction Foundation of Manitoba's Alcohol & Other Drugs: Students of Manitoba 2007 survey,<sup>9</sup> and the 2012/13 Manitoba Youth Health Survey.<sup>10</sup> Both of these surveys asked grades 7 to 12 students in Manitoba about their past year and past 30 day cannabis use. Please note that the data provided from these surveys are several years old.

**FIGURE 1: PERCENT OF GRADES 7 TO 12 STUDENTS IN MANITOBA WHO USED CANNABIS IN THE PAST YEAR, ADDICTIONS FOUNDATION OF MANITOBA (2007)<sup>9</sup>**



- In 2007, 22% of high school students in Manitoba, from Grade 7 to Grade 12, reported using cannabis in the past year. The 2012/13 Manitoba Youth Health Survey reported comparable use of cannabis in the past year among youth (21%).<sup>10</sup>
- As per the Addiction Foundation of Manitoba's survey, prevalence of cannabis use in the past year varied by age, from a low of 4% for Grade 7 students to a high of 38% for Grade 11 students. Across all age groups, cannabis use was comparable for males (22%) and females (22%).
- The proportion of high school students that reported using cannabis in the past 30 days was 13% in 2007 and 14% in 2012/13 (*data not shown*). Data stratified by age and sex for past 30 day use were not reported.

<sup>9</sup> Retrieved from: [http://afm.mb.ca/wp-content/uploads/woocommerce\\_uploads/2013/10/2007-Manitoba-School-Student-Survey-Nov08.pdf](http://afm.mb.ca/wp-content/uploads/woocommerce_uploads/2013/10/2007-Manitoba-School-Student-Survey-Nov08.pdf)

<sup>10</sup> Retrieved from: [https://partners.healthincommon.ca/wp-content/uploads/2014/11/2012-13-Manitoba-YHS-Report\\_FINAL.pdf](https://partners.healthincommon.ca/wp-content/uploads/2014/11/2012-13-Manitoba-YHS-Report_FINAL.pdf)

## ADULT USE

In 2017, the Liquor, Gaming and Cannabis Authority of Manitoba published the results of a telephone survey of Manitoban adults regarding their use and views of cannabis. The completed findings of the 2017 Manitoba Cannabis Survey can be found at:

<http://lgamanitoba.ca/documents/2017-manitoba-cannabis-survey-report.pdf>.

Some key findings from this survey include:

- In 2017, one in five Manitobans used cannabis at least once in the past year, while another one in five were considering trying cannabis after it is legalized.
- Two thirds of people who use cannabis have tried cannabis by the time they are 18 years old.
- Most frequently, people who use cannabis use 0.5 grams of cannabis per session (note that amount used is determined by factors such as tolerance levels, frequency of use and amount of THC in the product).
- At least one in four survey respondents had driven after using cannabis.
- One in two people who use cannabis never choose lower-risk cannabis products (e.g. lower THC potency).
- One in four people who use cannabis frequently or always consume cannabis alongside alcohol, while six in ten never or rarely do.
- Eight in ten people who use cannabis regularly use cannabis plant materials for consumption, while only one quarter regularly use edibles.

Statistics Canada's first and second quarter results from the 2018 National Cannabis Survey provides additional data regarding cannabis use. This survey, which included those aged 15 years and older, found that 16% of Manitobans reported using cannabis in the past three months.<sup>11</sup>

<sup>11</sup> Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/180809/t003a-eng.htm>

## HOSPITAL ADMISSIONS

The International Statistical Classification of Diseases and Related Health Problems 10<sup>th</sup> edition, or ICD-10, lists diagnosis codes that are used by hospitals as part of standard patient care. These codes are then used by Manitoba Health, Seniors and Active Living (MHSAL) to identify what illnesses are being diagnosed in Manitoba hospitals each year. The ICD-10 code, F12, lists all diagnosis codes related to mental and behavioural disorders due to cannabinoids. For this report, all diagnoses that begin with F12 are grouped together under the term *cannabis related disorders*. Cannabis related disorders is subdivided into more specific diagnoses, which include:

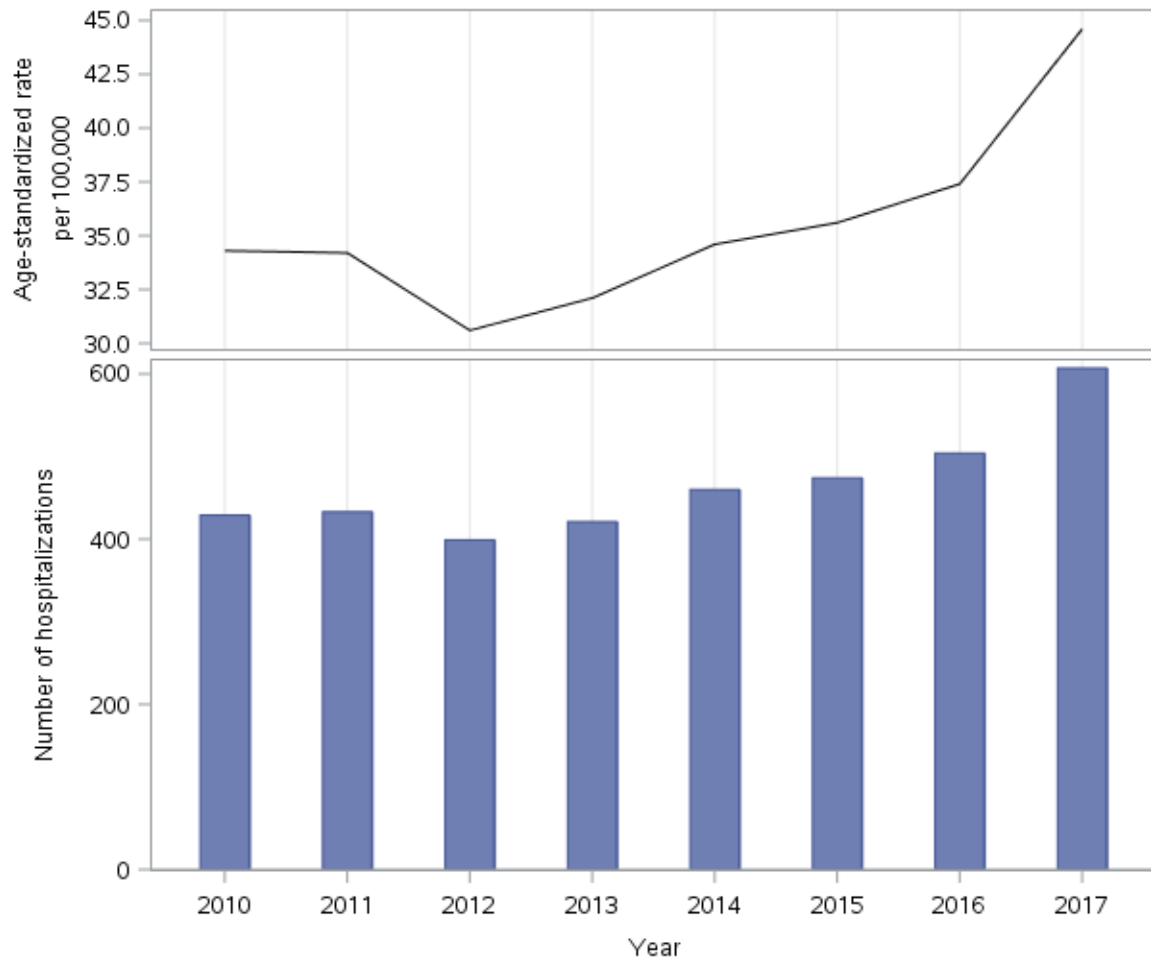
- F12.1 – Cannabis abuse
- F12.2 – Cannabis dependence syndrome
- F12.3 – Cannabis related withdrawal state
- F12.4 – Cannabis related withdrawal state with delirium
- F12.5 – Cannabis related psychotic disorder
- F12.6 – Cannabis related amnesic syndrome
- F12.7 – Cannabis related residual and late-onset psychotic disorder
- F12.8 – Other cannabis related mental and behavioural disorders
- F12.9 – Unspecific cannabis related mental and behavioural disorders

It is important to note that all diagnosis codes related to a hospitalization were included in this analysis, not just the primary reason for the hospitalization. As such, these diagnoses may not necessarily be the primary reason for which a person was hospitalized. Additionally, it is possible that other substances were also involved in these hospitalizations, not just cannabis.

Preliminary results showed that F12.1 – cannabis abuse, F12.2 – cannabis dependence syndrome, and F12.5 – cannabis related psychotic disorder were the most prevalent diagnoses under the cannabis related disorders diagnosis code, while the other six codes were not frequently diagnosed. The surveillance results for cannabis related disorders and for these three prevalent diagnoses are summarized below.

## CANNABIS RELATED DISORDERS

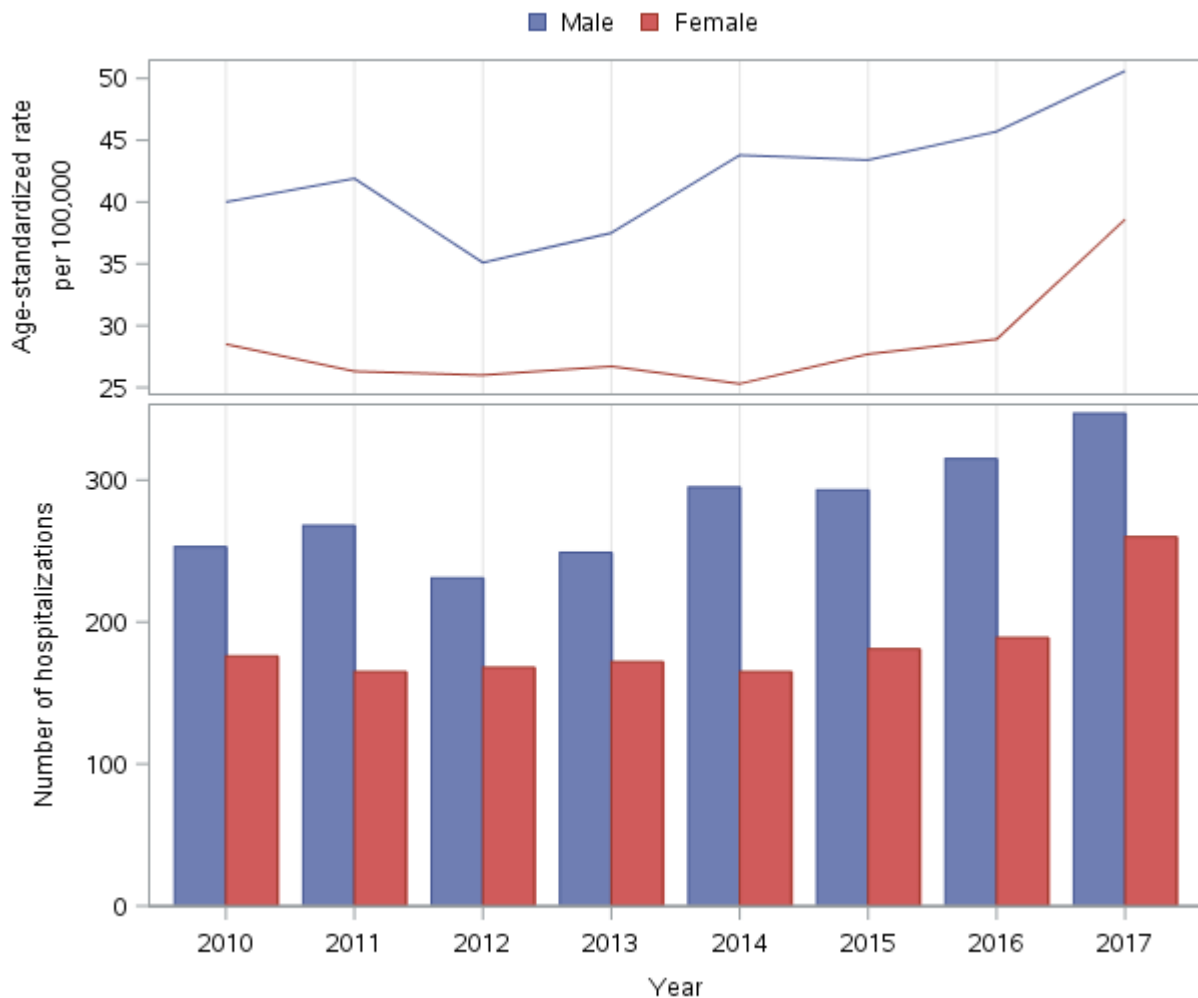
**FIGURE 2: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS-RELATED DISORDERS IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- The age-standardized rate of hospitalization with cannabis related disorders appears to be increasing over time, from 31 per 100,000 population in 2012, to nearly 45 per 100,000 population in 2017, a 45% relative increase.

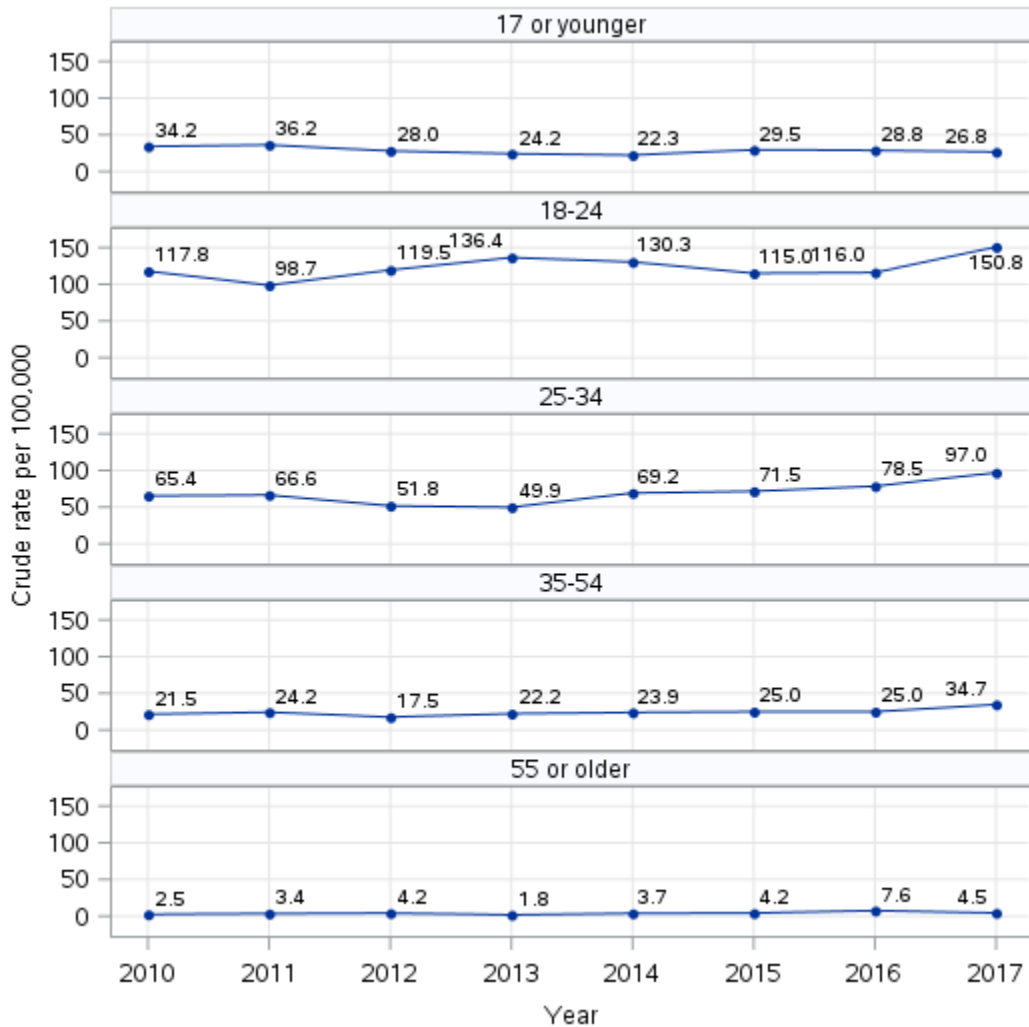


**FIGURE 3: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS-RELATED DISORDERS IN MANITOBA, BY SEX, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



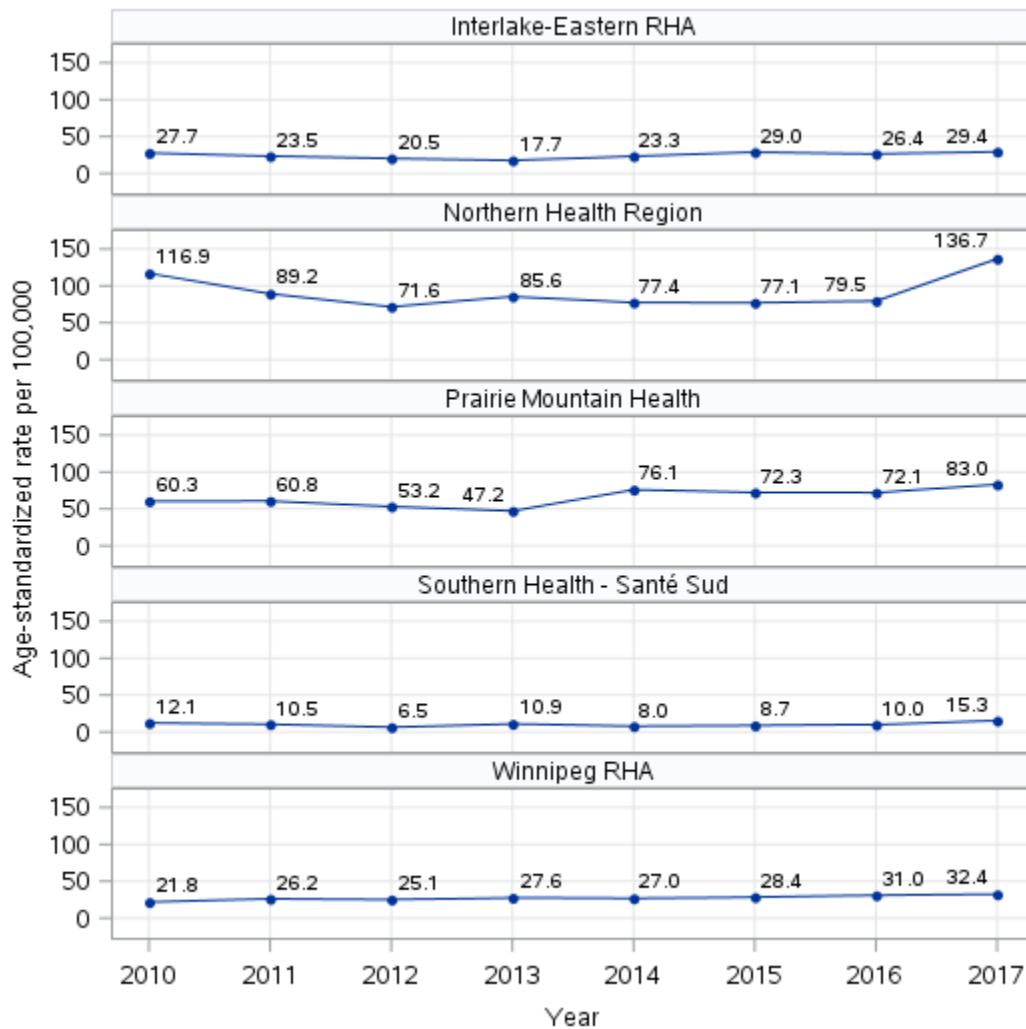
- Overall, males experienced much higher rates of hospitalization with cannabis related disorders. When considering the increase in rates observed from 2012 to 2017, this increase was mostly due to increases in hospitalization for males rather than females, with the exception of 2017, which saw a considerable increase in the rate of hospitalization with cannabis related disorders for females.

**FIGURE 4: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS-RELATED DISORDERS IN MANITOBA, BY AGE GROUP, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



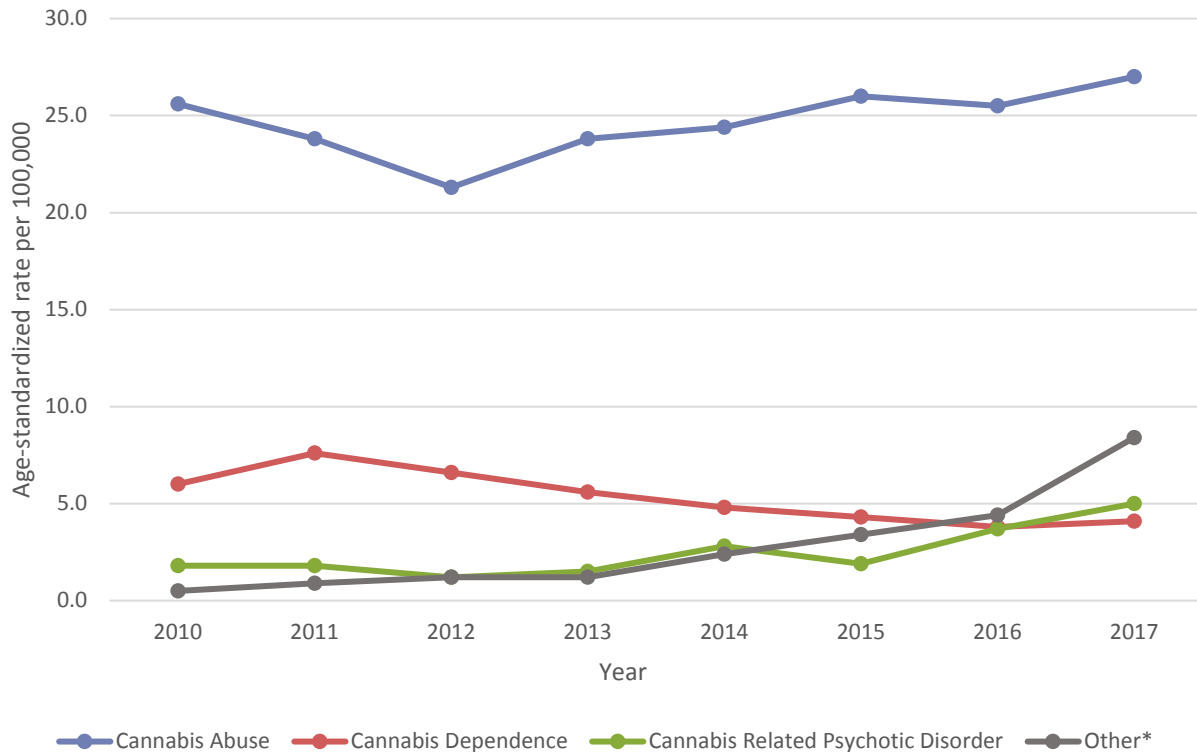
- From 2010 to 2017, those between the ages of 18 and 24 years showed the highest crude rates of hospitalization with cannabis related disorders, followed by those 25 to 34 years.
- Over the reported period, crude rates increased across all age groups, with the exception of those aged 17 years or younger.

**FIGURE 5: AGE-STANDARDIZED RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS-RELATED DISORDERS IN MANITOBA, BY REGIONAL HEALTH AUTHORITY, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- From 2016 to 2017, the rate of hospitalization with reported cannabis related disorders in the Northern Health Region increased by 72%, from 79.5 per 100,000 in 2016 to 136.7 per 100,000 in 2017.
- From 2010 to 2017, a slight increase in rate was noted among the rest of the RHAs.

**FIGURE 6: AGE-STANDARDIZED RATE OF MOST PREVALENT CANNABIS RELATED DISORDER DIAGNOSES IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 - 2017)**



*\*Other - Includes diagnoses of cannabis related withdrawal state, cannabis related withdrawal state with delirium, cannabis related amnesic syndrome, cannabis related residual and late-onset psychotic disorder, other cannabis related mental and behavioural disorders, and unspecified cannabis related mental and behavioural disorders*

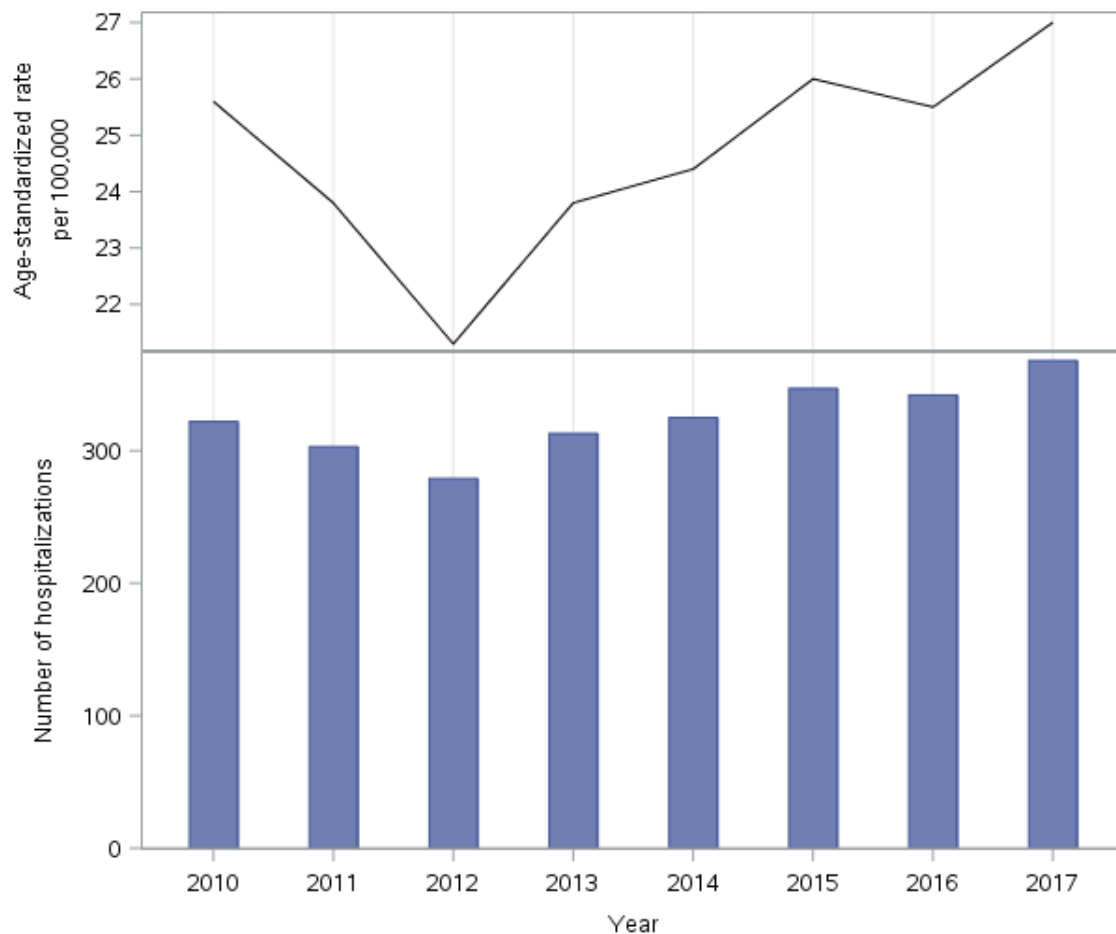
- From 2010 to 2017, cannabis abuse was the most common diagnostic code report for hospitalizations with a diagnosis of cannabis related disorders. Cannabis dependence was the second most common until 2016, when other cannabis related disorders became more frequent.
- While rates of hospitalization with reported cannabis dependence have been decreasing since 2011, rates for all other hospitalizations have been increasing.

### CANNABIS ABUSE

Cannabis *abuse* is defined as a pattern of cannabis use that results in damage to health<sup>12</sup> or more specifically, clinically significant functional impairment. The damage may either be physical or mental.<sup>13</sup>

*Note: Cannabis abuse is a sub-diagnosis of cannabis related disorder, so these counts are included in the cannabis related disorders counts, not in addition to them.*

**FIGURE 7: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS ABUSE IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**

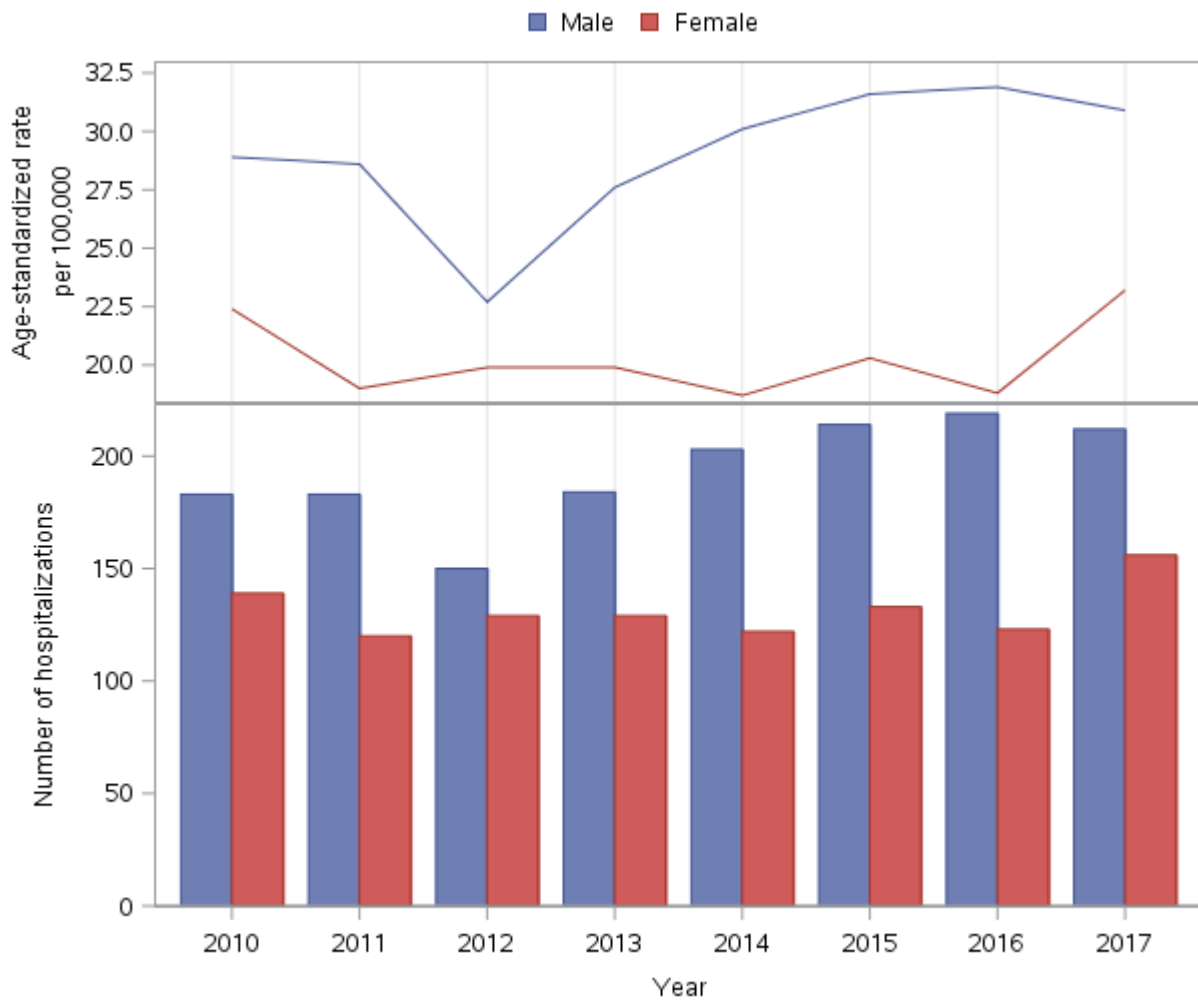


- Similar to hospitalizations with reported cannabis related disorders, the greatest increase in the rate of cannabis abuse related hospitalization occurred between 2012 and 2015, a 27% increase, but continues to rise. However, rates of hospitalization with reported cannabis abuse decreased between 2010 and 2012. As such, no clear trend exists for this indicator.

<sup>12</sup> World Health Organization. Available at: <http://apps.who.int/classifications/icd10/browse/2010/en#>

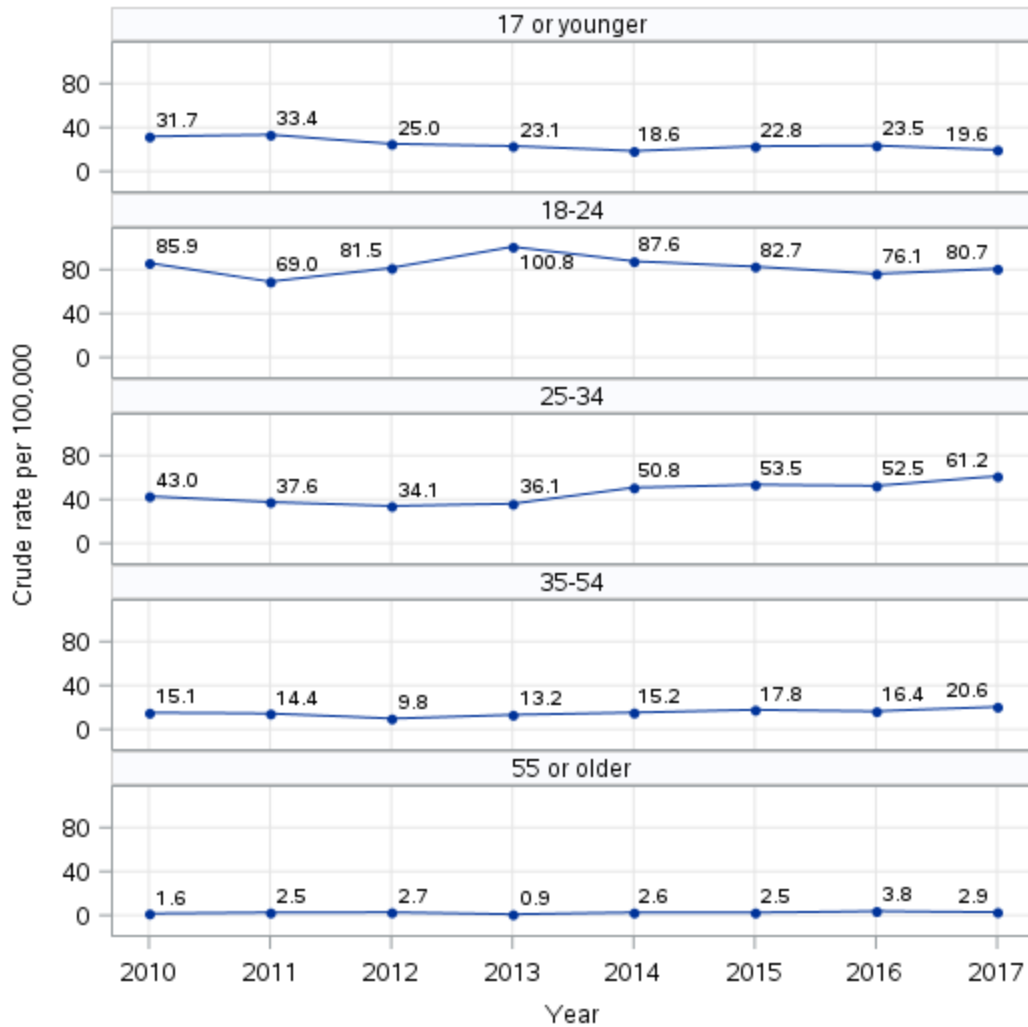
<sup>13</sup> World Health Organization. Available at: <http://apps.who.int/classifications/icd10/browse/2010/en#>

**FIGURE 8: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS ABUSE IN MANITOBA, BY SEX, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- From 2010 to 2017, similar to hospitalizations with reported cannabis related disorders, hospitalized males were diagnosed with much higher rates of cannabis abuse than hospitalized females.
- The 2012 to 2017 increase in rates appears to be mainly associated with an increase among males, rather than females.

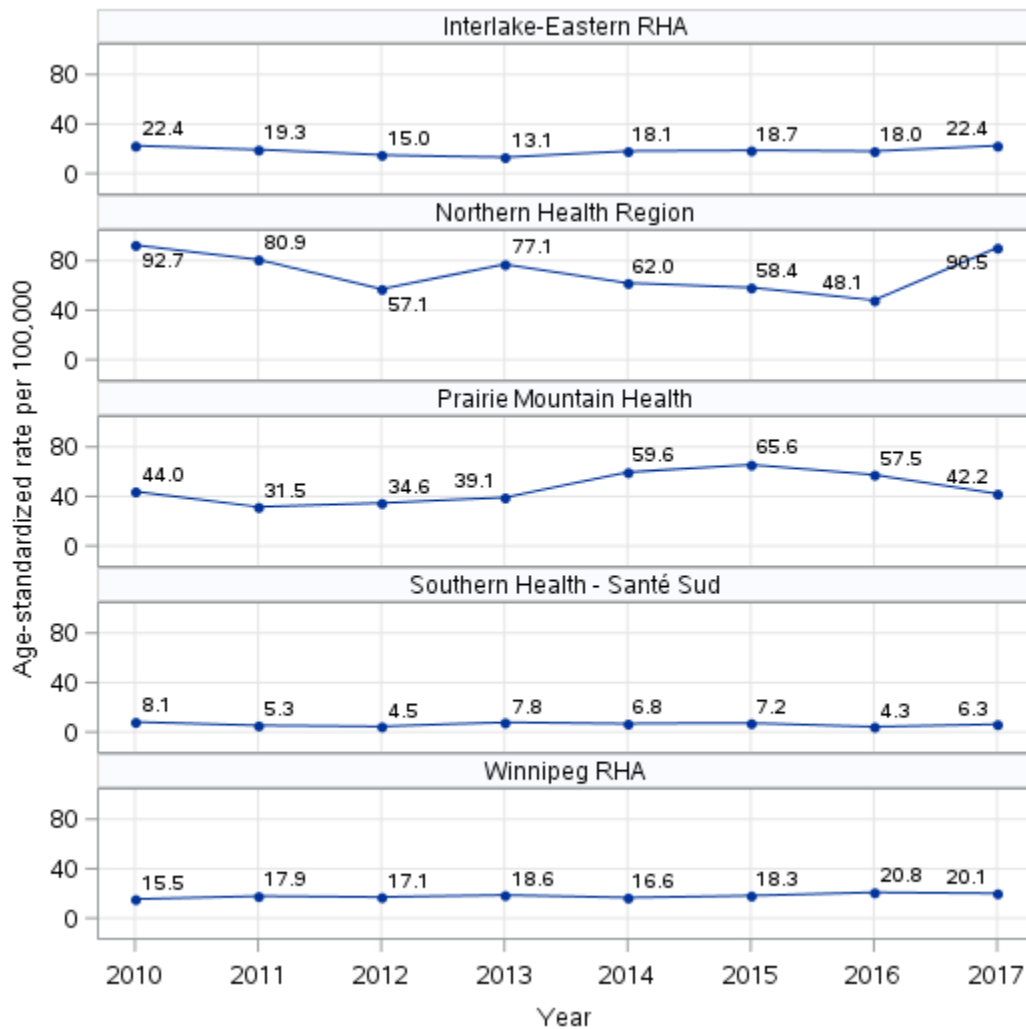
**FIGURE 9: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS ABUSE IN MANITOBA, BY AGE GROUP, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- From 2010 to 2017, the crude rate of cannabis abuse related hospitalization decreased for those aged 24 years or younger. However, the corresponding rate increased for those aged 25 years or older.



**FIGURE 10: AGE-STANDARDIZED RATES OF HOSPITALIZATIONS WITH REPORTED CANNABIS ABUSE IN MANITOBA BY REGIONAL HEALTH AUTHORITY, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 - 2017)**



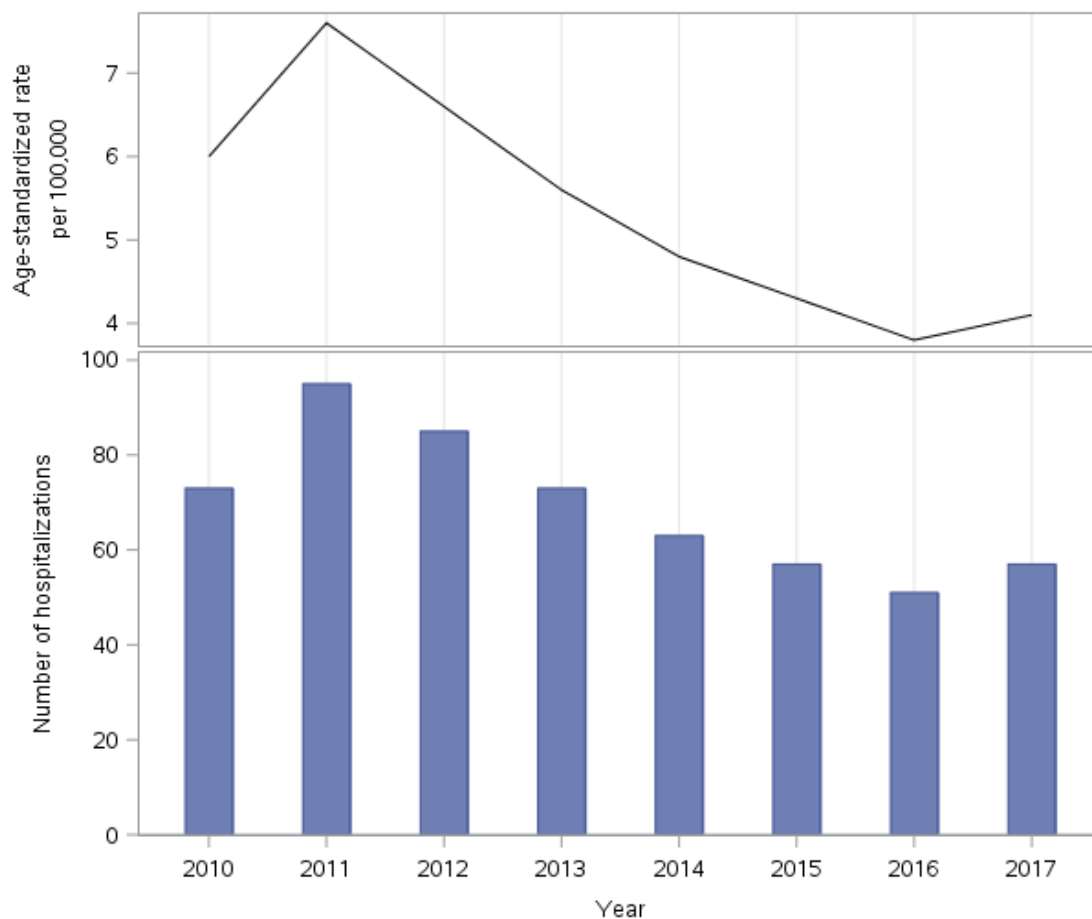
- Overall, the Northern Health Region has experienced the highest rate of hospitalization with reported cannabis abuse, followed by Prairie Mountain Health.
- Rates for the Interlake-Eastern RHA, Southern Health - Santé Sud, and the Winnipeg RHA have generally stayed constant overtime.

### CANNABIS DEPENDENCE

Cannabis dependence is described as a cluster of behavioural, cognitive, and physiological phenomena that develop after repeated substance use and typically includes a strong desire to use the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, giving a higher priority to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.<sup>14</sup>

Furthermore, a cannabis dependence diagnosis is a sub-diagnosis of cannabis related disorder, so these counts are included in the cannabis related disorder counts, not in addition to them.

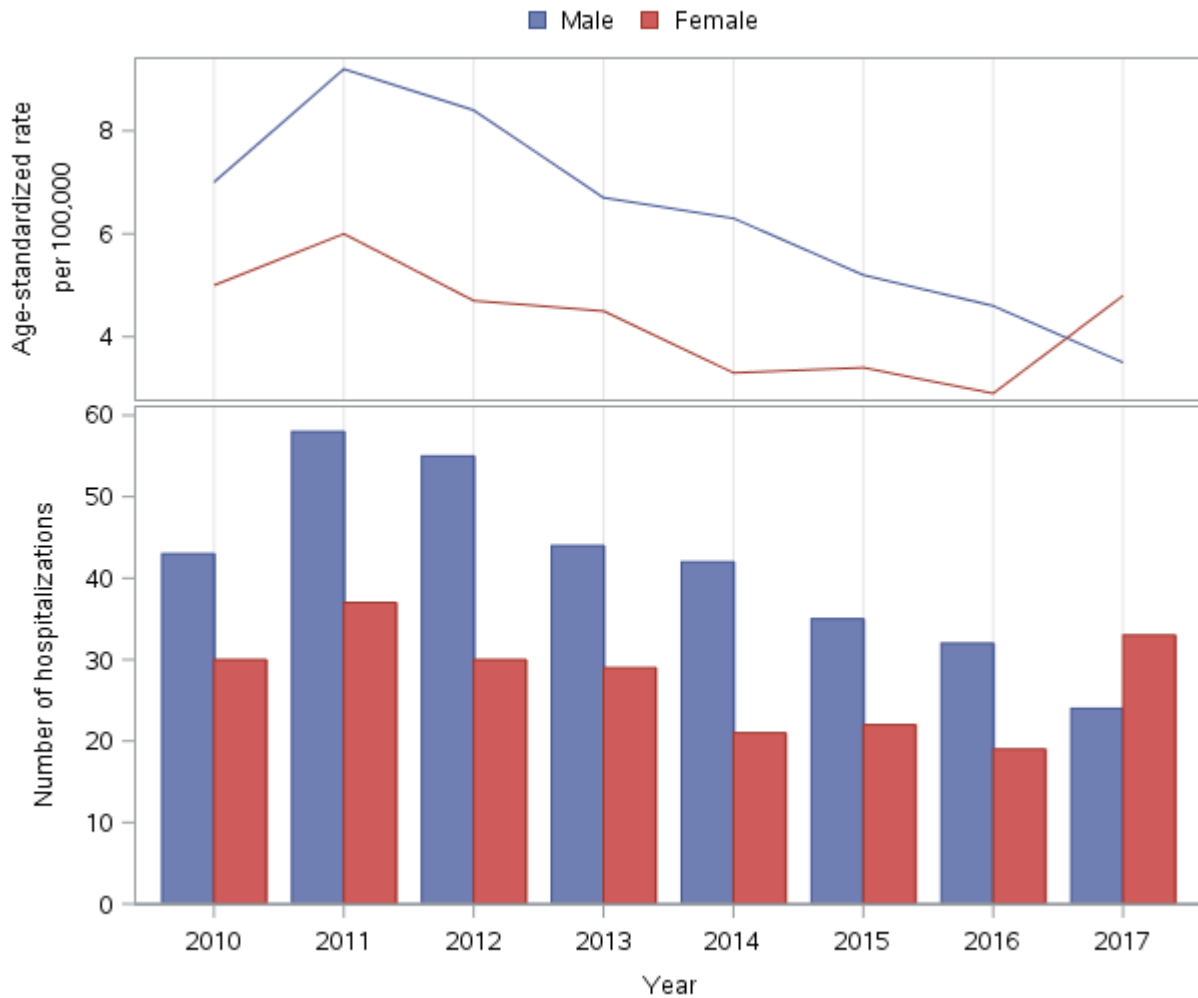
**FIGURE 11: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS DEPENDENCE IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- In contrast to the findings regarding cannabis abuse, age-standardized rates of cannabis dependence related hospitalization declined considerably from 2010 to 2017 from nearly 8 per 100,000 to 4 per 100,000, a 50% decrease.

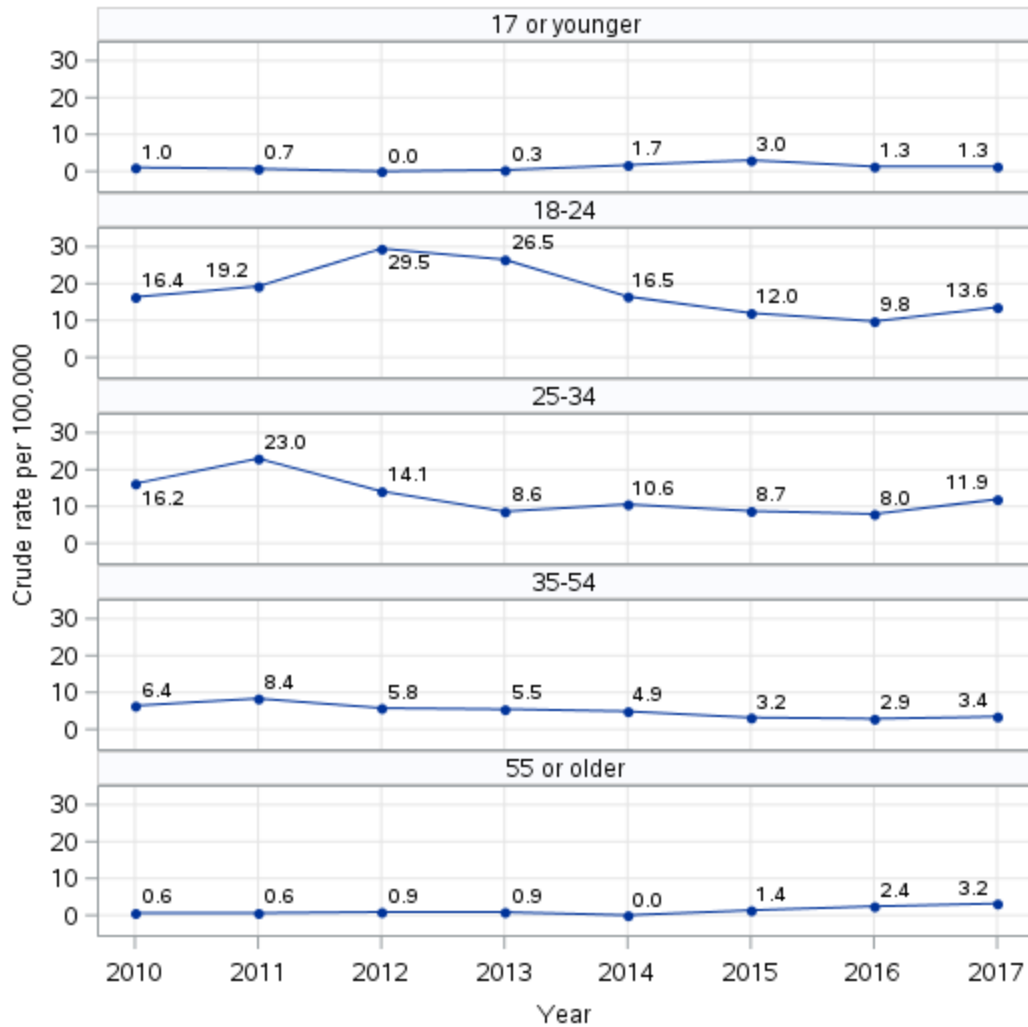
<sup>14</sup> World Health Organization. Available at: <http://apps.who.int/classifications/icd10/browse/2010/en#>

**FIGURE 12: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS DEPENDENCE IN MANITOBA BY SEX, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



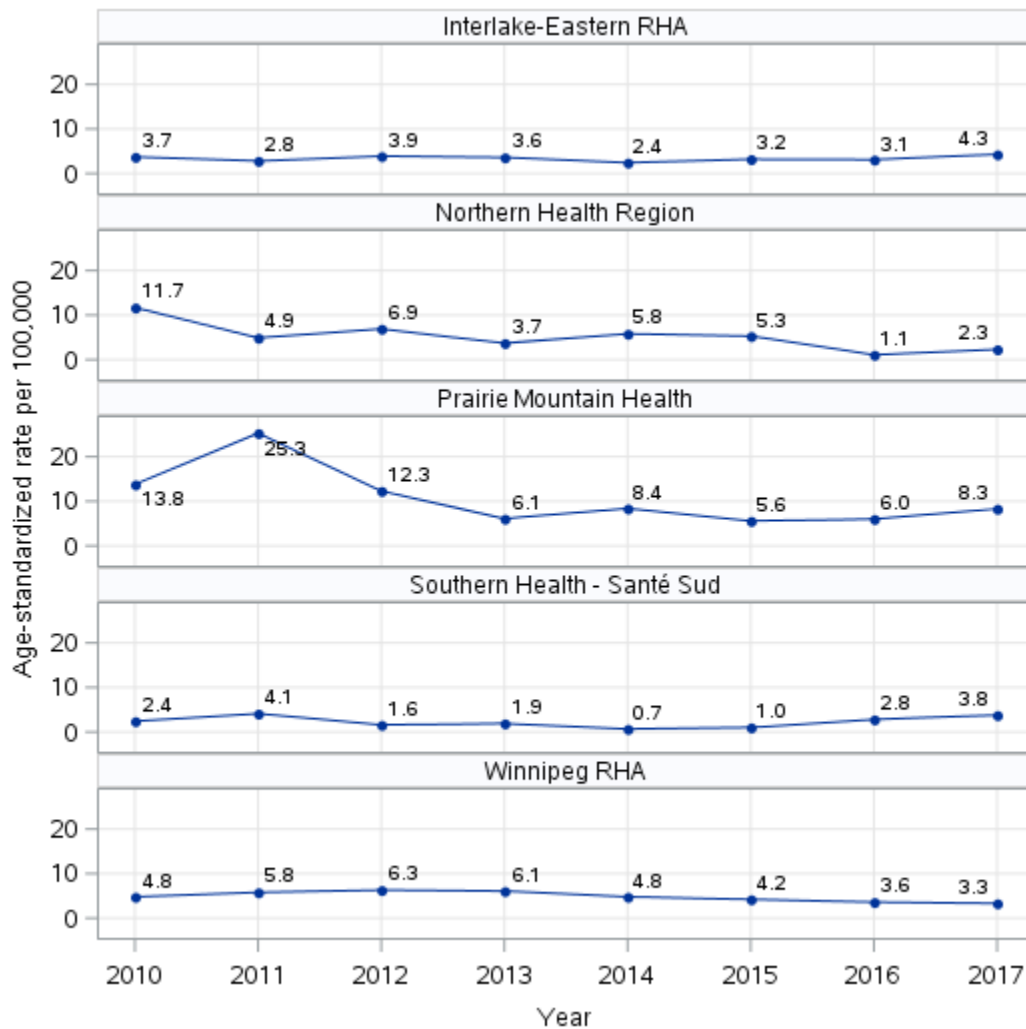
- In contrast to cannabis abuse, age-standardized rates of cannabis dependence related hospitalization decreased similarly for both males and females, though 2017 marked a sharp increase in hospitalizations among females.

FIGURE 13: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS DEPENDENCE IN MANITOBA BY AGE GROUP, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)



- The age groups that are most impacted by hospitalizations with reported cannabis dependence are those aged 18-24 years and 25-34 years. Peaks are noted in 2012 and 2013 for the 18-24 years group and in 2011 for those 25-34 years.

**FIGURE 14: AGE-STANDARDIZED RATES OF HOSPITALIZATIONS WITH REPORTED CANNABIS DEPENDENCE IN MANITOBA BY REGIONAL HEALTH AUTHORITY, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 - 2017)**



- While rates of hospitalization with reported cannabis dependence have decreased for the Northern Health Region, Prairie Mountain Health and the Winnipeg RHA, the greatest decrease in rates was observed in Prairie Mountain Health from 2011 to 2015. However, Northern Health Region experienced the largest decrease from 2010 to 2017.
- Rates in Southern Health – Santé Sud and the Interlake-Eastern RHA have generally been constant overtime.

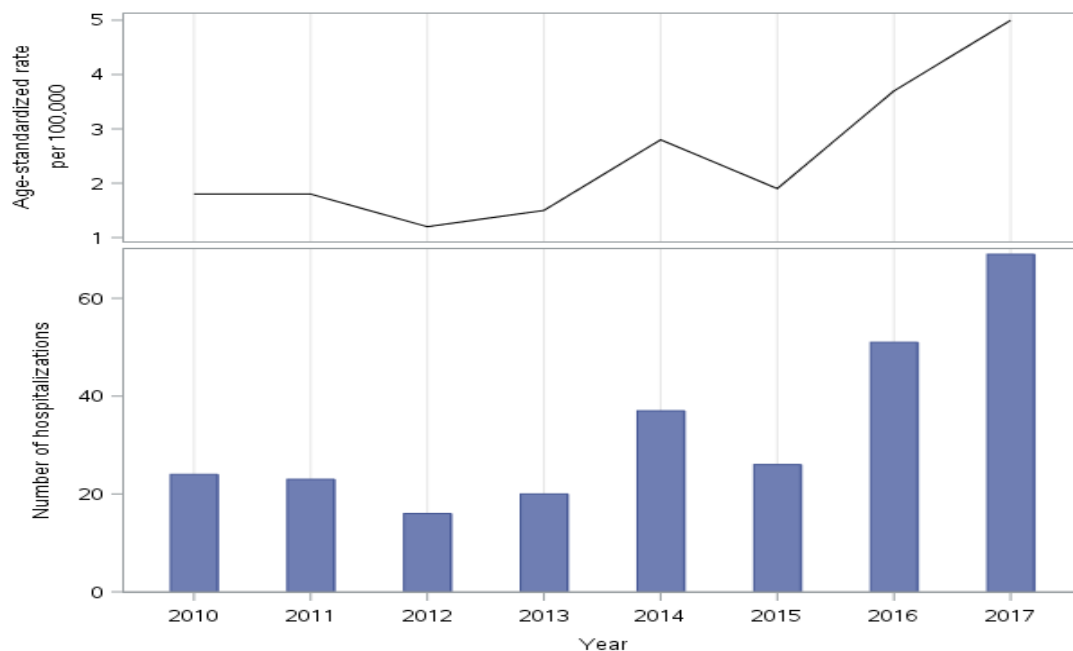
### CANNABIS RELATED PSYCHOTIC DISORDER

A diagnosis of substance use related psychotic disorder is defined by a cluster of psychotic phenomena that occur during or following psychoactive substance use but that are not explained on the basis of acute intoxication alone and do not form part of a withdrawal state. The disorder is characterized by hallucinations (typically auditory, but often in more than one sensory modality), perceptual distortions, delusions (often of a paranoid or persecutory nature), psychomotor disturbances (excitement or stupor), and an abnormal affect.<sup>15</sup>

Furthermore, a cannabis related psychotic disorder diagnosis is a sub-diagnosis of cannabis related disorder, so these counts are included in the cannabis related disorder counts, not in addition to them.

*It is important to note that as all 25 diagnosis codes were included in this analysis, it is possible that other substances were also involved in these hospitalizations.*

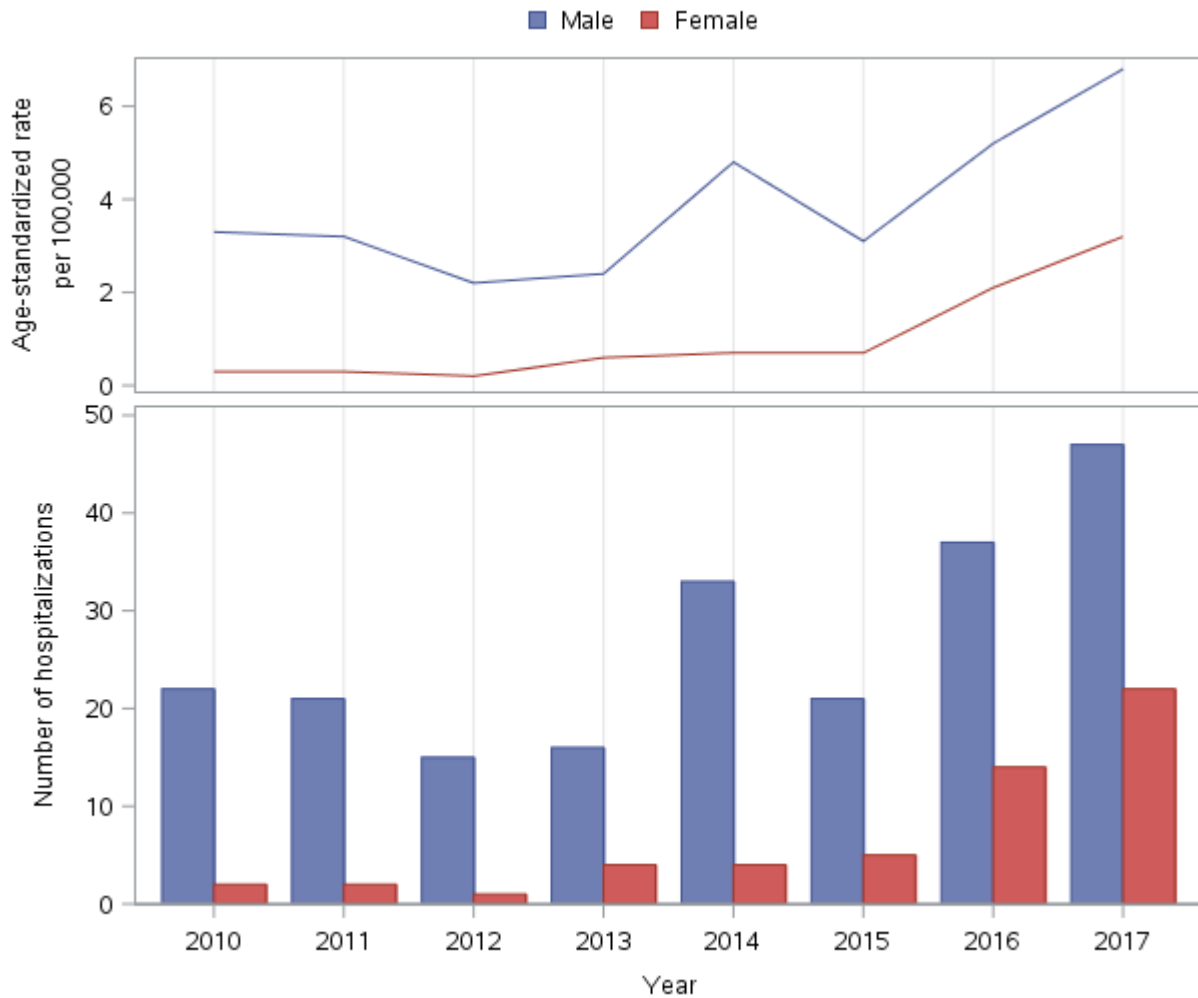
**FIGURE 15: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS RELATED PSYCHOTIC DISORDER IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- This analysis shows a significant increase in the rate of hospitalization with reported cannabis related psychotic disorder, from nearly 1 per 100,000 in 2012 to over 5 per 100,000 in 2017. However, as these counts are relatively small, it is important to be cautious when interpreting these data.

<sup>15</sup> World Health Organization. Available at: <http://apps.who.int/classifications/icd10/browse/2010/en#>

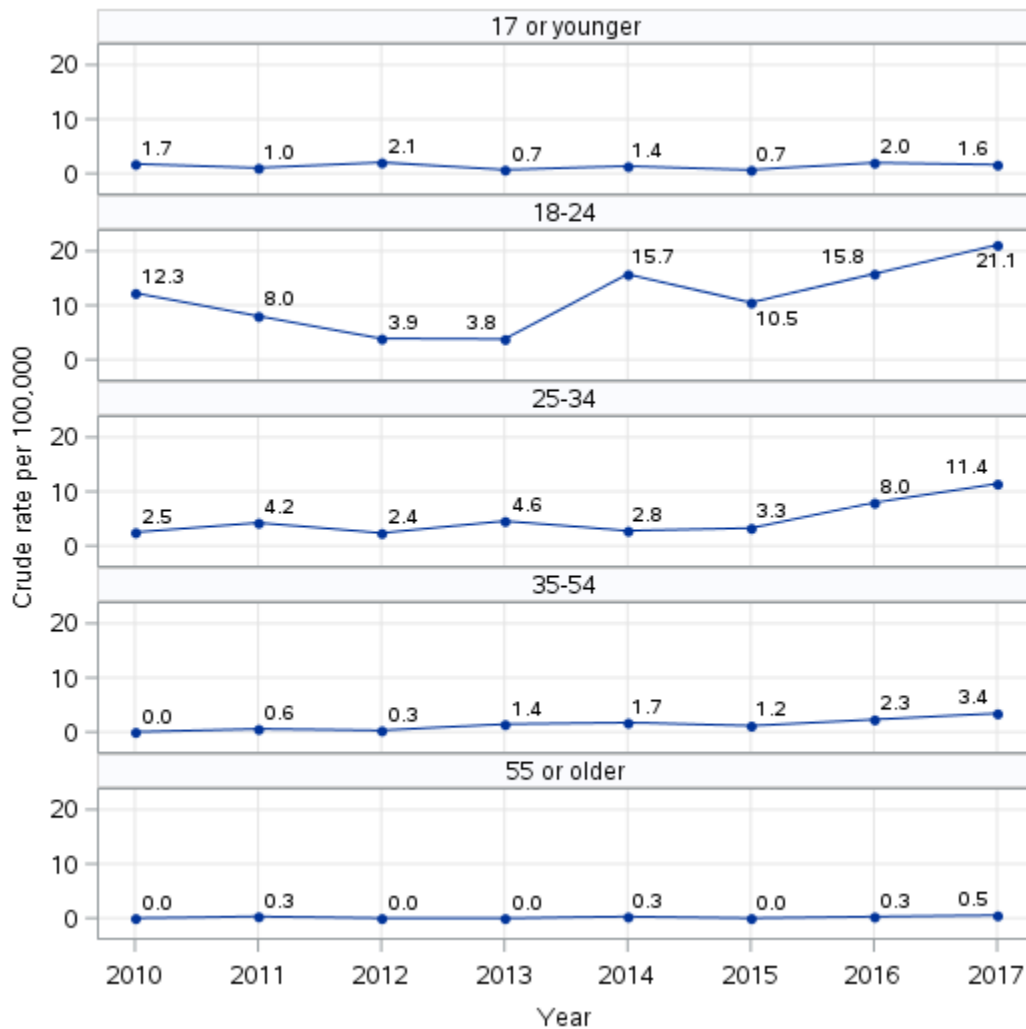
**FIGURE 16: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS RELATED PSYCHOTIC DISORDER IN MANITOBA BY SEX, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- Overall, males experienced considerably higher rates of hospitalization with reported cannabis related psychotic disorder compared to females. However, both males and females experienced an increase in rates between 2012 and 2017.

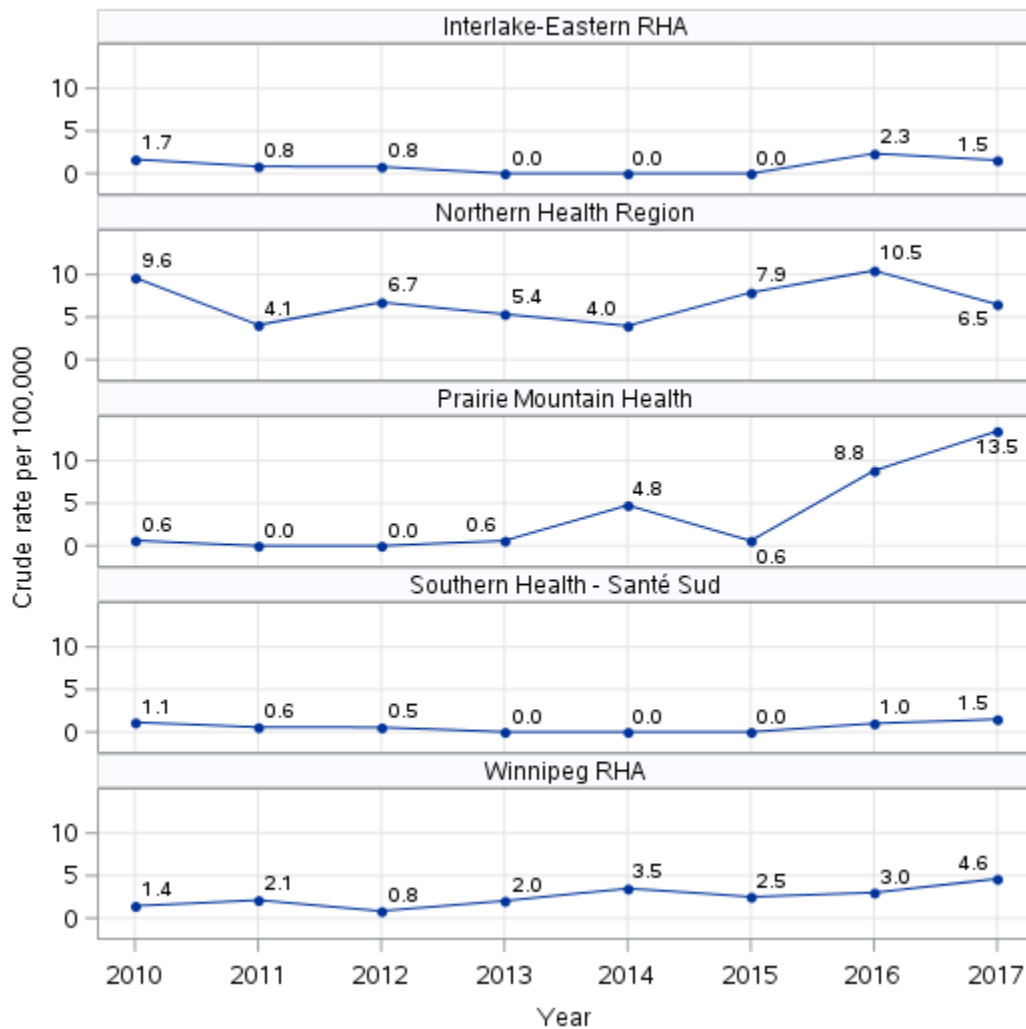


**FIGURE 17: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS RELATED PSYCHOTIC DISORDERS IN MANITOBA BY AGE GROUP, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- When considering the increase in rate of hospitalization with reported cannabis related psychotic disorder, it appears as though those aged 18 to 24 years experienced the highest increase, from 3.9 per 100,000 in 2012 to 21.1 per 100,000 in 2017. A similar trend was noted for those in 25-34 years age group.

**FIGURE 18: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS RELATED PSYCHOTIC DISORDERS IN MANITOBA BY REGIONAL HEALTH AUTHORITY, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 - 2017)**



- From 2010 to 2017, rates of hospitalization with reported cannabis related psychotic disorder have increased most in Prairie Mountain Health, followed by the Winnipeg RHA. Rates have also been consistently higher over time in the Northern Health Region than most other RHAs.

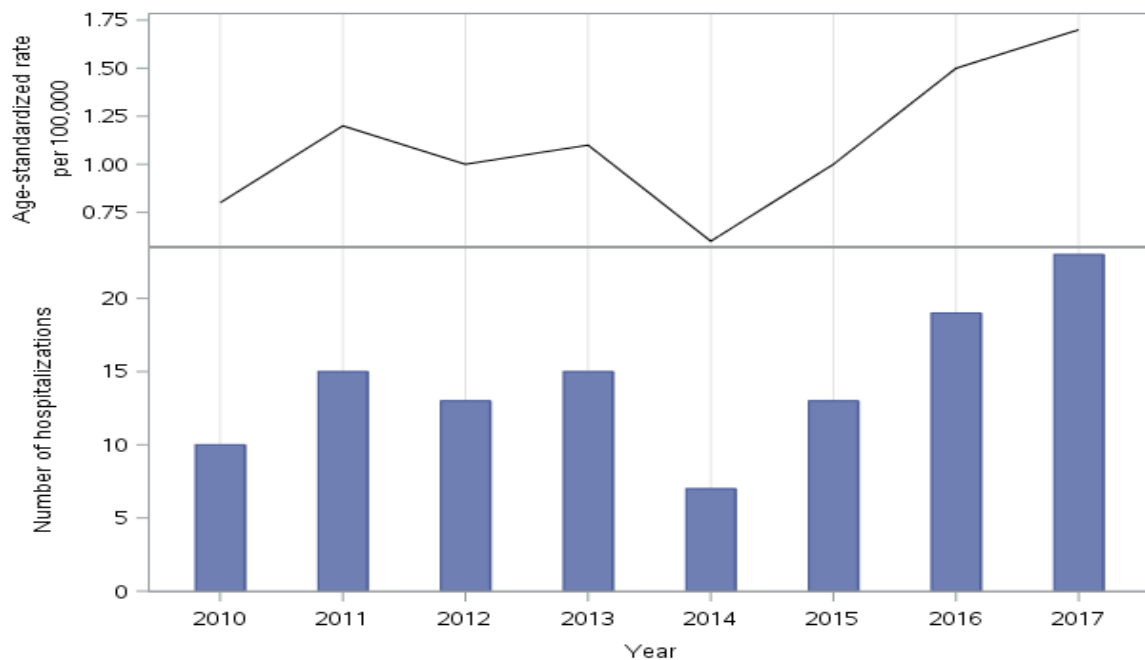
## CANNABIS POISONING

The diagnosis code T40.7 refers specifically to poisoning by cannabis and its derivatives.<sup>16</sup> Poisoning includes intentional or unintentional consumption of cannabis where the dose taken causes adverse effects. There are no known cases of cannabis poisoning/overconsumption being fatal.

Overconsumption of cannabis can lead to sleepiness, confusion, disorientation, clumsiness/loss of coordination, fainting, dizziness, chest pain, fast, slow or pounding heartbeat, panic attacks, loss of contact with reality, and seizures.<sup>17</sup>

*As all 25 diagnosis codes were included in this analysis, it is possible that poisoning by other substances were also involved in these cases (i.e. these may not be cases of poisoning exclusive to cannabis).*

**FIGURE 19: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS POISONING IN MANITOBA, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**

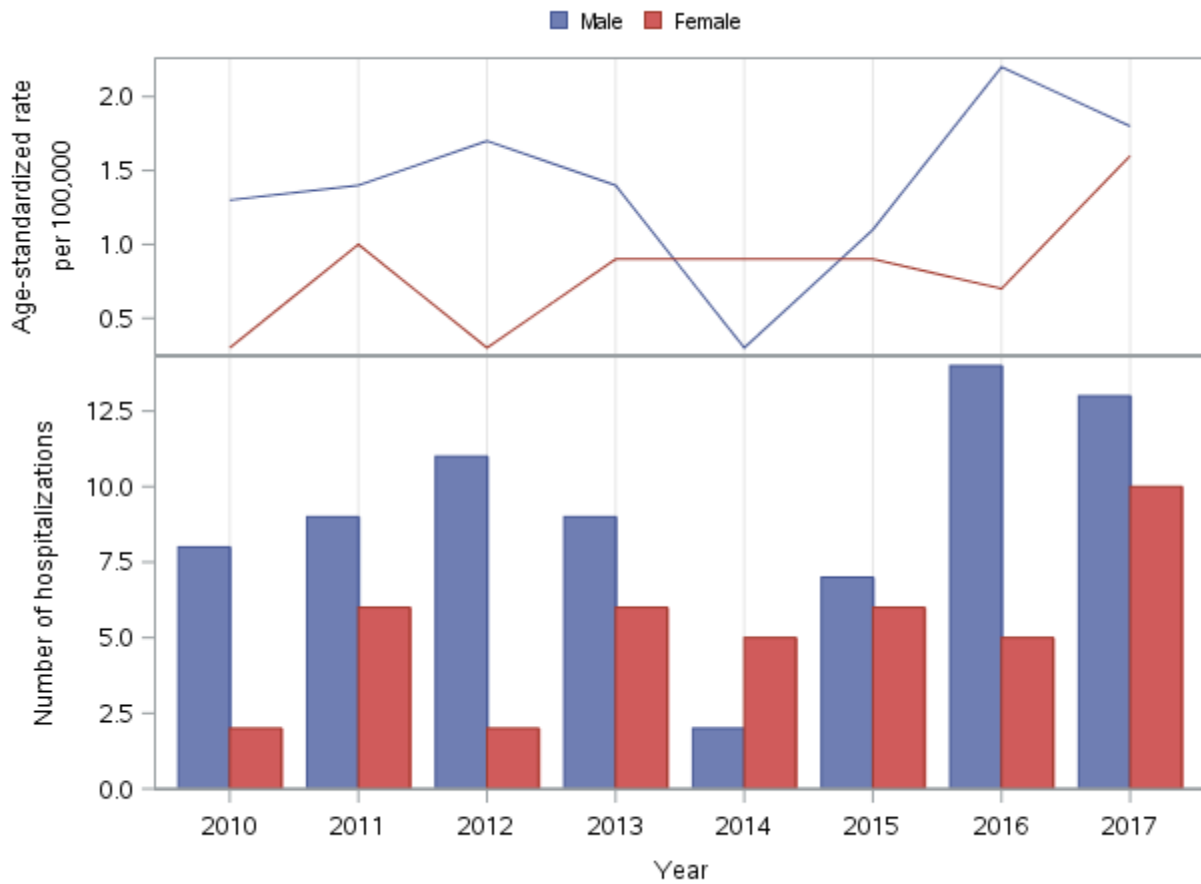


- In Manitoba, very few people are admitted to hospital with cannabis poisoning. 2014 marked the fewest number of cases of cannabis poisoning, with 7 events, while 2017 marked the highest number of cases, with 23 events.
- As the number of events per year are relatively small, there is no clear trend over time that can be interpreted.

<sup>16</sup> World Health Organization. Available at: <http://apps.who.int/classifications/icd10/browse/2010/en#>

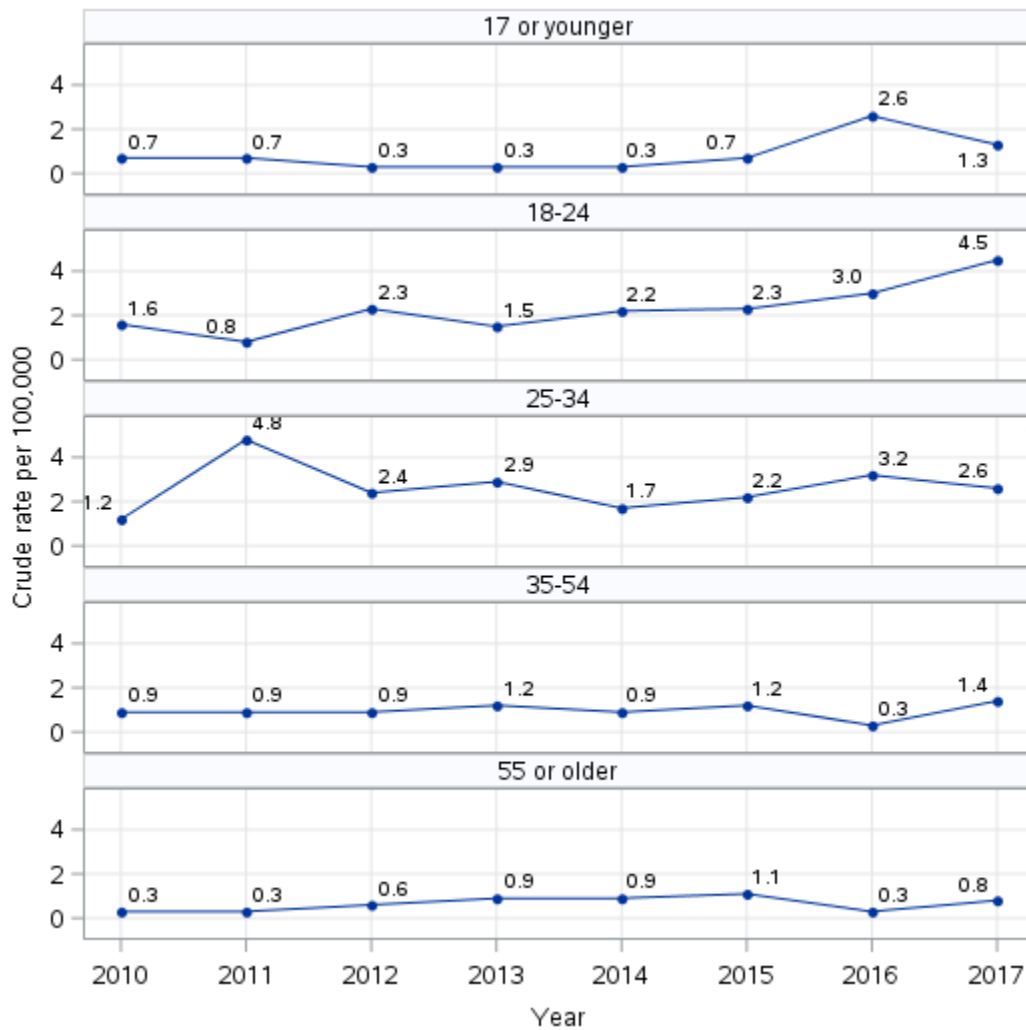
<sup>17</sup> Health Canada. <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/licensed-producers/consumer-information-cannabis.html>

**FIGURE 20: AGE-STANDARDIZED RATE AND NUMBER OF HOSPITALIZATIONS WITH REPORTED CANNABIS POISONING IN MANITOBA BY SEX, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)**



- As with most hospitalization indicators analysed in this report, hospitalized males were *generally* diagnosed with higher rates of cannabis poisoning than hospitalized females. However, very few events are recorded each year, so drawing these conclusions is difficult.

FIGURE 21: CRUDE RATE OF HOSPITALIZATIONS WITH REPORTED CANNABIS POISONING IN MANITOBA BY AGE GROUP, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2010 – 2017)



- Overtime, those aged 18-24 years and 25-34 years experienced the highest rates of cannabis poisoning related hospitalizations. For those 18-24 years, there appears to be an increase in rate over time, though the small number of cases per year makes drawing a conclusion difficult.
- Among those aged 17 and younger, the crude rate of hospitalization with reported cannabis poisoning increased by 3.7 times, from 0.7 per 100,000 in 2015 to 2.6 per 100,000 in 2016, despite being stable during 2010-2017.

## ADDICTIONS SERVICES

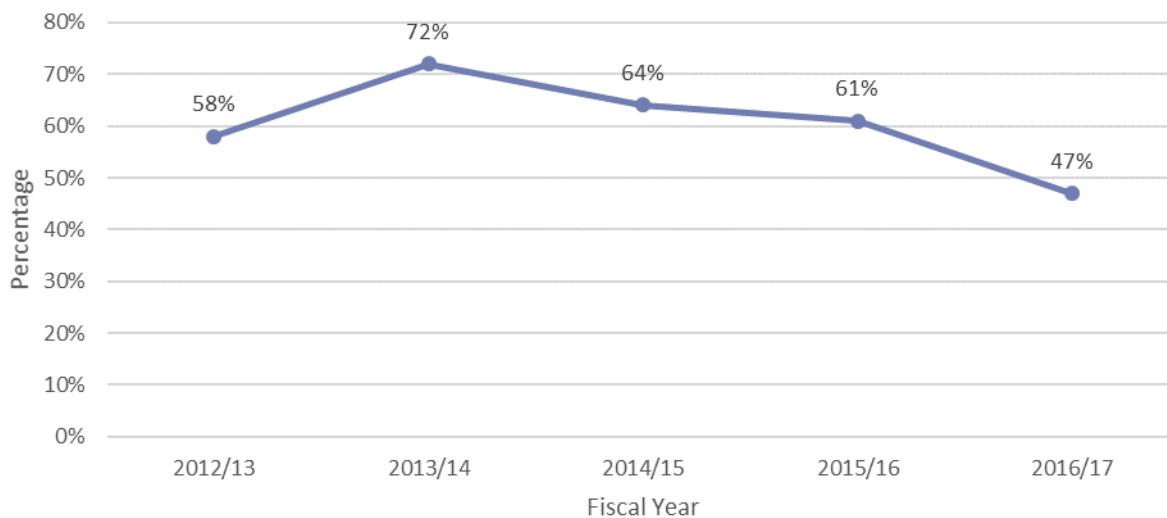
In Manitoba, many not-for-profit community organizations offer supports for those who experience difficulties with substance use. These organizations often have programming specifically for Manitobans who have experienced trauma and other difficulties in their lives, along side treatment for their substance use. While data have recently been collected that list the substance most responsible for a person's enrollment in a program, these data are still sparse; Though data are routinely collected about a client's past year substance use. Data from 14 community organizations were summarized to show the proportion of clients who reported having used cannabis in the past year.

These 14 community organizations are: Addictions Recovery Inc., Anchorage Program, Behavioural Health Foundation, Behavioural Health Foundation (Youth), Destiny House, Esther House, Laurel Centre, Main Street Project, Native Addictions Council of Manitoba, Resource Assistance for Youth (Youth), Rosaire House, St. Raphael Wellness Centre, Tamarack Recovery Centre, and Two Ten Recovery.

See the Appendix for detailed information on each community organization.

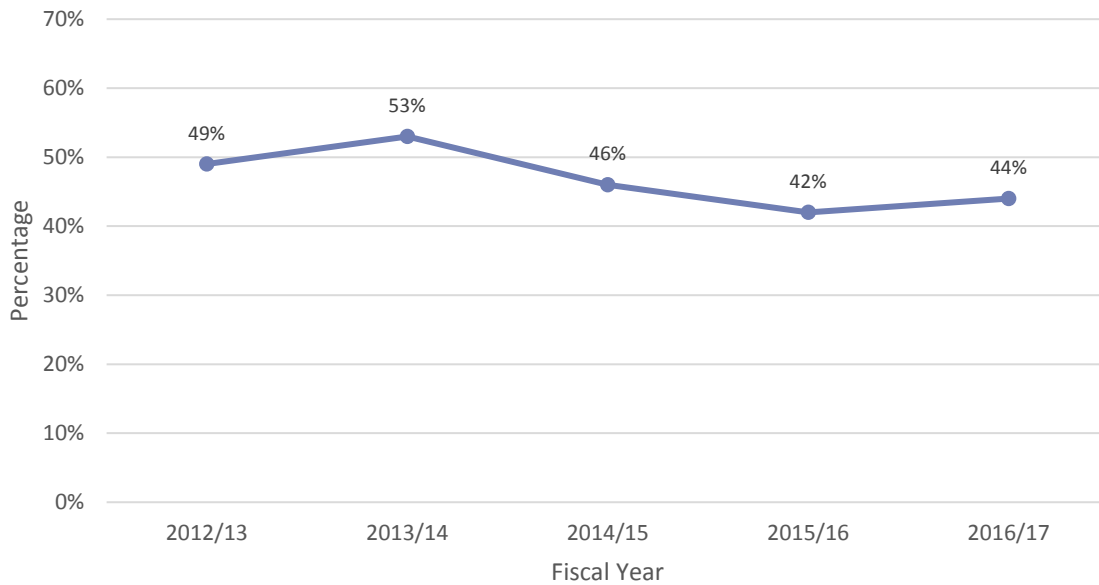
*Note that the results summarized below are not the proportion of clients who have cannabis dependence, but is simply the proportion of clients who report using cannabis in the past year.*

**FIGURE 22: PERCENTAGE OF YOUTH CLIENTS ENROLLED IN PUBLICLY-FUNDED SUBSTANCE USE TREATMENT PROGRAMS THAT REPORTED PAST YEAR CANNABIS USE, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2012 – 2017 FISCAL YEAR)**



- The percentage of youth clients enrolled in publicly-funded substance use treatment programs who reported past year cannabis use decreased from 72% in 2013/14 (fiscal year) to 47% in 2016/2017 (fiscal year). However, no data were available for the Behaviour Health Foundation, Youth for 2016/17, which may explain part of this decrease.

**FIGURE 23: PERCENTAGE OF ADULT CLIENTS ENROLLED IN PUBLICLY-FUNDED SUBSTANCE USE TREATMENT PROGRAMS THAT REPORTED PAST YEAR CANNABIS USE, MANITOBA HEALTH, SENIORS AND ACTIVE LIVING (2012 – 2017 FISCAL YEAR)**



- The percentage of adult clients enrolled in publicly-funded substance use treatment programs who reported past year cannabis use decreased from 53% in 2013/14 (fiscal year) to 42% in 2016/2017 (fiscal year).



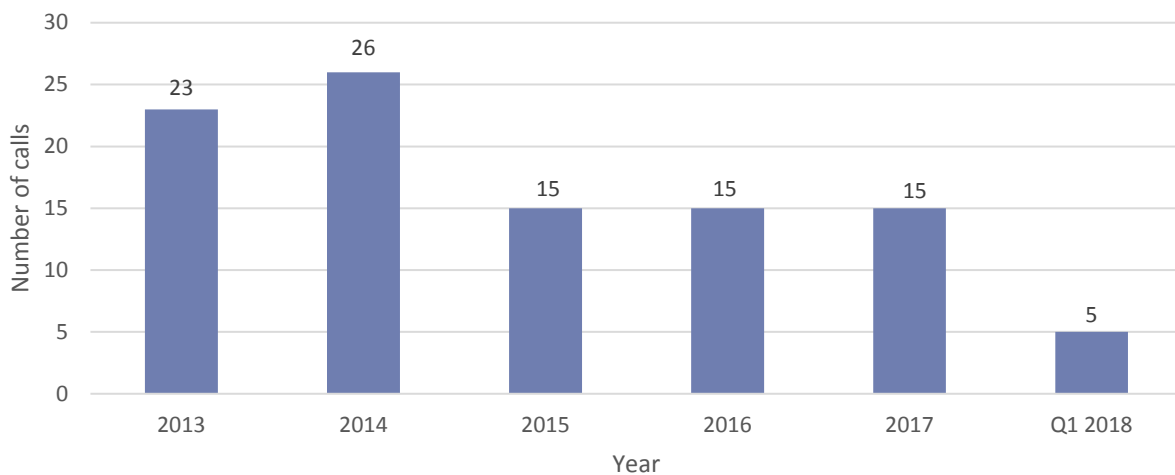
## CALL CENTRES

A number of call centers exist in Manitoba to provide the general public with information in specific areas, such as poisoning, or general areas, such as healthcare. Two call centers (Health Links – Info Santé and the Poison Control Centre) capture data on calls that are linked to cannabis.

### HEALTH LINKS – INFO SANTÉ

Health Links – Info Santé is a provincial telenursing service that offers the following confidential services free-of-charge: (1) health assessment, care advice, and triage to the most appropriate level of care (e.g. “the Right Care, in the Right Place, at the Right Time”), (2) general health information and education, and (3) assistance in finding and accessing health resources in local communities to all residents in Manitoba.

**FIGURE 24: NUMBER OF CANNABIS-RELATED CALLS MADE TO HEALTH LINKS – INFO SANTÉ , HEALTH LINKS – INFO SANTÉ (JANUARY 1, 2013 – MARCH 31, 2018)**



- The most calls made to Health Links – Info Santé were made in 2014, with 26 calls, while the following three years marked the fewest calls in this time period, with 15 calls.
- Between 2013 and the first quarter of 2018, no calls made to Health Links – Info Santé were specifically coded for: medical cannabis, cannabis use disorders (adult), cannabis use disorders (paediatric), or cannabis abuse or dependence. Instead, all calls were coded only as “cannabis”.

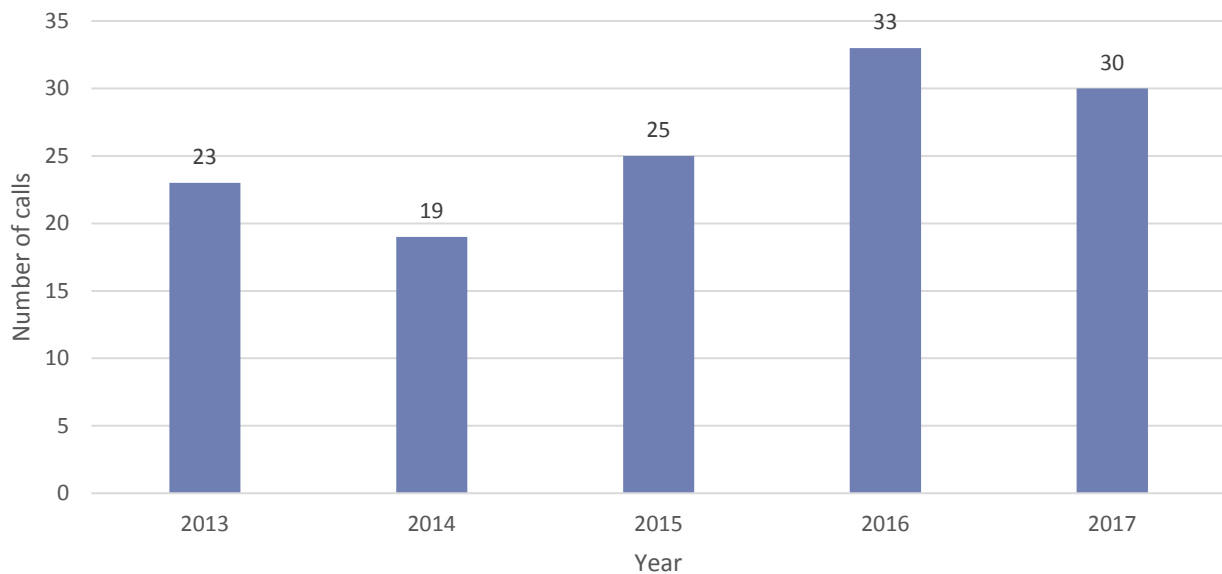
#### NOTE(S):

- Calls that utilize health education documents in the above figures only indicate that the topics were discussed during calls – it is not known if callers are directly involved in the topic matter (cannabis use). Therefore, interpretation of the data presented in this section should be done with caution.
- Health Links – Info Santé registered nurses use evidence-based guidelines and/or health education documents (e.g. “Health Information Advisor” (HIA) documents) to assist clients. Although guidelines and health education documents are a core asset in providing health information, professional nursing judgment is also used in providing information and triaging symptoms for clients.

## MANITOBA POISON CENTRE

The Manitoba Poison Centre (MPC) is a telephone toxicology consultation service that provides expert poison advice 24 hours a day to the public and healthcare professionals throughout Manitoba.

**FIGURE 25: NUMBER OF CANNABIS POISONING-RELATED CALLS MADE TO MANITOBA POISON CENTRE, MANITOBA POISON CENTRE (2013 – 2017)**



- 2014 marked the fewest number of cannabis related calls to the Manitoba Poison Centre, with 19, while the most calls were recorded in 2016, with 33.
- In 2017, there were three calls to the Manitoba Poison Centre regarding nabilone, a pharmaceutical cannabinoid used to treat nausea, vomiting, and neuropathic pain, which are not represented in the 30 calls reported above.

### NOTE(S):

- It is important to note that since cannabis poisoning is not a reportable disease in Manitoba, there is no obligation for a patient or health care provider to call MPC to help manage an exposure. Emergency room doctors are generally comfortable with management. Therefore, MPC numbers may be an undercount and should not be relied on to provide a complete picture for cannabis poisoning.
- The substance about which the caller inquired may not have been verified. The patient may have consumed a different drug than the patient was intending to consume, as drugs may be adulterated.

## JUSTICE

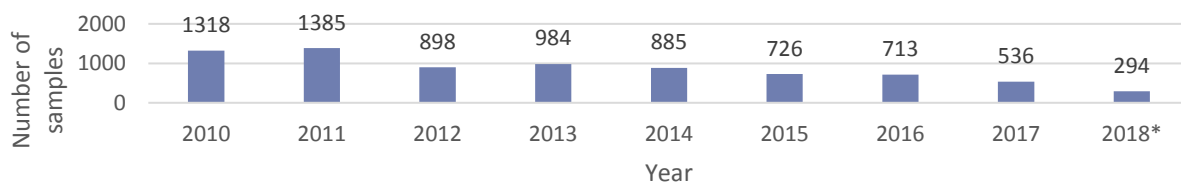
Since 1925, the possession and trafficking of cannabis has been a criminal offence in Canada, unless approval was granted for medical use.<sup>18</sup> This changed on October 17, 2018, though many ticketable offences have been created, and other criminal offences still exist.<sup>19</sup> Driving while impaired by cannabis has been illegal in Canada for decades, and will continue to be even after non-medical cannabis legalization.<sup>18</sup> New offences have even been introduced in Canada and Manitoba that set limits on the concentration of THC that is allowed in a person's blood, while also approving the use of oral fluid screening tests.<sup>20</sup> Additionally, the importation and exportation of cannabis in Canada will continue to be prohibited. Rates of charges for importation and exportation are very low, and are not listed in this report.

### ILLEGAL CANNABIS IDENTIFIED OR TRACKED AT THE BORDER

The Drug Analysis Service (DAS) of Health Canada operates laboratories across Canada that are employed to analyze suspected illegal drugs seized by Canadian Police Forces and the Canada Border Services Agency. The laboratories receive over 110,000 samples per year, confirming the identity and in some cases the purity of the controlled substances seized by police. We used the DAS of Health Canada aggregated data to summarize the illegal cannabis identified or tracked in Manitoba.

*It should be noted that a single sample may contain more than one substance. Also, DAS warns that these data may not be representative of drug seizures in Canada, and cannot be used in determining trends.*

**FIGURE 26: NUMBER OF SAMPLES THAT TESTED POSITIVE FOR THC OR CBD IN MANITOBA, DIAGNOSTIC ANALYSIS SERVICE OF HEALTH CANADA (JANUARY 1, 2010 – JUNE 30, 2018)**



\* Data for 2018 are only for January to June  
THC – tetrahydrocannabinol; CBD – cannabidiol

- In Manitoba, the number of samples that tested positive for THC or CBD by DAS annually has decreased from 1318 in 2010 to 536 in 2017.
- For comparisons, 294 samples tested positive for THC or CBD in the first six months of 2018. In 2017, this number was 353.

18 Canadian Centre on Substance Use and Addiction. Available at: <http://www.ccdus.ca/Resource%20Library/CCSA-Medical-Purposes-Marijuana-Policy-Brief-2015-en.pdf>

19 Government of Canada. <https://www.canada.ca/en/services/health/campaigns/cannabis/canadians.html>

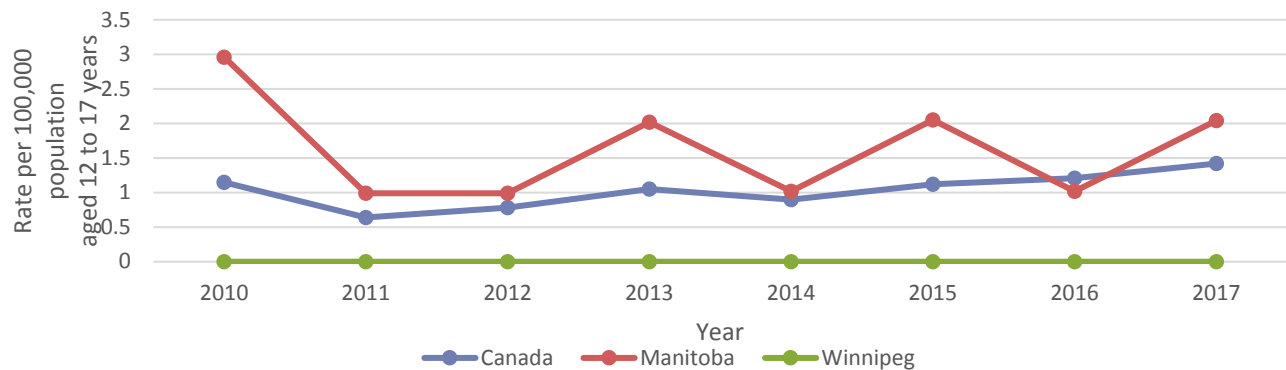
20 Government of Canada.

<https://www.canada.ca/en/services/health/campaigns/cannabis/impairment.html>

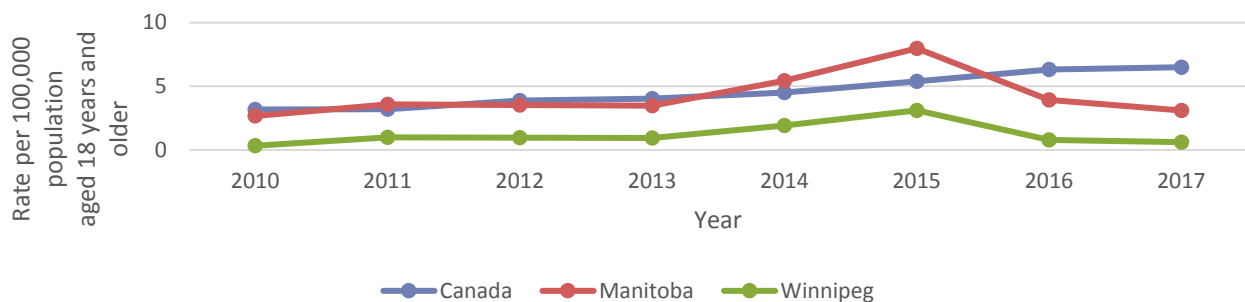
## DRIVING WHILE IMPAIRED

In August 2018, Statistics Canada released findings from the first and second quarters of 2018's National Cannabis Survey. Nationally, 14% of people who use cannabis with a driver's license have driven within two hours of consuming cannabis, while in Manitoba, 18% have reported doing so.<sup>21</sup> The following data were retrieved from Statistics Canada's Incident-based crime statistics, which source its data from the Uniform Crime Reporting Survey (UCRS).<sup>22</sup> Note that these charges are not specific to cannabis related impaired driving, but impairment by any drug.

**FIGURE 27: CRUDE RATE OF CHARGES FOR IMPAIRED OPERATION (DRUGS) VEHICLE, VESSEL, AIRCRAFT, YOUTH, STATISTICS CANADA (2010 – 2017)**



**FIGURE 28: CRUDE RATE OF CHARGES FOR IMPAIRED OPERATION (DRUGS) VEHICLE, VESSEL, AIRCRAFT, ADULT, STATISTICS CANADA (2010 – 2017)**



- Overall, the rate of impaired driving by drugs is higher among adults compared to youth.
- Generally, the national rate is comparable to that of Manitoba, though rates in Winnipeg are considerably lower among both adults and youth.
- As per Manitoba Public Insurance's 2017 Traffic Collision Statistics Report, in 2017, "ability impaired drugs (any)" was reported to be a contributing factor in 1.5% of fatal collisions in Manitoba (*data not shown*).<sup>23</sup>

<sup>21</sup> Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/180809/t001a-eng.htm>

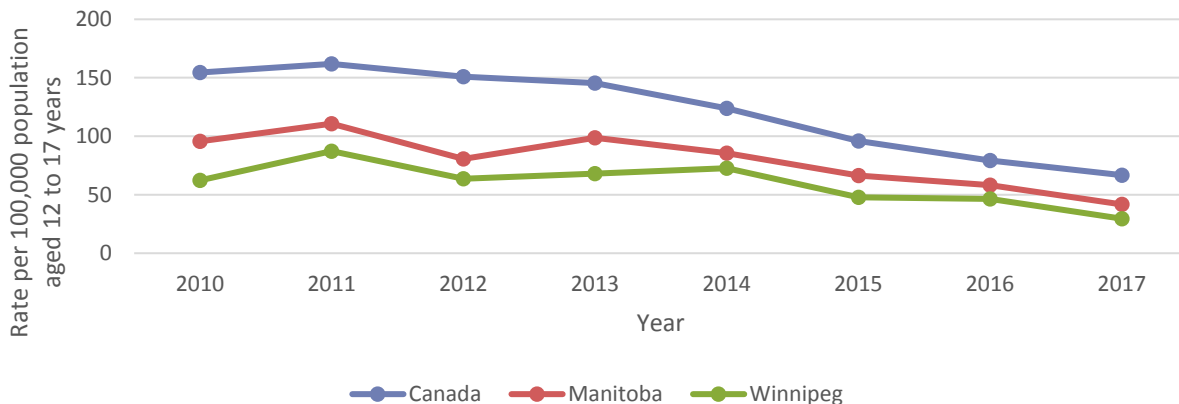
<sup>22</sup> Statistics Canada. <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=3510017701>

<sup>23</sup> Available at: <https://www.mpi.mb.ca/en/PDFs/TCSR2017.pdf>

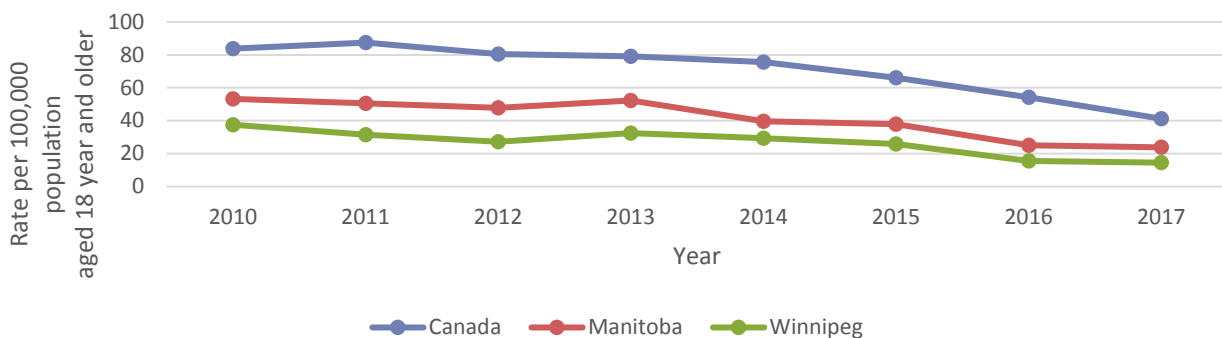
## CANNABIS POSSESSION

The following data were retrieved from Statistics Canada's Incident-based crime statistics, which source its data from the Uniform Crime Reporting Survey (UCRS).<sup>24</sup>

**FIGURE 29: CRUDE RATE OF CHARGES FOR CANNABIS POSSESSION, YOUTH, STATISTICS CANADA (2010 – 2017)**



**FIGURE 30: CRUDE RATE OF CHARGES FOR CANNABIS POSSESSION, ADULT, STATISTICS CANADA (2010 – 2017)**



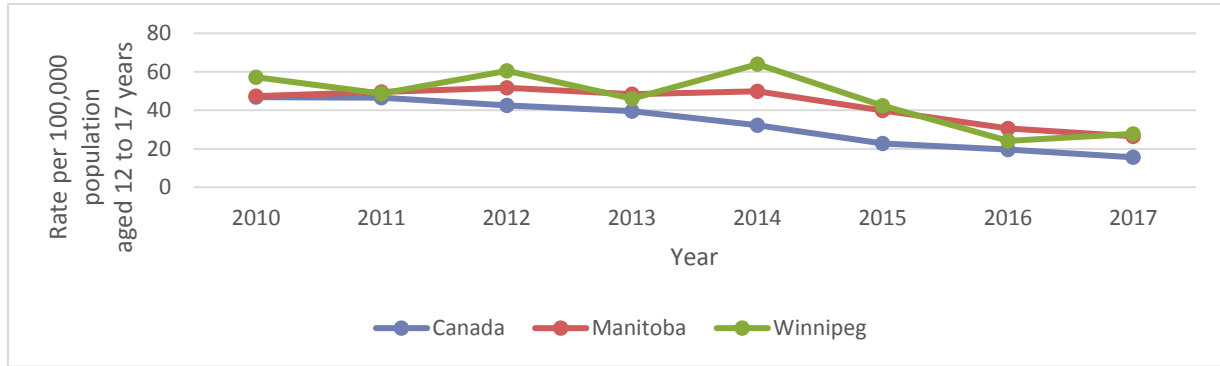
- Overall, rates of charges for cannabis possession have been decreasing over time for both youth and adults. Consistently, in Manitoba, charges for possession of *all drug classes* (as per Controlled Drugs and Substances Act) generally decreased from 2010/11 to the 2017/18 fiscal year (*data not shown*)
- In contrast to rates of impaired driving by drugs, rates of charges for cannabis possession are considerably higher among youth compared to adults.
- For both youth and adults, the national rate of charges for cannabis possession is higher than rates for Manitoba and Winnipeg.

24 Statistics Canada. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3510017701>

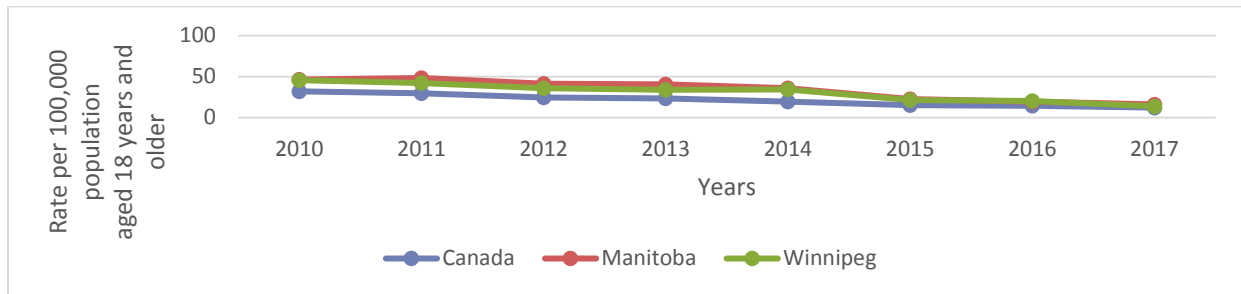
### CANNABIS TRAFFICKING CHARGES

The following data were retrieved from Statistics Canada’s Incident-based crime statistics, which source its data from the Uniform Crime Reporting Survey (UCRS).<sup>25</sup>

**FIGURE 31: CRUDE RATE OF CHARGES FOR CANNABIS TRAFFICKING, YOUTH, STATISTICS CANADA (2010 – 2017)**



**FIGURE 32: CRUDE RATE OF CHARGES FOR CANNABIS TRAFFICKING, ADULT, STATISTICS CANADA (2010 – 2017)**



- From 2010 to 2016, crude rates of cannabis trafficking charges are similar for youth and adults.
- In contrast to rates of cannabis possession charges, rates of cannabis trafficking charges are higher in Manitoba and Winnipeg compared to the national rate.
- Overall, in Manitoba, the number of charges for trafficking of *all drug classes* (as per Controlled Drugs and Substances Act) has also decreased from 2010/11 to 2017/18 fiscal year (*data not shown*)

NOTE(s):

- The UCRS was designed to measure the incidence of crime in Canada, and to study its characteristics. UCRS data only reflect crimes that have been reported to and substantiated by police

25 Statistics Canada. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3510017701>

## FUTURE DIRECTION

As the legalization of non-medical cannabis in Manitoba is recent, it will be critical that these indicators continue to be monitored. Additionally, more indicators will become available as legalization comes into effect and new data sources become available. Future data sources of interest include:

- Office of the Chief Medical Examiner
  - Motor vehicle fatalities with positive cannabis results
- Toxicology
  - Hospitalizations/ ED visits with positive cannabis toxicology results.
- Winnipeg Police Service
  - New ticketable offences
- Royal Canadian Mounted Police
- Manitoba Education and Training
  - Disciplinary decisions
  - Training opportunities
- Liquor, Gaming and Cannabis Authority of Manitoba
  - Retail inspections and compliance
  - Training for retailers
- Manitoba Liquor and Lotteries
  - Quantity and type of cannabis sold
- Growth, Enterprise and Trade
  - Locations of retail stores
- Manitoba Public Insurance
  - Collisions where cannabis impairment was a contributing factor
- National Cannabis Survey / Canadian Cannabis Survey, 2018
  - Prevalence of cannabis use, type of cannabis used, frequency of cannabis use, etc.
- Canadian Tobacco, Alcohol and Drugs Survey, Manitoba, 2018/2019

## CONCLUSION

October 17, 2018 marked a considerable change in social policy in Canada. For the first time in the life of most Canadians, non-medical cannabis is legally available for purchase at a licensed retail location. Cannabis legalization will not only affect the health of Manitobans, but will likely impact our justice and education systems, and will introduce a new component to the legal business activities in the province.

This baseline report offers insight into how rates of health and justice related cannabis indicators have changed over time. However, more data are required to fully understand the impact of cannabis use in Manitoba. It is expected that when post-legalization data become available and additional funding is provided for data collection, future surveillance reports on cannabis will include more indicators.

Based on the available data, the prohibition of cannabis did not result in a decreasing trend in use. Since 2007, the proportion of adolescents using cannabis in Manitoba has been consistent. Adolescents and young adults also make up the most prevalent users of cannabis in Manitoba. Though Manitoba-specific data have been lacking for certain indicators, it is expected that future studies, such as the Canadian Cannabis Survey and the Canadian Tobacco, Alcohol and Drug Survey will provide more insight into trends in cannabis use over time.

The burden of cannabis related hospitalizations in Manitoba has been fairly small. In 2016, nearly 500 hospitalizations in Manitoba included a diagnosis code specific to cannabis, a rate of approximately 38 per 100,000. In the years following cannabis legalization in Colorado, this number increased dramatically. As such, it is important to continue to track the number of hospitalizations with a reported cannabis related disorder in Manitoba. The same is true for calls to Health Links – Info Santé and to the Manitoba Poison Centre.

From a justice perspective, rates of cannabis possession and trafficking have decreased considerably over time, while rates of impaired driving by drugs have been increasing. As the legal framework surrounding cannabis changes, including the introduction of ticketable offences and specified limits of THC in the blood, monitoring the impact of legalization on the justice system will be essential.

Finally, cannabis legalization will impact Manitoba in other ways, including business and education. As more data become available after legalization future surveillance in these areas will be needed.



# APPENDIX

**TABLE A.1: DISTRIBUTION OF PAST YEAR CANNABIS USE BY CLIENTS OF PUBLICLY-FUNDED SUBSTANCE USE TREATMENT CENTRES IN MANITOBA, ADDICTION POLICY AND SUPPORT BRANCH (2012/13 – 2016/2017 FISCAL YEAR)**

	2012/13			2013/14			2014/15			2015/16			2016/17		
	Reported Cannabis use within past 12 months	Total number of clients	Proportion of past year cannabis use among clients	Reported Cannabis use within past 12 months	Total number of clients	Proportion of past year cannabis use among clients	Reported Cannabis use within past 12 months	Total number of clients	Proportion of past year cannabis use among clients	Reported Cannabis use within past 12 months	Total number of clients	Proportion of past year cannabis use among clients	Reported Cannabis use within past 12 months	Total number of clients	Proportion of past year cannabis use among clients
<b>Adults</b>															
SRWC	93	167	56%	182	265	69%	162	250	65%	132	319	41%	N/A	N/A	N/A
Laurel Centre	44	119	37%	48	95	51%	41	90	46%	40	87	46%	34	66	52%
Anchorage	N/A	163	N/A	66	131	50%	73	127	57%	N/A	N/A	N/A	68	174	39%
BHF	133	228	58%	178	308	58%	176	288	61%	172	245	70%	216	315	69%
NACM	64	220	29%	58	166	35%	91	320	28%	60	442	14%	12	50	24%
Tamarach	22	39	56%	13	38	34%	18	43	42%	15	41	37%	22	48	46%
Rosair House	94	184	51%	98	168	58%	85	161	53%	83	118	70%	32	79	41%
ARI	17	26	65%	s	24	s	s	29	s	30	34	88%	20	24	83%
Esther House	s	9	s	6	21	29%	s	16	s	s	17	s	s	8	s
210 Recovery	42	56	75%	8	26	31%	8	21	38%	19	48	40%	46	52	88%
Destiny House	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9	21	43%	13	23	57%
Main Street Project	N/A	N/A	N/A	N/A	N/A	N/A	19	134	14%	262	593	44%	217	694	31%
<b>Total, Adults</b>	<b>509</b>	<b>1048</b>	<b>49%</b>	<b>657</b>	<b>1242</b>	<b>53%</b>	<b>673</b>	<b>1479</b>	<b>46%</b>	<b>822</b>	<b>1965</b>	<b>42%</b>	<b>680</b>	<b>1533</b>	<b>44%</b>
<b>Youth</b>															
RAY	138	255	54%	96	165	58%	177	333	53%	259	396	65%	175	371	47%
BHF Youth	70	104	67%	88	92	96%	120	128	94%	46	106	43%	N/A	N/A	N/A
<b>Total, Youth</b>	<b>208</b>	<b>359</b>	<b>58%</b>	<b>184</b>	<b>257</b>	<b>72%</b>	<b>297</b>	<b>461</b>	<b>64%</b>	<b>305</b>	<b>502</b>	<b>61%</b>	<b>175</b>	<b>371</b>	<b>47%</b>

RAY – Resource Assistance for Youth, Inc; SRWC – St. Raphael Wellness Centre; BHF – Behaviour Health Foundation; ARI – Addictions Recovery, Inc; s – suppressed due to small sample size (n=1-5); N/A – not applicable