



**KANSAS HEALTH INSTITUTE**

*Informing Policy. Improving Health.*

*For additional information contact:*

Tatiana Y. Lin, M.A.  
Kansas Health Institute  
212 SW Eighth Avenue, Suite 300  
Topeka, Kansas 66603-3936  
Tel. 785.233.5443  
Email: [tlin@khi.org](mailto:tlin@khi.org)  
Website: [www.khi.org](http://www.khi.org)

**Senate Committee on Public Health and Welfare**

March 10, 2016

**A Health Impact Assessment of  
Legalizing Medical Marijuana in Kansas**

Senate Bill 489

**Kansas Health Institute**

*To improve the health of all Kansans by supporting effective policymaking, engaging at the state and community levels, and providing nonpartisan, actionable and evidence-based information.*

*Informing Policy. Improving Health.*

Chairman O'Donnell and Members of the Committee:

Thank you for the opportunity to provide written testimony on Senate Bill 489 – hemp oil treatments for specified medical conditions, or also known as “Otis’ Law”. The Kansas Health Institute (KHI) is a nonprofit, nonpartisan health policy and research organization based in Topeka, founded in 1995 with a multiyear grant from the Kansas Health Foundation.

The Kansas Health Institute does not take positions on legislation. We want to inform the decision-making process by providing evidence-based findings in order to maximize the potential positive health effects of a policy decision, while mitigating the potential negative health impacts, and therefore we are not here to speak either for or against Senate Bill 489. Senate Bill 489 addresses a variety of issues related to marijuana possession and penalties, and legalizes medical marijuana in limited form for seizure disorders.

We would like to provide information on our recently completed health impact assessment – or HIA – surrounding the issue of legalization of medical marijuana in Kansas. The HIA study assessed how the legalization of medical marijuana could affect access to and consumption of marijuana, property and violent crimes, driving under the influence, traffic accidents, accidental ingestion and associated health outcomes (e.g., injury, mortality, mental health, quality of life). The HIA included a review of existing literature, data analysis for Kansas and states that have legalized medical marijuana, and interviews with stakeholders around the state.

The study assessed potential health effects associated with the traditional model of legalization of medical marijuana. Potential health impacts associated with Senate Bill 489 might differ from health impacts associated with traditional medical marijuana laws in other states. Traditional medical marijuana laws typically allow for various forms of marijuana use, including smoking, and also include a broader list of qualifying conditions and symptoms.

As of December 2015, 17 states had passed restrictive laws similar to the one Kansas is now considering. The more restrictive medical marijuana laws include placing limits on the type of marijuana allowed for medical purposes (e.g. oils only) and for the types of conditions or symptoms patients must have (e.g. epilepsy only). To the best of our knowledge, there hasn't been any published research about the impacts associated with the passage of these laws, as most of these laws were passed within the last two years.

We have reviewed laws similar to the medical marijuana provisions in Senate Bill 489 and would like to offer the following information:

### Potentially Impacted Populations

Under Senate Bill 489, the qualifying medical condition listed is “a condition causing seizures, including those characteristic of epilepsy.” Approximately 3,600 people in Kansas have epilepsy, and would qualify for a medical marijuana card under this bill. These estimates do not capture people with seizure disorders other than epilepsy.

### States with Similar “Restrictive” Laws:

- These include the following 17 states: Alabama, Florida, Georgia, Iowa, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Utah, Virginia, Wisconsin and Wyoming.
- Most of the states define “cannabis oil” as:
  - essentially free from plant material;
  - having a THC<sup>1</sup> level of no more than 3 percent; and
  - containing between 5 and 98 percent cannabidiol (CBD)<sup>2</sup>.
- Most of these states limit the dispensing of marijuana for medical use to university medical centers or allow a small number of dispensaries to operate.
- All 17 of these states approve medical use of marijuana for either epilepsy or seizures.
- All 17 of these states allow use of medical marijuana oil by minors.

KHI would like to share some key findings from our health impact assessment to help inform your discussion on this issue. The findings presented in **Table 1** only focus on health impacts associated with the broader issue of legalizing medical marijuana. Please note, if Senate Bill 489 passes, positive and negative health impacts may be different due to the forms of medical marijuana allowed for use and medical conditions acceptable for treatment under the proposed legislation.

**Table 1** (pages 4 and 5) includes findings and recommendations regarding consumption, crime, driving under the influence, traffic accidents and ingestion/overdose.

---

<sup>1</sup> Two of the principal chemicals found in cannabis are cannabidiol (CBD) and tetrahydrocannabinol (THC). Different preparations of cannabis materials may contain these chemicals in different concentrations. The levels of CBD and THC present in a cannabis preparation can change the drug’s effects upon consumption. THC is the main psychoactive component of cannabis and causes the ‘high’ often associated with recreational use. Limiting the amount of THC present in cannabis preparations can limit its psychoactive effects. However, clinical studies also suggest that THC also has therapeutic effects and may alleviate chronic pain and effects of multiple sclerosis.

<sup>2</sup> CBD has also been studied for its therapeutic potential and, in contrast to THC, is non-psychoactive.

Table 1. HIA Findings and Recommendations

<b>HIA Findings and Recommendations</b>	
<b>Question 1: What would be the impact of medical marijuana legalization on consumption of marijuana for the general population and youth?</b>	
Literature review	Overall, the majority of reviewed literature found mixed results as to whether or not legalizing medical marijuana would have an impact on consumption of marijuana for the general population. Legalization of medical marijuana may impact illegal consumption among at-risk youth and people with qualifying medical conditions. It is important to note that change in youth consumption would also depend on regulation policies and other state-level factors, such as cultural norms and law enforcement practices. Additionally, findings from the literature review suggest that the medical marijuana distribution model (e.g., self-grow, compassion centers) could impact consumption of marijuana.
Data	<p>The data show that states with medical marijuana laws generally have higher marijuana consumption rates than states that didn't pass such laws. However, the trend data indicate that these states had higher marijuana consumption rates before the passage of these laws. As a result, legalization of medical marijuana might not have impacted consumption.</p> <p>Additionally, there was no increase in youth consumption (as measured by lifetime or past-month marijuana use) or age of initiation for any of the states that have legalized marijuana, with the exception of Colorado, where a significant increase in youth (past-month) use was found. However, Kansas county-level regression results show that a perception of easy access to marijuana is highly correlated with youth consumption. Two states of five (CO and MI) saw a statistically significant increase in adult consumption (measured by lifetime use) after medical marijuana was legalized.</p>
Findings	Based on data and literature reviewed, the legalization of medical marijuana may result in little to no impact on consumption of marijuana among the general population in Kansas. However, some increase in marijuana consumption for at-risk youth and individuals with approved medical conditions may occur, but the level of change in youth consumption would depend on regulation and law enforcement practices.
Recommendations	<ul style="list-style-type: none"> <li>• Require dispensaries to limit advertising of services and products to the public.</li> <li>• Require educational materials to be provided at dispensaries regarding the importance of not sharing marijuana.</li> <li>• Increase accountability of health care providers regarding their prescription recommendations (K-TRACS).</li> </ul>
<b>Question 2: What would be the impact of medical marijuana legalization on violent crime and property crime?</b>	
Literature review	The literature review found mixed results as to whether or not legalizing medical marijuana would have an impact on property and violent crime. The literature review did not indicate that medical marijuana itself was associated with criminal activities. However, the review also showed that in some cases, dispensary location was correlated with increased crime. This could be due to the fact that dispensaries may be more likely to open in areas with higher crime.

<b>HIA Findings and Recommendations</b>	
Data	In almost all cases, rates of violent and property crimes remained unchanged or decreased after medical marijuana was legalized. Only one state of the 14 studied, Vermont, saw an increase in violent crimes after legalization. It is important to note that decreases in property and violent crimes might be attributed to other factors (e.g., economic conditions).
Findings	Based on data and reviewed literature, the legalization of medical marijuana may have no impact on overall violent and property crime rates. However, areas that are located in close proximity to dispensaries might experience increases in crime rates.
Recommendations	<ul style="list-style-type: none"> <li>• Monitor changes in crime rates in areas where dispensaries are located.</li> <li>• Require dispensaries to implement safety measures to defer crime, such as video surveillance.</li> <li>• Implement zoning requirements for dispensaries stipulating minimum distances to certain entities including schools, universities, child care and correctional facilities.</li> </ul>
<b>Question 3: What would be the impact of medical marijuana legalization on driving under the influence and traffic accidents?</b>	
Literature review	Studies consistently show that marijuana use could impair driving. Literature that examined whether legalization of medical marijuana would increase or decrease driving under the influence and/or traffic accidents showed mixed results. However, studies leaned toward an increase.
Data	Nationally, the rate of marijuana-related traffic fatalities has increased over time. In more than half of the states studied (7 out of 13), the increase was significant post-legalization. However, some literature suggests that the legalization of medical marijuana may prompt law enforcement to test for marijuana in crash victims more frequently.
Findings	Based on data and reviewed literature, the legalization of medical marijuana may result in an increase in driving under the influence of marijuana and related traffic accidents.
Recommendations	<ul style="list-style-type: none"> <li>• Increase testing and reporting for marijuana in drivers.</li> <li>• Educate the public on marijuana-related impairment.</li> <li>• Require medical marijuana products to have labels with detailed usage and warning information.</li> </ul>
<b>Question 4: What would be the impact of medical marijuana legalization on accidental ingestion?</b>	
Literature review	The literature suggests that accidental exposure could increase. Specifically, children could be at increased risk of accidental ingestion. States with medical marijuana laws experienced slight increases in accidental exposures among children, prompting Colorado to establish child-proof packaging for marijuana. Observed increases could be due to several factors such as individuals are more likely to seek treatment for accidental ingestion and health care providers are more likely to test patients for cannabinoids. Literature findings for adults are mixed. Additionally, one study suggested that states with medical marijuana laws observed a decrease in opioid analgesic overdose age-adjusted mortality.
Findings	Based on reviewed literature, accidental ingestion could increase, specifically for children. Increase in accidental ingestion of marijuana might be relatively minimal compared to accidental ingestion of opioids.

### HIA Findings and Recommendations

Recommendations	<ul style="list-style-type: none"><li>• Monitor emergency department visits for accidental ingestion of marijuana, especially among children under age of 5.</li><li>• Enact regulations for child-proof packaging in order to prevent accidental ingestion of marijuana.</li><li>• Limit number and type of edibles, and require those that are allowed to be less attractive to children and youth</li></ul>
-----------------	--

**Note:** Comparison of these measures across states and examination of patterns of correlation between various indicators may be useful in identification of possible relationships. However, this analysis does not control for other factors and cannot conclusively determine whether changes are caused by legalization of medical marijuana.

**Literature Review:** Searches of PubMed, PsychINFO, and Google Scholar were conducted in September of 2014 using keywords “medical marijuana” and “medical cannabis.” Searches were limited to journal articles, dissertation, theses, research institute (e.g., RAND) reports, documents published in English, focused on human populations, studies conducted in the United States (U.S.), and published in the past ten years or 2004 through 2014. A total of 67 articles were identified for literature review.

**Data Analysis:** T-tests were conducted to test the equality of the means of indicators before and after the legalization of medical marijuana in states that legalized prior to 2012. Where possible, data for five years before and five years after legalization were used. Years of data analyzed for Colorado didn’t overlap with the passage of recreational marijuana in the state.

**Data Sources:** Youth Behavioral Risk Survey (1995-2013), National Survey on Drug Use and Health (2002-2011), Uniform Crime Reporting Statistics (1995-2013), Fatal Accident Reporting System (1990-2013), Kansas Department of Transportation (2000-2012).

Source: *KHI HIA Medical Marijuana Project.*

If you have any questions regarding today’s information or the health impact assessment, please contact the primary author of the report: Tatiana Lin at (785) 233-5443 or [tlin@khi.org](mailto:tlin@khi.org). Sheena Smith, analyst and an author of the report, is present today to answer any immediate questions you may have.

Enclosures: Attachment 1: Map of states that legalized medical marijuana, 2015.  
Attachment 2: Executive Summary of the HIA: Potential Health Effects of Legalizing Medical Marijuana in Kansas (Printed copies of the full report are also available)