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Senate Committee on Federal and State Affairs February 20, 2017

Neutral Testimony: A Health Impact Assessment on Legalization of Medical Marijuana in Kansas

Senate Bill 155

Sarah Hartsig, M.S., Senior Analyst 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.

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		Attachment # 22

Chairman LaTurner and Members of the Committee:

Thank you for the opportunity to provide testimony today. My name is Sarah Hartsig and I am a senior analyst at the Kansas Health Institute, where I participate in work on community health improvement. KHI is a nonprofit, nonpartisan health policy and research organization based here 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 here to speak neither for nor against SB 155. Senate Bill 155 addresses a variety of issues related to marijuana possession and penalties, and legalizes medical marijuana for a variety of medical conditions.

We would like to provide information on the results of our health impact assessment – or HIA – on the issue of legalization of medical marijuana in Kansas. The HIA was based on the proposals included in SB 9/HB 2011 of the 2015 session. In general, SB 155 includes many similar provisions, but we have not conducted additional research into the specific provisions of this year's bill. The study assesses 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 includes a review of existing literature, data analysis for Kansas and states that have legalized medical marijuana, and interviews with stakeholders around the state.

As of November 2016, 29 states including Washington, D.C. have legalized medical marijuana, and an additional 16 states have passed more restrictive medical marijuana laws. See **Attachment 1** in your materials for a map of the medical marijuana laws in the United States.

I would like to share some of the key findings from our health impact assessment to help inform your discussion on this issue. **Attachment 2** in your materials includes findings and recommendations regarding consumption, crime, driving under the influence, traffic accidents and ingestion/overdose.

One of the primary impacts studied in the report was the impact of legalization of medical marijuana on access to and consumption of marijuana. Our research found that 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. The level of this change would depend on regulation and law enforcement practices.

Accidental ingestion of marijuana products could increase, especially for young children, according to the research. However, it is important to note that the increase in accidental ingestion of marijuana might be relatively minimal compared to accidental ingestion of opioids, and growing evidence points to decreased opioid abuse and mortality in states that have legalized medical marijuana.

The study also examined the impact of medical marijuana legalization on crime. Based on the reviewed data and literature, states that legalized medical marijuana did not see broad increases in criminal activity, however, areas that are located in close proximity to dispensaries might experience increases in crime. That said, the areas where dispensaries are likely to establish may already have elevated crime rates.

Finally, the legalization of medical marijuana may result in an increase in driving under the influence of marijuana and related traffic accidents.

A few of the key recommendations from the HIA include:

- Requiring dispensaries to provide educational materials on the importance of not sharing marijuana with those who are not authorized to use it;
- Requiring dispensaries to implement safety measures to deter crime, such as video surveillance;
- Requiring medical marijuana products to have labels with detailed usage and warning information;
- Enacting regulations for child-proof packaging in order to prevent accidental ingestion of marijuana products; and
- Limiting the number and type of edibles, and requiring those that are allowed to be less attractive to children and youth.

We invite you to review the provided HIA executive summary and the attachments to this testimony for more detailed information about findings and recommendations of our study.

Thank you for your time, and I will now stand for questions.

If you have any questions regarding today's information or the health impact assessment, please contact Sarah Hartsig at (785) 233-5443 or shartsig@khi.org.

Enclosures:

Attachment 1: Map of states that have legalized medical marijuana, 2016.

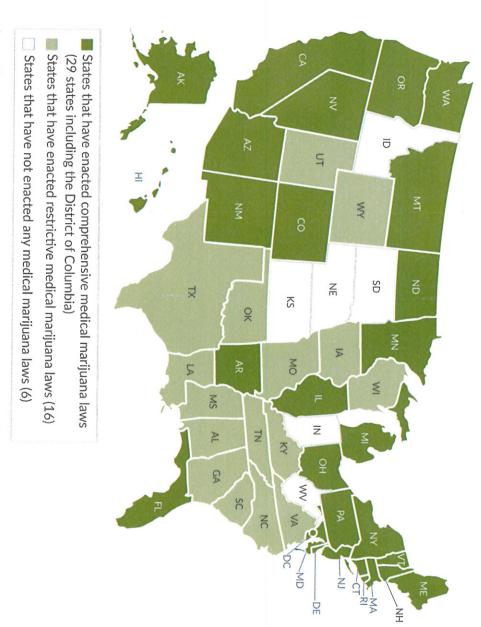
Attachment 2: HIA Findings and Recommendations

Attachment 3: Executive summary of the HIA: Potential Health Effects of

Legalizing Medical Marijuana in Kansas

³ Kansas Health Institute, February 20, 2017

Medical Marijuana Laws in the United States, November 2016



Source: Information compiled by KHI from the National Conference of State Legislatures, January 2017.

22-4

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Question 1: What the general popula	would be the impact of medical marijuana legalization on consumption of marijuana for tion and youth?
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 statelevel 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	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.
	Additionally, there was no increase in youth consumption (as measured by lifetime or pastmonth 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.
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 condition may occur, but the level of change in youth consumption would depend on regulation and law enforcement practices.
Recommendations	 Require dispensaries to limit advertising of services and products to the public. Require educational materials to be provided at dispensaries regarding the importance of not sharing marijuana. Increase accountability of healthcare providers regarding their prescription recommendations (K-TRACS).
Question 2: What verime?	would be the impact of medical marijuana legalization on violent crime and property
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.

¹ Kansas Health Institute, February 20, 2017

	HIA Findings and Recommendations
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 violent and property crime. However, areas that are located in close proximity to dispensaries might experience increases in crime.
Recommendations	 Monitor changes in crime rates in areas where dispensaries are located. Require dispensaries to implement safety measures to defer crime, such as video surveillance. Implement zoning requirements for dispensaries stipulating minimum distances to certain entities including schools, universities, child care and correctional facilities.
ACCOMMEND TO DESCRIPTION OF CHARLES AND ARREST AND ALCOHOLOGICAL RESERVABLE OF COMMEND AND ARREST ARREST AND ARREST	would be the impact of medical marijuana legalization on driving under the influence and
traffic accidents?	
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	 Increase testing and reporting for marijuana in drivers. Educate the public on marijuana-related impairment. Require medical marijuana products to have labels with detailed usage and warning
	information.
Question 4: What v	vould be the impact of medical marijuana legalization on accidental ingestion?
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.

² Kansas Health Institute, February 20, 2017

HIA Findings and Recommendations
 Monitor emergency department visits for accidental ingestion of marijuana, especially among children under age of 5.
 Enact regulations for child-proof packaging in order to prevent accidental ingestion of marijuana.
• Limit number and type of edibles, and require those that are allowed to be less attractive to children and youth

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, 2015.





Kansas Health Impact Assessment Project





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22-9

POTENTIAL HEALTH EFFECTS OF LEGALIZING MEDICAL MARIJUANA IN KANSAS

Kansas Health Impact Assessment Project

SEPTEMBER 2015

Authors

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Introduction

This report is intended to be an accessible and informative resource for Kansas policymakers as they consider whether or not to legalize medical marijuana in Kansas. This report describes the potential health effects associated with this policy issue in an effort to inform the decision-making process.

Acknowledgements

Over the course of the project, the Kansas Health Institute's Health Impact Assessment Team—further on referred to as the HIA Team—received valuable input and participation from various stakeholders including state officials, state legislators, academic researchers and representatives of social service organizations. We thank them for dedicating their time, energy and expertise to the project.

Additionally, the HIA Team extends a special thank-you to the following medical marijuana policy experts for providing valuable insight on this issue: Eric A. Voth, M.D., F.A.C.P., a specialist in internal medicine, pain management, and addiction medicine and vice president of Primary Care at Stormont-Vail Health*Care* in Topeka, Kan., Ashley Brooks-Russell, Ph.D., M.P.H., Assistant Professor at the University of Colorado Denver, and Larry Wolk, M.D., M.S.P.H., director and chief medical officer of the Colorado Department of Public Health and Environment.

Finally, the authors thank Kansas Health Institute (KHI) colleagues who provided feedback on the report: Gianfranco Pezzino, M.D., M.P.H., Jennifer Boden, M.A. and Andrea Hinton.

Disclaimer

The authors of this report are responsible for the facts and accuracy of the information presented. Any findings, conclusions or recommendations expressed in this HIA report are those of the authors and do not necessarily reflect the view of the medical marijuana policy experts and stakeholders who provided their perspectives during the process.

The Kansas Health Institute does not endorse or oppose the proposed legislation. KHI delivers credible information and research enabling policy leaders to make informed health policy decisions that enhance their effectiveness as champions for a healthier Kansas. The Kansas Health Institute is a nonprofit, nonpartisan health policy and research organization based in Topeka. KHI was established in 1995 with a multi-year grant from the Kansas Health Foundation.

Proposed Policy

During the 2015 legislative session, Kansas lawmakers considered three bills to legalize medical marijuana in Kansas. Senate Bill 9 and House Bill 2011 were proposed to legalize multiple forms of marijuana for a range of debilitating medical conditions such as cancer, glaucoma, hepatitis C and Crohn's disease, among others. House Bill 2282 included more restrictive provisions and only allowed for the use of marijuana among those with seizure-related conditions, including those characteristic of epilepsy. The Kansas Health Institute (KHI) conducted a Health Impact Assessment (HIA) to examine how the legalization of medical marijuana might positively or negatively affect the health of Kansas residents.

An HIA is a practical tool that assesses the health impacts of policies, strategies and initiatives in sectors that aren't commonly thought of in relation to health—such as transportation, housing and the environment. The overall goal of an HIA is to inform policymakers of the potential health effects of a proposed policy during the decision-making process. The HIA provides evidence-based findings about health impacts and also identifies recommendations to maximize health benefits and mitigate health risks.

In order to assess the potential health effects of legalizing medical marijuana in Kansas, the HIA Team reviewed existing literature, analyzed state and national data and gathered stakeholder input from multiple groups, such as individuals with debilitating medical conditions, representatives of prevention organizations, school officials, academic researchers and public health professionals.

Research Questions

The assessment of health effects was guided by several research questions related to medical marijuana, including:

How will the legalization of medical marijuana affect the following factors? How will changes in these factors affect health?

- Access to marijuana
- Consumption of marijuana
- Crime
- Driving under the influence of marijuana
- Accidental ingestion of marijuana
- Vulnerable populations
- State and local tax revenue
- Employment

The review of existing literature revealed limited evidence related to the impacts of medical marijuana on jobs and state and local tax revenue. As a result, the HIA Team excluded the last two factors from further assessment, but included stakeholder perspectives on economic impacts of the legislation in order to highlight the importance of the issues to community members. However, the HIA report does not include any findings, recommendations or projections on state and local tax revenue or employment.

The HIA assessment primarily focused on the research questions related to marijuana consumption, crime, driving under the influence, accidental ingestion and vulnerable populations. Throughout the report, special attention was given to populations that could be disproportionately affected by this policy, including at-risk youth.



Summary of Findings and Recommendations

The analysis presented in this HIA suggested that there might be little to no impact on marijuana consumption among the general population or on property and violent crime rates. However, some increase in marijuana consumption might occur for at-risk youth. Analysis also identified that the legalization of medical marijuana may result in some increase in driving under the influence and accidental ingestion of marijuana by children. Increased access to medical marijuana may lead to some decrease in the use of other substances.

Findings

Access to Marijuana: The legalization of medical marijuana may result in increased access to marijuana for certain groups. Access will likely increase for individuals with qualifying medical conditions. Additionally, while literature points to the possibility that medical marijuana may be sold or given to youth and adults who are not authorized to use it, the extent to which this occurs may depend on regulation and law enforcement practices.

Consumption of Marijuana: 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 might occur for at-risk youth. It is important to note that changes in youth consumption would also depend on regulations 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, dispensaries) could impact consumption of marijuana.

Crime: The legalization of medical marijuana may have no impact on violent and property crime rates. However, areas that are located in close proximity to dispensaries might experience increases in

crime. This could be in part due to dispensaries being more likely to open in areas with higher crime. The data analysis found that in all but one of the states studied (Colorado), rates of violent and property crimes remained unchanged or decreased after medical marijuana was legalized. It is important to note that decreases in property and violent crimes might be attributed to other factors (e.g., economic conditions).

Driving Under the Influence of Marijuana: The legalization of medical marijuana may result in an increase in driving under the influence of marijuana and related traffic accidents. 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, particularly in states with dispensaries. Nationally, the rate of marijuanarelated traffic fatalities has increased over time both in states with medical marijuana laws and in those without such laws. 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.

Accidental Ingestion of Marijuana: The literature suggests that accidental exposure to marijuana 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; for instance, individuals may be more likely to seek treatment for accidental ingestion and health care providers may be 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 deaths related to opioid painkillers.

Recommendations

To maximize the potential positive health effects and mitigate the potential negative health effects associated with the legalization of medical marijuana in Kansas, the HIA Team, with input from Kansas stakeholders, developed a set of recommendations to inform the decision-making process.

Key recommendations are listed below. The asterisk (*) indicates the recommendations that were identified as high priority by the stakeholders in terms of their feasibility, responsiveness to predicted impacts, and whether they addressed vulnerable populations.

Youth Prevention

Kansas Department of Health and Environment could consider:

- Encouraging parents and caregivers to hold regular discussions with their children about risks associated with marijuana use.
- Discouraging adults from using marijuana in the presence of children because of the influence of role modeling by adults on child and adolescent behavior.*

Provider Accountability

Kansas Department of Health and Environment could consider:

 Identifying evidence-based practices that keep health care providers accountable to the types of prescriptions/recommendations they make for medical marijuana such as Kansas Tracking and Reporting of Controlled Substances (K-TRACS).*

Monitoring and Surveillance

Kansas Department of Health and Environment could consider:

- Adding questions in the state-added module of Behavioral Risk Factor Surveillance System (BRFSS) related to marijuana use, including:
 - Medical marijuana use and marijuana use in general,
 - Source of marijuana,
 - Concurrent use of marijuana with other substances such as alcohol, and
 - Whether youth are using someone else's medical marijuana.
- Monitoring adult and youth marijuana addiction treatment rates.

Regulation

Kansas Department of Health and Environment could consider:

- Enacting regulations for child-proof packaging in order to prevent accidental ingestion of marijuana.*
- Limiting the number of types of edibles, and require those that are allowed be less attractive to kids and youth (e.g., they should not be made to look like candy).

The full list of findings and recommendations is available in *Appendix C*, page 54.

The following table summarizes potential health impacts associated with legalizing medical marijuana in Kansas for each of the areas studied (Figure 1, page 5). See Figure 2, page 6, for the legend that corresponds to Figure 1.

Figure 1. Summary of Health Impacts of Legalizing Medical Marijuana in Kansas

				Based on Literature and Data					Literature
Health Factor or Outcome	Literature Review	Data Analysis	Stakeholder Perspectives	Overall Projection	Expected Health Impact	Magnitude of Impact	Likelihood of Impact	Distribution	Quality of Evidence
Access to Marijuana	Increase	N/A	Increase	Increase	Uncertain	Medium	Possible	At-risk youth, people with qualifying medical conditions	***
Consumption of Marijuana (illegal) (general population)	Mixed	None	N/A	None	None	N/A	Uncertain	N/A	**
Consumption of Marijuana (illegal) (youth)	Mixed	None	N/A	Mixed	Negative	Low	Likely	At-risk youth (those in substance abuse treatment, individuals already using drugs)	****
Consumption of Marijuana (legal)	N/A	Increase	Increase	Increase	Uncertain	Low	Likely	People with approved qualifying conditions	**
Violent Crime	Mixed	None	Mixed	None	None	N/A	Possible	N/A	**
Property Crime	Mixed	None	Mixed	None	None	N/A	Possible	N/A	**
Driving Under the Influence of Marijuana	Increase	Increase	Increase	Increase	Negative	Low	Likely	People who use marijuana and drive, passengers	***
Accidental Ingestion	Increase	Increase	Increase	Increase	Negative	Low	Possible	Children under 5 years old	***
Other Substance Use	Decrease	N/A	Mixed	Decrease	Uncertain	Low	Possible	Substance users and people who use prescription drugs	**

Source: KHI Medical Marijuana HIA Project, 2015. Legend: Figure 2, page 6.

Figure 2 Legend: Health Impacts for Kansas

CRITERIA	DESCRIPTION
Literature Review	Increase — Literature review found that this indicator might increase. Decrease — Literature review found that this indicator might decrease. Mixed — Literature lacked consensus about this indicator's potential direction. None — Literature review didn't find a change for this indicator. N/A — Literature was not available or a review was not performed on this indicator.
Data Analysis	Increase — Data analysis found that this indicator might increase. Decrease — Data analysis found that this indicator might decrease. Mixed — Data analysis lacked consensus about this indicator's potential direction. None — Data analysis didn't find a change for this indicator. N/A — Data were not available or analysis was not performed for this indicator.
Stakeholder Perspectives	Increase — Stakeholders anticipated that this indicator might increase. Decrease — Stakeholders anticipated that this indicator might decrease. Mixed — Stakeholders were divided in their opinions for this indicator. None — Stakeholders didn't anticipate a change for this indicator. N/A — Stakeholders didn't express an opinion regarding this indicator.
Overall Projection	Increase — The assessment found that this indicator might increase. Decrease — The assessment found that this indicator might decrease. Mixed — The assessment lacked consensus about this indicator's potential direction. None — The assessment didn't find a change for this indicator. N/A — The assessment wasn't performed for this indicator.
Expected Health Effect	Positive — Changes may improve health. Negative — Changes may impair health. Uncertain — Unknown how health might be affected. Mixed — Changes may be positive as well as negative. None — No identified effect on health.
Magnitude of Impact (number of people affected)	High — Affects most or all people in Kansas. Medium — Affects a moderate number of people, such as a segment of the population (e.g., youth). Low — Affects few or very few people, such as people with certain medical conditions. It is important to note, that although only some groups of people might be affected, the impact on a particular individual might be high. None — Affects no people. N/A — It was not possible to estimate the magnitude of impact.
Likelihood of Impact	Likely — It is likely that impacts might occur as a result of the proposed changes. Possible — It is possible that impacts might occur as a result of the proposed changes. Unlikely — It is unlikely that impacts might occur as a result of the proposed changes. Uncertain — It is uncertain whether impacts would occur as a result of the proposed changes.
Distribution	People most likely to be affected by changes in the indicator.
Quality of Evidence (based on literature review)	*** — Strong literature and/or data. ** — Sufficient literature and/or data. * — Lacks either quality literature and/or data.

Source: KHI Medical Marijuana HIA Project, 2015.

22-16