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Community-level policy responses to state marijuana legalization in Washington State

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ABSTRACT

Background: Washington State (WA) legalized a recreational marijuana market – including growing, processing and retail sales – through voter initiative 502 in November 2012. Legalized recreational marijuana retail sales began in July 2014.
In response to state legalization of recreational marijuana, some cities and counties within the state have passed local ordinances that either further regulated marijuana markets, or banned them completely. The purpose of this study is to describe local-level marijuana regulations on recreational retail sales within the context of a state that had legalized a recreational marijuana market.
Methods: Marijuana-related ordinances were collected from all 142 cities in the state with more than 3000 residents and from all 39 counties. Policies that were in place as of June 30, 2016 – two years after the state's recreational market opening – to regulate recreational marijuana retail sales within communities were systematically coded.
Results: A total of 125 cities and 30 counties had passed local ordinances to address recreational marijuana retail sales. Multiple communities implemented retail market bans, including some temporary bans (moratoria) while studying whether to pursue other policy options. As of June 30, 2016, 30% of the state population lived in places that had temporarily or permanently banned retail sales. Communities most frequently enacted zoning policies explicitly regulating where marijuana businesses could be established. Other policies included in ordinances placed limits on business hours and distance requirements (buffers) between marijuana businesses and youth-related land use types or other sensitive areas.
Conclusions: State legalization does not necessarily result in uniform community environments that regulate recreational marijuana markets. Local ordinances vary among communities within Washington following statewide legalization. Further study is needed to describe how such local policies affect variation in public health and social outcomes.

Background

Washington State was one of the first two states in the United States (U.S.) to legalize a retail non-medical (also called "recreational") marijuana market, including growing, processing and sales, and decriminalization of individual possession of small amounts of product, through voter initiative 502 (I-502) in November 2012. Possession or use by individuals under age 21, or by adults in amounts greater than specified by the law, driving under the influence of marijuana, home growing for recreational use, and use of marijuana in public remain illegal.

The state was also one of the first to decriminalize possession of limited amounts of marijuana for medical purposes in 1998 (Washington State voter initiative 692); however, there was no state regulatory system to oversee the activity of collectives, medical marijuana authorizers or patients. Industry interpretation of the state's Medical Cannabis Law (ESSB 5073) that was passed in 2011, as well as a partial gubernatorial veto, resulted in hundreds of collective gardens with medical marijuana sales (also sometimes

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called “dispensaries”) operating in Washington as storefronts for personal access without oversight.

Washington's Liquor and Cannabis Board (LCB) agency developed rules for licensing and oversight of recreational marijuana growers, processors and retailers. The LCB determined a maximum number of marijuana retail sales licenses that would be allowed in each city or county area, based on projected demand and with an original statewide maximum of 334 licenses. Recreational marijuana retail sales markets opened beginning in July 2014. Evolving state regulation of the recreational marijuana market was also associated with development of a stronger statewide system to regulate the previously loose medical market. The newly regulated medical market opened in July 2016, integrated within the recreational market system, and with sales of medical marijuana products allowed in recreational marijuana retail stores that have a medical marijuana endorsement.

In response to state legalization of recreational marijuana (and increased regulation of the previously loose legal medical market), some local government entities pursued policies through passage of local municipal ordinances that banned or further regulated marijuana businesses. In fact, local governments in the U.S. should be expected to have some control over and play a role in regulation of marijuana market activities. For example, one common local government function is land use regulation. Typically, local governments establish “zones” to regulate the types of activities that are allowed in given land areas, and allowable densities of activities. Local governments define specific zone types (e.g., residential, industrial, park), classify their geographic areas by zone type, and approve or disapprove proposed activities for those areas based on the zoning, sometimes outright, and sometimes through implied restrictions by limiting land use activity. Additional conditions may also be imposed when a land use is allowed in a particular zone. Therefore, local governments could use zoning to control where and how marijuana businesses can be established (sited), by making it potentially more difficult for those businesses to open. It is possible that a state could preempt this type of traditional local regulatory activity by pre-establishing siting requirements or prohibiting siting of a particular use in specific land use zones.

Washington’s land area is divided into 39 contiguous counties with county governments. Typically, multiple cities are located within counties. Article XI, Section 11 of the State of Washington’s Constitution authorizes any city, county, town or township to make and enforce within its limit all such local police, sanitation or other regulations as are not in conflict with state general laws. Generally, city governments have legal authority to regulate businesses and other activity through zoning within their boundaries, as well as other activities where explicitly granted the authority by the legislature (Revised Code of Washington [RCW] 70.05.030). County governments have authority to regulate businesses and other activity through zoning in the unincorporated areas (e.g., county areas that are not included in any city boundary) (RCW 70.05.035). Also, county-based public health authorities (e.g., Boards of Health or Health Commissions) have authority to regulate county-wide – including within city boundaries – for designated public health activities (for example, inspection of food service establishments) and county governments can regulate other activities where specifically granted authority by the legislature (RCW 70.05.060). Thus, both county and city governments may have a role to play in the regulation of marijuana businesses under zoning, public health and broad police powers delegated to them by the legislature, as long as their regulation is not in conflict with state law.

A state law preempts the field and makes a local ordinance invalid if the statute or regulation expressly states its intent to preempt the entire field (subject) of the regulation, or if such intent can be implied from the law. This means that local cities and counties cannot pass or enforce ordinances that provide additional regulations on that subject. The ability of local entities to regulate recreational marijuana (e.g., the degree of “field preemption”) was not explicitly described in the Washington State I-502, and has required clarification. In January 2014, the Washington State Attorney General issued an opinion that the state law passed by voters in 2012 did not preempt Washington's local governments from banning or regulating local marijuana businesses (Ferguson, 2014). As the state continues to add regulatory requirements, there may be questions of implied preemption of the field for aspects of marijuana regulation, or whether local government ordinances conflict with state law, but for now, the Attorney General's opinion stands, leaving much flexibility to local governments.

There are many potential models for regulating marijuana markets. As authors of a recent study analyzing U.S. state laws that legalized medical marijuana (n = 20) noted, “legalization” does not result in a uniform legal environment and there are many variations demonstrated in how states have regulated medical marijuana (Pacula, Hunt, & Boustead, 2014). In other words, “marijuana legalization” should not be considered as a dichotomous condition, but rather a continuum of possibilities for the availability and acceptability of marijuana. Communities within states that have legalized recreational marijuana may similarly have multiple options for regulation when those local entities have authority to regulate marijuana business activity to some degree. As a result, implementation of marijuana legalization may vary from community to community within the state.

Local entities may be motivated to regulate marijuana based on several factors. First, although 55.7% of Washington State voters passed I-502 statewide, the majority of voters in 19 of Washington’s 39 counties did not pass the measure, with up to 62% in those counties voting against it (Washington Secretary of State, 2012). Therefore, policymakers in areas of the state that did not pass the measure might wish to more restrictively control the marijuana market based on the preferences of their citizens. Second, legalization of marijuana for recreational use is very new, and the impacts on public health are unknown, but lessons from regulation of alcohol and tobacco suggests that public health – including preventing use among youth, minimizing harms to adult users – is better protected by policies that are often local in nature, such as restricting time, place and manner of operations, limiting youth access, and restricting advertising (Pacula, KilmerWagenaar, Chaloupka, & Caulkins, 2014). Communities that are concerned about mitigating potential negative public health impacts of a recreational marijuana market might wish to take a conservative approach, and support more restrictive policies as the markets open. Finally, Washington’s previously loosely regulated but legal medical market could have influenced local decisions on recreational marijuana: many communities saw an explosive growth of dispensaries unlicensed by the state in the two years following recreational marijuana legalization but prior to the recreational market opening, which could have motivated community interest in limiting marijuana-related business activities.

The purpose of this study is to describe local marijuana policy actions within the context of a “legalized recreational marijuana” state environment in Washington State, and to assess the proportion of the state’s population that is covered by different regulatory environments at a time period of two years after the opening of the market. The term “policy” can refer to laws, rules or procedures that regulate recreational marijuana business activity; this study focuses on describing city or county ordinances as a key type of policy at the local level.

Methods

A framework for assessing the content of local ordinances (“policy surveillance”) was developed based on an initial marijuana

Table 1
Washington state retail marijuana regulatory framework—state and local authority.

	State regulations[b]	Local authority to enact other regulations[a]
Regulate/restrict retail marijuana sales		
Retail sales outlets allowed	Retail marijuana licenses issued by the state, with sales beginning July 1, 2014	May permanently ban or enact temporary bans (moratoria)
Zoning/siting-based Restrictions	State prohibits licensing retail sales in residential zones	May restrict to specific zones (e.g., not allowing in mixed residential/commercial zones)
Limitations on numbers of retailers	State determines maximum retailers allowed within each city and county (initially a state total of 334, expanded to 556 in December 2015 as part of Washington's Cannabis Patient Protection Act to integrate medical and retail markets).	May set more conservative caps on the number allowed to operate
Oversight of marijuana sales		
Licensing	Marijuana retail sales license must be obtained from State Liquor and Cannabis Board (LCB); violation of license terms or regulations can result in penalties or license suspension/revocation	May require a marijuana-specific or general local business license
Time, place, manner regulations on retail sales		
Group A: Buffer[c] from elementary or secondary schools; playgrounds	1000 ft minimum required (RCW 69.50.331, WAC 314-55-050)	Additional buffer distance could potentially be imposed
Group B: Buffer[c] from other specific youth-serving uses – specifically defined as recreation centers or facilities, child care centers, public parks, public transit centers, library, or game arcades	State sets the default minimum buffer of 1000 ft (RCW 69.50.331, WAC 314-55-050)	As of July 1, 2015, local entities may act to reduce the default buffer to as little as 100 ft minimum for these locations (RCW 69.50.331(8)(b))
Buffer from other uses (youth-specific or non-youth)	State does not list additional requirements for buffers	May require minimum buffers from other specific locations (e.g., substance abuse treatment centers)
Hours of operation	Maximum hours of operation are 8 am-midnight, 7 days per week	May further restrict day or time of operation
Home delivery	Home delivery of retail sales is currently banned by state law, but multiple legislative proposals to allow it have been proposed, and another is expected in 2017 (Liu (2016))	Currently unclear if a state law change would preempt local actions to restrict delivery.
Public messaging requirements for retail sales		
Advertising	WA law limits to one sign on windows/outside of retailer that is visible to public, up to 1600 sq-inch in size. No ads may be placed <1000 ft from perimeter of Group A or Group B youth facilities; on or in public transit or transit shelters, or publicly owned property. Giveaways, coupons and distribution of branded merchandise are prohibited. Content of ads should not promote over-consumption, and must include one of four specified warnings. (WAC 314-55-155)	Currently, degree of local authority to act is unclear.
Public health messaging at retail sites	No current requirements	May act to require public health messaging at point of sale

RCW: Revised Code of Washington – compilation of all permanent laws in force within the state (enacted by the Legislature, or by a voter initiative process).
WAC: Washington Administrative Code – regulations of executive branch agencies of the state.
[a] This column includes areas where local governments are regulating or may try to regulate, though in some cases it is unclear if these laws may be challenged under state preemption principles and whether those challenges would be successful.
[b] Primary statutes for recreational marijuana are codified in chapter 69.50 RCW.
[c] State-defined buffers are measured as the shortest straight line between the property line of the potential location to the property line of the grounds of the entities listed.

policy coding project that was funded in Washington State by the Robert Wood Johnson Foundation Public Health Law Research Program (informed by public health interventions for alcohol and tobacco), review of the National Institute on Alcohol Abuse and Alcoholism's Alcohol Policy Information System (NIAAA APIS, 2016), and based on knowledge of ordinances passed or under consideration by local entities in multiple states that have legalized recreational marijuana. Table 1 describes relevant Washington State regulations around recreational marijuana sales and local authority (or potential authority) for enacting ordinances.

Marijuana-related ordinances were collected for all Washington State cities with 3000 or more residents (142 cities), and all counties (39). Policies for federal lands and lands controlled by federally-recognized Tribes in Washington State were not included. Ordinances were identified through a search of the online Municipal Research and Services Center database of Washington's municipal policies (MRSC, 2016). Search terms used were "cannabis" and "marijuana." Ordinances were initially collected during 2013–2014 as part of a previous study, and searches for the current study were initiated quarterly beginning in January 2016.

After collection, local entity ordinances were reviewed using a systematic content analysis. A codebook of specific policy elements to record was developed by the study team.[1] To support cross-jurisdictional comparisons, each entity's local zoning categories were reviewed and then assigned into seven broad categories: residential single family and residential multi-family; mixed use; urban commercial; office park/business park; light industrial/manufacturing and heavy industrial/manufacturing; rural; and agricultural. A total of 509 questions were included in the final codebook, largely organized by specific allowable marijuana

[1] A copy of the codebook, protocol and interactive map are available at http://www.kingcounty.gov/depts/health/data/law-atlas.aspx.

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business activities by zone (e.g., how specific activities were regulated, in each of up to seven zones). For this report, only ordinances that specifically regulate recreational marijuana retail sales are included; policies that address only medical marijuana, or only growing or processing activities are excluded.

Policy information was recorded using LawAtlas^{SM} policy software, a policy surveillance system which links to geopolitical boundaries (Public Health Law Research, 2016). When no ordinances were identified for a city or county, this was also recorded. Inter-rater reliability testing was conducted to assure quality of coding, with all policies double-coded during initial entry and discrepancies discussed, particularly to revise and clarify codebook questions as needed. At least half of policies were double-coded after the codebook was finalized.

Policies were typically coded as binary ("present" or "absent") in a local jurisdiction, with associated dates when the ordinance went into effect, and when they expired (for temporary policies or policies that were subsequently repealed and replaced with updated ordinances). For this report, we specifically examined whether the following policies had been passed via ordinance by local entities and were in effect on June 30, 2016:

- Actions to regulate or restrict retail marijuana sales
  - Permanent bans on recreational marijuana retail sales
  - Temporary bans on recreational marijuana retail sales (also known as moratoria)
  - Zoning- or siting-based restrictions on where recreational marijuana retail sales could be located
  - Caps on the number of licensed recreational marijuana retailers allowed in the geography
- Actions for local oversight of recreational marijuana retail sales activities
  - Requirement for a marijuana-specific local business license
  - Requirement for a general local business license
- Time, place and manner regulations on recreational marijuana retail sales
  - Buffers required for placement of marijuana businesses at least a given distance away from designated areas or other specific land use types, in addition to state requirements
  - Restricted hours of operation
  - Bans on home delivery of recreational marijuana products (although this is currently prohibited by Washington state law)
- Public messaging requirements
  - Restrictions on recreational marijuana advertising
  - Requirements for public health messaging about marijuana

The total population of city and unincorporated county areas were obtained using Census 2010 data. The exact population of cities and unincorporated county areas that had implemented specific policies, divided by the total population in the cities and unincorporated county areas where policies were assessed, was used to calculate the percent of the population covered.

Finally, we used visual inspection to note counties where there were discordant policies that allowed or banned the retail sale of recreational marijuana: either the county allowed sales but one or more cities within had banned sales, or the county banned sales but cities within the county allowed sales.

Results

A total of 125 cities and 30 counties had passed ordinances that addressed marijuana. A summary of the numbers of policies in effect on June 30, 2016, by city or county entity, and the estimated percent of the total population covered by each policy are presented in Table 2. None of the county policies identified in our study during this period were passed with powers of public health authority; all county policies reported in this study were

Table 2
Local entity policies to regulate recreational marijuana businesses, June 30, 2016.

Local entity policy Enacted and in effect as of June 30, 2016	Number of cities with policy (total 142)	Number of counties with policy (total 39)	% of population covered by policy[a]
Actions to restrict retail marijuana sales			
Permanent ban on retail sales	54	6	28%
Temporary ban (moratorium) on retail sales	3	4	2%
Zoning restrictions on retail sales	64	19	65%
Caps on number of licensed retailers in jurisdiction (may be in addition to other actions above)	10	0	9%
Actions for local oversight of marijuana sales activities			
Required a marijuana-specific business license	5	0	11%
Required a regular business license	32	0	15%
Time, place, manner regulations			
Increased buffer requirement from Group A sites (schools, playgrounds)	0	0	0%
Reduced buffer requirement from Group B youth sites (see Table 1)	7	0	16%
Additional buffers required from specific youth-related sites (in addition to Group A and Group B)	8	2	7%
Additional buffers required from specific non-youth sites	13	2	10%
Restricted hours of operation	14	1	13%
Banned home delivery	3	0	9%
Public messaging			
Restrictions on marijuana advertising	7	0	7%
Requirements for public health messages	0	0	0%
No policies identified	17	9	4%

[a] Sum of 2010 population in all included cities and unincorporated county areas, divided by the total population in those areas (6.586 million).

related to land use and business licensing and therefore apply only to unincorporated areas of the counties.

Actions to restrict retail marijuana sales

A total of 60 entities had passed permanent bans (38% of cities in our study and 15% of all counties), and an additional 7 (2% of cities and 10% of counties) had passed temporary bans on recreational marijuana retail sales. The most common regulatory activity was zoning: 83 entities applied zoning to restrict marijuana market activity (45% of cities and 49% of counties). Ten cities (7% of cities) had established caps on the number of recreational marijuana retail businesses that could be sited in their jurisdiction; however, only six of those caps were less than the LCB-determined maximum number of licenses allowed in their jurisdiction. Three additional cities had also established moratoria on *new* recreational marijuana retail sales businesses, although they had already allowed some businesses to be established (data not shown).

Actions for local oversight of recreational marijuana sales activities

A total of 37 cities (26% of cities) and no counties were requiring a local business license for recreational marijuana retail sales. Most required a regular local business license (n = 32), but 5 cities (including the city of Seattle, the most populous city in Washington State) had established a marijuana-specific local business license.

Time, place and manner regulations

Washington state law addresses location of recreational marijuana retail sales by requiring that licenses not be issued if the proposed business is within 1000 ft of an elementary or secondary school or playground. We did not find any local entities that had passed ordinances increasing this minimum buffer requirement.

The state also establishes a default 1000 ft buffer between recreational marijuana retail stores and other delineated entities serving youth (see listing under Group B buffers in Table 1). Local entities can add to this list of youth-related sites. A total of 10 entities (8 cities and 2 counties) had added youth-related sites requiring a buffer. Additional sites defined included land dedicated for future use as schools and parks, property abutting a street designated as a “school walk route”, and public trails and trail access points.

Fifteen entities (9% of cities and 5% of counties) had established additional buffer requirements for other types of land uses not specifically related to youth activities. These included residential zones, churches and religious facilities, government complexes (such as City Hall), correctional facilities, and substance abuse treatment facilities.

Recent modification of Washington State law allows local governments to reduce Group B buffers to a minimum of 100 ft. Seven cities had reduced the state’s default 1000 ft buffer distance. Several of them had reduced buffers specifically in highly dense downtown areas only, or for specific youth-serving sites in the Group B list, or when a new youth-related site was proposed within the buffer after the recreational marijuana retail sales business permit had been issued. Most had reduced buffers to 500 ft, but two had reduced at least some buffers to the minimum of 100 ft.

Fifteen entities (14 cities and 1 county) had established restrictions on hours of operation. Three had acted to ban home delivery of recreational marijuana products, although this is currently illegal in the state.

Public messaging

Seven cities included restrictions on recreational marijuana advertising in their local policies; although only three of those established clearly more restrictive sign laws than the state law including limiting the location of advertising (particularly restricting off-site signage). No cities or counties had local policies requiring public health information to be posted or provided by recreational marijuana retailers.

No action

A total of 26 of the 181 Washington State local government entities did not pass policies to address recreational marijuana (12% of cities and 23% of counties).

Discordant county and city policies on recreational marijuana retail sales

Among Washington State’s 39 counties there were 30 that had at least one city within the county that was included in this study (cities with a population of 3000 or more). Of those 30 counties, the majority (n = 20) had discordant policies: 9 counties with a temporary or permanent ban on recreational marijuana retail sales in place for the unincorporated county land area had at least one included city that was allowing retail sales; and 11 counties with no ban in place for the unincorporated county area had at least one city within the county that had banned sales. Of the 10 counties that did not have discordant policies, nine allowed sales throughout and one had banned sales throughout.

Discussion

Most communities in Washington State have acted to regulate recreational marijuana retail sales by municipal or county ordinance following statewide legalization, resulting in a relatively diverse set of policies at the community level within the state. Only 17 cities in our study and 9 counties, encompassing 4% of the population, did not take some form of local policy action.

Continued shifts and developments in state regulatory systems and state law may have influenced local governments to adopt policies that better address their community interests in regulating marijuana. In particular, the rapid growth of a mostly unregulated medical marijuana market near the same time as the recreational market was opening may have contributed to community perceptions that restrictions were needed to limit the number of marijuana businesses in the community, without distinguishing between medical sales and recreational retail sales. Given the integration of medical marijuana sales within recreational retail markets starting in July 2016, current policies that were originally intended to restrict recreational marijuana markets specifically may also now be restricting access to medical marijuana. Longer-term monitoring of community policies will show whether communities are willing to loosen restrictions on marijuana businesses to change access to either recreational or medical marijuana, following the application of controls on the formerly unregulated medical marijuana market.

State law authorizes the Washington Liquor and Cannabis Board (LCB) to regulate marijuana retailers. The LCB has allotted a specific maximum number of recreational marijuana retail sales licenses for jurisdictions, acting as a de facto concentration limit at the jurisdiction level. In December 2015, in preparation for increased demand expected as a result of integrating the previously unregulated medical marijuana market, the LCB increased the statewide allocation (and specific local allocations) by 222 licenses statewide. We found a small number (n = 10) of cities that passed ordinances setting caps on the total number of marijuana retail sales licenses that can be sited within their jurisdictions, some of which matched the LCB's new number of allocated licenses for their community. It is unknown whether these communities set caps anticipating a future where the LCB will further increase allocations. In other states where local jurisdiction maximum license allocations are not established by the state, local entities wishing to slow the growth of recreational marijuana retail sales access may more aggressively enact caps on retail sales licenses.

As another example of evolving marijuana laws in the state, Washington recently began allowing local governments to reduce required buffers between marijuana businesses and some specific sites that had been listed in the initial I-502 (youth-oriented sites described in Table 1 as "Group B"). This reduction was allowed because in densely populated areas there were limited spaces available to establish marijuana business locations while providing the required 1000-ft minimum buffer from listed sites. The change in law allows communities to reduce the buffer between marijuana businesses and youth-related land uses in Group B to a minimum of 100 ft, while maintaining the default 1000 ft requirement in state law should local governments not act to change the buffer. Several large cities with dense urban areas (including Seattle, with a population of more than 600,000 and Tacoma, with a population of nearly 200,000) have passed ordinances to exercise this new authority. Smaller local jurisdictions may have chosen to reduce the youth land use buffer to allow for wider distribution of retail sales establishments in their area.

Some jurisdictions are also choosing to create buffers from other types of land uses, including substance abuse treatment centres, perhaps with the intention of supporting people who are working to reduce substance dependence. However, we did not find any entities that had increased the buffer distance minimum requirement from schools and playgrounds (1000 ft minimum, described in Table 1 as "Group A").

The reduction of minimum buffer distances is an example of the state relaxing restrictions on recreational marijuana markets. Perhaps anticipating that the state may relax other provisions in current law, three communities have enacted specific local policies that ban home delivery of recreational marijuana, even though that is currently illegal in state law. In fact, proposals to change state law to allow legal home delivery are expected in 2017 (Liu, 2016), although it is unclear at this time if local entities would have authority to regulate further.

Evidence from alcohol and tobacco fields indicates that limiting advertising and other pro-use marketing activities, and increasing price, may be very effective for preventing youth initiation (Pacula, Kilmer et al., 2014). There was little policy effort identified in these communities to restrict marijuana advertising, and none to counter pro-marijuana advertising with public health messages. However, communities may be wary of proposing to limit advertising out of concern for legal challenges related to constitutional protection of free speech (First Amendment protections) in the U.S. While increasing price (such as through local taxes) is an effective prevention strategy, local communities in Washington State do not have ability to apply marijuana-specific local taxes. Communities in other states that legalize marijuana sales and do not preempt local taxation may move to do so.

We found a relatively large number of counties (n = 20 of 30 counties that had at least one city with a population of 3000 or more) with discordant recreational marijuana retail sales policies – temporary or permanent bans on sales vs. allowing sales – between the county and cities within the county. When counties enact ordinances addressing recreational marijuana retail sales, for the most part these policies apply only in the unincorporated areas of that county, where the county serves as the "local government" for those areas. In other words, a county ban does not automatically extend a ban to all cities within that county's jurisdiction. The exception would be public health policies, where counties generally have authority, and policies are applied within cities. None of the county policies in this study were passed as public health policies that would apply county-wide. It is possible that county-based local boards of health could exert their authority to establish some local policies if they were for the specific purpose of protecting the lives and health of people within their jurisdiction, such as restricting recreational marijuana use clubs. These would be applied county-wide.

Our study has multiple limitations. We did not assess the presence of policies in cities with fewer than 3000 residents; however, the total population of the 138 small municipalities not included in our assessment was about 138,000 (2% of the state population). Thus, we may have underestimated the presence of regulations in Washington State, but only a small percentage of the state population would be excluded. Generalizing findings to the state as a whole may still be reasonable.

About one-third of the state's land is controlled by the federal government (e.g., U.S. Forest Services, National Parks Services) which remains aligned with the federal policy that marijuana is illegal, but there are few permanent residents in these areas, so only a small percentage of the state population would be excluded. Last, about 5% of Washington's land is controlled by 29 individual Federally-recognized American Indian Tribes, which are sovereign nations and not subject to the Washington State marijuana law change. Although some Tribes have begun to develop marijuana policies and compacts with the State of Washington, these were not included within the local policy assessment reported here.

Another limitation of our focus on ordinances alone is that agencies within cities and counties (such as a parks department, city attorney or a land use agency) could establish policies other than ordinances that specify regulatory actions, interpret or augment higher level policy (such as a city council or legislative policy requirement); these would not appear in our findings. For example, the city of Seattle's elected prosecuting attorney publicly announced a departmental policy of non-enforcement of marijuana possession offenses prior to the state's decriminalization of marijuana (Heffter, 2010). Some local entities may also require a conditional use permit process and through their land use permitting agency require businesses to address issues such as odors, which could effectively limit operations.

Further, regulatory approaches that influence business activities for recreational marijuana retail sales may not be specifically directed toward retail marijuana businesses. Where local jurisdictions did not enact specific zoning (siting) ordinances addressing recreational marijuana retailers, they may nevertheless act to regulate marijuana retail sales within their existing zoning schema, applying the same zoning requirements to marijuana retail as to any other type of retail. Therefore, silence in zoning codes does not mean that there are not siting restrictions that would equally apply to recreational marijuana retail sales as to other similar businesses.

Currently, there is no body of evidence to fully predict the effectiveness of local policy actions for moderating the potential negative consequences of marijuana legalization. Evidence from tobacco and alcohol prevention fields has shown that specific policies, such as regulating density and pro-use marketing are effective in reducing public health concerns such as youth initiation, over-consumption and dependence (Pacula, Kilmer et al., 2014). Studying local-level policies (e.g., ordinances), and associated health outcomes, allows for substantially more ability to study variations and effectiveness of regulatory implementation in comparison to studies conducted only at the state level in the few states that have legalized recreational marijuana sales. In fact, to the extent that a state allows local control of the regulatory environment, and has a high proportion of local entities that do so, study of state-level policies and outcomes alone may misclassify the actual regulatory environment for much of a state's population. This would bias findings of such studies. In June 2016, two years after the opening of a recreational marijuana market in Washington State, about 30% of the state population lived in communities where recreational marijuana retail sales were not allowed – either due to permanent bans on retail sales or temporary bans (moratoria). This is a clear example of how a "legalized state" does not necessarily translate into consistently easy access to marijuana markets in all communities. Continued policy surveillance, allowing monitoring of local policy implementation, will increase understanding of how legalization is being implemented. Further, identification of communities where policies correlate with mitigating any negative impacts could contribute to "best practices" for marijuana system regulations and policies that protect public health.

Conclusions

Two years after the opening of a "legalized marijuana market" in Washington State, community-level regulations on recreational marijuana retail sales vary substantially. About one-third of the state's residents live in communities where recreational marijuana sales are prohibited, and most communities that allow sales have implemented some restrictions on operations. Further study is needed to understand how such local policies affect variation in public health and social outcomes.

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Conflict of interest

The authors have no conflicts of interest to declare.

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