

Original Scholarship

County-Level Recreational Marijuana Policies and Local Policy Changes in Colorado and Washington State (2012-2019)

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Policy Points:

- In 2012, Colorado and Washington were the first states to legalize recreational marijuana through voter-initiated ballots. In these states, counties could restrict or ban local marijuana facilities through a variety of regulatory methods such as ordinances and zoning.
- County-level recreational marijuana policies in Washington and Colorado vary substantially, with 69.2% of Washington counties and 23.4% of Colorado counties allowing all types of recreational marijuana facilities as of April 1, 2019.
- After Colorado and Washington legalized recreational marijuana, many counties modified their marijuana policies over time, with shifts in county policy often preceded by advocacy and information-seeking activities.

Context: In 2012, Colorado and Washington were the first states to legalize recreational marijuana. Both allowed local governments to further regulate the availability of marijuana facilities in their jurisdictions. As early adopters, these states are important quasi-natural experiments to examine local marijuana policy and policy change processes, including key stakeholders and arguments.

Methods: We conducted a policy scan of county-level recreational marijuana ordinances and regulations in Colorado and Washington. Data collected included policy documents from counties in both states and newspaper articles. We used

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a mixed-methods approach to describe the types of county-level recreational marijuana policies enacted by April 1, 2019; identify key policy stakeholders involved in local policy debates; and explore arguments used in support or opposition of county policies. We also selected four counties that represent three county policy environments (all marijuana facility types allowed, some marijuana facility types allowed, all marijuana facility types prohibited) and described the policy changes within these counties since recreational marijuana was legalized.

Findings: By April 1, 2019, Colorado counties were less likely than Washington counties to allow marijuana facilities—48.4% of Colorado counties prohibited recreational marijuana facilities in their jurisdiction compared to 23.1% of Washington counties. Since state legalization, several counties in both states have made substantial marijuana facility policy modifications, often preceded by information-seeking activities. Primary stakeholders involved in policy debates included elected officials, law enforcement, individual growers/farmers, marijuana business license applicants, parents, and residents. Proponents referenced local economic gain, reduced crime, and potential health benefits of marijuana as arguments in favor of permitting local facilities, whereas opponents pointed to economic loss, negative health and public health issues, public safety concerns, and existing federal law. Both sides referenced local public opinion data to support their position.

Conclusions: By early 2019, a patchwork of local marijuana policies was in place in Colorado and Washington. We identify key areas of policy and public health research needed to inform future local marijuana policy decisions, including the impact of legalization on public health outcomes (particularly for youth) and public safety.

Keywords: marijuana, cannabis, local policy, county, ordinance, regulation.

IN THE 1990S, STATES ACROSS THE UNITED STATES BEGAN TO legalize marijuana for medical use, which helped usher in the transition to the legalization of nonmedical (recreational) marijuana use.¹ In 2012, Colorado and Washington were the first states to legalize recreational marijuana for adult use and sales through voter-initiated ballots, with legal sales beginning in 2014.² As early adopters of recreational marijuana legalization, these states set precedents for other states to follow suit, even though marijuana remained an illegal substance under federal law. In both Colorado and Washington, local governments (i.e., counties and cities) could enact ordinances or regulations to limit the availability of local marijuana facilities, including prohibiting them altogether.

Colorado and Washington serve as quasi-natural experiments to examine how local jurisdictions have responded to state marijuana legalization. By investigating local marijuana policy decisions, such as ordinances to prohibit marijuana facilities, we can identify key factors and themes that drove those policy choices. Understanding these can provide critical insight about local policy change processes that may be generalizable to localities elsewhere. Further, longitudinal monitoring and examination of local policy decisions around marijuana, including the policy stakeholders and arguments, can help identify patterns in how local jurisdictions are regulating emergent recreational marijuana markets and allow us to analyze whether and how local policy has shifted over time.

Currently, there is a dearth of local marijuana policy surveillance research³ and a lack of investigation of how these policies have changed since legalization.⁴ Examining county-level policies can be of use because counties are administrative arms of state government—they assume key governance and service provision roles for businesses and residents in unincorporated areas, and they have expanded their policymaking responsibilities over time in the area of health care.⁵ County governments are also subject to local perspectives and needs, providing an interesting political and policy context for health policy decision making.

Prior research focusing on Washington (through 2016)³ and California⁶ suggests there is large variation in the types of county-level marijuana policies adopted in states that have legalized recreational marijuana. As of July 2014, 10 of 39 Washington counties either adopted a permanent ban of retail recreational cannabis outlets or did not modify a moratorium (i.e., temporary ban) that they had previously enacted.⁷ By mid-2016, 10 Washington counties still had a permanent or temporary ban on cannabis retail sales (another 9 did not have a specific policy identified), and approximately 30% of the state population lived in locations with permanent bans or moratoriums on retail sales—indicating considerable variation across cities and counties.³ In California, a study of marijuana laws in local jurisdictions (534 of the state's 539 cities and counties) enacted by January 31, 2019, reported that 62% of the state's 58 counties allowed any retail sale of marijuana for either medical or adult recreational use.⁶

For several reasons, research is needed on current local recreational marijuana policy environments, stakeholders, and related communication to inform public health research, practice, and policy. First,

although some work examining local policies in Washington and California has been undertaken, to our knowledge, similar policy surveillance research has not been conducted in Colorado. Analysis of both Washington and Colorado provides an opportunity to capture local policy evolution in states that were early adopters of marijuana legalization. This is important because relative to other jurisdictions that only recently legalized marijuana, Washington and Colorado afford several years of data to capture current local policies as well as the dynamics of policy change over time.

Second, analysis of local policy allows greater granularity to identify important arguments about policy change, as well as tensions. The calculus underlying local legalization of marijuana may vary, with possible public concerns about permitting marijuana facilities ranging from public health and safety issues^{2,8} (including a blurring of medical and recreational use)⁹ to ideological arguments and local public opinion.³

Third, previous local marijuana policy surveillance studies did not investigate changes in policy over time or the policy stakeholders and actors involved in local policymaking processes. Examining these components in a policy debate can reveal important dynamics about the policymaking process and involvement of advocacy coalitions.¹⁰ Local stakeholders and audiences in Washington and Colorado have had more time than those in other states to weigh and debate the merits and concerns associated with various marijuana policies¹¹; therefore, the stakeholders and arguments at the local level in Washington and Colorado may anticipate policy trends and processes developing elsewhere.

This study uses a mixed-methods research design to describe the types of county-level policies (ordinances and regulations) enacted in Colorado and Washington by 2019 to allow or restrict recreational marijuana facilities; identify key policy stakeholders/actors involved in county-level marijuana policy debates; and explore arguments used to support or oppose these policy positions.

State Policy Context

In both Washington and Colorado, legalization of marijuana was initiated by voters. In Washington, voters approved the Legalization and Regulation Initiative 502 (Initiative 502) legalizing the production, processing, and sale of marijuana for recreational purposes in November 2012. The initiative included certain restrictions, such as restricting

possession and use by minors (under the age of 21), setting quantity limits, and restricting public use. The Washington State Liquor Control Board (renamed the Washington State Liquor and Cannabis Board) became the primary regulatory body for licensing and oversight of the cannabis market. It was tasked with regulating and issuing licenses for marijuana production, processing, and retail facilities. These licenses could be forfeited if a city, town, or county adopted a ban or moratorium prohibiting retail marijuana businesses or adopted an ordinance or regulation related to zoning, licensing, or land use, or a regulation to prevent receipt of an occupancy permit for the facility.¹² New marijuana retail outlets could only sell marijuana products, and vertical integration with other types of retailers was not allowed.^{13,14} The board also limited the number of retail stores to a maximum of 334 statewide and used a formula to issue a maximum number of licenses per county based on population size. No limits were set for producer or processor licenses.¹⁵

In Colorado, voters approved a ballot referendum in November 2012 to enact a state constitutional amendment (Amendment 64) that legalized possession and consumption of marijuana among adults (21 years or older); created an excise tax on wholesale marijuana with earmarked conditions; provided for licensing of marijuana establishments (including marijuana cultivation facilities, product manufacturing facilities, testing facilities, and retail stores); and required localities (county, municipality, or city and county) to enact an ordinance or regulation by October 1, 2013, to define the entity responsible for processing license applications. Localities could also prohibit any or all marijuana facilities within their boundaries with an ordinance or voter measure.¹⁶ Counties opting for a voter measure would have to do so after the licensing of facilities in 2014.¹⁷

At the state level, Colorado's Marijuana Enforcement Division was tasked with creating rules, regulations, and licenses for the recreational marijuana marketplace. The state sought a variety of stakeholder perspectives to develop principles for the policy framework. The resulting principles included a focus on the health, safety, and well-being of youth; consumer needs; efficient and effective regulation; funding mechanisms; balanced and nonduplicative regulation between state and local authorities; interactions and transactional relationships; and community safety.¹¹

Washington and Colorado shared several marijuana policy and market environment characteristics in addition to their voter-initiated legalization approaches. First, these state policies were enacted while

marijuana was illegal under federal law as a Schedule 1 drug under the US Controlled Substances Act—a source of tension in state legalization.^{4,13} Second, both states had already legalized medical marijuana use more than 10 years prior to legalizing recreational marijuana (medical use was legalized in 1998 in Washington and in 2000 in Colorado).¹³ Third, both states prohibited public use of marijuana in nearly all smoke-free spaces.¹⁴ Fourth, legalizing recreational marijuana ushered in a new potential source of revenue for state and local governments.^{18,19}

However, the revenue models in Colorado and Washington are not the same. Unlike Colorado, local jurisdictions in Washington were not allowed to tax marijuana³; instead, the state distributes revenue to local jurisdictions from the state's marijuana tax.

In addition to the taxation policies, there are other policy and implementation differences between Washington and Colorado.^{20,21} For example, Washington merged its retail and medical marijuana markets in 2015 (with some exceptions) and subjected most of the medical marijuana market to retail marijuana regulations and taxes to reduce illegal marijuana cultivation and sales.^{3,13,14} This merger led to other changes as well. The Washington State Liquor and Cannabis Board increased the statewide maximum number of marijuana retail licenses from 334 to 556 and increased the cap on county licenses (particularly for those with high medical sales levels) to expand access to medical marijuana.²²

Unlike Washington, Colorado allowed home cultivation of marijuana (up to six plants per adult Colorado resident). This maximum was increased to 12 plants in 2018. Colorado counties and municipalities could set stricter home cultivation limits.²³

Most notably for the purpose of this study, both states similarly gave local governments the decision-making authority to enact ordinances or regulations to allow or prohibit any or all types of marijuana facilities as businesses within their jurisdictions.^{3,13} In Washington, the local authority to ban or pass a moratorium against marijuana sales was confirmed by the passage of House Bill 2136 in July 2015.⁴ Local governments in both states could also restrict aspects of retail operations in their jurisdictions through land use regulations (e.g., zoning restrictions) or by setting business regulations, such as limiting hours of sale.^{3,19} In Washington, counties and cities could also limit the number of licenses in their jurisdiction beyond the State Liquor and Cannabis Board's adopted maximum.¹⁵

Methods

We conducted a policy scan of county-level recreational marijuana policies in Colorado and Washington. Of note, this study focuses on marijuana and not hemp. While hemp and marijuana belong to the same plant species, *Cannabis sativa* L., they are distinguished in the United States by the legal threshold for the delta-9 tetrahydrocannabinol (THC) concentration on a dry-weight basis. The threshold for THC concentration in hemp ($\leq 0.3\%$) is low compared to the threshold in marijuana ($> 0.3\%$). Unlike marijuana, hemp has been regulated by the US Department of Agriculture (USDA) since the Agriculture Improvement Act of 2018²⁴ authorized the production of industrial hemp in the United States and removed hemp and hemp seeds from the federal schedule of controlled substances.

Data Collection

The data we collected include county-level marijuana ordinances or regulations and newspaper articles about county-level marijuana policy. Over a six-month period in 2019, two trained research assistants independently conducted policy scans to identify county-level policies regulating recreational marijuana facilities in Colorado and Washington that were enacted by April 1, 2019.

For Washington, data were collected from policy documents from the Municipal Research and Services Center²⁵ (using a search approach similar to that used by Dilley and colleagues³), and from county ordinances and codes from the Washington State Association of Counties.²⁶ Colorado county ordinance data were pulled from the Colorado Counties, Inc., website.²⁷ To supplement these searches, research assistants reviewed all of the available Washington and Colorado county websites to identify county ordinance documents with missing data, verify data, and collect available zoning maps or planning documents. If the research assistants were unsure about the content or eligibility of a policy document, they checked with the lead author, who made final decisions about the database.

Research assistants first completed a policy scan training conducted by the lead author using an existing ten-step guide.²⁸ Next, they

independently reviewed and abstracted pertinent policy data from these documents and systematically input the information into a policy database template. Column titles included the county name, date enacted, source, policy summary, recreational marijuana policy status (all types allowed, some types allowed, all types prohibited, none identified), and named stakeholders/advocates. We classified recreational marijuana policies using three categories we developed:

- All types of marijuana facilities were allowed in the jurisdiction, even with zoning restrictions (all types allowed). In Colorado, facilities included those for cultivation, manufacturing, testing, and/or retail. In Washington, facilities included those for production, processing, and/or retail.
- At least one type of marijuana facility was allowed in the jurisdiction (some types allowed).
- All types of marijuana facilities were prohibited in the jurisdiction (all types prohibited).

We could not identify or find marijuana policy data for 11 of 64 counties in Colorado and 1 of 39 counties in Washington, and are unsure about these counties' policies. We excluded ordinances that only focused on regulating marijuana intended for medical use, based on the premise that there are different types of marijuana policy categories (decriminalization, legalization of medical marijuana, and legalization of nonmedical marijuana),⁴ and we were most interested in examining county-level policies and the availability of nonmedical (recreational) marijuana.

The lead author conducted a quality assurance review, randomly selected 30% of policies in each state for comparison, and provided the research assistants with a finalized codebook. All policies identified were double-coded, and the lead author addressed coding discrepancies in discussion with the coders. During the development of the database, the research assistants took notes about policy changes mentioned in ordinances or regulations (e.g., a prior ordinance was referenced in the content) and saved copies of earlier ordinance and regulation documents identified, if available. The original policy database included all county-level recreational marijuana policies identified for Washington and Colorado (i.e., longitudinal data), including multiple columns for counties with evolving policy environments. Because several counties only

provided their most recent policy document online, we could not ensure the comprehensiveness of the longitudinal policy data set. As a result, the final database used for quantitative analyses included cross-sectional data with only the most up-to-date policy information as of April 1, 2019.

Research assistants also conducted a search of English-language US newspaper articles published from January 1, 2012, through May 1, 2019, on county-level marijuana policies in Colorado and Washington, using “marijuana or cannabis” and “policy, law, ordinance, or regulation” as key search terms. We used three newspaper databases (Newsbank: Major Metro Newspapers; EBSCO: Newspaper source; and Nexis Uni) and targeted newspapers with articles available during the study period.

Data Analysis

The Mann-Whitney U test was conducted to compare differences in local county marijuana legalization between Colorado and Washington. The P value was derived from a two-tailed test, and results were considered significant at $P < .05$. Descriptive statistics and data analysis were performed using Stata 14.2 (Stata Corp).²⁹

Research assistants used a grounded theory approach³⁰ to identify policy change processes, key stakeholders, and arguments in newspaper articles and policy documents to supplement ordinance data findings. They wrote thematic summaries, which were iteratively discussed and reviewed with the lead author to identify content for inclusion in this article. Using the original policy database (with longitudinal data), we selected four counties to serve as illustrative examples of different policy environments and policy changes, and found all related newspaper articles for these counties during the study period. In each state, we purposefully identified two geographically distinct counties representing different marijuana policy environments.

Findings

We identified county-level marijuana regulatory policies for 53 of 64 counties in Colorado (83%) and 38 of 39 counties in Washington (97%) (Table). Overall, 38.8% of counties ($n = 40$) prohibited all marijuana facility types, and 40.8% of counties ($n = 42$) allowed all types of

Table 1. County-Level Policies on Recreational Marijuana Facilities^a in Colorado and Washington Enacted by April 1, 2019

County-Level Adult Use Marijuana Policy	Colorado Counties, n (%)	Washington Counties, n (%)	Total, n (%)
All marijuana facility types allowed (zoning restrictions may apply)	15 (23.4%)	27 (69.2%)	42 (40.8%)
Some marijuana facility types allowed (i.e., allows ≥ 1 type of marijuana facility)	7 (10.9%) ^b	2 (5.1%)	9 (8.7%)
All marijuana facility types prohibited (category includes moratoriums or permanent bans permitting existing use, i.e., “grandfathered facilities”)	31 (48.4%)	9 (23.1%)	40 (38.8%)
Missing data (no policy identified)	11 (17.2%)	1 (2.6%)	12 (11.7%)
Total	64 (100%)	39 (100%)	103 (100%)

^a Does not include policies that focused only on regulating retail marijuana for medical use. Policies included may have had language to regulate the medical marijuana market (which we did not examine).

^b In Colorado, facilities include those for cultivation, manufacturing, testing, and/or retail. In Washington, facilities include those for production, processing, and/or retail.

marijuana facilities in their jurisdictions. Nine counties (8.7%) permitted at least one type of marijuana facility but restricted others and were categorized as allowing some facilities.

Although both states were early adopters, the two states demonstrated considerable variation in county-level recreational marijuana policies (Table 1). Counties in Colorado were significantly less likely than those in Washington to allow marijuana facilities ($z = -3.831$; $P < 0.01$). About 69% of Washington counties enacted policies allowing all types of facilities in their jurisdiction, compared to 23.4% of Colorado counties. Less than a quarter of Washington counties prohibited all marijuana facilities, compared to nearly half of Colorado counties. Only two Washington counties and seven Colorado counties were in the

intermediate category—allowing at least one type of marijuana facility in their jurisdiction by 2019.

Among counties categorized as allowing all types of marijuana facilities, the restrictiveness of zoning conditions varied. For example, some counties mandated a conditional-use permit in limited zone classifications with additional approvals or standards that needed to be met before approval, whereas others limited the overall number of facilities.

Prohibitions took the form of moratoriums (temporary bans) still in effect, permanent bans, and zoning restrictions. In some counties, bans permitted existing use or “grandfathered” existing recreational facilities, allowing them to continue operations within the county’s jurisdiction. Moreover, cities located within counties with prohibitions had the authority to enact their own policies, which could be different from the county’s policy. In Washington, marijuana facilities could be licensed by the state, but not able to operate in counties with moratoriums or bans in place.³¹

Local Policy Changes and Information-Seeking Activities

Based on our policy change tracking of county-level marijuana ordinances and review of newspaper articles, we found that some counties were early adopters of permanent ordinances or regulations, but many more counties modified their policies several times during the study period. Policy change was often preceded by information-seeking activities (e.g., public comments or planning advisory committee meetings). Key information desired by local policymakers included the effects of marijuana on health, safety, and well-being outcomes; and local public opinion/perspectives on marijuana legalization.

Counties also used moratoriums to pause the expansion of the local marijuana market and allow time to engage in policy learning processes or to address residential concerns. For example, in August 2014, Jefferson County, Washington, enacted a moratorium on marijuana production and processing after two public hearings where citizens expressed concern about marijuana production and processing as an “‘attractive nuisance’ for criminals, vandals and minors—said ‘attractive nuisance’ status being contrary to the quiet and pastoral rural nature of much of unincorporated Jefferson County.”³² After further review, involving

the Planning Commission and additional public hearings, the county voted to permit marijuana production and processing establishments if they complied with notice provisions (e.g., informing neighbors of the proposal) and strict zoning restrictions. On the eastern side of Washington state, the Spokane County Commission imposed a moratorium on outdoor marijuana farms in November 2016, because of residential complaints about odors from marijuana agriculture and processing; at the time of the moratorium, over 160 marijuana growers and processors were operating in the county.³³ By the end date of our data collection (April 1, 2019), some counties still had moratoriums (temporary bans) in place and stated in policy documents they were awaiting additional information to make a permanent decision.

A few counties permitted marijuana facilities but integrated policy mechanisms to address residential concerns about matters such as odors, bright lighting, and increased traffic and perceived risk of crime associated with these establishments. For example, Chelan County, Washington, required marijuana producers and processors to register and pay a fee for an enforcement fund to ensure regulatory compliance.³⁴

Policy Stakeholders and Arguments

Although policy communication and advocacy strategies varied by county and state, we found patterns during our qualitative review of ordinance and newspaper article data related to (a) primary county-level policy stakeholders, and (b) arguments in support of or opposition to local marijuana policy.

Primary stakeholders and advocates involved in county-level marijuana policy debates were similar in both states and included elected county officials tasked with decision making (e.g., county commissioners or supervisors), law enforcement (usually the county sheriff), individual marijuana growers/farmers, marijuana business license applicants, parents, and other residents. Several ordinances also named county voters as stakeholders who would be impacted by policy decisions. Some ordinances named specific county government departments (e.g., planning, building, and public health), zoning authorities/commissions, or public entities (e.g., schools) as local stakeholders. We did not identify any specific advocacy groups or advocates external to the county involved in county-level policy debates.

Our analysis of arguments in support of or opposition to specific policies revealed that many counties pointed to local public opinion as a basis for decision making, as well as local election results from the statewide 2012 marijuana legalization referendum, as evidence of either support of or opposition to legalizing marijuana facilities. For example, in 2012, *The Wall Street Journal* quoted the chair of the Douglas County, Colorado, Board of Commissioners as saying the local election results (less than half [46%] of county voters favored the referendum) supported a prohibition: “Our county has never passed or supported anything regarding the legalization of marijuana...we tend to be very conservative,” he said.³⁵

Alternatively, in Jefferson County, Washington, the ordinance included the quote, “Whereas, some 65% of voters in Jefferson County voted yes on Initiative 502,”³² to support allowing marijuana facilities. Similarly, a local newspaper article about a 2015 proposal to extend a moratorium in Huerfano County, Colorado, quoted a resident as saying, “Legalization of marijuana passed by 60 percent of the vote here in Huerfano, and we need to respect the will of the people.”³⁶

Table 2 presents the main policy arguments, including public opinion, to support or oppose county-level marijuana policy positions in Colorado and Washington.

Frequent arguments in Colorado and Washington in favor of allowing some or all commercial marijuana facilities focused on economic gain, reduced criminality, and potential health benefits. Economic arguments from proponents of legalized marijuana varied and included mention of local revenue increases for the municipality, increased employment opportunities (i.e., economic development), expanded tourism, and personal financial gain for local residents involved in marijuana cultivation, processing, or retail.

In Whitman County, Colorado, opponents of a moratorium said it “would prohibit people from getting jobs and cause the county to lose out on revenue from the industry.”³⁷ During a community forum in Wahkiakum County, Washington, a resident pointed to local revenue for a nearby county in support of allowing marijuana retail facilities, “I am merely speaking from a financial perspective...The county is in financial difficulty, and this is a legal revenue source available to the county.”³⁸

Criminality arguments—less commonly mentioned by marijuana legalization proponents than economic arguments—pointed to the potential reduction of illegal marijuana markets and activity as a benefit.

Position	Definition	Types of Arguments
Proponents	Arguments used either in favor of allowing any or all marijuana facilities or against prohibiting these facilities	<ul style="list-style-type: none"> • Local public opinion • Economic gain • Reduced crime • Health benefits
Opponents	Arguments used either in favor of prohibiting any or all marijuana facilities or against allowing these facilities	<ul style="list-style-type: none"> • Local public opinion • Economic loss • Negative physical/mental health outcomes (particularly for children and youth) • Public health impact (e.g., environmental hazards) • Increased crime and public safety concerns • Existing federal law

We identified a wider variety of arguments used in support of prohibitions, including economic loss arguments to counter economic gain arguments from proponents of legalized marijuana. Economic loss arguments pointed to the possible loss of tax revenues (including reduced tourism), increased lawsuits, and increased cost of law enforcement to enforce regulations. Concerns about public health, safety, and welfare were among the most frequently mentioned arguments against permitting local marijuana establishments. Residents noted concerns about environmental hazards (e.g., noxious odors, light pollution, and water pollution), increased addiction, increased traffic issues around retailers, and the risk of accidental poisoning or overdose among minors. Additionally, elected local officials and residents pointed to federal law, namely the illegality of the cultivation, possession, sale, and use of marijuana under federal criminal statutes, as a deterrent for allowing marijuana facilities.

Crime issues raised by opponents demonstrated concern for public safety as well as law enforcement's capacity to address perceived crimes associated with marijuana facilities. A 2017 article described the tension between local economic development and legal production in Saguache County, Colorado:

While many see marijuana as the ultimate “cash crop” and believe it is the solution to the county's financial woes, others paint a darker picture of what the county may become if growers wishing to establish large grows continue to receive approval from the county for their operations.³⁹

The article noted residents' concerns about illegal growing of marijuana in Colorado, which was described as a substantial challenge for local and federal law enforcement. Three minor arguments included land use concerns, proximity to states where marijuana was illegal, and possible harm to the county's reputation or local identity. For the latter, proponents of bans/moratoriums pointed to potential harm or loss of neighborhood character/identity, suggesting that allowing a marijuana facility would be detrimental to the status quo.

In the following sections, we provide illustrative examples of four counties to describe in more detail the various county policy environments (all marijuana facility types allowed, some marijuana facility types allowed, and all marijuana facility types prohibited) and highlight policy changes within the counties. These counties are classified using a brief version of the rural-urban categories from the USDA Economic Research Service's Rural-Urban Continuum Codes: metropolitan; nonmetropolitan, urban; and rural.⁴⁰

Mason County, Washington: All Marijuana Facility Types Allowed

On November 12, 2013, Mason County, a nonmetropolitan, urban county located in western Washington (population 60,699 in 2010), initially adopted an ordinance allowing licensed marijuana producers, processors, and retailers.⁴¹ Meeting minutes from a county commissioner meeting on June 24, 2014, highlighted resident concerns about marijuana producers and processors during a public comment period when a majority of marijuana opponents, self-identified as county residents who lived near a licensed marijuana production or manufacturing facility,

expressed NIMBY (not in my backyard) sentiments about these facilities. Noted concerns included possible criminal activity, safety issues, odor problems, environmental risks (e.g., the potential environmental impact of water runoff on shellfish was stated multiple times), decreased property value, and law enforcement implementation issues.⁴²

On July 1, 2014, the board of commissioners enacted a six-month moratorium prohibiting building or land use related to the production and processing of marijuana, allowing these activities solely in agricultural and industrial zones (2-1 vote).⁴² Public hearings were subsequently held to elicit further public perspectives. On July 22, 2014, opponents of the moratorium said they felt specifically targeted and residents should “be concerned about meth, heroin and other drugs, not legal marijuana,” in addition to expressing concerns about financial losses. Proponents reiterated arguments about the potential crime impact, loss of property value, and marijuana being “against federal law.” Some residents asked for more time for public input and recommended revising the ordinance to address residential concerns but allow legal cultivation, processing, and sales.⁴² On October 21, 2014, the board of commissioners voted to repeal the moratorium and simultaneously issued code amendments to address certain residential concerns (e.g., a 100-foot buffer between production or processing operations and the nearest property line in rural residential districts).⁴³

Costilla County, Colorado: Some Marijuana Facilities Allowed

Costilla County is a rural county (population 3,524 in 2010) located along the southern Colorado border with New Mexico. It presents a unique local jurisdiction that enacted policies to allow cultivation and retail facilities.⁴⁴ Permitting these facilities contrasted with other rural counties that opted to prohibit all marijuana facilities.

Costilla County spans 1,227 square miles with a large swath of high desert land lacking in building or residential infrastructure. The low cost of land, coupled with state legalization of recreational marijuana, led to an influx of outsiders interested in purchasing property for commercial marijuana cultivation and production.⁴⁵ Marijuana facility licensing and license renewal fees were sources of revenue in addition to the distribution of the retail marijuana state sales tax. Local governments could also

implement their own local sales or excise taxes. Concerns included the increased use of educational and social service resources for new families from out of state and lack of local licensing and enforcement personnel. The *Denver Post* quoted a county commissioner as saying there was a shift in the jail population from local residents to a majority “from outside,” but also said there was not a spike in crime in these early years.⁴⁶

A local disagreement between a proposed marijuana cultivation facility and a museum in early 2015 highlighted the conflict between marijuana business license owners and other establishments in the county. Supporters of the museum opposed issuing a license for the proposed facility, mentioning the facility’s potential impact on minors and other museum visitors.⁴⁷ Ultimately, the business owner decided to change the location of the marijuana cultivation facility to “be a good neighbor” and ameliorate possible odor and lighting concerns. The owner, however, continued to pursue a license for a retail facility and medical marijuana dispensary next to the museum.⁴⁸

Chaffee County, Colorado: All Marijuana Facility Types Prohibited

Chaffee County, located in the central part of Colorado, is an example of a nonmetropolitan, urban county (population 17,809 in 2010) with a restrictive marijuana policy environment. In September 2013, the county unanimously approved ordinance 2013-02, which temporarily banned new recreational marijuana establishments in the county through December 31, 2014.⁴⁹ However, the county permitted recreational marijuana cultivation licenses in industrial zones, and some facilities that cultivated medical marijuana or manufactured medical marijuana-infused products were exempt from the ban—if such facilities were in good standing in the county and met the state and county licensing standards, they were allowed to convert to recreational facilities.⁴⁹ Grandfathered facilities could apply for recreational facility licenses (in the same category).⁵⁰ Ordinance 2014-02,⁵¹ unanimously adopted in 2014, amended the prior ban through December 31, 2015, to include all marijuana facilities and limit the number of facilities in the county to six. An exception was again made for cultivation or manufacturing facilities in good standing with the county and state; these facilities were grandfathered and could renew their licenses or expand their operations and

the number of plants within their existing parcel(s) allotted. The moratorium banning any type of recreational marijuana establishment, with the exception of certain grandfathered facilities, was reissued multiple times (2015-01, 2016-01, 2018-01, and 2019-01).⁵²

Noted arguments in favor of the moratoriums included health, safety, and welfare concerns as well as federal marijuana policy:

Marijuana remains an illegal substance under federal law, specifically as a Schedule I drug under the Controlled Substances Act found in Title II of the Comprehensive Drug Abuse and Control Act of 1970 (P.L. 91-513, 84 Stat. 1236) which creates uncertainties regarding certain aspects of allowing marijuana establishments.⁵⁰

County moratoriums also cited environmental concerns (namely, odor issues from existing establishments), and enforcement and monitoring issues related to marijuana cultivation and processing, and said additional time was needed to examine these uncertainties to inform a permanent decision.⁵⁰

Benton County, Washington: All Marijuana Facility Types Prohibited

Benton County, Washington, is a metropolitan county (population 175,177 in 2010) bordering Oregon. This county was a unique case: it transitioned from permitting marijuana businesses to enacting moratoriums, ordinances, and zoning limitations, and eventually banning new recreational marijuana facilities while grandfathering in existing operations in response to local concerns and complaints.

Benton County did not start out with a ban. In 2015, recreational marijuana retail facilities opened in the county.⁵³ Later that year, multiple residents expressed concern over a marijuana grow site, which led to an emergency moratorium and public hearing process.⁵⁴ The controversy continued, and, in late 2017, a local newspaper article featured alternate perspectives from two longtime county residents expressed during the county's public hearing: one had concerns about the odor associated with marijuana facilities and the effect on children, whereas the other, a landowner who rented property to a marijuana producer, opposed a ban.⁵⁵ Opponents of a ban mentioned economic empowerment and access to medicinal marijuana, whereas supporters mentioned odor and enforcement issues. The county opted to ban new marijuana retail

facilities and enact a moratorium on new producers and processors. In April 2018, the board of county commissioners voted two to one to permanently ban all new marijuana production and processing operations in all unincorporated zoning districts, although over 50 licensed operators in these areas were allowed to continue operating.⁵⁶ The commission also expanded the sheriff's authority to enforce nuisance and odor rules in response to residential complaints.⁵⁷

Discussion

Our county-level recreational marijuana policy surveillance study reveals a patchwork of local policies in place by 2019 in the two earliest states to legalize recreational marijuana. Our findings add to existing literature that suggests state marijuana legalization policies are nuanced and complex, varying at the local level.³ Our policy change results highlight the importance of ongoing policy surveillance research to examine changes to local marijuana policy over time. We found 40 counties (38.8%) across both states prohibited all marijuana facilities by early 2019, either through temporary or permanent bans. Prior research in Washington similarly found 10 counties (25.6%) had moratoriums or permanent bans in effect on retail recreational cannabis outlets as of mid-2014⁷ and mid-2016,³ compared to 9 counties (23.1%) at the end of our study period (April 1, 2019).

To our knowledge, this is the first study to report county-level recreational marijuana policies in Colorado. We found that nearly half (48.4%) of Colorado counties had prohibited all types of marijuana facilities by the end of our study period. This is a high percentage compared to Washington. Of note, the lower percentage in Washington may be partially explained by Washington's merger of recreational and medical marijuana markets in 2015.¹³ The proportion of counties in Colorado with prohibitions was also greater than that found in a policy surveillance study from California.⁶ Our results add to existing reports that numerous counties are opting to prohibit recreational marijuana facilities in states where recreational marijuana can be legally purchased and consumed (range: 23.1%-48.4% of counties in a state).

We found local stakeholders (county representatives and departments, business owners, and residents) were publicly engaged in county policy decisions. We did not identify stakeholders who represented industry

groups or external entities, which appear to play a limited public role in local debates. It is feasible that industry groups or other external advocates were involved in private lobbying efforts as opposed to public-facing advocacy strategies. Our findings about the predominance of local stakeholders in policy debates are similar to research examining a local medical marijuana policy debate in California involving internal actors, and the arguments namely reflected a struggle between identity and social order within the region.⁵⁸

The involvement of local stakeholders also suggests marijuana commercialization is currently a cottage industry. In the absence of targeted regulatory policy to retain small-scale growers and retailers, a large marijuana industry could emerge, prioritizing lobbying and aggressive advertising strategies.¹⁴ Tobacco companies may potentially enter marijuana policy debates given their long-standing interest in entering into legalized marijuana markets based on the sales potential.⁵⁹

Based on our qualitative data, whereas some stakeholders were likely to support allowing marijuana facilities as a way of attracting outside tourism, other stakeholders used concerns about legal liability or additional crime from outsiders as rationale to prohibit these facilities. Future work should further explore how county policymakers balance local-level politics and perspectives (e.g., residential complaints, economic issues, public opinion) with state policy directives and policies over time. Additional research could examine factors influencing enactment of local recreational marijuana policies and closely examine the effect of population density (rural-urban characteristics) and county-state borders on local marijuana policy decisions.

Arguments in favor of permissive marijuana county ordinances included economic benefits (e.g., additional tax revenue for local governments)⁶⁰ and increased access to medicinal and therapeutic treatment. Early evidence on cannabis markets in Washington suggests increased cannabis retail access is associated with more frequent use among adults in the state.⁶¹ Sales data from Washington indicate a large and growing marijuana market, yielding a substantial source of state revenue allocated to the general fund, basic health, local municipalities, prevention and education, research, and other issues. In fiscal year 2019, Washington collected \$395.5 million in legal marijuana taxes and license fees.⁶² During the COVID-19 pandemic, monthly recreational marijuana sales in Colorado were \$183 million in July 2020 alone.⁶³ As state and local governments continue to be impacted by the economic

losses associated with COVID-19, economic gain arguments might become increasingly attractive to offset diminishing revenues from other sources.

A limitation of the study is the categorization of county-level marijuana policy into three groups. The gradient of local marijuana policy is more nuanced than these three categories because some counties allowing all types of marijuana facilities also have restrictive zoning conditions, limit the maximum number of facilities, or limit acreage for cultivation or processing facilities.

Additionally, our study did not closely examine other local marijuana policy elements such as minimum buffer distances, business hour limits, public health messaging, or advertising restrictions.^{3,6}

Another study limitation is the exclusion of cities and towns from the sample. It is important to note that counties are limited in their regional authority and can include cities with marijuana policies that differ from the county policy. Prior studies on similar topics and geographies have examined marijuana policy in Washington cities with more than 3,000 residents³ and all cities in California.⁶ Given our additional focus on policy stakeholders, arguments, and advocacy efforts, we elected to solely concentrate on county-level policies.

A key strength of our study is that it is the first to consider local policy variation across two states that legalized recreational marijuana use at the same time. The typology we created and employed can serve as the basis for future legal epidemiology work to examine the effects of policy on public health, health, and social outcomes. Other strengths are the inclusion of qualitative research and newspaper article data for the purpose of providing rich descriptions of the county policy environments and change. Prior cross-sectional policy surveillance studies lacked these elements. Further, our findings convey the value of ongoing local policy surveillance data because four counties identified as having moratoriums/bans in place as of July 2014 allowed recreational marijuana facilities by mid-2019, indicating considerable local policy change processes occurred within these jurisdictions in the span of a few years.

Policy and Research Implications

Since 2012, several other states have legalized recreational marijuana for adults and have permitted local-level jurisdictions to regulate local

markets. States may benefit from the results of our findings as they create their own frameworks to regulate marijuana and take into consideration similar fundamental local government concerns, such as public safety, health, and environmental impact issues.

Opponents of permissive marijuana policies point to perceived public health, safety, and welfare issues related to marijuana facilities and use, including addiction, increased crime, and detrimental health effects for minors. Early results from Colorado suggest legalization has led to increased marijuana-related hospitalizations, an initial surge in poison control center calls mentioning marijuana, and increased DUIs for which marijuana was identified as the primary impairing substance.^{2,64,65} In Colorado and Washington, commercial marijuana legalization is significantly associated with increased rates of fatal motor vehicle accidents.⁶⁶ There is also evidence on the harms of marijuana secondhand smoke on cardiovascular health.^{67,68} Use of high-potency cannabis concentrate products has also been associated with negative consequences like psychosis and emergency department visits.⁶⁹ These public health outcomes should be considered and used to inform policy decisions. Research about associations between crime and legal recreational marijuana facilities and local markets can also help address perceived concerns about increased crime. Findings from existing studies are mixed, likely due in part to challenges in interpreting law enforcement data.⁸

We found that advocates of allowing local marijuana facilities claimed legalization could reduce local marijuana black market activities; however, opponents were concerned about additional enforcement or implementation costs, as well as crime. Cost-effectiveness studies comparing the cost of additional enforcement or implementation mechanisms to local revenues are needed.

Potential associations between local marijuana policy and health effects and crime have gone largely unexplored due to restrictions and limitations on federal funding for marijuana research. Studies on the implementation and management of marijuana prevention and control programs have also been constrained by a lack of federal funding. However, interest in the public health and safety impact of local marijuana businesses expressed by local stakeholders in our study indicates a critical demand for policy effectiveness research to inform local decisions. Youth access to and use of marijuana, driving under the influence of marijuana, marijuana dependence and addiction, unwanted contaminants in marijuana products, uncertain potency of marijuana products, and

concurrent use of marijuana and alcohol have previously been identified as important topics for public health research and evaluation to inform policy.^{9,20,21,70,71}

Public concern about noxious odors was a frequent argument against permitting marijuana cultivation and processing facilities in local jurisdictions, as well as a reason to overturn permissive marijuana ordinances. This is an issue that policymakers and marijuana producers need to address and mitigate with regulatory policy and practice. As the legal market continues to grow, more research is needed on the impact of operating marijuana cultivation and processing facilities on the environment,^{13,72} including studies of the use of pesticides and cannabis cultivation and regulation standards.⁷³ Concerns have been raised regarding the concentration of cultivation licenses in agricultural areas and environmental health concerns for vulnerable populations,⁷⁴ who often disproportionately face environmental injustices.

Research is also needed to explore the role of state and local public health departments in regulating marijuana in states where recreational marijuana is legal, since a public health framework would designate them as the lead regulatory agency.¹⁴ Studying the impact of marijuana legalization on public health departments' scope of work and health education and promotion efforts in marijuana prevention and control programs is also important. States such as Washington that have earmarked revenue for prevention, control, and research may have made further progress than counterparts in this area for developing educational campaigns (assuming funding has been released for these efforts).

Conclusion

As early adopters, Colorado and Washington serve as quasi-natural experiments for marijuana policy and regulations in the United States. Local-level policy surveillance research on marijuana policies reveals similarities and differences in the trajectory of local marijuana policy evolution and change processes, highlighting how counties are balancing state policy directives and local residential perspectives. The findings from this study provide a foundation for future policy and public health research on marijuana policy and outcomes in states that have legalized marijuana.

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