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State and National Contexts in Evaluating Cannabis Laws: A Case Study of Washington State

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Abstract

As of January 2016, 23 U.S. states and the District of Columbia have legalized medical or nonmedical cannabis, with more likely to follow. This dynamic policy context represents a substantial challenge for policy evaluation. Part I of this article provides a summary of state-level cannabis policy components across states and federal action regarding state-level policies. Part II presents a detailed history of cannabis policies in Washington State from 1998 to 2015 and analyzes the potential impacts of the policy changes on cannabis supply and demand. As an early adopter of both medical and nonmedical cannabis policies, Washington State provides an excellent example of the key elements to be considered in evaluating the relationship between policy changes and cannabis use. We highlight the importance of the interplay of federal enforcement priorities and previously adopted state-level cannabis regimes in interpreting the potential impacts of new cannabis policies.

Keywords

cannabis policy; drug policy; policy evaluation

Introduction

State-level cannabis policies in the United States have become increasingly less restrictive during the past 20 years and these policies vary substantially within and across states. New policies may lead to increased cannabis consumption which, in turn, may result in societal costs from cannabis use disorders, drugged driving, physical or mental health problems,

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poorer educational outcomes, and reductions in workplace productivity (see Darnell, 2015, for a logic model of societal costs related to consumption; see Volkow, Baler, Compton, & Weiss, 2014, for a review of the relationship of cannabis use to health). As cannabis laws continue to evolve, evaluations of these policies will have to evolve with them. To date, evaluations of the impact of cannabis laws on cannabis use have yielded mixed or inconclusive results (see Hunt & Miles, 2015; Sznitman & Zolotov, 2015, for recent reviews).

In response to these mixed findings, multiple scholars have outlined challenges for both within- and cross-state evaluations of cannabis laws (Anderson & Rees, 2014b; Harper & Strumpf, 2012; Pacula, Powell, Heaton, & Sevigny, 2015; Pacula & Sevigny, 2014; Wall et al., 2012). Challenges include lack of adequate state-level data, possible differential impact of policy changes across age cohorts or among population subgroups, and complexities with timing and variation of cannabis policy components. Furthermore, evaluations of cannabis policies have often treated the passage of new cannabis legislation as equivalent across states regardless of the year of passage. Presenting the passage of a law as a single point in time at which cannabis shifts from illegal to legal does not take into account the shifting national context in which a state-level law passes, and the potential impact of state-level variation in cannabis policy prior to passage of new laws. It is also assumed that the passage of a law has the power to immediately alter cannabis supply or demand. As we demonstrate with a case study of Washington State, reality is more complicated.

Part I of this article identifies important considerations for future cannabis policy evaluations. Part II illuminates these considerations through a detailed case study of Washington's cannabis policy history. Washington's history with medical and nonmedical cannabis policy development and implementation provides rich examples for the study of cannabis policies. We examine a range of academic, media, advocacy, and government sources to discuss how policy change may affect cannabis supply and demand, to identify the content and implementation timelines of new policies, and to highlight the importance of federal actions. Figure 1 provides an overview of cannabis policy changes in Washington and overlays major events in other states and at the national level. We conclude with recommendations for future cannabis policy evaluations.

Part I

State-Level Cannabis Policies

Current federal law prohibits growing, producing, distributing, or possessing cannabis. Many states have chosen to depart from federal prohibitions and have liberalized state-level cannabis policies. Liberalized policies can be classified into three broad categories: decriminalization, legalization of medical cannabis, and legalization of nonmedical cannabis (often referred to as recreational). Decriminalization policies maintain cannabis as illegal but typically defer first-time offenders from jail and may only invoke small fines similar to traffic tickets (Kilmer, 2002; Marijuana Policy Project, 2015). Medical cannabis policies allow authorized patients to possess and use cannabis for medical purposes but vary in terms of what conditions may be treated with cannabis and how cannabis can be obtained. Medical cannabis policies may provide one or more legal supply points, including dispensaries that

function like pharmacies, cooperatives or collective gardens whereby patients pool resources to produce their own cannabis, or home cultivation. States may or may not require patients to register with local public health authorities and vary on the role caregivers may adopt with respect to cannabis patients. Current nonmedical cannabis policies allow for the sale of cannabis to adults older than 21 years but may limit possession amounts and home cultivation.

Table 1 presents a summary of state-level cannabis policies and key policy components as of January 2016. The contents of Table 1 were derived from academic sources and web-based materials (Bestrashniy & Winters, 2015; Fairman, 2016; Marijuana Policy Project, 2013b, 2015; NORML, 2015; ProCon.org, 2015). Recent reviews have provided an in-depth consideration of heterogeneity in state-level cannabis policies (Pacula & Sevigny, 2014); compared the restrictiveness of medical cannabis policies across states (Chapman, Spetz, Lin, Chan, & Schmidt, 2016); and examined variation in medical cannabis policy components, including dispensaries (Freisthler, Kepple, Sims, & Martin, 2013), patient registration (Fairman, 2016), and allowable medical conditions (Bestrashniy & Winters, 2015). Table 1 highlights the heterogeneity of policy components and timelines across states and points to not only the official enactment dates attached to policies but also implementation realities of new policies. Of particular note is the lag between passing a medical cannabis policy and establishing dispensaries as a legal supply point. As indicated by number of patients per 1,000 residents, there is also heterogeneity in program uptake by state. Although concerns have been raised that medical cannabis may spill over from patients to nonpatients (Anderson & Rees, 2014a), spillover is likely limited in states with small medical cannabis programs. We emphasize that early medical cannabis policies in states such as Washington, California, and Oregon were designed and implemented to ensure patient rights to grow and possess cannabis, but did not provide clear provisions for cannabis supply. This silence on supply “made the lines between legal medical markets and illegal (or black) recreational markets blurry” (Hunt & Miles, 2015, p. 5). States without clearly defined regulations for medical cannabis supply have fostered gray markets for cannabis whereby individuals without documented medical conditions are able to easily obtain medical cannabis authorizations (Kleiman et al., 2015). This scenario has created substantial challenges for law enforcement in multiple states (Hunt & Miles, 2015).

Supply and Demand Framework and Prior Cannabis Policy Evaluations

Research on cannabis and other drug use has often invoked the supply and demand framework of economics (Birckmayer, Holder, Yacoubian, & Friend, 2004; National Research Council, 2010).¹ Within this framework, supply and demand are interdependent sets of variables that jointly influence levels of consumption. Cannabis policy changes can potentially affect both the supply and demand side of the equation (Anderson & Rees, 2014a). Changes in cannabis demand are often examined through social norms regarding cannabis use, such as favorable attitudes toward use, perceived risk of harm from cannabis use, and perception of parent, peer, or community disapproval of cannabis use. Social norms

¹Others have sought to understand substance use in changing contexts using normalization theories (Hammersley, Jenkins, & Reid, 2001; Hathaway, Comeau, & Erickson, 2011). We restrict our consideration in this article to economic frameworks but recognize the importance of normalization theories for substance use.

research has consistently found that measures of cannabis norms are strong proximal predictors of cannabis use (Johnston, O'Malley, Bachman, & Schulenberg, 2011a, 2011b; Kilmer, 2002). Social, economic, and cultural factors that influence cannabis demand have historically been shown to be more relevant for explaining variation in cannabis use than changes in supply (Pacula et al., 2000; Reuband, 1998). Less research has tied changes in supply factors to variation in cannabis use, perhaps because estimating changes in supply has been challenging, particularly for cannabis supplied through illegal markets (Bjarnason, Steriu, & Kokkevi, 2010). The impact of changes in legal cannabis supply on cannabis use, however, is an important question that can be empirically tested if reliable supply-side indicators such as the number of dispensaries or retail stores are available (Pacula, Kilmer, Grossman, & Chaloupka, 2010). It has been hypothesized that creating a legal cannabis supply mechanism may reduce the legal costs of use by lowering the threat of arrest or severity of penalty for possession and use (specifically for those using cannabis illegally such as adolescents), and drive down monetary prices for cannabis (Anderson & Rees, 2014a; Ghosh et al., 2015). As legal cannabis markets take shape in multiple states, changes in cannabis prices resulting from supply or demand factors will be an important and complicated variable for future cannabis policy evaluators to consider (Anderson & Rees, 2014a; Caulkins et al., 2015; Pacula & Lundberg, 2014).

Research that has examined the effects of liberalization of cannabis laws on cannabis consumption has shown mixed results, with only some studies modeling the supply and demand mechanisms through which policy changes may influence cannabis use. Comprehensive evaluations of nonmedical cannabis policies are yet to emerge, but newly established legal cannabis markets will offer the potential to investigate how consumption reacts to changes in both supply and demand. Early evaluations of decriminalization policies enacted in the 1970s generally found little impact of policy change on cannabis use (Johnston, 1981; Single, 1989). Analyses of data from the 1990s found increased cannabis use after decriminalization after accounting for variation in police enforcement across states (Pacula, Chiqui, & King, 2003). Miech and colleagues (2015) recently noted increased cannabis use among 12th graders in California compared with all other states after a 2010 decriminalization law was passed. This study considered demand mechanisms by modeling changes in perceived risk of harm for cannabis use and disapproval for cannabis use, both of which showed decreases in California after decriminalization.

The majority of studies assessing the impact of medical cannabis policies across states have found little evidence of increases in cannabis use for either adolescents or adults (Anderson, Hansen, & Rees, 2015; Choo et al., 2014; Gorman & Charles Huber, 2007; Harper, Strumpf, & Kaufman, 2012; Hasin et al., 2015; Keyes et al., 2016; Khatapoush & Hallfors, 2004; Lynne-Landsman, Livingston, & Wagenaar, 2013).² Three studies have noted elevated cannabis consumption in states allowing for medical cannabis compared with states without (Cerdá, Wall, Keyes, Galea, & Hasin, 2012; Stolzenberg, D'Alessio, & Dariano, 2016; Wall et al., 2011). However, consideration of these results in light of state-level controls has suggested that observed differences across states are not the direct result of policy changes

²Two studies have actually noted significant decreases in cannabis consumption among adolescents in states with medical cannabis laws (Choo et al., 2014; Keyes et al., 2016).

(Wall et al., 2016). It has been hypothesized that loosening social norms may follow liberalization of cannabis policies and serve as a precursor to changes in cannabis consumption (Hall & Weier, 2015). Indeed, some studies have explicitly modeled cannabis norms in the context of changing cannabis policies (Khatapoush & Hallfors, 2004; Stolzenberg et al., 2016; Wall et al., 2011). Epidemiological surveillance of norms has noted decreases in perceived risk of harm and disapproval for cannabis among adolescents at the national level over the past decade (Keyes et al., 2016; Schmidt, Jacobs, & Spetz, 2016). Schmidt et al. (2016) reported that states with medical cannabis laws do show more permissive norms than states without, but similar to previous studies, these differences were not attributable to medical cannabis policies. Within-state analyses from California have shown that medical cannabis advertising is linked to increased cannabis use among adolescents, suggesting that the media debates regarding new cannabis policies may affect adolescent perceptions and behavior (D'Amico, Miles, & Tucker, 2015). Similarly, exposure to anticannabis media messaging has been connected to lower cannabis use and stricter cannabis norms (Block, Morwitz, Putsis, & Sen, 2002; Czyzewska & Ginsburg, 2007; Terry-McElrath, Emery, Szczypka, & Johnston, 2011).

In focusing on variation in medical cannabis policies, Pacula et al. (2015) pointed to supply mechanisms through which policy can affect consumption. Pacula and colleagues reported that states with legal authorization of cannabis dispensaries showed increased cannabis use and frequency of cannabis-related treatment admissions. Wen, Hockenberry, and Cummings (2014), employing a similar strategy, did not find use patterns related to any specific policy component, including whether states allowed for supply of cannabis through state-sanctioned dispensaries. Wen and colleagues, however, did find evidence of increased cannabis use for adults older than 21 years and a higher probability of cannabis initiation among 12- to 20-year-olds in medical cannabis states. Both Pacula et al. (2015) and Wen et al. (2014) addressed differences in medical cannabis programs across states by specifically modeling cannabis policy components. More research, however, is needed to understand the extent of potential spillover of medical cannabis from dispensaries to nonpatients given reports that higher density of dispensaries has been related to elevated cannabis consumption among adults (Freisthler & Gruenewald, 2014), and the presence of medical cannabis dispensaries near schools has been linked to cannabis use among young children (Shi, 2016). Future policy evaluations that hope to capture the effects of changes in supply must recognize that gray market dispensaries have existed in states such as Washington, Oregon, Michigan, and Montana despite the absence of legal sanctioning under state policies (Anderson & Rees, 2014b; see Table 1).

Federal Enforcement and Priorities

State-level policies are embedded within the context of federal laws. If growers, producers, and distributors are deterred from entering the market by the threat of federal intervention, then we would expect a smaller shift in the legal state-level cannabis supply after medical cannabis policies are enacted (Stanley, 2014). The legal mechanisms by which federal authorities may prosecute those involved in state-sanctioned cannabis markets are yet to be fully tested in the courts and will not be discussed in detail here (see Garvey & Yeh, 2014 for a discussion of federal preemption of state law). The Supreme Court has ruled that

federal authority may supersede state-level medical cannabis law under the Controlled Substances Act (CSA). In 2005, *Gonzalez v. Raich* held that federal authorities may, under the Commerce Clause, prohibit growing cannabis for personal use by authorized patients within states allowing medical cannabis (Rosenbaum, 2005). The court has also ruled that a medical necessity defense may not supersede federal authority given the Schedule I classification of cannabis (Stanley, 2014). Thus, state-level cannabis laws currently offer no protection from federal enforcement for growers, producers, distributors, or users.

Federal enforcement priorities have not been clear or consistent across administrations. The Clinton administration adopted the position that the CSA did not preempt California's medical cannabis laws and offered no Constitutional challenge (Rosenbaum, 2005). The administration, however, opposed cannabis as a medicine and reaffirmed that doctors prescribing a Schedule I substance were subject to license revocation under the CSA (National Drug Strategy Network, 1997). The second Bush administration broadly contended that medical cannabis was a criminal violation of the CSA regardless of state law (Rosenbaum, 2005). Following *Gonzalez v. Raich*, the Drug Enforcement Agency (DEA) increased the volume of raids on cannabis growers, producers, and distributors across the country (Sekhon, 2009). Over 200 raids on medical cannabis dispensaries were reported in California during President Bush's time in office (Mikos, 2011). Departing from the position that federal drug enforcement involves prohibition alone, the Obama administration and the Department of Justice (DOJ) under Attorney General Eric Holder vocalized support for states experimenting with medical cannabis policies and, in 2009, issued the Ogden memo (ProCon.org, 2012). This memo provided clear guidance to U.S. attorneys responsible for federal prosecution under the CSA in the 13 states that had enacted medical cannabis legislation at that time. U.S. attorneys were directed not to prosecute individuals or businesses operating in compliance with state cannabis laws (Ogden, 2009). Media reports and cannabis scholars have recognized the Ogden memo as a catalyst for expansion of cannabis supply in states with poorly defined regulations by emboldening current and prospective cannabis growers, producers, and distributors (Anderson & Rees, 2014b; Breathes, 2012; Brush, 2013; Fairman, 2016; Kleiman, 2015; Marijuana Policy Project, 2013a; Sekhon, 2009).

However, precise measurement of supply expansion within states after the Ogden memo is challenging given lack of dispensary tracking data and their gray market status in multiple states. Colorado, which currently allows dispensaries and began tracking them in 2010, noted a 25% expansion in the number of dispensaries in Denver from 2010 to 2013 (Schuermeyer et al., 2014). Research tracking medical cannabis patient registrations over time noted substantially larger increases in medical cannabis patient registrations in Colorado, Michigan, and Montana from 2009 to 2010 compared with other medical cannabis states, suggesting state-specific increases in demand (Fairman, 2016). These three states, along with Washington, have been identified as states where gray market dispensaries arose prior to 2009 (Marijuana Policy Project, 2013b). This expansion of cannabis dispensaries in Colorado, Michigan, Montana, and Washington after the Ogden memo is colloquially referred to as the *green rush* (Anderson & Rees, 2014b). Empirical studies of cannabis consumption and norms in the general population suggest that 2009 may represent an important turning point for demand. In Colorado, perceptions of risk of harm decreased

among young adults in the year following the Ogden memo (Schuermeyer et al., 2014). Explicitly testing the impact of the Ogden memo in Colorado, Wang, Roosevelt, and Heard (2013) reviewed emergency room records and found a significant increase in cannabis ingestion among children under age 12, suggesting spillover of cannabis to minors. National surveillance data suggest an accelerated drop in perceived risk of harm for cannabis among adolescents after 2009 (Schmidt et al., 2016), and a reversal of previously observed downward trends in cannabis use among high school students in 2009 (Johnson et al., 2015). National opinion trends report that the percentage of the population in favor of cannabis legalization rose 11% from 2010 to 2013, and has since leveled (Motel, 2015). The extent to which the Ogden memo influenced the growth of state-sanctioned cannabis supply, gray market cannabis supply, demand for cannabis, or cannabis norms is yet to be comprehensively investigated.³

In June 2011 and August 2013, the DOJ issued two further memos to U.S. attorneys providing more guidance for federal action regarding state-level cannabis laws. Referred to as the Cole memos, the first Cole memo was interpreted by many as direction for U.S. attorneys to interrogate medical cannabis providers who continued to operate in legal gray areas (Barcott, 2015). Possibly in response to the first Cole memo, medical cannabis patient registrations declined from 2011 to 2013 in Colorado, Montana, and Michigan (Fairman, 2016). However, President Obama stated in November 2012 on national television that cannabis use in states that have passed legalization measures was not a priority for the DOJ (Garvey & Yeh, 2014). A second Cole memo was issued in 2013, after Washington and Colorado had voted to legalize nonmedical cannabis, and more closely reflected President Obama's public statements. This memo clarified federal priorities in states liberalizing cannabis policies and tasked U.S. attorneys with preventing the following: cannabis sales to minors, illegal cartel activity, interstate trafficking of cannabis, drugged driving, any detriments to public health, and violence or accidents involved with the cannabis trade (Southall & Healy, 2013). The memo also contended that states with established and effective regulatory structures should manage growers, distributors, or sellers regardless of the size of operation and, therefore, do not warrant federal intervention (Cole, 2013). The common interpretation of the memo signaled a softening of the first Cole memo and an affirmation that Washington and Colorado would be allowed to experiment with nonmedical legalization (Barcott, 2015; Southall & Healy, 2013).

Part II

Medical Cannabis Legislation in Washington

Initiative (I) 692—Ballot measure I-692 calling for legalization of medical cannabis in Washington passed with 59% of the vote in November 1998 (Ballotpedia, 2015). Enacted in December 1998, I-692 provided that individuals may possess up to a 60-day supply of cannabis and identify one primary caregiver to act on their behalf. No provisions for collective gardens or dispensaries were offered in the language of the bill, but rules indicated

³A working paper currently in progress by a graduate student at the University of California, Los Angeles (UCLA) estimates changes in legal cannabis supply pre- and post-Ogden memo for medical cannabis states (Smart, 2015). Results suggest the Ogden memo had a significant impact on cannabis supply in states with poorly regulated medical cannabis systems.

that authorized patients may cultivate cannabis at home. I-692 afforded an affirmative legal defense for patients with a written recommendation from a doctor and specified qualifying medical conditions for patients as cancer, HIV or AIDS, glaucoma, seizure disorders, and intractable pain. The initial policy did not codify patient protections or formal regulatory structures for growing, processing, distributing, or purchasing cannabis. Given strict federal prohibition of medical cannabis, much of Washington's medical cannabis activity operated in an undefined, legal gray area (Hunt & Miles, 2015; Parrish, 2010; Wallach, 2014). Lack of clear state-level medical cannabis regulation would mostly persist until 2015.

By 2000, the state legislature had expanded qualifying conditions for medical cannabis to include any disease that resulted in nausea, vomiting, appetite loss, cramping, seizures, muscle spasms, or spasticity (Lemon & Hanley, 2014). In 2002, a Federal Appeals Court ruled that physicians have a First Amendment right to discuss medical cannabis treatment without threats from the DEA to revoke medical licenses. By early 2004, the first medical cannabis clinic began writing recommendations for patients in Seattle (Cannabis Defense Coalition, 2012). Although no official records exist as to the number of medical cannabis patients or supply points at this time, reports suggest that Washington's medical cannabis system remained small in 2004 despite 6 years in existence (Barcott, 2015). Patient access to cannabis likely consisted of home cultivation or purchasing on the black market.

Senate Bill (SB) 6032—In response to multiple court rulings, the legislature sought to clarify aspects of I-692. In 2007, SB 6032 directed the Department of Health (DOH) to define a 60-day supply of cannabis, loosened the language restrictions on medical recommendations (it was now accepted that patients *may* benefit from cannabis as opposed to the previous requirement that they *would likely* benefit), and replaced the term *primary caregiver* with *designated care provider*. Designated care providers need not be responsible for the housing, health, or care of the medical cannabis patient and, therefore, could serve solely as cannabis suppliers. This definitional change is likely the primary loophole under which medical cannabis dispensaries began to operate. There was no provision for dispensaries under either I-692 or SB 6032, but enterprising suppliers surmised that if only one patient was served at a time, they may potentially operate in a legal gray area as a rotating designated care provider for each individual patient (Cannabis Defense Coalition, 2012). While it is unclear if this defense would have stood up in court (Stanley, 2014), state authorities largely tolerated the unregulated gray market at this time (ProCon.org, 2012; Wallach, 2014).

SB 5798 and SB 507—In 2010, passage of SB 5798 broadened the classification of medical professionals who could provide cannabis recommendations to include naturopathic doctors, physicians' assistants, and advanced registered nurse practitioners. SB 5073 followed in 2011 as a concerted attempt to regulate gray market cannabis supply with registration, licensing, and regulation provisions for gray market dispensaries (Kleiman, 2015). Collective gardens were expressly permitted and up to 10 patients or care providers could share resources to cultivate medical cannabis for personal use. Despite broad support for the bill from the Seattle City Council, the registry, licensing, and regulation provisions were vetoed by Governor Gregoire. The governor stated that such action would make DOH

employees, tasked with regulating medical cannabis outlets, vulnerable to prosecution under federal law. Although prosecution of state employees by federal authorities for actions complying with state cannabis laws is feasible under the CSA, the American Civil Liberties Union reports that the federal government had never taken such action regarding cannabis laws (Barcott, 2015; Gutierrez & Vanessa, 2011). Many have attributed the governor's veto to a letter from U.S. attorneys Durkan of Seattle and Ormsby of Spokane claiming that, if the governor signed the bill, there would be prosecutions and civil penalties for dispensaries, growers, landlords, and financiers of growers or dispensaries and DOH employees involved in the new regulatory scheme would be subject to the same crackdown (Martin, 2011). Somewhat counterintuitively, SB 5073 established collective gardens as a viable cannabis supply point but, as a result of the partial veto, failed to regulate or license them in any meaningful way, likely creating more confusion for law enforcement. Some prominent advocates of nonmedical cannabis legalization supported Governor Gregoire's veto, foreseeing both the unintended problems and an opportunity to wrap medical cannabis regulation in with a new bill legalizing nonmedical cannabis (Barcott, 2015).

SB 5052—Clear regulation of medical cannabis arrived in April 2015, 17 years after medical cannabis legislation first passed. SB 5052 required licensing and regulation of medical cannabis shops under the Liquor Control Board (now named the Liquor and Cannabis Board [LCB]) and created the state's first system of identifying and tracking medical cannabis patients. All dispensaries were phased out and replaced by I-502 shops with medical designations conferred by the state. Collective gardens continued as an access point but were renamed cooperatives, required to register with the state, and were reduced in size to four qualifying patients. SB 5052 also offered the first protection from arrest for medical cannabis patients and providers with recognition cards and increased possession limits for patients who voluntarily registered with the state. Governor Inslee vetoed portions of the law that would have created new felonies for selling medical cannabis outside the state regulatory structure (Capecchi, 2015).

Nonmedical Cannabis Legislation in Washington

I-75—Early medical cannabis policies occurred in tandem with a softening of criminal justice enforcement regarding nonmedical cannabis. In 2003, Washington's largest city, Seattle, passed I-75 declaring cannabis the lowest priority for the city's law enforcement (Boruchowitz, 2010). In 2007, an 11-member panel appointed by the City Council president completed an evaluation of I-75, using data from official case referrals from the Seattle Police Department and a tracking system for cannabis cases created by the city attorney's Office for 2000 to 2006. The panel was unable to definitively attribute any observed trends directly to I-75, and voted 9 to 2 that there were no apparent reasons to repeal the city ordinance. Their position cited lack of evidence of increases in adolescent cannabis use, crime, or other public health issues. They also noted reductions in cannabis-related criminal justice contact for adults, and savings on public safety resources after implementation of I-75 (Boruchowitz, 2010; Marijuana Policy Review Panel, 2007). In 2011, Washington's third most populous city, Tacoma, followed Seattle's lead, with I-1 declaring cannabis the lowest law enforcement priority in the city. A comparable measure failed in Spokane, the second largest city in Washington (Ballotpedia, 2015).

I-502—In November 2012, voters passed I-502 with 56% in favor of making Washington one of two states to legalize nonmedical cannabis that year. Backers of I-502 aimed to bring black market cannabis under state control, increase tax revenue, and legitimize nonmedical marijuana use that was already widespread. Others hoped for a reduction in cannabis-related policing, judicial, and social costs that have been a disproportionate burden on people of color (American Civil Liberties Union of Washington State [ACLU], 2015; Beckett & Herbert, 2008). Reports indicated that despite lower levels of cannabis use, African Americans in Washington were 2.9 times more likely than Whites to be arrested for cannabis possession between 2001 and 2010. Native Americans and Latinos faced a similar situation, being 1.6 times more likely to be arrested than Whites (Levine, Gettman, & Siegel, 2012). In contrast to collective gardens and dispensaries previously providing medical cannabis, retail access points for nonmedical cannabis, typically referred to as *I-502 shops*, were closely taxed, tracked, licensed, and regulated by the LCB. I-502 set the legal age for purchase and possession at 21 years, and the maximum possession amount at 16 ounces of usable cannabis or 72 ounces of cannabis-infused liquid. The law explicitly outlawed home cultivation of cannabis (ACLU, 2015; Barcott, 2015). I-502 took effect in December 2012, but the first I-502 shop did not open until July 2014, with a second following in October 2014. Due to licensing and regulatory requirements, I-502 shops opened slowly over time and policy implementation lagged (ACLU, 2015). Between March and December 2014, 326 nonmedical cannabis licenses were issued to producers, 287 to processors, and 97 to retailers (Hitchcock, Laurent, & McGroder, 2015). Ultimately, 334 retailer licenses were slated to be issued in Washington (Washington State Liquor and Cannabis Board, 2015).

House Bill (HB) 2136—Nonmedical cannabis legislation was revised with HB 2136 in July 2015. Under I-502, a 25% excise tax had been assessed at three points: grower to processor, processor to retailer, and retailer to customer (all of which were required to be separate business entities). HB 2136 instituted a single 37% tax levied at the point of purchase, lowering taxes overall. HB 2136 also confirmed the power of cities and counties to pass local bans or moratoria against cannabis sales within their borders. Although Washington's alcohol laws allow for dry counties, no such provision was provided in I-502, leading to disagreement between cities and business operators. Local governments that allow I-502 shops share in tax revenues from cannabis sales, whereas those instituting bans do not (Bricken, 2015; McVay, 2015). According to the director of the LCB, the tax changes in HB 2136 will likely drive down prices for medical and nonmedical cannabis (Garza, 2015).

Conclusions and Recommendations

The previous pages describe Washington's complex history of cannabis legislation. Much is still unknown about the impact of these policy changes. For all states, we need policy evaluations that are flexible, nuanced, contextualized, and sensitive to the complexity of evolving state-level cannabis policies. We offer four recommendations for future cannabis policy evaluations and highlight their relevance using examples from Washington's history. First, Washington has enacted numerous policies that may potentially influence cannabis supply or demand and, in turn, consumption. Yet, evaluations typically focus only on medical (1998) or nonmedical (2012) legislation. Cannabis policy studies should consider all

important policy changes and implementation dates of key policy components. Evaluations should specify the hypothesized pathways through which each policy component may affect cannabis use.

Second, medical cannabis dispensaries have a long history in Washington despite no official provision in state law. Despite their prohibition in state law, more than 300 dispensaries in Washington in 2015 were voluntarily identifying themselves through online advertising (Leafly.com, 2015; Weedmaps.com, 2015)⁴ or taxes paid to the state (S. Smith, personal communication, March 5, 2015). It is essential that evaluations consider the on-the-ground realities for all factors potentially affecting cannabis supply or demand and not just those factors provided for in state laws.

Third, state-level policies and action by the federal government may interact to influence cannabis supply within a state. Unclear regulation of dispensaries in Washington likely allowed the green rush to take hold within the state after the arrival of the Ogden memo. While specific changes to the medical cannabis market post-Ogden memo are difficult to estimate given lack of dispensary or medical cannabis patient tracking (Fairman, 2016), Washington media reports suggest that approximately 130 new dispensaries opened from late 2009 through early 2011 (Martin, 2011). This indicates a substantial expansion of the gray market and mirrors changes in other green rush states at this time (Schuermeyer et al., 2014). Advertising data, business licensing records for dispensaries or tax records, and estimates of medical cannabis patient counts may potentially yield approximate measures of the size of cannabis markets in Washington or other states without explicit dispensary tracking. Our analysis of Washington's policy history illuminates the policy path through which post-Ogden memo increases in supply occurred and offers support for suggestions by other scholars that 2009 represents one point in time whereby evaluators should investigate changes in cannabis use (Sznitman & Zolotov, 2015; Wang et al., 2013). It remains an open question if this policy interaction directly or indirectly affected cannabis norms. Comprehensive cannabis policy evaluations should consider changing federal policies as well as potential interactions between state and federal policies.

Finally, it is essential that future cannabis policy evaluations consider the historical legacies of established cannabis policy regimes when evaluating current and future policy initiatives. For example, local reports suggest that the initial impact of nonmedical cannabis legalization in 2012 was conditioned by the poorly regulated market for medical cannabis in Washington. Policy tracking by health officials in King County, which includes Seattle and surrounding cities, has described how cities and counties employed moratoria and zoning regulations to limit the activities of cannabis suppliers after the passage of I-502 (Hitchcock et al., 2015). From 2013 to 2014, 70 local jurisdictions installed bans or moratoria on recreational cannabis stores and 53 jurisdictions enacted new bans or moratoria on medical cannabis collective gardens. By 2015, half of 180 larger local jurisdictions had employed zoning regulations to enact local controls on cannabis suppliers. Washington officials attributed the increase in collective garden bans and low medical cannabis zoning rates as a

⁴Advertising data were gathered by the first author using the search terms "dispensary" and "Washington" on both Weedmaps.com and Leafly.com and removing duplicates.

community response to “the apparent proliferation of unregulated dispensaries, as more businesses apparently enter the market place” (Hitchcock et al., 2015, p. 3). These reports suggest that I-502 had the unintended consequence of expanding gray market cannabis supply. It is unknown what impact I-502 may have had on cannabis norms. To support these recommendations and provide more nuanced evaluations of changing cannabis policies, it is essential that states and communities carefully track the implementation of policy components in the wake of new cannabis policies as well as both intended and unintended consequences of policy change.

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References

- American Civil Liberties Union of Washington State. Initiative 502. 2015. Retrieved from <https://aclu-wa.org/initiative-502>
- Anderson DM, Hansen B, Rees DI. Medical marijuana laws and teen marijuana use. *American Law and Economics Review*. 2015; 17:495–528.
- Anderson DM, Rees DI. The legalization of recreational marijuana: How likely is the worst-case scenario? *Journal of Policy Analysis and Management*. 2014a; 33:221–232. [PubMed: 24358533]
- Anderson DM, Rees DI. The role of dispensaries: The devil is in the details. *Journal of Policy Analysis and Management*. 2014b; 33:235–240. DOI: 10.1002/pam.21733 [PubMed: 24358532]
- Ballotpedia. Marijuana on the ballot. 2015. Retrieved from http://ballotpedia.org/Marijuana_on_the_ballot
- Barcott, B. *Weed the people: The future of legal marijuana in America*. New York, NY: Time; 2015.
- Beckett, K., Herbert, S. *The consequences and costs of marijuana prohibition*. Seattle: Department of Sociology, University of Washington; 2008. Retrieved from https://aclu-wa.org/library_files/MarijuanaProhibition.pdf
- Bestrashniy J, Winters KC. Variability in medical marijuana laws in the United States. *Psychology of Addictive Behaviors*. 2015; 29:639–642. [PubMed: 26415061]
- Birkmayer JD, Holder HD, Yacoubian GS, Friend KB. A general causal model to guide alcohol, tobacco, and illicit drug prevention: Assessing the research evidence. *Journal of Drug Education*. 2004; 34:121–153. [PubMed: 15638215]
- Bjarnason T, Steriu A, Kokkevi A. Cannabis supply and demand reduction: Evidence from the ESPAD study of adolescents in 31 European countries. *Drugs: Education, Prevention and Policy*. 2010; 17:123–134.
- Block LG, Morwitz VG, Putsis WP Jr, Sen SK. Assessing the impact of antidrug advertising on adolescent drug consumption: Results from a behavioral economic model. *American Journal of Public Health*. 2002; 92:1346–1351. [PubMed: 12144995]
- Boruchowitz, RC. Diverting and reclassifying misdemeanors could save \$1 billion per year: Reducing the need for and cost of appointed counsel. 2010. Retrieved from <http://www.acslaw.org/files/Boruchowitz%20-%20Misdemeanors.pdf>

- Breathes, W. The history of cannabis in Colorado ... or how the state went to pot. 2012. Retrieved from <http://www.westword.com/news/the-history-of-cannabis-in-colorado-or-how-the-state-went-to-pot-5118475>
- Bricken, H. Washington marijuana: HB 2136 ends the game of chicken between I-502 and local governments. Canna Law Blog. 2015 Jul 2. Retrieved from <http://www.cannalawblog.com/washington-marijuana-hb-2136-will-end-the-game-of-chicken-between-i-502-and-local-governments/>
- Brush, M. TIMELINE: A short history of Michigan's medical marijuana law. 2013. Retrieved from <http://michiganradio.org/post/timeline-short-history-michigans-medical-marijuana-law#stream/0>
- Cannabis Defense Coalition. Washington State medical cannabis legal guide. 2012. Retrieved from http://www.co.grays-harbor.wa.us/info/pub_svcs/canabis/Documents/12%20-%20Washington%20State%20Medical%20Cannabis%20Legal%20Guide%20-%20CDC.pdf
- Capecchi, B. Washington State policy alert. 2015 Apr 27. Retrieved from <https://blog.mpp.org/medical-marijuana/washington-governor-signs-portions-of-medical-marijuana-revamp/>
- Caulkins, JP., Kilmer, B., Kleiman, MA., MacCoun, RJ., Midgette, G., Oglesby, P., ... Reuter, PH. Considering marijuana legalization: Insights for Vermont and other jurisdictions. Santa Monica, CA: RAND; 2015.
- Cerdá M, Wall M, Keyes KM, Galea S, Hasin D. Medical marijuana laws in 50 states: Investigating the relationship between state legalization of medical marijuana and marijuana use, abuse and dependence. *Drug and Alcohol Dependence*. 2012; 120:22–27. DOI: 10.1016/j.drugalcdep.2011.06.011 [PubMed: 22099393]
- Chapman SA, Spetz J, Lin J, Chan K, Schmidt LA. Capturing heterogeneity in medical marijuana policies: A taxonomy of regulatory regimes across the United States. *Substance Use & Misuse*. 2016:1–11.
- Choo EK, Benz M, Zaller N, Warren O, Rising KL, McConnell KJ. The impact of state medical marijuana legislation on adolescent marijuana use. *Journal of Adolescent Health*. 2014; 55:160–166. [PubMed: 24742758]
- Cole, JM. Memorandum for all United States attorneys. Washington, DC: Department of Justice; 2013. Retrieved from <http://www.justice.gov/iso/opa/resources/3052013829132756857467.pdf>
- Czyzewska M, Ginsburg HJ. Explicit and implicit effects of anti-marijuana and anti-tobacco TV advertisements. *Addictive Behaviors*. 2007; 32:114–127. [PubMed: 16675148]
- D'Amico EJ, Miles JN, Tucker JS. Gateway to curiosity: Medical marijuana ads and intention and use during middle school. *Psychology of Addictive Behaviors*. 2015; 29:613–619. [PubMed: 26030167]
- Darnell, A. I-502 Evaluation plan and preliminary report on implementation. 2015. Retrieved from http://www.wsipp.wa.gov/ReportFile/1616/Wsipp_I-502-Evaluation-Plan-and-Preliminary-Report-on-Implementation_Report.pdf
- Fairman BJ. Trends in registered medical marijuana participation across 13 US states and District of Columbia. *Drug and Alcohol Dependence*. 2016; 159:72–79. DOI: 10.1016/j.drugalcdep.2015.11.015 [PubMed: 26686277]
- Freisthler B, Gruenewald PJ. Examining the relationship between the physical availability of medical marijuana and marijuana use across fifty California cities. *Drug and Alcohol Dependence*. 2014; 143:244–250. [PubMed: 25156224]
- Freisthler B, Kepple NJ, Sims R, Martin SE. Evaluating medical marijuana dispensary policies: Spatial methods for the study of environmentally-based interventions. *American Journal of Community Psychology*. 2013; 51:278–288. [PubMed: 22821130]
- Garvey, T., Yeh, BT. State legalization of recreational marijuana: Selected legal issues. 2014. Retrieved from <https://www.fas.org/sgp/crs/misc/R43034.pdf>
- Garza, R. Liquor and cannabis board implementation update. Paper presented at the University of Washington (class lecture), Seattle; 2015 Nov.
- Ghosh TS, Van Dyke M, Maffey A, Whitley E, Erpelding D, Wolk L. Medical marijuana's public health lessons—Implications for retail marijuana in Colorado. *New England Journal of Medicine*. 2015; 372:991–993. [PubMed: 25760352]

- Gorman DM, Charles Huber J Jr. Do medical cannabis laws encourage cannabis use? *International Journal of Drug Policy*. 2007; 18:160–167. DOI: 10.1016/j.drugpo.2006.10.001 [PubMed: 17689362]
- Gutierrez, S., Vanessa, H. Gregoire vetoes some medical marijuana reforms. Seattle PI: 2011 Apr 29. Retrieved from <http://www.seattlepi.com/local/article/Gregoire-vetoes-medical-marijuana-reforms-1358951.php>
- Hall W, Weier M. Assessing the public health impacts of legalizing recreational cannabis use in the USA. *Clinical Pharmacology & Therapeutics*. 2015; 97:607–615. [PubMed: 25777798]
- Hammersley R, Jenkins R, Reid M. Cannabis use and social identity. *Addiction Research & Theory*. 2001; 9:133–150.
- Harper S, Strumpf EC. Commentary: Social epidemiology—Questionable answers and answerable questions. *Epidemiology*. 2012; 23:795–798. [PubMed: 23038109]
- Harper S, Strumpf EC, Kaufman JS. Do medical marijuana laws increase marijuana use? Replication study and extension. *Annals of Epidemiology*. 2012; 22:207–212. DOI: 10.1016/j.annepidem.2011.12.002 [PubMed: 22285867]
- Hasin DS, Wall M, Keyes KM, Cerdá M, Schulenberg J, O'Malley PM, ... Feng T. Medical marijuana laws and adolescent marijuana use in the USA from 1991 to 2014: Results from annual, repeated cross-sectional surveys. *The Lancet Psychiatry*. 2015; 2:601–608. DOI: 10.1016/S2215-0366(15)00217-5 [PubMed: 26303557]
- Hathaway AD, Comeau NC, Erickson PG. Cannabis normalization and stigma: Contemporary practices of moral regulation. *Criminology & Criminal Justice*. 2011; 11:451–469. DOI: 10.1177/1748895811415345
- Hitchcock, L., Laurent, A., McGroder, N. Policy surveillance report. Seattle, WA: Seattle & King County Assessment, Policy Development and Evaluation Unit; 2015. Retrieved from http://legacy.lawatlas.org/files/Seattle%20King%20County%20Marijuana/MarijuanaLegalizationReport_ForLawAtlas.pdf
- Hunt PE, Miles J. The impact of legalizing and regulating weed: Issues with study design and emerging findings in the USA. 2015
- Johnson RM, Fairman B, Gilreath T, Xuan Z, Rothman EF, Parnham T, Furr-Holden CDM. Past 15-year trends in adolescent marijuana use: Differences by race/ethnicity and sex. *Drug and Alcohol Dependence*. 2015; 155:8–15. [PubMed: 26361714]
- Johnston, LD. Marijuana decriminalization: The impact on youth 1975–80. *Monitoring the Future*. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 1981. (Occasional Paper Series, Paper 13)
- Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE. Monitoring the Future national survey results on drug use, 1975–2010. Volume I, secondary school students. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 2011a.
- Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE. Monitoring the Future national survey results on drug use, 1975–2010. Volume II, college students & adults ages 19–50. Ann Arbor, Michigan: Institute for Social Research, University of Michigan; 2011b.
- Keyes KM, Wall M, Cerdá M, Schulenberg J, O'Malley PM, Galea S, ... Hasin DS. How does state marijuana policy affect US youth? Medical marijuana laws, marijuana use and perceived harmfulness: 1991–2014. *Addiction*. 2016; (this has only been published online). doi: 10.1111/add.13523
- Khatapoush S, Hallfors D. “Sending the wrong message”: Did medical marijuana legalization in California change attitudes about and use of marijuana? *Journal of Drug Issues*. 2004; 34:751–770.
- Kilmer, B. Do cannabis possession laws influence cannabis use?. 2002. (Cannabis 2002 Report, 119). Retrieved from http://www.cpha.ca/uploads/portals/substance/cannabis_report_2002.pdf
- Kleiman, MA. Legal commercial cannabis sales in Colorado and Washington: What can we learn?. Washington, DC: Brookings Institution; 2015.
- Kleiman, MA., Davenport, S., Rowe, B., Ziskin, J., Mladenovic, N., Manning, C., Jones, T. Estimating the size of the medical cannabis market in Washington State: BOTEC. 2015. Retrieved from <http://www.lcb.wa.gov/publications/Marijuana/BOTEC%20reports/BOTEC-MMJ-Report.pdf>
- Leafly.com. Find a dispensary. 2015. Retrieved from <https://www.leafly.com/finder>

- Lemon, M., Hanley, S. Medical marijuana: Access and regulations in Washington State. Olympia: Washington State Institute for Public Policy; 2014. (Doc. No. 14-02-4101)
- Levine, HG., Gettman, JB., Siegel, L. 24000,000 marijuana arrests: Costs, consequences, and racial disparities of possession arrests in Washington, 1986–2010. 2012. Retrieved from <http://marijuana-arrests.com/docs/240,000-Marijuana-Arrests-In-Washington.pdf>
- Lynne-Landsman S, Livingston MD, Wagenaar AC. Effects of state medical marijuana laws on adolescent marijuana use. *American Journal of Public Health*. 2013; 103:1500–1506. [PubMed: 23763418]
- Marijuana Policy Project. Federal enforcement policy on state marijuana laws. 2013a. Retrieved from <https://www.mpp.org/federal/federal-enforcement-policy-on-state-marijuana-laws>
- Marijuana Policy Project. State-by-state medical marijuana laws. 2013b. Retrieved from <https://www.mpp.org/issues/medical-marijuana/state-by-state-medical-marijuana-laws/>
- Marijuana Policy Project. State decriminalization laws. 2015. Retrieved from <https://www.mpp.org/issues/decriminalization/state-laws-with-alternatives-to-incarceration-for-marijuana-possession/>
- Marijuana Policy Review Panel. Final report of the Marijuana Policy Review Panel on the implementation of Initiative 75. Seattle, WA: Author; 2007. Retrieved from <http://wasavp.org/wp-content/uploads/2012/06/Seattle-I-75-policy-review-report-Dec-20071.pdf>
- Martin, J. Feds threaten crackdown if medical-pot makeover becomes law. 2011 Apr 14. Retrieved from <http://www.seattletimes.com/seattle-news/feds-threaten-crackdown-if-medical-pot-makeover-becomes-law/>
- McVay, R. Washington recreational marijuana laws: HB 2136 goes into effect today. Canna Law Blog. 2015 Jul 1. Retrieved from <http://www.cannalawblog.com/washington-recreational-marijuana-laws-hb-2136-roundup/>
- Miech RA, Johnston L, O'Malley PM, Bachman JG, Schulenberg J, Patrick ME. Trends in use of marijuana and attitudes toward marijuana among youth before and after decriminalization: The case of California 2007–2013. *International Journal of Drug Policy*. 2015; 26:336–344. [PubMed: 25662893]
- Mikos RA. A critical appraisal of the Department of Justice's new approach to medical marijuana. *Stanford Law & Policy Review*. 2011; 22:633–669.
- Motel, S. 6 facts about marijuana. 2015. Retrieved from <http://www.pewresearch.org/fact-tank/2015/04/14/6-facts-about-marijuana/>
- National Drug Strategy Network. Federal officials respond to new medical marijuana laws. 1997 Jan. (New briefs: Medical marijuana). Retrieved from <http://www.ndsn.org/jan97/props.html>
- National Research Council. Understanding the demand for illegal drugs. National Academies Press; Washington, DC: 2010.
- NORML. State laws. 2015. Retrieved from <http://norml.org/laws>
- Ogden, DW. Memorandum for selected United State attorneys on investigations and prosecutions in states authorizing the medical use of marijuana. 2009. Retrieved from <http://www.justice.gov/opa/blog/memorandum-selected-united-state-attorneys-investigations-and-prosecutions-states>
- Pacula, RL., Chiqui, JF., King, J. Marijuana decriminalization: What does it mean in the United States?. 2003 May. (NBER Working Paper No. 9690). Retrieved from <http://www.nber.org/papers/w9690>
- Pacula, RL., Grossman, M., Chaloupka, FJ., O'Malley, PM., Johnston, L., Farrelly, MC. Marijuana and youth. National Bureau of Economic Research; Cambridge, MA: 2000.
- Pacula RL, Kilmer B, Grossman M, Chaloupka FJ. Risks and prices: The role of user sanctions in marijuana markets. *The BE Journal of Economic Analysis & Policy*. 2010; 10(1) Article 11. doi: 10.2202/1935-1682.1992
- Pacula RL, Lundberg R. Why changes in price matter when thinking about marijuana policy: A review of the literature on the elasticity of demand. *Public Health Reviews*. 2014; 35(2):1–8. [PubMed: 25642015]
- Pacula RL, Powell D, Heaton P, Seigney EL. Assessing the effects of medical marijuana laws on marijuana use: The devil is in the details. *Journal of Policy Analysis and Management*. 2015; 34:7–31. DOI: 10.1002/pam.21804 [PubMed: 25558490]

- Pacula RL, Seigny EL. Marijuana liberalization policies: Why we can't learn much from policy still in motion. *Journal of Policy Analysis and Management*. 2014; 33:212–221. DOI: 10.1002/pam.21726 [PubMed: 24358530]
- Parrish, G. Seattle soundings Tokin support. *Madison Park Times*. 2010. Retrieved from <http://madisonparktimes.com/Content/Opinion/Columns/Article/SEATTLE-SOUNDINGS---Tokin--support/9/252/27989>
- ProCon.org. Obama elaborates position on medical marijuana raids. 2012. Retrieved from <http://www.procon.org/headline.php?headlineID=005086>
- ProCon.org. 23 legal medical marijuana states and DC: Laws, fees and possession limits. 2015. Retrieved from <http://medicalmarijuana.procon.org/view.resource.php?resourceID=000881#Minnesota>
- Reuband KH. Drug policies and drug prevalence: The role of demand and supply. *European Journal on Criminal Policy and Research*. 1998; 6:321–336.
- Rosenbaum S. Gonzales v. Raich: Implications for public health policy. *Public Health Reports*. 2005; 120:680–682. [PubMed: 16350339]
- Schmidt LA, Jacobs LM, Spetz J. Young people's more permissive views about marijuana: Local impact of state laws or national trend? *American Journal of Public Health*. 2016; 106:1498–1503. [PubMed: 27196657]
- Schuermeier J, Salomonsen-Sautel S, Price RK, Balan S, Thurstone C, Min SJ, Sakai JT. Temporal trends in marijuana attitudes, availability and use in Colorado compared to non-medical marijuana states: 2003–11. *Drug and Alcohol Dependence*. 2014; 140:145–155. [PubMed: 24837585]
- Sekhon V. Highly uncertain times: An analysis of the Executive Branch's decision to not investigate or prosecute individuals in compliance with state medical marijuana laws. *Hastings Constitutional Law Quarterly*. 2009; 37:553–563.
- Shi Y. The availability of medical marijuana dispensary and adolescent marijuana use. *Preventive Medicine*. 2016; 91:1–7. [PubMed: 27471020]
- Single EW. The impact of marijuana decriminalization: An update. *Journal of Public Health Policy*. 1989; 10:456–466. [PubMed: 2621250]
- Smart, R. The kids aren't alright but older adults are just fine: Effects of medical marijuana market growth on substance use and abuse. 2015. Retrieved from https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=2574915
- Southall, A., Healy, J. U.S. won't sue to reverse states' legalization of marijuana. *The New York Times*. 2013 Aug 29. Retrieved from http://www.nytimes.com/2013/08/30/us/politics/us-says-it-wont-sue-to-undo-state-marijuana-laws.html?_r=0
- Stanley W. Chronic failure: How and why enactment of Initiative 502 is demonstrative of the continued shortcomings of marijuana legalization. *Dartmouth Law Journal*. 2014; 12:112–145.
- Stolzenberg L, D'Alessio SJ, Dariano D. The effect of medical cannabis laws on juvenile cannabis use. *International Journal of Drug Policy*. 2016; 27:82–88. [PubMed: 26123892]
- Sznitman SR, Zolotov Y. Cannabis for therapeutic purposes and public health and safety: A systematic and critical review. *International Journal of Drug Policy*. 2015; 26:20–29. [PubMed: 25304050]
- Terry-McElrath YM, Emery S, Szczypka G, Johnston LD. Potential exposure to anti-drug advertising and drug-related attitudes, beliefs, and behaviors among United States youth, 1995–2006. *Addictive Behaviors*. 2011; 36:116–124. [PubMed: 20961691]
- Volkow ND, Baler RD, Compton WM, Weiss SR. Adverse health effects of marijuana use. *New England Journal of Medicine*. 2014; 370:2219–2227. [PubMed: 24897085]
- Wall MM, Mauro C, Hasin DS, Keyes KM, Cerda M, Martins SS, Feng T. Prevalence of marijuana use does not differentially increase among youth after states pass medical marijuana laws: Commentary on and reanalysis of US National Survey on Drug Use in Households data 2002–2011. *International Journal of Drug Policy*. 2016; 29:9–13. [PubMed: 26895950]
- Wall MM, Poh E, Cerdá M, Keyes KM, Galea S, Hasin DS. Adolescent marijuana use from 2002 to 2008: Higher in states with medical marijuana laws, cause still unclear. *Annals of Epidemiology*. 2011; 21:714–716. DOI: 10.1016/j.annepidem.2011.06.001 [PubMed: 21820632]
- Wall MM, Poh E, Cerdá M, Keyes KM, Galea S, Hasin DS. Commentary on Harper S, Strumpf EC, Kaufman JS. Do medical marijuana laws increase marijuana use? Replication study and extension.

Annals of Epidemiology. 2012; 22:536–537. DOI: 10.1016/j.annepidem.2012.03.003 [PubMed: 22534177]

Wallach, P. Washington's marijuana legalization grows knowledge, not just pot: A report on the state's strategy to assess reform. Washington, DC: Brookings Institution; 2014.

Wang GS, Roosevelt G, Heard K. Pediatric marijuana exposures in a medical marijuana state. JAMA Pediatrics. 2013; 167:630–633. [PubMed: 23712626]

Washington State Liquor and Cannabis Board. FAQs on I-502. 2015. Retrieved from http://www.liq.wa.gov/marijuana/faqs_i-502

Weedmaps.com. Dispensary storefronts. 2015. Retrieved from <https://weedmaps.com/earth/us/wa>

Wen, H., Hockenberry, J., Cummings, JR. The effect of medical marijuana laws on marijuana, alcohol, and hard drug use. Cambridge, MA: National Bureau of Economic Research; 2014.

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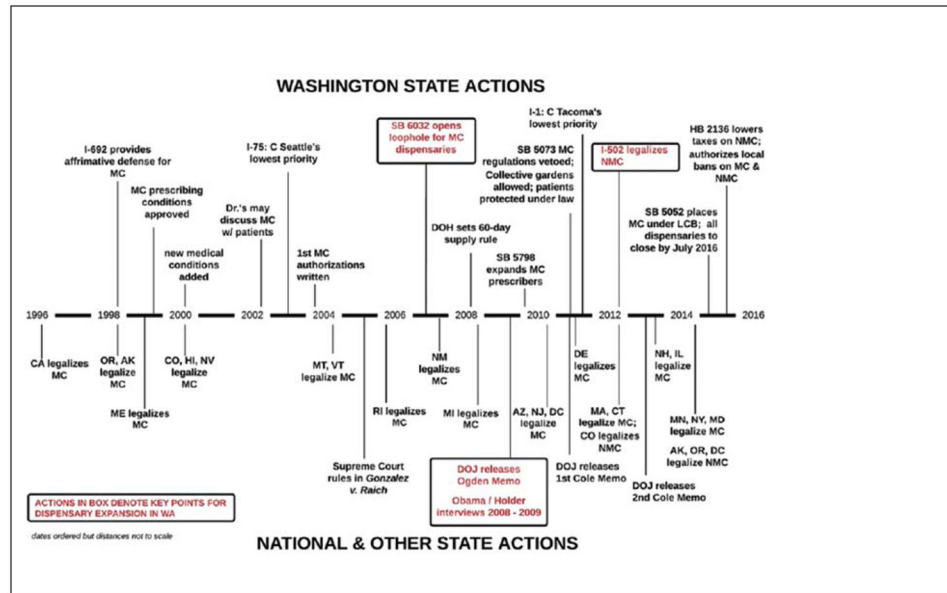


Figure 1.
Cannabis policy timeline for Washington, successful major legislation in other states, and national actions.

Note. Unsuccessful bills or ballot provisions are not shown (Ballotpedia, 2015; Barcott, 2015; Marijuana Policy Project, 2013b; ProCon.org, 2015). C = cannabis; SB = Senate Bill; HB = House Bill; MC = medical cannabis; NMC = nonmedical cannabis; DOH = Department of Health; LCB = Liquor and Cannabis Board; DOJ = Department of Justice.

Table 1

Cannabis Laws and Implementation Timelines for Major Policy Components by State.

| Decriminalization | | | | Medical Legislation | | | | Nonmedical Legislation | | | | | |
|----------------------|------------------|-----------|-------------------|-------------------------------|--|----------------------------------|-------------------------------|------------------------------|------------------------|----------------------|------------|--------------------|-----------------------------------|
| State | First law passed | ML passed | ML effective date | ID card applications accepted | Dispensaries expressly permitted by law or court (date known to exist) | Dispensaries (projected to open) | Possession limit ^c | Accepts other state ID cards | Medical patients/1,000 | Home cultivation | NML passed | NML effective date | Retail stores (projected to open) |
| Alaska | 1975 | 11-1998 | 3-1999 | 6-1999 | NA | NA | 1 oz | No | 2.9 | 11-1998 | 11-2014 | 2-2015 | (10-2016) |
| Arizona | | 11-2010 | 11-2010 | 4-2011 | 12-2012 | 71 (126) | 2.5 oz | Yes | 14.1 | 11-2010 ^d | | | |
| California | 1976 | 11-1996 | 11-1996 | 10-2003 ^a | Not provided for in state law (1997) | 1,000+ | 8 oz | No | NA | 11-1996 | | | |
| Colorado | 1975 | 11-2000 | 6-2001 | 6-2001 | 7-2007 (2004) | 470 | 2 oz | No | 28.7 | 6-2001 | 11-2012 | 12-2012 | 1-2014 |
| Connecticut | 2011 | 5-2012 | 5-2012 | 10-2012 | 10-2014 | 6 | 2.5 oz | No | 1.5 | NA | | | |
| Delaware | 2015 | 5-2011 | 7-2011 | 7-2012 | 6-2015 | 3 | 6 oz | No | <0.1 | NA | | | |
| District of Columbia | | 5-2010 | 7-2010 | 6-2013 | 7-2013 | 3 (8) | 2 oz | No | 6.6 | 11-2014 | 11-2014 | 2-2015 | NA |
| Hawaii | | 6-2000 | 12-2000 | 12-2000 | NA | NA | 4 oz | No | 11.4 | 12-2000 | | | |
| Illinois | | 8-2013 | 1-2014 | 9-2014 | 11-2015 | 6 (60) | 2.5 oz | No | 0.3 | NA | | | |
| Maine | 1976 | 11-1999 | 12-1999 | 7-2009 ^a | 7-2010 | 8 | 2.5 oz | Yes | NA | 11-1999 | | | |
| Maryland | 2014 | 4-2014 | 6-2014 | Pending | Pending | 0 (67) | | No | NA | NA | | | |
| Massachusetts | 2008 | 11-2012 | 1-2013 | 10-2014 | 6-2015 | 1 (35) | 10 oz | Unknown | 1 | 1-2013 ^d | | | |
| Michigan | | 11-2008 | 12-2008 | 4-2009 | Not provided for in state law (2009) | 200+ | 2.5 oz | Yes | 12.6 | 11-2008 | | | |
| Minnesota | 1976 | 5-2014 | 5-2014 | 6-2015 | 7-2015 ^b | 1 (8) | NA | No | <0.1 | NA | | | |
| Montana | | 11-2004 | 11-2004 | 12-2004 | Prohibited 7-2011 (2009 to 2011) | NA | 1 oz | No | 14.9 | 11-2004 | | | |
| Nevada | 2011 | 11-2000 | 10-2001 | 10-2001 | 8-2015 (2011) | 1 (66) | 2.5 oz | Yes | 4.4 | 10-2001 ^d | | | |
| New Hampshire | | 7-2013 | 7-2013 | Pending | Pending | 0 (4) | 2 oz | Yes | NA | NA | | | |
| New Jersey | | 1-2010 | 7-2010 | 8-2012 | 12-2012 | 3 (6) | 2 oz | No | 0.4 | NA | | | |
| New Mexico | | 3-2007 | 7-2007 | 7-2007 | 3-2009 | 23 | 6 oz | No | 9.3 | 7-2007 | | | |
| New York | 1977 | 7-2014 | 7-2014 | Pending | ^b Pending | 0 (5) | NA | No | NA | NA | | | |
| Oregon | 1973 | 11-1998 | 12-1998 | 5-1999 | 8-2013 (2010) | 345 | 24 oz | No | 23.2 | 12-1998 | 11-2014 | 7-2015 | ^f (10-2016) |
| Rhode Island | 2012 | 1-2006 | 1-2006 | 3-2006 | 4-2013 | 2 (3) | 2.5 oz | Yes | 13.6 | 1-2006 | | | |
| Vermont | 2013 | 5-2004 | 7-2004 | 10-2004 | 6-2013 | 2 (4) | 2 oz | No | 3.5 | 7-2004 | | | |
| Washington | | | 11-1998 | 7-2016 ^a | 7-2015 (2009) | 300+ | 24 oz | No | NA | 11-1998 ^e | 11-2012 | 12-2012 | 7-2014 |

Note. ML = medical legislation; NML = nonmedical legislation; NA = not applicable; oz = ounce.

^a Patient registration is voluntary.

^b Does not allow for smokable marijuana.

^c Indicates possession limit for usable cannabis.

^d Home cultivation with restrictions.

^e Home cultivation not allowed for NML.

Medical dispensaries began selling nonmedical cannabis in 10-2015.

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