

**MARIJUANA USE BY YOUNG PEOPLE:
The Impact of State Medical Marijuana Laws**

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EXECUTIVE SUMMARY

The debate over medical marijuana laws has included extensive discussion of whether such laws “send the wrong message to young people” and increase teen marijuana use. This is an updated version of the first report that analyzed all available data to determine the trends in teen marijuana use in states that have passed medical marijuana laws.

Nearly 15 years after the passage of the nation’s first state medical marijuana law, California’s Prop. 215, a considerable body of data shows that teens’ marijuana use has generally gone down following the passage of medical marijuana laws. Of the 13 states with effective medical marijuana laws with before-and-after data on teen marijuana use, only the two with the most recently enacted laws (Michigan and New Mexico) have indicated possible increases, both of which are modest and within confidence intervals. In Rhode Island, the data indicate teens’ lifetime marijuana may have slightly decreased while current use may have slightly increased, but those changes are also within confidence intervals. The 10 remaining states have all reported overall decreases — some of which are also within confidence intervals and some of which are significant. Generally, no state with an overall change outside of the confidence intervals saw an increase in teens’ marijuana use, strongly suggesting that enactment of state medical marijuana laws does not increase teen marijuana use.

In **California** — which has the longest-term, most detailed data available — data shows an overall decrease in teens’ marijuana use. The number of seventh, ninth, and 11th graders reporting marijuana use in the last six months and in their lifetimes all declined between 1996 (when the state’s medical marijuana law passed) and 2008. An analysis commissioned by the California Department of Alcohol and Drug Programs found “no evidence supporting that the passage of Proposition 215 increased marijuana use during this period.”

In **Washington** state (which passed its law in 1998), sixth and eighth graders’ current and lifetime marijuana use has dropped significantly since the 1998 enactment of the state’s medical marijuana law. The other surveyed grade levels have seen both lifetime and current marijuana use drop as well.

Data from **Oregon** (whose law passed in 1998) suggest modest declines in marijuana use among the two grades surveyed. Data from **Alaska** (which passed its law in 1998) show a moderate decrease in high schoolers’ current marijuana use and a slight decrease in their lifetime use. In **Maine** (which passed its law in 1999), available data on teen marijuana use suggest usage has decreased or stayed the same for every age group since Maine enacted its medical marijuana law. The Youth Risk Behavior Survey indicates a significant drop in both Maine high schoolers’ current and lifetime marijuana use.

In **Hawaii and Nevada** (both passed laws in 2000), high schoolers’ current and lifetime marijuana use has decreased since the enactment of the state laws. **Colorado** (which also passed its law in 2000) is the only state without an in-depth statewide survey; the limited data available suggest a modest decrease in Colorado teens’ marijuana usage.

Data from **Vermont** (which passed its law in 2004) indicate a modest decline in teens’ current marijuana use, as well as declines at all surveyed individual grade levels. Data from **Montana** suggest a small decline in high schoolers’ lifetime marijuana use since the 2004 passage of the state’s medical marijuana law and no change in their current marijuana use.

In **Rhode Island** (which passed its law in January 2006), lifetime youth marijuana use has

decreased slightly since the law passed, though current use has increased slightly. *New Mexico*, which enacted a medical marijuana law in April 2007, shows slight increases in current teen marijuana use rates, which coincide with increases at the national level over the same time period.

In *Michigan* (which passed its law in November 2008), the data show mixed results, with use rates, both current and lifetime, down in ninth and 10th grades, but up in the 11th and 12th grades. Overall, high schoolers' use rates are up, contrary to most states with effective medical marijuana laws.

As of this writing, the laws in *New Jersey*, *Arizona*, *Delaware*, and *D.C.* are too new to have “after” data available for comparison. The laws in New Jersey, Delaware, and Washington, D.C. are so new that they are not yet operational.

Nationwide, teenage marijuana use has decreased in the more than 14 years since California enacted the country's first effective medical marijuana law. The Youth Risk Behavior Surveillance System indicates decreases both in high schoolers' current marijuana use and in their lifetime marijuana use since the year before California's initiative passed.

Conclusions and Recommendations

When states consider proposals to allow the medical use of marijuana under state law, the concern often arises that such laws might “send the wrong message,” and therefore, cause an increase in marijuana use among young people. The available evidence strongly suggests that this hypothesis is incorrect and that enactment of state medical marijuana laws has not increased adolescent marijuana use. Consequently, legislators should evaluate medical marijuana proposals based on their own merits — without regard for the speculative and unsupported assertions about the bills sending the “wrong message.”

Methods and Data Sources

Nearly every state that has enacted a medical marijuana law has conducted surveys on adolescent marijuana use both before and after their medical marijuana laws were enacted. We analyzed publicly available data from all such surveys considered statistically valid by the agencies that performed them.

OVERVIEW

Since 1996, 16 states — Alaska, Arizona, California, Colorado, Delaware, Hawaii, Maine, Michigan, Montana, Nevada, New Jersey, New Mexico, Oregon, Rhode Island, Vermont, and Washington — and the District of Columbia have passed laws allowing the use of marijuana for medical purposes. Ten of these state laws were enacted via voter-approved ballot measures, while six were passed by state legislatures. (The District of Columbia's ballot initiative passed in 1998, but due to congressional interference, the law did not go into effect until 2010, following significant revision by the D.C. Council.) In 2011, 15 state legislatures are considering or have considered bills to create new effective medical marijuana laws.

One argument consistently raised in opposition to such measures is that they “send the wrong message to young people” and encourage teen drug experimentation. For example, in an October 1996 letter to anti-drug advocates, U.S. Drug Enforcement Administration Administrator Thomas A. Constantine wrote, “How can we expect our children to reject drugs when some authorities are telling them that illegal drugs should no longer remain illegal, but should be used instead to help

the sick? ... We cannot afford to send ambivalent messages about drugs.”

Such arguments continue to be raised by opponents of medical marijuana laws. In June 2007, Connecticut Gov. M. Jodi Rell (R) explained in her veto statement of a medical marijuana bill, “I am also concerned that this bill would send the wrong message to our youth.” Similarly, U.S. drug czar Gil Kerlikowske told the Associated Press in September 2010, “I think all of the attention and the focus of calling marijuana medicine has sent the absolute wrong message to our young people.”

In 1996, the issue of whether these laws would impact teen marijuana use was an open question. Both sides made assertions, but neither had concrete data for support. Now, more than 14 years after the passage of the first medical marijuana initiative, California’s Prop. 215, a considerable body of data exists. Overall, the use of marijuana among teens has not increased. On the contrary, most medical marijuana states have reported overall decreases — with considerable drops in specific age groups, in some cases.

METHODOLOGY

All of the data in this report are from state and federal government surveys of drug use by young people. The most comprehensive nationally coordinated survey on teens’ marijuana use on a state-by-state basis is the Youth Risk Behavior Surveillance System (YRBSS). The YRBSS is conducted by many (but not all) states in conjunction with the U.S. Centers for Disease Control and Prevention, and it includes data for all high schoolers, along with breakdowns of usage rates by grade level. The YRBSS has produced data for the majority of medical marijuana states with before-and-after data: Alaska, Hawaii, Maine, Michigan, Montana, New Mexico, Nevada, Rhode Island, and Vermont. It also produces national data.

In addition, many states — including California, Hawaii, Maine, Oregon, and Washington — conduct detailed state-level surveys with methodologies similar to YRBSS that have large sample sizes and breakdowns for specific grade levels. We have included all relevant data from such surveys where available.

Beginning in 1999, state data is also available from the National Survey on Drug Use and Health (NSDUH) conducted by the Research Triangle Institute and sponsored by the U.S. Substance Abuse and Mental Health Services Administration. However, even in the states where the NSDUH has before-and-after data available, its data is inferior to other state data. The NSDUH has determined that the state-level “estimates for 2002 and later years [are] not comparable with prior years” and “the relative rankings of States may have been affected” due to methodological changes.¹¹ Furthermore, the NSDUH’s state samples are very small, and NSDUH reports the 12-to-17-year age range as a block, rather than breaking down specific ages or grade levels.

In addition to state-specific data, national data is available from the annual Monitoring the Future study, conducted by the University of Michigan under contract with the U.S. National Institute on Drug Abuse.

Data were located through Internet searches and through websites of federal and state government agencies. In each case, we have reviewed all publicly available data from national and statewide

¹¹ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, “2002-2003 National Surveys on Drug Use and Health (NSDUH): State-By-State Model Based Estimates,” Appendix A: State Estimation Methodology, available at <http://www.oas.samhsa.gov/2k3state/appA.htm>.

teen drug use surveys, including the most recent figures available as of this writing, June 2011. Unless an exception is noted, the only results omitted from the analysis are from surveys in which the only available data are “unweighted.” This occurs, for example, when school-based surveys are unable to enroll a broadly representative sample of a state’s school population, meaning that the results cannot be considered statistically valid for the statewide youth population.

Most of the surveys referenced in this report ask whether participants have used drugs in the last 30 days (considered “current use”) and ever in their life.

As with all polls and surveys, the surveys analyzed for this report have a statistical margin of error. (Hawaii is the exception because its data is from a census sampling that was given to all public school students whose parents returned consent forms.) The margin of error ranges from \pm 0.3% to 9.5% (margin of error data was not available for Washington state in 1998 and 2000 or for California’s surveys).

Statements from those raising the “wrong message” concern have often been vague as to whether they believe the harm comes from actual implementation of medical marijuana laws or from the public discussion stimulated by the campaigns. Because many of their statements (including that of the DEA administrator cited above) focus on public discussion, and because the campaigns for state laws produce intense debate and media coverage, we have focused on the date of enactment — rather than a later implementation date — as the key time-point in before-and-after comparisons. Because most of the surveys are only conducted every two years, in many cases this means the “before” data also preceded the public debate on enacting the laws.

For “after” data, in each instance we reviewed the most recent data available from the state.

NATIONWIDE DATA

Since California voters enacted Prop. 215, the debate over it and more recent proposals has been covered widely on national television and radio, as well as in local and national newspapers and magazines. Early examples include *USA Today*’s front-page story on Prop. 215’s passage and the *New York Times*’ 1999 front-page story on the Institute of Medicine’s report on the medical use of marijuana. If medical marijuana laws “send the wrong message” to children, this widespread attention would be expected to produce a nationwide increase in marijuana use, with the largest increase in those states enacting medical marijuana laws. But just the opposite has occurred.

The national YRBSS data suggest a decrease in both high schoolers’ current and lifetime marijuana use between 1995 and its most recent biennial survey in 2009. It found decreases in every measure in every high school grade level since 1995.²

Similarly, since 1996, Monitoring the Future surveys show various degrees of decreases in eighth, 10th, and 12th graders’ past 30-day marijuana use.³ Regarding lifetime use, it also indicates a decrease in each of the three surveyed grade levels.

The national NSDUH survey’s predecessor, the NSHDA, was conducted in 1995 and the NSDUH was conducted in 2009. The 1995 data is used as “before” data rather than the 1996 data

² Centers for Disease Control and Prevention, “Youth Risk Behavior Surveillance System, United States 2009 Results,” available at <http://apps.nccd.cdc.gov/youthonline/App/Default.aspx>.

³ Monitoring the Future, “National Results on Adolescent Drug Use 2010,” Table 3, available at <http://monitoringthefuture.org/>.

because the 1996 survey was conducted year-round, including after the passage of Prop. 215.⁴ It indicates a modest decrease in 12-17 year olds' past-30 day marijuana use since 1995, from 8.2% to 7.3%.⁵

The national YRBSS shows the following changes since its last biennial survey before the passage of the first effective state medical marijuana law:

All high schoolers' past 30 days: a decrease since 1995 (from 25.3% to 20.8%)
9th grade past 30 days: a decrease since 1995 (from 20.9% to 15.5%)
10th grade past 30 days: a decrease since 1995 (from 25.5% to 21.1%)
11th grade past 30 days: a decrease since 1995 (from 27.6% to 23.2%)
12th grade past 30 days: a slight decrease since 1995 (from 26.2% to 24.6%)

All high schoolers' lifetime: a modest decrease since 1995 (from 42.4% to 36.8%)
9th grade lifetime: a decrease since 1995 (from 33.8% to 26.4%)
10th grade lifetime: a modest decrease since 1995 (from 41.4% to 35.5%)
11th grade lifetime: a slight decrease since 1995 (from 45.8% to 42.0%)
12th grade lifetime: a slight decrease since 1995 (from 47% to 45.6%)

Monitoring the Future data indicate the following changes since its last annual survey before the passage of the first effective state medical marijuana law:

8th grade past 30 days: a decrease since 1996 (from 11.3% to 8%)
10th grade past 30 days: a decrease since 1996 (from 20.4% to 16.7%)
12th grade past 30 days: a slight decrease since 1996 (from 21.9% to 21.4%)⁶

8th grade lifetime: a decrease since 1996 (from 23.1% to 17.3%)
10th grade lifetime: a decrease since 1996 (from 39.8% to 33.4%)
12th grade lifetime: a slight decrease since 1996 (from 44.9% to 43.8%)⁷

The Monitoring the Future survey randomly samples approximately 120 high schools nationally for 12th grade data, surveying about 15,000 students annually. For its survey of eighth graders each year, approximately 17,000 students from 140 randomly selected schools are surveyed. For the 10th graders, approximately 130 high schools are sampled and about 15,000 students are surveyed annually. The national YRBSS uses a three-stage, cluster sample design to obtain a nationally representative sample of students in grades nine through 12 in the United States. Approximately 16,460 surveys were completed in 2009 and 6,540 were completed in 1995.

Monitoring the Future indicates a modest increase in youths' current marijuana between 2006 and 2010, which some have sought to attribute to state medical marijuana laws. However, the national conversation around medical marijuana began far earlier — in 1996 — and only a small percent

⁴ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, "1996 National Household Survey on Drug Abuse: Preliminary Results," available at <http://oas.samhsa.gov/nhsda/PE1996/rtst1007.htm#E8E5>.

⁵ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, "1995 National Household Survey on Drug Abuse, Marijuana and Hashish Use," available at <http://www.oas.samhsa.gov/nhsda/ar18t020.htm#A1>; Substance Abuse and Mental Health Services Administration, Office of Applied Studies, "2009 National Survey on Drug Use and Health (NSDUH)," Figure 2.6, available at <http://oas.samhsa.gov/NSDUH/2k9NSDUH/2k9Results.htm>.

⁶ Monitoring the Future, "Table 3: Trends in 30-Day Prevalence of Use of Various Drugs, 2010," available at <http://www.monitoringthefuture.org/data/10data/pr10t3.pdf>.

⁷ Monitoring the Future, "Table 1: Trends in Lifetime Prevalence of Use of Various Drugs, 2010," available at <http://www.monitoringthefuture.org/data/10data/pr10t1.pdf>.

of the people living in states with medical marijuana laws are in states where the laws passed since 2006. Nearly 70% of the population living in medical marijuana states lives in states where the laws passed before 2006. More than 40% of the population in medical marijuana states lives in California, a state where dispensaries have existed since at least 2001. In addition, Youth Risk Behavior Surveillance System data tell a different story than Monitoring the Future data, showing a slight decrease in lifetime and current marijuana use between 2003 and 2009.⁸ Between 2005 and 2009, YRBSS also shows a decrease in teens' lifetime marijuana use, though it indicates a slight increase in current use.⁹

In addition, if teens' marijuana usage rates increased with the passage of medical marijuana laws, surely one would see increases in those states where laws had passed — where people are using marijuana for medical purposes and where there is far more press attention. However, that has not been the case. Even in the state with the most criticized, broadest, and oldest medical marijuana law — California — teens' marijuana use has not increased. In most measures, it has decreased. We now turn to all available data on teen marijuana use in states with effective medical marijuana laws.

STATE-BY-STATE DATA

California (medical marijuana initiative passed November 5, 1996)

As the first state to pass an effective medical marijuana law, California provides the longest period to evaluate such a law's effect on teen marijuana use. In addition, California is the only state where officials commissioned a special analysis examining the “wrong message” issue. Unfortunately, when the analysis did not support the officials' assumption that the “wrong message” theory was correct, they chose not to publish the report.

The biennial California Student Survey (CSS), conducted by the California attorney general's office, provides some of the most detailed information on teen drug use trends in any single state. It measures three grade levels' weekly, monthly, past-six-month, and lifetime marijuana use. The pre-Prop. 215 survey (1995-1996) was based on the responses of 5,775 students, while the most recent survey (2007-2008) was based on responses from about 13,930 students. In the years prior to the 1996 passage of Prop. 215, the CSS charted steady increases in marijuana use by California teenagers in all surveyed grades — seventh, ninth, and 11th graders. That period of increase ended in 1996, with CSS data showing a clear overall downward trend since Prop. 215 passed on November 5, 1996. For two of the three grades, marijuana use dropped markedly by every measure between early 1996 and 2008. Among the other grade — seventh — marijuana use decreased by two measures and increased in two. Among ninth graders, weekly and past-six-month use all dropped significantly.

7th grade weekly: an increase since late 1995/early 1996 (from 1.9% to 2.5%)

9th grade weekly: a significant decrease since late 1995/early 1996 (from 12.3% to 7.0%)

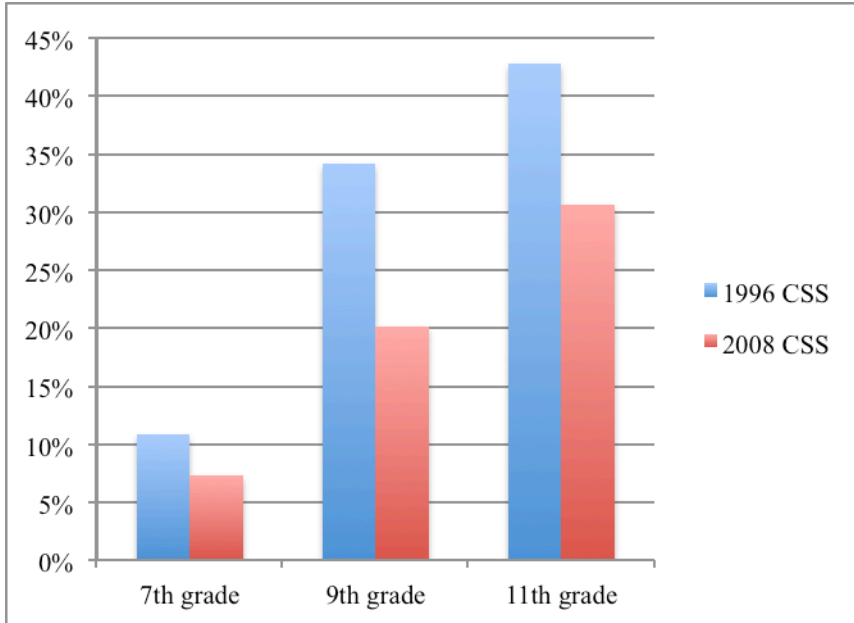
11th grade weekly: a significant decrease since late 1995/early 1996 (from 16.5% to 11.5%)

⁸ Centers for Disease Control and Prevention, “Youth Online: High School YRBS, United States 2009 and 2003 Results,” available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?TT=H&OUT=0&SID=HS&QID=QQ&LID=XX&YID=2009&LID2=XX&YID2=2003&COL=&ROW1=&ROW2=&HT=3&LCT=&FS=1&FR=1&FG=1&FSL=&FRL=&FGL=&PV=&TST=False&C1=&C2=&QP=G&DP=1&VA=CI&CS=Y&SYID=&EYID=&SC=DEFAULT&SO=ASC>.

⁹ Centers for Disease Control and Prevention, “Youth Online: High School YRBS, United States 2009 and 2005 Results,” available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?TT=H&OUT=0&SID=HS&QID=QQ&LID=XX&YID=2009&LID2=XX&YID2=2005&COL=&ROW1=&ROW2=&HT=3&LCT=&FS=1&FR=1&FG=1&FSL=&FRL=&FGL=&PV=&TST=False&C1=&C2=&QP=G&DP=1&VA=CI&CS=Y&SYID=&EYID=&SC=DEFAULT&SO=ASC>.

7th grade past 30 days: a slight increase since late 1995/early 1996 (from 6.2% to 6.6%)
 9th grade past 30 days: a significant decrease since late 1995/ early 1996 (from 23.6% to 15.4%)
 11th grade past 30 days: a slight decrease since late 1995/ early 1996 (from 25.9% to 23.9%)

7th grade past six months: a decrease since late 1995/early 1996 (from 10.9% to 7.3%)
 9th grade past six months: a significant decrease since late 1995/early 1996 (from 34.2% to 20.2%)
 11th grade past six months: a significant decrease since late 1995/early 1996 (from 42.8% to 30.6%)



California Youths' Past Six-Month Marijuana Use (from 1996 to 2008)

7th grade lifetime: a decrease since late 1995/early 1996 (from 10.9% to 9.4%)
 9th grade lifetime: a significant decrease since late 1995/early 1996 (from 35.0% to 24.6%)
 11th grade lifetime: a decrease since late 1995/early 1996 (from 46.9% to 41.6%)¹⁰

California saw so much concern about Prop. 215's possible effect on youth marijuana use that the 1997-98 version of the CSS included an added set of questions intended to gauge the measure's impact. Researchers from the educational research firm WestEd, located in Los Alamitos, California, analyzed the data. Their report — never formally published but considered public information by the California Department of Alcohol and Drug Programs — was prepared in September 1999.

The researchers found that “students were well aware of the proposition and its meaning,” with 64% of ninth graders and 74% of 11th graders saying they had either read about the measure or heard adults talk about it in person or in the media.¹¹ Regarding the impact of Prop. 215 on marijuana use, they concluded:

¹⁰ California Office of the Attorney General, “Eighth Biennial California Student Survey,” Tables 5 and 9; California Office of the Attorney General, “12th Biennial California Student Survey,” Tables 2.2, 2.6-2.8, and 2.13, available at http://www.wested.org/online_pubs/hhdp/css_12th_highlights.pdf.

¹¹ Rodney Skager, Greg Austin, and Mamie M. Wong, “Marijuana Use and the Response to Proposition 215 Among California Youth, a Special Study From the California Student Substance Use Survey (Grades 7, 9, and 11) 1997-1998,” p. 7.

Use of marijuana by youth, which had been on an upward trend since the early 1990s at all three grade levels, did not intensify as predicted by the “wrong message” theory. Instead, it leveled off between 1995-96 and the current (1997-98) survey. **There is no evidence supporting that the passage of Proposition 215 increased marijuana use during this period** [emphasis added].¹²

The researchers did sound a note of caution about “the softening of perceived harm,” writing, “Marijuana use should be followed over the next several years to assess the impact of Proposition 215 on the marijuana use in California’s youth.” In this context, the declines in use recorded by later surveys are noteworthy.

Washington (medical marijuana initiative passed November 3, 1998)

Washington, Oregon, and Alaska voters all enacted medical marijuana laws on November 3, 1998. Unfortunately, in all three cases, the data on teen marijuana use that could be used to compare trends has some shortcomings. Washington and Oregon have both changed the methodologies of their surveys since the passage of their laws, and Alaska’s weighted data from before its law was enacted was gathered three years before the law’s passage. Of the three, Washington has the most extensive data on teen usage rates since enactment. However, the survey conducted before the passage of its law— the Washington State Survey of Adolescent Health Behaviors (WSSAHB) — was replaced by the Healthy Youth Survey (HYS) in 2002.

The WSSAHB was conducted both before the law’s passage — in spring of 1998 — and two years later — in 2000. Similar to the California survey, Washington data showed a substantial increase in adolescent marijuana use during the years prior to 1998. A sharp drop in use by all age groups in 2000 followed this increase. Although the wording of the lifetime use question was changed for the 2000 survey, the question regarding use in the past 30 days was not changed and shows a similar trend.¹³

The 1998 WSSAHB survey sampled 6,510 sixth grade students and 6,727 eighth grade students. The 10th and 12th grade sample was combined, sampling 13,082 students. The 2010 HYS survey reached 11,772 students in sixth grade, 10,086 students in eighth grade, 7,277 students in 10th grade, and 6,192 students in 12th grade.

Since 2002, the Washington HYS has been conducted on the same age groups. The wording of the lifetime use question was restored to the language used in 1998 in these surveys. Although there are methodological differences between the 1998 and 2010 surveys — including that the 1998 surveys were conducted in the spring, while the 2010 surveys were administered in the fall — they provide the only comprehensive statewide data available, so the comparisons are worth noting. Comparing the 1998 WSSAHB with the 2010 HYS shows significant decreases in all surveyed grade levels’ current and lifetime marijuana use since the enactment of Washington’s medical marijuana law.

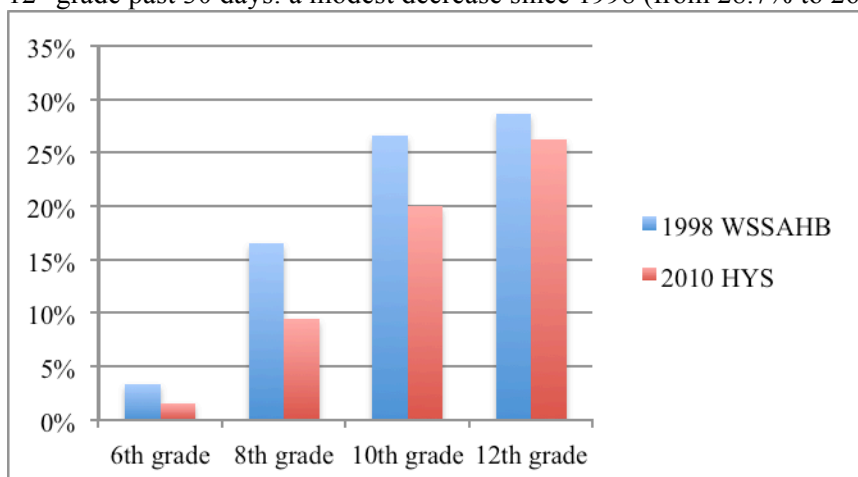
A comparison of the 1998 WSSAHB with the 2010 HYS indicates the following changes:

- 6th grade past 30 days: a substantial decrease since 1998 (from 3.4% to 1.6%)
- 8th grade past 30 days: a significant decrease since 1998 (from 16.5% to 9.5%)
- 10th grade past 30 days: a significant decrease since 1998 (from 26.6% to 20.0%)

¹² Ibid, p. 7-8.

¹³ RMC Research Corporation, “Washington State Survey of Adolescent Health Behaviors 2000, Analytic Report,” p. x, available at depts.washington.edu/thmedia/sections/alcohol/WAState2000Survey.pdf.

12th grade past 30 days: a modest decrease since 1998 (from 28.7% to 26.3%)



Washington Youths' Current Marijuana Use (from 1998 to 2010)

6th grade lifetime: a substantial decrease since 1998 (from 7.0% to 3.9%)

8th grade lifetime: a substantial decrease since 1998 (from 28.2% to 13.2%)

10th grade lifetime: a significant decrease since 1998 (from 49.5% to 30.9%)

12th grade lifetime: a decrease since 1998 (from 55.1% to 45.7%)¹⁴

Oregon (medical marijuana initiative passed November 3, 1998)

While Oregon data are available both before and after the 1998 passage of the state's medical marijuana law, Oregon made a number of significant changes in the survey's methodology in 2001, combining the Oregon Public Schools Drug Use Survey (OPSDUS) and Youth Risk Behavior Surveillance System (YRBSS) into one survey — Oregon Healthy Teens (OHT). While many questions were repeated essentially unchanged from the older surveys, the timing of the survey and the method of selection of participating schools were altered.¹⁵

In 1997, Oregon YRBSS received usable surveys from about 34,933 students. In 2009, the OHT collected usable information from over 28,000 Oregon adolescents. The 1998 OPSDUS survey sampled 6,796 students in eighth grade and 4,929 students in 11th grade. The 2009 survey sampled roughly 5,300 students in eighth grade and 3,500 students in 11th grade.

Although methodological changes between the studies make it hard to draw firm conclusions, the data are nonetheless encouraging, suggesting an overall decrease in teen marijuana use since the passage of Oregon's medical marijuana initiative. Lifetime marijuana use declined in both grades that were surveyed between the passage of the law and 2009, and current use decreased among eighth graders.¹⁶ Depending on which survey one looks at for the "before" data, 11th graders'

¹⁴ Washington State Department of Health, "Washington State Survey of Adolescent Health Behaviors, 1998 Analytic Report," Exhibits 3-2 and 3-4, available at <http://www.askhys.net/library/Old/AR1998.pdf>; Washington State Department of Health, "Healthy Youth Survey, 2010 Survey Results," Questions 17 and 29, available online at <http://www.doh.wa.gov/healthyyouth/reports/default.htm>.

¹⁵ When asked if Oregon's Office of Mental Health and Addiction Services considers results from the Oregon Healthy Teens survey statistically comparable to the 1998 Oregon Public Schools Drug Youth Survey, the chief drug and alcohol research analyst noted that the OHT relies on voluntary samples and responded, "I would say that the OHT information is useful to show overall, aggregate changes in the state but it's not to the level of being statistically comparable (which would imply that the exact same population of kids is asked the same set of questions every year)." Pamela Clark, chief drug and alcohol research analyst, Oregon Office of Mental Health and Addiction Services, email communication, August 24, 2005.

¹⁶ Public Health Oregon, "1997 Youth Risk Behavior Survey," available at <http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/yrbs/97report/Pages/tofc.aspx>; Public Health

current use either increased modestly or decreased modestly. These results, taken as a whole, should allay any fears that medical marijuana laws increase teen use.

Comparing the 2009 OHT survey to the 1998 OPSDUS suggests the following marijuana use trends:

- 8th grade past 30 days: a modest decrease since 1998 (from 11.6% to 10.6%)¹⁷
- 11th grade past 30 days: a slight increase since 1998 (from 21.0% to 21.8%)¹⁸
- 8th grade lifetime: a significant decrease since 1998 (from 25.3% to 18.2%)¹⁹
- 11th grade lifetime: a modest decrease since 1998 (from 45.4% to 39.6%)²⁰

Comparing the 2009 OHT survey to the 1997 YRBSS shows the following marijuana use trends:

- 11th grade past 30 days: a slight decrease since 1997 (from 23.4% to 21.8%)
- 11th grade lifetime: a decrease since 1997 (from 46.8% to 39.6%)²¹

Alaska (medical marijuana initiative passed November 3, 1998)

There is no available data for Alaska immediately prior to the passage of its 1998 medical marijuana law. The latest available weighted “before” data is the Alaska Youth Risk Behavior Surveillance Systems (YRBSS) from 1995. The YRBSS was conducted in Alaska again in 2009. The 1995 survey received 10,904 completed questionnaires, a 60% response rate for students surveyed, while the 2009 survey received 1,373 surveys, for a 64% response rate. Although the sample size was reduced, the study design remained consistent and the authors use their data for comparison to 1995.

The YRBSS data suggest that since Alaska passed its medical marijuana law, high school students’ lifetime usage of marijuana has slightly declined, and their current marijuana use declined more significantly. Current marijuana use decreased among all grade levels. Lifetime marijuana use decreased among ninth, 10th, and 11th graders since the law’s passage, while it marginally increased among 12th graders.

- All high schoolers’ past 30 days: a decrease since 1995 (from 28.7% to 22.7%)
- 9th grade past 30 days: a significant decrease since 1995 (from 27.8% to 15.7%)

Oregon, “Oregon Healthy Teens, 2009 Results,” available at

<http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/Pages/index.aspx>.

¹⁷ “1998 Oregon Public Schools Drug Use Survey,” p. 8; Public Health Oregon, “Oregon Healthy Teens 2009” — Eighth Grade, Q 102, available at

http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/8/Pages/results8.aspx-tobacco_alcohol_other_drugs.

¹⁸ “1998 Oregon Public Schools Drug Use Survey,” p. 8; Public Health Oregon, “Oregon Healthy Teens 2009” — 11th Grade, Q 112, available at http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/11/Pages/results11.aspx-tobacco_alcohol_other_drugs.

¹⁹ “1998 Oregon Public Schools Drug Use Survey,” p. 8; Public Health Oregon, “Oregon Healthy Teens 2009” — Eighth Grade, Q 103, available at

http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/8/Pages/results8.aspx-tobacco_alcohol_other_drugs.

²⁰ “1998 Oregon Public Schools Drug Use Survey,” p. 8; Public Health Oregon, “Oregon Healthy Teens 2009” — 11th Grade, Q 113, available at http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/11/Pages/results11.aspx-tobacco_alcohol_other_drugs.

²¹ Public Health Oregon, “1997 Oregon Youth Risk Behavior Surveillance System” — Q 54 (available at <http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/yrbss/hs97/Pages/yrbssq54.aspx>) and Q 55 (available at <http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/yrbss/hs97/Pages/yrbssq55.aspx>); Public Health Oregon, “Oregon Healthy Teens 2009” — 11th Grade, Q 112 and 113 (available at <http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/11/Pages/results11.aspx>). The 1997 Youth Risk Behavior Surveillance System results for eighth graders could not be compared because the data are unweighted.

10th grade past 30 days: a slight decrease since 1995 (from 25.7% to 24.1%)
11th grade past 30 days: a decrease since 1995 (from 31.7% to 26.7%)
12th grade past 30 days: a decrease since 1995 (from 30.9% to 23.8%)

All high schoolers' lifetime: a slight decrease since 1995 (from 48.4% to 44.5%)
9th grade lifetime: a decrease since 1995 (from 43.9% to 33.7%)
10th grade lifetime: a modest decrease since 1995 (from 47.0% to 43.0%)
11th grade lifetime: a modest decrease since 1995 (from 52.8% to 48.1%)
12th grade lifetime: a slight increase since 1995 (from 52.6% to 53.3%)²²

Maine (medical marijuana initiative passed November 2, 1999)

Available data on Maine teens' marijuana use suggest usage has decreased or remained stable at every age group since Maine enacted its medical marijuana law. Two statewide student surveys provide detailed information about Maine adolescents' marijuana use. The Maine Youth Risk Behavior Surveillance System (YRBSS) indicates a significant decrease in high schoolers' current marijuana use from 1997 to 2009 and also a noteworthy decrease in their lifetime marijuana use, with decreases among each high school grade level.²³

Similarly, the Maine Youth Drug and Alcohol Use Surveys (MYDAUS) estimate decreases in current marijuana use at all but one grade level (where it was stable) between 1998/1999 and 2008. Lifetime marijuana use declined across all age groups according to MYDAUS data between 1998/1999 and 2008, the last year in which the MYDAUS was administered.²⁴

The 1998/1999 MYDAUS was administered from October 1998 until March 1999 to 22,162 students, and the 2008 MYDAUS was administered to 78,029 students. The 1997 Maine YRBSS was administered to over 1,800 students, while the 2009 Maine YRBSS was administered to over 8,600 students.

The Maine YRBSS indicates the following trends:

All high schoolers' past 30 days: a significant decrease since 1997 (from 30.4% to 20.5%)
9th grade past 30 days: a substantial decrease since 1997 (from 25.1% to 12.2%)
10th grade past 30 days: a significant decrease since 1997 (from 29.5% to 18.0%)
11th grade past 30 days: a significant decrease since 1997 (from 35.0% to 24.5%)
12th grade past 30 days: a decrease since 1997 (from 33.1% to 26.8%)²⁵

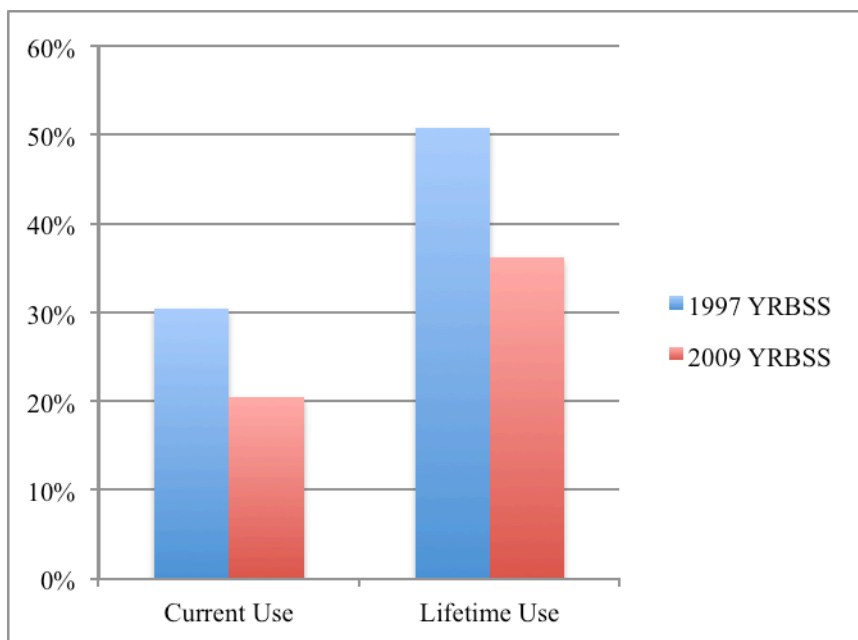
All high schoolers' lifetime: a significant decrease since 1997 (from 50.7% to 36.2%)
9th grade lifetime: a significant decrease since 1997 (from 39.9% to 22.9%)
10th grade lifetime: a significant decrease since 1997 (from 49.2% to 32.6%)
11th grade lifetime: a significant decrease since 1997 (from 57.3% to 41.1%)
12th grade lifetime: a decrease since 1997 (from 58% to 48.3%)

²² Centers for Disease Control and Prevention, "1995 Alaska Youth Risk Behavior Surveillance System Results"; "2009 Alaska Youth Risk Behavior Surveillance System Results," available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=AK>.

²³ Centers for Disease Control and Prevention, "1997 Maine Youth Risk Behavior Surveillance System Results"; "2009 Maine Youth Risk Behavior Surveillance System Results"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=ME>.

²⁴ In 2009, the Maine Integrated Youth Health Survey (MIYHS) replaced the MYDAUS. However, because of numerous methodological changes in MIYHS from previous student surveys, the researchers discourage making comparisons to other data, including comparisons with the national YRBSS and other national surveys. Because there is before-and-after data for Maine from a source without these shortcomings (the YRBSS), the MIYHS results are not included in this report.

²⁵ Centers for Disease Control and Prevention, "1997 Maine Youth Risk Behavior Surveillance System"; "2009 Maine Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=ME>



Maine High Schoolers' Current and Lifetime Marijuana Use (from 1997 to 2009)

All grades' past 30 days: a decrease from 1998/1999 to 2008 (from 15.7% to 12.7%)
 6th grade past 30 days: no change from 1998/1999 to 2008 (from 1.2% to 1.2%)
 7th grade past 30 days: a decrease from 1998/1999 to 2008 (from 3.2% to 1.8%)
 8th grade past 30 days: a decrease from 1998/1999 to 2008 (from 8.2% to 5.4%)
 9th grade past 30 days: a significant decrease from 1998/1999 to 2008 (from 18.5% to 11.4%)
 10th grade past 30 days: a decrease from 1998/1999 to 2008 (from 22.7% to 17.3%)
 11th grade past 30 days: a decrease from 1998/1999 to 2008 (from 28.5% to 22.5%)
 12th grade past 30 days: a decrease from 1998/1999 to 2008 (from 30.4% to 25.4%)²⁶

All grades' lifetime: a decrease from 1998/1999 to 2008 (from 28.6% to 22.7%)
 6th grade lifetime: a decrease from 1998/1999 to 2008 (from 2.2% to 1.9%)
 7th grade lifetime: a decrease from 1998/1999 to 2008 (from 6.6% to 4.1%)
 8th grade lifetime: a significant decrease from 1998/1999 to 2008 (from 17.2% to 10.1%)
 9th grade lifetime: a significant decrease from 1998/1999 to 2008 (from 31.2% to 20.2%)
 10th grade lifetime: a significant decrease from 1998/1999 to 2008 (from 40.8% to 30.8%)
 11th grade lifetime: a decrease from 1998/1999 to 2008 (from 50.6% to 39.8%)
 12th grade lifetime: a decrease from 1998/1999 to 2008 (from 57.7% to 45.6%)²⁷

Hawaii (medical marijuana bill signed into law on June 14, 2000)

Data that can be validly compared to trend Hawaii teens' marijuana use before and after the state's medical marijuana bill was enacted is available from the Hawaii Student Alcohol, Tobacco, and Other Drug Use Study (HSATODUS) and the Hawaii Youth Risk Behavior

²⁶ Maine Office of Substance Abuse, "The 2008 Maine Youth Drug and Alcohol Use Survey," Table 3, available at <http://www.maine.gov/dhhs/osa/data/mydaus/mydaus2008.htm>; Maine Youth Drug and Alcohol Use Survey State of Maine Report 1998-1999," See exhibit 2.4, available at <http://www.maine.gov/dhhs/osa/data/mydaus/mydaus1998.htm>.

²⁷ Ibid.

Surveillance System (YRBSS).²⁸ The results of both studies show decreases in marijuana use in nearly every surveyed grade level — both in current and lifetime use — and among high schoolers as a whole.

Both surveys indicate an overall decrease in adolescents' marijuana use in Hawaii. The 2009 Hawaii Youth Risk Behavior Surveillance System (YRBSS) indicates a modest decrease in Hawaii high schoolers' current use of marijuana since the medical marijuana law was enacted. In addition, the YRBSS also indicates a moderate decrease in lifetime use by Hawaii high school students since 1999. The 1999 Hawaii YRBSS was administered to over 1,240 high schoolers, while the 2009 Hawaii YRBSS included 1,511 high school respondents.

Hawaii is the newest medical marijuana law with any “after” data from the National Survey on Drug Use and Health (NSDUH). If one compares NSDUH data, it suggests a modest decrease in past 30-day marijuana use by 12- to 17-year-olds since Hawaii's medical marijuana law passed, from 8.3% in 1999 to 7.07% in 2007/2008.²⁹

However, the HSATODUS and YRBSS are much better surveys to use for comparison purposes, including because the NSDUH cautions that its state-level data from 2002 and subsequent years should not be compared to prior years' data. In addition, the HSATODUS and YRBSS both provide estimates for four individual grade levels, while the NSDUH fails to break down the data by age group or control for age, despite numerous surveys showing far higher marijuana usage among 10th and 11th graders than middle schoolers. In addition, the NSDUH surveyed only 350 Hawaii 12- to 17-year-olds in 1999, while the Hawaii Student Alcohol, Tobacco, and Other Drug Use Study interviewed 25,860 students in 2000 and 8,679 in 2007.³⁰

The Hawaii Student Alcohol, Tobacco, and Other Drug Use Study shows the following changes:³¹

6th grade past 30 days: an increase since 2000 (from 1.3% to 1.8%)
8th grade past 30 days: a decrease since 2000 (from 8.9% to 7.0%)
10th grade past 30 days: a decrease since 2000 (from 17.2% to 13.7%)
12th grade past 30 days: a modest decrease since 2000 (from 22.7% to 20.5%)

6th grade lifetime: no change since 2000 (from 2.4% to 2.4%)
8th grade lifetime: a decrease since 2000 (from 15.9% to 12.0%)
10th grade lifetime: a decrease since 2000 (from 33.2% to 25.6%)
12th grade lifetime: a slight decrease since 2000 (from 45.8% to 42.2%)³²

²⁸ State of Hawaii, Department of Health, “The 2003 Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey,” p. 2, available at <http://hawaii.gov/health/substance-abuse/prevention-treatment/survey/report2003/index.html>; Centers for Disease Control and Prevention, “1999 Hawaii Youth Risk Behavior Surveillance System”; “2009 Hawaii Youth Risk Behavior Surveillance System”; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=HI>.

²⁹ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, State Estimates of Substance Use from the “Percentages Reporting Past Month Use of Marijuana, by Age Group and State: 1999,” Table 3B, available at <http://www.oas.samhsa.gov/NHSDA/99StateTabs/tables2.htm - 3b>; State Estimates of Substance Use from the “2007-2008 National Surveys on Drug Use and Health,” Table B.3, available at <http://www.oas.samhsa.gov/2k8state/AppB.htm>.

³⁰ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, “1999 National Survey on Drug Use and Health (NSDUH),” Table 1N, available at <http://www.oas.samhsa.gov/NHSDA/99StateTabs/tables1.htm#1n>.

³¹ Hawaii Department of Health, “2000 Hawaii Student Alcohol, Tobacco, and Other Drug Use Study Executive Summary,” p. 29, Figures 2c and 5c available at <http://hawaii.gov/health/substance-abuse/prevention-treatment/survey/report2000/index.html>; Hawaii Department of Health, “The Hawaii Student Alcohol, Tobacco, and Other Drug Use Study: 2007-2008 Comprehensive Report,” pp. 25-31, available at <http://hawaii.gov/health/substance-abuse/prevention-treatment/survey/adsurv.htm>.

³² Hawaii Department of Health, “2000 Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey Executive Summary,” pp. 10 and 29; Hawaii Department of Health, “The Hawaii Student Alcohol, Tobacco, and Other Drug Use Study: 2007-2008 Comprehensive Report,” Table 3.17 (p. 42), available at <http://hawaii.gov/health/substance-abuse/prevention-treatment/survey/adsurv.htm>.

The Hawaii YRBSS shows the following changes:³³

All high schoolers' past 30 days: a modest decrease since 1999 (from 24.7% to 22.1%)
9th grade past 30 days: an increase since 1999 (from 15.8% to 19.1%)
10th grade past 30 days: a decrease since 1999 (from 25.6% to 21.0%)
11th grade past 30 days: a decrease since 1999 (from 33.3% to 25.3%)
12th grade past 30 days: a modest decrease since 1999 (from 27.2% to 24.4%)

All high schoolers' lifetime: a modest decrease since 1999 (from 44.6% to 40.2%)
9th grade lifetime: a modest increase since 1999 (from 27.8% to 30.3%)
10th grade lifetime: a modest decrease since 1999 (from 45.0% to 39.6%)
11th grade lifetime: a decrease since 1999 (from 55.3% to 46.0%)
12th grade lifetime: a decrease since 1999 (from 58.0% to 48.0%)

Nevada (medical marijuana initiative passed November 7, 2000)

Both available surveys of adolescent marijuana usage in Nevada show decreases since Nevada voters passed a medical marijuana initiative on November 7, 2000. In 2009, the Nevada YRBSS found that fewer higher schoolers used marijuana in the past 30 days than in 1999, before the initiative first passed. It also showed a drop in high schoolers' lifetime marijuana use.

The NSDUH data (which suffer the methodological shortcomings noted in the Hawaii section) also indicate a decrease in current youth marijuana use since the medical marijuana law passed, from 11.6% in 1998 to 7.52% in 2007/2008.³⁴

The Nevada YRBSS shows the following changes:³⁵

All high schoolers' past 30 days: a decrease since 1999 (from 25.9% to 20.0%)
9th grade past 30 days: a decrease since 1999 (from 23.6% to 18.6%)
10th grade past 30 days: a decrease since 1999 (from 26.1% to 20.0%)
11th grade past 30 days: a decrease since 1999 (from 25.9% to 20.3%)
12th grade past 30 days: a decrease since 1999 (from 27.5% to 22.7%)

All high schoolers' lifetime: a decrease since 1999 (from 49.5% to 39.5%)
9th grade lifetime: a decrease since 1999 (from 40.6% to 31.7%)
10th grade lifetime: a decrease since 1999 (from 51.0% to 42.9%)
11th grade lifetime: a decrease since 1999 (from 52.1% to 41.5%)
12th grade lifetime: a decrease since 1999 (from 54.9% to 46.0%)

Colorado (medical marijuana initiative passed November 7, 2000)

³³ Centers for Disease Control and Prevention, "1999 Hawaii Youth Risk Behavior Surveillance System"; "2009 Hawaii Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=HI>.

³⁴ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, State Estimates of Substance Use from the "Percentages Reporting Past Month Use of Marijuana, by Age Group and State: 1999," Table 3B, available at <http://www.oas.samhsa.gov/NHSDA/99StateTabs/tables2.htm#3b>; State Estimates of Substance Use from the "2007-2008 National Surveys on Drug Use and Health," Table B.3, available at <http://www.oas.samhsa.gov/2k8state/AppB.htm>.

³⁵ Centers for Disease Control and Prevention, "Nevada Youth Risk Behavior Surveillance System 1999"; "Nevada Youth Risk Behavior Surveillance System 2009"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=NV>.

Colorado participated in the Youth Risk Behavior Survey in 2005, but it does not have weighted data for any date prior to the enactment of the state's medical marijuana law. Therefore, in-depth and accurate data on teen marijuana use rates before the enactment of the state's medical marijuana law are not available. The only weighted survey showing statewide teen marijuana use both before and after the passage of Colorado's medical marijuana law is the NSDUH. As noted earlier, the NSDUH has said that the data from 2002 and subsequent years are not comparable to prior years' data.

Furthermore, the other NSDUH methodological shortcomings noted above — a small sample size (of 289 12-17 year olds in Colorado in 1999) and lack of differentiation by age — apply to the Colorado data as well. The limited available data, however, suggest a decrease in teen marijuana use. According to the NSDUH estimates, past month marijuana use by 12- to 17-year-olds decreased modestly between 1999 and 2007-2008, from 10.3% to 9.1%.³⁶

Vermont (medical marijuana bill became law without governor's signature on May 26, 2004)

Vermont's medical marijuana law went into effect on July 1, 2004. The most reliable available data to compare teens' marijuana use before and after the law took effect is the Vermont Youth Risk Behavior Surveillance System (YRBSS). This survey of Vermont high school students was conducted in 2003 and in 2009. Overall, Vermont high school students' current marijuana usage decreased modestly during that time. Marijuana use was also down among every grade level surveyed. The Vermont YRBSS does not have data on lifetime marijuana use for 2003, so we cannot compare that trend.

The Vermont YRBSS shows the following trends:³⁷

All high schoolers' past 30 days: a modest decrease since 2003 (from 28.2% to 24.6%)

9th grade past 30 days: a decrease since 2003 (from 19.5% to 14.4%)

10th grade past 30 days: a modest decrease since 2003 (from 26.6% to 23.7%)

11th grade past 30 days: a modest decrease since 2003 (from 30.7% to 26.8%)

12th grade past 30 days: a modest decrease since 2003 (from 37.2% to 32.9%)

NSDUH data also indicate a decrease in youth's past 30-day marijuana use. The NSDUH data estimate that 13.32% of Vermonters aged 12-17 used marijuana in the past 30 days in 2002/2003, while the 2007/2008 estimate indicates a lower percentage of current marijuana use among adolescents: 10.86%.³⁸

Montana (medical marijuana initiative passed November 2, 2004)

Montana's medical marijuana initiative was enacted on November 2, 2004. The most reliable survey data available to analyze teen marijuana use in Montana before and after the enactment of

³⁶ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, State Estimates of Substance Use from the "Percentages Reporting Past Month Use of Marijuana, by Age Group and State: 1999," Table 3B, available at <http://www.oas.samhsa.gov/NHSDA/99StateTabs/tables2.htm#3b>; State Estimates of Substance Use from the "2007-2008 National Surveys on Drug Use and Health," Table B.3, available at <http://www.oas.samhsa.gov/2k8state/AppB.htm>; 1999 sample sizes available at Table 1N, available at <http://www.oas.samhsa.gov/NHSDA/99StateTabs/tables1.htm#1n>.

³⁷ Centers for Disease Control and Prevention, "2003 Vermont Youth Risk Behavior Surveillance System"; "2009 Vermont Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=VT>.

³⁸ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, State Estimates of Substance Use from the "2007-2008 National Surveys on Drug Use and Health," Table B.3, available at <http://www.oas.samhsa.gov/2k8state/AppB.htm>; State Estimates of Substance Use from the "2002-2003 National Surveys on Drug Use and Health," Table 3B, available at <http://www.oas.samhsa.gov/2k3State/appB.htm>. NSDUH data is collected year-round, so 2004 data was not "before" data.

the medical marijuana initiative is the Montana Youth Risk Behavior Surveillance System (YRBSS). The data from the 2003 Montana YRBSS and the 2009 YRBSS show no change in current marijuana use rates and a slight drop in lifetime use since passage of Montana's medical marijuana law.³⁹

All high schoolers' past 30 days: no change since 2003 (from 23.1% to 23.1%)
9th grade past 30 days: an increase since 2003 (from 16.7% to 20.4%)
10th grade past 30 days: a modest decrease since 2003 (from 22.9% to 20.2%)
11th grade past 30 days: a slight increase since 2003 (from 24.0% to 25.2%)
12th grade past 30 days: a slight decrease since 2003 (from 29.1% to 27.7%)

All high schoolers' lifetime: a slight decrease since 2003 (from 43.9% to 42.2%)
9th grade lifetime: a slight increase since 2003 (from 30.0% to 32.5%)
10th grade lifetime: a modest decrease since 2003 (from 42.3% to 36.0%)
11th grade lifetime: a slight decrease since 2003 (from 49.2% to 47.8%)
12th grade lifetime: a slight decrease since 2003 (from 55.8% to 54.3%)

The 2002-2003 and 2007-2008 NSDUH data for Montana, which is not as reliable as the YRBSS data, suggest that Montana's 12- to 17-year-olds' usage of marijuana decreased, from 12.07% to 8.60%.⁴⁰

Rhode Island (medical marijuana bill became law January 3, 2006)

Rhode Island's medical marijuana bill became law on January 3, 2006, following the override of Governor Donald Carcieri's veto. The only detailed survey data available to analyze teen marijuana use in Rhode Island before and after the enactment of the medical marijuana initiative is the Rhode Island Youth Risk Behavior Surveillance System (YRBSS). The data from the 2005 Rhode Island YRBSS and the 2009 YRBSS show a modest overall decrease in lifetime marijuana use and a slight climb in current use by Rhode Island high school students, similar to national trends.⁴¹

All high schoolers' past 30 days: a slight increase since 2005 (from 25.0% to 26.3%)
9th grade past 30 days: a slight increase since 2005 (from 18.3% to 19.5%)
10th grade past 30 days: a modest increase since 2005 (from 21.8% to 24.2%)
11th grade past 30 days: an increase since 2005 (from 27.4% to 32.0%)
12th grade past 30 days: a slight decrease since 2005 (from 34.3% to 31.7%)

All high schoolers' lifetime: a slight decrease since 2005 (from 42.6% to 39.9%)
9th grade lifetime: a slight decrease since 2005 (from 30.4% to 28.5%)
10th grade lifetime: a slight decrease since 2005 (from 36.4% to 36.0%)
11th grade lifetime: a slight increase since 2005 (from 48.6% to 49.0%)
12th grade lifetime: a decrease since 2005 (from 58.6% to 49.8%)

In contrast to the YRBSS' findings for current use trends, data taken from the 2004-2005 and

³⁹ Centers for Disease Control and Prevention, "2003 Montana Youth Risk Behavior Surveillance System"; "2009 Montana Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/youthonline/App/Results.aspx?LID=MT>.

⁴⁰ Substance Abuse and Mental Health Services Administration, Office of Applied Studies, State Estimates of Substance Use from the "2007-2008 National Surveys on Drug Use and Health," Table B.3, available at <http://www.oas.samhsa.gov/2k8state/AppB.htm>. State Estimates of Substance Use from the "2002-2003 National Surveys on Drug Use and Health," Table 3B, available at <http://www.oas.samhsa.gov/2k3State/appB.htm>.

⁴¹ Centers for Disease Control and Prevention, "2005 Rhode Island Youth Risk Behavior Surveillance System"; "2009 Rhode Island Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=RI>.

2007-2008 NSDUH surveys indicate current marijuana use by 12-17 year-olds in Rhode Island dropped (from 10.82% to 9.46%).⁴²

New Mexico (medical marijuana bill became law April 2, 2007)

Governor Bill Richardson signed New Mexico's medical marijuana bill on April 2, 2007. The New Mexico Youth Risk Behavior Surveillance System (YRBSS) is the best available data for comparing before and after teen marijuana use rates. In New Mexico, the survey tracked current use of marijuana, but included no data for lifetime use. Unlike most medical marijuana states, the New Mexico YRBSS data indicate an increase in current marijuana use: a slight increase since 2005.

All high schoolers' past 30 days: a slight increase since 2005 (from 26.2% to 28.0%)
9th grade past 30 days: a slight decrease since 2005 (from 24.2% to 23.8%)
10th grade past 30 days: an increase since 2005 (from 25.2% to 30.4%)
11th grade past 30 days: a slight increase since 2005 (from 27.1% to 28.7%)
12th grade past 30 days: a slight decrease since 2005 (from 29.9% to 29.5%)⁴³

While at first glance this may indicate a troubling trend for New Mexico's teens, it's important to note that the rise in current marijuana use was well within the YRBSS confidence interval.

NSDUH data cannot be compared for trends in New Mexico or other newer medical marijuana states, because its most current state data combines 2007 and 2008, and is thus not entirely "after" data.

Michigan (medical marijuana initiative passed November 4, 2008)

Voters in Michigan approved an initiated law, the "Michigan Medical Marijuana Act," on November 4, 2008. Once again, the Youth Risk Behavior Surveillance System provides the best before and after data. However, because the law is so new and the survey is only conducted every two years, most or all of the "after" data was actually collected prior to the implementation of the law. Registry identification cards were not issued until late April or early May 2009, while YRBSS data was collected from February through May 2009.

It is also worth noting that the two-year period examined here was during a severe recession, which hit Michigan particularly hard, with unemployment nearly doubling between May 2007 and May 2009 (from 6.9% to 13.5%).⁴⁴

The YRBSS data from 2007 and 2009 show mixed results, with current and lifetime usage rates down in ninth and 10th grades, but up in the 11th and 12th grades. Overall, unlike most other states with effective medical marijuana laws, this would indicate that use rates are up. However, the 2009 estimates had a confidence interval overlapping the interval from 2007, suggesting no reliable change across the two periods.

All high schoolers' past 30 days: an increase since 2007 (from 18.0% to 20.7%)

⁴² State Estimates of Substance Use from the "2007-2008 National Surveys on Drug Use and Health," Table B.3, available at <http://www.oas.samhsa.gov/2k8State/AppB.htm>. State Level Data, Table 3B, available at <http://www.oas.samhsa.gov/2k5State/AppB.htm#TabB.3>.

⁴³ Centers for Disease Control and Prevention, "2005 New Mexico Youth Risk Behavior Surveillance System"; "2009 New Mexico Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=NM>. (2005 data was used as the "before" data because the 2007 data was collected from February through May 2007, so it was not entirely "before" data.)

⁴⁴ Bureau of Labor Statistics Data, available at http://data.bls.gov/timeseries/LASST26000003?data_tool=XGtable.

9th grade past 30 days: a slight decrease since 2007 (from 13.3% to 13.0%)
10th grade past 30 days: a modest decrease since 2007 (from 20.4% to 17.5%)
11th grade past 30 days: an increase since 2007 (from 20.1% to 26.0%)
12 grade past 30 days: an increase since 2007 (from 19.0% to 27.4%)

All high schoolers' lifetime: a slight increase since 2007 (from 35.4% to 36.5%)
9th grade lifetime: a modest decrease since 2007 (from 26.5% to 23.4%)
10th grade lifetime: a modest decrease since 2007 (from 37.3% to 32.1%)
11th grade lifetime: an increase since 2007 (from 37.6% to 45.4%)
12th grade lifetime: a modest increase since 2007 (from 42.5% to 47.4%)⁴⁵

New Jersey (medical marijuana bill signed into law on January 18, 2010)

Governor John Corzine signed New Jersey's medical marijuana bill into law on January 18, 2010. No surveys on drug use have been released since the passage of the law, so a before-and-after comparison is not yet possible.

District of Columbia (medical marijuana initiative passed November 3, 1998; implementing legislation effective July 21, 2010)

Washington, D.C. voters approved a medical marijuana initiative in 1998, but Congress, through a provision in the bill appropriating funds to the District, prevented the legislation from being implemented until that provision was removed in late 2009. The District Council acted to pass enabling legislation shortly thereafter, but as of this writing, the program is not operational. In addition, no surveys have been conducted and released since the law went into effect.

Arizona (medical marijuana initiative passed November 2, 2010)

Arizona's medical marijuana initiative passed November 2, 2010 and it, too, does not yet have data for teens' marijuana use after the passage of the law.

Delaware (medical marijuana bill signed into law on May 13, 2011)

Governor Jack Markell signed Delaware's medical marijuana bill into law on May 13, 2011. Because this law is so new, no before-and-after data is available for comparison.

OTHER ANALYSIS

The only other review the authors are aware of comparing data on youths' marijuana use in medical marijuana states before and after passage of the laws was published by Dr. Seth Ammerman in the Winter 2011 edition of *California Pediatrician*. The article compares current marijuana usage rates among the oldest high school grade surveyed and concludes, "the data are very reassuring that in almost all cases medical marijuana legalized for adults does not lead to an increase in recreational use of marijuana by adolescents."⁴⁶

CONCLUSIONS AND RECOMMENDATIONS

⁴⁵ Centers for Disease Control and Prevention, "2007 Michigan Youth Risk Behavior Surveillance System"; "2009 Michigan Youth Risk Behavior Surveillance System"; available at <http://apps.nccd.cdc.gov/YouthOnline/App/Results.aspx?LID=MI>.

⁴⁶ Ammerman, Seth, M.D. "Medical Marijuana: Update for the Pediatrician," *California Pediatrician*, Vol. 27, No. 1 (Winter 2011): 11-13, available at <http://www.aap-ca.org/news/caPed/California%20Pediatrician%20-%20Winter%202011.pdf>.

Since the mid-1990s, the U.S. has witnessed a well-publicized and sometimes emotional national debate over the medical use of marijuana. Contrary to the fears expressed by opponents of medical marijuana laws, there is no evidence that the enactment of medical marijuana laws in 16 states and the District of Columbia have produced an increase in adolescent marijuana use in those states or nationwide. Instead, data from those states suggest a modest decline nationally and in medical marijuana states overall, with large declines in some age groups in some states. Only two of 13 states with operating medical marijuana programs have experienced an overall increase in youth marijuana use since passing a medical marijuana law, and both of those states have a modest amount of data since the programs are relatively new.

This data trend strongly suggests that the effect of state medical marijuana laws on teen marijuana use has been either neutral or positive. California researchers, who appear to be the only ones to specifically study the issue in the context of a survey of adolescent drug use, found no evidence of a “wrong message” effect. Legislators considering medical marijuana proposals should evaluate the bills on their own merits, without concern for unproven claims that such laws increase teen marijuana use. Opponents of medical marijuana laws should cease making such unsubstantiated claims.