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The Impact of Substance Abuse on Society

In this edition of the Journal, our theme is “The Impact of Substance Abuse on Society.” It thoughtfully highlights some important issues in substance abuse.

The contributions include an original paper entitled, What Will Legal Marijuana Cost Employers by Sue Rusche and Dr. Kevin Sabet, that analyzes the affect that legal marijuana will have on five key business concerns of safety, compliance, productivity, flexibility and litigation. This manuscript also discusses many additional problems resulting from legalization of which employers must also be aware.

The commentary included in this edition, Studies of Gateway Drugs Have Been Done Throughout Generations of Adolescents, is written by Gerald M Aronoff, MD, DABPM, Medical Director, Carolina Pain Associates, PA. In this piece, the author examines various studies and findings from his own medical practice that indicate that early prevention of gateway drug use, stimulants in particular, significantly alter the risk of drug use in adulthood. He conveys an urgency for physicians to perform routine clinical and psychosocial assessments in patients with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) as a key prevention practice.



IN THIS ISSUE

What Will Legal Marijuana Cost Employers?

COMMENTARY

Studies of Gateway Drugs Have Been Done Throughout Generations of Adolescents



What Will Legal Marijuana Cost Employers?



What Will Legal Marijuana Cost Employers?

A White Paper

By Sue Rusche and Kevin Sabet, PhD

The purpose of National Families in Action's White Paper is to educate employers about how marijuana laws are changing, how these laws will affect employers' ability to conduct business, and what employers can do to protect that ability. We contracted with Kevin Sabet, co-founder of Project SAM (Smart Approaches to Marijuana), to help write the White Paper.

To begin, we assembled a group of experts from various fields to advise us on how the changing legal landscape will affect employers. All agree that costs will increase as changing marijuana laws present new challenges. Employers need to anticipate those challenges and plan ways to maintain profitability, productivity, safety, and flexibility while litigation and case law sort out state laws that conflict with federal laws and from state to state.

The adage that an ounce of prevention is worth a pound of cure has never been more relevant. Employers have a significant opportunity to monitor both marijuana ballot initiatives that advocates are proposing and bills that state legislators are writing to protect their interests and those of their employees and the public. Please see Appendix A for information about National Families in Action, Project SAM, and our expert advisors.

We gratefully acknowledge The Bodman Foundation for providing a grant to National Families in Action, which made it possible to produce this White Paper.

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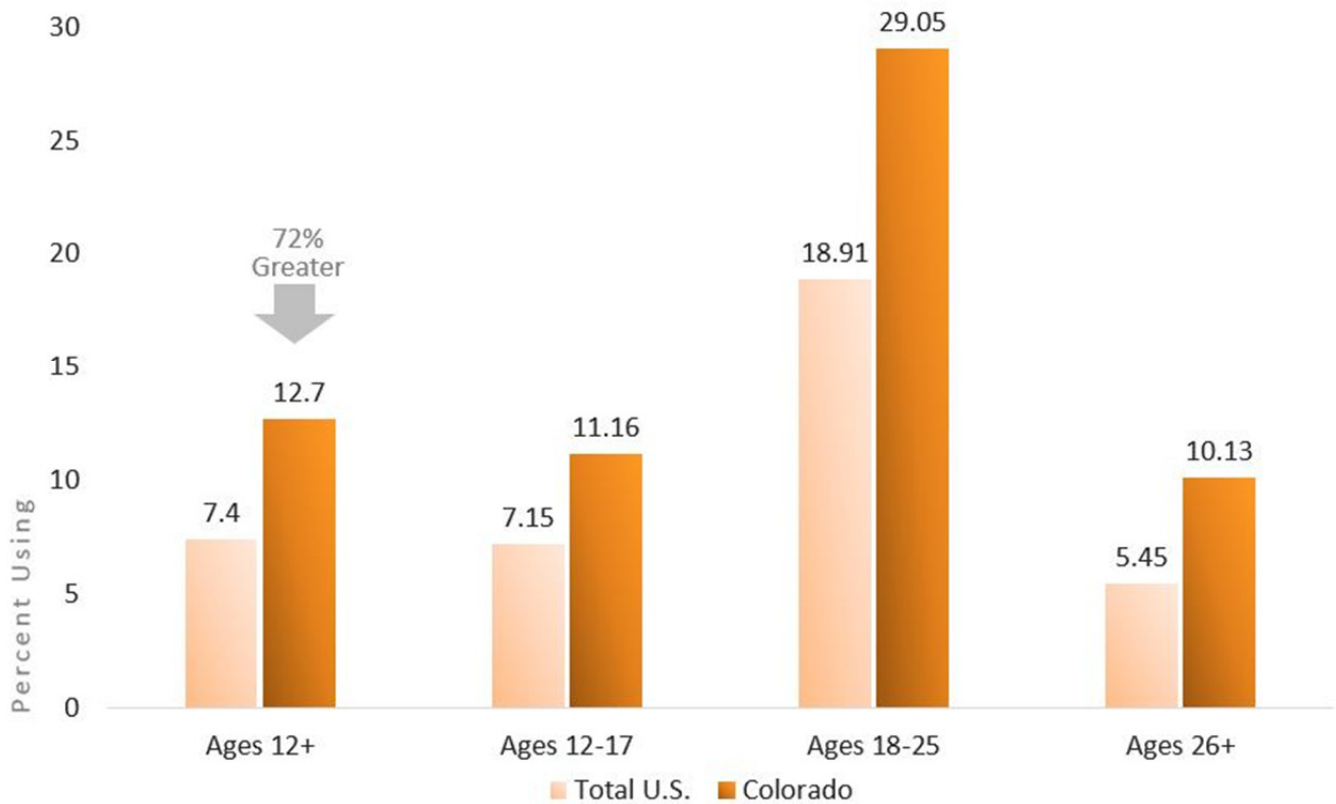
Contents

Executive Summary	9
Introduction	11
Overview of the problem	11
Litigation	13
Scenario	13
Discussion	14
Will employers have to accommodate marijuana use?	14
Background	14
Can employers fire employees for engaging in legal activities off the clock?	14
Does firing an employee who tests positive for marijuana violate anti-discrimination laws?	15
Are employees who use marijuana off the clock impaired when they come to work?	15
Airline pilots flying simulation study	15
Does marijuana with higher THC levels impair users for a longer period of time?	16
What about extremely high levels of THC?	16
Must employers cover medical marijuana costs for employees injured on the job?	16
Must employers pay unemployment compensation to employees fired for failing a drug test?	17
Productivity	18
Scenario	18
Discussion	18
Will there be an adequate supply of qualified workers?	18
What does marijuana cost the workplace today?	19
Reduced motivation	19
Increased accidents, injuries, and absenteeism	19
How will legal marijuana affect the future workforce?	19
Increased addiction	20
Adolescent brain development	20
Impact on the ability to learn	20
Impact on memory	21
Impact on IQ	21
Impact on mental health	21
What does all this mean for employers?	22
Safety	23
Scenario	23
Discussion	24
Will employers be able to maintain a drug-free workplace?	24
Background	24
Must employers required by DOT to drug-test workers in safety-sensitive jobs exempt those using medical marijuana?	24
How does marijuana affect driving?	25

Legalization advocates challenge drug-free workplace programs	26
How can employers ensure safety if they must show impairment rather than the presence of marijuana in the body?	26
Flexibility	28
Scenario	28
Discussion	29
The importance of flexibility	29
Will employers still be able to shift employees to different jobs within the company?	29
Will employees still be able to work from home?	30
Compliance	31
Scenario	31
Discussion	32
How can employers with employees in multiple states comply with marijuana laws that differ from state to state and with federal law?	32
To what lengths do employers have to go to comply with marijuana-friendly laws vis-à-vis their employees?	32
What should employers do in the case that part of their business is located in a state with legal marijuana laws?	33
Problems Legalization Brings	34
Fully commercialized alcohol and tobacco already create problems for employers	34
How have employers addressed employee alcohol use?	34
How have employers addressed employee tobacco use?	34
Use as a result of legal status	35
Do tax revenues from legal drug sales cover what their use costs society?	35
Costs of commercializing addictive drugs	36
Marketing to vulnerable people	36
Targeting the most vulnerable: children	36
Fully commercialized marijuana will create similar problems for employers	37
Will a legal marijuana industry behave the same way the alcohol and tobacco industries behave?	37
New marijuana products of special concern to employers	38
Early harbinger: Impact of legalization in Colorado	38
Medical marijuana legalization	38
Effects on children in Denver vs. rest of Colorado	38
Recreational marijuana: What do we know now, one year in?	39
Increased positive workplace drug tests	39
Increased calls to poison control centers	39
A proliferation of advertising and marketing	40
Increased problems with edibles	40
Increased overdoses among children and adults	40
Tax revenues overestimated	40

What Can Employers Do?	41
Understand that nothing is written with regard to marijuana legalization—yet	41
Remember that no matter how many states legalize some form of marijuana, the drug is still illegal under federal law	41
Take action to protect <i>your</i> workplace	41
Take action with fellow employers to protect <i>all</i> workplaces	42
Challenge the assertion that marijuana is medicine	43
Conclusion	45
References	46
Appendix A—About This Paper	
Appendix B—Compendium of Current Marijuana Laws	
Appendix C—Other Health Effects of Marijuana	
Appendix D—Why We Won’t Know If Legalization Increases Use until 2017	
Appendix E—The More Medical Marijuana Dispensaries, the More Adolescent Users	
Appendix F—American Association of Occupational Health Nurses Endorsement Letter	

U.S. vs Colorado Past-Month Marijuana Use, 2013



At this point, in 2013, only medical marijuana was available in Colorado. You can see the high rates of use in the state vs. the U.S. rates. Retail sales of marijuana in Colorado began later, in 2014, and use has significantly increased again. We don't yet know how high it will go.

Colorado legalized marijuana for medical use via a ballot initiative, Amendment 20, which voters passed in 2000. Patients could designate a caregiver to grow marijuana for them, and caregivers could grow for up to five patients. A court decision overturned that limit in 2009. Patients with medical marijuana cards issued by the department of health increased from less than 5,000 to more than 41,000 that year. In response, the legislature legalized commercial medical marijuana cultivation, dispensaries, and infused products while re-enacting the 5 patient-limit for caregivers. By 2012, the number of medical marijuana patients in the state increased to 109,000. That year voters legalized marijuana for recreational use via a second ballot initiative, Amendment 64. This survey shows past-month marijuana use among Coloradans vs. all Americans ages 12 and older in 2013, one year after recreational legalization was passed, but one year before commercial marijuana shops opened for business, January 1, 2014.

Source: 2013 National Survey on Drug Use and Health, US Substance Abuse and Mental Health Services Administration



Executive Summary

This White Paper examines the complexities employers are facing or will face as marijuana is legalized for medical or recreational use in various states. As litigation in these states unfolds and begins to build case law, we ask several questions employers must answer now and in the future.

Will employers have to accommodate marijuana use in their workplaces? A closely watched case before the Colorado Supreme Court will establish, at least in Colorado, whether employees can use marijuana off the clock even if they may be impaired the next day.

Must employers pay for employees' medical marijuana if they are injured on the job? By allowing a court of appeals decision to stand, the New Mexico Supreme Court finds that the answer is yes.

Must employers pay unemployment compensation to employees fired for failing a marijuana drug test?

What does increased adolescent marijuana use portend for the future workforce when research shows that compared to nonusers, teens who smoke marijuana on weekends over a two-year period are six times more likely to drop out of high school, three times less likely to enter college, and four times less likely to earn a college degree?

How can employers meet federal requirements to maintain a drug-free workplace if states require proof of impairment rather than the presence of marijuana in the body when no level of impairment has been scientifically established and no noninvasive test to denote impairment has been developed?

If courts hold that drug testing is no longer a valid indicator of impairment, how can employers whose businesses involve driving or other safety-sensitive positions protect their workers and the public from injuries and deaths caused by stoned drivers?

What if courts hold that failing a pre-employment drug test is no longer a valid reason to deny employment to applicants?

We learned from the lawsuit states brought against the tobacco industry in the 1990s that taxes do not begin to cover state Medicaid costs needed to treat tobacco-related diseases. Today, social and health costs of tobacco and alcohol are 11 times greater than all the tax revenues raised by federal and state governments combined. What guarantees exist to ensure the social costs of legal, commercial marijuana won't overwhelm moneys raised through tax revenues? Who will make up the difference?

The Tobacco Settlement of 1998 revealed through the process of discovery just how dependent the industry is on marketing to children. The legal marijuana industry is already adopting the same tactics

to lure children into marijuana use with products, such as marijuana-infused Gummy Bears, chocolate chip cookies, brownies, and “soft” drinks.

We can see precisely how availability drives use with the legalization of medical marijuana in Colorado in 2000. The state’s registered patients numbered about 5,000 from 2000 to 2009 when the legislature legalized cultivation and dispensaries. Two years later, the number of registered patients swelled to 105,000 and some 500 dispensaries were doing business throughout the state. About half of these were in Denver, where middle-school students’ marijuana use was nearly double that of middle-school students in the rest of the state. Denver high-school students followed the same pattern with 61 percent of Denver’s seniors having used the drug at least once compared to 55 percent of seniors in the rest of Colorado and 49 percent of seniors nationwide.

Employers face costly litigation as case law surrounding legal marijuana develops. There are several things employers can do to protect themselves. 1) Stay up to date with the changing legal landscape and adjust your workplace policies accordingly. 2) Remember that marijuana is still illegal under federal law. 3) Band together with other employers to monitor state legislation. 3) Take action with legislators to ensure workplace protections are included in any marijuana laws. 4) Educate your workforce about the dangers marijuana poses to children, families, and the workplace. 5) Challenge the notion that marijuana is medicine, or you may soon be paying for it in your health insurance program. No marijuana medicines being sold in states that legalized them have been approved by FDA as pure, safe, or effective. Doctors cannot *prescribe* them and pharmacies cannot sell them.

National Families in Action and Smart Approaches to Marijuana believe a broad middle road exists between incarceration and legalization. Charting that middle road is where our national marijuana policy should be heading.

A big challenge lies before us all to contemplate and perhaps act on. We must reverse course before advocates succeed in launching a commercial marijuana industry nationwide if we are to maintain our ability to compete in the global marketplace.



Introduction

Overview of the problem

Some 23 states have legalized medical marijuana, four plus the District of Columbia have legalized the drug for recreational use, and more are likely to follow. Both kinds of legalization have given rise to a powerful commercial industry that is pursuing more customers to make more money. This creates two sets of problems for employers: increased marijuana use – and all the costs this brings in the form of accidents and lost productivity – and costly litigation.

It is impossible to predict how much use will go up since no modern jurisdiction has ever allowed for-profit companies to produce and promote recreational marijuana before Colorado, Washington, and now Alaska, Oregon, and the District of Columbia did so.

But at least we have experience with marijuana use and the workplace. It isn't good news. Fifteen percent of past-month users admit in the National Survey on Drug Use and Health that at some point within the last 30 days, they didn't show up for work because they "just didn't want to be there." That is far more than for the population overall (7.4 percent) or for alcohol users (7.9 percent).¹ The new and potentially more troubling problem is marijuana-related litigation that could undermine labor flexibility and efforts to keep the workplace drug-free, in some cases possibly even with regard to safety-sensitive positions.

The crux of the problem is that even though legalization advocates claim they want to "regulate marijuana like alcohol," in reality they are writing laws that give marijuana and marijuana use protected status in the workplace—status that has never been afforded to other addictive drugs, such as alcohol, other intoxicants, or tobacco.

Perhaps most troubling is the conflation of marijuana the recreational intoxicant with marijuana the "medicine." No producer of marijuana medicines in the 23 states that legalized the drug for medical use has sought FDA approval of its products.² Doctors cannot *prescribe* them and pharmacies cannot sell them. Lacking evidence of safety or efficacy, most medical societies, including the American Medical Association and the American Cancer Society, warn against their use for any medical need.³

Despite this, voter propositions, and more recently, legislation, declare that marijuana *is* medicine for a long and disparate list of

Fifteen percent of past-month marijuana users admit that at some point within the last 30 days, they didn't show up for work because they "just didn't want to be there."

Some states prohibit termination based on a failed drug test alone, instead requiring proof of impairment, when, unlike alcohol, no scientific measure of impairment has been established.

diseases and conditions often capped with an elastic clause, such as California Proposition 215's "or any other illness for which marijuana provides relief." As a result, most patients appear to be long-time recreational users with everyday aches and ailments. There are people with serious diseases, such as cancer, HIV/AIDS, and multiple sclerosis, who turn to marijuana in hopes of finding relief, but they account for less than 5 percent of medical marijuana patients in the states that keep records.⁴

Despite the lack of FDA approval of marijuana medicines being sold in these states, challenges to drug-free workplace policies are underway, as medical marijuana users try to assert a right to use marijuana on the job or just before work⁵ and recreational users try to establish that daily use off the clock does not impair them during work hours. Some states prohibit termination based on a failed drug test alone, instead requiring proof of impairment, when, unlike alcohol, no scientific measure of impairment has been established.

In short, employers face a multitude of complications in states that partially or fully legalize marijuana. How can those with workers in multiple states comply with conflicting laws from state to state? How can employers in legalization states comply with federal law that maintains marijuana is illegal no matter what states say? How can employers accommodate medical marijuana use if a drug test reveals an employee's protected status as per some state laws and the employee demands accommodation of his or her medical use? How much is it going to cost employers to sort all this out through litigation? On the one hand, they face costs to defend their obligation under federal laws to maintain safe environments and drug-free workplaces. On the other, they face costs to respond to lawsuits from employees and the general public if they knowingly jeopardize public safety through negligent hiring or discrimination as pressure to accept marijuana use by employees intensifies.

To appreciate the headaches such entitlements may create for employers and the potential dangers the resulting inability to maintain a drug-free workplace will create for coworkers and the general public, consider the following scenarios.⁶



Litigation

Scenario

You are the chairman and CEO of a national company based in Colorado. Your company has a zero-tolerance, drug-free workplace policy, meaning an employee who fails a drug test can be fired. Your senior corporate counsel calls and asks to see you right away, saying it's urgent.

"We're being sued by an employee we fired recently," she says as she enters your office.

"On what grounds?" you ask.

"A drug test we gave him came back positive for marijuana and we fired him," she replies. "He told us at the time we tested him he would probably fail the test. He says he uses the drug daily for medical reasons but not at work."

"Look, I know Colorado legalized marijuana, but that law specifies employers do not have to accommodate employees' marijuana use. He has no case," you say.

"I didn't think so either, but he alleges another Colorado law protects employees from being fired for engaging in off-the-clock activities that are legal," she replies.

"But marijuana is illegal under federal law, which will trump the state law, right?" you ask.

"Maybe, but the courts will have to sort that out. Meanwhile, we have a lawsuit to respond to, and we'd better prevail. The implications of not being able to ensure our employees are sober are grim," she replies.

"What's it going to cost us?" you ask.

"Somewhere in the neighborhood of \$100,000 if we win. Quite a bit more if we lose and take appeals to higher courts," she answers.

"I don't like this at all, but thanks for bringing it to my attention. Keep me posted," you conclude reluctantly.



Discussion

Will employers have to accommodate marijuana use?

There is no doubt employers will face increasing litigation costs as employees try to assert rights to use marijuana on the job or after hours, even though research suggests they may be impaired at work the next day.⁷ The scenario above is similar to a case currently before Colorado's state supreme court.

Background

The US Supreme Court held in *Gonzales v. Raich* that possession of marijuana is illegal under the US Controlled Substances Act whether or not a state legalizes the drug for medical use. Further, in *Casias v. Wal-Mart Stores, Inc.*, the Sixth Circuit held that "private employees are not protected from disciplinary action as a result of their use of medical marijuana, nor are private employers required to accommodate the use of medical marijuana in the workplace."⁸ From 2008 forward, California, Montana, Oregon, and Washington state supreme courts have upheld employers' rights to terminate medical marijuana users who fail drug tests.⁹

However, all of these findings have been based on the fact that marijuana is illegal under federal law no matter what states do. Members of Congress have introduced bills to remove marijuana from the US Controlled Substances Act to allow states to "experiment" with marijuana policy. Should this happen, the basis for these decisions will no longer be valid, and marijuana proponents can be expected to escalate their assault on drug-free workplace policies to a full-fledged war.

Can employers fire an employee for engaging in legal activities off the clock?

Right now, that assault is piecemeal. Colorado medical marijuana user Brandon Coats may have found a novel way to get around several lower court decisions in Colorado that protect employers' right to maintain a drug-free workplace. And the outcome of his case, if he wins, almost certainly will apply not only to medical but also recreational users.

In *Coats v. Dish*, Mr. Coats asserts that he uses medical marijuana off the job, never at work, and is never under the influence of the

A closely watched case before the Colorado Supreme Court will establish whether employers in the state can maintain a drug-free workplace.

drug at work. He alleges the company had no right to fire him for testing positive for marijuana because a little-known provision in the Colorado Civil Rights Act protects employees from being fired for engaging in legal activities off the clock. Dish argues that marijuana is illegal under federal law and thus invalidates this provision in the state law. Lower courts upheld the employer's right to fire him. The Colorado Supreme Court is expected to rule soon on Mr. Coats' appeal.¹⁰

Does firing an employee who tests positive for marijuana violate anti-discrimination laws?

A new case in New Mexico seeks protective status for medical marijuana use based on that state's Human Rights Act, which prohibits discrimination against people with serious illnesses. A woman with a state-issued medical marijuana card lost her job when she failed a drug test at Presbyterian Health Services. The hospital says it is under a federal mandate to maintain a drug-free workplace in order to protect the safety of all employees and patients, a position that takes on new urgency with the appearance of Ebola in the United States.

Are employees who use marijuana off the clock impaired when they come to work?

Some studies indicate they are, but no *scientific* measure of impairment similar to that of alcohol has been established, and experts predict none will be.¹¹ How long employees who use marijuana off hours are impaired is a critical, unresolved question. Litigants maintain they are not impaired, but some research suggests otherwise.

Typical marijuana smokers experience a "high" that lasts about two hours. Behavioral and physiological effects generally return to baseline three to five hours after use begins, but some memory impairments, such as the ability to filter out irrelevant information and the speed with which people process information, can last up to 24 hours after use.¹²

Airline pilots flying simulation study

In a study, nine active pilots, each given one "social-dose" marijuana cigarette (with 20 mg of THC), were placed in a flying simulator just before smoking and then 15 minutes and 4, 8, 24, and 48 hours

Nine pilots smoked a marijuana cigarette and tried to fly in a simulation machine. Seven still showed impaired performance 24 hours later. Only one was aware that he was still impaired.

later. Seven of the nine still showed impaired performance at 24 hours. Only one was aware of actually being impaired.¹³

Does marijuana with higher THC levels impair users for a longer period of time?

Most research on effects has been done using marijuana with low THC levels, from two to four or five percent. (THC is the ingredient that intoxicates and impairs users.) But average THC levels in today's marijuana range from 12 to 15 percent, a strength that the Netherlands regards as a "hard" drug and may ban from the coffee shops where the country allows people to consume marijuana. A study using marijuana that contained 13 percent THC levels found users' executive functioning and motor functioning were seriously impaired for many hours after smoking.¹⁴

The Netherlands defines marijuana with a THC level of 15 percent or higher as a "hard" drug and may ban it from the Dutch coffee shops where people consume marijuana. In the US, Butane Hash Oil has THC levels of from 75 to 100 percent.

What about extremely high levels of THC?

A commercial industry has emerged as states have legalized marijuana for medical use. That industry has figured out ways to increase THC levels in cultivated marijuana and marijuana products, such as THC-infused cookies and candies. Today, marijuana extracts, such as Butane Hash Oil, contain from 75 percent to 100 percent THC. Whether such high levels of THC further extend the length of time a person is impaired after using marijuana is an open question. If future research shows high that THC levels increase the time a person is impaired, more problems will occur for employers if courts ultimately decide they must accommodate marijuana use.

Must employers cover medical marijuana costs for employees injured on the job?

In New Mexico, the answer is now "yes." By declining to hear an appeal in October 2014, the New Mexico Supreme Court allowed a landmark case to stand. In *Vialpando v. Ben's Automotive Services*, employee Gregory Vialpando suffered an accident that severely injured his back in 2000. Thirteen years later, he filed an application with a workers' compensation judge claiming that his former employer should pay the cost of the medical marijuana he uses for pain as part of his workers' compensation benefits.

The workers' comp judge ruled that New Mexico's medical marijuana program constituted "reasonable and necessary medical care" and that Ben's Automotive Services must reimburse Mr. Vialpando for his medical marijuana through its insurance company, Redwood Fire &

Casualty. Both companies argued in lower courts that buying marijuana for Mr. Vialpando would force them to break federal law. The New Mexico Court of Appeals disagreed, and the state supreme court allowed that decision to stand.¹⁵ Unless or until appealed to federal courts, this means New Mexico employers must cover medical marijuana costs for employees who use it due to job-related injuries.

It should be noted here that in the 1980s, the US Food and Drug Administration approved two medicines made of synthetic THC for treating chemotherapy-related nausea and AIDS wasting. Further, cannabinoids, alone or in combination, extracted from marijuana and purified are currently in clinical trials in the US. Such medicines are perfectly appropriate for employers to include in their formularies because they have met the rigorous safety and efficacy requirements of FDA.

Employers in Michigan must pay unemployment compensation to employees fired for failing a drug test.

Must employers pay unemployment compensation to employees fired for failing a drug test?

Another decision handed down by the Michigan Court of Appeals in late October 2014 found that employees approved by the state to use medical marijuana are entitled to unemployment compensation if they were fired for failing a drug test.¹⁶

As we will see below, other litigation costs employers are likely to face as state marijuana laws change include costs to maintain workplace safety, worker flexibility, productivity, and compliance with conflicting laws from state to state. We note that large companies may be able to afford employment practices liability insurance to help reduce their litigation costs, but most small businesses, the backbone of the American economy, cannot. Marijuana litigation costs may very well put some out of business.



Productivity

Scenario

“Where is John this morning?” asked Gerard, the regional manager of a large retail chain.

“He called and said he’d be a few minutes late,” replied Jonah, his direct supervisor. “This is the third time this week.”

“Oh, I think I see him now,” said Gerard. Gerard and John were brothers-in-law, and Gerard got him the job.

As John walked in, his eyes were red and he seemed to be acting slower than usual. Gerard and Jonah looked at each other and, without saying a word, both knew what was going on. John was either recovering from a night of marijuana and alcohol use again or “waking and baking”—using marijuana first thing in the morning. They both knew he could not interact with customers in this state.

“John?” asked Jonah. “Do me a favor and work the stockroom today. I will take over for you on the floor.”

As customers started to walk into the store, Gerard and Jonah knew there was no time to dwell on what had just happened. It had happened before, and they wanted to take it to the next level but knew John used ‘medical marijuana’ for his PTSD, a legal use in the state they lived in.

Facing potential litigation – and the pain of firing a relative and friend – they let it slide, again.

Discussion

Will there be an adequate supply of qualified workers?

Extensive research shows that substance-abusing workers are less productive than workers who do not abuse drugs. Overall, lost-work productivity (including absenteeism and poor job performance) associated with substance abuse accounts for more than two-thirds of the total \$193 billion that drugs cost employers and the nation annually.¹⁷



What does marijuana cost the workplace today?

Marijuana, the most widely used drug in the US, is a heavy chunk of that cost. While pinpointing the exact financial cost of marijuana in the workplace is difficult, studies have found marijuana and alcohol pose comparable risks to productivity.¹⁸ Heavy productivity losses among marijuana users are many.

Reduced motivation

For one, marijuana use has long been linked to less motivation among users. One study found that long-term marijuana users produced less dopamine, a neurochemical directly linked to motivation and reward. Using PET brain imaging, the researchers found that dopamine levels in a part of the brain called the striatum were lowest in heavy marijuana users and those who began smoking marijuana at younger ages.¹⁹ A Norwegian study that looked at users for 25 years found that regular marijuana users reported feeling less dedicated to work than those who abstained from using the drug.²⁰ Head researcher Charles Nyggan says that “people who quit smoking cannabis increase their work commitment, and people who take up smoking cannabis reduce their work commitment.”

“People who quit smoking cannabis increase their work commitment, and people who take up smoking cannabis reduce their work commitment.”

Increased accidents, injuries, and absenteeism

Employees who test positive for marijuana have 55 percent more industrial accidents, 85 percent more injuries, and absenteeism rates that are 75 percent higher than those who test negative on a pre-employment exam.²¹ The National Institute on Drug Abuse has cited several studies linking employee marijuana use with “increased absences, tardiness, accidents, workers’ compensation claims, and job turnover.”²²

How will legal marijuana affect the future workforce?

There is broad scientific consensus that availability drives use. The more available marijuana becomes through legalization and commercialization, the more adolescents and young adults will access and use it. We already are seeing this in medical marijuana states, where more adolescents use the drug than their counterparts in nonmedical marijuana states.²³ If employers are worried about the current workforce being high on marijuana and rendering them less competitive, how much more impact will rising marijuana use among young people have on the future workforce?

Increased addiction

Young people are particularly vulnerable to marijuana problems, especially when they start using the drug before age 16. For this group, the risk for addiction climbs to *1 in 6*—almost doubling the addiction risk (of 1 in 11) to those who start consuming marijuana later in life. The earlier a person starts using marijuana, the greater his or her risk of developing addiction is.²⁴ Surveys of centers treating drug abuse or addiction find that more adolescents today are in treatment for marijuana than for alcohol and all other drugs *combined*.²⁵

Adolescent brain development

Why does this early onset of marijuana use render a person so much more susceptible to addiction than when use begins after adolescence? It's all about brain development. Here is how the California Society of Addiction Medicine describes the risk: "Children's and adolescents' brains and personalities are under rapid development. As a result, they can become addicted more often and more rapidly than adults. For example, only 4.4 percent of individuals who start smoking marijuana after age 21 become addicted within the first two years of use, while 17.4 percent of thirteen-year-olds become addicted within the first two years."²⁶

As children's brain development is disrupted by chronic marijuana use, their risk for addiction accelerates. And given the ever-increasing potency of marijuana, the drug becomes an expensive public-health hazard with long-lasting effects.

Impact on the ability to learn

We can measure the impact on life development from marijuana use and the drug's alterations of brain function in several different ways. Research shows that, compared to those who don't, adolescents who smoke marijuana every weekend over a two-year period are nearly 6 times more likely to drop out of school, more than 3 times less likely to enter college, and more than 4 times less likely to earn a college degree.²⁷

Neuroscientists have also documented how chronic marijuana use starting in adolescence decreases the size of two brain areas thick in cannabinoid receptors—the amygdala by 7 percent and the hippocampus by 12 percent—both significant reductions. One result is that young chronic marijuana users perform much worse than

Compared to those who don't, adolescents who smoke marijuana every weekend over a two-year period are nearly 6 times more likely to drop out of school, more than 3 times less likely to enter college, and more than 4 times less likely to earn a college degree.

nonusers on verbal learning tests. Heavy marijuana use (generally thought to mean 4 to 6 joints per day) “exerts harmful effects on brain tissue and mental health,” the researchers conclude.²⁸

Another review of the scientific literature determined that the evidence points overwhelmingly to “impaired encoding, storage, manipulation, and retrieval mechanisms [in the brains] of long-term or heavy cannabis users.”²⁹

Impact on memory

One of the pioneering studies on marijuana use and memory helped set in motion a series of subsequent studies. Nine Australian researchers compared the attention, memory, problem-solving, and verbal-reasoning skills among four groups of individuals: 102 near-daily marijuana users, 51 long-term users, 51 short-term users, and 33 nonusers who made up the control group. The conclusion: “long-term heavy cannabis users show impairments in memory and attention that endure beyond the period of intoxication and worsen with increasing years of regular cannabis use.”³⁰

Using marijuana regularly before age 18 results in an average IQ of six to eight fewer points at age 38 compared to those who did not use marijuana before age 18.

Impact on IQ

But the granddaddy of marijuana and learning studies came out in 2012 and astounded even the most cautious researchers. Scientists, controlling for factors like years of education, schizophrenia, and the use of alcohol or other drugs, followed a cohort of over 1,000 people for more than 25 years to investigate the effect of marijuana use on IQ. This study finds that using marijuana regularly before age 18 results in an average IQ of six to eight fewer points at age 38 compared to those who did not use marijuana before age 18. This astonishing finding was still true for those regular marijuana-using teens who stopped using the drug after age 38. “Our hypothesis is that we see this IQ decline in adolescence because the adolescent brain is still developing and if you introduce cannabis, it might interrupt these critical developmental processes,” says lead author Madeline Meier, a postdoctoral researcher at Duke University.³¹

Impact on mental health

Marijuana users have a six times higher risk of schizophrenia³² and are significantly more likely to develop other psychotic illnesses. In particular, females who smoke marijuana show a great vulnerability to heightened risk of anxiety attacks and depression. According to a study published in the *British Medical Journal*, daily use among

"Marijuana does a bad thing to the brain, and to judgment, and to memory, and to working memory. People who are using marijuana, kids especially, don't think well."

adolescent girls is associated with a fivefold increase in the risk of depression and anxiety.³³

What does all this mean for employers?

Today's adolescents are tomorrow's workforce. If legalization results in increased marijuana use among adolescents, it will also result in increased brain damage among those who use the drug heavily. This interference with mental and intelligence capacities has grave implications for future workforce readiness and productivity. As Mitchel Rosenthal, MD, founder of the network of residential drug treatment centers known as Phoenix House, says, "Marijuana does a bad thing to the brain, and to judgment, and to memory, and to working memory. People who are using marijuana, kids especially, don't think well."³⁴ Rising marijuana use, in fact, will compromise not only productivity but also global workplace competitiveness.



Safety

Scenario

"Could I see you for a moment, sir?"

"Certainly, James. Come in," replies his boss, Bob. "What can I do for you?"

"Well, since I got bumped from my clerk's position, I thought I might apply for a job in our railroad division," I reply. "Maybe as a block operator. Here's my application," I say, handing it to him.

"Great, James," Bob says. "You'll be good at that. I'll take care of this while you go downstairs to the clinic and get a drug test."

"Okay, thanks," I say, heading for the elevator.

"Fill out this form for me while I get your test set up," the medical officer, Nurse Thompson, tells me.

"It will probably come back positive for marijuana," I tell her. "I have a state medical marijuana card registering me as a patient. I need the medicine to relieve chronic leg pain that a disease I have causes."

"Oh, my, Mr. Jones," Nurse Thompson says to me. "That will be a problem. If your drug test comes back positive, we'll have to suspend you and send you for an assessment and possible treatment. You're applying for a safety-sensitive job, and federal law requires us to maintain a drug-free workplace."

"But, Nurse Thompson, I am not on drugs. This is medical marijuana," I tell her.

"I'm sorry, Mr. Jones," she says. "We have to be able to randomly test all safety-sensitive personnel from time to time to make sure they are drug-free, and we have to take action if they are not."

Mr. Jones' test came back positive for marijuana. He was suspended without pay, assessed, and sent to treatment. He called a lawyer and sued the transit company for discrimination under the state's disability laws.



An aircraft accident on the USS Nimitz in 1981 killed 14 people, injured 48, destroyed 7 planes, and damaged 11 more at a cost of \$150 million. Marijuana was a contributing factor: 6 of the dead had metabolites of the drug in their bodies.

Discussion

Will employers be able to maintain a drug-free workplace?

Various federal laws require all employers to provide a safe and healthy work environment and those with certain safety-sensitive jobs or who have federal contracts or grants to maintain a drug-free workplace. Employers whose businesses are related to public safety and security must be able to ensure their employees are not impaired while at work. Otherwise, employers face litigation of a different sort: lawsuits caused by impaired employees that involve injuries or deaths among fellow employees or the general public.

Background

The need for drug testing to keep employees drug-free originated with an aircraft accident on the USS Nimitz in 1981 that killed 14 people, injured 48, destroyed 7 planes, and damaged 11 more at a cost of \$150 million. Marijuana was a contributing factor: 6 of the dead had metabolites of the drug in their bodies. A Department of Defense survey of military personnel the year before had shown that 28 percent of service members used an illegal drug in the past 30 days; in some units, use was as high as 38 percent. The military began developing and implementing drug-testing programs to reduce use among service members. By 1985, past-30-day drug use among military personnel had dropped to 10 percent; by 1988, to 5 percent. Based on this unfolding success in the military, President Reagan issued an executive order that mandated drug testing for all federal civilian employees in 1986.³⁵

Two years later, Congress passed legislation requiring contractors and grantees that receive federal money to maintain drug-free workplaces. The Drug Free Workplace Act does not require drug testing; however, various federal agencies do. For example, the Department of Defense and the Department of Transportation require drug testing for employees in safety-sensitive jobs in the military and the transportation industry.³⁶

Must employers required by DOT to drug-test workers in safety-sensitive jobs exempt those using medical marijuana?

The scenario above is similar to an actual case currently being litigated in New Jersey. New Jersey Transit is required by the Federal Railroad Administration and the Federal Transit

Administration to randomly drug test all employees in safety-sensitive positions to ensure they are drug free.

Charlie Davis was bumped from his desk job at New Jersey Transit and applied for a position as block operator in the transit company's railroad division. A few months earlier, he obtained a state-issued medical marijuana card to use the drug for relief of leg pain he suffered. When he applied for the block operator position, he had to take a drug test, which came back positive. He had told the medical officer he might fail the drug test and had shown her his medical marijuana card, but it was too late. As per its policy, the company suspended him without pay and sent him to rehab, which it financed.

New Jersey's medical marijuana law specifically states that nothing in the act requires employers to accommodate the medical use of marijuana in any workplace. Nonetheless, Mr. Davis is suing the company for discrimination.

A review of 20 years of marijuana research confirms findings from other studies that driving after smoking marijuana doubles the risk of having a car crash.

How does marijuana affect driving?

A recent review of 20 years of marijuana research should send chills down the spines of employers with safety-sensitive jobs. This can be seen most clearly with employers whose businesses depend upon or involve driving. The review confirms findings from other studies that driving after smoking marijuana doubles the risk of having a car crash. (The risk increases substantially if the driver has also had a drink.)^{37, 38} Linked to neurological deficits, including the impairment of motor coordination and reaction time, marijuana use can increase the risk of road accidents in drivers who are under its influence.³⁹

Nationally, marijuana remains the second most cited drug after alcohol in car crashes. In a study of seriously injured drivers admitted to a level-one shock trauma center, more than a quarter tested positive for marijuana.⁴⁰ In California, drugged drivers are more prevalent on the roads than drunken drivers.⁴¹ Marijuana-related highway crashes increased 100 percent (to 319) between 2007 and 2012 in Colorado, where the legalization of medical and recreational marijuana has made the drug available to more people.⁴²

Driving with marijuana in one's system is a serious public-health and safety concern. The best course for employers required by federal law to maintain a drug-free workplace is a zero-tolerance policy.

Legalization advocates challenge drug-free workplace programs

Advocates claim that once medical marijuana is legal in a state, employees should be able to use it daily, even on the job.

Yet advocates are challenging the very precept of a drug-free workplace. Once they persuade a state to legalize marijuana, they insist that now that the drug is legal, employees should be able to use medical marijuana every day⁴³ and recreational marijuana off the clock throughout the week. A handful of well-funded national organizations are not just working to get rid of marijuana laws. They are also helping marijuana users file lawsuits to expand the right to use the drug before and after work, even in workplaces required by federal law to drug test employees in safety-sensitive positions.⁴⁴

Alaska proponents placed a provision in their 2014 recreational marijuana legalization initiative stating that employers would not have to accommodate marijuana. That was one of the main talking points they used to persuade voters to adopt the measure. But less than a week after the initiative passed, sponsors began expressing “concerns over workers being unfairly punished for using marijuana recreationally,” saying that “they [the sponsors] hope a dialogue can be started about how to protect workers’ freedoms outside of the workplace.”⁴⁵

How can employers ensure safety if they must show *impairment* rather than the presence of marijuana in the body?

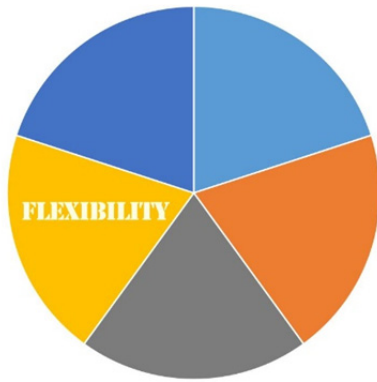
Proponents have put language in some state laws that require employers to demonstrate *impairment*,⁴⁶ rather than the presence of marijuana in one’s system, before taking action against the employee. Again, with no scientifically acceptable test available to determine when an employee is impaired by marijuana and no agreement on what level of THC in the blood denotes impairment, proponents are opening another battle in their war against drug testing, this one, at least at present, unwinnable from the employers’ perspective.

Commenting on proponents’ call for impairment as a deciding factor rather than a positive test, Robert DuPont, MD, says, “A positive workplace drug test for marijuana—whether as a pre-employment, for-cause, or random test—that identifies Carboxy-THC means that there is THC in the brain of the donor of that sample and is therefore a significant concern for the employer and for other employees.”⁴⁷

Challenges to drug-free workplace programs, if successful, will endanger all kinds of workers, thinkers as well as doers, who must be clearheaded on the job to avoid accidents or mistakes that can

hurt fellow workers and the general public. Construction industry workers, heavy equipment operators, utility company linemen and linewomen, nuclear power plant workers, security industry employees, accountants, stockbrokers, and a host of others face elevated risks to safety from fellow marijuana-impaired employees.

Until scientists determine what level of THC in the brain and body denotes impairment and invent a test to detect it, the solution for employers remains a positive drug test, ensuring abstinence.



Flexibility

Scenario

"Have you completed your application, sir?" asks Jenny, the person in charge of getting all job applications to the HR department. The small tech firm she works for is hiring a new administrative assistant.

"Yes, here it is," replies Bill. "Also, I'd like to ask, what are your policies on medical marijuana use, since, after all, we live in a state that has legalized it?"

"I'm not sure we have any policies. We don't drug test because we don't have any safety-sensitive positions. We don't get federal or other public dollars. I guess our policy is 'don't show up to work high!'" Jenny says half-casually.

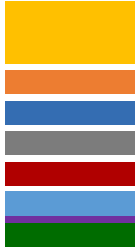
"Well, I have chronic headaches, and marijuana is what I like to use to get relief," Bill asserts. "But I never smoke it, so there is no public hazard. I also have excellent references from previous employers."

"Oh. Okay," says Jenny nervously. "Thanks for your application. We will get back to you later."

Bill leaves and Jenny takes the application to her bosses. She informs them of her conversation. The committee immediately dismisses Bill's application. "We can't hire a guy who wants to come to work with a marijuana brownie. That is not good for productivity or even safety in our small, cramped offices. Jenny, tell Bill thank you but we chose someone else."

Jenny calls Bill with the news. Clearly disappointed, Bill says, "This is because of my marijuana use, isn't it?" Jenny says she has no idea why his application was rejected.

"You'll be hearing from my lawyer. State law protects employees from discrimination based on medical marijuana use," says Bill angrily as he hangs up the phone.



Rhode Island's medical marijuana law specifically protects use in the workplace. Does that protection apply to job applicants as well?

Discussion

The importance of flexibility

One of the steepest challenges for organizations to overcome is the recruitment and retention of a talented, skilled workforce. Workplace flexibility should include provisions on the employer side (e.g. the ability to move employees around or adapt to changing conditions at minimal cost) and provisions on the employee side (e.g. the ability to take on new and interesting assignments or being able to work from home or other mobile environments). It can lead to higher levels of satisfaction among both employers and employees. And it can, in turn, lead to more satisfied customers, higher profits, and a better return for shareholders.⁴⁸

Marijuana seems to threaten this balance. As the scenario above describes, flexibility can be affected even before anyone is hired. And that scenario is not fiction. In Rhode Island, a woman is suing the Darlington Fabrics Corporation and its parent, the Moore Company, because they decided not to hire her after learning she was a medical marijuana user. Rhode Island's law specifically protects marijuana users in the workforce. This case challenges the bounds of that protection – are job applicants protected too?

The Washington DC City Council passed a bill to prohibit employers from drug-testing employees for marijuana before a conditional job offer has been made. Once the hiring has taken place, however, the employee must adhere to the employer's drug policy.

A costly legal battle lies ahead as that question gets sorted out. Because marijuana use threatens the safety of workers, as discussed in a previous section, flexibility is also affected.

Will employers still be able to shift employees to different jobs within the company?

For example, a company that rotates its employees from one job to another to give them an understanding of each job and what it takes for the company to be successful will no longer be able to provide such flexibility if case law determines that the use of medical marijuana is a protected status. Some jobs in almost every company are safety-sensitive to one degree or another, a factor that will greatly limit some employees' ability to experience all aspects of the business.

Will employees still be able to work from home?

Companies that enable employees to work at home will face the prospect of no longer being able to count on those employees' continuing to demonstrate the self-discipline it takes to produce excellent work from home. The challenges it takes to avoid distractions—some pleasant, some demanding—that working at home can generate will be exacerbated by the availability of legal medical and/or recreational marijuana in some states. Consider how much more difficult that self-discipline becomes if the employee decides to smoke a joint while working at home. Will he or she remain productive? Will his or her work even get done that day? Will marijuana sabotage the whole concept of this aspect of flexibility?



Compliance

Scenario

"Where is this truck going?" Bob asks. As the manager of a large online delivery fulfillment service, Bob oversees thousands of deliveries to all 50 states every day.

"This one is going to Rhode Island, with stops after in Massachusetts and Pennsylvania," replies Candace, who helps oversee dispatch.

"What is on the truck?" queries Bob.

"The manifest shows medical supplies, but we have a request now to add a pickup while we are in Massachusetts to deliver to Rhode Island," says Candace.

"Oh, what is it?" Bob asks.

"The largest medical marijuana supplier in Massachusetts has a delivery of 10,000 units of 'medical marijuana candies.' But don't worry. It is well within Massachusetts state law to transport this amount of marijuana for medical purposes. And the drop-off point is right over the border in another medical marijuana state, Rhode Island," replies Candace.

"Well, no, I don't think we can do that. We don't condone marijuana, and we don't even have procedures for this," says Bob nervously.

He is interrupted by a call from HR. One of his dispatchers is claiming that since marijuana is legal for medical purposes in the state she works and lives in, the company must allow her to use her "medicine" and ignore any THC-positive result on a random drug test.

"Okay. Stop the presses," Bob says. "We have a few problems we have absolutely no procedures for. We gotta take this higher up the chain before we act on any of this. Tell the new Massachusetts shipper we're sorry but we'll have to disappoint him for now. Meanwhile, I'm going to upper management to ask for a meeting with HR and Legal to draft some new procedures to cover this."



There is a potential scenario where one employee of a multi-state business would be allowed to work while holding a medical marijuana card while another employee of that same business in a different state would not be allowed to do so.

Discussion

How can employers with employees in multiple states comply with marijuana laws that differ from state to state and with federal law?

It is clear that employers should have a standard drug testing policy regardless of differing state laws. In *Seafreeze Cold Storage v. Teamsters Local No. 117*, a union employee who tested positive for marijuana after a random drug test was not terminated simply because there was no drug testing policy in place. Since the employee, then, could only be terminated for “just cause” and the employer could not prove impairment, the employee was not fired.

But this gets complicated when state laws differ on employee protections. In Connecticut, Maine, Rhode Island, and Illinois, for example, employers cannot terminate an employee simply for being a medical marijuana patient. So there is a potential scenario where one employee of a multi-state business would be allowed to work while holding a medical marijuana card while another employee of that same business in a different state would not be allowed to do so. And if the protected employee tests positive for marijuana, even more complications arise.

To what lengths do employers have to go to comply with marijuana-friendly laws vis-à-vis their employees?

A recent case out of Princeton University illustrates the complications here. New Jersey does not protect employees who want to use marijuana (medical or otherwise), and yet difficulties arose at Princeton when a staff member insisted on using marijuana on the job to treat an illness.

The employee informed his immediate supervisors that he would be participating in New Jersey’s medical marijuana program. They agreed to his plan, but a public safety official intervened. The employee returned to work and met with HR personnel who said they would have to work out “reasonable accommodations” for the employee to smoke marijuana. Later, it was found that the employee no longer worked at Princeton though details about why are not known. The university spent dozens of hours on the case, including dealing with the high-profile press that went along with the story and leaving open the question of what it will do the next time an employee brings the same problem.

What should employers do in the case that part of their business must comply with federal drug-free workplace laws and part of their business is located in a state with legal marijuana laws?

As discussed earlier, marijuana users are filing lawsuits to expand the right to use the drug before and after work, even in workplaces required by federal law to drug test employees in safety-sensitive positions. Now, challenges to drug-free workplaces are being mounted. But what happens when only part of the workplace is drug free and it is located in a marijuana-friendly state? Because this area is so new, no one really knows, but likely multiple policies need to be constructed for multiple different scenarios in one state—resulting in a compliance and administrative nightmare.



Problems Legalization Brings

Fully commercialized alcohol and tobacco already create problems for employers

How have employers addressed employee alcohol use?

And one-fifth of workers and managers across a wide range of industries and company sizes report that a coworker's drinking—on or off the job—jeopardized their own productivity and safety.

Workers with alcohol problems are nearly three times more likely than workers without drinking problems to have injury—related absences, according to the National Council on Alcoholism and Drug Dependence. Moreover, a hospital emergency department study shows that 35 percent of patients with an occupational injury were at-risk drinkers. Prevalence of alcohol at work is not low: breathalyzer tests detect alcohol in 16 percent of emergency room patients injured at work. And one-fifth of workers and managers across a wide range of industries and company sizes report that a coworker's drinking—on or off the job—jeopardized their productivity and safety. A Pfizer study finds that alcohol abuse results in \$6.1 billion in lost worker productivity.⁴⁹

Like marijuana, alcohol is impairing. It alters one's ability to concentrate and focus on tasks properly. Unlike marijuana, however, alcohol is out of one's system quickly. It metabolizes fast and is mainly absorbed in the stomach and small intestine.

Workplace alcohol policies have traditionally outlawed drinking on the job or coming to work impaired. Employee Assistance Programs monitor and support employees and/or members of their families who have alcohol problems.

Most evidence shows that alcohol impairment occurs at a level of about 0.03 percent, equal to two drinks per hour. These effects, of course, depend on the individual. A simple alcohol breath test allows us to know the immediate blood-alcohol content in a person's body, but no such test exists for marijuana (and, as noted earlier, because of complex differences between the two drugs, a scientifically accurate one is not likely to be developed in the near future).

How have employers addressed employee tobacco use?

Companies that have gone smoke free have reduced their risk of employee accidental injuries, fires, health insurance, and even their maintenance and cleaning costs.

Over 70 percent of indoor workers already enjoy the benefits of a smoke-free workplace, according to the Centers for Disease Control and Prevention. Since the general decline in tobacco use started in the 1980s, increasing numbers of employers have gone smoke free.

According to multiple studies, companies that have done so have reduced their risk of employee accidental injuries, fires, and even their maintenance and cleaning costs.⁵⁰ Health insurance costs also have declined.

On the other hand, employees have also won lawsuits against employers because of claimed harm due to second-hand smoke.⁵¹ Smoking cigarettes, however, is different from smoking marijuana or drinking alcohol. The main difference lies in impairment. Although more addictive than even heroin, tobacco does not cause the employee to lose motor skills or coordination.

Still, because of costs due to days of work missed, fires, and other accidents and the negative impact of second-hand smoke on nonsmokers, many employers have chosen to ban all smoking in the workplace. Some, like Turner Broadcasting and Emory University, for example, ban employees from smoking anywhere, even at home, because smokers' health insurance costs are so much higher than nonsmokers'.

Use as a result of legal status

Alcohol and tobacco kill about 80,000 (alcohol)⁵² and 480,000 (tobacco)⁵³ Americans each year, far more than the number of deaths related to illegal drugs. That is simply because so many more Americans (age 12 and older) use legal drugs regularly—about 52 percent alcohol and about 26 percent cigarettes—compared to only 7.5 percent of Americans who use marijuana.

According to the 2013 National Survey on Drug Use and Health, nearly twice as many young adolescents (ages 12-17) use alcohol as marijuana⁵⁴ as do three times as many older teens and young adults (ages 18-25). Of even more concern, twice as many *12 and 13-year-olds* use alcohol as marijuana. That's because alcohol and tobacco are so much more available. If California had fully legalized marijuana in 2010 and regulated it like alcohol, RAND researchers estimate the state would have had some 8,000 marijuana retail outlets. If regulated like tobacco? Some 38,000 marijuana stores.

Do tax revenues from legal drug sales cover what their use costs society?

Not by a long shot. The total social costs associated with these two drugs were \$223.5 billion for alcohol in 2006 (in terms of lost workplace productivity, health care expenses, and crimes related to

If California had fully legalized marijuana in 2010 and regulated it like alcohol, RAND researchers estimate the state would have had some 8,000 marijuana retail outlets. If regulated like tobacco? Some 38,000 marijuana stores.

excessive drinking) and \$289 billion for tobacco each year from 2009 to 2012 (in terms of direct medical care for adults and lost productivity from premature death).⁵⁵ These numbers far outweigh any tax revenue received from their sales: \$23.8 billion in state and local alcohol and tobacco taxes and \$24 billion in federal excise taxes for alcohol, tobacco, firearms, and ammunition collected in 2011.⁵⁶ *These costs are eleven times greater than all alcohol and tobacco tax revenue raised by federal and state governments combined.*

Costs of commercializing addictive drugs

To keep stockholders happy, businesses use profits to sell more of their products to generate even more money. Responsible business leaders exercise this power ethically, but if a business sells a product that is addictive and harmful, like alcohol and tobacco, ethics are often ignored. We discuss the practices of the alcohol and tobacco industries in order to examine the potential effects of the emerging commercial marijuana industry.

Marketing to vulnerable people

The tobacco and alcohol industries must not only strive to keep increasing their annual profits, as all industries do, but also must replace the customers their products kill with new customers every year. The alcohol industry needs about 80,000 new consumers each year. The tobacco industry needs 480,000! What is the most efficient way to do that? Target the less well educated. Target minorities. Target the addicted to keep them addicted. When considering all adult abstainers and drinkers, three-fourths of American adults consume only six percent of alcohol. Studies suggest that top five percent of drinkers account for 42 percent of the nation's total alcohol consumption.⁵⁷

Targeting the most vulnerable: children

But the most efficient way to expand the market and replace users who die prematurely is to target children, who are more vulnerable to becoming addicted the earlier they start drinking or smoking (or using other drugs). Teenagers who initiate use before age 14, for example, are *eight times* more likely to become addicted to alcohol, according to the National Survey on Drug Use and Health. According to that same survey, more than 80 percent of all adult smokers begin smoking before age 18 and more than 90 percent do so before

Teenagers who start drinking before age 14 are eight times more likely to become addicted.

More than 80 percent of adult smokers began smoking before age 18; 90 percent did so before leaving their teens.

Today, five of ten Americans who smoke their first cigarette are under age 18, while eight of ten who have their first drink are under age 21.

leaving their teens. When it comes to children, today's initiates are tomorrow's addicts—and lifetime customers.

There is much to be learned about how successful and skilled the alcohol and tobacco industries have become at marketing to children. First, these industries spend an incomprehensibly large amount of money on marketing and advertising. The alcohol industry spends about \$6 billion a year promoting its products.⁵⁸ The tobacco industry spent \$8.37 billion promoting its products in 2011.⁵⁹ Much of this marketing effort is directed at children with wildly successful results. Today, five of ten Americans who smoke their first cigarette are under age 18 while eight of ten who have their first drink are under age 21.⁶⁰

Fully commercialized marijuana will create similar problems for employers

Will a legal marijuana industry behave the same way the alcohol and tobacco industries behave?

The family of Bob Marley just announced it has sold the right to use his name for \$50 million to create the first “global” marijuana brand. In a video on the “Marley Natural” website, his daughter explains that they have done this “To realize more fully in the world the many benefits of cannabis for the mind, body, and spirit.”

It already does. Private holding groups and financiers have raised millions of start-up dollars to promote businesses that sell marijuana and marijuana-related merchandise.⁶¹ Marijuana cookies and candies are being marketed to children and are responsible for producing a growing number of marijuana-related visits to emergency departments by toddlers and preschoolers who eat them, thinking they are the real thing.⁶² Common children's candy and dessert products such as “Ring Pops” and “Pop Tarts” have inspired marijuana edibles with names such as “Ring Pots” and “Pot Tarts.” Marijuana legalization states contend with several profitable vending machines that contain products such as marijuana brownies.⁶³

The former head of strategy for Microsoft claims that he wants to “mint more millionaires than Microsoft” with marijuana by creating the “Starbucks of marijuana.”⁶⁴ Bob Marley's family just announced it has sold the right to use his name for \$50 million to create the first “global” marijuana brand. In a video on the [“Marley Natural” website](#), his daughter explains that they have done this, “to realize more fully in the world the many benefits of cannabis for the mind, body, and spirit.”⁶⁵

Vape pens, which are like e-cigarettes but contain capsules of concentrated marijuana oils, leave no marijuana smell and are impossible to tell apart from e-cigarettes.

New marijuana products of special concern to employers

Medical marijuana legalization brought forth a new phenomenon: the production of marijuana-infused foods and gadgets, which presents a special problem for employers. Today, nearly half of marijuana users in legalization states consume marijuana by eating rather than smoking it. In addition, vape pens, which are like e-cigarettes but contain capsules of concentrated marijuana oils, leave no marijuana smell and are impossible to tell apart from e-cigarettes. These two modes of consumption will make it more difficult, if not impossible, for employers to tell when employees are using marijuana on the job.

As marijuana use increases, so will workplace injuries, accidents, mistakes, and employee illnesses, escalating companies' liability, workers'-compensation, and health-insurance costs.

Early harbinger: impact of legalization in Colorado

Marijuana was legalized for recreational use in 2012 via voter referenda in two states, though sales did not start until January 1, 2014 in Colorado and July 1, 2014 in Washington. Because of the way surveys are conducted and evaluated, we will not know *until 2017* if full legalization increases use among adolescents, young adults, and older adults in these two states. See Appendix D for a full explanation of why this is so.

By 2011, Colorado had licensed more than 500 medical marijuana dispensaries. Nearly half were in Denver. That year, Denver's middle-school students' marijuana use was nearly double that of middle-school students in the rest of the state. Moreover, 61 percent of Denver's high-school seniors had tried the drug compared to 55 percent of seniors in the rest of the state and 49 percent of seniors nationwide.

Medical marijuana legalization

But there are already lessons to be learned from medical marijuana legalization in Colorado, which voters legalized in 2000. Sales did not start until the legislature legalized dispensaries in 2009. Then, state authorizations to grow and sell medical marijuana in dispensaries along with the federal "Ogden Memo"⁶⁶ ushered in an era of widespread marijuana commercialization with predictable results: car crashes tripled, youth accessed parents' or friends' medical marijuana, and adolescent use increased.

Effects on children in Denver v. rest of Colorado

We can see how the availability of medical marijuana drove use among middle-school and high-school students by comparing Denver students with those in the rest of the state. By 2011, nearly half of the state's 500-plus dispensaries were located in Denver. That year, Denver's middle-school students' lifetime marijuana use was nearly double that of middle-school students in the rest of

Colorado: 7 percent v. 4 percent for sixth graders, 15 percent v. 9 percent for seventh graders, and 28 percent v. 14 percent for eighth graders. Considerably more of Denver's high-school students followed a similar pattern, with 61 percent of Denver's seniors having used marijuana at least once compared to 55 percent of seniors in the rest of the state and 49 percent of seniors nationwide.⁶⁷ Given that as of August 1, 2014, Colorado had issued 461 marijuana business licenses in Denver and 577 throughout the rest of the state,⁶⁸ the forecast for underage marijuana use in a state that has completely commercialized the drug is grim, again with major implications for the emerging workforce.

Recreational marijuana: what do we know now, one year in?

Although it is too soon to tell, early indicators suggest the answer is that Colorado and Washington are in trouble. Evidence from these states show several things: 1) tax revenue is not reaching expectations, 2) the underground market appears to be thriving, as dealers can undercut the legal, taxed price as well as continue to sell to minors, 3) a marijuana industry has expanded—selling marijuana-infused foods and a myriad of other products, and 4) calls to poison centers in both states appear to be rising.

Quest Diagnostics reports positive drug tests for marijuana in the workplace are up 20 percent in Colorado and 23 percent in Washington.

Increased positive workplace drug tests

Of particular concern to employers, Quest Diagnostics reports workplace positive drug tests for marijuana to be up 20 percent and 23 percent in Colorado and Washington, respectively.⁶⁹ And employers are reporting more workplace incidents involving marijuana use in these two states.

Increased calls to poison control centers

Marijuana-related calls to Colorado poison centers have skyrocketed. As Al Bronstein, medical director of the Rocky Mountain Poison and Drug Center, recently told the Denver Post, "We're seeing hallucinations, they become sick to their stomachs, they throw up, they become dizzy and very anxious." Bronstein reported that in 2013, there were 126 calls concerning adverse reactions to marijuana. From January to April 2014 alone, the center received 65 calls.⁷⁰ From January through October 2014, the Washington Poison Center received 209 marijuana-related calls compared to a total of 148 such calls for all of 2013. One-fourth of the current-year calls involved toddlers, children ages one to three.⁷¹

The website Leafly promotes some 800 marijuana strains, tells browsers what diseases each one “treats,” offers maps showing where the strains can be bought, and runs a home-delivery service. The Denver Post offers a similar service via its marijuana website, The Cannabist.

A proliferation of advertising and marketing

Open a Colorado newspaper or magazine on your web browser (or look at the real thing) on any given day, and you will find pages of marijuana advertisements, coupons, and cartoons. Marijuana delivery services, Internet maps directing browsers to medical and recreational pot shops, and crowd-sourcing reviews of marijuana strains on websites like [Leafly](#) promote and deliver the drug to all who have a computer or cell phone. All make outrageous claims for marijuana’s medical utility that have no basis in science or medicine. The Denver Post’s marijuana website, [The Cannabist](#), offers a similar service with an interactive map showing where all pot shops, medical and recreational, are located in the state.

Increased problems with edibles

Marijuana edibles are foods that have been infused with highly concentrated THC (primarily responsible for the “high”) that has been leached out of the plant using highly inflammable solvents, such as Butane. For the first time, kids are bringing marijuana candies and vaporizers to school. Explosions involving Butane Hash Oil extraction, sometimes causing severe injuries, have increased, and at least two Colorado deaths have been attributed to ingesting marijuana “edibles.”

Increased overdoses among children and adults

Dr. Eric Lavonas, also from the Rocky Mountain Poison and Drug Center, said in 2014 that emergency rooms have seen a spike in psychotic reactions from people unaccustomed to high-potency marijuana sold legally, severe vomiting that some users experience, and children and adults having problems with edibles.⁷²

Tax revenues overestimated

And promised tax revenues are not materializing: in the first six months of legalization, Colorado raised only about one-third of even the most conservative projections (\$12 million instead of a projected \$33.5 million),⁷³ leaving the burden of regulatory enforcement and increased social costs of such a policy for taxpayers to bear. Consequently, promises made to persuade voters to approve the legalization ballot measure cannot be kept due to the shortfall of marijuana tax revenues.



What Can Employers Do?

Understand that nothing is written in stone with regard to marijuana legalization—yet

Most of the new marijuana legalization laws have not been tested. Employers are in for several years of legal challenges on many different fronts as legalization advocates attempt to assert heretofore prohibited “rights” in the workplace. An emerging marijuana industry will intensify such efforts, as it tries to expand the market to increase its profits.

To protect themselves, employers must keep abreast of changing laws and the changing marijuana landscape, as new marijuana products and services are developed that threaten workers, their families, and the public. A good place to start is National Families in Action’s [The Marijuana Report.Org](http://TheMarijuanaReport.Org), which tracks daily marijuana news nationwide and publishes [E-Highlights](#), featuring the top three to five stories posted to the website the previous week.

Remember that no matter how many states legalize some form of marijuana, the drug is still illegal under federal law.

Case law creating safe and drug-free workplaces that protect employers as well as employees and the general public has been developed over more than a quarter of a century. Unless Congress changes federal law, it will take many years to undo this case law. This gives employers time to bring their policies up to date while the legalization battles are fought on several fronts.

Take action to protect your workplace

Become aware of the safety risks associated with marijuana use, and develop strategies to control the risk. At some companies, the risks will be greater due to the nature of the work being performed. Employers whose workers operate motor vehicles or machinery and those who must rely on employees’ clear-headedness, coordination, and concentration could face an increased risk of injury or costly mistakes if their employees are under the influence of marijuana. Impaired workers who operate heavy machinery or handle hazardous materials could cause even more serious harm: they may be more likely to jeopardize the health and safety of coworkers and the public. Once risks are identified, employers are expected to minimize risk under the general duty of care requirements of the Occupational Safety and Health Administration (OSHA) Act.

To protect themselves, employers must keep abreast of changing laws and the changing marijuana landscape, as new marijuana products and services are developed that threaten workers, their families, and the public.

Be flexible and adapt your drug-free workplace policy to changing circumstances. Educate your workers. Consult local counsel before taking action if an employee violates your policy to make sure you are still on solid legal ground.

Make management decisions about how to handle the various scenarios described throughout this White Paper as well as new situations that will unfold in the future. Revise your drug-free workplace policy accordingly. Be flexible and adapt your policy to changing circumstances.

Train your managers about your new policy and subsequent changes you may have to make depending on the shifting marijuana landscape. Have your managers inform your workforce about each change, explain why each is necessary, and explain how each protects workers, their families, and the public.

Educate your workers about the marijuana issue to confront some of the bewildering misinformation that surrounds us all. Emphasize the health harms of marijuana in particular and encourage workers to educate their families so they can protect their children.

Consult local counsel before taking action if an employee violates your policy to make sure you are still on solid legal ground.

Take action with fellow employers to protect all workplaces

Share with fellow employers things you can do today to protect the workplace from marijuana. Here are a few quick ideas:

- Join your local or state Chamber of Commerce and advocate that the Chamber get involved in stopping legalization.
- Contact your local and state police and sheriffs' associations to learn what marijuana-prevention activities they are engaged in.
- Have your company join your state Smart Approaches to Marijuana (SAM) affiliate, now in 21 states and growing (www.learnaboutsam.org), in order to educate your workforce and community on marijuana's harms.
- Join your local community anti-drug coalition. A list of funded coalitions is available at the [White House Office of National Drug Control Policy](#).
- Assign someone in your company to monitor [The Marijuana Report.Org](#) and subscribe to [E-Highlights](#). Ask that person to

forward E-Highlights to other employees and/or conduct Lunch and Learn programs for them.

Ensure that any legislation being proposed in your headquarters state *does not contain* “users rights” clauses and *does contain* strong workplace guidelines barring the use of marijuana.

Challenge the assertion that marijuana is medicine

The fact that FDA has not approved a single marijuana medicine that 23 states allow entrepreneurs to sell means that patients have no guarantees marijuana is pure (the drug is renowned for containing contaminants, including mildew, mold, pesticides, and even pathogens, such as E. coli), safe, or effective.

The promise of marijuana’s use in medicine lies in the cannabinoids the plant contains. About 70 such chemicals have been identified thus far, and several, individually or in combination, may prove to be exciting medicines. See Endnote 2 for an explanation of the two already approved by FDA and others that are currently in FDA clinical trials. Other drugs derived from the marijuana plant will almost certainly be developed in the future.

But FDA-approved medicines that consist of a single cannabinoid, or a few in combination, are a far cry from the stuff being sold in medical marijuana states. No maker of any medical marijuana product in these states has subjected its “medicine” to the kind of rigorous testing FDA requires before it can be marketed to the public. Because of this, and because marijuana is illegal under federal law, doctors cannot prescribe medical marijuana. If they did, they could be charged with, and perhaps convicted of, the criminal offense of “writing script” and could lose their license to practice medicine.

So medical marijuana states provide for one of two options to get around this problem: 1) doctors can *recommend*—but not prescribe—medical marijuana for patients or 2) *certify* that a patient has a disease or condition that politicians—not pharmacologists—have decided marijuana will treat. Nor can pharmacies sell marijuana medicines, which has given rise to the phenomenon of “dispensaries” where “budtenders” (the equivalent of bartenders) rather than pharmacists dispense medical marijuana and “crowd sourcers” (users) rather than physicians determine which strains and dosages are effective treatments for various ailments.

FDA requires medicine makers to show a new drug is 1) pure through rigorous testing in FDA-certified laboratories, 2) safe for human use through testing first in animals, 3) safe for people to use by testing it in people who are healthy, and 4) effective by testing it in people with the disease the drug maker claims it will relieve or cure via random clinical trials. The fact that FDA has not approved a single marijuana medicine that 23 states allow entrepreneurs to sell

The question employers should be asking is: "Why should we be forced to pay for medical marijuana that FDA has not approved, doctors cannot prescribe, and pharmacies cannot sell?"

means that patients have no guarantees marijuana is pure (the drug is renowned for containing contaminants, including mildew, mold, pesticides, and even pathogens, such as E. coli), safe, or effective.

This issue is ripe for employers to take on.⁷⁴ Like medicines derived from opium, medicines derived from marijuana that FDA has approved should be added to health plan formularies and paid for by employers. But medical marijuana that states have legalized falls squarely in the domain of dietary supplements for which employers are not required to pay. The question employers should be asking is: *"Why should we be forced to pay for medical marijuana that FDA has not approved, doctors cannot prescribe, and pharmacies cannot sell?"*



Conclusion

This White Paper calls attention to the challenges that legal marijuana, whether for medical or recreational use, are bringing to employers. If more states legalize the drug, even more problems will arise for employers.

Companies have an opportunity to act now to protect their own workplaces and to help others protect theirs. This is important not only for the sake of having a capable, clearheaded current workforce unhampered by being under the influence of marijuana but also for having a future workforce undamaged by persistent marijuana use during adolescence.

A big challenge lies before us all to contemplate and perhaps act on. That challenge is to educate the general public—business leaders, employers, parents, children, teachers, civic organizations, politicians, and others—about the danger of increasing the availability and commercialization of marijuana in more states. We must reverse course before advocates launch a commercial marijuana industry nationwide if we are to maintain our ability to compete in the global marketplace.

The first step is to recognize the very real threat marijuana legalization, in and of itself, poses to children, families, the workplace, and the nation. National Families in Action and Smart Approaches to Marijuana believe a broad middle road exists between the extremes of incarceration and legalization. Charting that middle road is where our national marijuana policy should be heading.

As we go to press, it has been announced that George Soros, one of the men responsible for financing the marijuana legalization movement with an estimated \$62.5 million, has awarded a \$50 million grant to the American Civil Liberties Union to begin the task of legalizing *all* illegal drugs,⁷⁵ establishing “safe-injection sites,” and moving the United States from a drug-free nation to a harm-reduction nation. As practiced in some European countries, harm reduction accommodates rather than ends addiction, with managed use rather than medication-assisted abstinence as the end goal of treatment. Ironically, harm reduction in those countries also results in citizens becoming dependent not only on drugs but also on the state for their very livelihood. Employers cannot act fast enough to help prevent this from happening in the United States.

Companies have an opportunity to protect their own workplaces and help others protect theirs as well.

We must reverse course before advocates launch a commercial marijuana industry nationwide if we are to maintain our ability to compete in the global marketplace.

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¹ The specific wording of the question is, "During the past 30 days, that is from [DATEFILL] up to and including today, how many whole days of work did you miss because you just didn't want to be there."

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Appendix A

About This Paper

About National Families in Action

National Families in Action was founded in 1977. It helped lead a national parent movement that reduced illicit drug use by two-thirds among adolescents and young adults from 1979 to 1992. Its mission is to educate the public about the science that underlies addictive drugs and prevent their industries from targeting children.

About Smart Approaches to Marijuana

Project SAM is a nonpartisan alliance of lawmakers, scientists, and other concerned citizens who want to move beyond simplistic discussions of “incarceration versus legalization” when discussing marijuana use and instead focus on practical changes in marijuana policy that neither demonizes users nor legalizes the drug.

About Our Advisors

The following experts met at United Parcel Service World Headquarters in Atlanta, Georgia on July 2, 2014 to map out the elements of this White Paper. An additional expert, Robert DuPont, MD, provided advice as well.

William Carter

Chairman of the Board
National Families in Action
Atlanta, Georgia

Mr. Carter is a realtor with Berkshire Hathaway HomeServices Georgia Properties.

Jon Caulkins, PhD

Steuer Professor of Operations Research and Public Policy
Carnegie Mellon University Heinz College
Pittsburgh, Pennsylvania

Dr. Caulkins took leaves of absences from teaching to serve as co-director of RAND’s drug policy research center (1994-1996) and found RAND’s Pittsburgh office (1999-2001).

Robert DuPont, MD

President and Founder
The Institute for Behavior and Health, Inc.
Rockville, Maryland

Dr. DuPont served the nation as the first director of the National Institute on Drug Abuse from 1973 to 1978. Afterward, he founded the Institute for Behavior and Health, which identifies, develops, evaluates, and promotes new ideas for the prevention of drug abuse.

Kristen Fox

Alston & Bird LLP
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Ms. Fox is an associate in the firm’s Labor & Employment Group.

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Mr. Patton is a partner in the firm’s Labor & Employment Group. He represents management in all areas of employment-related litigation, including employment discrimination claims, wage/hour litigation, and restrictive covenant disputes.

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Mr. Nelson is Senior Advisor to National Families in Action. He currently chairs the board of trustees of the Carter Center, founded by President and Mrs. Carter, and is past chairman of the Centers For Disease Control Foundation and the Annie E. Casey Foundation.

served in the White House Office of National Drug Control Policy under Presidents Clinton, Bush, and Obama.

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In addition to leading the Council, Mr. Wade also serves as state director of Drugs Don't Work in Georgia.

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National Families in Action thanks Jake Kim for proofreading this White Paper.

Appendix B: Compendium of State Medical Marijuana Laws

As of 10/21/2014

	State	Year Legalized	Relevant Laws and Regulations	Statutory Employment Protections*	Links to Legislation
1.	Alaska	1998	Alaska Stat. § 17.37.010 et seq.	<ul style="list-style-type: none"> Expressly does not require accommodation of any medical use of marijuana in any place of employment 	http://www.legis.state.ak.us/basis/foliopr oxy.asp?url=http://www.legis.state.ak.us/cgi-bin/folioisa.dll/stattx08/query=*/doc/%7Bt8170%7D?
2	Arizona	2010	Arizona Medical Marijuana Act, codified at Ariz. Rev. Stat. Chapter 36-28.1; HB 2541	<ul style="list-style-type: none"> Prohibits employment discrimination based on (1) person's status as registered medical marijuana user and/or (2) registered user's failed drug test. Allows discipline based on use, possession, or impairment while on premises or on the clock Employer may not be penalized under state law for employing a cardholder 	http://www.azdhs.gov/medicalmarijuana/rules/
3.	California	1996	Compassionate Use Act, codified at Cal. Health and Safety Code § 11362.5	<ul style="list-style-type: none"> California Supreme Court has held that medical marijuana users are not protected from discipline by their employer for failed drug test 	http://www.cdph.ca.gov/programs/MMP/Pages/CompassionateUseact.aspx
4.	Colorado	2000	Colo. Const. Art. XVIII Sec. 14; Colo. Rev. Stat. §§ 12-43.3-101, 18-18-406.3, 25-1.5-106 et seq.; 5 CCR 1006-2		http://www.colorado.gov/cs/Satellite/CD PHE-CHEIS/CBON/1251593017076
5.	Connecticut	2012	Conn. Gen. Stat. § 21a-408 et seq.; Dept. of Consumer Protection Reg. § 21a-408-1 et seq.	<ul style="list-style-type: none"> Prohibits employment discrimination based on person's status as registered medical marijuana user Allows discipline based on use or impairment on the clock 	http://www.cga.ct.gov/current/pub/chap_420f.htm

	State	Year Legalized	Relevant Laws and Regulations	Statutory Employment Protections*	Links to Legislation
6.	Delaware	2011	The Delaware Medical Marijuana Act, codified at 16 Del. Code Chapter 49A § 4901A et seq.	<ul style="list-style-type: none"> Prohibits employment discrimination based on (1) persons status as registered medical marijuana user and/or (2) registered user's failed drug test. Allows discipline based on use, possession, or impairment while on premises or on the clock 	http://delcode.delaware.gov/title16/c049a/index.shtml
7.	District of Columbia	2010	Legalization of Marijuana for Medical Treatment Amendment Act, codified at D.C. Code § 7-1671.13 et seq.		http://doh.dc.gov/node/823012
8.	Hawaii	2000	Haw. Rev. Stat. § 329-121 et seq.; HAR Chapter 23-202	<ul style="list-style-type: none"> Authorization for the medical use of marijuana expressly does not apply to the use in the workplace 	http://hawaii.gov/dcca/pvl/hrs/hrs_pvl_329.pdf http://dps.hawaii.gov/wp-content/uploads/2012/09/Chapter-23-202.pdf
9.	Illinois	2013	Cannabis Control Act, codified at 720 ILCS 550 et seq.; Compassionate Use of Medical Cannabis Pilot Program Act, codified at 410 ILCS 130	<ul style="list-style-type: none"> Prohibits employment discrimination based on persons status as registered medical marijuana user Allows discipline based on employer's good-faith belief that registered user used or possessed marijuana while on the employer's premises or on the clock Determination that a medical marijuana user is impaired at work must be based on manifestation of specific articulable symptoms Employer may not be penalized under state law for employing a cardholder Employer permitted to adopt reasonable regulation concerning consumption, storage, or timekeeping requirements for registered users Employer permitted to enforce a zero-tolerance or drug-free workplace policy provided it is applied in a nondiscriminatory manner 	http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3503&ChapterID=35 http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1937&ChapterID=53

	State	Year Legalized	Relevant Laws and Regulations	Statutory Employment Protections*	Links to Legislation
10.	Maine	1999	Maine Medical Use of Marijuana Act, codified at Me. Rev. Stat. Ann. Tit 22 § 2421 et seq.; 10-144 C.M.R. Chapt. 122		http://www.mainelegislature.org/legis/statutes/22/title22ch558-Csec0.html http://www.maine.gov/dhhs/dlrs/rulemaking/adopted.shtml#anchor602745
11.	Maryland	2014	Maryland Ann. Code § 13-3301 et seq.		http://mgaleg.maryland.gov/webmgaf/mStatutesText.aspx?article=ghg&section=13-3301&ext=html&session=2014RS&tab=subject5
12.	Massachusetts	2012	Mass. Session Laws Chapter 369 § 1 et seq.		https://malegislature.gov/Laws/SessionLaws/Acts/2012/Chapter369
13.	Michigan	2008	Michigan Medical Marihuana Act, codified at MCL § 333.26421 et seq.; Dept. of Licensing and Regulatory Affairs Rule 333.101 et seq.		http://www.legislature.mi.gov/(S(t50xmoro3gkzdjfbhytxtpif))/mileg.aspx?page=getObject&objectName=mcl-Initiated-Law-1-of-2008 http://www7.dleg.state.mi.us/orr/Files/AdminCode/1303_2013-105LR_AdminCode.pdf
14.	Minnesota	2014	Minn. Stat. § 13.3806	<ul style="list-style-type: none"> Prohibits employment discrimination based on (1) persons status as registered medical marijuana user and/or (2) registered user's failed drug test. Allows discipline based on use, possession, or impairment while on premises or on the clock 	https://www.revisor.mn.gov/bills/text.php?number=SF1641&version=0&session=ls88&session_year=2013&session_number=0
15.	Montana	2004	Montana Marijuana Act, codified at MCA § 50-46-301 et seq.	<ul style="list-style-type: none"> Expressly does not require employer to accommodate the use of marijuana by a registered cardholder Expressly does not prohibit an employer from including in any contract a provision prohibiting the use of marijuana for a debilitating medical condition Expressly does not permit a cause of action against an employer for wrongful discharge or discrimination based on medical marijuana use 	http://leg.mt.gov/bills/mca_toc/50_46_3.htm

	State	Year Legalized	Relevant Laws and Regulations	Statutory Employment Protections*	Links to Legislation
	Montana, cont.			<ul style="list-style-type: none"> Montana Supreme Court has held that medical marijuana users are not protected from discipline by their employer for failed drug test 	
16.	Nevada	2000	Nev. Const. Art. 4, Sec. 38; Nev. Rev. Stat. 453A; NAC 453A	<ul style="list-style-type: none"> Requires the employer to attempt to make reasonable accommodations for the medical needs of an employee who engages in the medical use of marijuana provided that such accommodations would not: (1) pose a threat of harm or danger, (2) impose undue hardship on the employer, or (3) prohibit the employee from fulfilling any and all of his job responsibilities Does not require an employer to allow medical use of marijuana in the workplace 	http://leg.state.nv.us/NRS/NRS-453A.html http://leg.state.nv.us/NAC/NAC-453A.html
17.	New Hampshire	2013	HB 573	<ul style="list-style-type: none"> Allows possession and/or use at work with written permission of employer Allows discipline based on ingesting on the premises or working under the influence 	http://www.gencourt.state.nh.us/legislation/2013/hb0573.html
18.	New Jersey	2010	New Jersey Compassionate Use Medical Marijuana Act, codified at N.J. Stat. Ann. C.24:6I et seq.; N.J.A.C. 8:64	<ul style="list-style-type: none"> Does not require an employer to accommodate medical use of marijuana in the workplace 	http://www.njleg.state.nj.us/2008/Bills/P_L09/307_.HTM http://www.state.nj.us/health/medicalmarijuana/documents/mm_rules.pdf
19.	New Mexico	2007	N.M. Stat. Ann. § 26-2B-1 et seq.; 7.34.2 NMAC; 7.34.3 NMAC	<ul style="list-style-type: none"> Expressly does not relieve medical marijuana user from criminal prosecution or civil penalty for possession, distribution, or use in the workplace 	http://www.nmcpr.state.nm.us/nmac/parts/title07/07.034.0002.pdf http://www.nmcpr.state.nm.us/nmac/parts/title07/07.034.0003.pdf
20.	New York	2014	Compassionate Care Act, A6357	<ul style="list-style-type: none"> Expressly provides that certified medical marijuana users are deemed to have a disability under NY Human Rights Law Allows discipline based on possession or impairment while on premises or on the clock 	http://assembly.state.ny.us/leg/?default_fld=&bn=A06357&term=2013&Summary=Y&Actions=Y&Votes=Y&Memo=Y&Text=Y

	State	Year Legalized	Relevant Laws and Regulations	Statutory Employment Protections*	Links to Legislation
21.	Oregon	1998	Oregon Medical Marijuana Act, codified at Or. Rev. Stat. § 475.300; OAR 333-008-0000	<ul style="list-style-type: none"> Does not require an employer to accommodate medical use of marijuana in the workplace Oregon Supreme Court has held that medical marijuana users are not protected from discipline by their employer for failed drug test 	http://public.health.oregon.gov/Diseases/Conditions/ChronicDisease/MedicalMarijuanaProgram/Documents/statutes.pdf
22.	Rhode Island	2006	Medical Marijuana Act, codified at R.I. Gen. Laws Chapter 21-28.6; R21-28.6-MMP(5923)	<ul style="list-style-type: none"> Prohibits employment discrimination based on persons status as registered medical marijuana user Does not require an employer to accommodate medical use of marijuana in the workplace 	http://webserver.rilin.state.ri.us/Statutes/TITLE21/21-28.6/INDEX.HTM http://sos.ri.gov/documents/archives/regdocs/released/pdf/DOH/5923.pdf
23.	Vermont	2004	Vt. Stat. Ann. Tit. 18 § 4472 et seq.	<ul style="list-style-type: none"> Expressly does not exempt medical marijuana users from arrest or prosecution for use or possession of marijuana in the workplace 	http://www.leg.state.vt.us/statutes/fullchapter.cfm?Title=18&Chapter=086
24.	Washington	1998	Wash. Rev. Code § 69.51A.010 et seq.; WAC 246-75-010	<ul style="list-style-type: none"> Does not require an employer to accommodate on-site medical use of cannabis in the workplace Does not require an accommodation for medical use of cannabis if an employer has a drug-free workplace Washington Supreme Court has held that medical marijuana users are not protected from discipline by their employers for failed drug test 	http://apps.leg.wa.gov/rcw/default.aspx?cite=69.51a&full=true http://apps.leg.wa.gov/wac/default.aspx?dispo=true&cite=246

This chart is not intended as a substitute for legal advice. The employment protections outlined herein are paraphrased from the express language of the respective state's statutes and regulations and have not been supplemented by applicable case law, if any. Many of these laws have only been enacted within the last few years, and thus the parameters and strength of employment protections have not yet been fleshed out through litigation. Please note that this is a developing area of the law and requires state-specific legal knowledge. As such, consult legal counsel when dealing with employment issues related to marijuana and medical marijuana.

Appendix C

Other Negative Effects of Marijuana on Health

In addition to the health effects described throughout this paper, marijuana causes other health problems as well.

Marijuana contains about 500 components, most of which we know little about. The most prominent is delta-9-tetrahydrocannabinol (THC), the component primarily responsible for the “high” users experience. In today’s street marijuana, which is usually smoked, producers have increased THC levels more than fourfold¹ in the last twenty years and reduced levels of other components that mitigate the high. Higher THC content can increase the addictive potential and all of the other negative effects of the drug.^{2, 3}

The medical marijuana industry has created a number of ways to elevate marijuana THC levels. No longer are “joints” made of “Woodstock weed” containing 2 to 3 percent THC passed around to share with others at a party. Today, people can buy marijuana concentrates that contain more than 90 percent THC. These concentrates are infused into candies, cookies, and other foods or substituted for nicotine capsules and smoked in e-cigarettes.

Brain

Marijuana use directly affects the brain, specifically the parts of the brain responsible for memory, learning, attention, and reaction time.⁴ One of the most well-designed studies on marijuana and intelligence, released in 2012, found that heavy, persistent marijuana use reduces IQ by an average of eight points by age 38 among people who used marijuana persistently before age 18 and continued use.⁵

Mental Illness

Marijuana use has been shown to be significantly linked with mental illness, especially schizophrenia and psychosis, depression, and anxiety.⁶

Heart

Marijuana use can cause an increase in the risk of a heart attack more than fourfold in the hour after use and provokes chest pain in patients with heart disease.⁷

Lungs

Research has shown that marijuana smoke contains carcinogens and is an irritant to the lungs, resulting in greater prevalence of bronchitis, cough, and phlegm production.⁸ Scientists have not found a definitive marijuana-lung cancer link.

Fetal Effects

Marijuana smoking during pregnancy has been shown to decrease birth weight, most likely due to the effects of carbon monoxide on the developing fetus.⁹

Addiction

Despite popular myth, marijuana use can be addictive. Nine percent of adults who use marijuana will become addicted to the drug. The number goes up to about one in six in those who try marijuana at age 16 and 25-50 percent among daily marijuana users.

School

A number of studies have found that people who use marijuana are more likely to drop out of school and subsequently face unemployment, be dependent on social welfare, and experience a lower self-reported quality of life than those who do not use marijuana.¹⁰

Youth with poor academic results were more than four times as likely to have used marijuana in the past year as youth with average or higher grades.^{11,12}

Social Trajectory

Research has found that marijuana negatively affects attention, memory, and learning even after the short-term consequences of the drug recede.¹³ Marijuana use is linked with dropping out of school, subsequent unemployment, social welfare dependence, and an overall feeling of inferior life satisfaction compared to non-marijuana-using teens.

Interpersonal Relationships

Marijuana users often have strained interpersonal relationships. In a longitudinal study, after controlling for confounding variables, young adults showed a dose-dependent relationship between life satisfaction and marijuana use. Higher levels of marijuana use were associated with lower satisfaction with intimate romantic relationships and life in general, including work, family, friends, and leisure pursuits.¹⁴

¹ Data obtained from the University of Mississippi Marijuana Potency Project and Mehmedic, Z. et al., Potency Trends of D9-THC and Other Cannabinoids in Confiscated Marijuana Preparations from 1993 to 2008. *J Forensic Sci*, September 2010, Vol. 55, No. 5.

² Hall W & Degenhard L (2009). Adverse health effects of non-medical marijuana use. *Lancet*, 374:1383-1391.

³ NIDA, *Research Report Series: Marijuana Abuse*, 2010

⁴ Hall W & Degenhard L (2009). Adverse health effects of non-medical marijuana use. *Lancet*, 374:1383-1391.

⁵ Meier et al. (2012). Persistent marijuana users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences*.

⁶ See, for example: Moore TH, Zammit S, Lingford-Hughes A, et al. Marijuana use and risk of psychotic or affective mental health outcomes: A systematic review. *Lancet* 370(9584):319–328, 2007. Also Large, M., Sharma S, Compton M., Slade, T. & O., N. (2011). Marijuana use and earlier onset of psychosis: a systematic meta-analysis. *Archives of General Psychiatry*. 68. Also see Arseneault L, et al. (2002). Marijuana use in adolescence and risk for adult psychosis: longitudinal prospective study. *British Medical Journal*. 325, 1212-1213.

⁷ Hall W & Degenhard L (2009). Adverse health effects of non-medical marijuana use. *Lancet*, 374:1383-1391.

⁸ Tetrault, J.M., et al. Effects of marijuana smoking on pulmonary function and respiratory complications: a systematic review. *Arch Intern Med* 167, 221-228 (2007).

⁹ Hall W & Degenhard L (2009). Adverse health effects of non-medical marijuana use. *Lancet*, 374:1383-1391.

¹⁰ Fergusson, D. M. and Boden, J. M. (2008), Marijuana use and later life outcomes. *Addiction*, 103: 969–976.

¹¹ Macleod, J.; Oakes, R.; Copello, A.; Crome, I.; Egger, M.; Hickman, M.; Oppenkowski, T.; Stokes-Lampard, H.; and Davey Smith, G. Psychological and social sequelae of marijuana and other illicit drug use by young people: A systematic review of longitudinal, general population studies. *Lancet* 363(9421):1579-1588, 2004.

¹² Ellickson, P.L.; Martino, S.C.; and Collins, R.L. Marijuana use from adolescence to young adulthood: Multiple developmental trajectories and their associated outcomes. *Health Psychology* 23(3):299-307, 2004.

¹³ Schweinsburg, A.D.; Brown, S.A.; and Tapert, S.F. The influence of cannabis use on neurocognitive functioning in adolescents. *Curr Drug Abuse Rev* 1(1):99-111, 2008.

¹⁴ Fergusson, DM, & Boden, JM. (2008). Cannabis use and later life outcomes. *Addiction*, 103:969-976.

Appendix D

Why We Won't Know Until 2017 If Legal Recreational Marijuana Increases Use

Of the three national surveys that track alcohol, tobacco, and illicit drug use, only one questions children and adults age 12 and older. That survey, the National Survey on Drug Use and Health, combines the most recent two years of data to be able to provide by state. While Colorado and Washington fully legalized marijuana in the November 2012 elections, each had time to develop regulations before implementing the new policy. Colorado implemented full recreational legalization in 2014 when the first marijuana stores opened for business on January 1. Washington has had a much slower rollout, with the first pot shops opening only in July 2014.

However, as the table below illustrates, we will not have actual data until 2016 for children and adolescents and 2017 for young adults and older adults to tell us if marijuana use has increased as a result of full legalization.

A second national annual survey, Monitoring the Future, which surveys 8th, 10th, and 12th grade students, does not break down data by state.

A third, the Health Risk Behavior Survey, provides data about high-school students by state but only every two years in odd years. However, neither Colorado nor Washington participates in this survey. Instead, the two states conduct their own.

Colorado queries middle-school children as well as high-school children but released its statewide data for 2013 only in September 2014 and has not released all of its much anticipated regional data within the state yet. We will have to wait to see how Colorado's children and adolescents are doing as a result of full legalization until the close of 2015.

**Table 1. When we will first know
if recreational legalization increases marijuana use**

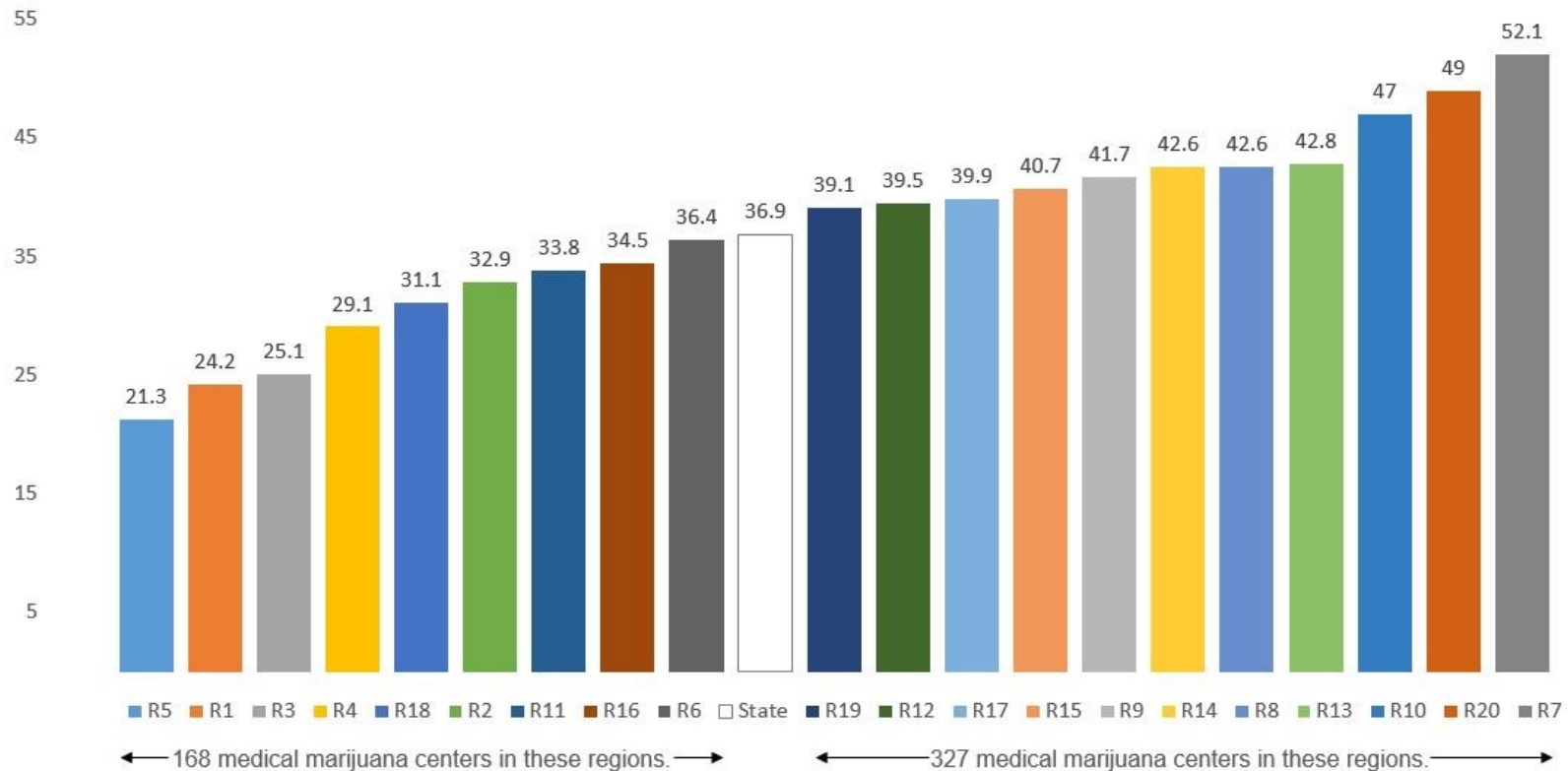
National Survey on Drug Use and Health Substance Abuse and Mental Health Services Administration (SAMHSA) (Annual Survey) Lifetime, past year, past month, and daily use of marijuana and other drugs among ages 12-17, 18-25, and 26 or older			
In 2014:	In 2015:	In 2016:	In 2017:
2013 State estimates combine data from	2014 State estimates combine data from	2015 State estimates combine data from	2016 State estimates combine data from
2012 survey	2013 survey	2014 survey	2015 survey
2011 survey	2012 survey	2013 survey	2014 survey
Monitoring the Future Survey National Institute on Drug Abuse (NIDA) (Annual Survey) Lifetime, past year, past month, and daily use of marijuana and other drugs among 8 th , 10 th , and 12 th grade students			
In 2014:	In 2015:	In 2016:	In 2017:
2014 Survey National data only	2015 Survey National data only	2016 Survey National data only	2017 Survey National data only
Youth Health Behavior Surveillance System Centers for Disease Control and Prevention (CDC) (Every other year in odd years) Lifetime, past year, past month, and daily use of marijuana and other drugs and other risk behaviors among 9 th -12 th grade students			
In 2014:	In 2015:	In 2016:	In 2017:
2013 Survey Some state data; not CO or WA	No survey	2015 Survey Some state data; not CO or WA	No survey
Healthy Kids Colorado Survey Colorado Departments of Education, Behavioral Health, and Public Health (Every other year in odd years) Lifetime, past year, past month, and daily use of marijuana and other drugs and other risk behaviors among 6 th -12 th grade students			
In 2014:	In 2015:	In 2016:	In 2017:
2013 Survey CO statewide & regional data	No survey	2015 Survey CO statewide & regional data	No survey
Washington State Healthy Youth Survey Many State Departments (Every other year in even years) Lifetime, past year, past month, and daily use of marijuana and other drugs among 6 th , 8 th , 10 th , and 12 th grade students			
In 2014:	In 2015:	In 2016:	In 2017:
2012 Survey Statewide only	No survey	2014 Survey Statewide only	No survey

Appendix E

Colorado High School Students' Lifetime Marijuana Use, 2013

With few exceptions, regions with lowest rates of use have fewest medical marijuana centers (total 168).

Regions with highest rates of use have most medical marijuana centers (total 327).



Sources: 2013 Colorado Healthy Kids Survey; Colorado Department of Revenue, MED Licensed Medical Marijuana Centers.

The more medical marijuana dispensaries, the more adolescent marijuana users.

Colorado legalized medical marijuana in 2000 but only legalized cultivation and dispensaries in 2009, giving rise to an explosion of dispensaries in some areas of the state. Colorado legalized recreational marijuana in 2012, but no recreational pot shops opened until January 1, 2014.

In 2013, Colorado initiated the Colorado Healthy

Kids Survey of some 40,000 middle and high school students. It divided the state into 21 regions, releasing data for the state in September 2014 and for the regions quite a bit later. Nationwide press coverage proclaimed that one year after legalization, Colorado high school students' marijuana use (36.9%) was lower than the national average (40.7%).

But that wasn't the whole story, illustrated above.

Use is higher than the national average in some regions, lower in others. Why?

There are nearly twice as many dispensaries in regions where use is higher, and that's *before* recreational pot shops opened for business. What will the 2014 Colorado Healthy Kids Survey show?



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December 15, 2014

Sue Rusche
President and CEO
National Families in Action, Inc.
P.O. Box 133136
Atlanta, Georgia 30333-3136

Dear Ms. Rusche:

The American Association of Occupational Health Nurses (AAOHN) is happy to support the National Families in Action (NFIA) in its publication of the white paper: What Will Legal Marijuana Cost Employers? Dr. Phillips has kept us informed of your progress on the paper thus far. We have reviewed it and are excited that it has been written by a stellar team, is well researched, and most importantly - is easy to read. It will be an asset to our members who are in the position of educating employers about safety in addition to helping them understand the legislation, what they must do to comply with laws, and how to accommodate employees and ensure worker productivity.

When NFIA completes its press release, we plan to send an email to our members with a link to the publication. We will also put notice in our News gadget on the home page of www.aaohn.org, and we will add your website with a link to the paper to our Trusted External Website Links.

Please continue to allow Dr. Phillips to be our AAOHN representative to your organization and let her know if we can do anything additional to show our support. You have permission to publish our name and address on your website and in hard copy of this publication.

Sincerely,

A handwritten signature in black ink that reads 'Pam Carter'.

Pam Carter, MSN, RN, COHN-S, FAAOHN
President, American Association of Occupational Health Nurses
7794 Grow Drive
Pensacola, FL 32514

A handwritten signature in black ink that reads 'Kay Campbell'.

Kay Campbell, EdD, RN-C, COHN-S, FAAOHN
Executive Director, American Association of Occupational Health Nurses
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Studies of Gateway Drugs Have Been Done Throughout Generations of Adolescents

Gerald M Aronoff, MD, DABPM

Recent studies performed in conjunction with the National Institutes of Health found that prescription stimulants primarily for Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder were the "NEW" gateway to drug abuse for many youths. The studies reported that these prescriptions led to the early onset of abuse of medication.¹ In my experience as a Chronic Pain physician, I have found that upon taking a detailed history of patients with addiction and chronic pain, the early² abuse of stimulants is often discovered. The abuse of stimulants is widespread and deserves our attention as medical providers.

Thirty-six countries were studied regarding the abuse of stimulants and it was found that the gateway choice of drugs-- in high-school students--second to the use of marijuana was that of popularly prescribed amphetamines / methylphenidate.³ The World Report of 2010⁴ found that in various high-income countries over 1 percent of the population surveyed reported the use of stimulants. North America, South America, and southern Africa were the highest reported areas

¹Wu L, Pilowsky DJ, Schelenger WE, Galvin DM. Misuse of methamphetamine and prescription stimulants among youths and young adults in the community. *Drug Alcohol Depend.* 2007 July 10; 89(2-3): 195–205

²Bartelson BB, Bailey, Lowenstein S, et al. Characterization of adolescent prescription drug abuse and misuse using the Research and Abuse Addiction-Related Surveillance (RADARS). *J Am Acad Child Adolesc Psychiatry* 2013; 52(2):196–2.

³Smart RG, Ogborne AC. Drug use and drinking among students in 36 countries. *Addict Behav* 2000;25:455–460.

⁴United Nations, Report of the International Narcotics Control Board for 2008, retrieved from. www.incb.org/incb/annual-report-2008.html, January 12, 2010. last accessed June 18, 2014.

of the misuse of such stimulants. As physicians, we need to ask ourselves if these reports indicate the prescribing of stimulants without considering the patient-reported epidemiology of attention deficits.

Sweeny and Sembower et al, reported 9.5 percent of children ages 4-17 in the United States as having been diagnosed with attention deficit disorders. In their study, the significance of prescribing both methylphenidate and or amphetamines presents risk of abuse just as much as other Central Nervous System (CNS) medications.⁵How well are we as physicians assessing the actual need for such medications? A 2013 study of college students may imply a lack of discernment on the part of physicians. Multiple studies reported an estimate of up to 35 percent of individuals abusing the stimulants; indicating that the risk of abuse between the ages of 18-26 years of age is greater than those between the ages of 12-17 and that of the general adult population.⁵The National Survey on Drug Use and Health (NSDUH) has reported the increased occurrence of marijuana abuse and prescription opiate abuse in individuals who use stimulants. The correlation between such abuse is one of much concern as the chances of such individuals abusing at least three substances is alarming according to the earlier mentioned study conducted by Wu et al.¹

A study of patients I treated between 2008-2013 with opioid abuse disorder revealed an estimated 26 percent reported the diagnosis of ADHD in youth. During follow-up visits with these patients, I found that acknowledged having manipulated their physicians in order to receive ADHD medications. When I ask them how they manipulated their physicians, invariably I find that they have researched the complaints of symptoms online and falsely reported these symptoms. Others have reported taking these medications from siblings, friends or other sources.

⁵Sweeney C, Sembower MA, Ertischek MD, et al. Nonmedical use of prescription ADHD stimulants and preexisting patterns of drug abuse. *Journal of Addictive Diseases*, 32:1–10, 2013

Some report that in order to receive their own prescriptions, they have asked their pill sources how to report attention deficit symptoms to their physicians. Upon further history taking, I try to uncover whether or not they themselves believe that they have attention deficit disorders and 9 times out of 10, they admit to not having any of these symptoms.

Sollman, Ramsey and Berry's report of feigned symptoms of ADHD among young adults highlighted the import of physicians' responsibility in this epidemic. The responsibility of performing proper examinations before making a diagnosis of ADHD is that of the clinician and not the patient.⁶ Physicians need to avail themselves of the psychological assessment tools that rule out depression and anxiety, take proper interviews of the patient, assess impairment, symptom inventory and, in some cases, neuropsychology testing --which include explanation of brain function in conjunction with physical behavior. Proper treatment requires ongoing assessment such as cognitive performance testing (CPT), symptom validity tests (SVT) and word memory tests (WMT). Most of the patients who come into my office with a history of stimulant abuse, history of feigning ADHD or other attention deficit disorders report not having an initial nor a continued assessment.

My experience with patients who abused stimulants corresponds to the results of a study of a sample of college students who were evaluated regarding their diagnoses of ADHD. An estimated 22 percent of these students failed to meet criteria for ADHD when taking the WMT and SVT. Riggs et al noted students reported being coached on how to seek stimulants and fake ADHD symptoms. If the physicians involved in Riggs study had not utilized the proper tools for

⁶Sollman MJ, Ramsey JD, Berry DTR. Detection of feigned ADHD in College Students. *Psychological Assessment*. 2010, Vol. 22, No. 2, 325–335.

evaluation they too would have been part of an ever growing trend of the "NEW" gateway drug of choice⁷.

The Midwestern Prevention Project successfully reduced the rate of gateway drugs such as cigarettes and marijuana through the end of high-school. Their latest project has been that of reducing the use of amphetamines by adolescents to downsize the risk of abuse on a long-term basis⁸ The results of this project were enlightening; they strongly suggest that early prevention of gateway drug use-- stimulants in particular-- significantly decrease the risk of drug use in adulthood.

The Journal of Substance Abuse Treatment published an article in November 2013 emphasizing the need for clinical monitoring of high-risk populations to prevent misuse and diversion in individuals with ADHD treatment history. The need for routine clinical and psychosocial assessment in patients with ADHD was a key factor in whether or not the patients would develop substance abuse. The evidence gathered by Bihlar, Mud et al⁹ indicates relapses for substance abuse may be less frequent with combined pharmacological care and routine clinical assessment. Our job as both physicians and citizens of our communities is to consider the benefits and “first do no harm.” No matter how long it may take us to assess a patient who ‘self-reports’ symptoms of ADHD the benefits of performing proper clinical assessment before being pressured to prescribe medication, outweigh the future harm and risks to the patient and the community on a whole.

⁷ Riggs NR, Chih-Ping C, Pentz MA. Preventing growth in amphetamine use: long-term effects of the Midwestern Prevention Project (MPP) from early adolescence to early adulthood. *Addiction*, 104, 1691–1699.

⁸ Vermeulen-Smit E, Verdurmen JEE [The Effectiveness of Family Interventions in Preventing Adolescent Illicit Drug Use: A Systematic Review and Meta-analysis of Randomized Controlled Trials...](#) - *Clinical Child and Family*, 2015 - Springer

⁹ Bihlar Mud B, Joiken J, BÖlte S, Hirvikoski T. Long-term outcomes of pharmacologically treated versus n on-treated adults with ADHD and substance abuse disorder: a naturalistic study.

About the Author

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