



# THE JOURNAL OF GLOBAL DRUG POLICY AND PRACTICE

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## ***The Impact of Drug Policies on our World***

Colorado, one of the two U.S. states that have legalized marijuana for recreational use, ushered in the New Year with the opening of retail marijuana establishments. Also in 2014, there are additional states considering the legalization of marijuana under the guise of medicine or for the purpose of recreation, either through legislation or ballot initiatives. In this edition of the Journal, a publication entitled, *The Economic Impact of Marijuana Legalization* compares the benefits and harms of marijuana legalization as it relates to the economy. The author takes a detailed approach when examining the issue and the reader will gain a real-world understanding of the potential consequences of legalizing marijuana.



2013 closed with the release of the annual results from a well-respected University of Michigan survey on drug abuse called Monitoring the Future. Several of the most disturbing trends that this survey revealed were that marijuana use is increasing at alarming rates among 8th, 10th, and 12th grade youth in the U.S. and that the perception of marijuana's harmfulness is rapidly diminishing. Experts say the main contributing factors for these developments are the legalization, normalization, and commercialization of marijuana. These findings indicate the importance of preserving restrictive policies and that drug prevention efforts are more important now than ever. Thus, we also offer a piece that highlights the effectiveness of the nation's premiere Red Ribbon programs entitled, *The Red Ribbon Certified Schools Program*.



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## THE ECONOMIC IMPACTS OF MARIJUANA LEGALIZATION

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This is the first of a series of papers exploring the economic and social costs of legalizing marijuana. The states of Washington and Colorado in the United States have legalized marijuana for recreational use. A number of other states have legalized crude marijuana for “medical” use. As these experiments go on, there will be more data to be recorded, analyzed and published. Our research will continue as to the impact of marijuana legalization and future papers will explore this new data. Future papers will focus on specific economic issues relating to marijuana legalization. For example, papers will be published that will explore in more detail the environmental, medical, criminal, spiritual, productivity and other social costs of legalization.

This paper will discuss the general economic and social arguments for legalizing marijuana then we will explore the general economic and social arguments against it. Finally, we will discuss the economic and social damage caused by “medical” marijuana. The “medical” marijuana argument is presented separately because some people, who do not favor legalization of marijuana for recreational purposes, favor its legal status as medicine.

While the public health, safety, and productivity implications of marijuana use are amply documented, their dollar value has not been completely assessed to date.

## **A. The pro-marijuana argument - the direct economic benefits of legalizing marijuana outweigh the costs**

The marijuana legalization advocates have argued that whether the direct costs of legalization are outweighed by economic benefits depends on the following economic concerns: (a) estimated savings from reduced spending on the criminal justice costs of marijuana law enforcement and revenue losses from shifts in law enforcement policies; (b) projected revenues from additional taxes and streams of income; (c) immediate and projected expenditures to address the known harms of marijuana use and to implement and enforce policy reforms.

### **Budgetary savings**

Criminal justice budgets typically do not list the costs of enforcing particular drugs laws, however, Harvard economist Jeffrey Miron has written a series of policy papers estimating various government expenditures associated with marijuana criminalization (1). According to Miron, legalization will reduce the need for prosecutorial, judicial, correctional, and police resource spending by approximately \$7.7 billion – \$13.7 billion per year, (2) even though some revenue from court fines and asset forfeitures would be lost (3). Miron claims his estimates can be verified empirically and his calculations are adjusted for economic inflation and growth in enforcement spending over the past decade (4). Accordingly, Miron is cited to argue for a cost-minimizing approach to criminal justice (5).

### **Revenue gains**

Although marijuana advocates claim that marijuana taxation, licensing, and industry could generate more than \$8.7 billion in government revenue, (6) the value of gains cannot be gauged at this time because revenues from licensing and industry vary by state (7). Additionally, tax revenue projections are inherently uncertain because they rely on questionable assumptions about the unknown impact of black market supply on consumer demand in regulated markets.

Tax expert and attorney Pat Oglesby conducted an analysis of existing marijuana tax proposals (8).

Oglesby claims that Washington State's legalization proposal (Initiative 502), which includes restrictions on advertising and drugged driving and has three distinct excise taxes, could generate approximately \$500 million in state revenue (9). Oglesby also acknowledges the possibility that Colorado's taxation scheme could generate between \$47 million and \$100 million in revenue, (10) but he concludes the projections are completely unreliable because the state's regulatory framework is fundamentally flawed (11).

Finally, he finds Oregon's plan (Measure 80) created a conflict of interest because "medical" marijuana is sold privately at cost but under the legalization plan marijuana would be sold at a controlled cost, though he admits money can be made under a state-controlled marijuana monopoly (12). Voters in Oregon rejected the plan. Finally, Oglesby notes that the economic impact of legalization depends on various other factors that cannot be assessed at this time, including the possible emergence of new jobs, the likelihood of tax evasion, and legalization's probable impact on alcohol consumption (13).

#### New expenditures

Adding to the direct costs of implementing policy reforms, legalization will cause consumption of marijuana to increase, and this increase will have direct economic costs in terms of healthcare, social services and criminal justice (14). The magnitude and cost of increased consumption can be predicted by estimating supply and demand, but historical data from local marijuana markets does not exist, and data from foreign markets fails to reflect the influence of local mores and cultural norms on consumer behavior.

Existing projections of growth in marijuana demand are based on consumption patterns in the Netherlands and other regulated foreign markets, (15) where sufficient data exists to derive marijuana's "demand elasticity", e.g., the responsiveness of consumption rates to changes in price (16). To date, economists' best estimates of the increase in consumption range from 75%-289% but these estimates fail to account

for untested and novel pricing and taxation schemes, the underreporting of current marijuana use, or the impact of social influences on consumption (17).

While dependency is a known harm of marijuana consumption that will proliferate with increases in consumption, the costs of marijuana treatment admissions may decline with legalization since the vast majority of admissions have historically been referrals from the criminal justice system (18). National healthcare expenditures related to marijuana consumption are not known, but it is estimated that marijuana dependency accounts for approximately 1/5 of all addiction treatment center admissions (19).

Legalization will entail additional spending to update and enforce drugged driving regulations because there is evidence that consuming marijuana before driving doubles the chances of collision (20). In states with per se drugged driving laws, court costs may also increase on account of due process issues raised by the presumption that the presence of marijuana metabolites in one's blood stream are evidence of intoxication (21). Other court and law enforcement costs may also rise due to the shift in drug enforcement spending to tax enforcement spending (22).

#### Indirect Economic Benefits of Legalizing Marijuana Outweigh Costs?

Whether the indirect economic benefits of legalization will be great enough to offset the socioeconomic costs of current policies depends on the following financial, political and human capital factors: (a) productivity losses from workplace accidents and employee absenteeism related to marijuana dependency; (b) productivity gains from anticipated reductions in the rates of unemployment, employee turnover and absenteeism related to involvement with the criminal justice system; (c) value of improvements in family stability and socioeconomic mobility within underprivileged communities due to the reduction in incarcerations and disqualifying collateral consequences; (d) increases in addiction; (e) a rise in health care costs including mental health; (f) increases in crime due to expanded marijuana use; (g) increases in crime due to expanded marijuana use; (h)

reduction of learning capacity in students; (i) increases in drugged driving.

#### Productivity losses

The marijuana advocates claim that research regarding the impact of marijuana use on job performance is inconclusive, as marijuana's performance effects vary by job task and among users based on the setting and frequency of use as well as the user's personal characteristics and motivation to perform (23).

Similarly, they claim the connection between absenteeism or workplace accidents and marijuana use may be tenuous because research has not firmly established a causal nexus (24). Moreover, productivity losses may be negligible to the extent that the vast majority of marijuana consumers, like alcohol consumers, do not go to work intoxicated and instead reserve revelry for weeknights or weekends or other occasions that would not interfere with their work responsibilities.

#### Productivity gains

Crime statistics indicate that marijuana offenses account for almost half of the 1,531,251 drug arrests nationwide, and that nearly 9 out of every 10 marijuana arrests are for possession, not distribution (25). However, marijuana offenders convicted of possession account for only two-tenths of one percent (.2%) of federal inmates and just one-tenth of one percent (0.1%) of state prisoners without a prior criminal record (26). Often, incarceration is due to probation or parole violations or for possession of wholesale quantities where intent to distribute could not be proved (27). Reducing the number of marijuana-related arrests and incarcerations may cause marginal growth in aggregate productivity as fewer employees who already have jobs will need to miss work for required court appearances, and incarcerated offenders will be able to participate in the job market (28). Additional gains in productivity can be expected among workers who are raising children alone due to the incarceration of a spouse, whose return from prison will permit child-rearing responsibilities to be shared between both parents, reducing the number of work days missed (29).

## Socioeconomic improvements

There is ample evidence of socioeconomic and racial disparities among those who are charged with marijuana crimes and those who are actually convicted (30). The effect of fines, asset seizures, legal fees, required court appearances and missed work days is especially burdensome for marijuana defendants from disadvantaged communities (31). Even if there is only a modest budgetary benefit from eliminating these features of our criminal justice system, (32) the marijuana advocates claim that it will help disadvantaged communities by reducing the criminalization of the underprivileged classes, mending broken homes, promoting upward social mobility, and reducing the collateral consequences of existing drug enforcement policies (33).

The arguments for legalization raise more questions than answers.

## **B. The economic and social arguments against legalization of marijuana**

This report will now examine the efficacy of measures that legalize marijuana and the instances in which the present and long-term fiscal costs of legalization exceed tax revenue from marijuana.

Although it is not necessarily improper to tax goods and services that harm consumers, marijuana's legal status and social effects render taxation problematic. There may be significant and questionable disparities between projected and actual tax revenues due to variation in regional demand for marijuana, future demand for taxable marijuana, revenue allocation among levels of government, and regulatory compliance and enforcement. In many instances, the public expense of implementing and enforcing taxation compounds the aggregate cost of marijuana's negative effects on health, safety, and productivity. On the other hand, the research on legalization predicts a reduction in criminal justice costs, though law enforcement budgets are more likely to remain substantially intact.

A survey of available research regarding the fiscal impact of marijuana found a number of economic analyses that address the fiscal costs associated with existing laws but none that address the costs of legalization. Because the data required for a formal cost-benefit analysis is not available at this time, invoking fiscal rhetoric to advance the legalization agenda is not merely irresponsible, it is also deceitful. In effect, it defies transparency, misdirects public debate, and belies a corporate purpose to privatize profits and socialize losses, subordinating the interests of taxpayers to those of the marijuana industry.

### Overview

Recent estimates of legalization's impact on government spending predict possible savings and revenues but do not reflect the economic costs of departing from current policy. The true fiscal impact will depend on the costs generated by repealing current laws, plus the costs of implementing and enforcing proposed reforms, minus any tax revenues and savings that might accrue.

Repealing current laws will generate additional costs due to consequences stemming from the increase in marijuana use, abuse, and dependence. Implementing and enforcing reforms will require up-front spending to establish a regulatory framework and on-going spending to collect taxes, regulate retailers and distributors, and protect users and non-users alike.

Even if it is not possible to estimate these additional costs at this time, it is remiss to ignore them.

Accordingly, the present and post-legalization effects of marijuana use must be examined to gain an understanding of their economic impact.

### Known Harms of Marijuana Use

While the public health, safety, and productivity implications of marijuana use are amply documented,

their dollar value has not been completely assessed to date (34).

### Impact on Public Health

A number of studies have noted significant correlations between marijuana use and many severe health and social problems (35). The negative impact of expanded marijuana use will have a severe and pervasive impact on public health from which there will be no turning back. Studies show impacts from marijuana use such as immune system damage, (36) birth defects, (37) infertility, (38) cardiovascular disease, (39) stroke, (40) and testicular cancer (41). Researchers have also found that chronic exposure to marijuana smoke can increase the risk of developing respiratory obstruction, emphysema, lung cancer, collapsed lungs, and bullous lung disease ("bong lung") (42). A recent study shows that marijuana smoke has ammonia levels 20 times higher than tobacco smoke. Marijuana has hydrogen cyanide, nitric oxide, and aromatic amines at 3-5 times higher than tobacco smoke (43).

Another study shows that that marijuana smokers face rapid lung destruction - as much as 20 years ahead of tobacco smokers (44). A recently released study shows that marijuana damages DNA and that it is toxic to the body (45).

### Marijuana hurts the immune system

One of the earliest findings in marijuana research was the effect on various immune functions. Cellular immunity and pulmonary immunity are impaired, and an impaired ability to fight infection is now documented in humans. Researchers have found an inability to fight herpes infections and a blunted response to therapy for genital warts in patients who consume marijuana. Abnormal immune function is the cornerstone of problems with AIDS. This impairment leaves the patient unable to fight certain infections and fatal diseases. The potential for these complications exists in all forms of administration of marijuana (46).

Marijuana is addictive

Clinical dependence has been found to afflict roughly 10% of all marijuana users (47). Most are in their late teens and twenties (48).

The risk of dependence is higher among those who try marijuana at a young age (49). In 2009, individuals between the ages of 12 and 25 comprised 65.3% of all substance abuse treatment admissions for marijuana; daily use was reported by 49.6% of this group (50).

According to the 2010 National Survey on Drug Use and Health, the number of Americans who used marijuana increased from 14.4 million to 17.4 million between 2007 and 2010. The prevalence of past-year drug dependence or abuse among marijuana users (4.5 million) was found to exceed the combined total for users of pain relievers (1.9 million) or cocaine (1 million). More unemployed adults (17.5%) used marijuana than those who worked full-time (8.4%) or part-time (11.2%). Clinical dependence or abuse was also higher among unemployed adults (15.7%) than among part-time workers (10.9%) or full-time workers (8.9%). Lower rates of dependence and abuse were found among individuals who graduated from college (7.3%) than those who completed high school only (8%) or those who did not complete high school (10.2 percent) (51).

Marijuana is an addictive drug that poses significant health consequences to its users, including those who may be using it for “medical” purposes. More young people are being treated for marijuana dependence than for any other drug. Marijuana is far more powerful today than it was 30 years ago and it serves as an entry point for the use of other illegal drugs. This is known as the “gateway effect.” Despite arguments from the marijuana advocates to the contrary, marijuana is addictive. Unlike those addicted to many other drugs, the marijuana addict is exceptionally slow to recognize the addiction. This addiction has been well

described in the marijuana literature and it consists of both a physical dependence (tolerance and subsequent withdrawal) and a psychological habituation (52).

#### Mental health

Marijuana use may trigger psychiatric illnesses including mood disorder, latent schizophrenia, and clinical dependence. The American Psychiatric Association Position Statement on Marijuana as Medicine states: “There is no current scientific evidence that marijuana is in any way beneficial for the treatment of any psychiatric disorder. In contrast, current evidence supports, at minimum, a strong association of cannabis use with the onset of psychiatric disorders. Adolescents are particularly vulnerable to harm, given the effects of cannabis on neurological development.” (53)

#### Impact on Public Safety

Studies also shed light on marijuana’s implications for public safety. Short-term and long-term use are known to cause cognitive impairment affecting sensorimotor functioning, attention span, memory, self-control, learning, and educational attainment (54).

Sensorimotor and attentional deficits undermine users’ ability to safely engage in complex tasks like operating a motor vehicle or other heavy machinery. Studies have found that drivers under the influence of marijuana typically exhibit reduced reaction speed, frequent lane-weaving, and they are twice as likely as unimpaired drivers to be involved in traffic accidents (55). Using marijuana before driving has been found to increase the risk of fatal outcomes in motor vehicle collisions (56). Research on workplace injuries confirms these findings; employees who are impaired by the effects of marijuana are more likely to be involved in accidents at work (57).

In addition to its short-term effects on sensory perception, marijuana use can impair decision-making and

self-control during and long after intoxication. Known colloquially as ‘good judgment,’ self-control is generally believed to improve from youth into adulthood and to degenerate with substance abuse and dependence. Self control inhibits risk-seeking and impulsive behaviors that limit educational attainment and contribute to criminal conduct. Economists, criminologists, and medical researchers have studied and documented these effects (58). According to one study, “the probability of being arrested for a non-drug involved violent, property and income-producing crime” is greater for marijuana users than non-users (59).

#### Impact on Productivity

Marijuana-impaired workers contribute to a decrease in productivity due to employee turnover, absenteeism, and illness. While performance effects might vary according to job task, frequency of use, and users’ personal characteristics, studies have found marijuana and alcohol pose comparable risks to productivity (60).

Employees who tested positive for marijuana had 55% more industrial accidents and 85% more injuries compared to those that tested negative on a pre-employment exam and they had absenteeism rates 75% higher than those that tested negative (61).

Low-income groups and minorities may be particularly vulnerable to the unintended effects of legalization. According to one analysis, social stigma surrounding marijuana use could deepen the divide between managerial employees and rank-and-file workers:

“[Marijuana use] does impair them as far as managerial favor, raises, promotions, and the like. Indirect effects such as these could severely inhibit the workforce and overall production of minority groups, by stunting their ability to move up the chain of responsibility and command. Further complicating this is the

fact that with the legalization of marijuana, individuals would have less incentive to hide their habit, making it all the more easier to suffer remaining stigmatizing social consequences. Compounding the problem is that in the legalized world “[e]ach new user would be at some risk of progressing to heavy, chronic use . . . .” (62)

### Impact on Public Budgets

In 2011, the National Drug Intelligence Center released a report that assessed \$193 billion in annual losses due to illnesses, accidents, lost productivity, and crime resulting from illicit drug use (63). While the report did not separate marijuana from other drugs, it attributed nearly two-thirds of the losses to the impact of drug use on productivity. The costs of property crime and homicides were roughly equivalent.

An earlier study conducted by the National Center on Addiction and Substance Abuse at Columbia University noted that “governmental spending is skewed toward shoveling up the burden of our continued failure to prevent and treat the problem rather than toward investing in cost effective approaches to prevent and minimize the disease and its consequences.” The study estimated that, in 2005, \$467.7 billion was spent on substance abuse addiction by federal (\$238.2 billion), state (\$135.8 billion), and local (\$93.8 billion) governments. It found less than 3% of spending was related to prevention but more than three-fifths was due to healthcare costs, including those attributable to alcohol and tobacco use (64).

### Economic Consequences of Legalization

In effect, legalization endorses marijuana as socially acceptable. It eliminates criminal penalties, reducing prices, increasing availability, and de-stigmatizing use (65). More likely than not, these consequences are irreversible:

“Legalization would reduce the costs of supplying drugs by more than taxes could offset, pushing retail

prices into uncharted waters. We can be confident this would affect consumption; we just don't know by how much. One might consider giving legalization a trial run, pledging to repeal it if consumption ended up rising more than anticipated. However, even temporary legalization could have permanent consequences. Society could certainly 'unlegalize' and reimpose prohibition, but that would not return matters to the status quo ex ante any more than putting toast in the freezer would change it back into fresh bread." (66)

Economists estimate that marijuana use will increase by 75% - 289% once legalized, or more if advertising is permitted. However, the higher end of this range is probably more accurate because current usage is underreported by 20%-40%. (67). According to the 2010 National Survey on Drug Use and Health, 17.4 million Americans used marijuana in 2010. Legalization could thus invite between 13.05 million and 47.85 million new users (68).

#### Increase in Marijuana-related Healthcare Costs

Inevitably, the increase in use will correspond to an uptick in incidents of dependence and abuse. If the number of new users is between 13.05 million and 47.85 million, then treatment admissions would likely increase from 1.3 million to 4.8 million respectively. These estimates assume a dependence rate of only 10%.

Non-dependent users are still more prone to illnesses, accidents, and crime than non-users. Since legalization is expected to cut marijuana prices in half, making it more affordable, the drop in market prices will compound risks for users who are young, poor, or already addicted (69). As a consequence, medical providers may need to adapt to the influx of new users who are involved in accidents or who report marijuana-induced panic attacks or dependence (70). While Medicaid and other public assistance programs currently pay for nearly two-thirds of all inpatient admissions, this share is expected to increase

under the Affordable Care Act, with or without legalization (71).

### Negative Impact on Youth

A study examined early initiation into marijuana use and found, “the negative impact of marijuana use in the tenth grade on educational attainment is similar in magnitude to the effect of living in a single parent family or living in a family with an income in the lowest quartile.” (72)

Legalization will increase marijuana use. This will apply to young people. Marijuana can cause disinterest in activities, lower grades and isolation from the family. It can permanently impair brain development. Problem solving, concentration, motivation and memory are negatively affected. Teens who use marijuana are more likely to engage in delinquent and dangerous behavior and experience increased risk of schizophrenia and depression including being three times more likely to have suicidal thoughts (73).

Our drug treatment facilities are full of young people dealing with marijuana related problems. One study of children in treatment showed that, 48% were admitted for abuse or addiction to marijuana, while only 19.3 % for alcohol and 2.9 % for cocaine, 2.4 % for methamphetamine and 2.3 % for heroin (74).

Marijuana use accounts for tens of thousands of marijuana related complaints at emergency rooms throughout the United States each year. Over 99,000 are young people (75).

As many as 13 % of high school seniors said they drove after using marijuana while only 10 % drove after having five or more drinks. Vehicle accidents are the leading cause of death among those aged 15 to 20 (76).

A study of high school students showed that about 28,000 seniors each year admitted that they were in at

least one accident after using marijuana (77).

### Criminal Justice Costs

In spite of legalization, crime is endemic and will not diminish even though the kinds of crimes committed might change. In fact, under a heavily regulated legalization regime, police detentions for marijuana-related offenses may dwarf the current rate.

Legalization will increase drugged driving and more drugged driving will mean more dead and injured drivers and other innocent victims and all the cost related to these tragedies (78).

Marijuana significantly impairs the ability to safely operate a motor vehicle. Driving problems include: decreased handling performance, inability to maintain headway, impaired time and distance estimation, increased reaction times, sleepiness, impaired sustained vigilance and lack of motor coordination (79).

Marijuana is the most prevalent drug found in fatally injured drivers testing positive for drugs (80).

Under our current laws few offenders are in prison for marijuana possession. No more than two-tenths of one percent (.2%) of federal inmates are locked up for marijuana possession and, among state prisoners, only one-tenth of one percent (0.1%) are in for marijuana possession without a prior record (81).

Predictably, most of these prisoners are charged with probation or parole violations or with possession of wholesale quantities where intent to distribute could not be proved.

The proponents of legalization ignore the fact that legal sanctions deter or delay potential abusers, thereby limiting the growth of the illicit market. Law enforcement also leverages drug users/addicts into treatment through the use of drug courts that offer treatment as an alternative to incarceration.

According to a recent study by Colorado State University, Colorado's legalization experiment will require retailers of marijuana to charge 318% more than producers (82). The same study also found that current estimates of legalization's revenue potential are overblown by about 60% and that, in reality, legalization would raise revenue equal to only 1% of Colorado's budget.

Ultimately, this will push users into the black market and drive retailers into the tax-evading 'grey market.' Law enforcement resources will need to be re-marshaled to address problems caused by marijuana-impaired driving, underage purchases, and criminals who seek to undercut licensed marijuana retailers.

For a state to benefit from tax revenue, it must first collect the tax proceeds. States that have attempted to tax medical marijuana, a notoriously cash-only business, find this to be a problem. Of course, part of the reason why medical marijuana is cash-only is because banks have refused to do business with those who sell drugs in violation of federal law. States will need to spend exorbitant amounts of taxpayer money to monitor retailers, conduct investigations, and prosecute tax evaders.

Moreover, enforcement can cause marijuana markets to behave in surprising ways. For example, in California's Humboldt County, the wholesale price of marijuana fell when the federal government stepped up enforcement efforts (83). The explanation for this was simple – enforcement caused retailers to change their purchasing patterns so growers found themselves steeped in excess product which they began pushing off as quickly and cheaply as they could.

In other words, law enforcement spending would merely shift from one category of offense to another. Since enforcement costs would not be insubstantial, there are good reasons to question whether purported savings from legalization are achievable or meaningful.

### Substantial Implementation Costs

Marijuana is unique from tobacco and alcohol as well as other drugs in that it can be grown with minimal effort and is presently illegal. There are costs associated with changing its legal status and then regulating it. The problem is that these costs cannot be priced into the market through taxation and licensing schemes.

Although Colorado recently legalized marijuana and is currently spending money to regulate it, little tax revenue has been earned. In fact, according to a recent report on the condition of Colorado's medical marijuana industry, "[in 2012] the State of Colorado collected \$5.4 million in sales tax on medical marijuana purchases . . . [and] experienced a \$5.7 million budget shortfall because of medical marijuana regulation." (84) However, nobody has any real idea about revenue (85).

Similarly, there will be costs related to implementing education and prevention programs to mitigate the increase in substance abuse and dependence. Government agencies involved in healthcare, social services, and law enforcement would incur the immediate brunt of economic costs in addressing the spike in medical complaints, accidental injuries, and crime. These are additional infrastructure costs.

### Aggregate Burden Outweighs Benefit

Legalization will not only have devastating consequences for health, crime, and productivity, it is a waste of taxpayer dollars that could much more wisely be spent on more effective deficit-reducing measures.

Likewise, if the public buys marijuana, this diverts funds from the national economy that are available for more productive purposes like education, research, and prevention. Even if tobacco use has so far been shown to cause more health harms than marijuana it does not follow that legalization is a justifiable policy shift in light of its harms. Tobacco causes more harm because more people use it. If marijuana is

legalized that situation may change, especially if a large marijuana industry arises as it did with tobacco.

The scholarly opinion and historical evidence are clear that if drugs are legalized, then the rates of drug use and addiction will climb. This will lead to misery, more deaths, social disorder and massive spending (86).

### **C. The economic and social damage that “medical” marijuana causes**

The use of smoked or eaten crude marijuana in those states that have “medical” marijuana is not limited to those with designated serious medical conditions or elderly people with cancer. Proponents of “medical” marijuana even admit that it has become a bad joke. Rev. Scott Imler, who co-wrote Proposition 215, the California “medical” marijuana initiative, and who advocates for the limited use of “medical” marijuana, put it best recently when he said, "We created Prop. 215 so that patients would not have to deal with black market profiteers. But today it is all about the money. Most of the dispensaries operating in California are little more than dope dealers with store fronts." (87)

A recent study in 2007 examining California’s average “medical” marijuana patients found that the average “patient” was a 32-year-old white male with a history of drug and alcohol abuse and no history of a life-threatening disease. 88 Additionally, in Colorado, only 2% of users reported cancer, and less than 1% reported HIV/AIDS as their reason for “medical” marijuana. In Colorado, the average age of cardholders is 41 and 68% are male (89).

“Medical” marijuana advocates claim that there are the following benefits from “medical” marijuana legalization:

1. Teen tobacco smoking declines

2. DUI declines.
3. There are economic benefits of locally produced medicine and local jobs
4. Medical/prescription costs decline

“Medical” marijuana proponents have argued about the above “benefits” however, in reality university studies, medical reports, and policy experts have debunked these points. For instance, no evidence exists to argue that there is a strong correlation between “medical” marijuana dispensaries or “pot clubs” to a decline in teen tobacco smoking. In fact, a major study published in *Drug and Alcohol Dependence* by researchers at Columbia University found that states that legalized marijuana use for medical purposes have significantly higher rates, almost twice as high, of marijuana use and of marijuana abuse and dependence than states without such laws (90).

What social damage does “medical” marijuana cause?

In California, where “medical” marijuana has been sold since 2003, marijuana dispensary neighborhoods have attracted criminal acts of violence such as armed robbery, murder, and even increasingly organized crime involvement (91). Moreover, states where “medical marijuana” is available have experienced higher rates of marijuana use (92).

What medical damage does “medical” marijuana cause?

In terms of smoked marijuana, the Food and Drug Administration (FDA) concluded that there is “currently sound evidence that smoked marijuana is harmful” and that “no sound scientific studies supported medical use of marijuana for treatment.” The FDA also concluded that: “There are alternative FDA-approved medications in existence for treatment of many of the proposed uses of smoked marijuana.” (93) Therefore, states that have “medical” marijuana damage public health by increasing marijuana usage and drug dependency rates (94).

What law enforcement damage does “medical” marijuana cause?

“Medical” marijuana dispensaries have posed a plethora of problems for the public as well as to law enforcement. Marijuana dispensaries are million dollar enterprises due to the amount of unjustified and fictitious physician recommendations for “medical” marijuana. Evidence shows that dispensaries are targets for violent crime as well as fronts for drug traffickers and money laundering for organized crime (95). Another issue that has risen due to “medical” marijuana is drugged driving. In California, drugged driving is more prevalent than drunk driving nowadays (96).

What damage to kids does “medical” marijuana cause?

“Medical” marijuana negatively effects public health especially in regards to our youth. Since the message that “marijuana is medicine” with no adverse effects has been popularized, perceived harm for smoking marijuana has steadily decreased (97). As a result, states with “medical” marijuana have marijuana abuse/dependence rates twice as high as other states (98).

What damage to drug treatment does “medical” marijuana cause?

Researchers at Columbia University found that states with “medical” marijuana had marijuana abuse/dependence rates almost twice as high as states without such laws. Treatment centers are likely to experience an influx in patients due to the increase in marijuana use and also marijuana related drugged driving (99).

What damage to drug prevention does “medical” marijuana cause?

Youth attitudes and beliefs that “marijuana is medicine” are adversely affecting drug prevention efforts to decrease the access, availability, and perceived harm of marijuana. Science tells us that smoking marijuana “is not recommended for medical use” and, therefore, we should base policy on

science and not compromise public health and safety (100).

What damage to DUI enforcement does “medical” marijuana cause?

Drugged driving is a serious public health and safety concern. The greatly increased availability of “medical” marijuana adds a new dimension due to the need to inform and educate the public that driving under the influence of marijuana is extremely dangerous. The British Medical Journal recently published a study that found that marijuana impaired drivers were twice as likely to crash (101). Nowadays, in California, drugged drivers are more prevalent than drunken drivers (102). Marijuana testing needs to be standardized for law enforcement officers. Drugged driving laws, programs, and management centers also need to be updated.

What damage to employers/employees does “medical” marijuana cause?

“Medical” marijuana raises issues for employers such as job performance, lawful hiring practices, questions pertaining to drug use and drug test results.

Marijuana used for medical purposes has the same long term effect on the user as marijuana used for recreation. Marijuana use can cause impairment of short-term memory, attention, motor skills, reaction time, and the organization and integration of complex information. Marijuana use alters perceptions, creates time distortion and can cause drowsiness and lethargy. Heavy marijuana use can cause apathy, decreased motivation, impair cognitive performance. Employees who use marijuana off-duty are still affected by it; impaired cognition that can cause lapses in judgment can remain for a long period. Memory defects can last as long as six weeks (103). Use of marijuana can cause, exacerbate or contribute to mental illness (104). This is especially true with adolescents (105). Employers may be liable for the actions of employees who use marijuana, especially those employees in safety sensitive positions. The more chronic the use of “medical” marijuana, the higher the risk.

We strive to be a compassionate society, but there must be a balance between alleviating or managing illness and creating a system that does more harm than good. Until there is FDA quality scientific proof that the use of crude marijuana as “medicine” is safe and effective, it appears that the use of marijuana as “medicine” is a risky venture for the public health and safety.

## **Conclusion**

Not all the data is in about the economics of marijuana legalization, but on balance it would be a negative public policy for which our society will pay a great spiritual, medical, public safety and economic cost that we can ill afford.

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9. Oglesby 2012, *supra* note 8 at 255.

10. *Id.* at 257 (citing an unofficial study by the Colorado Center on Law and Policy).

11. Pat Oglesby, *Colorado's Crazy Marijuana Tax Base*, Center for New Revue (November 7, 2013), available at <http://ssrn.com/abstract=2351399> (last accessed 12/9/13).

12. Oglesby 2012, *supra* note 8 at 258 (noting that in Oregon, medical marijuana is sold by private businesses at cost, but recreational users must buy marijuana directly from a state commission that establishes retail prices for marijuana which the commission resells to consumers, untaxed, after buying it from state-licensed growers who elect five of the commission's seven members).

13. *Id.* at 263-65; see Miron and Waldock, *supra* note 1 at 8-9 (noting that tax revenue from legalization is likely to be offset by a reduction in taxable alcohol purchases); Jonathan P. Caulkins, Beau Kilmer, Robert J. MacCoun, Rosalie Liccardo Pacula and Peter Reuter, *Design Considerations for Legalizing Cannabis: Lessons Inspired by Analysis of California's Proposition 19*, *Society for the Study of Addiction*, Vol. 107, 865-77, 71 (2012), available at [conium.org/~maccoun/CaulkinsEtAl\\_DesignOptions\\_andCommentaries2012.pdf](http://conium.org/~maccoun/CaulkinsEtAl_DesignOptions_andCommentaries2012.pdf) (last accessed 12/25/12) (noting that tax evasion is likely under any taxation scheme but how much is not certain).

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15. See Miron and Waldock, *supra* note 1 at 9 (discussing the decline of marijuana prices in the Netherlands); Caulkins, Kilmer, MacCoun, Pacula and Reuter 2012, *supra* note 13 at 872-73 (identifying price declines in the Netherlands as the major driver of demand growth); Donohue 2011, *supra* note 5 at 37-39 (discussing marijuana policy in the Netherlands and Portugal).

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TITLE: Position Statement on Marijuana as Medicine ISSUE:

The medical use of marijuana has received considerable attention as several states have voted to remove civil and criminal penalties for patients with qualifying conditions. Yet, on a national level, marijuana remains a schedule I substance under the Controlled Substances Act (CSA), the most restrictive schedule enforced by the Drug Enforcement Administration (DEA) 1. The Food and Drug Administration (FDA), responsible for approving treatments after appropriate and rigorous study, additionally does not support the use of marijuana for medical purposes. This juxtaposition of practice and policy has prompted many professional medical organizations to issue official positions on the topic. This statement reflects the position of the American Psychiatric Association (APA) on the use of marijuana for psychiatric indications. It does not cover the use of synthetic cannabis-derived medications such as Dronabinol (Marinol), which has been studied and approved by the FDA for specific indications.

APA POSITION:

- There is no current scientific evidence that marijuana is in any way beneficial for the treatment of any psychiatric disorder. In contrast, current evidence supports, at minimum, a strong association of cannabis use with the onset of psychiatric disorders. Adolescents are particularly vulnerable to harm, given the effects of cannabis on neurological development.
- Further research on the use of cannabis-derived substances as medicine should be encouraged and facilitated by the federal government. The adverse effects of marijuana, including, but not limited to, the likelihood of addiction, must be simultaneously studied.
- Policy and practice surrounding cannabis-derived substances should not be altered until sufficient clinical evidence supports such changes.
- If scientific evidence supports the use of cannabis-derived substances to treat specific conditions, the medication should be subject to the approval process of the FDA.

Regarding state initiatives to authorize the use of marijuana for medical purposes:

- Medical treatment should be evidence-based and determined by professional standards of care; it should not be authorized by ballot initiatives.
- No medication approved by the FDA is smoked. Marijuana that is dispensed under a state-authorized program is not a specific product with controlled dosages. The buyer has no way of knowing the strength or purity of the product, as cannabis lacks the quality control of FDA-approved medicines.
- Prescribers and patients should be aware that the dosage administered by smoking is related to the depth and duration of the inhalation, and therefore difficult to standardize. The content and potency of various cannabinoids contained in marijuana can also vary, making dose standardization a challenging task.
- Physicians who recommend use of smoked marijuana for "medical" purposes should be fully aware of the risks and liabilities inherent in doing so.

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See also:

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### **Conflict of Interest Statement:**

I declare that I have no proprietary, financial, professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled except for the following:

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## **School-Based Substance Abuse Prevention: An Initial Review of The Red Ribbon Certified Schools Program**

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### **Abstract**

Approximately 22.5 million Americans aged 12 or older used an illicit drug or abused a psychotherapeutic medication in the past month (National Institute on Drug Abuse (NIDA), 2012). More specifically, in 2012, 6.5 percent of 8th graders, 17.0 percent of 10th graders, and 22.9 percent of 12th graders used marijuana, the most popular used drug, in the past month (NIDA, 2012). Related literature suggests that an adolescent's social surroundings, made up of primarily their school environment during the middle and high school years, affects patterns of substance use (Patton, Bond, Carlin, Thomas, Butler, Glover, et al., 2006). In response to this, school-based prevention and youth development programs have emerged as possible prevention strategies for reducing risk factors and enhancing protective mechanisms in reaching youth (Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, et al., 2003). Among these includes one of the most recognized universal school-based prevention campaign across the country. The Red Ribbon program raises substance abuse prevention awareness using schools, law enforcement, and

community organizations to reach middle and high school students. As a prevention strategy, it changes communities' substance use and abuse attitudes, impacts alcohol and drug issues and trends, and provides alternative fun opportunities to celebrate and promote positive health behaviors. The purpose of this study is to describe the Red Ribbon program and explain the process of certification for schools interested in participating in the campaign. Using a cross-sectional survey design, preliminary evidence regarding the impact of Red Ribbon certified schools are reported. Results reveal that students in these schools have stronger negative beliefs toward the use of substances as well as actually use drugs and alcohol at less rates than students in comparable schools. These findings are consistent with the literature on primary prevention. Coordinating efforts among families, schools, community organizations and the health care system can create an environment from which students will flourish.

## Literature Review

Illicit drug use among teenagers increased greatly between 2007 and 2012. In 2012, 6.5 percent of 8<sup>th</sup> graders used marijuana in the past month compared to 22.9 percent of 12<sup>th</sup> graders (NIDA 2012). In the area of teen alcohol use, rates have declined but remain a concern with 3.5 percent of 8<sup>th</sup> graders and 28.1 percent of 12<sup>th</sup> graders reported getting drunk in the past month. (NIDA, 2012) Although the majority of these adolescents will not develop a substance abuse disorder or engage in further criminal activity, many researchers have identified early substance use as a precursor to other social and psychological harm (Macleod, Oakes, Copello, Crome, & Egger, 2004). As the *Child Delinquency Bulletin* published by the US Department of Justice highlights, the “focus on risk factors that appear at a young age is the key to preventing child delinquency and its escalation into chronic criminality” (Wasserman, Keenan, Tremblay, Coie, Herrenkohl, Loeber, et al., 2003, p.10). Because of this, it proves vital that we address the *prevention* of such behaviors, targeting school-aged youth.

It is clear that there is a dynamic relationship with the individual and his or her social environment. The literature in this area has long demonstrated that one's surroundings play a large role in

the shaping of various health behaviors, including the use of alcohol, tobacco, and other drugs. (Brook, Brook, & De La Rosa, 2001; Crum, Lillie-Blanton, & Anthony, 1996; Wagner & Anthony, 2001). Additionally, research has found that there are various environmental risk-factors that have detrimental effects on health behavior. These factors include violence and abuse, drug-availability, poor social relationships, peer pressure, unsafe neighborhoods, and lack of parental involvement (Fergus & Zimmerman, 2005). In fact, many researchers claim there is a direct association with substance use initiation and one's relationships to parents and peers (Wasserman, Keenan, Tremblay, Coie, Herrenkohl, Loeber, et al., 2003; Hawkins, Catalano, & Miller, 1992).

Since youth spend the majority of their time in schools, research indicates that prevention approaches become even more effective when they focus on students' personal and social assets as well as their school environment (Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, et al., 2003). In response to this notion, school-based, individually-focused strategies have emerged to target the specific behaviors of youth (Botvin & Botvin 1992; Hansen, 1992). These strategies aim to provide information, skills, training and opportunities for students to resist substance use.

The primary purpose of the school system is to educate and prepare youth for success through academic achievement and development; and research indicates that success in school can translate to success in other areas of youths' lives. Poor academic performance and lack of school commitment, conversely, have been identified as risk factors for a number of issues that youth face, including substance abuse (Pollard, Hawkins & Arthur, 1999). As school-based prevention programs have increased and studies that evaluate the components of these programs have emerged, the focus of school-based prevention has shifted to student social skills and correction of normative beliefs (Flay, 2000). Researchers agree that school-based prevention approaches are most effective at reaching youth when they target attitudes and healthy peer relationships. A recent meta-analysis of such programs supports this idea. Programs that utilize interactive, student-centered prevention efforts provide the largest amount of impact in reducing

youth substance use (Tobler, Roona, Ochsorn, Marshall, Streke, & Stackpole, 2000). Moreover, by coordinating efforts among families, schools, community organizations, and the health care system, we can create an environment from which students are able to flourish (Crosnoe, Erickson, & Dornbusch, 2002). The purpose of this study, therefore, is to provide an initial evaluation as to the potential influence of one such school-based program, aimed at reducing drug and alcohol use among youth.

### Red Ribbon

Informed Families, a non-profit corporation, was created in 1982 as part of the parent-movement started by First Lady Nancy Reagan. The Parent Movement is credited for reversing the 1970s escalation in drug use by children, adolescents, and young adults, and for initiating the reduction in regular drug use (Lindblad, 1983). Informed Families/The Florida Family Partnership has been and is one of the leading parent groups in America. In 1986, after the death of Drug Enforcement Administration Agent Enrique “KiKi” Camerana, Informed Families created the Red Ribbon Certification Program campaign to commemorate his death and to remind the public that drug use hurts others and society...it is not a victimless crime. An important component of this campaign is the acknowledgement that prevention is *participation*. Knowledge is not enough; buy-in and participation turn knowledge into healthy habits and positive social norms.

From the beginning, Red Ribbon had wide appeal and participation. Each year, during the week of October 23-31, Red Ribbon Week is celebrated nationally. The program aims to raise substance abuse prevention awareness using schools, law enforcement, and community organizations to reach middle and high school students. As a prevention strategy, its premise is to change communities’ substance use and abuse attitudes, impact alcohol and drug issues and trends, and provide alternative fun opportunities to celebrate and promote positive health behaviors. In concert with the public health approach, it is a population-based [school] approach that target health risk issues by identifying the cause of the problems and to resolve them before they occur (Manderschied, 2007). Its main goal is to promote positive health behaviors in communities throughout the nation.

The Red Ribbon Certified Schools Program (RRCSP) aims to recognize schools that fully embrace prevention criteria toward a certain level of evidence-based, school-based prevention efforts. The RRCSP is a marriage between a successful prevention process and programs. It serves to review existing policies, identify corrective measures, and highlight effective efforts in the prevention of substance use among students. The initiative outlines specific objectives aimed at decreasing substance use and other destructive behaviors by youth throughout schools while increasing pro-social behaviors. This is done through enhancing school-based protective factors while simultaneously decreasing risk factors, increasing community support, and boosting parental involvement- a key factor in academic achievement and healthy development. One important key to building protective factors and reducing health-risk behaviors is the connectedness to family and school (Bond, Butler, Thomas, & Carlin 2000).

The RRCSP highlights what is working in schools to reduce risks and build resiliency; coaching the school team to see how current programs, policies, and practices might be improved. In addition, it serves to reinforce efforts by individuals and groups inside and outside of the school, especially parents, and provide constructive feedback where need is indicated. The RRCSP engages not just youth and teachers, but parents and the greater community in the process of evaluating and creating its prevention model. Simply, when parents and schools are encouraged to be part of the prevention process (from assessment through program development and implementation), they feel more excited, engaged, and have a sense of ownership; thus they are committed to achieving better outcomes for their students. This initiative provides resources to educate and inform parents, youth, schools, and the community on the impact and dangers of substance use. It serves as an assessment and recognition tool designed to review existing policies, identify corrective measures, and highlight effective efforts in the prevention of substance use among students.

This type of school-based substance abuse prevention initiative, focusing on promoting health behaviors through information dissemination and skills training, is being echoed globally. The RRCSP is similar to other school-based prevention strategies utilized in the United Kingdom. The National Healthy School Standards (NHSS), a program implemented in the United Kingdom in 1999, was designed to improve youth health behaviors and raise educational standards through a school-based prevention campaign. The overall goal of the NHSS, like the RRCSP, is to promote healthy school environments so that youth have the skills needed to make positive health-related decisions (Schagen, Blenkinsop, Schagen, Scott, Eggers, Warwick, et al., 2005)

Similar to the RRCSP, the NHSS seeks to identify a school's level of engagement in prevention activities while reinforcing what is currently in place. A significant difference between these two comparable programs, however, lies in the process of how schools are rated in terms of their prevention engagement.

### **The Red Ribbon Certification Schools Process**

In order to become Red Ribbon School Certified, schools must undergo a rigorous application process. The RRCSP application is a 60-item, multi-dimensional tool used to assess the level to which a school is participating in evidence-based prevention efforts, originally developed in 2005 by the Florida Center for Prevention Research, Florida State University. Initially, researchers conducted focus groups in three regions of the state of Florida: Northwest, Central and South; participants included school staff, teachers, parents and members of the community. Results from these collaborations yielded valuable information over seven domains regarding evidence-based, school-based prevention practices that heavily informed the development of the RRCSP application. After review by researchers, the content from these interviews yielded an application instrument streamlined into four main component areas: *school environment, evidence-based programs, parent involvement, and Red Ribbon commitment/ community involvement.*

In the *school environment* section, criteria include commitment from leadership, continuous in-service training and open and frequent communication among all school personnel. The *evidenced-based programs* section requires identification of work guided by best practices. Because parents play a key role in prevention, the *parent involvement* section focuses on parents as partners in improving academic achievement and their inclusion in reducing high-risk behaviors of youth. The *Red Ribbon commitment/community involvement* section reviews year round Red Ribbon events to communicate norms and expectations. Additionally, this section addresses school and community consciousness regarding risk and resilience. Throughout the Red Ribbon application, schools respond to respective questions found in the aforementioned sections and provide narrative clarification and supporting information. Once completed and submitted, qualified reviewers assess the information and provide certification to qualified schools.

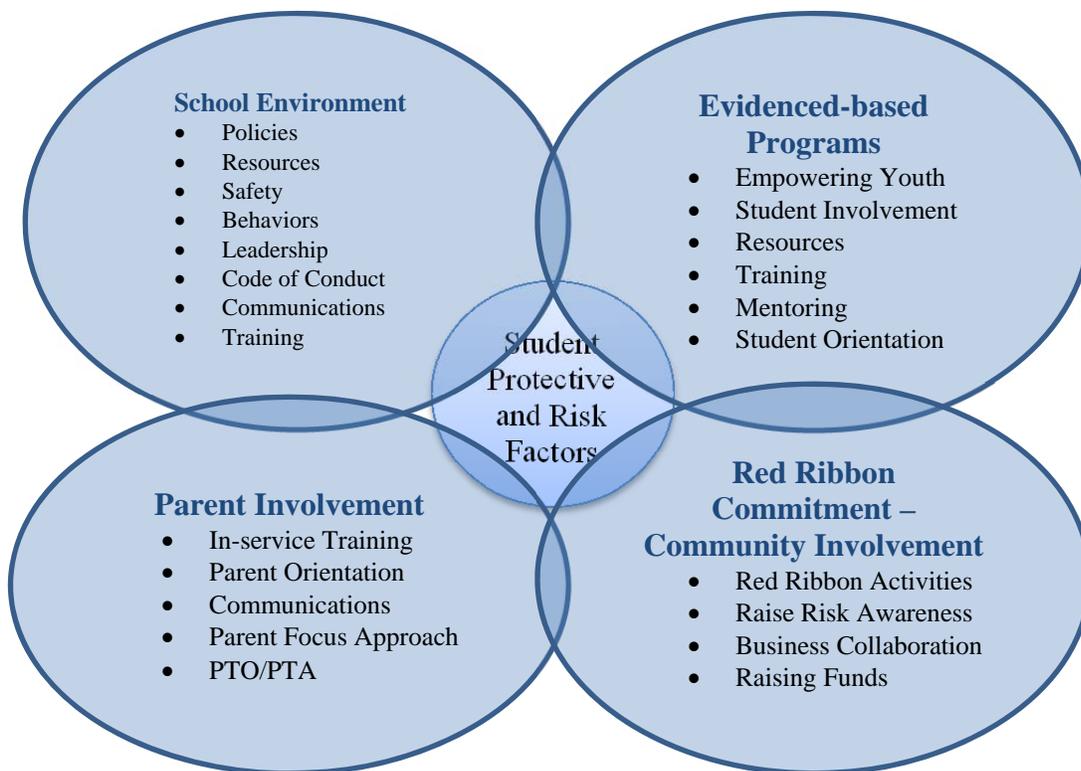
In order to become certified, the school must assemble an application team consisting of the principal, a teacher, a student, a parent, and a community liaison. Once the application is completed and submitted, it is reviewed by three program representatives who are experts in prevention, education, and research. The maximum application score is 100 points. A total of 80 points is needed to become certified. Each component of the application is worth a maximum of points: *school environment* – 20 points, *parent involvement* – 30 points, *Red Ribbon commitment/community involvement* – 20 points, and *evidenced-based programs* – 20 points. Ten points are awarded based on the completeness of the submission, including supporting materials and signatures of the application team members. Applications must be received by April 15<sup>th</sup> each year. Schools that meet set standards related to prevention practices along with achieving a grade of 80 points or higher are awarded Red Ribbon certification.

Schools that apply for certification receive their scores and are provided with detailed feedback about their prevention practices. Program representatives discuss with the application team each of the

four component areas covered on the application. Where schools need improvement, individualized guidance is offered, and new evidence-based, Red Ribbon prevention strategies are explored based on the specific needs of the schools. Schools that do not meet certification standards after initial application are encouraged to implement this feedback into their prevention efforts and re-apply the following year. Schools that indicate an interest in doing so are provided continued support throughout the year to help with this effort. Schools interested in learning more about the RRCSP or how to become certified can visit [www.redribbonschools.org](http://www.redribbonschools.org). The application form is available from this website.

Figure 1

*Red Ribbon Certification Schools Program Application*



**Methodology**

**Design**

Using a cross-sectional survey design, preliminary evidence regarding the potential impact of Red Ribbon certified schools is explored in this study. As part of the Service to Science (STS) initiative - a national program designed to enhance the evaluation capacity of innovative programs that address substance abuse prevention or mental health needs – six treatment schools were selected to participate in the study, consisting of one high school and two middle schools in Orlando (Orange County) and one high school and two middle schools in Miami (Miami-Dade County). Schools were selected if they had previously engaged in Red Ribbon week activities and expressed interest in becoming Red Ribbon certified. All six schools selected agreed to participate and were given a financial incentive of \$200 per school. Researchers then selected classes randomly from each school using a list of all classes provided by the schools through Informed Families. Only classes from grades six through 12 were included in the sample. In May and August of 2012, all students present in these classes were administered an abbreviated paper and pencil version of the Florida Youth Substance Abuse Survey (FYSAS) in order to obtain information about their substance use practices. In order to enhance consistency in administration, an Informed Families designee provided instruction/assistance to each of the teachers involved in administering the survey. Training included how to give consistent instructions, emphasize the anonymity of the survey, and deal with students that opt out. A brief, two page instruction sheet was also provided to the designee to distribute to the survey administrators. Three control schools from Miami-Dade and Orange Counties, consisting of one high school and two middle schools were subsequently purposively selected to receive the same survey for comparison. Comparison schools were selected by school district from a ranked list of three possible schools for each participating Red Ribbon school and matched by county, enrollment size and distribution, percentage of students receiving free or reduced lunch, as well as a number of other demographic features. Although not methodologically ideal, this process of selecting comparison schools allows researchers to gain some initial insight into the differences between RRCSP and non-RRCSP schools.

In addition to the FYSAS, focus groups were conducted with selected participants from Red Ribbon schools in order to supplement the quantitative information gleaned from the survey results. The use of focus groups allowed researchers to gather a richer understanding of the types of prevention activities in practice at these schools. Six in-person, semi-structured interviews were conducted on-site in Miami-Dade and Orange Counties. Participants consisted of school staff, teachers, parents, and members of the surrounding community. Participants were asked to freely respond to a set of open-ended questions related to school-based prevention activities. Questions pertained to the following four areas, each corresponding to a component on the Red Ribbon Certification instrument: *school environment*, *parent involvement*, *Red Ribbon commitment/community involvement*, and *evidenced-based programs*.

Table 1  
*Sample Characteristics*

	Red Ribbon Certified Schools (N=1343)	Comparison Schools (N=980)
Sex		
Female	673	497
Male	645	465
Race		
American Indian	16	8
Asian	50	28
Black/ African America	413	331
Spanish/ Hispanic	334	208
Native Hawaiian	27	15
White/ Caucasian	357	284
Other	121	89
Mixed-race	2	1
Grade-level		
Middle School		
6 <sup>th</sup>	297	165
7 <sup>th</sup>	305	151
8 <sup>th</sup>	306	164
High School		144
9 <sup>th</sup>	99	110
10 <sup>th</sup>	79	117
11 <sup>th</sup>	107	118
12 <sup>th</sup>	135	
County		
Orange	775	583
Miami-Dade	568	397

## Measurement

***Florida Youth Substance Abuse Survey- Abbreviated Form.*** The abbreviated FYSAS is a valid and reliable tool developed from the Communities That Care Youth Survey as a way to explore adolescents' beliefs regarding substance use and abuse. From this tool, 31 items were carefully selected to limit burden (requiring roughly 15 minutes to complete) representing seven distinct domains. Items were carefully chosen based on face and content validity. In addition, a reliability analyses demonstrated moderate to strong levels of internal consistency with this sample for each of the domains as well as for the full version of the FYSAS abbreviated form. Domains include: a) prevalence and frequency of substance use (items 18-21,  $a = .814$ ), b) attitudes toward substance use (items 11-17,  $a = .712$ ), c) academic performance (item 5), d) school environment (items 6-10,  $a = .619$ ), e) community environment (items 22-26,  $a = .679$ ), f) home environment (items 29-31,  $a = .472$ ), g) parental attitudes toward substance use (items 27-28,  $a = .782$ ), and h) the total FSYAS score (items 5-31,  $a = .832$ ), representing the construct *youth substance use practices*.

## Analysis

Descriptive information from both Red Ribbon and comparison schools about school-level beliefs and practices toward substance use are first discussed. Frequencies of responses are reported for the seven areas captured by the FYSAS: a) prevalence and frequency of use, b) attitudes toward use, c) academic performance, d) school environment, e) community environment, f) home environment, and g) parental attitudes; and t-tests were run in order to determine if there were any significant differences between Red Ribbon and comparison schools. Additionally, a multiple regression analysis was conducted using SPSS version 19, a statistical analysis program, in order to determine the amount of variance in substance use practices was predicted by Red Ribbon. This analysis allows us to see what percent of contribution the Red Ribbon prevention efforts play in students' beliefs and practices regarding substance use. Since schools were purposively selected for this study, and many school-related characteristics were not captured at baseline, there is a very real risk of confounding influences. Because of this, all efforts were

made to control for the impact of geographic community as well as other student characteristics, including grade-level, sex, race, and ethnicity.

Information from focus group interviews was first transcribed and then analyzed using the constant comparison method of qualitative analysis in order to provide the richest picture of the prevention activities currently in place in participating schools. Codes were grouped into themes based on relative similarity then compared to one another for re-evaluation. Check-coding was used, where two separate evaluators independently identified these themes; codes were compared to one another and retained if both evaluators agree on them. This process allowed researchers to iteratively generate and reduce codes based on consensus, thus enhancing inter-rater reliability.

## Results

When each of the seven areas was examined independently, results demonstrated significant differences between Red Ribbon and comparison schools in five areas: frequency of use ( $F= 14.781$ , ,  $p=.000$ ), attitudes toward use ( $F= 22.898$ , ,  $p=.000$ ), academic performance ( $F=23.377$ , ,  $p=.000$ ), community environment ( $F= 9.984$ , ,  $p=.002$ ), and parental attitudes toward use ( $F=13.090$ , ,  $p=.000$ ). There was no difference in school or home environment. These differences, or lack thereof, are discussed in detail.

## Prevalence and Frequency of Use

Students in schools participating in the RRCSP reported that they used drugs and alcohol less frequently than students in the comparison schools. The average scores for students in the RRC and comparison school groups were 26.79 and 26.26 respectively. The theoretical range for this domain is four to 27, where higher scores indicate less use. The mean difference is .519, a value that reaches statistical significance. Although the difference in scores between groups is extremely small, it does appear to indicate some real-world distinctions. In looking at raw numbers, these distinctions become clearer. One percent of students in the RRCSP reported using alcohol 40 or more times in the last 30

days; 0.4% reported using alcohol on 20-39 occasions; 1.4% 10-19 occasions; 3.4% 6-9 occasions; 5.2% 3-5 occasions; 12.3% 1-2 occasions; and 74.3% reported no alcohol use in the last 30 days. This is compared to 2% of students in control schools reporting using alcohol 40 or more times in the last 30 days (twice that of RRCPS students); 0.6% on 20-39 occasions; 1.5% on 10-19 occasions; 3.1% on 6-9 occasions; 5.4% on 3-5 occasions; 16.7% on 1-2 occasions; and 70.1% reported no alcohol use.

Additionally, 2% of RRCSP students reported using marijuana and other drugs 40 or more times in the last 30 days; 0.6% reported using on 20-39 occasions; 1.7% on 10-19 occasions; 1.8% on 6-9 occasions; 2.5% on 3-5 occasions; 3.9% on 1-2 occasions; and 85.4% reported no drug use in the last 30 days.

Whereas 3.5% of students in control schools reported using marijuana and other drugs 40 or more times in the last 30 days; 1.6% reported using on 20-39 occasions; 1.5% on 10-19 occasions; 1.9% on 6-9 occasions; 2.2% on 3-5 occasions; 5.4% on 1-2 occasions; and 82.8% reported no drug use in the last 30 days.

### Attitudes Toward Use

Students in schools participating in the RRCSP also had slightly more favorable attitudes toward substance use than students in control schools. The mean score on this domain for the RRC schools is 25.07 and 24.13 for control schools, indicating a difference in scores of .93, again mild but reaching statistical significance. The theoretical range for this domain is seven to thirty where higher scores mean that substance use is perceived more negatively. 56.8% of RRCSP students report that it is “very wrong” to drink alcohol; 62.6% reported it is “very wrong” to smoke marijuana, and 83.7% reported it is “very wrong” use other illegal drugs. This is compared to control group students where 50.7%, 59.9%, and 81.4%, reported attitudes toward alcohol, marijuana, and other drugs respectively. In addition to this, RRCSP students also reported that they would be perceived as less “cool” for using these drugs. 55.9% reported that there was “no or very little chance” they would be seen as cool for using alcohol and 55.2% reported the same for marijuana use. This is compared to 53.4% of control group students reporting the same for both alcohol and drug use. Finally, students in RRCSP participating schools report that they

perceive a higher risk associated with using substances, as compared to students in the control schools. 50.2% of RRCSP students reported that they believe using alcohol poses serious physical risks and 52.1% report the same for marijuana use. This is compared to only 45.8% and 46.6%, respectively, in control schools.

### Academic Performance

Students at RRCSP schools reported statically significantly higher academic performance than students in control schools. RRCSP students reported that on average they receive grades of “Mostly B-’s to B’s” (M=4.04). Whereas students in control schools reported receive grades “Mostly C+’s to B-’s” (M=3.85) with the average score difference of .188. Although again mild, students enrolled at RRCSP participating schools do have slightly higher grades than student enrolled at schools who do not meet the standards for Red Ribbon certification.

### Community Environment

Students reported that the community environment surrounding RRC schools are more supportive and engaged in prevention efforts when compared to non-RRC schools. The average score on this domain for students in the RRC group is 15.82 versus 15.38 for the control group. The theoretical range for this domain is five to 25, although the highest observed score here was 20. Although the mean difference is very small, .44, it reaches statistical significance. When the percentage of students who endorsed each response is explored, this small statistical difference can be seen more clearly. 36.7% and 52.5% of RRCSP students find it “very difficult” to procure alcohol and marijuana respectively, compared to 37% and 47.4% of students in control schools. Additionally, 58.1% and 64.3% of RRCSP students reported that their neighbors think it is “very wrong” to use alcohol and drugs, respectively. Again, this is compared to 54.4% and 61.9% of control school students. Lastly, 36.5% of RRCSP students reported perceive their neighborhoods as very safe, whereas only 31.8% of students in the control group reported feeling the same way.

## Parental Attitudes

In general, RRCSP students reported perceiving that their parents are somewhat more disapproving of them using drugs and alcohol and have clearer rules regarding substance use as compared to control group students. The theoretical range for this domain is two to eight. The average score on this domain for the RRCSP group was 7.43 as compared to 7.24 for the control group; with a mean difference of .18- a small but significant difference in parental attitudes. In looking at response option endorsements, 74.5% and 83.7% of RRCSP students report that their parents would view alcohol and drugs as “very wrong”; 13.8% and 8.3% reported that their parents would view alcohol and drug use as “wrong”; and 9.2% and 5.3% reported that their parents would view their use as “a little bit” or “not at all wrong.” This is compared to only 70.7% and 80% of students in the control group reporting “very wrong”; 9.8% and 14.5% reported “wrong”; and 12.9% and 8.8% reported that their parents would view their use as a “little bit” or “not at all wrong.”

Table 2

*Differences between Schools who meet Red Ribbon Certification Standards as Compared to Schools who did not meet Red Ribbon Certification Standards*

	RRCS Group Mean Score	Control Group Mean Score	Mean Difference in Scores	Significantly Different ( <i>p</i> )
Frequency of Use	26.79	26.26	.53	.000*
Attitudes	25.07	24.13	.93	.000*
Academic Performance	4.04	3.85	.19	.000*
School Environment	15.58	15.42	.16	.134
Community Environment	15.82	15.38	.44	.000*
Home Environment	9.79	9.65	.14	.065
Parental Attitudes	7.43	7.24	.18	.000*
Total	108.04	105.86	2.17	.000*

Note: \*Significantly Different if  $p < .05$

In order to determine if the differences found here were, in fact, accounted for by the school’s prevention efforts, and not a result of other student features (for example grade, race, and gender), a regression analysis was performed, allowing us to see what portion of contribution the prevention efforts

play in students' beliefs and practices regarding substance use. Since schools were selected for this study in two different counties, the impact of geographic community as well as other student characteristics, including grade-level, sex, race, and ethnicity are accounted for in the model. After controlling for these effects, it was found that Red Ribbon significantly explains 21.4% of the variance in the way students responded to the survey.

### Focus Groups

A qualitative approach allowed evaluators to build a holistic picture of the complex dynamics involved in school-based prevention practices. Key to understanding the effectiveness of Red Ribbon was looking at the *process* component of the program and identifying any needs and/or gaps as well as limitations and challenges. The intent of the focus groups was to reveal specific activities the Red Ribbon schools accomplished. Based on these interviews, several themes emerged for each component area.

**School Environment.** The Red Ribbon schools provided a sound environment for students. Members of the focus groups described the school orientation process, which helps students transition from middle to high school. There is a “meet and greet” on the Friday before school starts for the year, open house for new students, and “peer/buddy for new students.” They also reported that the school policies were made aware to students and parents through “booklet reminders,” “code of conduct,” use of “telephonic messaging,” and “quarterly newsletters.” Training also occurs in RRCSP schools at the teacher, parent and student-level. Teachers participate in professional development; parents participate on committees focusing on prevention; where students participate in “mentoring,” presentations, and prevention. Additionally, students reported that the RRCSP school’s environment allowed “them to bring ideas to the administration,” stating that student councils are active and involved in alcohol, tobacco and other drugs (ATOD) prevention activities. Lastly, RRCSP school students reported that they were taught to “report potential problems,” “take ownership” of their schools, and provide ideas on how to improve the environment.

**Parent Involvement.** Parent involvement was identified as a key element in student performance. Parents reported that they felt as though they played an “important role in school,” through “volunteering”, “joining as members of parent/teacher associations (PTA)”, walking hallways, and tutoring. They participate in Red Ribbon activities such as “food drives” and obtaining “speakers on prevention topics” and volunteers with the PTA. They also reported that they are “actively involved in providing ideas to the principal and administrative staff.” Communicating with parents was identified as essential in this domain as well. Through the “Connect Ed” process, a telephonic information system, “parents are kept up-to-date” of activities and concerns within the school.

**Red Ribbon Commitment/Community Involvement.** When specifically asked about the school’s current participation with Red Ribbon activities, members of the focus group reported that the Red Ribbon program was “visible” on campuses and that the community provides a “key ingredient” in fund raising, awareness, and support. One teacher reported there is a constant message to the students, “year around focus” on driving under the influence, ATOD, prescription drugs and bullying. Students agreed, reporting that teachers were engaged in promoting activities by grade-level, involved students in raising awareness, and brought in “guest speakers” during class.

**Evidenced-based Programs.** Because the goal is to reduce substance use and abuse, students are the key to prevention. Red Ribbon events target specific age groups and are therefore typically split up by grade, each focusing on different topics. Students reported that incoming sixth graders, for example, engaged in more getting-to-know-you activities, whereas eighth graders focused on behavioral issues such as “bullying,” and “anger management.” Additionally, when asked about evidence-based programs, faculty indicated that the program is very “student-centered”; they are “encouraged to report incidents in school” and are heavily involved in “student activities.”

Table 3  
*Qualitative Themes*

<b>School Environment</b>	<b>Parent Involvement</b>	<b>Red Ribbon/ Community Participation</b>	<b>Evidenced-based Programs</b>
<ul style="list-style-type: none"> <li>• Relationships with teachers</li> <li>• Open-door policy</li> <li>• Orientation</li> <li>• Policies regarding conduct</li> <li>• Trainings</li> </ul>	<ul style="list-style-type: none"> <li>• Involved and active</li> <li>• PTA commitment</li> <li>• Parent / School communication</li> <li>• Red Ribbon activity involvement</li> </ul>	<ul style="list-style-type: none"> <li>• Partnership</li> <li>• Supportive</li> <li>• Year round diverse events</li> <li>• Correcting behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• Decisions</li> <li>• Student-centered</li> <li>• Students work collaboratively</li> <li>• Red Ribbon activity involvement</li> </ul>

## Discussion

Before a detailed discussion of these findings can be done, it is imperative to note that the results found in this study indicate only very small differences between RRCSP and non-RRCSP schools on all outcomes. Because of this, interpretation should be done cautiously. Despite only minimal differences, however, these findings do begin to suggest several interesting things. Students enrolled in schools who meet the standards for Red Ribbon certification used drugs and alcohol at significantly less rates than students in comparison schools. Controlling for confounding influences, students at RRCSP schools reported that they used drugs and alcohol less frequently than students in control schools. Additionally, a higher percentage of RRCSP students reported they believed that it is “more wrong” to drink alcohol, smoke marijuana, and use other illegal drugs than students in comparison schools. They also reported that they would be perceived as less “cool” for using these drugs as well as associated a higher risk with using substances, as compared to students in the control schools.

Since Red Ribbon certification serves to highlight schools that employ a community-based school prevention model, it was anticipated that students in RRCSP group would report differences in

community environments and in parental attitudes. As hypothesized, students reported that the community environments surrounding RRCSP schools were more supportive and engaged in prevention efforts when compared to non-RRCSP schools. RRCSP students find it more difficult to procure drugs and alcohol, perceive their neighborhoods as safer, and believe that their neighbors are more concerned about students using substances than neighbors of students' communities whose schools do not meet Red Ribbon certification standards. Parents of students in the RRCSP group also appear to have better attitudes toward reducing substance use. In general RRCS students perceive their parents as more disapproving of drugs and alcohol and having clearer rules regarding substance use.

It was also anticipated that RRCSP students would report significant differences in both school and home environment. Interesting, there were no statistically significant differences between the groups in terms of the students' perception of their school environment. This could be due to the specific questions asked that make up the school environment construct on the FYSAS abbreviated version. Questions focused on students' levels of enjoyment of school, including "How often did you enjoy being in school?" and "How often did you hate being in school?" While these questions may seek to provide meaningful information, this construct might not be capturing the elements of prevention efforts it intends to collect.

Similarly, it may be reasonable to assume that a student's level of enjoyment of attending class may not be impacted by their school's attempt to improve substance use practices. The same could also be true of the questions used to capture the home environment construct. Questions asked included, "When I am not home, one of my parents knows where I am and who I am with," "My family has clear rules about alcohol and drug use," and "How often do your parents tell you they're proud of you for something you've done?" When these questions are examined as one construct, there was no significant difference between groups. However, when looked at individually, there was a significant difference in student's perceptions of their parents knowing where they are when they are not home ( $F=4.156, p=.008$ ). This

finding is consistent with other research on the positive effects of parental monitoring on adolescent substance use (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003).

The qualitative data compiled from focus group interviews demonstrate that the Red Ribbon certified schools are focused on students. Overall environment for each school allows students to bring ideas to the administration; student councils are active and involved in ATOD prevention activities. Further, students in the Red Ribbon certified schools were taught to report potential problems, take ownership of their schools, and provide ideas. It is clear that when students feel a connectedness to their schools, they perform better. Through positive relationships, teachers and counselors are available and approachable. Research has shown that this positive relationship leads toward student's improvement in social outcomes and academic performance (Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, et al., 2003). Additionally, parent involvement in the school environment has been identified as a key element in student performance. Parents play an important role for each school, volunteering, joining as members of PTA/PTO, walking hallways, and tutoring.

Communication is another key area that was identified as a key component in school-based prevention. This was accomplished through newsletters, internet messaging, flyers, Twitter and Facebook. Orientation, as the first communication with students, set the tone for the school year. Middle schools focused on 6<sup>th</sup> grade orientation, "meet and greet" before schools starts, and tours. Other schools implemented teacher orientation, peer/buddy team concept, and open house.

Finally, it is evident that the community also played a major role in substance abuse prevention for RRCSP schools. A number of organizations and agencies from the surrounding communities engage with students and the schools in order to build connections and lasting relationships. Officers from the local police force come to speak to students about the legal consequences of using ATOD, vendors participate in fundraising opportunities to raise awareness for substance abuse, and community counselors

come in to run groups and have real discussions with students about risk factors for using drugs, including anger and bullying.

Using a qualitative approach to gather information related to RRCSP schools enabled us to confirm the importance of RRCSP components and their effect toward successful prevention. Focus group interviews demonstrated that Red Ribbon schools focused heavily on students in their education. RRCSP school's environment allowed students to bring ideas to the administration and student councils are active and involved in ATOD prevention activities. It is clear that when students feel a connectedness to their schools, a sense of belonging and support, they perform better. These findings echo very clearly what other research has demonstrated. Positive relationships with parents and one's school leads toward student's improvement in health behaviors and academic performance (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004).

It should be noted that focus groups were not conducted with comparison schools. Therefore the extent to which comparisons between Red Ribbon and non-Red Ribbon schools is limited. It is possible that comparison schools engaged in some of the same prevention activities that Red Ribbon schools did.

### **Other Limitations**

As with much of community-based research, this study does have certain limitations specifically in respect to design. Most importantly, it is impossible to rule out certain threats to internal validity. Classes from which students were randomly sampled were purposively selected based on meeting inclusionary criteria. Although this was done so initial comparisons could be drawn between RRCSP and non-RRCSP, the naturalistic assignment to group introduces the possibility that results may have been impacted by extraneous and unmeasured factors. Future studies would benefit from utilizing a more rigorous sampling procedure, where school characteristics are gathered and assessed, in order to match schools in a way that allows for unbiased comparison. On the same note, only schools in Orange and

Miami-Dade Counties were chosen for participation in the study. This was done as previous relationships had been built in these communities. If research seeks to generalize results to the Florida education system, studies should aim to look at randomization at the school-level, utilizing institutions within the entire state of Florida.

Threats to instrumentation can also not be ruled out. Using an abbreviated version of the FYSAS instrument may have limited the depth of information collected. Although questions were carefully selected through an iterative process and most constructs demonstrated moderate to strong levels of internal consistency, there were domains, home and school environment, in which internal consistency lacked. Additionally, the abbreviated version of the measure has not been validated with this sample. Future research should address evidence of validity in this shortened version of the FYSAS. A briefer version of the survey would require significantly less time to complete and may decrease user fatigue, enhancing the scales' practical application in classrooms.

While the purpose of this study was to provide preliminary evidence about the potential impact of the RRCSP, in order to truly test the effectiveness of Red Ribbon more schools should be included in the study. An analysis that accommodates for the effects of nesting, for example hierarchical linear modeling, would be able to provide more convincing and concrete evidence as to the actual impact of program participation. Finally, schools should be monitored and assessed over an extended period of time in order to provide evidence of longitudinal efficacy.

## Conclusion

Weighted against these limitations, are the very tangible strengths of the study. Perhaps the clearest strength is its applicability to the real-world. The purpose of this study was not to make definitive conclusions about how effective Red Ribbon is at reducing substance use, but to provide initial evidence

as to its potential influence on substance use behaviors. Additionally, this article provides valuable information regarding the RRCSP and how schools can become certified.

There are several design features that were used to consciously enhance the rigor of the study design. The use of a comparison group facilitates some initial inferences by allowing researchers to examine the program's impact as compared to what occurs in its absence. Similarly, schools were purposively matched based on a number of important characteristics including student demographics, various socio-economic features such as the percentages of free and reduced lunches, as well as enrollment. Matching schools allows for the comparison of groups by ensuring group differences are non-significant. Additionally, students within schools were randomly selected to participate, again enhancing the likelihood that groups were comparable.

Adding to its utilitarian value, each step of the process - from the development of Red Ribbon certification standards to the conception and implementation of prevention strategies- was informed by focus groups of key stakeholders, including parents, teachers, and community members. This serves to enhance the practical application of the RRCSP and its ability to affect change in schools.

Findings of this study suggest that students in schools meeting Red Ribbon certification standards could use drugs and alcohol less, have better attitudes toward non-substance use, perform better in school, perceive their community environment as safer, and perceive their parents as having more stringent rules regarding substance use when compared to students in schools that do not meet RRCSP certification criteria. Although the effect was mild in many cases, even slight differences can indicate a meaningful improvement. Of great interest is the large impact that the strategies had on both student attitudes toward substance use and their perception of their community. Future work should focus on how the RRCSP directly impact these outcomes. These findings are consistent with the literature on primary prevention. Numerous studies have demonstrated that an adolescent's social surroundings, made up of primarily their

school environment during the middle and high school years, plays a large role in their attitudes toward health behaviors (Flay, 2000).

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Steven G. Brooks  
12/19/2013

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Author

Date

12-19-13

## COLORADO CONSEQUENCES

*A Statement By The International Task Force on Strategic Drug Policy*  
January 2014

The primary duty of any Government is to ensure the welfare and well being of its citizens which is why most countries signed up in support of and compliance with International Drug Control Treaties. The UN Conventions were developed because it was universally agreed that control was necessary to protect the health and welfare of mankind; they are reviewed and approved every decade. The main Convention of 1961 is very flexible in its approach and far from being all about arrests and imprisonment, it emphasises the need that *drugs should be used only for legitimate medical and research purposes*. It stresses health and requires that all drug dependent people are treated with respect and not marginalised or discriminated against. The Conventions encourage evidence based therapy for those who become dependent as well as education, rehabilitation and social re-integration. Criminality also has to be addressed.

The purpose of any effective drug policy should be to lessen the societal harms of illegal drugs. Lowering or eliminating current legal and social restrictions that limit the availability and acceptance of drug use will likely have the opposite effect. Any Government policy must be motivated by the consideration that it must first do no harm. There is an obligation to protect citizens and the compassionate and sensible method must be to do everything possible to reduce use, dependency and misuse; not to encourage or facilitate it.

What has happened in Colorado is the exact opposite of what the UN Conventions set out to achieve. The remarkable thing is that it remains illegal to grow, sell or use marijuana under U.S. Federal law which classifies the drug as a controlled substance. Thus it is incredible that there have been no overt moves by the Attorney General and no widely publicised criticism of these developments by the U.S. President to quash a State decision

There is little doubt that there will be enormous pressure for others to follow Colorado and great rejoicing amongst those who have already seen this as an opportunity to make billions of dollars, and those in favour of legalising all drugs. Undoubtedly, universal resistance to legalisation has suffered an enormous blow and the credibility of law enforcement agencies will suffer whilst the burden on health and social services will increase enormously.

Sadly, there is another UN Convention which has been ignored, namely that concerned with the Rights of the Child, 1989, designed to protect children from the illicit use of narcotic drugs and psychotropic substances and to prevent the use of children in illicit production and trafficking. Although the United States never ratified this Convention, it voted for it and actually has tougher laws on this topic which have been enacted by its Congress. This is important as the human brain does not stop developing until well into the twenties and substances like marijuana are proven to damage the brain permanently.

No matter the half hearted attempt by proponents in Colorado to protect people under the age of 21 by prohibiting sales to them, it is naivety in the extreme to pretend that children will remain unaffected by this marijuana free-for-all. There will be aggressive marketing, which

has already begun, and this will persuade many to sample the drug. Based on the parallel with tobacco there will be an almost guaranteed long term uptake of 50%. Permissibility, availability and accessibility of dangerous drugs will likely result in increased consumption by many who otherwise would not consider using them. The example of adults freely indulging in the use of this drug will certainly influence children who will come to believe that because its recreational use has been permitted then it cannot be very dangerous and many will try the drug in the same way that they use tobacco and alcohol.

Criminals will continue to facilitate the use of all other dangerous drugs. The plant remains a dangerous drug the use of which has scientifically proven and seriously damaging consequences, particularly for young and impressionable youth. Freedom of choice does not bring freedom from adverse consequences.

Apart from all of the overwhelming evidence of harm that is caused by the use of marijuana there is a significant difference from the use of alcohol which is that marijuana is fat soluble and remains in the body for many days after initial ingestion. If this is on a regular basis the adverse effects are cumulative and the user is never free from the drug, whereas alcohol is water soluble and a unit is broken down by the liver within the hour. In the case of the use of tobacco, the carcinogenic effects of marijuana are significantly greater and more seriously damaging. It is certain that people driving under the influence of drugs will increase. Does society really want its airline pilots, taxi drivers, educationists and medical professionals for example to become regular recreational users of marijuana?

It is folly to believe that the inevitable increase of the use of marijuana that will follow from this unwise move in Colorado, Washington and all of the other States that will be tempted to follow suit will not place a great burden on society. Those who see Colorado as a good example are no doubt dazzled by the illusion of untold wealth that allegedly will be used for the benefit of society rather than the financial entrepreneurs whose only motive is profit. Public health will be seriously damaged, children will suffer a great loss of potential and the ultimate beneficiaries will be unscrupulous business people and criminals. A "Big Marijuana" industry will develop that will dwarf the "Big Tobacco" industry but will do far more damage. Society as a whole will be the worse for this foolish ignoring of scientific and medical evidence.

Prohibition has ensured that the total number of users is low because legal sanctions do influence people's behaviour. The cumulative effects of prohibition and interdiction combined with education and treatment during 100 years of international drug control have had a significant impact in stemming a major drug problem. Control is working and one can only imagine how much worse the problem will become if others follow the bad example of Colorado.

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The *International Task Force on Strategic Drug Policy* is a network of professionals and community leaders from over 35 countries who support and promote drug demand reduction principles, develop community coalitions and strive to advance communication and cooperation among non-governmental organizations who are working to stem illicit drugs and promote sound drug policy around the world.