

## Prevention of Youthful Marijuana Use

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Urging youth to be the leaders in pharmacological abstinence or restraint is somewhat quixotic. To date, drug education and prevention campaigns have had only marginal success in reducing marijuana use. In the context of adult legalization, it will be particularly difficult to persuade teens of their unique vulnerability [1-3]. Prevention strategies have also been hobbled (a) by the Drug War's emphasis on criminal justice enforcement, (b) by "scare them straight" education programs, and (c) by mass media campaigns often exaggerating the risks. Medical marijuana advocates have also contributed to difficulties with misinformation that exaggerates the health benefits of marijuana while minimizing negative side effects.

In 1994, the Institute of Medicine (IOM) developed a continuum of care model, dividing all health interventions into prevention, treatment and maintenance phases [4, 5]. When applied to marijuana, prevention may be defined as all services provided prior to a clinical (DSM-V) diagnosis of a substance use disorder. Preventive interventions are further categorized as *universal*, *selected* or *indicated* to reflect the needs of subpopulations that present different levels of risk for addiction.

IOM categories provide an alternative construct to most previous education campaigns. The IOM model permits us to think in terms of differentiated and focused interventions as well, depending on individual need and community/school context. Broad education campaigns are needed, to be sure, but it is arguably more important to develop and fund interventions that provide remediation or clinical referral for the minority of students already in trouble.

*Universal* prevention strategies are delivered to broad populations without consideration of individual risk for developing substance use disorder. Universal strategies are the most economical and require the lowest level of professional expertise. Examples include Nancy Reagan's "Just Say No" campaign and the DARE program. Both campaigns produced disappointing results.

In the effort to stop teenage experimentation, prevention messages often pretend there is no difference between use and abuse.... This hypocritical message is often dismissed by teens who see that adults routinely make distinctions between use and abuse.... Most observe their parents and other adults using alcohol [and marijuana] without abusing it.... The abstinence-only mandate puts adults in the unenviable position of having nothing to say to young people we need most to reach. [6]

Scientifically accurate general education campaigns (See **Briefing #6**, Drug Education) need to provide reality-based information that enables teenagers to make responsible decisions by:

- Providing honest science-based information,
- Encouraging moderation in youth who continue to use,
- Promoting an understanding of the legal and social consequences of drug use, and
- Prioritizing safety through personal responsibility and knowledge.

Even so, young people have a tendency to discount drug campaigns directed solely at them. Because of strong peer influences and youthful experimentation, they are likely to discount most prevention messages as propaganda. However, decades of universal anti-tobacco campaigns *have* reduced

smoking rates in teens and adults as a result of public health campaigns that use a variety of age-appropriate messages targeting the population as a whole. The current paradox is that young people now consider marijuana safer than tobacco; and, more high school seniors smoke pot than cigarettes [7, 8].

*Selected* prevention strategies target sub-groups of individuals identified on the basis of characteristics known to create an elevated risk for a DSM-V substance use disorder. For example, students just entering high school, school dropouts, and students with a positive family history of addiction constitute groups with increased and specific risks. Prevention interventions can be focused to address the specific risk factors shared by members of such subgroups.

*Indicated* prevention addresses individuals identified on the basis of manifest risk behaviors. Examples include students who use drugs on campus or who are known to have begun binge drinking. Indicated individuals tend to emerge from selected populations, often through the use of screening tools, arrests, and school or family reports. The juvenile justice system can also make court diversion referrals to community or school-based programs. Indicated prevention strategies include motivational interviewing, evaluation of barriers to learning, family contacts, assessment of learning skills, and individual and group counseling to mitigate behaviors that put students at risk of developing a diagnosis of addiction requiring referral to professional treatment.

Many intervention models have demonstrated changes in adolescent behaviors. For example, Hawkins and Catalano's *Communities That Care* (CTC) model is organized outside of the school system. Such a community-based design,

“mobilizes community stakeholders to collaborate on the development and implementation of a science-based community prevention system. The CTC system is expected to produce community-wide changes in prevention system functioning, including increased adoption of a science-based approach to prevention and increased use of tested, effective preventive interventions that address risk and protective factors prioritized by the community.” [9]

Student Assistance Programs (SAPs) are school-oriented but widely diverse in design. Generally speaking, SAPs provide confidential three-tiered interventions for students in a manner analogous to Employee Assistance Programs (EAPs) (see Briefing #5, Student Assistance Programs). SAPs coordinate school-based services for students to identify issues that prevent students from learning and being successful. They provide a range of preventive services, including education, early identification, intervention, referral, and support groups for students and families to promote school retention and “readiness to learn”.

Each prevention model has its advantages. *Communities That Care* promotes development of community coalitions that could guide their local schools in developing SAPs as well as promoting dissuasion activities for youth after high school graduation (or dropout) and before age 21. A community-based approach would do well to study the design and impact of the Portuguese Dissuasion Commission model [10-13].

The Institute of Medicine's prevention model points toward a three-tiered school-based approach, recognizing at the same time that such an approach does not handle school dropouts or graduates after age 18. SAPs can provide a range of preventive interventions (from education to remediation and counseling) designed to more precisely meet the level of identified risk. A great benefit of SAPs is that there are many such programs already operating in the US. The core foci of SAPs are school retention and improved learning performance.

In a separate briefing, we have outlined the essential components of such designs:

1. School district-level organization
2. Drug education and prevention services
3. Focused educator trainings:
4. Cognitive learning assessments:
5. Clinical screenings:
6. Confidentiality & Privacy:
7. Confidential toxicology testing
8. No zero-tolerance suspension/expulsion policies
9. Criminal justice diversion
10. Relapse is not a treatment failure
11. Outcomes evaluations:

“School Climate” is a relatively new organizing concept for understanding the components of successful schools, and there is a great deal of data available on “school climate” in California schools. A positive school climate has been associated with higher academic achievement and healthy behavioral outcomes for students. [14]

Between 2003 and 2011, California districts that received funding through the Safe and Drug-Free Schools and Communities Act, Title IV, Part A of the No Child Left Behind Act of 2001 or the state Tobacco Use Prevention Education program were required to administer the *California Healthy Kids Survey* (CHKS), which is largely focused on measuring school climate. Approximately two thirds of all public middle and high schools in the state administered the CHKS. These data are used to create a global school climate score for each school in which the CHKS was administered, as well as subscale scores that measure specific dimensions of school climate.[14]

Although there is no data on combining the two approaches – promoting healthier schools through SAPs and healthier communities through CTC-like coalitions – there are theoretical and common sense reasons to suppose that the two models of prevention could work together.

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## Endnotes

1. Silins, E., et al., *Young adult sequelae of adolescent cannabis use: an integrative analysis*. The Lancet Psychiatry, 2014. **1**(4): p. 286-293.
2. Ammerman, S., *Marijuana Use in Adolescents: Update and Counseling Tips* California Pediatrician, 2011. **27**(2): p. 8-13.
3. Ammerman, S., *Marijuana*. Adolesc Med State Art Rev, 2014. **25**(1): p. 70-88.
4. Mrazek, P.B., et al., *Reducing risks for mental disorders : frontiers for preventive intervention research*. 1994, Washington, D.C.: National Academy Press. xxvii, 605 p.
5. Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders., *Improving the quality of health care for mental and substance-use conditions*. Quality chasm series. 2006, Washington, DC: National Academies Press. xxiii, 504 p.
6. Rosenbaum, M. *Safety First: A Reality-Based Approach to Teens and Drugs*. 2014; Available from: <http://www.drugpolicy.org/resource/safety-first-reality-based-approach-teens-and-drugs>.
7. Johnston, L.D., et al. *Monitoring the Future: National Survey Results on Drug Use 1975-2013 - 2013 Overview, Key Findings on Adolescent Drug Use*. 2013.
8. Univ of Mich, *Monitoring the Future*. 2013.
9. Hawkins, J.D., R.F. Catalano, and J.Y. Miller, *Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention*. Psychol Bull, 1992. **112**(1): p. 64-105.
10. Domszlawski, A., *Drug Policy in Portugal: The Benefits of Decriminalizing Drug Use*, in *Lessons for Drug Policy Series*. 2011, Open Society Foundations: Global Drug Policy Program, Open Society Foundations, c/o Helsinki Foundation for Human Rights, Ul. Zgoda 11, 00-018, Warsaw, Poland.
11. Greenwald, G., *Drug Decriminalization in Portugal: Lessons for Creating Fair and Successful Drug Policies*. 2009, Cato Institute.
12. Hughes, C.E. and A. Stevens, *What Can We Learn From The Portuguese Decriminalization of Illicit Drugs?* British Journal of Criminology, 2010. **50**(6): p. 999-1022.
13. Hughes, C.E. and A. Stevens, *A resounding success or a disastrous failure: Re-examining the interpretation of evidence on the Portuguese decriminalisation of illicit drugs*. Drug and Alcohol Review, 2012. **31**(1): p. 101-113.
14. Voight, A., G. Austin, and T. Hanson,, *A Climate for Academic Success: How School Climate Distinguishes Schools That are Beating the Odds (Full Report)*. 2013, WestEd: San Francisco.

## Endnotes (Annotated)

Ammerman, S. (2011). "Marijuana Use in Adolescents: Update and Counseling Tips " *California Pediatrician* **27**(2): 8-13.

Ammerman, S. (2014). "Marijuana." *Adolesc Med State Art Rev* **25**(1): 70-88.

Marijuana use in pediatric populations remains an ongoing concern, and marijuana use by adolescents had known medical, psychological, and cognitive side effects. Marijuana alters brain development and has detrimental effects on brain structure and function in ways that are incompletely understood at this point in time. Furthermore, marijuana smoke contains tar and other harmful chemicals, so marijuana cannot be recommended by physicians. At this time, no studies suggest a benefit of marijuana use by children and adolescents. In the context of limited but clear evidence showing harm or potential harm from marijuana use by adolescents, any recommendations for medical marijuana use by adolescents are based on research studies with adults and on anecdotal evidence. Criminal prosecution for marijuana possession adversely affects hundreds of thousands of youth yearly in the United States, particularly minority youth. Current evidence does not support a focus on punishment for youth who use marijuana. Rather, drug education and treatment programs should be encouraged to better help youth who are experimenting with or are dependent on marijuana. Decriminalization of recreational use of marijuana by adults has not led to an increase in youth use rates of recreational marijuana. Thus, decriminalization may be a reasonable alternative to outright criminalization, as long as it is coupled with drug education and treatment programs. The effect of outright legalization of adult recreational use of marijuana on youth use is unknown.

Domoslawski, A. (2011). Drug Policy in Portugal: The Benefits of Decriminalizing Drug Use. *Lessons for Drug Policy Series*. Global Drug Policy Program, Open Society Foundations, c/o Helsinki Foundation for Human Rights, Ul. Zgoda 11, 00-018, Warsaw, Poland, Open Society Foundations.

In 2000, the Portuguese government responded to widespread public concern over drugs by rejecting a "war on drugs" approach and instead decriminalised drug possession and use. It further rebuffed convention by placing the responsibility for decreasing drug demand as well as managing dependence under the Ministry of Health, rather than the Ministry of Justice. With this, the official response toward drug dependent persons shifted from viewing them as criminals, to treating them as patients.

"Drug policy in Portugal: The benefits of decriminalizing drug use" is the second in a series of reports by the Open Society Foundations' Global Drug Policy Program that documents positive examples of drug policy reform around the world (the first being "From the mountaintops: What the world can learn from drug policy change in Switzerland"). "Drug policy in Portugal" describes the process, context, ideas, and values that enabled Portugal to make the transition to a public health response to drug use and possession. Now, with a decade of experience, Portugal provides a valuable case study of how decriminalization coupled with evidence-based strategies can reduce drug consumption, dependence, recidivism, and HIV infection, and create safer communities for all.

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- IV. Depenalization, decriminalization, and legalization
- V. A new philosophy in action
- VI. The attitude of the police
- VII. Advantages and drawbacks
- VIII. Drug use and the current policy
- IX. Conclusions

Greenwald, G. (2009). Drug Decriminalization in Portugal: Lessons for Creating Fair and Successful Drug Policies, Cato Institute.

Hawkins, J. D., et al. (1992). "Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention." *Psychol Bull* **112**(1): 64-105.

The authors suggest that the most promising route to effective strategies for the prevention of adolescent alcohol and other drug problems is through a risk-focused approach. This approach requires the identification of risk factors for drug abuse, identification of methods by which risk factors have been effectively addressed, and application of these methods to appropriate high-risk and general population samples in controlled studies. The authors review risk and protective factors for drug abuse, assess a number of approaches for drug abuse prevention potential with high-risk groups, and make recommendations for research and practice.

Hughes, C. E. and A. Stevens (2010). "What Can We Learn From The Portuguese Decriminalization of Illicit Drugs?" *British Journal of Criminology* 50(6): 999-1022.

Hughes, C. E. and A. Stevens (2012). "A resounding success or a disastrous failure: Re-examining the interpretation of evidence on the Portuguese decriminalisation of illicit drugs." *Drug Alcohol Rev* 31(1): 101-113.

Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. (2006). *Improving the quality of health care for mental and substance-use conditions*. Washington, DC, National Academies Press.

Johnston, L. D., et al. (2013). "Monitoring the Future: National Survey Results on Drug Use 1975-2013 - 2013 Overview, Key Findings on Adolescent Drug Use."

Mrazek, P. B., et al. (1994). *Reducing risks for mental disorders : frontiers for preventive intervention research*. Washington, D.C., National Academy Press.

Rosenbaum, M. *Safety First: A Reality-Based Approach to Teens and Drugs*. Dec 2014; Drug Policy Alliance (DPA), Available from: <http://www.drugpolicy.org/resource/safety-first-reality-based-approach-teens-and-drugs>.

Silins, E., et al. (2014). "Young adult sequelae of adolescent cannabis use: an integrative analysis." *The Lancet Psychiatry* 1(4): 286-293.

Background debate continues about the consequences of adolescent cannabis use. Existing data are limited in statistical power to examine rarer outcomes and less common, heavier patterns of cannabis use than those already investigated; furthermore, evidence has a piecemeal approach to reporting of young adult sequelae. We aimed to provide a broad picture of the psychosocial sequelae of adolescent cannabis use.

Methods We integrated participant-level data from three large, long-running longitudinal studies from Australia and New Zealand: the Australian Temperament Project, the Christchurch Health and Development Study, and the Victorian Adolescent Health Cohort Study. We investigated the association between the maximum frequency of cannabis use before age 17 years (never, less than monthly, monthly or more, weekly or more, or daily) and seven developmental outcomes assessed up to age 30 years (high-school completion, attainment of university degree, cannabis dependence, use of other illicit drugs, suicide attempt, depression, and welfare dependence). The number of participants varied by outcome (N=2537 to N=3765).

Findings We recorded clear and consistent associations and dose-response relations between the frequency of adolescent cannabis use and all adverse young adult outcomes. After covariate adjustment, compared with individuals who had never used cannabis, those who were daily users before age 17 years had clear reductions in the odds of highschool completion (adjusted odds ratio 0.37, 95% CI 0.20-0.66) and degree attainment (0.38, 0.22-0.66), and substantially increased odds of later cannabis dependence (17.95, 9.44-34.12), use of other illicit drugs (7.80, 4.46-13.63), and suicide attempt (6.83, 2.04-22.90).

Interpretation Adverse sequelae of adolescent cannabis use are wide ranging and extend into young adulthood. Prevention or delay of cannabis use in adolescence is likely to have broad health and social benefits. Efforts to reform cannabis legislation should be carefully assessed to ensure they reduce adolescent cannabis use and prevent potentially adverse developmental effects.

Funding Australian Government National Health and Medical Research Council.

Univ of Mich (2013). "Monitoring the Future."

Voight, A., et al. (2013). *A Climate for Academic Success: How School Climate Distinguishes Schools That are Beating the Odds* (Full Report). San Francisco, WestEd.

The goal of this study is to determine what makes successful schools different from other schools. Rather than define success in absolute terms—such as the percentage of students who are proficient on a standardized test—this study's definition is based on whether or not a school is performing better than predicted given the characteristics of the students it serves.

Using data from over 1,700 California public middle and high schools, 40 schools were identified that consistently performed better than predicted on standardized tests of math and English language arts achievement. These schools were labeled "beating-the-odds" (BTO) schools. A previous study using this definition of success found that personnel resources—such as the education, experience, and roles of staff—did not help distinguish successful from unsuccessful schools. The current study looks at the relationship between school climate and success, as measured by the California Healthy Kids Survey. The measure includes such dimensions of the school environment as safety, academic supports, social relationships, and school connectedness.

A positive school climate has been associated with higher academic achievement and healthy behavioral outcomes for students. The results of this study show that BTO schools had substantially more positive levels of school climate than other schools. BTO schools had climate scores at the 82nd percentile, on average, whereas other schools

were at the 49th percentile, on average. Differences in school climate were twice as large between BTO schools and 20 schools that were consistently performing worse than expected (“chronically underperforming”). These differences were attenuated, but remained large and significant, even after adjusting for schools’ student characteristics and personnel resources. In other words, school climate distinguished BTO schools from non-BTO schools that served the same types of students and had the same types of staff. Furthermore, school climate was more strongly associated with the likelihood of beating the odds than student demographics or personnel resources.

This study adds to the growing body of evidence suggesting that school climate is an important factor for school success. The study builds on the school effectiveness and school climate literature by examining not only if there is an association between climate and achievement—as previous research has done—but by examining if school climate helps understand how a subset of schools is consistently able to beat the odds and perform better than its peers. School climate is a malleable factor that schools or districts are able to manipulate. Expansion of programs designed to improve school climate could result in increased success for a broader number of schools. School climate may be part of the solution to helping schools beat the odds.