

Appendix A: Comment Cards and Electronic Comments

August 8, 2017

Preliminary CAG Comments and Directions Regarding the Revised County Ordinance

- 6 = I fully agree
- 5 = I find it acceptable and believe it is the best option available
- 4 = I can live with this direction, but I am not that enthusiastic about it
- 3 = I do not agree, but will go with the wisdom of the group and not oppose this
- 2 = I do not feel we have any unity of opinion on this topic and more discussion is needed
- 1 = I disagree with this direction

For each topic, please indicate your level of agreement with each statement using the scale provided. Provide comments in the box at the right of each item.

	Topics	Level of Agreement	Comments
1	The County should consider prohibiting outdoor cannabis activity (medical and adult use) in areas zoned R1, R2 and R3.	5	commercial cultivation
		1	personal use & caregiver cultivation
2	The County should consider designating select areas of the County where cultivation for medical and adult use cannabis would be allowed based on land use and zoning.	5	creating a specific cannabis business zone? the question seems a little ambiguous, but i support allowing cultivation.
3	The County should consider requiring a permit for any personal grows (medical and adult use) beyond 6 plants.	1	

1 | Page thank you for providing a mechanism for public feedback, but the format of this worksheet leaves alot to be desired! we should be discussing how, or if, licensing all cannabis businesses

- ★ dispensaries
- ★ NURSERIES
- ★ MANUFACTURING
- ★ testing labs
- ★ processing
- ★ distribution

4	The County should consider requiring that a residence be located on cultivation sites.		
5	The County should consider allowing a transition period for a residence to be constructed if none exists at the cultivation site (if yes, determine if transition period should be 1, 2 or 3 years).		
6	The County should consider maintaining setbacks of 600 feet from cultivation sites to any active School Bus Stops, School Evacuation Site, Church, Park, Child Care Center, or Youth-Oriented Facility.		
7	The County should consider conducting an environmental capacity analysis to determine the level of cannabis activity that can occur within the County while avoiding significant and unavoidable impacts.		

8	The County should consider limiting the number of medical cultivation permits.	3	IF cultivation sites can meet state regulations, they should be allowed to be permitted - no residence required
9	The County should consider limiting the number of adult use cultivation permits.	1	let the "free market" sort out how many permitted businesses can succeed.
10	If you agree to limit permits, the County should consider developing a permit allocation process based on criteria consistent with County policy for cannabis cultivation. For example, give preference to farms owned by County residents.	5	if permits will be limited, this is the most legitimate rationale I could think of.
11	The County should consider establishing a permit fee and fine structure for non-compliance that is effective and timely but allows a short timeframe for self-compliance.	2	this is an old paradigm of thinking! cultivators who are permitted will lose their license if they do not comply with state regulations.
12	The County should consider identifying potential funding sources to implement public education programs on: (i) the responsible use of cannabis by adults; and (ii) the potential harmful effects of cannabis use by those under the age of 25.	2	permit fees should be <u>strictly</u> for cost recovery of operating the permit program. revenue neutral. taxes could potentially raise funds for public health objectives.

Chronic Adolescent Marijuana Use as a Risk Factor for Physical and Mental Health Problems in Young Adult Men

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Some evidence suggests that youth who use marijuana heavily during adolescence may be particularly prone to health problems in later adulthood (e.g., respiratory illnesses, psychotic symptoms). However, relatively few longitudinal studies have prospectively examined the long-term physical and mental health consequences associated with chronic adolescent marijuana use. The present study used data from a longitudinal sample of Black and White young men to determine whether different developmental patterns of marijuana use, assessed annually from early adolescence to the mid-20s, were associated with adverse physical (e.g., asthma, high blood pressure) and mental (e.g., psychosis, anxiety disorders) health outcomes in the mid-30s. Analyses also examined whether chronic marijuana use was more strongly associated with later health problems in Black men relative to White men. Findings from latent class growth curve analysis identified 4 distinct subgroups of marijuana users: early onset chronic users, late increasing users, adolescence-limited users, and low/nonusers. Results indicated that the 4 marijuana use trajectory groups were not significantly different in terms of their physical and mental health problems assessed in the mid-30s. The associations between marijuana group membership and later health problems did not vary significantly by race. Findings are discussed in the context of a larger body of work investigating the potential long-term health consequences of early onset chronic marijuana use, as well as the complications inherent in studying the possible link between marijuana use and health effects.

Keywords: adolescent marijuana use, physical and mental health, long-term effects, trajectories of marijuana use, race differences

Supplemental materials: <http://dx.doi.org/10.1037/adl0000103.supp>

Marijuana is the most widely used illicit drug in the United States, and ongoing political debates about legalization have caused a surge in interest regarding the potential health effects of chronic use. Although many large-scale cross-sectional studies have investigated the potential negative health effects of heavy marijuana use, relatively few longitudinal studies have prospectively examined the long-term physical (e.g., cancer, respiratory

problems) and mental (e.g., psychosis, depression) health consequences of early onset chronic use (for a summary, see Volkow, Baler, Compton, & Weiss, 2014). Furthermore, many of the existing studies have produced inconsistent findings, particularly when examining marijuana use as a risk factor for cancer, cardiac illnesses, metabolic diseases, and internalizing disorders. In an effort to provide empirical evidence regarding the potential adverse consequences of marijuana legalization, the present study used longitudinal data to prospectively examine whether young men who chronically used marijuana during adolescence and young adulthood experienced a heightened risk of developing physical and mental health problems in their mid-30s.

Potential Health Consequences of Marijuana Use

Studies examining the adverse health outcomes associated with marijuana use have focused primarily on respiratory, cardiac, and metabolic problems, as well as mental health problems such as depression, anxiety, and psychosis.¹

¹ Although this work is outside the scope of the present article, researchers have also extensively investigated the associations between marijuana use and cognitive deficits, particularly the effect of heavy marijuana use in early adolescence (for reviews, see Lisdahl & Tapert, 2012; Volkow et al., 2014).

This article was published Online First August 3, 2015.

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Manuscript preparation and data collection were supported by Grants DA411018 and DA034608 from the National Institute on Drug Abuse; Grants MH48890, MH50778, and MH078039 from the National Institute of Mental Health; the Pew Charitable Trusts; Grant 96-MU-FX-0012 from the Office of Juvenile Justice and Delinquency Prevention; and the Pennsylvania Department of Health.

The content of this article is solely the responsibility of the authors and does not necessarily represent the official views of the funding agencies.

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Cancer

Given that marijuana is typically smoked, and decades of strong research have shown that tobacco cigarette smoking is a leading cause of lung cancer (Hecht, 1999), a natural question is whether marijuana is carcinogenic (Bowles, O'Bryant, Camidge, & Jimeno, 2012; Tashkin, 2013). Marijuana and tobacco cigarettes share many of the same toxic chemicals (Tashkin, 2013), and the British Lung Foundation recently announced that the smoke produced by a marijuana cigarette might contain 50% more carcinogens than the smoke produced by a tobacco cigarette (British Lung Foundation, 2012). There is some support for a possible association between heavy (e.g., daily or near daily) and/or chronic (e.g., long-term) marijuana use and respiratory cancers, although there is little (if any) evidence indicating that light or moderate marijuana use causes cancer (see Tashkin, 2013). Some cross-sectional (Alldington et al., 2008; Berthiller et al., 2008) and longitudinal (Callaghan, Allebeck, & Sidorchuk, 2013) studies have found that heavy marijuana users are more likely to develop lung, upper airway, or oral cancer than nonusers, whereas other cross-sectional (Hashibe et al., 2006; Rosenblatt, Darling, Chen, Sherman, & Schwartz, 2004) and longitudinal (Sidney, Quesenberry, Friedman, & Tekawa, 1997) studies have failed to replicate these findings. A complication associated with these studies is that heavy marijuana users also tend to smoke tobacco cigarettes regularly, and without prospective data it is difficult to accurately delineate the potential independent influence that marijuana has on lung cancer risk. Thus, it would be premature to draw any definitive conclusions about the risk (or lack thereof) of developing cancer from marijuana use (Hashibe et al., 2005).

Respiratory System, Cardiac, and Metabolic Health

In addition to possible carcinogenic effects, there are also heightened concerns about whether marijuana is related to respiratory, cardiac, and metabolic problems. In general, research with regard to marijuana use and respiratory health has been more consistent than research on marijuana use and cardiac or metabolic illnesses.

Respiratory problems. A recent review suggests that marijuana smokers tend to experience a greater number of respiratory problems than nonsmokers (e.g., chronic bronchitis, wheezing, cough), although there is no evidence that marijuana use is related to airflow obstruction or emphysema (Tashkin, 2013). For example, one longitudinal study found that frequent marijuana use across adolescence and young adulthood was associated with an increased risk of experiencing respiratory problems (e.g., sore throat, shortness of breath) at age 27, even after controlling for age, gender, childhood aggression, adolescent major depressive disorder, parental education level and income, and maternal marijuana use (J. S. Brook, Stimmel, Zhang, & Brook, 2008). However, this study did not control for co-occurring tobacco use or the presence of respiratory problems (e.g., asthma) prior to the onset of regular marijuana use. In a cross-sectional study, researchers found that current marijuana users were more likely to report having chronic bronchitis, cough, phlegm production, wheezing, and abnormal breath sounds (without a cold) than nonusing controls, and this effect remained after accounting for the effects of gender, age, current asthma, and tobacco cigarettes used per day (B. A. Moore, Augustson, Moser, & Budney, 2005).

Cardiac and metabolic problems. Tetrahydrocannabinol, the principal psychoactive component of marijuana, is known to cause substantial increases in heart rate and moderate increases in blood pressure during intoxication (Sidney, 2002); however, studies examining the long-term (i.e., postintoxication) effects that marijuana use may have on cardiac and metabolic illnesses have produced inconsistent findings. One cross-sectional study found a dose-dependent relationship between the frequency of marijuana use (use in the past 30 days) and several cardiometabolic risk factors (e.g., elevated fasting glucose and insulin, triglycerides, systolic and diastolic blood pressure; Vidot et al., 2015). In addition, a case-crossover study of patients who suffered from a myocardial infarction found evidence that marijuana use may have triggered the attack in a small number of patients (Mittleman, Lewis, Maclure, Sherwood, & Muller, 2001), potentially because of the acute effect that marijuana use has on heart rate. However, one longitudinal study found no evidence that adolescents and adults (ages 15–49) who frequently used marijuana were at increased risk for experiencing an adverse cardiovascular event (e.g., heart attack, stroke) or developing coronary heart disease across a 10-year follow-up (Sidney, 2002). Moreover, one large-scale cross-sectional study ($N = 39,695$) of adults found that past and current marijuana users were actually less likely than nonusers to be diagnosed with diabetes, a well-established risk factor for cardiovascular disease (Rajavashisth et al., 2012).

Mental health. A large body of research has examined the association between marijuana use and various mental health problems. Research in this area has produced fairly consistent evidence linking marijuana use with psychotic symptoms and more mixed findings linking marijuana use with anxiety and depression.

Psychosis. Several studies have found that frequent adolescent marijuana use is associated with an increased risk for developing psychotic symptoms, particularly early onset psychosis (e.g., Casadio, Fernandes, Murray, & Di Forti, 2011; T. H. M. Moore et al., 2007; Semple, McIntosh, & Lawrie, 2005; Wilkinson, Radhakrishnan, & D'Souza, 2014). For example, a meta-analysis found that psychotic patients who used marijuana experienced an earlier onset of symptoms than psychotic patients who never used marijuana (Large, Sharma, Compton, Slade, & Nielssen, 2011). Furthermore, there is some evidence that regular marijuana use in early and middle adolescence might be a particularly salient risk factor for the development of psychotic disorders (Casadio et al., 2011; Decoster, van Os, Myin-Germeys, De Hert, & van Winkel, 2012; Hall & Degenhardt, 2000; T. H. M. Moore et al., 2007; Semple et al., 2005; Wilkinson et al., 2014), potentially because it disrupts the maturation of key brain structures in the prefrontal cortex during this developmental period (Casey, Tottenham, Liston, & Durston, 2005; Giedd, 2004, 2008; Paus, 2009; Spear, 2010). However, other evidence suggests that chronic or cumulative marijuana exposure may be more robustly related to psychotic illness than an early age of initiation (Stefanis et al., 2013). There is also evidence of a bidirectional association between prodromal psychotic symptoms (e.g., paranoia) and marijuana use during adolescence (Griffith-Lending et al., 2013), emphasizing the importance of using longitudinal data to examine the potential influence chronic marijuana use has on the development of psychotic disorders.

Depression and anxiety. Recent reviews suggest that regular marijuana use during adolescence may be associated with an

increased risk for developing depressive symptoms, although the evidence remains somewhat mixed (for a review, see Degenhardt, Hall, & Lynskey, 2003; Moore et al., 2007). For example, several longitudinal studies found a significant relation between early marijuana use and subsequent problems with depression, even after controlling for potential confounding variables (Arseneault et al., 2002; Bovasso, 2001; D. W. Brook, Brook, Zhang, Cohen, & Whiteman, 2002; Fergusson, Horwood, & Swain-Campbell, 2002; Patton et al., 2002). However, others found no relation (Windle & Wiesner, 2004) or that the relation between marijuana and depression may be largely due to selection effects and common causal risk factors (Fergusson & Horwood, 1997; Manrique-Garcia, Zammit, Dalman, Hemmingsson, & Allebeck, 2012). For example, at least two longitudinal studies found that adolescent marijuana use was no longer significantly associated with an increased risk for later depression after controlling for several other risk factors, such as IQ, other substance use, family disadvantage, early life stressors, and deviant peers (Fergusson & Horwood, 1997; Manrique-Garcia et al., 2012). Contradictory findings have also been reported; one cross-sectional study found that individuals who used marijuana approximately once per week reported less depressed mood, more positive affect, and fewer somatic complaints than nonusers (Denson & Earleywine, 2006).

In contrast to studies on depression, very few longitudinal studies have found a significant relation between early marijuana use and the subsequent development of anxiety disorders (for a review, see T. H. M. Moore et al., 2007; Crippa et al., 2009). For example, one longitudinal study that used biannual assessments of marijuana use between ages 15 and 17 found no evidence that chronic use was related to a lifetime diagnosis of anxiety disorders during the early to mid-20s (Windle & Wiesner, 2004). The effects of marijuana use on anxiety symptoms may be more acute and isolated in nature, as high doses can cause brief episodes of panic and anxiety attacks in some individuals (Crippa et al., 2009). For others, particularly long-term marijuana users, relaxation and stress relief are often cited as primary reasons for use (Crippa et al., 2009). However, longitudinal studies often combine depressive and anxiety disorders when investigating mental health outcomes associated with marijuana use (e.g., McGee, Williams, Poulton, & Moffitt, 2000), making it difficult to identify the unique relation between marijuana and anxiety symptoms.

Limitations in Prior Research

In summary, prior research has produced mixed findings regarding the associations between chronic marijuana use and indicators of physical and mental health. If there is any trend, it is that individuals who begin using marijuana frequently during early adolescence and those who use at high frequencies throughout adolescence and young adulthood tend to develop more health problems (i.e., psychotic symptoms, respiratory problems) than infrequent/nonusers. However, many of the previously cited studies have suffered from several limitations. First, only a handful of studies have been able to prospectively delineate subgroups of individuals with varying developmental patterns of marijuana use from adolescence into young adulthood. This is particularly important given that the onset, frequency, and duration of marijuana use are posited to be influential in determining whether, and the extent to which, marijuana has a negative effect on health. Second,

few longitudinal studies have examined whether young men who exhibit early and chronic developmental patterns of marijuana use are more likely to exhibit both physical and mental health problems in their mid-30s. Third, many studies have failed to control for important confounding factors, such as health problems that predated the onset of regular marijuana use and co-occurring use of tobacco, alcohol, and hard drugs. Finally, few studies have examined whether chronic marijuana use differentially affects physical and psychological health outcomes across racial groups. Given that Black men are more likely to have health problems and less likely to have access to quality health care services than White men (e.g., Williams & Collins, 1995; Williams & Jackson, 2005; Williams & Sternthal, 2010), it is possible that marijuana use among Black men could overwhelm an already compromised immune system.

The Present Study

The current study overcomes these limitations by investigating whether community-residing Black and White men who displayed different patterns of marijuana use from adolescence to the mid-20s (from age 15 to 26) exhibited different self-reported physical (e.g., asthma, high blood pressure) and mental (e.g., depression, psychosis) health problems in their mid-30s. Importantly, the associations between early patterns of marijuana use and later health were examined after controlling for several confounding factors, including socioeconomic status, co-occurring use of other substances, physical/mental health problems that predated regular marijuana use, and access to medical care. In addition, analyses examined whether Black men were more susceptible to the negative health effects of early onset chronic marijuana use than White men.

Method

Design

The present study used data from the oldest cohort of the Pittsburgh Youth Study. The Pittsburgh Youth Study is a prospective, longitudinal study designed to examine the development of delinquency, substance use, and mental health problems among young men (Loeber, Farrington, Stouthamer-Loeber, & White, 2008). In 1987–1988, the Pittsburgh public schools provided the study investigators with contact information for all enrolled seventh grade students. A random sample of seventh grade boys was selected to participate in an initial screening assessment. Parents of approximately 85% of the boys selected for the screening agreed to participate ($N = 856$). The screening assessed the boys' conduct problems (e.g., fighting, stealing) with rating scales administered to the parents, teachers, and the boys themselves. A multi-informant conduct problem score was then calculated and all boys who scored in the upper 30% ($n = 257$) were chosen for follow-up. A random sample of an approximately equal number of boys ($n = 249$) from the remaining end of the distribution was also selected for the follow-up (total number selected for study = 506 boys; 41.7% White, 54.5% Black, 3.8% other). There were no differences between boys in the screening and follow-up samples in terms of achievement test scores, parental education, and race (Loeber et al., 2008).

Table 1
Health Outcome Descriptive Statistics (in Percentages)

Outcome	Total sample	Black	White
Physical health problems			
Asthma	6.7	7.5	5.7
Allergies	18.8	19.2	18.3
Heart problem	1.8	1.4	2.3
Kidney disease	0.3	0.0	0.6
Diabetes	2.3	4.2	0.0
Headaches	10.6	9.9	12.0
High blood pressure	11.9	14.6	8.6
Cancer	0.8	0.9	0.6
Sexually transmitted infection	0.8	0.5	1.1
Limited in physical activities	5.2	4.7	5.7
Heart attacks/strokes lifetime	1.3	0.9	1.7
Physical injury in past year	9.8	7.1	13.1
Concussion lifetime	27.7	19.9	37.1
Lifetime mental health disorders			
Anxiety disorder	8.3	9.4	6.9
Mood disorder	5.7	5.7	5.7
Psychotic disorder	3.4	3.8	2.9

Note. Descriptive statistics are based on data from all men who completed the age 36 assessment. Total sample = Black and White only.

presented in Table 3. The trajectory groups were not significantly different in terms of self-reported asthma, allergies, headaches, and high blood pressure. The groups also did not differ in terms of having a current health condition that limited their physical activities, having a serious physical injury in the past year, or having a prior history of concussion. Black men were more likely to report having high blood pressure than Whites. White men were more likely to report having experienced a serious physical injury in the past year and having a past history of concussion. Results depicting the association between the model covariates and the physical health outcomes are reported in online Supplemental Materials Table 3.

Mental Health Outcomes

Results examining marijuana trajectory group differences on mental health outcomes after controlling for model covariates are also presented in Table 3. There were no marijuana trajectory group differences related to a lifetime diagnosis of anxiety disorders, mood disorders, or psychotic disorders. There were also no significant differences between Black and White men on the

Table 2
Model Comparisons for Successive Latent Classes of Marijuana Use Trajectories

Model	BIC adjusted	Entropy	Vuong–Lo–Mendell–Rubin likelihood ratio test	Bootstrapped likelihood ratio test
2-class	9114.40	0.87	$p < .001$	$p < .001$
3-class	8922.80	0.80	$p = .188$	$p < .001$
4-class	8793.92	0.82	$p = .001$	$p < .001$
5-class	8728.84	0.80	$p = .533$	$p < .001$

Note. BIC = Bayesian information criterion. The Vuong–Lo–Mendell–Rubin likelihood ratio test and the bootstrapped likelihood ratio test examine whether a N group solution is better than $N - 1$ group solution.

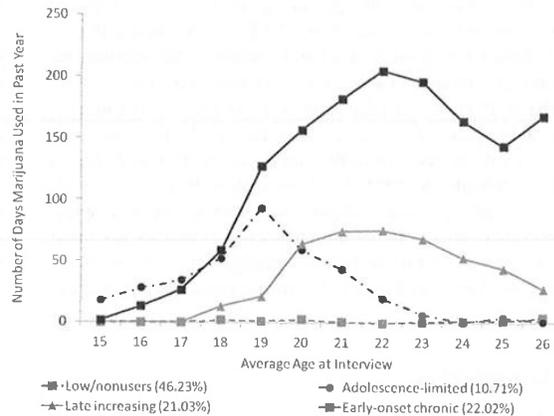


Figure 1. Mean frequency of past-year marijuana use by age for each trajectory group.

mental health outcomes. Results depicting the association between the model covariates and the mental health outcomes are reported in online Supplemental Materials Table 3.

Race Differences and Health Outcomes

The last stage of the analysis investigated whether the associations between marijuana trajectory group and health outcomes differed for Black and White men. There were no significant interactions between race and marijuana trajectory group membership when predicting the study outcomes (these data are not presented here but are available from the first author on request).

Discussion

Ongoing debates about the legalization and decriminalization of medical and recreational marijuana have precipitated a need for rigorous scientific evaluations of the potential long-term consequences associated with chronic marijuana use. The present study used prospective, longitudinal data that spanned more than 20 years to examine whether patterns of marijuana use from adolescence to young adulthood were related to indicators of physical and mental health in adulthood. After controlling for potential confounding variables such as alcohol, tobacco, and hard drug use, socioeconomic status, whether the young men had health insurance, and early health status (prior to marijuana use), findings from this sample indicated that chronic marijuana users were not more likely than late increasing users, adolescence-limited users, or low/nonusers to experience several physical or mental health problems in their mid-30s. In fact, there were no significant differences between marijuana trajectory groups in terms of adult health outcomes, even when models were run without controlling for potential confounds. This is particularly striking given that men in the early onset chronic group were using marijuana (on average) once per week by late adolescence and continued using marijuana approximately 3–4 times a week from age 20 to 26 years.

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Table 3
Health Outcomes by Trajectory Group

Outcome	Low/nonusers (n = 186)		Adolescence limited (n = 38)		Late increasing (n = 76)		Early onset chronic (n = 86)		Trajectory group χ^2	Black vs. White z
	Pr	SE	Pr	SE	Pr	SE	Pr	SE		
Physical health problems										
Asthma	.05	.02	.13	.07	.06	.03	.06	.04	2.61	0.84
Allergies	.19	.04	.08	.05	.10	.03	.12	.05	5.17	1.96
Headaches	.11	.03	.15	.07	.01	.01	.06	.03	6.52	-0.70
High blood pressure	.11	.03	.06	.04	.11	.04	.08	.04	1.24	2.07*
Limited in physical activities	.03	.02	.03	.02	.02	.02	.01	.01	1.71	-1.02
Physical injuries	.07	.03	.07	.04	.09	.04	.12	.05	1.91	-2.13*
Concussions (ever)	.27	.04	.17	.06	.19	.05	.29	.07	3.57	-3.26**
Lifetime mental health disorders										
Anxiety disorder	.07	.02	.10	.05	.04	.02	.06	.03	1.95	1.02
Mood disorder	.06	.02	.02	.02	.02	.02	.05	.03	2.08	0.22
Psychotic disorder	.02	.01	.03	.04	.02	.01	.02	.02	.71	0.39

Note. Pr = predicted probability of event occurrence. All effects are after controlling for model covariates. Only Black and White men with complete data on model covariates are included in the analyses. Sample sizes for each trajectory group are based on class assignment using the posterior probability of group membership.

* $p < .05$. ** $p < .01$.

The four latent marijuana use trajectory groups identified in the current study are very similar to those observed in prior longitudinal investigations. Specifically, prior studies have also found that there is a relatively small subgroup of early onset chronic users who initiate regular use in early to mid-adolescence and continue to engage in frequent marijuana use into early adulthood (J. S. Brook, Zhang, & Brook, 2011; Ellickson, Martino, & Collins, 2004; Finlay, White, Mun, Cronley, & Lee, 2012). Similar to the current findings, there also tends to be a group of adolescence-limited users who exhibit regular marijuana use beginning in early to mid-adolescence, but experience a precipitous decrease in their use beginning in their early to mid-20s (J. S. Brook et al., 2011; Finlay et al., 2012; Guo et al., 2002; Kandel & Chen, 2000). Lastly, prior studies often delineate a group of late increasing users who gradually begin engaging in frequent marijuana use during late adolescence and continue using regularly during their 20s and 30s (J. S. Brook et al., 2011; Ellickson et al., 2004; Finlay et al., 2012; Guo et al., 2002; Kandel & Chen, 2000). Although prior studies have found that this late increasing group sometimes uses marijuana more frequently in adulthood than youth who exhibit early onset chronic use, this was not the case in the current study. Instead, the average annual frequency of marijuana use among men in the early onset chronic group was roughly 2–3 times greater than that of men in the late-onset group from the early to mid-20s.

Just as the trajectories identified in the current investigation are consistent with prior studies, others studies have also found that chronic marijuana use may not be significantly related to long-term physical or mental health problems (e.g., Sidney, 2002; Sidney et al., 1997; Windle & Wiesner, 2004). Similar to Windle and Wiesner (2004), the present study indicated that early onset chronic marijuana use was not significantly associated with an increased risk for developing depression or anxiety disorders in early adulthood. Although one study found that individuals who exhibited a chronically high trajectory of marijuana use over time (“persistent users”) were more likely to be diagnosed with depres-

sion in adulthood than other marijuana users (Juon, Fothergill, Green, Doherty, & Ensminger, 2011), this discrepancy may be due to methodological differences. In the current study, annual interviews were used to collect information regarding the number of days participants used marijuana in the past year from adolescence into their mid-20s. The analysis presented here also controlled for possible confounding variables, including internalizing symptoms in early adolescence. The study by Juon and colleagues (2011) did not control for early internalizing symptoms, and they used retrospective reports of the age at first time using marijuana and age at last time using marijuana. All years between the first and last time using were coded as “marijuana using” years, and these binary items were used to model the trajectory groups. As such, the analytical strategy in Juon and colleagues may have overestimated marijuana use and inflated the relation between marijuana trajectory groups and depression.

Given prior research in the area, it was somewhat surprising that marijuana groups did not differ in the likelihood of having a psychotic disorder. However, there are important methodological differences between the current study and prior work in the area. First, many previous studies examined the association between marijuana use and the onset of psychotic symptoms using retrospective reports collected from patients with a psychotic disorder (see Di Forti et al., 2014; Large et al., 2011). For example, a meta-analysis that synthesized data from more than 80 studies found that, among patients diagnosed with psychosis, marijuana users observed the onset of their psychotic symptoms to appear about 2.7 years before symptoms appeared for nonusers (Large et al., 2011). This could suggest that marijuana exacerbates a preexisting disposition for psychosis but does not cause the disorder to develop in nonvulnerable individuals. It is also possible that the focus on a diagnosis of a psychotic disorder in the current study limited the power to detect more subtle effects that marijuana use has on thought problems. The present study might have found group differences if a lower threshold was used, such as prodromal psychotic symptoms (e.g., excessive suspiciousness, odd think-

ing), instead of a binary diagnostic variable. Furthermore, many prior studies examined chronic marijuana dependence and abuse as a risk factor for later psychotic disorders (e.g., Agosti, Nunes, & Levin, 2002; Farrell et al., 2002; Hall & Degenhardt, 2000) rather than the frequency of use, which may have contributed to the discrepant findings.

Another potential difference between the present study and prior work regarding the marijuana–psychosis link is that many prior studies used cross-sectional data and retrospective reports (e.g., Agosti et al., 2002; Davis, Compton, Wang, Levin, & Blanco, 2013; Di Forti et al., 2014; Farrell et al., 2002; Hall & Degenhardt, 2000; Miller et al., 2001). Although there have been a handful of large-scale prospective population-based and birth cohort studies conducted around the world (e.g., Sweden, Netherlands, New Zealand, Germany, United Kingdom), almost all of these studies collected marijuana data at one to three time points and assessed whether these scores were associated with psychotic outcomes between 1 and 35 years later (e.g., Andréasson, Engström, Allebeck, & Rydberg, 1987; Arseneault et al., 2002; Caspi et al., 2005; Fergusson, Horwood, & Beautrais, 2003; Henquet et al., 2004; Kuepper et al., 2011; Manrique-Garcia et al., 2012; van Os et al., 2002; for a review, see T. H. M. Moore et al., 2007). None of these studies (to our knowledge) investigated whether the developmental course of marijuana use between adolescence and young adulthood is related to psychotic outcomes in adulthood. The current study investigated whether subgroups of individuals who followed different patterns of marijuana use from adolescence to young adulthood had different likelihoods of having a psychotic diagnosis in adulthood. This is a fundamentally different analysis than what has been researched in prior work. Investigating similar questions, with different methods, moves the field forward by demonstrating the specific aspects of marijuana use that are (and are not) related to psychotic outcomes.

Finally, it is increasingly being recognized that individual differences likely moderate the association between marijuana use and psychotic disorders. For example, some studies have found that genetic liability affects whether, for whom, and the extent to which, marijuana has a negative influence on mental health. Alleles on at least two genes known to affect dopamine processing, catechol-O-methyltransferase and C-alpha serine/threonine-protein kinase, have been identified as potential moderators of the link between marijuana use and psychosis (Caspi et al., 2005; van Winkel & the Genetic Risk and Outcome of Psychosis Investigators, 2011; but see Decoster et al., 2012, for a review). However, attempts to replicate the catechol-O-methyltransferase genetic finding have been unsuccessful (Costas et al., 2011; Kantrowitz et al., 2009; Zammit, Owen, Evans, Heron, & Lewis, 2011; Zammit et al., 2007). Future studies should continue investigating the complex role of genetic factors in understanding the linkage between marijuana use and aspects of physical and mental health.

The present study found no evidence that race moderated the associations between marijuana use and the adult health outcomes examined. However, evidence did indicate that Black men were more likely to report having high blood pressure than White men, consistent with prior studies examining racial health disparities in the United States (Williams & Jackson, 2005; Williams & Sternthal, 2010). Although differences in socioeconomic status are believed to partially account for racial

differences in hypertension (Williams & Collins, 1995), the current finding remained significant after controlling for participants' current occupational status and their highest level of education completed.

Study Limitations

Although the present study generated consistent findings across a variety of indicators of health, the results should be interpreted with caution because of several limitations. First, the lack of group differences may have been due to selection effects. It is possible that individuals who had a higher risk of developing marijuana-related health problems chose to use less marijuana and individuals who had a lower risk of developing marijuana-related health problems chose to use more marijuana (thus masking the health risks associated with use). Future research is needed to determine whether (and the extent to which) individuals systematically calibrate their marijuana use based on their understanding of their risk for subsequent mental and physical health problems, based on their perception of the risks associated with the drug, and based on their subjective appraisal of their physical and psychological reaction to marijuana. Similarly, it is important to emphasize that the findings generated in the present analysis extend only to those who chose to use marijuana, as these findings might not be representative of risk in the general population. In summary, the inability to randomize youth to different marijuana use conditions limits the conclusions that can be drawn regarding the health risks associated with use or lack thereof. Furthermore, given the current political climate, some particularly relevant factors (e.g., perceived safety of the drug, legalization, availability) might alter or expand the population of marijuana users, which might directly or indirectly affect the extent to which marijuana is (or is not) related to the health outcomes studied here.³

In addition, the sample was obtained from one geographic area, and analyses were limited to Black and White men. Thus, the analyses presented here need to be replicated with more diverse samples. Given potential sex differences in health disparities, it is also important to study the health effects of marijuana for women. This is especially important given that research indicates that women experience more serious health complications from substance use than men (Kay, Taylor, Barthwell, Wichelecki, & Leopold, 2010).

Furthermore, the current study assessed health outcomes in the mid-30s, which may be too early for decrements in health to emerge. In fact, there were few men with current or chronic conditions within the sample, limiting the power to examine some of the outcomes that were assessed. Therefore, continued data collection and longer follow-ups are needed. In addition, as mentioned previously, the base rates of many of the outcome variables were low. These low base rates limited the ability to detect small, yet potentially important, effects of marijuana use on health. Also, given that the mental health outcomes in the present study were binary diagnostic variables, the data presented here do not address whether, and the extent to which, marijuana use might be associ-

³ We thank an anonymous reviewer for pointing out the limitations outlined in this paragraph.

ated with elevated (or reduced) internalizing or psychotic symptoms. As mentioned previously, significant effects of marijuana may have become apparent if symptom counts were used instead of diagnostic indicators.

Another limitation of the current study is that all health outcomes were measured by self-report. It is possible that some young men had not seen a doctor and thus were unaware of their health problems. Future research should use physician evaluations and medical testing as part of a more comprehensive assessment of physical health outcomes. Furthermore, the mental and physical health problems included were not comprehensive and some potential negative consequences may have been omitted.

It is also important to note that the marijuana trajectory groups were delineated based on the frequency of use and did not take into account quantity, quality, or potency of marijuana. The combination of frequency, quantity, and potency may be especially important when examining health outcomes. The marijuana data in the current study were collected in the 1990s and early 2000s and the average tetrahydrocannabinol potency in marijuana confiscated by U.S. federal and state law enforcement agencies has increased dramatically in the last two decades (e.g., Mehmedic et al., 2010). Higher potencies of marijuana might have a stronger effect on mental and physical health outcomes. Conversely, individuals might be exposed to less smoke overall if more potent marijuana causes individuals to need less of the drug to receive the same high. As such, future research should examine the associations between marijuana and health with varying potencies and types of marijuana.

Conclusion

Over the past decade, U.S. policies have increasingly shifted toward a deregulation of marijuana for medical and recreational use. Recent legislation in several states (i.e., Colorado, Washington, Oregon, Alaska) and Washington, D.C., has legalized recreational marijuana use for individuals 21 and older. More states (e.g., California) are likely to follow suit in future elections. Given this shift in the political climate and the potential increase in marijuana use among youth, it is critical to empirically evaluate the long-term physical and mental health consequences of marijuana use. Overall, data from this sample provide little to no evidence to suggest that patterns of marijuana use from adolescence to young adulthood, for the Black and White young men in the present study, were negatively related to the indicators of physical or mental health studied here. This does not discredit the work of others. It could be the case that cumulative tetrahydrocannabinol exposure, age of initiation of use, or use at one particular age is more predictive of negative health outcomes than the overall pattern of use between adolescence and adulthood.

In conclusion, the health outcomes associated with marijuana use are just one piece of the legalization puzzle. Political debates surrounding the legalization of this drug also need to consider the potential effects on many other domains such as cognitive and intellectual functioning, alterations in brain function and structure, academic and occupational failure, psychosocial adjustment, antisocial and criminal behavior, motor vehicle accidents, and suicidal ideation. Many of these outcomes have been discussed elsewhere

(see Meier et al., 2012; Volkow et al., 2014) and were beyond the scope of the present study, which focused only on health outcomes. Indeed, marijuana policymakers and stakeholders need to consider the results of any single study in the context of the larger body of work on the potential adverse consequences of early onset chronic marijuana use.

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Received January 15, 2015
Revision received May 11, 2015
Accepted May 17, 2015 ■

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Clarification to Bechtold et al. (2015)

For the article “Chronic Adolescent Marijuana Use as a Risk Factor for Physical and Mental Health Problems in Young Adult Men” by Jordan Bechtold, Theresa Simpson, Helene R. White, and Dustin Pardini (*Psychology of Addictive Behaviors*, 2015, Vol. 29, No. 3, pp. 552–563. <http://dx.doi.org/10.1037/adb0000103>), planned analyses using a Wald joint significance test examined whether four adolescent marijuana use trajectory groups differed on self-reported physical and mental health outcomes assessed at age 36. This omnibus test indicated that the groups did not significantly differ in terms of their probability of reporting targeted health problems.

The results from this study generated considerable controversy, including requests for supplemental analyses. One issue was related to whether group differences exist if the three marijuana trajectory groups (i.e., early onset chronic, late increasing, adolescence-limited) are combined and compared to the low/no use group on outcomes in models without any covariates, as well as in models controlling for a reduced set of covariates consisting of race and preexisting health problems at age 13.

Table 1 presents these supplemental analyses. In models without covariates, the three marijuana trajectory groups combined were significantly more likely to report experiencing asthma and less likely to report experiencing allergies relative to the low/no use group. After controlling for race and preexisting health problems at age 13 (data not shown; available from authors), the group difference for allergies remained statistically significant ($p = .04$) but the difference for asthma did not ($p = .10$). In the unadjusted and adjusted models, the three marijuana groups combined had a slightly higher probability of reporting a lifetime psychotic disorder than the low/no use group, but the difference did not reach statistical significance in either model.

Because of concerns that maximum likelihood estimation can produce parameter biases with low base-rate outcomes, we compared the combined marijuana use group with the low/no use group on the lower base-rate outcomes (<10%) using Firth’s penalized likelihood logistic regression for rare events (Heinze & Schemper, 2002). In these models, participants were hard classified into the combined marijuana use group or the low/no use group based on their highest posterior probability of group membership (no adjustment for class uncertainty). As seen in Table 1 (right), the models without covariate adjustment for lower base-rate outcomes were very similar (almost identical) to the standard logistic regressions. When race and preexisting health were included (data not shown), group differences for asthma were no longer significant ($p = .14$) and the p value for psychotic disorder remained largely unchanged ($p = .10$).

This reanalysis suggests that, in general, the three marijuana-using groups combined were not significantly different from the low/no use group on the health outcomes. The group difference on psychotic disorder approached statistical significance and would have been significant if a more liberal test (i.e., one-tailed) was utilized.

As noted in the original manuscript, there are important limitations that need to be considered: (a) The sample included young men who were using marijuana in the late 1990s and early 2000s and THC content has risen recently; (b) data were obtained from self-reports; (c) power was low, particularly for low base-rate outcomes, such as psychotic disorders; and (d) causal and even temporal inference in observational studies is inherently limited. It is important to keep in mind that many other studies have found associations between heavy marijuana use and various mental and physical health problems, particularly psychotic disorders (Semple, McIntosh, & Lawrie, 2005; Volkow, Baler, Compton, & Weiss, 2014; Wilkinson, Radhakrishnan, & D’Souza, 2014).

Table 1
Unadjusted Models Comparing the Low/No Marijuana Use Group to the Other Three Marijuana Use Groups Combined on Adult Health Outcomes

	FIMLE with robust standard errors ^a						Firth's penalized likelihood ^b			
	Marijuana use groups		Low/No use		Wald	p	Marijuana use groups	Low/No use	z	p
	Pr	(SE)	Pr	(SE)			Pr	Pr		
Physical health problems										
Allergies	0.14	(0.03)	0.23	(0.03)	4.10	0.043				
Asthma	0.10	(0.02)	0.04	(0.01)	5.05	0.025	0.10	0.04	2.11	0.035
Headaches	0.08	(0.02)	0.13	(0.03)	1.71	0.191				
High blood pressure	0.11	(0.02)	0.12	(0.02)	0.23	0.629				
Limited in physical activities	0.05	(0.02)	0.05	(0.02)	0.02	0.882	0.05	0.06	-0.19	0.847
Physical injuries	0.11	(0.02)	0.09	(0.02)	0.54	0.462	0.11	0.09	0.76	0.448
Concussions	0.24	(0.03)	0.29	(0.03)	0.84	0.361				
Lifetime mental health disorders										
Anxiety disorder	0.09	(0.02)	0.08	(0.02)	0.34	0.559	0.09	0.08	0.48	0.631
Mood disorder	0.04	(0.02)	0.07	(0.02)	1.07	0.302	0.05	0.07	-0.63	0.527
Psychotic disorder	0.05	(0.02)	0.02	(0.01)	2.88	0.089	0.05	0.02	1.69	0.092

Note. Marijuana use groups = Three marijuana using groups combined (early onset chronic, late-increasing, adolescence-limited); Pr = predicted probability; SE = standard error (standard errors not available for post estimation predicted probabilities in Firth's logistic).

^a Models run using full information maximum likelihood estimation with robust standard errors (Marijuana use group: *N* = 259; Low/No use: *N* = 226). ^b Firth logistic regression using penalized maximum likelihood estimation conducted for low base rate events (i.e., <10%). Sample size reduced to 385 (Marijuana use group: *N* = 200; Low/No use: *N* = 185) because penalized maximum likelihood logistic regression does not allow for missing data on the dependent variable.

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<http://dx.doi.org/10.1037/adb0000153>

A chronic low dose of Δ^9 -tetrahydrocannabinol (THC) restores cognitive function in old mice

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Received 27 July 2015

Accepted 07 February 2017

Published online 08 May 2017

The balance between detrimental, pro-aging, often stochastic processes and counteracting homeostatic mechanisms largely determines the progression of aging. There is substantial evidence suggesting that the endocannabinoid system (ECS) is part of the latter system because it modulates the physiological processes underlying aging^{1,2}. The activity of the ECS declines during aging, as CB1 receptor expression and coupling to G proteins are reduced in the brain tissues of older animals^{3,4,5} and the levels of the major endocannabinoid 2-arachidonoylglycerol (2-AG) are lower⁶. However, a direct link between endocannabinoid tone and aging symptoms has not been demonstrated. Here we show that a low dose of Δ^9 -tetrahydrocannabinol (THC) reversed the age-related decline in cognitive performance of mice aged 12 and 18 months. This behavioral effect was accompanied by enhanced expression of synaptic marker proteins and increased hippocampal spine density. THC treatment restored hippocampal gene transcription patterns such that the expression profiles of THC-treated mice aged 12 months closely resembled those of THC-free animals aged 2 months. The transcriptional effects of THC were critically dependent on glutamatergic CB1 receptors and histone acetylation, as their inhibition blocked the beneficial effects of THC. Thus, restoration of CB1 signaling in old individuals could be an effective strategy to treat age-related cognitive impairments.

For submission to CAG & interested public in connection with the CAG meeting # 5, July 25, 2017

I found the information submitted by the Cannabis Alliance for CAG meeting #4 to be very interesting and helpful. To further inform myself, I developed the attached chart which summarizes the various license types described in those materials. I understand these were derived from SB 94, which is now pending in the state senate.

This allowed me to better grasp the license types and get a preliminary sense of the aspirations of the local cannabis producers with regard to these. I assumed that the numeric data contained in the CDFA survey reflects the aspirations of the local producer community since these licenses do not yet exist in law and, therefore, it cannot be a summary of current licensees.

Still, this data does seem to provide some estimate of the amount of cannabis activity currently going on in Nevada County.

I am sharing this with the CAG and interested others in hope that it will be found useful and informative to them as well.


July 12, 2017

MAURSA License type summary chart			Note	# NevCo*
#	Title/description	Size parameters		
#NAME?				
1	Specialty - Outdoor	< 5000 sq ft		157
1A	Specialty - Indoor	501-5000 Sq ft		52
1B	Specialty - Mixed light	2501-5000 Sq ft		84
1C	Spec. cottage mxd light	< 2500 Sq Ft <25 plants		
2	Small outdoor	5001-10,000 Sq ft		90
2A	Small Indoor	5001-10,000 Sq ft		31
2B	Small Mixed light	5001-10,000 Sq ft		58
3	Outdoor	10,000 sq ft - 1 Acre		53
3A	Indoor	10,001 - 22,000 Sq ft	# to be limited by Dept of Ag	17
3B	Mixed Light	10,001 - 22,000 Sq ft		31
4	Nursery	Not Specified	Clones from "mother" plant	70
5	Outdoor	> 1 acre		
5A	Indoor	> 22,000 Sq ft		
5B	Mixed light	> 22,000 Sq ft		
6	Manufact. w/non-volatile solvents	Not Specified	e.g. CO2, steam	76 6&7
7	Manufact. w/ volatile solvents	Not Specified	in closed loop systems only	
8	Testing Lab	Not Specified		18
9	No such category?			
10	Dispensary	Not Specified		33
10A	Multiple sites	up to 3 per owner		
11	Distribution defined - Procurement, sale, transport between licensees			58
12	Distributor- Microbusiness <1,000 Sq ft cultivation + Manufact. & Retail			102
P	Processor			
N	Manufacturer of edibles or topicals			
Total Nevada County				930
Info derived from material submitted to MIG for distribution to CAG, by Cannabis Alliance				
Summarized to chart form by Robert Erickson, CAG member - not tested for accuracy relative to SB94				
* Nevada County data from CDFA survey. I assume this data is aspirational since these licenses do not yet exist.				
RE: July 12, 2017				



Community Advisory Group (CAG)
Nevada County Cannabis Regulation
Community Planning Process



COMMENT CARD

Date: 8/8/2017
Name: [REDACTED]
Address: [REDACTED]

Comments: In regards to delays before -
As far as water - again state regulations will have to be followed -
There is no way ~~that~~ a Cannabis plant in doors requires 12 gallons a day -
if I heard that correct - not true
In the not to distant future - it will be required that Cannabis
be grown organically, it will also be required that rain water catchment
for growing be mandatory -
Deer - ~~one~~ once a deer chomped a plant - it then grew out like
two antlers - that was once in fifteen years of growing other than that
I have never seen the deer touch cannabis plants and that's on many
farms that I know of -
I agree that pesticides + rodenticides and stealing water +
poisoning water and animals is appalling.
BTW - we will be required to have biz plans for every process
every step of the way.
Remember FDA releases new drugs all the time - with
biased research -
Was that bear really poisoned from a Cannabis grow? How
do we know that?

Please turn in your comment card at the end of the meeting or send your comments by email to:
CAGmeetingcomments@migcom.com

Comment cards and email comments received within 48 hours of the CAG meeting will be included in the summary for that meeting. Those received after that time will be included in the next meeting summary.

Individuals or organizations desiring to address the CAG shall address the CAG from the microphone. Speakers are encouraged but not required to give their name and city of residence before addressing the CAG. Please note that completion of this form is voluntary, and shall not affect your right to attend the meeting or participate in public comment. Time limits may be modified at the Facilitator's discretion.

Cannabis Conversation Website
<https://www.mynevadacounty.com/nc/cda/Pages/CannabisConversation.aspx>

As far as fires go - I would venture to say that more are caused by stupid campers than Cannabis growers -

All packaging must be labeled, tamper proof etc.

I agree today that more fear based, not true information - is constantly being shoved down the CAG members throats and I am extremely frustrated w/ what MIG has continued to do - we need more discussion on our "NEW ORDINANCE" not more "Reefer Madness" crap!

As far as Ken Cutler's presentation - yes, more research needs to be done, and Senator Cory Booker just introduced a new bill - descheduling Cannabis ~~from~~ from a schedule 1 drug - America wants Cannabis legalized.

With state Regs we will have the most regulated industry in the state, if not the world.

Please, again I encourage you all to look at the state regs - don't waste time on reinventing the wheel -

And last but not least, thank-you all for what you are doing it is daunting -



Community Advisory Group (CAG)
Nevada County Cannabis Regulation
Community Planning Process



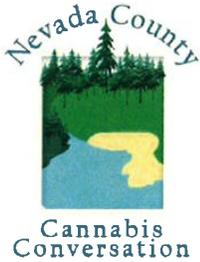
COMMENT CARD

Date: _____
Name: _____
Address: _____ 95960

Comments: Again, proper, reasonable regulation will allow our community of farmers to be able to grow responsibly and ethically, in harmony with our environment and community.

Please turn in your comment card at the end of the meeting or send your comments by email to: CAGmeetingcomments@migcom.com
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Cannabis Conversation Website
<https://www.mynevadacounty.com/nc/cda/Pages/CannabisConversation.aspx>



Community Advisory Group (CAG)
Nevada County Cannabis Regulation
Community Planning Process



COMMENT CARD

Date: 8-8-17
Name: [Redacted]
Address: NEVADA City CA. 95959

Comments: Dear CAG members:

- please recommend that setbacks for CANNABIS grows go back to the previous "from nearest Neighbor's Living space", NOT from property line.

The moment the BOS changed the setback rules, they made hundreds of people non-compliant.

We want to comply, but the current setback rules are very unfair.

THANKS!

Please turn in your comment card at the end of the meeting or send your comments by email to: CAGmeetingcomments@migcom.com

Comment cards and email comments received within 48 hours of the CAG meeting will be included in the summary for that meeting. Those received after that time will be included in the next meeting summary.

Individuals or organizations desiring to address the CAG shall address the CAG from the microphone. Speakers are encouraged but not required to give their name and city of residence before addressing the CAG. Please note that completion of this form is voluntary, and shall not affect your right to attend the meeting or participate in public comment. Time limits may be modified at the Facilitator's discretion.

Cannabis Conversation Website
<https://www.mynevadacounty.com/nc/cda/Pages/CannabisConversation.aspx>

The following comments were submitted by email to cagcomments@migcom.com:

Comment 1:

Greetings, I am an active member of the community here in Nevada County, and I am an organic cannabis farmer. I have only been able to attend the first CAG meeting, but I heard some of the concerns presented and I am highly aware of the main concerns regarding the regulation of cannabis in our county. In my eyes, creating a permitting process and regulating cannabis cultivation in our county solves many of the problems we see in the industry at this point. Here is my response to some of these concerns and how they will be addressed.

Concern: Deforestation, erosion from illegal grading, water theft and/or contamination

If we choose to provide permits for cannabis cultivators, because they are operating as legal businesses, they would be required to follow all land use codes as any other business would. Therefore any kind of timber clearing, grading, or water acquisition would have to be done by permit and up to code in order for the farm to be compliant. Farmers not in compliance would not get permits and would be much easier for law or code enforcement to identify and deal with. Furthermore, the individuals in other industries not following protocol would have to do so. For example, the companies that cut trees and do illegal grading for growers for "under the table" cash would be forced to comply with county code or they would lose business, and possibly be brought into the light and held accountable for illegal work they are doing.

Also I feel that there needs to be a transition period for farmers to bring their farms into compliance while still operating. If we don't have a transition period, then many of the problem gardens with clear cutting and illegal grading will just be abandoned because they won't be permit-able. If we are actually concerned with the restoration of the properties, then it makes sense to make the farmers to rehabilitate their spaces and this will cost money. With a transition period, farmers could continue to operate under the condition that they make improvements towards code compliance within certain periods of time. Give people the opportunity to fix the problems they have created.

That's all for now, thanks and I will comment again when I have more ideas.

Comment 2:

CAG Members:

I am writing a book documenting the struggles of the cannabis farmers in Nevada County and their political fight to become licensed and respected growers. This book is titled: *You Can't Ban the Sun, The Marijuana Wars in Grass Valley*.

I am submitting four Op-Ed articles I wrote for *The Union* on this subject. These articles summarize many of the events and ideas presented in this book.

If you are interested, I would like to submit some finished chapters. Three chapters that feature the Board of Supervisors meeting January 2016 initiating the ban and calling for a vote on measure W. Three chapters documenting the July 26 meeting after measure W was defeated and the current ordinance was approved. And finally four chapters reporting on the only poll of voters taken before the election. See: *A survey on Measure W and why it failed*. These chapters express the will of the voters in their own words, and I believe the job you are undertaking is to follow their wishes in your proposed ordinance. I think these chapters would be useful and necessary.

The work of your group and the Board of Supervisors meeting to vote for a your permanent ordinance will be the final chapters.

Good luck on your endeavors.

(See Attachment A1, beginning page A-30.)

Comment 3:

Although I did not and do not support the legalization of recreational marijuana, a majority of California voters do - and thus I must accept that cultivation and use of recreational marijuana is now legal in California. But the fact that cultivation and use of marijuana continues to be against Federal laws does not escape me. As Nevada County seeks to create regulations and ordinances to comply with the new laws in California, county administrators must never forget that our state is in non-compliance with Federal law.

Having said that - my greatest concern with local regulations is that we, as a community, are able to minimize use and exposure of marijuana to our minors (whose brains are still in development and can be seriously damaged by continued use of marijuana, as demonstrated by a number of long-term studies). Once a community has accepted a substance as being perfectly okay, perfectly safe, and perfectly acceptable for use - it is very difficult to persuade minors that isn't REALLY okay for them. Alcohol is a perfect example - just because it is illegal to purchase or imbibe before the age of 21, does anyone in this community believe that minors are not purchasing and drinking alcohol?

Commercial grows should be prohibited for a number of reasons. We do not want our community to become the hub of cultivation for our state, or even our nation - and since the growing conditions are so favorable in this area - we can easily become a magnet for growers from all over the country. We must strive with great diligence to prevent this from happening. The nuisance factor for small private grows is serious enough - the nuisance and safety factor for large commercial grows would be untenable, and I predict that a number of older, wealthier, tax-paying residents will start migrating away from Nevada County . . . I have spoken to many such people who have indicated just that.

Virginia Postrel, a writer for the Bloomberg View, recently wrote about nuisance issues all around the country and in Canada - quoting citizens who are actually supporters (and some users) of legalized recreational marijuana, yet found the habits and disrespect of some of their fellow citizens to be "loathsome" (their word). A MJ supporter in Toronto complained that "Toronto smells like weed all the time". A financial professional in Washington DC said she was a supporter of legalization, but has changed her mind because "neighbors in the house behind me smoke all the time, and it wafts into my yard and bedroom like a frightened skunk." She also stated that one of the reasons she has changed her mind was that she saw so many young people smoking, as once the threat of police sanctions disappear, many young people feel free to light up without considering the spillover effects. "The smell makes my stomach churn a little, so I even hold my breath when I have to walk by a dispensary" said a software engineer in Portland, Ore, who described himself as "decidedly pro-legalization". Oregon supposedly bans public smoking, but observers say that "Portland reeks." A Manhattan make up artist complained that workers in her neighborhood smoke so much pot on their lunch breaks that "it's like walking through an opium den."

Do we want Nevada County to suffer the same type of problems as those listed above? Should we not learn by the experiences of other communities that have legalized and (supposedly) regulated marijuana use and cultivation?

Let's be smart from the beginning - regulate personal grows, prohibit commercial cultivation, create a method for dealing with nuisance complaints that gives the benefit of the doubt to the person who is being impacted by unwanted odors or other results, do everything conceivably possible to keep marijuana and other substances from our youth, make sure that the public knows our law enforcement officers will actively and aggressively enforce regulations and restrictions. Learn from the experiences of the many other communities in our country that believed legalization would bring greater taxes than the costs associated with law enforcement, environmental destruction, addiction, nuisance problems etc - to find that the costs greatly exceed any benefits.

Thank you for your consideration.

Comment 4:

Hi there,

I'm a Nevada County homeowner/resident living in the Greenhorn area of Grass Valley on 2.2 acres. I've been a resident in Nevada County for 11 years and have been operating a small cannabis farm for 10 years.

It would be devastating for me to loose the opportunity to cultivate cannabis on my property. I suffer from arthritis and chronic pain. I cultivate my own cannabis as well as for others that are too disabled or don't have a place to cultivate their own and they have joined our collective.

If we are not allowed to grow on 2.2 AG/RES acres I could potentially loose my home and me and my animals would become homeless. I know all of my neighbors and they have no problems with me cultivating on my property. My property is secluded and garden is not visible to the road.

I've put blood, sweat and tears into my land and cultivating area. I'm an organic farmer and do not use any pesticides or chemicals. I would be devastated and heartbroken if I was unable to cultivate and loose my property. I'm extremely passionate and love cultivating. I'm unable to work a 9-5 job due to having arthritis in my fingers and spine. Being able to cultivate at my residence gives me flexibility to be able to work as my body permits. Cultivatiting is not an easy job. It takes dedication and hard work to produce high quality clean cannabis.

PLEASE DON'T RULE OUT THE HOMEOWNERS ON 2+acres. It would devistate me and 60% of Nevada County home cultivators.

I broke my ankle and I'm unable to attend the CAG meetings due to mobility.

PLEASE, PLEASE ALLOW US THAT LIVE on 2+ acres to continue growing.

I had to demolish my outdoor garden that took me forever to get it the way I wanted and it was heart breaking to demolish it and build a greenhouse. My greenhouse is 18 x 88. When working in s greenhouse you need space to efficiently walk/move around, storage for supplies/equipment and have enough room for raised bed/pots so the plants have enough room to strive.

I really hope that you consider me and the other residents of our county that are homeowners of 2+ acres and allow us to obtain permits so that we may get a license from the state of California.

If we are unable to continue cultivating I will be forced to have my property foreclosed and we will become homeless and a few of my workers will be financially ruined, pluss all of the other homeowners & employees.

I beg of you to please consider and allow us residents in AG/RES ON 2+ACRES to continue cultivating.

Comment 5:

I attended the Marijuana CAG meeting at the Event Center on Tuesday, Aug. 8, 2017. My reactions to the meeting are as follows:

1. According to The Union (8-7-17), the CAG meeting was to discuss, among other issues, how marijuana affects public health. Regardless of how I feel about any other issue, I believe the CAG should especially focus on public health, and the well-being of our youth.

I had hoped to hear what the experts are saying about marijuana use. The expert selected by the CAG was Dr. Ken Cutler, MD. Much of what Dr. Cutler presented related to the benefits of cannabis derivatives, even though those benefits have not yet been accepted by the FDA. Granted, cannabis may have medically-beneficial properties, but, as

Dr. Cutler acknowledged, much research remains to be done. Dr. Cutler touched only briefly on the potential hazards of marijuana use. He downplayed the risks of head and neck cancers associated with tobacco, and failed to mention emphysema and other cancers identified as marijuana-related risks by the Mayo Clinic, and others. The Mayo Clinic also lists dozens of other harmful and potentially lethal side effects associated with marijuana use. Among them are collapsed lung, heart attack/failure, liver damage, and changes in brain structure. The Mayo Clinic is one of the most renowned medical research facilities in the US. Their report uses the terms “may”, “could”, and “use with caution”, supporting Dr. Cutler’s assertion that more research is required. I recommend, however, that the CAG members review www.mayoclinic.org (search for “marijuana safety”) for a complete list of the possible dangerous and potentially deadly side effects.

Other organizations have taken similar positions regarding the use/legalization of marijuana. Examples:

- the CDC and the Surgeon General (www.cdc.gov) report that marijuana use is a major health problem in the US.
- the DEA (www.dea.gov) still lists marijuana as a Schedule I drug, along with LSD, ecstasy, meth, etc. Demotion to Schedule II is probably warranted, to enable more extensive research.
- The AMA, WHO, etc., all provide cautionary material regarding the use of marijuana.

These are the experts and they provide compelling evidence that medical marijuana should be available only with a doctor's prescription, and that cultivation of marijuana for recreational purposes should be prohibited. Let's forget the analogies to alcohol and tobacco. Medical science wasn't available then to fully expose the issues with those products. The CAG now has the opportunity to direct legislation that will help to avoid the marijuana-induced destruction caused by its predecessors.

2. As a substitute teacher in Nevada County, I listened with interest to CAG Member Catherine Peterson’s report on marijuana’s affect on school attendance and performance at Bear River and NU HS. My observations support her report.
3. During the public comment period, nearly all presenters (growers/users) portrayed themselves not as “bad actors,” but as conscientious farmers. Their claims are rather hollow, since nearly all are in violation of the interim county ordinance, and ALL are in violation of Federal law. It is still a violation of Federal law to cultivate and possess marijuana for any use.
4. Also during the public comment period, the comments were strikingly negative regarding the individual CAG-selected speakers (with the exception of Dr. Cutler), as the speakers repeatedly reported their experiences and the facts surrounding the cultivation of marijuana.

There are none so blind as those who will not see ... and those who tend to profit.

I hope that the CAG will consider all of the objective evidence when authoring their recommendations to the Board of Supervisors. I believe that it may be appropriate to delay the implementation of a final ordinance until the research is complete.

Comment 6:

I attended yesterday’s CAG meeting. I have these immediate concerns and recommendations:

The inept use of wireless mikes was a frustrating distraction, and prevented the presenters and CAG members from communicating effectively with each other and the public attendees. Any number of people in this performance-rich community could set up a wired mike system (or a wireless/wired hybrid) that would provide quiet, predictable, unobtrusive sound reproduction. I attended a meeting recently with eight wired mikes running through a mixer hooked

to a single Bose tower. No shrieks, no dead mikes. Clear, quiet sound everywhere in the room. Cords are a pain, but properly secured have few of the reliability issues of wireless in the hands of the less capable.

The facilitators need to step back and turn this process, including the data and the requests for additional information, over to the 16 intelligent, motivated, community-minded people supposedly empowered to provide a coherent, reality-based set of recommendations to the Board of Supervisors. Many of the CAG members were obviously as shocked and frustrated as I was that they had so little knowledge of how the process unfolds from here. The data, the deadlines, the details of the scheduled interaction with the Board of Supervisors seem to be known only to the facilitators. CAG members who ask questions or voice concerns over the process are met with smiles, brief summaries of the facilitator's take on the issue and assurances that all will become clear. The CAG needs to put away the homework assignments and the big book. They need to take copies of the current ordinance and debate among themselves each issue related to producing a sensible grow ordinance that can honor the needs of growers and needs of the community at large. They need to root out the internal contradictions and senseless punitive measures embedded within the current ordinance. Similar groups in other counties have been involved in what became just another meaningless public exercise that squandered the talents and sincere desires of their CAG to produce a workable and enforceable set of grow regulations that integrate with the State and local agencies to the benefit of the entire community. Let our CAG get down to work, and give the public time to comment on the recommendations that emerge from the process.

Comment 7:

I understand that this meeting was packed with presenters which were only available on this day, making it difficult to fit everything in the 3 hour time frame. However, some of the information was redundant; a lot of time was spent showing more pictures and describing situations that we all know about already, and all of it was NEGATIVE.

We know about the environmental destruction and safety issues with electrical set ups and stealing of water-NO ONE WANTS THIS, that's why growers want regulation as much as anybody.

The Public Health person did mention a few positive things about the medicinal value of cannabis, but very little, and kept saying testing hadn't been done on humans. There are MANY studies that describe positive outcomes. Forrest Hurd would be able to cite valuable research to a much greater extent than the physician that spoke, and all research based and reviewed by peers.

The negative pictures and statements presented-AGAIN-were using valuable time that the CAG members need to discuss things, ask questions, and review more information that are educational. Cannabis Alliance gave you a binder full of information, for example.

Where is the report that describes the economic impact to our county??!

Don Besse and another member were asking WHERE the information is that they have requested. They need to decide on a complex issue without the information they have asked for, how can they be expected to do that?

I look forward to seeing regulations that are the same as those the state has come up with, and maybe a few things specific to our county. We can insist on ORGANIC methods which would address many concerns.

LET THE INCOME FROM THIS NEW INDUSTRY START TO FLOW AND WE WILL HAVE \$ TO PAY FOR WHAT WE NEED TO ENFORCE THE REGULATIONS AND GET RID OF THE CRIMINAL ELEMENT.

Comment 8:

To: Nevada County Supervisor Board

Dear Sirs:

I am writing this letter on behalf of progressive citizens voting for the establishment of reasonable Cannabis regulations. Not long ago, one of our supervisors voiced his views at a public meeting on Cannabis grow here in Nevada County. He voiced his concern about “undesirables” being attracted to Nevada County because of the Cannabis grown for harvest.” I found his statement rather bias and discriminatory, for a couple of reasons. First, it showed his uneducated attitude towards Cannabis without the benefit of open discussion to recognize all the benefits of Cannabis for not only Nevada County but for the entire State of California. Obviously, the State of California has “found” that Cannabis is beneficial for California otherwise the liberal regulations promoted by the State would not be in effect. The Green Rush today is very similar to the Gold Rush of Nevada County in the 1800’s. As history repeats itself, we can look back to Nevada County as being the hub for immigration into this county for searching for gold.

The immigrants that came were poor, grungy, homeless, possibly considered undesirables. but they were the ones that came and started our Great State, the Progressive State as it is known today. Yes, there were crimes here, theft of gold, killings over gold, you name it, there was crime, cannot deny this, but Nevada county still flourished, as it is today and is proud of our heritage.

Today, we have the Green Rush and yes there are some that come here that commit petty crimes, but the majority of people or immigrants from other states, come to start a new life, searching for a stake in California, not gold, but Cannabis, a plant called a “super plant” for obvious reasons of all its medicinal purposes, many of them known and yet more to be discovered.

I will not go into detail today, but I have a 30-year-old friend that was able to overcome cancer of the blood, over a year in the hospital with chemo therapy and the “primary” medicine that saved his life was cannabis. He was able to administer cannabis in a Kansas City, Missouri hospital, even though all cannabis banned in that state, but his doctors allowed it in an effort to save this man’s life because of the aggressive chemo therapy. With the doctor’s permission, using cannabis, this young man was able to stimulate his eating and regain his health, true story. If you folks would like documentation of this, I would surely enjoy asking his permission for his journal and pictures to actually prove my point of cannabis saving his life.

Suggestion, let’s forget our differences, make Nevada County a beacon again, allow liberal regulations, after all, liberal regulations are already outlined within this State and Counties are allowed to follow suit, if they so please. Let’s not discriminate our new arrivals, let’s embrace them for the new Green Rush and keep our rich heritage intact as it was meant to be.

Comment 9:

Attached is a PDF of my comment. It consists of two parts--my comment and an attached article on the topic that is referenced from and made part of my comment.

thank you

(See Attachment A2, beginning page A-38.)

Comment 10:

Cannabis and cash –

While controlling the size of grows, designating acceptable parcel sizes and setbacks is important, two additional considerations should be added to the CAG agenda.

First, control of noxious odors. Nobody in my circle of acquaintances likes, enjoys, or intentionally seeks out taking a breath of the aromatic bud. We don't like the way it smells when it is growing and don't like the smell of it being smoked. The committee should research measures taken elsewhere to control/eliminate polluting fresh air with the scent of growing cannabis. The committee should include odor control, odor measurement, and enforceable odor limits in any new cannabis regulation recommendation.

Secondly, troubles caused by cash only industry. An article which appeared in the 4aug2017 Union, "Cash dash..." raised many issues. Under federal law marijuana is an illegal product, therefore banks are reluctant/unwilling to do business with cannabis operators. Operators therefore can't make wire transfers, don't write or receive checks and don't use or take credit cards. Marijuana is a cash only business. Vendors, employees, and even taxing agencies must be paid in cash. As recreational marijuana becomes legal in California and medical marijuana dispensaries come to the county, handling cash may become a bigger problem than it is now. The CAG should examine solutions to the problems of cash handling.

Comment 11:

Comments to the Citizens Advisory Committee (on marijuana). Watching the results of the citizens advisory group on Marijuana policy for Nevada County continues to cause me concerns.

I am concerned that there remains a true conflict of interest that violates The Brown Act. Any person involved in public policy who has a potential financial benefit must recuse themselves from deliberations and physically remove themselves from the dais. There are those in the group who have violated this requirement since their appointment was considered. The consultant has turned a blind eye to this requirement. It should be reviewed by County Counsel, and those in violation should be removed or required to abide by the Brown Act requirements.

While I understand that the group does not make policy, it will be making a recommendation to the Board of Supervisors and several have obvious bias.

Also, all votes taken should be PUBLIC. That is the meaning of the Brown Act – public meetings are to be transparent and all actions must be visible to the public.

In regard to the odor in our county: While you may think it possible to soften the language calling marijuana something else to make it more acceptable, you cannot hide the absolute stink of marijuana even when plantings are limited to 25 plants on larger parcels in our rural county.

I live in the rural South County –off Perimeter Road – and the stench is getting worse every day as it does every year, but it is worse this year. This should not be so, because we have set strict limits, but I can only conclude that more marijuana is being grown this year.

Each year, and this one in particular, I am sickened by this awful stench. Limiting the product by setbacks, grow and parcel sizes is just not working which is the current policy. My fervent hope is that the committee will recommend to the Board of Supervisors a strong regulation that sets odor limits, much like dust and air quality impacts are regulated with property use. I recommend a reliable odor detecting device, that is available commercially, that will detect odor from all growing conditions – indoor, outdoor, greenhouses. Monitoring should be ongoing and continuous. I would request the device measure at the grow site as there is no reliable way to measure the odor as it dissipates over space. There should be a substantial fine for non-compliance and abatement if continued violations occur.

MJ Wars - A Survey on Measure W

A Survey on Measure W and Why it Failed

by [REDACTED]

During the three days before the election I conducted an informal poll, asking voters how they were going to vote on measure W. I polled for a few hours Friday, in front of the Safeway on Brunswick, and for a few hours Saturday in front of Kmart. On Sunday morning I surveyed people in the parking lot of the Twin Cities Church; on Sunday afternoon I posed the question at the soap box Derby in Pioneer Park.

I interviewed a total 87 people, varying in age and ethnicity, to find out how they planned to vote and why. The results: NO won with 61%, YES had 29%, Undecided was 8%. Felons not allowed to vote, 2%.

Here is what I learned about the top reasons for NO on Measure W:

1. Medicine. Many used cannabis as a medicine or knew someone who did; some for serious illnesses, others for everyday aches and pains. Many found relief that was greatly needed; some said it was the only thing that worked and that we should not be preventing access to this vital medicine.

2. Morals. Many people were either growers themselves or knew a grower personally. They believed most growers were good people --- not criminals, as the sheriff implied.

3. The Economy. Many spoke of the importance of the growers to the local economy; many had family members who benefited from the jobs and the dollars.

4. Land Rights. I heard over and over, even from conservatives that disapproved of marijuana, that the government had no right telling people what they can do on the own property.

5. Government. A lot of people said this ordinance was poorly written and difficult to understand, and that it was irresponsible for the supervisors to be passing this decision on to the voters. Many felt this was governmental incompetence and the supervisors should be voted out for not doing their job. Some said they were too influenced by the sheriff, who was either deliberately misleading them, or was woefully ill-informed about the unintended consequences of prohibition. Some felt the Sheriff favored prohibition in order to benefit his own career. A few were angry that he was terrorizing families with his helicopter flyovers.

Here is what I learned about the top reasons for YES on Measure W:

1. Marijuana is an illegal drug and like all drugs it is harmful, addicting, and leads to worse drugs. It causes people to be unmotivated and disrespectful of the laws.

2. It attracts criminals and foreign elements.

3. We need to conserve traditional Christian values and the “quality of life in our county.”
4. Acceptance sends the wrong message to our youth.
5. You don't need drugs.

In general, NO voters were more committed and eager to say why. They gave longer responses. YES voters were more likely not to give reasons and some complained about me even asking. Although when someone chose not to answer I politely moved on, at both Safeway and Twin Cities, someone came out and told me people were complaining and I needed to stop asking questions and leave.

I also took a limited telephone poll of business owners in town. Over 90 % said they were against measure W, almost all explaining their opposition because of the economic impact. But 90% also refused take a public position, like hanging a No on W sign in their window, because they feared repercussions from customers who disagreed.

YES voters feared the unwanted evils of drugs and marijuana.

NO voters saw a brighter future with cannabis.

A Good Year for Pot Growers

by [REDACTED]

The year 2016 was a good year for the Nevada County pot growers. Although it started off badly, with a total outdoor ban on their crop, many cannabis farmers were motivated to come out of the shadows in a show of force and solidarity. Together they rallied to defeat Measure W, which would have codified the ban into permanent law. As they organized, their common cause grew into a movement, and the movement gave birth to the Nevada County Cannabis Alliance. It looks as if 2017 is likely to bring even more good news for Nevada County pot growers, and for the region as a whole.

An organization, however, is only as solid as its members. And it wasn't until more than one hundred members showed up for an event at the Holbrook Hotel in November that the true vision emerged for what is possible.

"If we can just get a thousand members we would be the largest trade association in the county," Jonathan Collier, regional chair of the California Growers Association told the crowd. Collier, who is also on the executive board of the Alliance, said governments tend to respond to organized voters and the Alliance could provide a platform for change, education and community building.

Familiar names in the movement also addressed the crowd, encouraging farmers to spread the word about the organization's efforts: educational campaigns to support farmers who want to become licensed, community outreach through local nonprofits, and advocating for a new ordinance.

They looked back at 2016, starting in January with the total ban on all outdoor growing. In the six months leading up to the June election hundreds of farmers came "out of the closet" and became political activists. Farmers who had once been staying behind the scenes were now participating in the fight to defeat Measure W, with groups such as Americans for Safe Access, the California Growers Association, the Committee to Tax and Regulate Cannabis, the No on W Committee, Women Grow, and Hope for Silas.

Activists worked to register voters, to inform them on the issues, and to ensure that voters went to the polls on Election Day. They spoke out at public meetings, passed out flyers, called voters on the phone, debated at town halls, hung signs and posters, and wrote to the local newspaper.

And though voters defeated Measure W by a wide margin, the victory was short lived. In a reactionary move in July, the Board of Supervisors failed to honor the spirit of Measure W and passed in effect a new ban—even more restrictive than the first.

But as 2016 ended, prospects looked promising again. Sheriff Keith Royal announced that he will not run for re-election. Former Grass Valley Police Chief John

Foster announced he would be running for the Sheriff's seat. Supervisor Ed Scofield said in a letter to the Alta Sierra Homeowners Association that "I believe we need to be creating a task force that not only has those previously mentioned groups represented, but also includes other key bodies such as Environmental Health, Agricultural Commission, Building and Planning, Finance, Fish and Game, the District Attorney and any other agency or group that has an interest in the legitimate growing of medical or recreational cannabis."

Hopefully the Alliance will represent a voice and a group that is interested in a legitimate cannabis industry.

This coming year the Alliance will be advocating for a permanent ordinance to help cannabis farmers comply with state laws. The leaders of the new Alliance bring a refreshing new energy to an old movement -- they are smart, talented, and committed to perseverance. Sixty percent of the voters who said NO on W want change. The Alliance could hold the key to a bright future for cannabis farming in Nevada County.

It's only a matter of time until the Nevada County Board of Supervisors realize what most of the county's residents already know—that when the cannabis farmer prospers, the whole county can prosper too.

It's only a matter of time before they realize this truly is Gold Country.

It's green and renewable.

It's the best in the world.

And it's grown here, under the sun, by the Nevada County Cannabis Farmers.

Yes, 2016, the year of the ban, was actually a good year for pot growers. It was the year "pot growers" became Cannabis Farmers. And it was the year that gave birth to the Nevada County Cannabis Alliance. Let's keep the positive changes coming in 2017.

The Marijuana Debate: Myth, Science, or Heart

by [REDACTED]

Many beliefs about marijuana come from fears and long-held myths. But direct lived experience, along with scientific facts, can make room for a deeper truth, allowing us to see the world with open minds and open hearts.

When the Nevada City planning commission held a public meeting on the wisdom of allowing the first medical marijuana dispensary for their town, citizens once again debated the myths as well as the science of marijuana.

One woman said the smell of it gave her headaches. She said she couldn't go outside because "people have no respect for anybody else." She believed marijuana users didn't respect *her* rights and maybe *her* traditions. Another woman spoke of "high risk" folks coming into the neighborhood and "the homeless drug users who live in the woods around Deer Creek School." Apparently, she associated homelessness with drug abuse and then drug abuse with marijuana.

A man quoted a father who lost his son in a car crash, and who said, "The worst thing that ever happened to Colorado was the day they legalized marijuana." Evidently he didn't know that states that have legalized recreational marijuana have seen a 12% decrease in traffic deaths.

It seemed that those who spoke in myths had never experienced marijuana directly. They repeated stories they heard and let their imaginations run free. Many other citizens, however, did have a direct experience with marijuana. They called it cannabis, and they referred to relevant facts from the real world.

One woman chided the man who spoke about traffic fatalities saying, "I'm on cannabis right now and I'm not stoned. People need education, and not all these unfounded myths about children dying in car crashes."

"I have a rare disease that is really hard to treat," said another young woman. "I got my card when I turned eighteen, and it completely turned my life around. Especially to go into a dispensary and have someone tell me about what strain I should use. If it's regulated, people can learn how to be safe. I think that educating the public can help a lot."

A man who was a paramedic and a caregiver spoke about how marijuana has been known to be able to replace opiates and drug use. "The current rise in narcotics addictions can be fixed. If we are not providing the elderly with access to alternative care, we are being negligent."

“I am a medical cannabis user, for chronic pain,” said another woman. “I have a dog that was diagnosed in October with a very aggressive form of cancer. The UC Davis oncologist can’t believe that he is still alive. And he is being treated with cannabis.”

One woman said, “I drive all the way down to Sacramento to get medicine for my eighteen-year-old daughter. “She has had chronic pain her entire life. This is the only medicine that works for her. Doctors had her on high doses of pain relievers for years. Now she is able to get off of those and live in a more pain-free way.”

Thinking of this girl, pain free for the first time in her eighteen years of life, brought joy to my heart.

Lastly, a man named Forrest Hurd spoke about his ten-year-old son Silas, who suffers catastrophic epileptic seizures. Hurd said modern medicine has no known cure for his son’s life-threatening, degenerative form of epilepsy. He said cannabis dropped the seizures by 90%. His voice broke when he said, “I can’t describe the terror a parent faces watching their child go through a grand mal seizure.” Almost crying, he concluded, “I need this medicine to save my son’s life.”

At that point, I felt a compassion that went beyond myths and science. I understood the truth of Forrest and his son Silas. And my heart understood the truth about marijuana.

Open Letter to a State Cannabis Regulator

by [REDACTED]

As a Nevada County resident and an advocate for cannabis farmers, I'm writing to you with some suggestions for encouraging a healthy and mutually beneficial relationship between growers and government regulations.

I was impressed with your willingness to learn when I heard you speak in the Nevada City town hall. It was clear that you wanted to listen to feedback from farmers who have been growing in the shadows for twenty years, and that you wanted them to come out and cooperate. I suggest that the best approach for regulation is to make it as easy, non-intrusive, and pro-compliance as possible.

1. Start by demonstrating an understanding of farmers' concerns. How will supply and demand affect the market? Will they get a fair price? Will it be competitive with the underground? How are products to be distributed in a direct and unencumbered way? How will fees and taxes be handled?

2. Focus on reasonable acreage limitations. If you create too many land-use restrictions so that many can't qualify, farmers will feel forced to continue growing illegally anyway, driven by economic necessity.

3. Help legal farmers thrive. Give them a short list of regulations. Stay off their property as much as possible. Limit the paperwork. Allow them to grow as much as they need to. Support accessible distribution systems with fair pricing. Encourage organic growing methods and no pesticides. Then trust them.

4. Develop a system for testing the product, and fine farmers if they fail basic standards. Create specific prohibitions—then probation—where farmers are taught how to comply and given encouragement to improve. A carrot instead of a stick. A second chance.

5. Help compliant farmers make a legal profit—a good profit. If they do, they won't mind paying their fair share of fees and taxes. Help farmers see that the government, the inspectors, and the bureaucrats are on their side. Successful cannabis farming is a win-win. Reasonable regulations can put the underground market out of business once and for all, and legal farming can benefit everyone.

The alternative is a no-win for everybody. A bigger underground gets harder to enforce; safety in numbers means more will choose to stay in the shadows. Over-regulation forces growers there, creating criminality due to a question of survival for many. More decent people will continue to be hurt.

If regulations are not reasonable and fair, licensed growers may feel disadvantaged. They may regret their bad choice to sign up, and they may decide to opt out, forcing the state once again into another doomed attempt at prohibition.

Where I live, in Nevada County, the residents in the last June election voted 60% to 40% against banning outdoor cultivation. After that, our Board of Supervisors, while they lifted a total ban, went on to add so many new restrictions that for most, a ban remained in place. Now the supervisors say they are going to take another year to decide if they will allow state permits at all.

Meanwhile, most farmers are now functioning outside the law. They are doing what they have to do. They can't take a year off waiting for the county government to function. Now even fewer respect the laws.

In this case, by trying to carve out a dry county in the middle of an economic boom resulting from state legalization, Nevada County risks economic disaster, as prohibition only creates more crime.

We need to persuade the Board of Supervisors that they must abide not only by the state laws but also by the will of the people. A majority of county residents do not want to ban commercial cultivation. They want the county to support well-regulated commercial cultivation.

Remember, Nevada County is believed to be the third largest producer of cannabis in the state. The cannabis farmers of Nevada County are not going away. They are either going to join you or fight you. And the question farmers will ask is: are you here to help us thrive or stand in the way?

My advice is simple. See farmers' problems, and help solve them. Through meaningful regulations, show vigorous support for the concerns and challenges faced by cannabis farmers in this potentially lucrative growth industry.

Those who started this industry deserve their place in its shining future. Instead of banning the sun, let's use it to help our farmers grow.

Attachment A2 - Email Comment 9

Cannabis Odor Management

Many people find the odor of ripe cannabis buds to be extremely offensive. “Skunk smell” is the usual term used to describe it. In fact, many people think that Nevada County has lots of dead skunks along the roadways as they drive through our county. Most of those offensive smells are not coming from dead skunks, but rather from legal or illegal cannabis grows.

The offensive odor has caused some people to keep their windows closed day and night, to abandon use of outdoor patios, and to even sell their properties and move out of the county or state to rid themselves of this nuisance. These are significant impacts that rank up there with soil and water pollution or poisoning of wildlife from cannabis grows. The County is not yet on the right path in this area.

The regulations that Nevada County adopts can, if done properly, assure that this nuisance is eliminated. Other states have adopted odor limits and have effectively enforced them with penalties for failure to comply, and Nevada County needs to follow these successful programs. However, so far, the county and CAG have not pursued a proper course in this regard.

The approach taken so far in our county is to keep grows small, set well back from adjacent properties, and on parcels of certain minimum sizes. However, this is a hit and miss and very unscientific method of regulation that will not consistently work. Who really knows how much distance is needed for the skunk smell to mix with clean air in the wind and be sufficiently diluted by the time it reaches an adjacent property or home? There are too many unknown factors for this to be reliable. The intensity of the odor varies by type of species grown and the conditions under which the plants are farmed. The direction and speed of the wind is variable. No scientific studies have been done to precisely allow set backs, grow sizes and parcel sizes to be an effective regulatory approach. Yet, this is the approach the county has taken to date—a failed method. This has been the source of extensive and heated debate among the parties involved with no universally accepted resolution in sight.

It is unfair to the members of the CAG to force them to make a decision on set backs, grow sizes and parcel sizes with such uncertainty and especially when a better approach exists.

Other states, rather than use set backs and parcel size, have simply adopted odor limits. The technology exists to both eliminate odors from grows and to measure the resulting odor at the property boundary with an instrument. By adopting odor limits, the endless debate on grow size, set back distance and parcel size is over. A scientific method of odor removal and detection instruments solves the issue.

Odor removal methods are available for grows in greenhouses and enclosed buildings. Carbon filters are the preferred method of odor removal, though other methods are also available. The measurement device, with a brand name of the Nasal Ranger, has been

sold to growers as well as to cities and counties charged with enforcing odor regulations.

An article in the Cannabis growing magazine Cannabis Business Times in January 2017 provides a good summary of the status of the technology as well as some of the successful regulations that have been adopted in other states. That article is attached to and made a part of this comment. Also, here is the link to the article:

<http://magazine.cannabisbusinesstimes.com/article/january-2017/pass-the-sniff-test.aspx>

For outdoor grows, the only method of limiting the skunk smell is distance. But, that should not change the definition of an offending odor under an odor ordinance. The ordinance should apply to outdoor, indoor and greenhouse grows. The grower can decide if they want to risk an odor violation from an outdoor grow and the resulting fines or revocation of a license for failure to fix the problem.

The CAG and the county must move in this direction to resolve this issue. And back up an odor limit with active monitoring, imposition of fines and abatement of continued violations.

Pass the Sniff Test

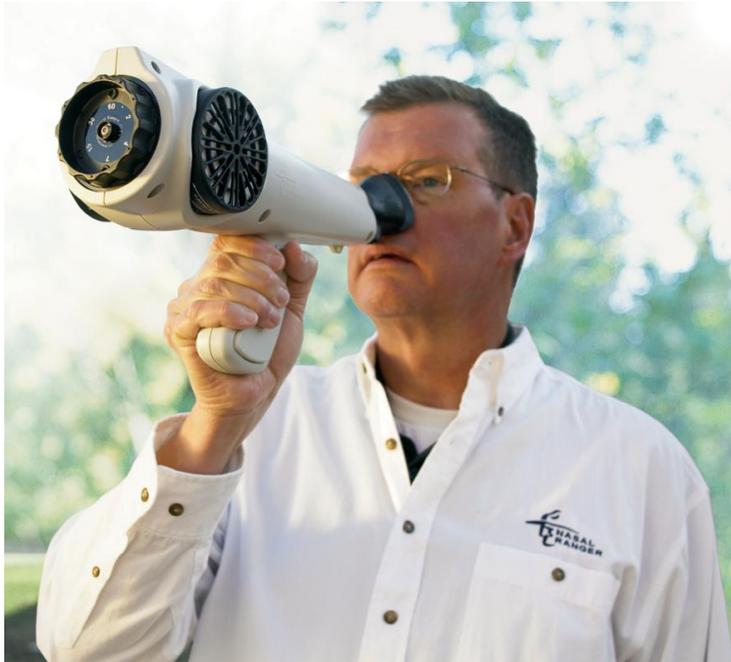
Cannabis Business Times - January 2017

Features - Compliance

Just because you like the smell of your flowers doesn't mean your (nosy) neighbors will.

January 9, 2017

[Steven Nelson](#)



The Nasal Ranger odor-measuring tool. Charles McGinley, technical director for St. Croix Sensory, which produces the tool, says nearly 200 Nasal Rangers are in the hands of cultivators and their regulators.

Courtesy Nasal Ranger/St. Croix Sensory

Not long ago, odor management could keep cannabis cultivators out of jail. Now, it can keep you in business.

As cannabis reform sweeps the nation, growers face different regulatory situations, with states and cities varying significantly on rules subject to rapid change.

In some places, cultivators view odor management as optional. But in others, notably Colorado, limits exist and are actively enforced, with failure to control odor resulting in denial of a Denver facility's license renewal, a fine for a Boulder grow and a close call for an Aspen-area business.

Investing in expensive equipment is not necessary if there's enough distance from neighbors, but for greenhouses near a subdivision and warehouses downtown, a relatively small budget line could prevent big problems.

Cultivation experts who advise growers and sell the latest tools say that in addition to making wise decisions about location and facility design, it's smart to be proactive to protect your business and avoid inviting new local rules.

There are three common approaches to odor management, each with its own advantages and pitfalls. In general, the choice is to trap (or catch), destroy or disguise the skunky aroma that drives certain people to dial 9-1-1.

CATCH

Carbon filters probably are the most common odor management tools used by cannabis cultivators. Large fans generally blow air over the filters, which trap passing odor molecules.

High Valley Farms in Basalt, Colo., recently adopted carbon filtration for its greenhouse after facing complaints about smell, resolving the problem after tense relations with local authorities.

“Carbon filters at the present time [are] the standard method of filtering the air for cannabis growers,” says Charles McGinley, who says he sold the company a Nasal Ranger odor measurement tool for self-testing.

“It appears when they’re using fresh carbon they’re well in compliance,” he says. High Valley farms did not respond to a request for comment, but did win a local vote allowing continued operations.

Downsides of carbon filters include that they can cost a few hundred dollars each (with fans costing hundreds themselves). Large rooms can require several filters, and when they fill up, they need replacement. The fans also use significant electricity and clutter rooms.

McGinley, the technical director of Minnesota-based St. Croix Sensory, travels the nation selling the \$1,900 Nasal Ranger to landfills, refineries, wastewater plants, cannabis cultivators and government officials. He says nearly 200 are in the hands of cultivators and their regulators.

McGinley says the Nasal Ranger — or a more rudimentary “scentometer” sold by Calgon Carbon — can determine when it’s necessary to replace carbon filters to stay in line with odor limits. He says cultivators also can adopt the practice of recording “defensible data” from self-testing, which is done in other industries to mitigate any future problems.

“It’s an answer to the person who will complain even if the wind is in the other direction,” he says.

New carbon-based technologies are emerging that offer potential cost savings.

Washington-based Urban Agricultural owner Ben Barker, who supports the cannabis businesses with technology and industry expertise from two decades of cultivation experience, says lighter-weight carbon filters are emerging with greater surface area, lower cost and less weight.

Barker says his company has helped set up about 150-200 cultivation facilities, with odor management addressed on a case-by-case basis.

Urban Agriculture is beginning to sell a climate control system produced by Dutch company Opticlimat that has a built-in slot for carbon filters, eliminating the additional upfront and continuing electricity cost of fans for warehouse locations.

For many growers, carbon is a reliable go-to, which, although expensive, isn’t going to put pressure on the bottom line.

“Carbon filters do the trick 90 percent of the time. We’ve had zero issues with smell abatement. ... They’re very, very effective,” says Aaron Herzberg of CalCann Holdings, a California marijuana real estate company.

“It did not reach a level where it was called to my attention,” he says about the cost.

DESTROY

Cultivators do have an increasing number of high-tech options that destroy odor, but these methods can introduce new occupational safety and horticultural health considerations.

Among the technologies are ozone machines that produce unstable molecules with three oxygen atoms and a similar technology that uses UV lights to create hydrogen peroxide vapor.

Both compounds oxidize odor molecules, eliminating their smell, says Kurt Parbst, an agricultural engineer at the large cultivation support firm Envirotech.

Odor-destroying technologies have been used in food-processing facilities and for other industrial purposes for years, and some growers are beginning to give them a try.

One new entry to the market is the Element Air machine developed by Urban-Gro. The hydrogen peroxide (H₂O₂) vapor generator is designed for use in grow rooms at both warehouse and greenhouse facilities. A commercial version was unveiled in late 2016 and sales of a home-grow option are expected through a yet-to-be-named retailer early this year.

John Chandler, Urban-Gro's vice president for cultivation technologies, says the machine is safe for use because of the low concentrations of H₂O₂ it generates. Ozone machines, by contrast, are known to be unsafe when used within an actual grow room.

Chandler says the hydrogen peroxide vapor generator offers the potential for long-term cost saving by eliminating the need to constantly power large fans. And he says the bulbs last longer and are cheaper to replace over time than carbon filters.

The up-front cost of Element Air units may be more than the cost of carbon filters, but Chandler says it could pay off, and that the machines are surprisingly effective, allowing grow rooms to be nearly odorless.

Parbst of Envirotech, which serves companies across the United States and Canada, with many in California, says hydrogen peroxide and ozone leave no harmful residue on plants, though he's not familiar with any of the firm's dozens of clients using such a system.

Not everyone's convinced that technology should be immediately pursued.

Barker says he's most familiar with ozone, which he says should not be used with plants or near workers, requiring instead a separate "lung room" that draws air from a grow room, allowing a long enough contact time for deodorization before being sent out of the facility.

Using ozone in a grow room, rather than in a lung room, works less effectively because the concentration is insufficient and can "literally strip odor off plants and oxidize oils on the plant," Barker says.

"There are so many people through the generations of growers who have purchased ozone machines, and they have not worked out as well as they hoped," he says.

Although he's not familiar with growers who have used a hydrogen peroxide machine, he worries they would pose a threat to plants or the safety of workers.

"Coming from a smoker's perspective," he says, it's important not to deodorize the marijuana. "Like a great-tasting meal, you definitely want to smell it," he says.

Chandler says he has supplied many growers with hydrogen peroxide machines and that there's no need to fear for the safety of plants or people, though he does say the machines aren't dummy-proof and must be calibrated, producing a scratchy throat if the output is too high.

The dozen growers to whom he's supplied the machines — in Colorado, Nevada, Massachusetts, New Hampshire and California — have offered no complaints, he says, about the quality of their product.

"At this point they're in a good dozen commercial facilities for up to four years now with no detrimental effects reported or seen," he says.



Urban-Grow launched its commercial-grade hydrogen peroxide vapor generator, called Element Air (shown at left), in late 2016. The product is designed for use in both indoor grow rooms and greenhouses to eliminate odor.

Courtesy Urban-Gro

CLOAK

Odor-disguising liquid sprayed outside grow sites is a third major method of keeping smell under control.

This method neither traps nor destroys odor, but rather makes passersby believe they are smelling something else.

“The result, which is tried and true for decades in the market, is you deodorize the situation,” Parbst says.

The idea doesn’t have universal acclaim. McGinley says masking odor won’t fool the Nasal Ranger.

5 TIPS:

1. Be proactive, especially if your state or town regulates odor. If you aren’t, you could risk your business, generate bad press and waste money frantically trying to fix the problem.
2. Shop around and compare prices. New technologies, specifically tailored to the cannabis industry, are emerging.
3. Make sure you replace your carbon filters. They don’t work if they’re full.
4. Do what works for you. If a masking mist keeps everyone happy, it may be enough.
5. Record “defensible data” when possible. Doing so can immunize you from the local busybody who complains even when the wind is blowing in the other direction.

“It works a little, but it doesn’t work enough to take away the root cause, which is the compound being generated by the bud,” he says.

Chandler says it may be true that the odorous compounds remains, but that spraying outside facilities can accomplish important goals nonetheless by preventing inspection.

“The Nasal Ranger doesn’t make complaints,” he says; people do.

THINK AHEAD

Experts contacted for this article say there are ways to avoid costs.

Parbst, the agricultural engineer at Envirotech, says, when practical, it’s important to pick a facility location far enough from neighbors that Mother Nature takes care of odor.

“This sounds corny, but the best treatment for this is distance, to have a distance between the cultivator and the neighbor for the air to mix,” he says.



Urban-Gro’s Environmental Air machine in use in an indoor cultivation site. John Chandler, Urban-Gro’s vice president of cultivation technology, says the machine is safe to use because of the low concentrations of hydrogen peroxide generated.

Courtesy Urban-Gro

Have your eye on an awesome downtown warehouse with the possibility of troublesome neighbors? Maybe it’s best to reconsider, Parbst says. He says his company works with dozens of growers and only a handful pursue odor management, generally because it’s not optional.

With up-front capital and ongoing maintenance costs, “odor control is expensive, and that’s why I think siting is very important,” he says. “Dilution is ideally the easiest way to do it.”

Barker says it’s also a good idea to consider facility design. Retrofitted warehouses that have a potential to ooze odor from every crack benefit from creation of negative pressure in grow rooms, achievable by sucking air from the room. With carbon filters it’s possible to make a closed loop, saving on energy, he says.

“You need to design your facility properly or you’re going back to basement status,” he says. “If you design your building where you can create negative pressure, you won’t have to chase down odor.”

Barker says that odor management hasn’t been a huge concern in Washington, but that localities are beginning to sniff out the issue and that he views regulation as inevitable.

“I believe they should regulate it,” he adds. “I love the smell of cannabis, but it would be rude to bombard someone’s neighborhood and make it smell like weed 24-7. The occasional whiff every now and then is fine, but I’ve seen some pretty obnoxious stuff.”

<http://magazine.cannabisbusinesstimes.com/article/january-2017/pass-the-sniff-test.aspx>