

Trends in Youth Alcohol, Cannabis and Other Drug Use in Marin County, 2008-18

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I have prepared this report for Marin County Health and Human Services (HHS) to assist the Marin Prevention Network (MPN) in the organization's future planning. MPN is a countywide coalition of community-based agencies and individuals that are dedicated to preventing and reducing youth substance use. MPN describes its mission as:

"Marin Prevention Network seeks to change community norms, policies, and laws that affect the availability, promotion, sale, and use of alcohol and other drugs to create a community environment that promotes healthy choices and reduces risk. We strive to promote healthy habits and choices, ensure safety, and foster the wellbeing of individuals and communities."

MPN has engaged in multiple prevention initiatives, including the Raising the Bar campaign, promoting social host ordinances and restorative justice, responsible retail, developing prevention resources, and reducing youth vaping and cannabis use.

I am an associate professor and public health researcher at the University of California, San Francisco. I have over 20 years of professional experience conducting health promotion and prevention research, and providing trainings on the sociocultural dimensions of community health and social change. I have worked as an evaluator on several CDC-funded community-based prevention programs, served as an evaluation contractor for the CDC, and worked as a consultant for the World Health Organization on health disparities initiatives.

In this report, I present my analysis of existing data to examine changes in Marin County in youth use of alcohol, cannabis and other drugs between 2008 and 2018, over the most recent decade for which data are available. My analysis compares trends in Marin County with trends in California.

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Executive Summary of Findings

Trends in youth alcohol, marijuana and other drug use in California and Marin County, 2008-18

My analysis of national, statewide and Marin County data on trends between 2008-18 in youth alcohol and cannabis use, perceptions of risk of harm, and perceived availability of alcohol and cannabis shows that Marin County has experienced an endemic problem of youth use of alcohol and youth use of cannabis. Unlike declining national and statewide trends, in Marin County youth use of alcohol and use of cannabis have persisted despite prevention and cessation efforts. Additionally, in recent years Marin County has also experienced emerging parallel epidemics of youth vaping of nicotine and youth vaping of cannabis in proportions substantially great than national levels. In Marin County, data show that among older teens, the use of ecstasy, LSD, or other psychedelics are of particular concern. In addition to these drugs, some students, particularly those in Marin County's nontraditional schools, are also using methamphetamine and/or amphetamines. Still, from a health promotion perspective, it is important to note that some students in Marin County have not experimented with or taken up use of alcohol, cannabis or other drugs. More needs to be done to understand the life experiences of these students.

National trends in alcohol and marijuana use

Between 2008-18, the period for which the most recent data are available for Marin County, nationally among 8th, 10th and 12th graders the prevalence of lifetime and current (past 30 day) alcohol use and lifetime and current prevalence of "being drunk" among younger and older teens steady and significantly declined based on data collected in annual national Monitoring the Future (MTF) surveys.¹ Among younger teens, the proportions perceiving risk of harm from having one or two drinks nearly every day declined slightly, as did the proportions perceiving risk of harm from binge drinking (5 or more drinks once or twice each weekend). Among older teens, the proportions perceiving risk of harm from having one or two drinks nearly every day also declined slightly, while the proportions perceiving risk of harm from binge drinking fluctuated. For all teen age groups, perceived availability of alcohol declined steadily and significantly.

National rates of lifetime and current marijuana² use among younger teens rose from 2008 to 2010 and then declined, while among older teens rates were generally stable. For all teen age groups surveyed, there were steep declines in the proportions reporting that the risk of using marijuana once or twice, occasionally or regularly was "great", meaning that more and more students did not perceive a great risk of using marijuana. For all teen age groups, perceived availability of marijuana declined steadily and significantly, meaning that it was less accessible.

¹ Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2020). Monitoring the Future national survey results on drug use 1975-2019: Overview, key findings on adolescent drug use. Ann Arbor: [Institute for Social Research](https://www.isr.umich.edu/), University of Michigan.

² In this report, when I am referring to data from survey questionnaires that use the term "marijuana," I use the term "marijuana" since that is what students were asked about. In MTF questionnaires, the definition of "marijuana" has shifted, more recently to include smoking, vaping and eating. In the CHKS questionnaires, the term "marijuana" was used as such (undefined) until 2013 when it was revised to say *marijuana (pot, weed, grass, hash, bud)*, and then revised again in 2017 to say *marijuana (smoke, eat, or drink)*. I use the term "cannabis" to describe all products that contain THC (i.e., flower, oils, concentrates, edibles and drinks) that adolescents use to get "high."

California statewide trends in alcohol and marijuana use

In California over the same period between 2008-18, prevalence rates of lifetime, current (past 30 days), current intermittent (1-9 days in the past 30 days) alcohol use and current binge drinking (5 or more drinks in a row in the past 30 days) among 7th, 9th and 11th graders were on steady declines based on data from the California Healthy Kids Survey (CHKS) reports.³ During this period, perceptions of risk of harm among students in all three grade levels were essentially unchanged, although binge drinking rates increased slightly. During this period in California, the proportions of 7th, 9th and 11th graders who reported that it was very easy or fairly easy to obtain alcohol decreased steadily and substantially.

Statewide, lifetime and current marijuana use declined among 7th, 9th and 11th graders and current intermittent use declined slightly. The proportions perceiving risk of harm from using marijuana occasionally or regularly (i.e., once or twice a week) were stable from 2011 onward. The proportions in all three grade levels reporting that it was very easy or fairly easy to obtain marijuana declined slightly from 2011 onward.

Marin County trends in alcohol and marijuana use

In Marin County between 2008-18, among 7th graders for almost every measure of prevalence of alcohol and marijuana use, except vaping of cannabis, rates were on a declining trend similar to the statewide declining trend. By 2018, the proportion of 7th graders in Marin County using alcohol and marijuana, while not zero, were low and essentially the same as the low statewide rates (Table 1). Among 7th graders in Marin County, perceptions of risk of harm for alcohol and marijuana were consistently favorably low and similar to their counterparts statewide. However, 7th graders in Marin County consistently had substantially higher rates of perceived ease of access to alcohol and marijuana compared to their counterparts statewide.

Among 9th graders, while statewide prevalence rates of alcohol use and marijuana use were on a steady decline, in Marin County nearly all rates declined more slowly than statewide rates. By 2018, rates for 9th graders in Marin County were either somewhat higher, substantially higher or much higher than statewide rates (Table 1). Notably, 9th graders in Marin County reported much higher rates of lifetime marijuana use than their counterparts statewide, indicating substantially more experimentation and adoption of use as students moved from 7th grade through 9th grade. Regarding 9th graders' perceptions of risk of harm, in Marin County between 7th and 9th grade the rates for all measures of perception of risk of harm from alcohol use and marijuana use deteriorated. Most notably, far smaller proportions of 9th graders in Marin County perceived a great level of risk from using marijuana occasionally as compared to their counterparts statewide. Substantially larger proportions of 9th graders in Marin County consistently reported that it was very easy or fairly easy to obtain alcohol, and much higher proportions reported that they could easily or fairly easily obtain marijuana compared to their counterparts statewide.

Among 11th graders, while the statewide overall trends for alcohol use and marijuana use were declining, in Marin County for almost every measure of alcohol use and marijuana use the prevalence rates remained stable or increased. By 2018, Marin County's 11th graders had rates of alcohol use and marijuana use that were much higher than rates statewide (Table 1). In Marin County, substantially smaller proportions of 11th graders perceived great risk of harm from drinking occasionally and using marijuana occasionally compared to 11th graders statewide. Over the decade, while decreasing proportions of 11th graders statewide reported that obtaining

³ Marin County. California Healthy Kids Survey, 2017-18: Main Report. San Francisco: WestEd Health & Human Development Program for the California Department of Education.

alcohol and marijuana was very easy or fairly easy, in Marin County about 80% of 11th graders consistently reported that it was very easy or fairly to obtain alcohol and obtain marijuana.

These data suggest that in Marin County as students grew older they increasingly underestimated the potential risk of harm of drinking alcohol occasionally and occasional marijuana use compared to their counterparts statewide.

Students in Marin County's nontraditional schools had very high rates of alcohol and marijuana use, some of which declined over the decade. Their rates of perception of risk of harm were low, and their high rates of reported ease of access to alcohol and marijuana were high (Table 1).

Binge drinking

Over the period 2008-18, binge drinking was a notable problem in Marin County. Generally compared to students statewide, larger proportions of students in all three grade levels in Marin County who reported current drinking were also binge drinking. Among 7th graders, the percentage rose from 46% in 2008 to 50% in 2018. There were some improvements among 9th graders, with the percentage decreasing from 60% to 53%, and among 11th graders with a percentage decreasing from 71% to 64%. Binge drinking among students in Marin County's nontraditional schools decreased from 55% of current alcohol users to 23%. Nevertheless, large proportions of students in Marin County who were drinking were binge drinking. Rates of perceived risk of harm from binge drinking were generally similar to rates statewide.

Vaping

In recent years in Marin County, two parallel epidemics of teen vaping of nicotine and teen vaping of marijuana have rapidly taken hold at rates. Because these parallel epidemics emerged in 2015, there are no CHKS statewide data against which to compare rates of vaping in Marin County. Based on data from MTF and available CHKS data for Marin County, it appears that rates of vaping of nicotine and vaping of marijuana in Marin County are more than double national rates.

It should be noted that while youth use of alcohol and cannabis have been normative in Marin County, for 7th, 9th and 11th graders and students in nontraditional schools **the rates of alcohol use should be zero, and rates of cannabis use should also be essentially zero.**⁴ Public health and community efforts in Marin County over the decade to reduce teen alcohol and cannabis use appear to have resulted in slight overall improvements among 7th graders. However, despite these efforts, as students in Marin County progressed from 7th grade through the end of 9th grade, large proportions of students started experimenting with and regularly

⁴ Regarding use of cannabis for treating adolescents for medical conditions, there is a substantial body of scientific evidence showing that cannabis use has detrimental effects on the development of adolescents, and very little scientific evidence of benefits to adolescents. In California, the legal age for obtaining a Medical Marijuana Identification Card is 18, or by consent of a parent or guardian. According to the [Medical Board of California Guidelines for the Recommendation of Cannabis for Medical Purposes](#) "The Compassionate Use Act names certain medical conditions for which cannabis may be useful, although physicians are not limited in their recommendations to those specific conditions (cancer, anorexia, AIDS, chronic pain, spasticity, glaucoma, arthritis, and migraine). In all cases, the physician should base his or her determination on the results of clinical trials, if available, medical literature and reports, or on experience of that physician or other physicians, or on credible patient reports."

consuming alcohol and cannabis. As students in Marin County progressed further through the end of 11th grade, the proportions using alcohol and cannabis continued to increase substantially, deviating further and further from declining statewide trends. Rates of alcohol and cannabis use among students in nontraditional schools improved somewhat, but by 2018 students in nontraditional schools still had very high rates of alcohol and cannabis use.

Other drugs

In Marin County, prevalence rates of teen use of drugs other than marijuana (e.g., cocaine, methamphetamine, heroin, ecstasy, LSD or other psychedelics, opioids and other prescription pain medications, diet pills, stimulants, and over the counter medicines to get high) are of concern, although compared to alcohol and marijuana use, are relatively low over the decade. Marin County's 9th and 11th graders reported rates of use of ecstasy, LSD, or other psychedelics that are of particular concern. Among students in Marin County's nontraditional schools, rates of use of methamphetamine or any amphetamines, ecstasy, LSD, or other psychedelics are also of particular concern because many of these students already face difficult life circumstances and difficulties with academic performance that can be hampered by drug use.

Table 1 Youth Substance Use in Marin County in 2018 Compared to California in 2018
(Lighter beige color = rates in Marin are better than CA, orange = worse, dark red = much worse)

	7 th graders	9 th graders	11 th graders	Non- traditional
Lifetime use of any AOD	Same	Substantially higher	Much higher	Very high
Current use of any AOD	Same	Somewhat higher	Much higher	Very high
Current use of any drug including marijuana	Same	Substantially higher	Much higher	Very high
Lifetime alcohol use	Same	Somewhat higher	Much higher	Very high
Current alcohol use	Same	Same	Much higher	Very high
Binge drinking	Same	Somewhat higher	Much higher	Very high
Current intermittent alcohol use	Same	Somewhat higher	Much higher	High
Perceived risk of harm from drinking alcohol occasionally (none to slight)	Same	Somewhat higher	Much higher	Very low
Perceived risk of harm from drinking alcohol occasionally (great)	Somewhat lower	Substantially lower	Much lower	Low
Perceived risk of harm from drinking 5 or more drinks once or twice a week (moderate)	Somewhat lower	Somewhat lower	Somewhat higher	Low
Perceived risk of harm from drinking 5 or more drinks once or twice a week (great)	Somewhat higher	Somewhat higher	Same	Very low
Ease of obtaining alcohol (very easy or fairly easy)	Substantially higher	Substantially higher	Substantially higher	High
Lifetime marijuana use	Same	Much higher	Much higher	Very high
Current marijuana use	Same	Substantially higher	Much higher	Very high
Current intermittent marijuana use	Same	Somewhat higher	Much higher	High
Current vaping of marijuana (epidemic)*	Same	Somewhat higher	Much higher	Very high
Current vaping of nicotine (epidemic)*	Somewhat lower	Same	Somewhat higher	Very high
Perceived risk of harm from using marijuana occasionally (great)	Same	Much lower	Much lower	Low
Perceived risk of harm from using marijuana once or twice a week (none or slight)	Much lower	Same	Somewhat higher	Very high
Ease of obtaining marijuana (very easy or fairly easy)	Substantially higher	Much higher	Much higher	High

*Statewide measures not available. Comparison to national data Monitoring the Future.

Trends in youth alcohol, cannabis and drug use in California and Marin County, 2008-18

Marin Prevention Network has focused primarily on preventing reducing youth use of alcohol and cannabis. Accordingly, this part of my report focuses primarily on the analysis of available data on youth alcohol and cannabis use in Marin County, with a brief additional analysis of use of other drugs. This report does not include an analysis of youth use of combustible and smokeless tobacco, which remain important problems in Marin County, because MPN did not explicitly focus on prevention of youth consumption of these products. However, in this section of the report I did include the most recent prevalence data on youth vaping of nicotine as a basis of comparison with data on youth vaping of cannabis.

In attempting to understand the sociocultural phenomena of youth use of alcohol and cannabis and youth perceptions of use in Marin County, it is important examine the proportions of youth who are using substances, and the proportions of youth who hold certain perceptions about substance use. It is also important to examine trends over time. One useful way to interpret the significance of proportions and trends in Marin County is to compare county-level survey data with statewide-level data collected across California, and with survey data collected nationally.

The most consistent and reliable surveys available on alcohol, marijuana and other drug (AOD) use among youth in Marin County are produced by the California Health Kids Survey (CHKS). The administration and data analysis of CHKS is coordinated by WestEd under contract from the California Department of Education.

For several decades, CHKS has been administered every other year to 7th, 9th and 11th graders. Beginning in 2011, CHKS was administered in Marin County during one school calendar year (e.g., 2017-18). WestEd produces survey reports in pdf form that are provided to participating schools, school districts and county offices of education.

WestEd also produces statewide CHKS reports for the California Department of Education. WestEd selects random samples of schools across the state that administered CHKS surveys. In 2009-10, the statewide survey used a randomly selected sample of schools that conducted surveys that year. Beginning in 2011-13, WestEd shifted to producing statewide reports covering a longer survey period, and the statewide sample selection and data collection became embedded within local administration of CHKS by school districts. They produce their statewide reports by aggregating data over three-year time periods because beginning in 2011 school-level CHKS surveys started to be conducted throughout California on different biennial cycles of administration. For example, some schools administered CHKS in 2011-12, while others in 2012-13, so the statewide report covered 2011-13.

For Marin County, I selected CHKS reports for the years covering the most recent decade: 2008-10, 2011-12, 2013-14, 2015-16, and 2017-18. To produce a comparison with trends in Marin County over a comparable period including the years in the same decade, I selected CHKS statewide reports for 2009-10, 2011-13, 2013-15, and 2015-17.

It is important to note that CHKS samples are not a random sample of students who attended public schools. Every local public school district decides whether to participate in administering CHKS. Some districts, notably large districts like Los Angeles Unified, have opted not to administer CHKS. At the school level, schools are responsible administering the survey to their students. CHKS sampling is essentially a poll of students, meaning that the survey is an attempt to achieve as high a level of voluntary participation as possible at schools rather than an attempt

to select a random sample of students and then ensure, through repeated contacts if necessary, that each individual selected in the sample participates in the survey.

In the CHKS surveys, “nontraditional schools” are defined as including continuation, community day, and other alternative school types. These school populations are not divided by grade level, so multiple grade levels are combined into one aggregated sample for “nontraditional” (NT).

The CHKS reports WestEd provided to Marin County Office of Education do not specify the target samples for each grade level. I examined some district-level reports that I had access to over, and it appears that over the past decade in Marin County the response rates among 7th graders were in the range of about 80%-100%, for 9th graders 75%-90%, and for 11th graders 65%-80%. The response rates for students in nontraditional schools were in a much lower range of 35%-55%.

This means that the CHKS data reported on herein do not include groups of students who were enrolled in public schools, but for whatever reason, did not participate in the surveys. The characteristics of these groups of students are unknown, and these students’ substance use rates and perceptions may have been somewhat different from those who participated. The effect of the absence of groups of students from the samples becomes somewhat significant for the reliability of data on 9th graders where up to 25% were missing, and even more significant for 11th graders with up to 35% missing from samples. Data on students in nontraditional schools should be treated with the most caution because up to 65% of students in nontraditional schools were missing from the samples.

County-level CHKS reports are produced every other year. The Marin County sample aggregates the school-level samples of CHKS surveys administered in public schools within a county. In the most recent CHKS Marin County 2017-18 report, the Marin County sample used is shown in Table 2 from the report.

Table 2 Statewide CHKS Sample Sizes 2013-15 and 2015-17

<i>Student Sample Characteristics</i>	Grade 7		Grade 9		Grade 11	
	2013-15	2015-17	2013-15	2015-17	2013-15	2015-17
<i>Student Sample Size</i>						
Number of Districts	41	43	42	44	43	45
Number of Schools	48	51	52	53	57	60
Number of Students	7,763	13,451	14,951	16,826	13,859	14,987

The statewide CHKS reports select the sample at the school level. Statewide samples include a randomly-selected representative sample of public schools throughout the state. For the most recent 2015-17 statewide report, the sample was generated as follows:

All secondary schools in the state had an equal opportunity to be selected in the sample. WestEd randomly selected 50 schools that served students in grades 9 through 12 and then 50 schools that served 7th graders from within the same district or a feeder (e.g., an elementary district that feeds into a union or high school district). A separate sample of 10 continuation high schools was also drawn. Sample schools were drawn proportionately within six sampling regions: Bay Area, Los Angeles County, San Diego County, Northern California, Southern California, and Central California. Within each sampling region, WestEd oversampled so that

if any school/district declined participation, the next school on the list would be contacted. Of the 108 schools sampled, six were replaced by oversampled schools due to the original school declining to participate.

In the most recent CHKS statewide 2015-17 report, the Marin County sample used is shown in Table 3 from the report.

Table 3 Marin County CHKS Sample Sizes 2013-15

Student Sample for Core Module

	Grade 7	Grade 9	Grade 11	NT ^A
Number of districts	8	3	3	4
Number of schools	11	7	7	4
Number of students	1,802	1,984	1,416	119

Note: ^ANT includes continuation, community day, and other alternative school types.

Based on WestEd's strategy for generating a random sample, it is possible that some schools in Marin County were included in some statewide samples over the decade. However, given the relatively small school populations in Marin County and the large number of public schools in the Bay Area region, it is unlikely that inclusion of any schools in Marin County would have significantly skewed the statewide samples.

It is important to note that the CHKS surveys do not include children and adolescents who attended private schools, some charter schools, or who were homeschooled. CHKS also does not include children who do not go to school (e.g., children of migrant farmworkers) or adolescents who have dropped out of school. The absence of such children and adolescents is notable, particularly by 11th grade, an age range in which the literature shows that those who drop out can have considerably higher rates of AOD use than their peers who remain in school.⁵

It is also important to note that the CHKS surveys are administered such that students' identity is anonymous. The students' responses about substance use are self-reported and not verified by biochemical tests or confirmed by reports from others who might be knowledgeable about their use (e.g., parents or clinicians). WestEd has refined and updated the phrasing of some of the questions in the CHKS surveys over time, but the measures discussed in this report remained comparable over the time period I examined. Also, the length of the CHKS questionnaire may have contributed to students experiencing fatigue, thereby lessening some students' attentiveness when responding to some questions.

With these limitations, the CHKS data are the best data we have access to for examining levels and trends in youth AOD use in Marin County. However, the limitations described above should be kept in mind when considering the level of precision in the estimated rates and when interpreting findings. Generally, if rates are within 4 percentage points of one another, I have not considered the difference to be significant. Because statewide-level reports and county-level reports cover somewhat different time periods, there is some limitation to making year-to-year comparisons between statewide- and county-level data. Despite these limitations, when looking

⁵ Tice, P., Lipari, R. N., Van Horn, S. L., (2017) Substance use among 12th grade aged youths, by dropout status. [SAMHSA The CBHSQ Report](#).

at trends, the time periods overlap and are sufficiently close enough to one another to justify longitudinal comparisons to gain an overall picture of what has been happening in Marin County.

This report presents analyses of data I extracted from available reports on alcohol and other drug use and perceptions from CHKS reports. The data presented here are figures showing the proportions of students in a given grade level (i.e., 7th, 9th or 11th) who responded to survey questions in a specific time period. For the purposes of this report, I also refer to these proportions as prevalence rates. In epidemiological terms, strictly speaking the proportions in the CHKS reports are not exact point estimates of prevalence rates because the CHKS questionnaires are administered over a period of time (e.g., 2017-18) rather than at a single point in time. Nevertheless, for the purposes of this report, we can consider the CHKS figures on proportions as estimated prevalence rates. Thus, throughout I use “proportion” and “prevalence rate” synonymously. To conduct my analysis, I copied prevalence rates from tables in WestEd’s CHKS reports, transferred these numbers into spreadsheets, and then analyzed these data in spreadsheets.

To have some context for understanding trends in adolescent substance use in California and Marin County, it is important to look at the wider context of national trends in adolescent substance use. The Monitoring the Future (MTF) survey is conducted annually with nationally representative samples of 8th, 10th and 12th graders in public and private schools throughout the US. Because MTF is conducted each year and the grade levels surveyed in MTF differ from the grade levels surveyed in CHKS, it is not possible to make direct comparisons between data from the MTF surveys CHKS. Still, the MTF data provide information for understanding the significance of the CHKS data. Accordingly, where possible, I have included summaries of national trends presented in the MTF 2019 report as background.

In the graphs below, I have inserted dashed red arrows to show the progression of age cohorts (e.g., a cohort of students in Marin County who progressed from 7th grade in 2013-14, to 9th grade in 2015-16, to 11th grade in 2017-18). These arrows make it possible to compare the trajectory of cohorts in California as a whole to trajectories of cohorts in Marin County over roughly the same time period. Given the statewide consistent (secular) declining trends in the prevalence of youth substance use, the comparison of rates of youth substance use in Marin County in 2017-18 to rates in California in 2015-17 has an inherent conservative bias because the 2017-18 survey period in Marin County gave Marin County one additional year to achieve lower rates.

The analysis and interpretations of data presented in this report are my own based on what I believe is an appropriate level of caution required given the limitations described above.

YOUTH AOD USE AND PERCEPTIONS

Lifetime use of any AOD

In analyzing lifetime use substances, we can think of lifetime use a measure of experimentation, infrequent use, current intermittent use, and current use including heavy use and binge drinking.

National trends in combined AOD use are not measured in the Monitoring the Future (MTF) surveys. So, there are no national data for this measure from which to make a comparison with trends in California and Marin County.

Regarding national trends between 2008 and 2018 in lifetime use of any illicit drug including marijuana, among 8th graders the prevalence fluctuated in the range of 19-21% until 2016 when it dropped to 17% and then increased to 19% in 2018. Among 10th graders, the prevalence rate increased from 34% to a high of 39% in 2013, and declined to 34% in 2016, and then increased to 36% in 2018. Rates among 12th graders followed a similar pattern, starting in 2008 at 47%, increasing to 50% in 2015, and then dropping to 48% in 2018.

By contrast, between 2008-2018 the prevalence of lifetime use of alcohol declined steadily among all three age groups. Among 8th graders the rate dropped from 39% to 24%, among 10th graders from 58% to 43%, and among 12th graders from 72% to 58%.

The CHKS questions on lifetime use of substances have changed slightly, but the core question has remained essentially the same.

2008: *“During your life, how many times have you used or tried...?”*

2013 *“During your life, how many times have you used the following substances?”*

This question includes responses for both experimentation and current use. Scientific research on youth alcohol and other drug use has shown that experimenting with a substance can be a significant step, and that experimentation can become a precursor to repeated and even habitual use, particularly among young adolescents with weak executive control and heightened reward seeking.^{6,7}

Analysis of California statewide CHKS data on lifetime use of any AOD (except prescribed drugs used for medical purposes) shows that in 2009-10 large proportions of students reported using any AOD (Fig. 1). Among 7th graders the prevalence rate of lifetime use of any AOD was 29%, among 9th graders 51%, and among 11th graders 66%. Analysis of the trends over the period from 2009-10 to 2017-18 shows that as adolescents advanced through grade levels at school, their rates of use increased substantially. This resulted in the gap in prevalence rates among 9th graders being consistently about 21 percentage points higher than those among 7th graders being, and among 11th graders being about 17 percentage points higher than among 9th graders. Over the period, there was a substantial declining secular trend in lifetime use of any AOD among students in all three grade levels, among 7th graders from 29% to 13%, among 9th graders from 51% to 32%, and among 11th graders from 66% to 48%. In California, by 2017-18, while rates were substantially lower, there was still a significant problem of youth experimentation and current use of substances.

In Marin County, in 2009-10 among 7th graders and 9th graders, the prevalence rates of lifetime use of any AOD were 3 percentage points lower than that of their counterparts statewide (Fig. 2). By contrast, among 11th graders, the rate was 7 percentage points higher than that of their counterparts statewide, at 73%. As was the case statewide in 2009-10, as adolescents in Marin County advanced through grade levels at school, their rates of use increased substantially.

⁶ Odgers, C. L. et al. (2013) Is it important to prevent early exposure to drugs and alcohol among adolescents? *Psychol Sci.* 19(10): 1037–1044.
doi: [10.1111/j.1467-9280.2008.02196.x](https://doi.org/10.1111/j.1467-9280.2008.02196.x)

⁷ Khurana, A. et al. (2015) Experimentation vs. progression in adolescent drug use: a test of an emerging neurobehavioral imbalance mode. *Dev Psychopathol.* 27(3):901-13.
doi: [10.1017/S0954579414000765](https://doi.org/10.1017/S0954579414000765)

However, between 2008-10 and 2017-18, the gap in rates between the grade levels increased substantially. While rates among Marin County's 7th graders declined consistent with rates statewide, among Marin County's 11th graders rates barely declined, resulting in the gap between 7th graders and 9th graders widening from 22 to 30 percentage points. Because rates among Marin County's 11th graders remained high and also barely declined, the gap between 9th graders and 11th graders remained stable at about 26 percentage points. Between surveys in 2008-10 and 2017-18, the prevalence rates of lifetime AOD use among 7th graders in Marin County declined substantially from 26% to 13%. However, among 9th graders in Marin County rates declined far less than those statewide, from 48% to 43% vs. statewide from 51% to 32%. Among 11th graders, while statewide there was a substantial decline from 66% to 48%, in Marin County the decline was far smaller from 73% to 68%, resulting in a prevalence of lifetime use of any AOD in Marin County being 20 percentage points higher than statewide. This suggests that over the decade, 9th and 11th graders in Marin County diverged substantially from their counterparts statewide, with consistently large proportions of students in Marin County experimenting with and using AOD.

Although there are no available statewide data about trends among students in nontraditional schools, the data on students in nontraditional schools in Marin County shows that in 2008-10 their rates of lifetime AOD use were very high, and declined, but still to a very high level, from 92% to 76%.

Figure 1

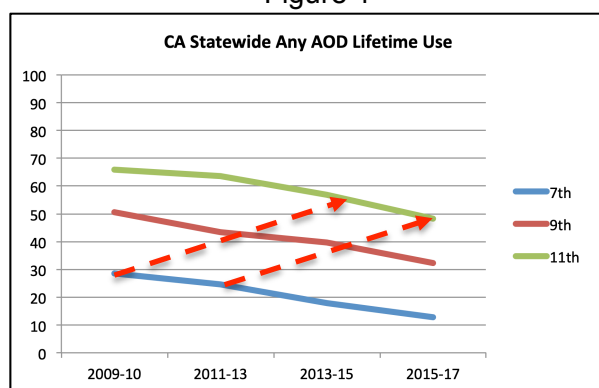
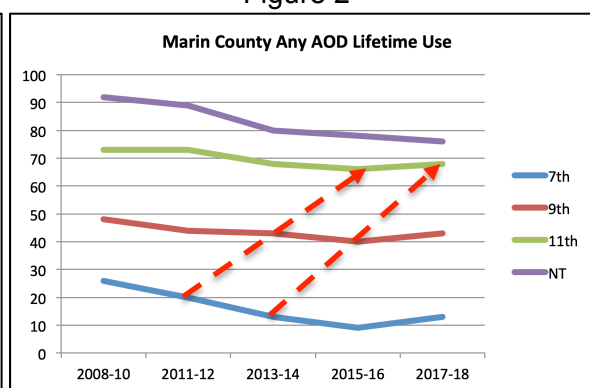


Figure 2



Current use of any AOD

MTF does not report current (past 30 day) use of any drug including alcohol. So, there are no national data for this measure from which to make a comparison with trends in California and Marin County.

Analysis statewide prevalence data on current (past 30 day) use of any AOD shows that there was a downward secular trend (Fig. 3). A comparison of lifetime AOD use statewide (Fig. 1) with current AOD use statewide (Fig 3) shows that in 2009-10 among 7th graders lifetime AOD use was 12 percentage points higher than current AOD use, but by 2017-18 the gap between lifetime and current use was reduced to 6 percentage points. Among 9th graders, by 2017-18 the gap was narrowed from 23 to 13 percentage points, and among 11th graders the rate also narrowed slightly from 21 to 19 percentage points. This suggests that statewide over the period fewer 9th and 11th graders were experimenting with using any AOD.

In Marin County, among 7th graders there was a declining trend of current use of any AOD from 16% to 6%, similar to the statewide trend. However, among 9th graders and 11th graders, in contrast to the statewide declining trend, rates declined very little. In Marin County, among 7th graders the gap between lifetime and current AOD use decreased from 10 to 7 percentage points, among 9th graders from 18 to 17 percentage points, and among 11th graders the gap increased from 18 to 19 percentage points.

A comparison between prevalence rates of current use of any AOD statewide and in Marin County (Fig. 3 and Fig. 4) shows that in 2009-10, the prevalence rates of current use of any AOD among 7th and 9th graders were nearly identical to the statewide rates, but the rate among 11th graders in Marin County was 10 percentage points higher than statewide. Over the decade in Marin County, the prevalence rates among 7th graders declined slightly faster than the statewide rates until 2015-16, and then the rate in Marin County leveled out in 2017-18. Rates among 9th graders remain essentially flat over the decade while statewide rates declined. Rates among Marin County's 11th graders declined slightly, and then reversed course and increased in 2017-18, diverging substantially from the statewide declining secular trend. By 2017-18, current use of any AOD among 11th graders in Marin County was 20 percentage points higher than 11th graders statewide. This shows that in Marin County, among 7th graders the proportions of current users was similar to 7th graders statewide, but the proportions of 9th graders who were current users remained higher than those statewide, and the proportions of 11th graders increased compared to those statewide. This suggests that in Marin County, as students got older, larger proportions became current AOD users.

Among students in Marin County's nontraditional schools, the gap between lifetime and current use of any AOD increased from 15 to 23 percentage points and then dropped to 19 percentage points, similar to that of 11th graders in Marin County. However, in 2008-10 the prevalence rate of current use of any AOD among students in Marin County's nontraditional schools was very high at 77%, decreased substantially to 55% in 2015-16, but then increased in 2017-18 to 57%.

Figure 3

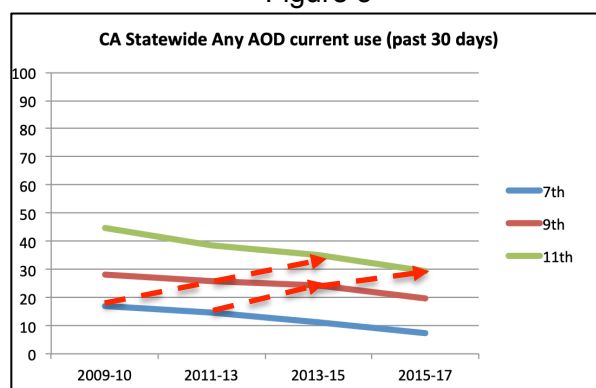
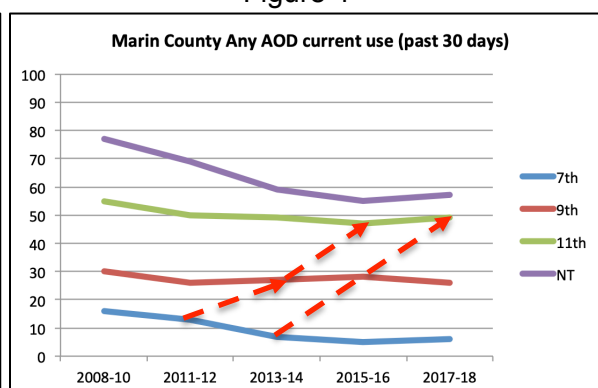


Figure 4



Current use of any drug including marijuana

MTF reports national trends in prevalence rates for current (past 30 day) use of any illicit drug including marijuana. Among 8th graders, prevalence rates between 2008 and 2018 fluctuated in the range of 8-9% until 2013 when they decreased to 7% in 2018. Among 10th graders, rates fluctuated in the range of 16-19% until 2015 when they dropped for a few years and then increased to 18% in 2018. Among 12th graders, rates increased from 22% in 2008 to 25% in 2011, leveled off at until 2018 at 24%.

The CHKS measure of current use of any drug is a subset of the data presented above in Fig. 3 and Fig. 4), removing the portion of use attributable only to alcohol use (reported later herein). WestEd's statewide measures of current drug use changed in 2013-15, making it difficult to directly compare data on all drug use collected before that survey date. Analysis of statewide data (Fig. 5) for current use of any drug shows that among 7th graders drug current drug use was low and declined gradually. For current drug use, the differential between 7th and 9th graders and between 9th graders and 11th graders was considerably smaller than for current AOD use. Among 9th graders the percentage of current AOD use that was current drug use dropped from 64% to 60%, and among 11th graders rose from 62% to 63%.

A comparison of statewide prevalence rates to those in Marin County (Fig. 6) shows that among 7th graders in Marin County rates of current drug use remained very low. However, among 9th graders the rates of current drug use increased to being 8 percentage points higher than statewide rate. The rate among 11th graders started 10 percentage points higher than statewide rate, and rather than following the statewide secular trend, increased to 34%, widening the gap to 15 percentage points greater than the statewide rate. Among Marin County's 9th graders, the percentage of current AOD use that was current drug use increased from 63% to 77%, moving substantially in the opposite direction of those statewide. Among 11th graders, the percentage of current AOD use that was current drug use also increased, from 65% to 69%, while statewide percentages were lower and remained stable.

Among students in Marin's nontraditional schools, prevalence rates of current drug use were very high and stable, by 2017-18 at 51%. The percentage of current AOD use that was current use increased from 86% to 89%.

Figure 5

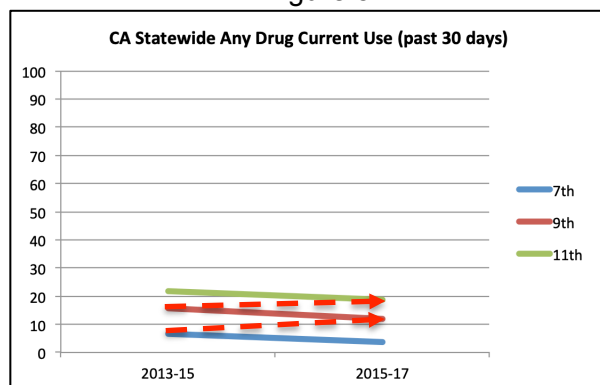
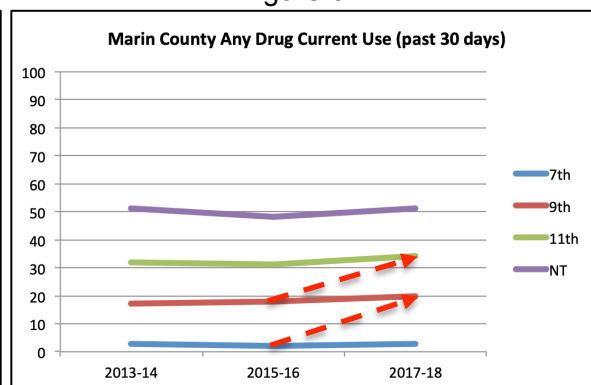


Figure 6



YOUTH ALCOHOL USE AND PERCEPTIONS

Lifetime alcohol use

In analyzing lifetime use of alcohol, we can consider lifetime use a measure of experimentation, infrequent use, and current use including binge drinking.

Nationally, as reported above, between 2008 and 2018 the prevalence rates of lifetime use of alcohol declined steadily (secular trend) among all three age groups. Among 8th graders the rate dropped from 39% to 24%, among 10th graders from 58% to 43%, and among 12th graders from 72% to 58%.

The CHKS questions about lifetime use of alcohol have been refined and updated several times as follows:

2008: “During your life, how many times have you used or tried...?”

2009: “During your life, how many times have you used or tried...alcohol (one full glass)?”

2013 “During your life, how many times have you used the following substances?
One full drink of alcohol (such as a can of beer, glass of wine, wine cooler, or shot of liquor)”

Statewide, over the decade between each age cohort there have been substantially large gaps in prevalence of lifetime alcohol use (Fig. 7). The average gap between 7th and 9th graders was 19 percentage points, and between 9th and 11th graders the average gap was 19 percentage points. Overall, in all three grade levels, there was a strong declining secular trend. Between 2009-10 and 2017-18, the proportions of 7th, 9th and 11th graders who reported lifetime use of alcohol dropped by 15, 19 and 20 percentage points respectively.

In Marin County, the proportions of 7th graders who reported lifetime alcohol use followed the declining secular trend among 7th graders statewide (Fig. 8). The proportions of 9th graders in Marin County also followed the statewide downward trend, but their prevalence rates dropped only 9 percentage points. Among 11th graders in Marin County, the rates decreased only slightly, by 6 percentage points as compared to 20 percentage points among their counterparts statewide. By 2017-18, this resulted in 63% of 11th graders having ever consumed at least one drink vs. 43% statewide.

Students in Marin County’s nontraditional schools started the decade with 89% having ever had a drink. By 2017-18, their rate of lifetime alcohol use had declined to 70%, but their rate was still very high.

Figure 7

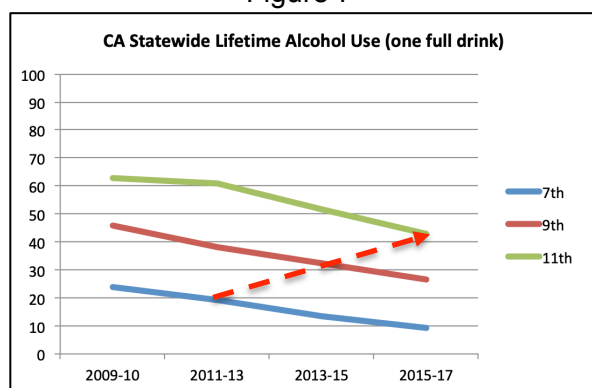
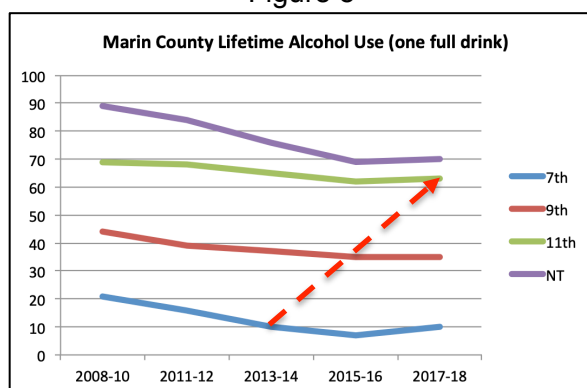


Figure 8



Current alcohol use

Nationally, between 2008 and 2018, the prevalence of current (past 30 day) use of any alcohol was very low among 8th, 10th and 12th graders, and there were steady uninterrupted (secular) declining trends in the prevalence of lifetime use of alcohol among students in all three grade levels. Among 8th graders, rates declined from 16% to 8%, among 10th graders from 29% to 19%, and among 12th graders from 43% to 30%.

In California, in general terms, in 2008 the prevalence rates in current alcohol use among adolescents were considerably higher than prevalence rates nationwide. By 2018, prevalence rates in California declined somewhat more rapidly than rates nationwide. Statewide, among 7th, 9th and 11th graders, there were declining secular trends in current alcohol use – defined as having one full drink of alcohol in the past 30 days – (Fig. 9) that followed the declining secular trends in lifetime use shown above (Fig 7). Between 2009-10 and 2017-18, the percentages of students who reported lifetime alcohol use and who also reported current alcohol use varied. Among 7th graders the percentage declined from 64% to 55%. Among 9th graders the percentage increased from 51% to 55%, while among 11th graders the percentage declined from 59% to 52%. By 2017-18, the prevalence rates of current alcohol use had dropped among 7th, 9th and 11th graders to 5%, 15% and 23% respectively.

The trends in Marin County among 7th and 9th graders paralleled those of their counterparts statewide, but among 11th graders in Marin County the trend diverged substantially from the trend statewide (Fig 10). Between 2009-10 and 2017-18, the percentages of students who reported lifetime alcohol use and who also reported current alcohol use declined in all three grades, among 7th graders from 62% to 40%, 9th graders from 57% to 49%, and 11th graders from 70% to 62%. These trends suggest that over the decade fewer younger students in Marin County who experimented with alcohol went on to drink regularly, but this pattern waned among the oldest students surveyed. By 2017-18, in Marin County 23% of 11th graders reported current drinking (Fig. 9).

While the proportion of 11th graders statewide who reported currently drinking alcohol dropped from 37% to 23%, among 11th graders in Marin County the proportion at the beginning of decade was much higher than statewide, and dropped from 48% to 41% in 2012, and then leveled out, in 2017-18 resulting in a substantially widening gap above their counterparts statewide of 17 percentage points. In 2017-18, a large proportion of 11th graders were currently drinking (39%) (Fig. 10). Students in nontraditional schools started the decade with very high prevalence rates of current drinking (61%), but their rates decreased substantially to a point slightly below 11th graders (36%) in 2017-18.

Figure 9

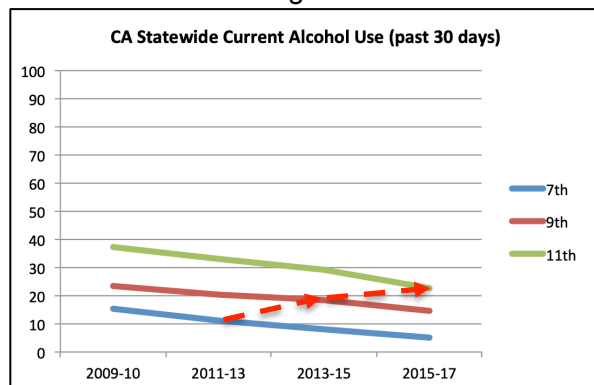
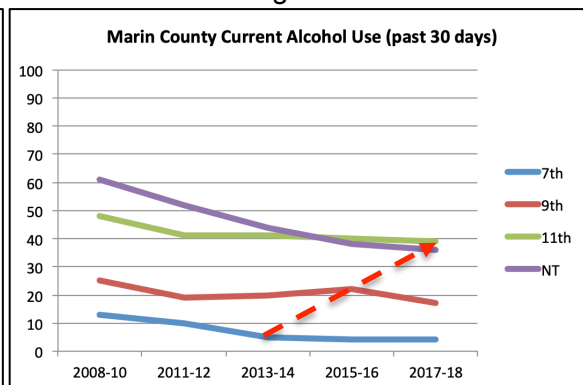


Figure 10



Binge drinking

Nationally, between 2008 and 2018, the prevalence of binge drinking, defined in MTF as having 5 or more drinks of alcohol in the last two weeks, among 7th graders showed a steady uninterrupted (secular) declining trend starting in 2008 at 8% and declining to 4% in 2018. Among 10th graders, in 2008, the rate was 16%, rose in 2009 to 18% and then generally declined to 9% in 2018. Among 12th graders, the prevalence of binge drinking generally was on a declining trend with some slight ups and downs. In 2008, the rate was 25% declining to 14% in 2018.

Statewide, those who reported current binge drinking – defined as drinking five or more drinks in a row in the past 30 days – (Fig. 11) were a sizable percentage of those who reported current drinking. Although the MTF and CHKS questions use different time periods (i.e., past two weeks vs. past 30 days), the national and statewide rates were similar, and on similar declining trends.

Statewide, among 7th graders the percentage of those reporting current drinking and also binge drinking dropped from 33% to 24%, and among 9th graders from 53% to 41%. Among 11th graders, the percentage of those reporting current drinking that was also binge drinking dropped from 62% to 52%. Overall, there was a declining secular trend in binge drinking statewide, by 2017-18 resulting in substantially lower levels of binge drinking among students in all three grade levels.

In Marin County, generally compared to students statewide, larger proportions of students in all three grade levels who reported current drinking were also binge drinking. Among 7th graders, the percentage rose from 46% to 50%. Among 9th graders, the percentage was high although it decreased from 60% to 53%, and among 11th graders it was very high, but decreased from 71% to 64%.

In Marin County, binge drinking among 7th and 9th graders followed the statewide downward secular trend to similarly low levels in 2017-18 (Fig. 12). By contrast, among 11th graders in the start of the decade binge drinking was substantially higher than statewide (34% vs. 23%) and declined only somewhat resulting in 2017-18 in a gap above their counterparts statewide of 13 percentage points. Among students at nontraditional schools, in the beginning of the decade 90% of those who reported current drinking were also binge drinking. The percentage declined to 64% by 2017-18. In 2008-10, a very large proportion of students at nontraditional schools was binge drinking (55%). The prevalence rate of binge drinking declined in this group substantially to 23% by 2017-18.

Figure 11

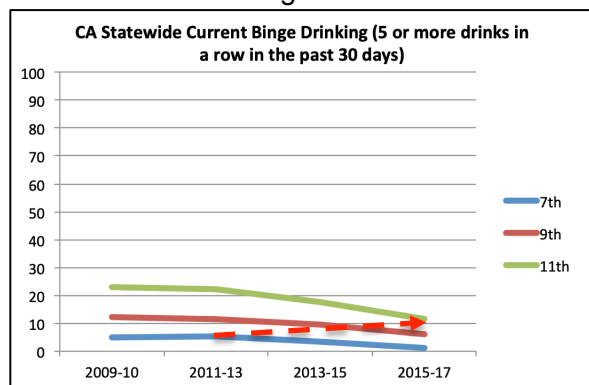
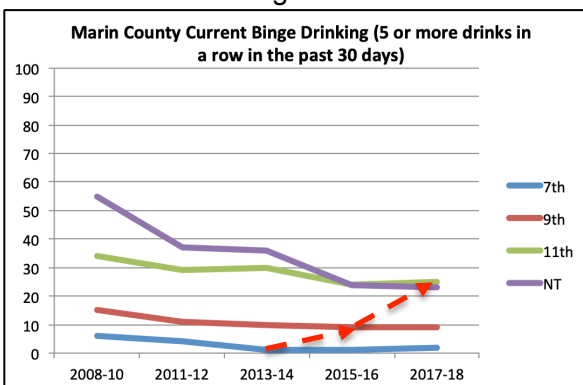


Figure 12



Current intermittent alcohol use

In California and Marin County, youth binge drinking has been a particular concern because of the potentially severe health and safety consequences.

The statewide prevalence rates and trends of current intermittent alcohol use (1-9 times in the past 30 days Fig. 13), typically associated with “weekend partying” that may be similar to what CHKS describes as “occasional use,” were nearly identical to current alcohol use reported above (Fig. 9). This suggests that statewide current use is typically also current intermittent use. Current intermittent use declined in all three grade levels in 2017-18 to 5%, 13% and 20% in 7th, 9th and 11th grades respectively.

In Marin County, the prevalence rates and trends of current intermittent alcohol use among 7th and 9th graders (Fig. 14) were generally similar to those statewide. The rate of current intermittent drinking among 11th graders started the decade at 41% and declined only slightly to 36%, starting at 10 percentage points above the rate among their counterparts statewide with the gap widening to 16 percentage points above the statewide rate.

Students in nontraditional schools started the decade with high rates of current intermittent drinking, but the rate among this group decreased considerably, as was the case for their current drinking and binge drinking described above. By 2017-18, the rate of current intermittent drinking among students in nontraditional schools had fallen 18 percentage points to 29%.

Figure 13

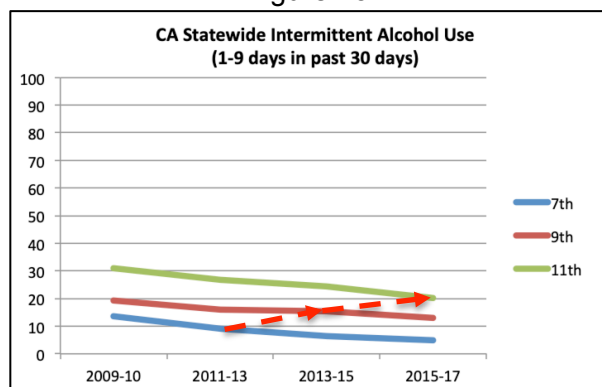
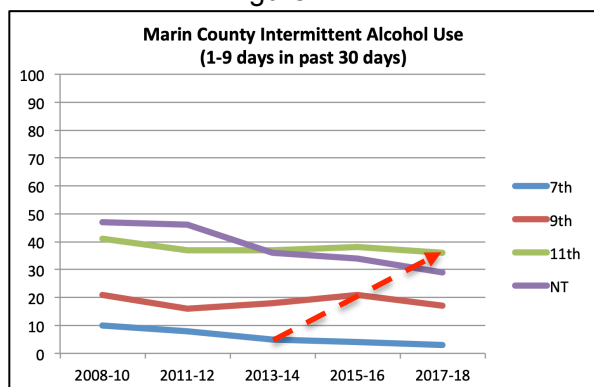


Figure 14



Perceived risk of harm from drinking alcohol occasionally

Regarding perceived risk of harm, MTF does not measure perceptions of risk of harm from drinking occasionally. Instead, MTF asks students the question:

“How much do you think people risk harming themselves (physically or in other ways), if they ... Try one or two drinks of an alcoholic beverage (beer, wine, liquor)?”

Nationally, between 2008 and 2018, among 8th graders, there has been a very stable trend the proportions responding “great risk” to this question. In 2008, the rate was 15% and in 2018 it was also 15%. Among 10th graders, there was also a very stable trend, starting in 2008 at 10%, and in 2018 it was also 10%. Among 12th graders there was slightly rising overall trend with some fluctuation. In 2008, the rate was 5%, and by 2018 the rate had risen to 6%.

In the CHKS surveys, students were asked to respond to the question:

“How much do people risk harming themselves physically and in other ways when they do the following? ... Drink alcohol (beer, wine, liquor) occasionally.”

This question asks students about their perceived risk of harm, not perceived harm. The formulation of this question is somewhat problematic because “people” is an ambiguous group. Given that adolescents tend to minimize risk that they themselves will be harmed, they may not associate “people” with themselves. It is important to note that the question asks participants to assess people’s risk of harm rather than their own risk of actual harm. Additionally, the phrase “in other ways” is also ambiguous and does not explicitly include risk of addiction, domestic violence, unprotected sex, traffic accidents or other injuries associated with drunkenness. The use of “occasionally” is also an ambiguous frequency. These ambiguities may influence the interpretation of the results. However, it is worth considering response rates to this question in light of the question above on frequency of current use between 1-9 days, which I have described as current intermittent alcohol use.

Statewide, among 7th, 9th and 11th graders, in response to the question about how much people risk harming themselves physically and in other ways from drinking occasionally, the proportions who answered “none” or “slight” ranged from 40-50% (Fig. 15). Among 7th, 9th and 11th graders, about one quarter answered that the risk was “moderate” and about one quarter answered that the risk was “great” (Fig. 17 and Fig. 19). Over the decade, among 7th graders statewide the rates for those responding that the risk of harm from occasional drinking was “none” or “slight,” “moderate” and “great” remained essentially constant. Among 9th graders, the rates for responses “none” or “slight” risk declined slightly while the proportions responding that the risks were “moderate” remained stable, and the proportion responding “great” increased slightly. Among 11th graders, the proportions responding that the risk of harm from drinking occasionally was “none” or “slight” declined slightly, responding “moderate” increased 5 percentage points, and responding “great” increased 7 percentage points.

These statewide trends over the decade suggest that among 7th and 9th graders the perceived risk of people harming themselves physically and in other ways from drinking occasionally was relatively high (i.e., “moderate” and “great” responses). However, the fact that these proportions were stable over the decade suggests that the perception or risk of harm from drinking occasionally was not correlated with observed decreases in lifetime, current, and current intermittent alcohol use shown above.

Among 11th graders statewide, the perceived risk of people harming themselves physically and in other ways from drinking occasionally, the proportions responding “moderate” and “great” were unexpectedly similar to that of 7th and 9th graders. The decreases in the proportions of 11th graders statewide who perceived the risk as “none” or “slight” coupled with increases in the who perceived the risk as “moderate” or “great” may explain some of the decreases in lifetime, current, and current intermittent alcohol use among 11th graders shown above. At the statewide level, overall these trends suggest that while perceived risk of harm may have provided some protective benefit, it was not a strong primary determinant of the statewide declining prevalence rates of lifetime, current, or current intermittent drinking among 7th and 9th graders, but possibly a factor contributing to the declines among 11th graders.

In Marin County, overall the slight shifts in trends of perceptions of risk of harm from occasional drinking are fairly similar to those statewide. However, in the beginning of the decade, compared to statewide rates, larger proportions of 7th, 9th, and 11th graders responded that the risk of harm from drinking occasionally was “none” or “slight” (Fig. 16), which was considerably larger than

their counterparts statewide. The proportions responding that the risk of harm from occasional drinking was “moderate” were about the same as those statewide (Fig. 18). In Marin County, considerably smaller proportions of students responded that the risk of harm from occasional drinking was “great” compared to those statewide, although by 2017-18 the rates among 7th graders shifted to essentially the same levels as their counterparts statewide (Fig. 20).

In 2008-10, the proportion of 7th graders in Marin County responding that the risk of harm from drinking occasionally was “none” or “slight” was 15 percentage points higher than their counterparts statewide, but by 2017-18, with a significant decline in rates in Marin County, that gap closed to 1 percentage point. Similarly, the rate responding that the risk of harm was “great” shifted from a gap of 11 percentage points to 2 percentage points.

In 2008-10, the proportion of 9th graders in Marin County responding that the risk of harm from occasional drinking was “none” or “slight” was 12 percentage points above their counterparts statewide, decreasing to 7 percentage points in 2017-18. In 2008-10, the proportions responding the risk was “great” was 8 percentage points below those statewide, and by 2017-18 they were 10 percentage points below.

In 2008-10, the proportion of 11th graders in Marin County responding that the risk of harm from occasional drinking was “none” or “slight” was 20 percentage points above their counterparts statewide, by 2017-18 decreasing to 14 percentage points. In 2008-10, the proportions responding the risk was “great” was 10 percentage points below those statewide, and by 2017-18 they were 15 percentage points below. Among 11th graders, a shift of about 10 percentage points appears to have occurred between those responding “none” or “slight” and those responding “moderate.”

In Marin County, among 7th and 9th graders, the moderate trends in changing proportions of students holding perceptions about the risk of harm to people from drinking occasionally (Fig. 16, Fig. 18, Fig. 20) parallel the moderate declining trends in lifetime, current, or current intermittent drinking. This suggests among 7th and 9th graders in Marin County there may have been some correlation between perceived risk and behaviors.

Among 11th graders, by 2017-18 the proportions reporting lifetime, current, and current intermittent drinking, while decreasing about 10 percentage points over the decade, were substantially higher than their counterparts statewide. There were only slight changes in the proportions of 11th graders perceiving a risk of harm from drinking occasionally, and these proportions parallel the slight decreases in the proportions of 11th graders who reported lifetime, current, or current intermittent drinking. These trends suggest that by 2017-18 7th graders and 9th graders in Marin County were fairly similar to their counterparts statewide in their drinking behaviors, although somewhat smaller proportions in Marin County perceived risks of harm from drinking occasionally compared to their counterparts statewide. By contrast, by 2017-18 substantially larger proportions of 11th graders in Marin County reported lifetime, current, and current intermittent drinking, and substantially fewer 11th graders in Marin County perceived risks of harm from occasional drinking compared to their counterparts statewide.

In Marin County, among students who attended nontraditional schools, there were sizable decreases in the prevalence of lifetime, current, and current intermittent drinking that appear to parallel the sizable changes in the proportions that perceived risk of people harming themselves physically and in other ways from drinking occasionally.

Figure 15

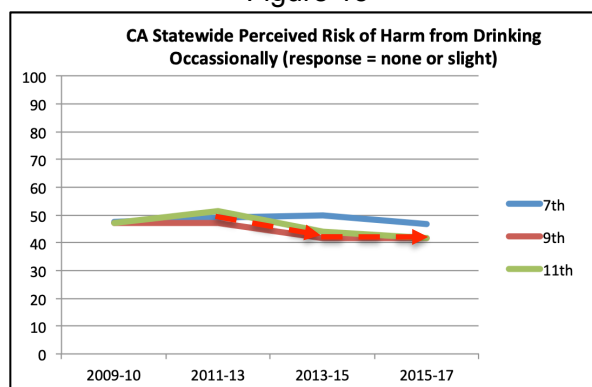


Figure 16

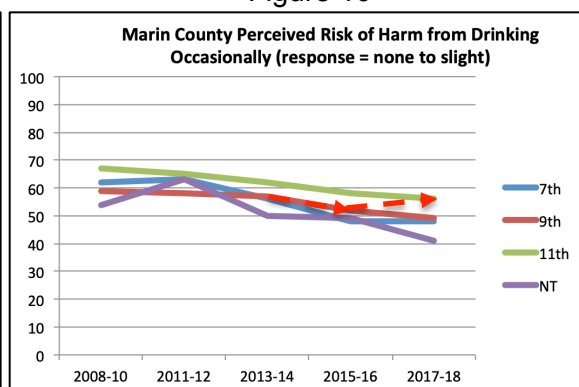


Figure 17

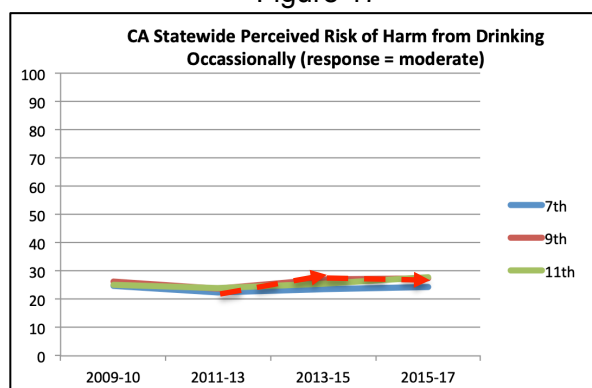


Figure 18

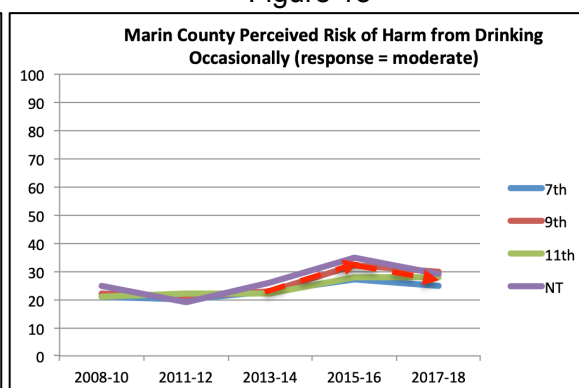


Figure 19

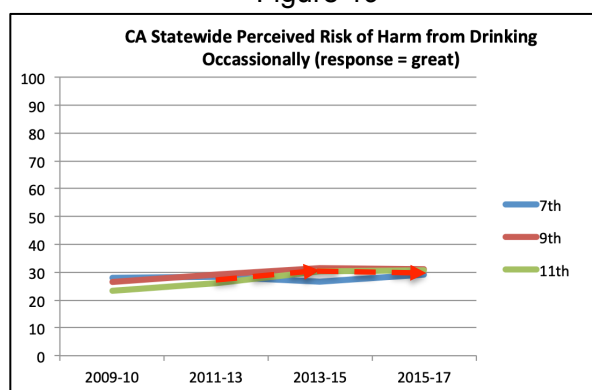
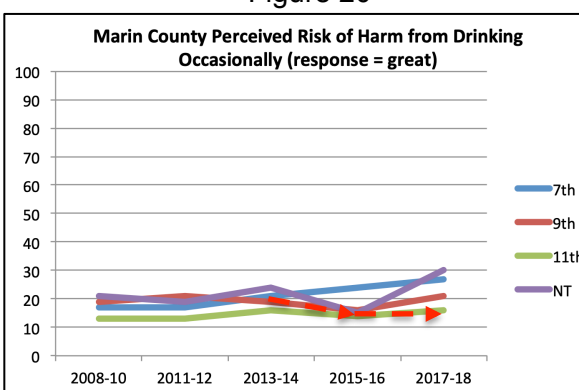


Figure 20



Perceived risk of harm from binge drinking

The MTF question regarding binge drinking is phrases as follows:

“How much do you think people risk harming themselves (physically or in other ways), if they . . . Have five or more drinks once or twice each weekend?”

Among 8th graders, the proportions responding “great risk” there was an overall declining trend with some fluctuations. In 2008, the rate was 57%, and by 2018 it had dropped to 52%. Among

10th graders, there was a declining trend with some fluctuations. In 2008, the rate was 56%, declining to 53% in 2018. Among 12th graders, between 2008 and 2018, the rate fluctuated between 45% and 49%. In 2008, it was 46% and by 2018 it was 45%.

The statewide declining rates in current binge drinking (shown above) trended toward notably low prevalence rates by 2017-18. In particular, among 11th graders by 2017-18 the rate of current binge drinking had declined to 12% (Fig. 21). Statewide, about a quarter of all students in all three grade levels perceived that the risk of people harming themselves physically and in other ways from binge drinking was “moderate” (Fig. 23) and about a half perceived the risk as “great” (Fig. 25). Over the decade, among 11th graders the 4 percentage point increase in the proportion perceiving the risk of harm from binge drinking to be “great” to some degree paralleled the 11 percentage point decrease in reported current binge drinking among 11th graders.

In Marin County, the proportions of 7th and 9th graders who reported current binge drinking were low and similar to those of their counterparts statewide (Fig. 22). Substantially larger proportions of 11th graders in Marin County reporting current binge drinking throughout the decade, although the declining trend was parallel to the declining trend statewide. In Marin County, over the decade larger proportions of 11th graders perceived the risks of harm from binge drinking as “moderate” compared to their counterparts statewide (Fig. 24), but about the same proportions over the decade reported the risk as “great” (Fig. 26).

These trends suggest that in Marin County current binge drinking was a problem for small proportions of 7th and 9th graders, but was a considerably more substantial problem among 11th graders, albeit with some improvement over the decade. Among 11th graders, levels and trends in their perceptions of risk of harm from drinking five or more drinks in a row once or twice a week do not appear to have been correlated with the moderate declines in reported current binge drinking over the decade.

Among students in nontraditional schools, the same appears to be the case; the large decreases in current binge drinking were not paralleled by changes in perceptions of risk of harm from binge drinking. Given that the proportions holding perceptions of risk of harm were essentially the same at the beginning and end of the decade, perceptions of risk of harm were not correlated with the substantial declines in reported current binge drinking.

Figure 21

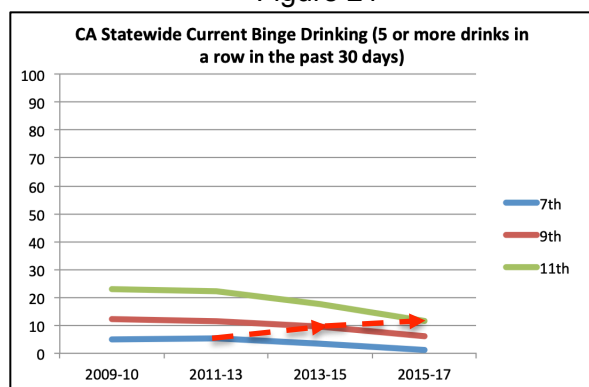


Figure 22

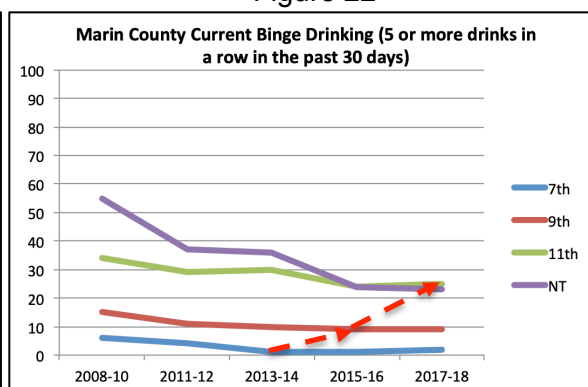


Figure 23

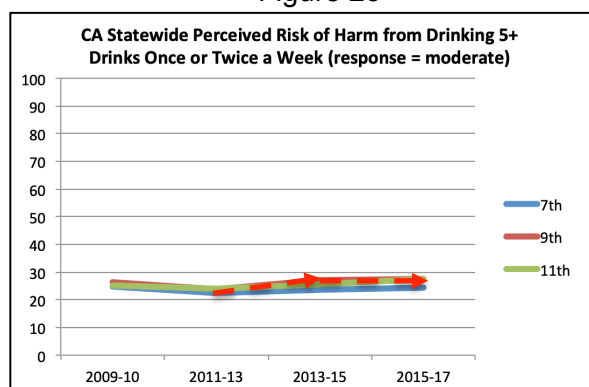


Figure 24

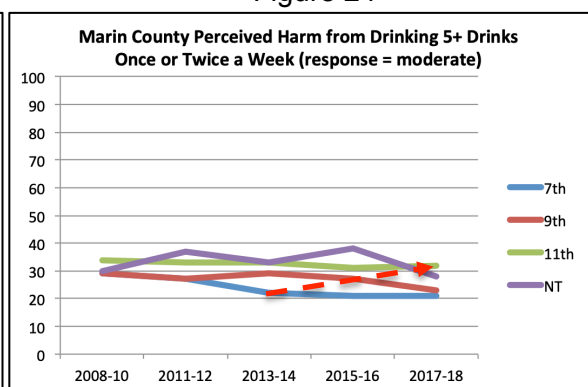


Figure 25

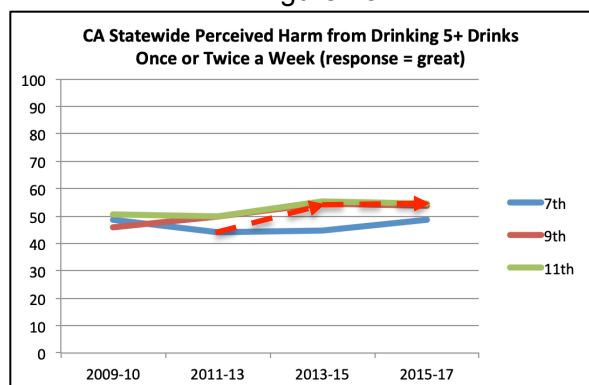
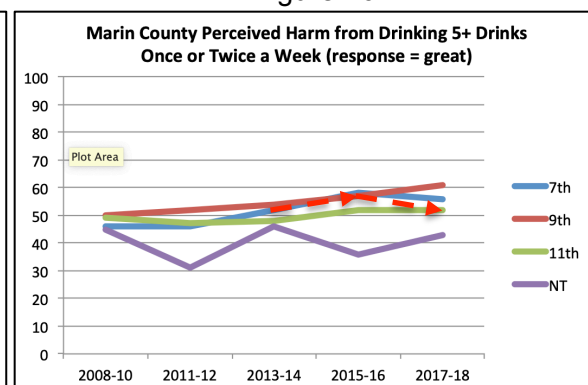


Figure 26



Ease of obtaining alcohol

Youth access to substances has been shown to be associated with rates of use.⁸ MTF asks students a question about access to alcohol phrased as follows:

⁸ Fisher, L. B. et al. (2007) Predictors of initiation of alcohol use among US adolescents: Findings from a prospective cohort study. Arch Pediatr Adolesc Med. 161(10):959-966. doi: [10.1001/archpedi.161.10.959](https://doi.org/10.1001/archpedi.161.10.959)

“How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some? ... Alcohol.”

Nationally, between 2008 and 2018, among 8th, 10th and 12th graders there were steady uninterrupted (secular) declining trends in the proportions responding that it “very easy” or “fairly easy” to obtain alcohol. Among 8th graders, rates declined from 64% to 54%, among 10th graders from 81% to 71%, and among 12th graders from 92% to 83%.

CHKS asked students a slightly different question:

“How difficult is it for students in your grade to get any of the following substances if they really want them? ... alcohol.”

Statewide, the proportions of 7th, 9th and 11th graders who said it was “very easy” or “fairly easy” for students in their grade to obtain alcohol were substantially lower than proportions nationwide (responding to a question about how difficult it would be for them to obtain alcohol) (Fig. 27). For all three grade levels, the statewide trends paralleled nationwide trends. In the beginning of the decade, about a third of 7th graders said it was easy to obtain alcohol, nearly two thirds of 9th graders, and nearly three quarters of 11th graders. Over the decade, in each of the three grade levels there was a decrease of about 10 percentage points in perceived ease of access. These decreases paralleled decreases in reported lifetime, current, binge and current intermittent drinking.

In Marin County, in the beginning of the decade at every grade compared to rates statewide, larger proportions of students – about 5 percentage points higher – reported that it was very easy or fairly easy for students in their grade to obtain alcohol (Fig. 28). Statewide at all three grade levels the proportions of students reporting that it was very easy or fairly easy to obtain alcohol decreased, but in Marin County among 7th graders the proportions decreased briefly in parallel with the statewide trend and then between 2015-16 and 2017-18 returned to the same level. Among 9th graders in Marin County, the proportion reporting that it easy or fairly easy to obtain alcohol increased slightly. Among 11th graders the proportion remained about 80%, resulting in a gap of 14 percentage points above their counterparts statewide by 2017-18.

Students attending nontraditional schools were the only group that had a decreasing proportion reporting easy access to alcohol, albeit moderately decreasing as compared with their larger decreases in rates of lifetime, current, binge and current intermittent drinking.

These levels and trends suggest that at the statewide level decreasing proportions of students reporting that it was easy or fairly easy for students their age to obtain alcohol were moderately correlated with decreasing proportions of students reporting lifetime, current, binge and current intermittent drinking. However, in Marin County the trends in perceived ease of obtaining alcohol were only somewhat correlated with reported decreases in drinking among 7th graders, if one excludes the increase between 2015-16 and 2017-18. By 2017-18, in Marin County at all grade levels, large proportions of students continued to hold perceptions that it was easy for fairly easy for students in their grade to get alcohol if they really wanted it.

Figure 27

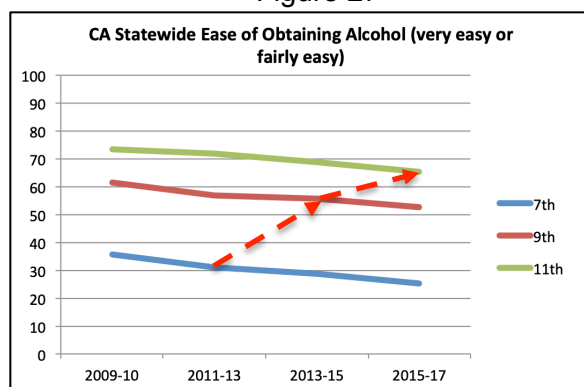
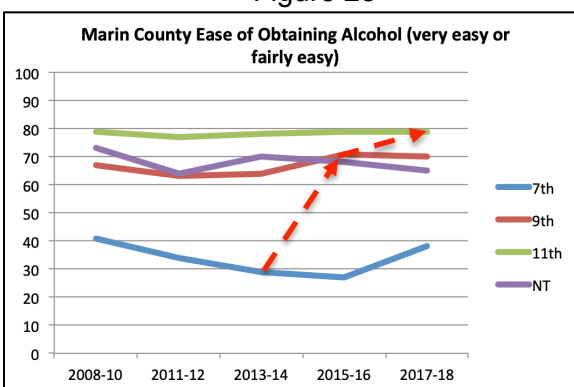


Figure 28



YOUTH MARIJUANA USE AND PERCEPTIONS

Lifetime marijuana use

In analyzing lifetime use of marijuana, we can consider this as a measure of both experimentation and current use.

Nationally, among 8th graders the prevalence rates of lifetime use of marijuana started in 2008 at 15%, rose in 2010 to 17% and then were on a generally declining trend down to 14% in 2018. Among 10th graders, in 2008 the rate was 30%, rose to 36% in 2013, and then fluctuated until declining to 33% in 2018. Among 12th graders, there was a similar pattern. In 2008, the rate was 43%, rising to 46% in 2013, and then stabilizing until a slight drop in 2018 to 44%.

The measures of marijuana use in CHKS surveys have been refined and updated as California law has changed and new products have been introduced into the market. Until 2013, “marijuana” was defined simply as marijuana. In 2013, examples were added. In 2017, the examples were removed, and modes of use were added.

2009: During your life, how many times have you used or tried the following substances/pills or medications without a doctor's order? Marijuana

2013: During your life, how many times have you used the following substances? Marijuana (pot, weed, grass, hash, bud).

2017: During your life, how many times have you used the following? Marijuana (smoke, vape, eat, or drink).

Statewide, lifetime marijuana use followed the pattern nationally – rising and then declining slightly (Fig. 29). Statewide, as with AOD use in general, lifetime marijuana use was substantially higher among 9th graders than 7th graders, and substantially higher again among 11th graders. Between 2009-10 and 2017-18 among 7th, 9th and 11th graders after a slight increase in 2011-13, there was an overall declining secular trend in the prevalence rates of lifetime marijuana use, among 9th graders by 9 percentage points, and among 11th graders by 10 percentage points. The differential between 7th and 9th graders decreased from 18 to 13 percentage points, while the differential between 9th graders and 11th graders remained stable at about 16 percentage points.

Over about the same time period in Marin County, among 7th graders the prevalence rates of lifetime marijuana use generally paralleled those of their counterparts statewide (Fig. 30). Among 9th graders, while the levels and trend in rates was similar to the statewide rates through 2015-16, by 2017-18, while declining somewhat, there was an increase that created a gap of 21 percentage points above the statewide rate (53% vs. 32%). Among 11th graders in Marin County, the proportion who reported lifetime marijuana use was 16 percentage points higher than their counterparts statewide (57% vs. 41%). By 2017-18, while rates among 11th graders in Marin County had declined, the gap between them and their counterparts statewide had increased such that their rate was 21 percentage points higher than the statewide rate.

Among students in Marin County's nontraditional schools, 83% reported lifetime marijuana use. Their rates declined the most of any group of students, down to 65% in 2017-18, but this rate was still very high.

Figure 29

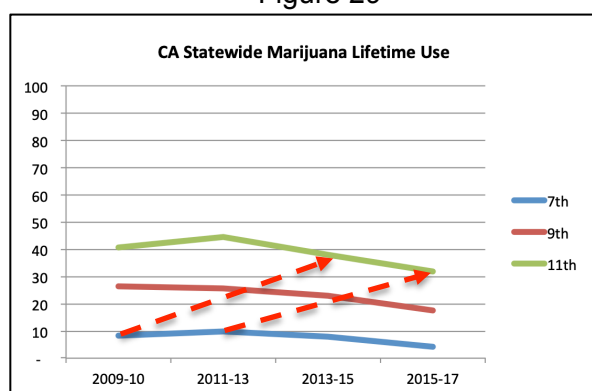
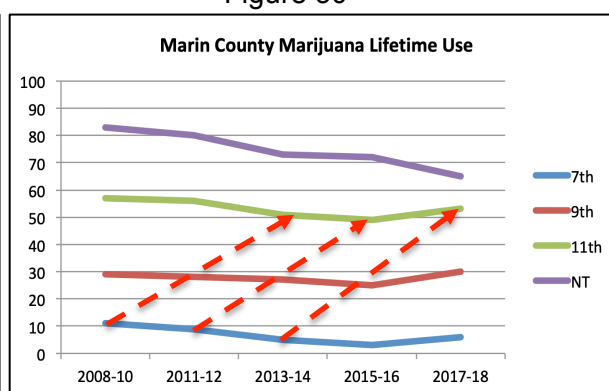


Figure 30



Current marijuana use

Nationally, among 8th graders, prevalence rates of current (past 30 day) use of marijuana started in 2008 at 6%, rose to a peak in 2010 of 8%, and then fluctuated slightly declining to 6% in 2018. Among 10th graders the prevalence rate of current marijuana use fluctuated, eventually rising. In 2008, the rate was 14%, rising to 18% in 2013, and declining to 14% in 2016, and then rising to 18% in 2018. The rates among 12th graders followed the pattern among 10th graders, but higher throughout the decade. In 2008, the rate was 19%, rising to 23% in 2013, and then fluctuating slightly to 22% in 2018.

Statewide, among 7th, 9th and 11th graders, there was a slight increase in 2011-13, followed by overall decline in rates. Over the decade, among 7th graders about half of students who reported lifetime marijuana also reported current use (past 30 days), declining to 2% by 2017-18 (Fig. 31). Among 9th and 11th graders, nearly two thirds of those who reported lifetime use also reported current use. Between 2009-10 and 2017-18, the prevalence rates of current use among 9th and 11th graders declined slightly to 10% and 17% respectively.

In Marin County, among 7th graders over the decade about two thirds of those who reported lifetime use also reported current use (Fig. 32). The percentage of 7th graders who reported lifetime use and also reported current use decreased until 2015-16 and then there was a slight increase. Among 7th graders in Marin County, current use of marijuana dropped from 6% to 3% in 2014 and remained at that very low level. Among 9th graders, by 2017-18 nearly two thirds of those who reported lifetime use also reported current user. Over the decade, rates among Marin

County's 9th graders increased from 17% to 19%, widening the gap with statewide rates that had decreased to 10%. Similarly, among Marin County's 11th graders nearly two thirds of those who reported lifetime use also reported current use. In 2009-10, among 11th graders the prevalence rate of current use was 12 percentage points higher than statewide (36% vs. 24%), and that gap widened substantially over the decade to 16 percentage points, as the rate in Marin increased to 33% while the statewide rate declined to 17%.

Among students in Marin's nontraditional schools, over the decade current marijuana use rates remained very high, fluctuating between 46-61%.

Figure 31

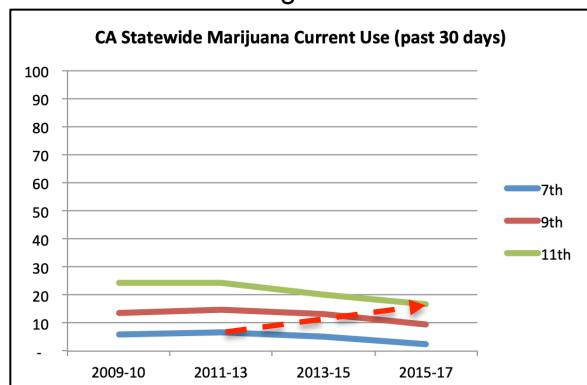
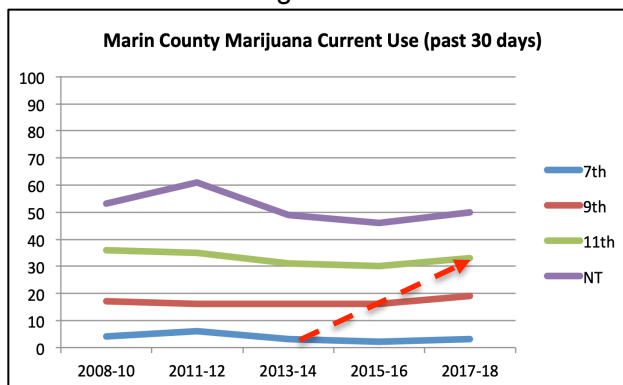


Figure 32



Current intermittent marijuana use

Students were asked how frequently they have used marijuana in the past 30 days. I combined responses for 1-2 days and 3-9 days to create a measure of current intermittent marijuana use, which we can consider as current “weekend partying” use of marijuana.

Statewide, among 7th graders over the decade rates of current intermittent use of marijuana 1-9 times in the past 30 days were essentially the same as current use. Among 9th and 11th graders, about two thirds of current use was current intermittent use. Among 9th and 11th graders, rates of current intermittent use remained constant, while among 11th graders current intermittent use declined 10 percentage points to 5%, nearly identical to the rate of 9th graders.

By comparison, in Marin County rates of current intermittent marijuana use among 7th graders were the same as their counterparts statewide (Fig. 34), and among 9th graders, rates were slightly higher than statewide. Among 11th graders in Marin County, compared to their counterparts statewide, throughout the decade substantially larger proportions reported current intermittent marijuana use. In 2009-10, 11th graders' rate of current intermittent use of marijuana was 10 percentage points higher than the statewide level, and by 2017-18 that gap increased to 19 percentage points because statewide rates declined while Marin County rates remained stable.

Figure 33

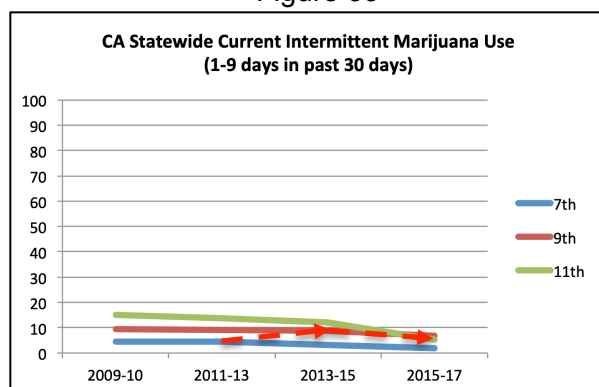
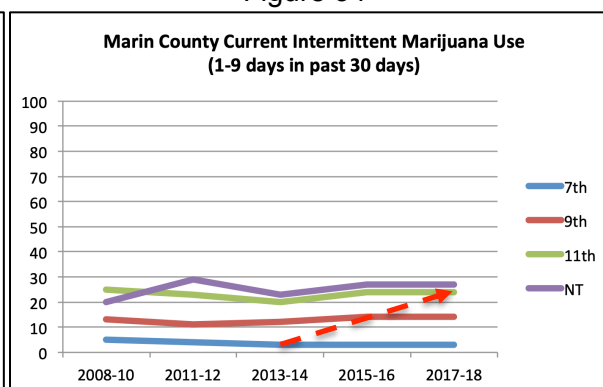


Figure 34



Current vaping of marijuana and nicotine

In 2017, the Monitoring the Future survey added a question about vaping marijuana. Nationally, between 2017 and 2019, the prevalence rates of current (past 30 day) vaping of marijuana began to increase slightly among 8th graders and substantially among 10th and 12th graders (Fig. 35). The national trends in youth vaping of marijuana paralleled the emerging epidemic of vaping of nicotine (Fig. 36).

Figure 35

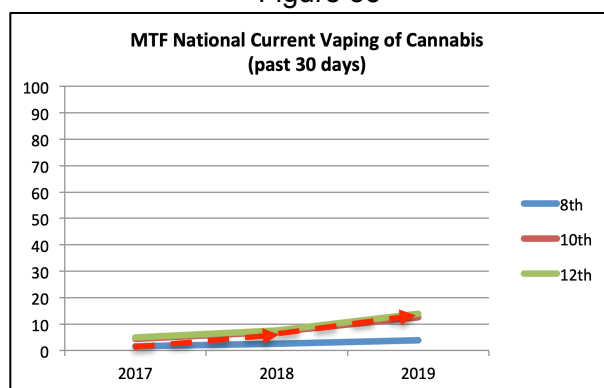
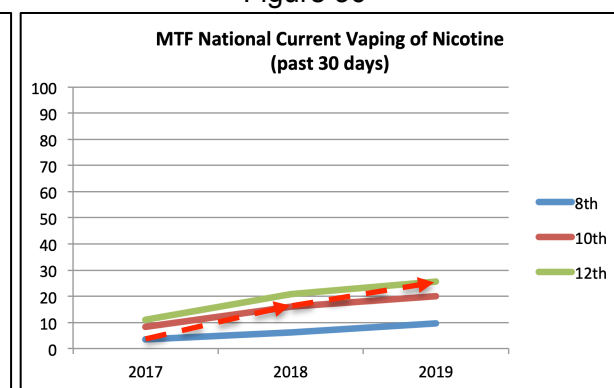


Figure 36



In Marin County, the CHKS 2017-18 survey was the first to ask this question about lifetime vaping of marijuana:

During your life, how many times have you used marijuana in any of the following ways... In an electronic or e-cigarette or other vaping device?

As a basis of comparison, it is important to look at the prevalence of lifetime vaping of nicotine. The CHKS 2017-18 survey asked:

During your life, how many times have you used the following... Electronic cigarettes, e-cigarettes, or other vaping device such as e-hookah, hookah pens, or vape pens?

Table 3 Marin County 2017-18 Lifetime Number of Times of Consumption through Vaping Marijuana Compared to Vaping Nicotine (%)
(beige = somewhat serious problem, orange = serious problem, red = very serious problem)

	Vaping Marijuana				Vaping Nicotine			
	7 th	9 th	11 th	NT	7 th	9 th	11 th	NT
0 times	94	73	56	36	91	66	53	43
1 time	2	6	7	4	3	7	7	5
2 to 3 times	1	6	9	16	2	7	8	10
4 or more times	2	15	28	43	4	21	32	42

Note the high prevalence rate of lifetime vaping of marijuana 4 or more times among 9th graders, and the even higher rate among 11th graders. For each grade level, the rates of vaping of marijuana are very similar to rates for vaping of nicotine. From these data, we cannot be sure whether those who were vaping marijuana were also vaping nicotine, but the parallel rates are suggestive.

Perceived risk of harm from using marijuana

MTF measures perceptions of risk of harm from using marijuana occasionally. MTF asks students the question:

“How much do you think people risk harming themselves (physically or in other ways), if they ... smoke marijuana occasionally?”

The formulation of this question is somewhat problematic because the term “people” is ambiguous. It is important to note that the question asks participants to assess other people’s risk of harm rather than their own risk of actual harm. Given that adolescents tend to minimize risk that they themselves will be harmed, the participants may not have associated “people” with themselves. Additionally, “in other ways” is ambiguous because it does not explicitly include risk of addiction or traffic accidents associated with marijuana use. The qualifier “occasionally” is also an ambiguous frequency.

Until 2017, CHKS asked students to respond to the question:

“How much do people risk harming themselves physically and in other ways when they do the following? ... Smoke marijuana occasionally.”

In 2017, the language was revised to say:

“Use marijuana occasionally (smoke, eat, or drink).”

Nationally, between 2008 and 2018, among 8th graders, there was an uninterrupted (secular) declining trend the proportions responding “great risk” to this question. In 2008, the rate was 48%, and by 2018 the rate had declined to 32%. Among 10th graders, there was a similar uninterrupted (secular) declining trend. In 2008, the rate for those responding “great risk” was 37%, and by 2018 the rate had declined to 21%. Among 12th graders, the trend fluctuated somewhat. In 2008, the rate was 26%, rising the next year to 27% and then generally declining to 14% in 2018.

The trends in California among 7th, 9th and 11th graders responding that the risk of harm from using marijuana occasionally was “great” the trends were more stable than the trends nationwide. At each grade level, the proportions responding “great” changed very little compared to overall declining trends nationwide.

Statewide, the proportions of students that reported perceived risk of harm from smoking marijuana occasionally being “none” or “slight” increased between 2009-10 and 2011-13 and then remained moderately high and stable (Fig. 37). Between 9th and 11th graders there was a gap of about 10 percentage points. The proportions that reported that the risk of harm of smoking marijuana occasionally was “moderate” for all three grade levels dropped to a stable narrow range of 21-24%. Similarly, the proportions that reported that the risk was “great” remained stable (Fig. 39), with a gap between 9th graders and 11th graders that narrowed to 6 percentage points at 36% and 30% respectively by 2015-17.

In Marin County, the proportions of 7th graders that reported perceived risk of harm from smoking marijuana occasionally being “none” or “slight” was fairly similar to the proportions among their counterparts statewide, declining 7 percentage points below statewide to 30% in 2017-18 (Fig. 38). The proportions of 9th graders in Marin County rating the risk as “none” or “slight” was consistently higher than their counterparts statewide, rising in 2017-18 to 11 percentage points higher than statewide (50% vs. 39%). Among 11th graders in Marin County, the proportions remained stable, as was the case statewide, but their rates were in the range of 17 percentage points higher than those statewide, by 2017-18 at 64% vs. 49% statewide. Among students in Marin County’s nontraditional schools, the proportions were slightly higher than 11th graders.

Statewide, for all three grade levels the proportions that reported perceived risk of harm from smoking marijuana occasionally being “moderate” were nearly identical and stable throughout the decade at about 22% (Fig. 39).

In Marin County the proportions were also stable (Fig. 40), although throughout the decade, but the rates among 7th graders were somewhat higher than their counterparts statewide. Among students in Marin County’s nontraditional schools, the proportions reporting that their perceived risk of harm was “moderate” were lower stable and generally slightly lower than 11th graders. Among students in Marin County’s nontraditional schools, the rates were slightly lower than 11th graders.

Statewide, the proportions responding that their perceived risk of harm from smoking marijuana occasionally was “great” were stable across the decade (Fig. 41). By 2015-17, among 7th graders the rates were 43%, among 9th graders 36%, and among 11th graders 30%. This mirrored the pattern of responses for “none” or “slight” reported above.

In Marin County, the proportions of 7th graders perceiving that the risk of harm from occasional marijuana use was “great” were also stable (Fig. 42), and the gap between their rates and statewide rates narrowed to being nearly identical. By contrast, the proportions of 9th graders in Marin County that perceived that the risk of harm from occasional marijuana use was “great” were consistently and substantially lower than their counterparts statewide, with the gap by 2017-18 increasing to 15 percentage points (21% vs. 36%). Among 11th graders in Marin County there was a similar pattern with statewide rates which remained stable throughout the decade, but here again the rates in Marin County were substantially lower than statewide rates. By 2017-18 the proportions perceiving that the risk of harm from occasional marijuana use was “great” was 14 percentage points below statewide (16% vs. 30%). Among students in Marin County’s nontraditional schools, the rates fluctuated around the rates of 11th graders.

These data suggest that because the trends in perceptions of risk of harm of occasional marijuana use statewide were quite stable throughout the decade, perceptions of risk of harm of occasional use were not associated with declining trends in lifetime, current, and intermittent use.

In Marin County, the proportions of 7th graders holding perception about the risk of harm from occasional marijuana use were similar to and in some instances even better than the proportions of 7th graders statewide. However, the proportions of 9th and 11th graders saying the risk of harm was none or slight were far higher than proportions statewide, and the proportions saying the risk of harm was moderate or great were far lower than proportions statewide. This suggests that in Marin County as students grew older they increasingly underestimated the potential risk of harm of occasional marijuana use compared to their counterparts statewide.

Figure 37

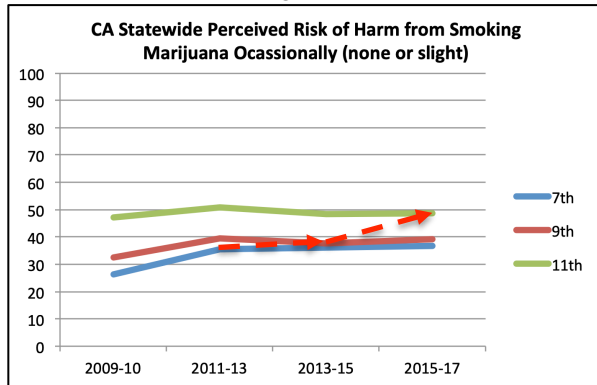


Figure 38

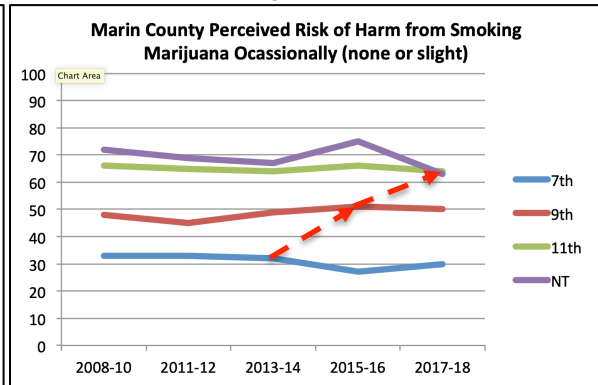


Figure 39

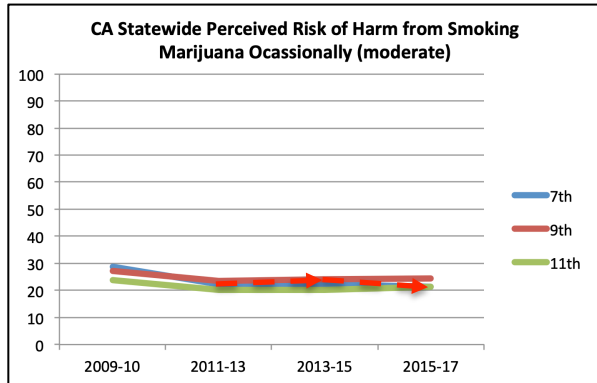


Figure 40

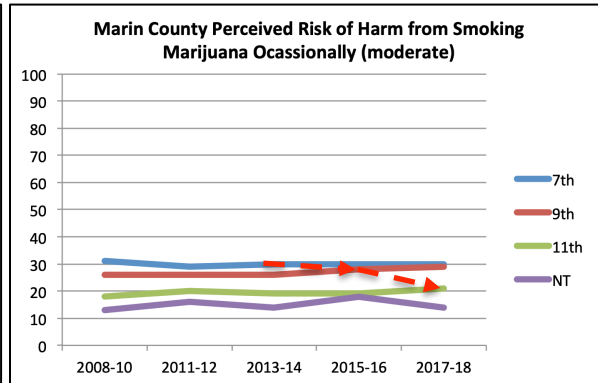


Figure 41

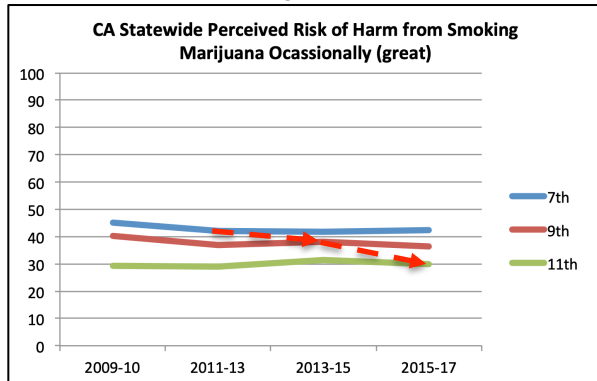
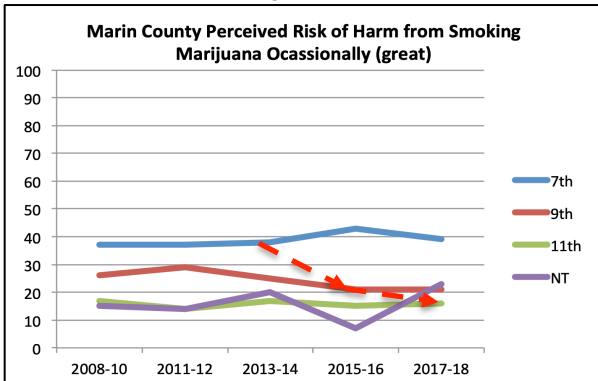


Figure 42



Perceived risk of harm from using marijuana once or twice a week

Statewide, in 2009-10 students in all three grade levels reported notably low levels of perceived risk of harm from using marijuana once or twice a week, and that trend remained relatively constant (Fig. 43). By 2017-18, one third of 7th and 9th graders held the view that using marijuana once or twice a week caused “none” to “slight” harm. Given the low use rates among 7th graders this is particularly surprising. The proportions were only slight lower than the proportion of 11th graders (41%) who held the same view.

A comparison of rates statewide to those in Marin County (Fig. 44) shows that by 2015-16 (the latest date that this question was administered) among 7th graders in Marin County the proportion responding that the risk of harm from using marijuana once or twice a week was “none” or “slight” was 13 percentage points below their counterparts statewide. Among 9th graders the proportion was about the same as their counterparts statewide, and among 11th graders the proportion was 4 points above their counterparts statewide.

Among 9th graders in Marin County, over the decade the proportions that perceived a risk of harm from using marijuana once or twice a week were stable and about the same as their counterparts statewide, and their rates of lifetime, current and current intermittent marijuana use were nearly identical to those statewide. It is unclear whether their perceptions of risk of harm influenced their relatively low rates of marijuana use.

Among 11th graders in Marin County, over the decade, although their rates of lifetime, current and current intermittent marijuana use were substantially higher than their counterparts statewide. Among 11th graders in Marin County the proportions reporting perceived risk of harm from using marijuana once or twice a week as “none” or “slight” were stable and only slightly above their counterparts statewide. This suggests that it is unlikely that for this age group perceived risk of harm provided much protective benefit since their rates of lifetime, current and current intermittent marijuana use were substantially higher than those of their counterparts statewide.

Among students in Marin County’s nontraditional schools, much larger proportions of students consistently responded that they perceived the risk of harm from using marijuana once or twice a week to be “none” or “slight” compared to all other groups. By 2017-18, the proportion reached 79%.

Figure 43

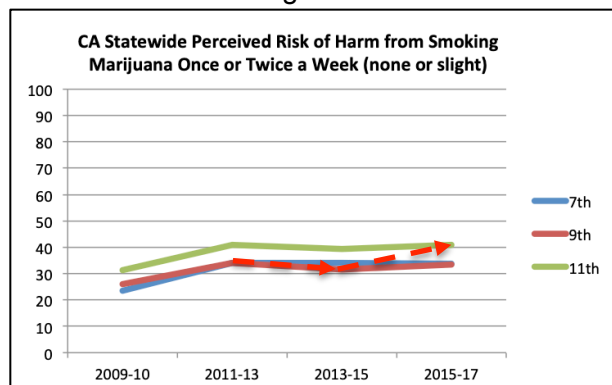
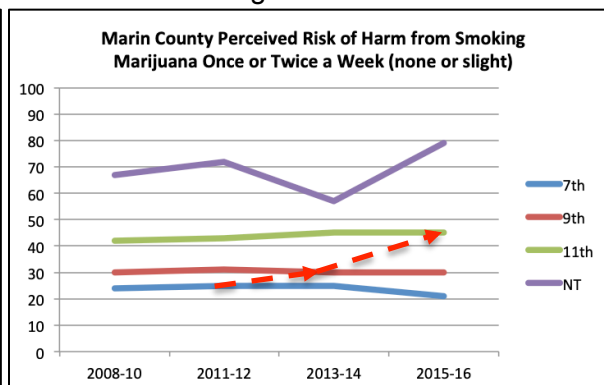


Figure 44



Ease of obtaining marijuana

MTF asked students to respond to the question:

“How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?”

CHKS asked students a somewhat different question:

“How difficult is it for students in your grade to get any of the following if they really want them? ... Marijuana.”

Nationally, among 8th graders, rates for those responding “very easy” or “fairly easy” rose, fluctuated and then declined. In 2008, the rate was 39%, rising in 2010 to 41%, then fluctuating slightly, ultimately declining in 2016 to 35% and remaining stable at 35% at 2018. Among 10th graders between 2008 and 2018, the trend in rates for those responding “very easy” or “fairly easy” rose and then fell. In 2008, the rate was 67%, rising in 2013 to 70%, and then decreasing to 66% in 2018. Among 12th graders, for those responding “very easy” or “fairly easy” rates in 2008 were very high at 84%, and then declined gradually to 78% in 2018.

In California, for students in all three grade levels, the trends were generally similar to those nationwide – slight gradual overall declines.

Statewide, large proportions of students perceived that it was “very easy” or “fairly easy” for students in their grade to obtain marijuana (Fig. 45). Among 7th graders, the proportions ranged from 19-23%, and jumped dramatically among 9th graders (between 51-60%) while attending their first year of high school. As high school students moved through their high school years, by 11th grade even greater proportions (67-73%) perceived that it was very easy or fairly easy to obtain marijuana. Overall, there has been a gradually declining trend in the proportions holding this perception.

In Marin County (Fig. 46), the proportion of 7th graders who perceived that it is very easy or fairly easy for students in their grade to obtain marijuana increased to 28% in 2017-18, 9 percentage points above their counterparts statewide. The proportions of 9th graders in Marin County holding this perception were far greater than among 7th graders, increasing in 2017-18 to 71%, 20 percentage points higher than their counterparts statewide. The proportion of 11th graders was even higher rising to 81%, 14 percentage points above their counterparts statewide. Students in Marin County’s nontraditional schools held this view in similarly high proportions as those of 11th graders, with a notable decline in 2017-18.

These data suggest that in Marin County, students’ perceptions about the ease with which other students in their grade level can obtain marijuana may reflect a widespread sociocultural environment in which marijuana sales to minors and youth use are commonplace.

Figure 45

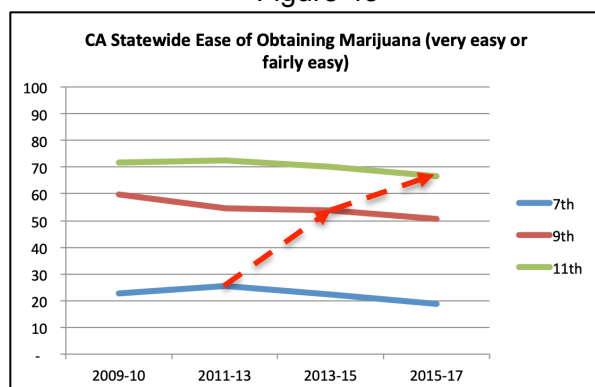
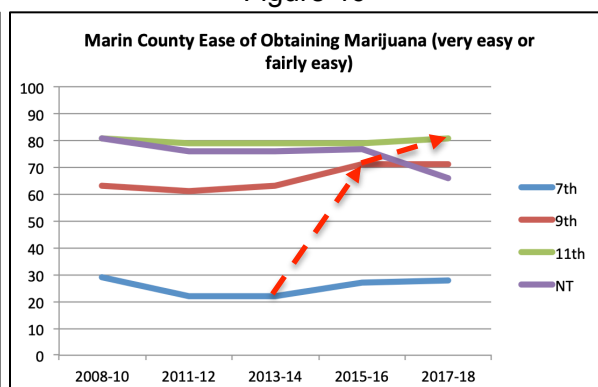


Figure 46



YOUTH USE OF OTHER DRUGS

Lifetime use of drugs other than marijuana

MTF survey asks students about lifetime use of a wide range of illicit drugs. The CHKS survey asks 9th and 11th graders and students in nontraditional schools questions about use of other drugs, specifically about use of inhalants; Cocaine, Methamphetamine, or any amphetamines; heroin; ecstasy, LSD, or other psychedelics; prescription pain medication or opioids, tranquilizers, or sedatives; diet pills, Ritalin™ or Adderall™ or other prescription stimulants; cold/cough medicines or other over-the-counter medicines to get “high”; and any other drug, pill, or medicine to get “high” or for other than medical reasons.

Among 8th graders, the prevalence rate of lifetime use of any illicit drug other than marijuana in 2008 was 12%, declining to 10% by 2018. Among 10th graders, the rate in 2008 was 18%, declining to 14% in 2018. Among 12th graders, the rate in 2008 was 27%, declining to 19% in 2018.

In Marin County, among students in traditional public schools, the proportions of students reporting lifetime use of most of these other drugs has been consistently below 6%, and CHKS measures of drug use were combined over the decade, making it impossible to detect any significant trends in prevalence rates. Data on rates from 2008-10 Marin County CHKS survey are shown in Table 4. The most recent prevalence rates of lifetime drug use are shown in Table 5 from the 2017-18 Marin County CHKS survey.

Comparing reports from 2008-10 and 2017-18, the prevalence self-reported rates of lifetime use for the following drugs have been higher than 6% in one or both time periods. Lifetime use of inhalants among 9th and 11th graders dropped for both grades from 11% to 4%. In 2008-10 among 11th graders, reported lifetime use of cocaine was 9% and lifetime use of methamphetamine or any amphetamines was 6%, whereas in 2017-18 the prevalence rate for lifetime use of cocaine, methamphetamine, or any amphetamines was 6%, suggesting a slight decrease in cocaine use. In 2008-10, among 11th graders the rate of lifetime use of ecstasy was 14%, and lifetime use of LSD and other psychedelics was 11%, whereas in 2017-18 the rate for ecstasy, LSD, or other psychedelics was 9%, suggesting a slight decrease. The rates for lifetime heroin use among 9th graders decreased from 3% to 1%, and among 11th graders the rates decreased from 4% to 1%. In 2008-10, lifetime use of all other drugs among 9th graders was 11% and among 11th graders 14%. In the 2017-18 CHKS, these drugs were separated into different

questions. In 2017-18, the rates for lifetime use for these other drugs that were above 6% were prescription pain medication or opioids, tranquilizers, or sedatives (11th graders 11%), and RitalinTM or AdderallTM or other prescription stimulants (11th graders 13%).

Among students at Marin County's nontraditional schools, prevalence rates of lifetime were dramatically higher (Table 4 and Table 5). Although the samples sizes are quite small, and large proportions of students were missing from the samples, the high rates of self-reported use of other drugs are of particular concern.

Table 4 Marin County Lifetime AOD Use 2008-10

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
Alcohol (one full drink)				
0 times	79	56	31	11
1 time	8	9	7	7
2 to 3 times	6	13	11	10
4 or more times	7	21	51	73
Marijuana				
0 times	89	71	43	17
1 time	4	6	6	6
2 to 3 times	2	4	8	2
4 or more times	5	19	43	75
Inhalants (to get high)				
0 times	90	89	89	73
1 time	4	4	4	8
2 to 3 times	3	2	3	5
4 or more times	3	4	4	13
Cocaine				
0 times	na	94	91	61
1 time	na	2	2	8
2 to 3 times	na	1	3	7
4 or more times	na	3	4	25
Methamphetamine or any amphetamines				
0 times	na	96	94	81
1 time	na	1	2	4
2 to 3 times	na	1	2	6
4 or more times	na	2	2	8

Question HS A.37-41/MS A.37-39: During your life, how many times have you used or tried...?

na=not asked of middle school students

Table 4 (cont.) Marin County Lifetime AOD Use 2008-10

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
LSD or other psychedelics				
0 times	na	94	89	68
1 time	na	2	5	11
2 to 3 times	na	2	4	6
4 or more times	na	2	3	16
Ecstasy				
0 times	na	92	86	48
1 time	na	3	4	8
2 to 3 times	na	2	4	7
4 or more times	na	4	6	37
Heroin				
0 times	na	97	96	88
1 time	na	1	1	2
2 to 3 times	na	1	1	2
4 or more times	na	2	2	8
Other illegal drug or pill				
0 times	95	89	86	64
1 time	2	3	3	5
2 to 3 times	1	3	4	12
4 or more times	2	5	6	19
<i>Any of the above AOD Use</i>	26	48	73	92
Prescription pain killers				
0 times	na	88	83	56
1 time	na	3	5	6
2 to 3 times	na	3	5	16
4 or more times	na	5	7	22

Question HS A.43-47/MS A.41: During your life, how many times have you used or tried...?

na=not asked of middle school students

Table 5 Marin County Lifetime AOD Use 2017-18

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
Alcohol (one full drink)				
0 times	90	65	37	30
1 time	5	9	7	11
2 to 3 times	3	9	11	13
4 or more times	2	17	45	46
Marijuana (smoke, vape, eat, or drink)				
0 times	94	70	47	35
1 time	2	6	6	7
2 to 3 times	2	6	8	7
4 or more times	2	18	39	51
Inhalants				
0 times	97	96	96	82
1 time	2	2	2	7
2 to 3 times	1	1	1	5
4 or more times	1	1	1	5
Cocaine, Methamphetamine, or any amphetamines				
0 times	na	98	94	78
1 time	na	1	1	3
2 to 3 times	na	1	1	6
4 or more times	na	1	3	13
Heroin				
0 times	na	99	99	95
1 time	na	0	0	2
2 to 3 times	na	0	0	2
4 or more times	na	0	1	1
Ecstasy, LSD, or other psychedelics				
0 times	na	96	91	79
1 time	na	2	3	6
2 to 3 times	na	1	2	6
4 or more times	na	1	3	10

Question HS A.49-52, 54, 55/MS A.50-52: During your life, how many times have you used the following? One full drink of alcohol (such as a can of beer, glass of wine, wine cooler, or shot of liquor)... Marijuana (smoke, vape, eat, or drink)... Inhalants (things you sniff, huff, or breathe to get "high" such as glue, paint, aerosol sprays, gasoline, poppers, gases)... Cocaine, Methamphetamine, or any amphetamines (meth, speed, crystal, crank, ice)... Heroin... Ecstasy, LSD, or other psychedelics (acid, mescaline, peyote, mushrooms).

Notes: Cells are empty if there are less than 10 respondents.

na—Not asked of middle school students.

Table 5 (cont.) Marin County Lifetime AOD Use 2017-18

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
Prescription pain medication or opioids, tranquilizers, or sedatives				
0 times	na	94	89	67
1 time	na	2	4	6
2 to 3 times	na	1	3	11
4 or more times	na	2	4	17
Diet Pills				
0 times	na	97	97	95
1 time	na	1	1	1
2 to 3 times	na	1	1	1
4 or more times	na	2	2	3
Ritalin™ or Adderall™ or other prescription stimulant				
0 times	na	94	87	79
1 time	na	2	3	5
2 to 3 times	na	1	3	8
4 or more times	na	3	7	9
Cold/Cough Medicines or other over-the-counter medicines to get “high”				
0 times	na	95	94	80
1 time	na	2	2	7
2 to 3 times	na	2	2	8
4 or more times	na	1	2	5
Any other drug, pill, or medicine to get “high” or for other than medical reasons				
0 times	98	97	96	84
1 time	1	1	2	3
2 to 3 times	1	1	1	6
4 or more times	1	1	1	7

Question HS A.56-60/MS A.54: During your life, how many times have you used the following?... Prescription pain medication or opioids (Vicodin™, OxyContin™, Percodan™, Lortab™), tranquilizers, or sedatives (Xanax™, Ativan™)... Diet Pills (Didrex, Dexedrine, Zinadrine, Skittles, M&M's)... Ritalin™ or Adderall™ or other prescription stimulant... Cold/Cough Medicines or other over-the-counter medicines to get “high”... Any other drug, pill, or medicine to get “high” or for other than medical reasons.

Notes: Cells are empty if there are less than 10 respondents.

na—Not asked of middle school students.

Current use of any drug including marijuana

Data on the prevalence rates of current use of any drug including marijuana in the U.S., California and Marin County are reported above in the first part of this report on Youth AOD Use and Perceptions, and shown above in Fig. 5 and Fig. 6.

Current use of drugs other than marijuana

In 2008-10, prevalence rates of self-reported current (past 30 day) use of all drugs other than marijuana among 9th and 11th graders were 3-7%, with ecstasy, LSD, or other psychedelics among 11th graders at 7% (Table 6). In 2017-18, rates among 9th and 11th graders were 3-7% were 1-3% (Table 7). Among students at nontraditional schools, in 2008-10 the prevalence rates for self-reported current use of all other drugs was considerably higher than for their counterparts at traditional schools, ranging from 8% for methamphetamine or any amphetamines to 28% for ecstasy, LSD, or other psychedelics. Again, these rates, while less reliable as measures of prevalence of current use, are of concern.

Table 6 Marin County Current AOD Use 2008-10

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
Alcohol (at least one drink)	13	25	48	61
Marijuana	6	20	36	61
Inhalants	5	4	3	12
Cocaine	na	4	4	18
Methamphetamine or any amphetamines	na	3	3	8
Ecstasy, LSD or other psychedelics	na	5	7	28
Other illegal drug or pill	3	6	6	18
<i>Any of the above AOD Use</i>	16	30	55	77
Two or more drugs at the same time	na	11	19	42

Table 7 Marin County Current AOD Use 2017-18

	Grade 7 %	Grade 9 %	Grade 11 %	NT %
Alcohol (one or more drinks of alcohol)	4	17	39	36
Binge drinking (5 or more drinks in a row)	2	9	25	23
Marijuana (smoke, vape, eat, or drink)	3	19	33	50
Inhalants	1	1	1	5
Prescription drugs to get “high” or for reasons other than prescribed	na	2	3	9
Other drug, pill, or medicine to get “high” or for reasons other than medical	1	2	2	8
<i>Any drug use</i>	3	20	34	51
<i>Heavy drug use</i>	2	10	19	36
<i>Any AOD Use</i>	6	26	49	57
Two or more substances at the same time	na	7	15	16

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