

**Tobacco Use among Middle and High School Students in Mariposa County:
Findings from the 2017–18 California Student Tobacco Survey**

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INTRODUCTION

Mariposa County is a rural county where residents are widely dispersed throughout 1,500 square miles. The 2010 U.S. Census shows that the community is relatively an aging one as approximately 30% are over the age of 65.¹ The county's largest racial/ethnic groups are non-Hispanic White (79.7%) and Hispanic or Latino (11.6%).¹

About 16% of Mariposa County's population is under the age of 18. In the 2017–2018 school year, more than 1,800 middle and high school students attended 14 public schools from two districts.² The ethnic composition of these middle and high school student populations was similar to census data. The largest ethnic groups were non-Hispanic White (67.0%) and Hispanic or Latino (18.1%).²

This report presents the main results from a school-based survey: the 2017–18 California Student Tobacco Survey (CSTS). It reports findings from the 2017–18 CSTS that are specific to Mariposa County, including results based on the statewide survey questionnaire, as well as those additional questions specifically requested by the Mariposa County Tobacco Education Program. This report is intended to serve a broad spectrum of the tobacco-control community. It aims to facilitate the understanding of adolescent tobacco use behavior in the current, rapidly changing tobacco landscape—and to assist the development of tobacco-control interventions to reduce tobacco use among youth in Mariposa County.

EXECUTIVE SUMMARY

This report summarizes the main findings from the 2017–18 California Student Tobacco Survey (CSTS) for Mariposa County. The survey was administered to 7th through 12th grade students in Mariposa County from November to December 2018. The Mariposa Tobacco Education Program selected all five schools that participated in the survey. No schools were included in the statewide sample for the State of California’s student tobacco prevalence. The project was conducted by the University of California, San Diego. Throughout the 2018 calendar year, 493 students from one high school and four middle schools in Mariposa County participated in the survey.

The survey was designed to assess use of, knowledge of, and attitudes toward tobacco products, including cigarettes, e-cigarettes, little cigars or cigarillos (LCC), big cigars, hookah, and smokeless tobacco. The survey also assessed social and environmental exposure to various tobacco products. Marijuana was included in the survey since co-use of marijuana and tobacco products is common. Basic results for marijuana use among all participating students are presented in Appendix A.

This report summarizes results based on participating students from 7th through 12th grade from Mariposa County. Please note that the prevalence data cannot be directly compared with rates in the statewide report, which focuses only on high school students (10th and 12th graders).

The following key findings are presented in this report:

Key Findings

Tobacco Use Behavior

- In 2017–2018, 18.9% of students in Mariposa County used a tobacco product in the past 30 days.
- E-cigarettes were the most popular tobacco product with 18.5% of Mariposa County students currently using; however, current use of all other products was low with cigarettes having the next highest use rates at 4.4%.
- Use of multiple tobacco products was common among tobacco users in grades 11 and 12 with over half (56.1%) of them using two or more products.
- The majority of tobacco users in Mariposa County used flavored tobacco (85.7%); e-cigarettes had the highest rate of flavored tobacco use (91.8%) for all products.
- *Fruit or sweet* was the most popular flavor type for e-cigarettes (82.4%) and combustible tobacco (47.3%, cigarettes, big cigars, LCC, and hookah combined), whereas *mint* was the most popular smokeless tobacco flavor (83.3%).

Risk Factors for Tobacco Use

- Among Mariposa County students who had never used tobacco, two in five were susceptible to future use if offered by a best friend (40.5%).
- Vapers were more likely to access e-cigarettes from social sources (64.5%) than purchase e-cigarettes (35.5%).
- Many students believed that it would be easy to get e-cigarettes (61.0%) or cigarettes (51.3%) if they wanted them.
- Nearly two in five (38.8%) Mariposa students were offered a tobacco product in the past 30 days. Students were most likely to be offered e-cigarettes (38.1%).

Exposure to Tobacco Use

- Even though most students in Mariposa County reported living in a home that had complete bans on vaping (71.0%) and smoking (80.0%), many were exposed to vapor (46.0%) and smoke (40.0%) in a room.
- Approximately three in five students were exposed to ads related to e-cigarettes (59.0%) or cigarettes (62.0%). Out of those students who were exposed to cigarette-related ads, the majority of them saw ads that discouraged its use (58.0%). Similarly, the majority of students who saw e-cigarette ads reported seeing those that discouraged its use (56.4%).
- More than three-fourths of students (78.7%) who had visited convenience stores or small markets in the last 30 days were exposed to smokeless tobacco ads.

DEFINITIONS USED IN THIS REPORT

Tobacco Products

E-cigarettes (vapes, e-hookah, hookah pen): Also called e-cigs, vape pens, tanks, or mods. Some come with liquid inside and others you fill yourself. Popular names are Blu, NJOY, MarkTen, Juul, Suorin*, Imperial, and Fantasia.

Cigarettes: Sold in packs and cartons. Popular brands include Marlboro, Newport, Pall Mall, Camel, and Winston.

Little cigars or cigarillos (LCC): Wrapped in tobacco leaf or brown paper containing tobacco. May be flavored. Popular brands are Swisher Sweets, White Owl, and Black & Mild. Little cigars or cigarillos is abbreviated to LCC throughout this report.

Big cigars: Tobacco wrapped in a tobacco leaf. Popular brands are Romeo Y Julieta, Cohiba, Davidoff, and Ashton.

Hookah: Water pipe used to smoke flavored tobacco (shisha). Popular brands are Starbuzz, Al-Fakher, Samba, and Social Smoke.

Smokeless tobacco (chew, dip, snuff, or snus): Loose leaf or ground tobacco leaves. It comes in a large pouch (bag) or in tins. Popular brands are Red Man, Copenhagen, Grizzly, Skoal, Swedish Match, and Klondike. Snus comes in a small pouch (like a tea bag). Popular brands are General, Marlboro, and Camel. Smokeless tobacco is abbreviated to smokeless throughout this report.

Definitions of Product Use

Ever use: Having used within a lifetime

Current use: Use within the last 30 days

Poly use: Use of two or more tobacco products in the last 30 days

Flavored tobacco product use: Use of a flavored tobacco product within the last 30 days

Co-use: Use of marijuana and at least one tobacco product (e.g., e-cigarettes, cigarettes, LCC, hookah) within the last 30 days

Never user: A student that reports having never used the tobacco product(s)

Former user: A student that reports having used the tobacco product(s), but not within the last 30 days

Current user: A student that reports using the tobacco product(s) within the last 30 days

*Suorin was added to the e-cigarette description in February 2018. It was not originally listed because the 2017–18 CSTS was developed before Suorin use became widespread.

Other Terms*

LGBTQ Community Affiliation: Responded *yes* to the question: “Do you identify yourself as LGBTQ?”

Susceptible to future tobacco product use: Responded *definitely yes, probably yes, or probably not* to the question: “If one of your BEST FRIENDS offered you [tobacco product†], would you use it?”

Not susceptible to future tobacco product use: Responded *definitely not* to the question: “If one of your BEST FRIENDS offered you [tobacco product†], would you use it?”

Complete home ban on vaping: Indicated that *vaping e-cigarettes is not allowed inside my home* when asked about the rules about vaping e-cigarettes inside the home.

Complete home ban on smoking: Indicated that *smoking is not allowed inside my home* when asked about the rules about smoking cigarettes or other tobacco products inside the home.

Exposure to secondhand vapor in a room: Indicated being in a room *when someone was using e-cigarettes (including e-hookah and hookah pens)* in the last 30 days.

Exposure to secondhand vapor in a car: Indicated being in a car *when someone was using e-cigarettes (including e-hookah and hookah pens)* in the last 30 days.

Exposure to secondhand smoke in a room: Indicated being in a room *when someone was smoking a cigarette, little cigar, or cigarillo* in the last 30 days.

Exposure to secondhand smoke in a car: Indicated being in a car *when someone was smoking a cigarette, little cigar, or cigarillo* in the last 30 days.

Offers of tobacco products: Responded *yes* to the question: “In the last 30 days, has ANYONE offered you [tobacco product‡]?”

Exposure to tobacco ads: Indicated having seen ads that either promoted or discouraged the use of a tobacco product (e.g., e-cigarettes, cigarettes, LCC) in the last 30 days.

*These terms are based on student responses to the questions in the 2017–18 CSTS. *I prefer not to answer* was included as a response option for all survey questions.

†Tobacco products the respondent had never used.

‡Tobacco products included e-cigarettes, cigarettes, little cigars or cigarillos (LCC), and hookah only.

A Word of Caution on Interpreting Rates and Proportions

All estimates of rates and proportions should be interpreted in reference to their 95% confidence intervals. Although estimates are roughly the median of this interval, the range of the confidence interval is the best descriptive measure for statistical accuracy. Therefore, estimates with wide confidence intervals should be interpreted with caution. Data that are statistically unreliable because the coefficient of variation (also known as relative variance) is greater than 30% are marked with a dagger symbol (†) in the tables. Please pay special attention when estimates are based on small sample sizes.

CHAPTER 1 – Tobacco Use Behavior

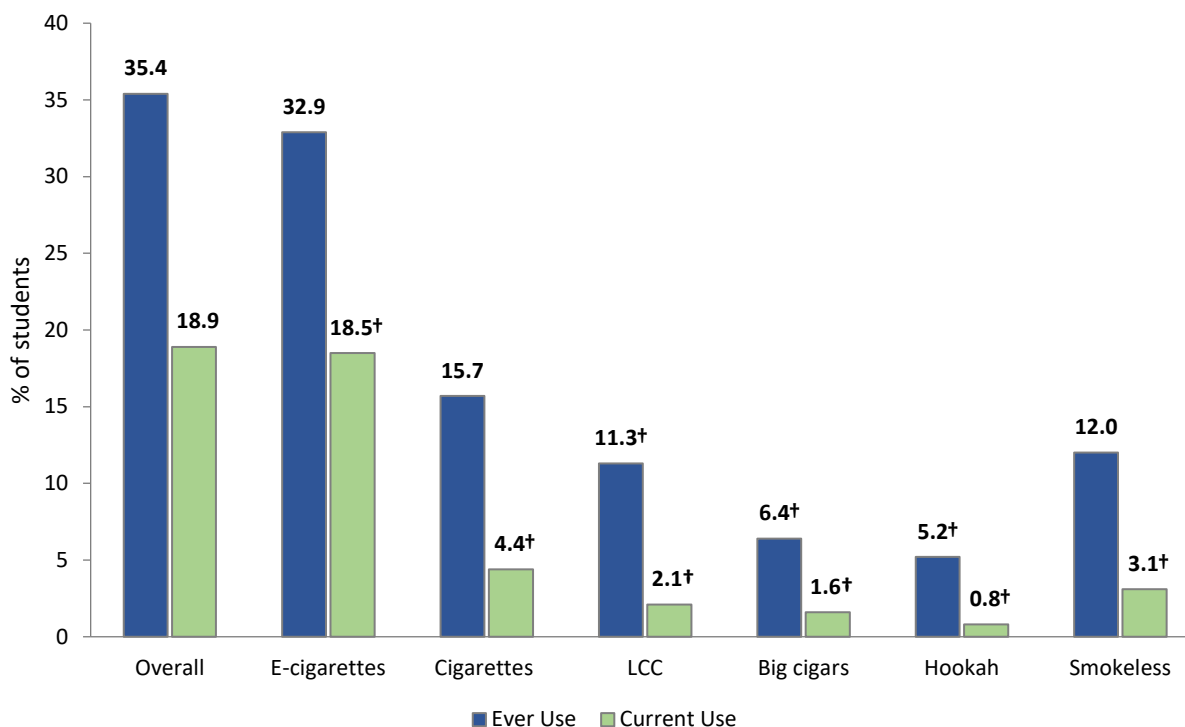
Highlights

- 18.9% of students in Mariposa County reported currently using any tobacco product.
- E-cigarettes were the most popular tobacco product, with 18.5% students currently using them. Only 4.4% of students in Mariposa County reported currently smoking cigarettes.
- Current use of other combustible tobacco products (e.g., big cigars and hookah) was very low.
- About two-fifths (38.2%) of students used tobacco products infrequently.
- Over half of current users in grades 11 and 12 reported using two or more tobacco products (56.1%).
- Two in five students (40.5%) who had never used a tobacco product were susceptible to using at least one tobacco product in the future.

Tobacco Product Use among Middle and High School Students

In Mariposa County, 35.4% of students have tried any tobacco product, while 18.9% reported currently using a tobacco product (Figure 1). In both cases, the majority of use was attributed to e-cigarettes, with 32.9% of students having ever used the product and 18.5% of students currently using the product. LCC, big cigars, and hookah tobacco products were used the least (2.1%, 1.6%, and 0.8%, respectively).

Figure 1. Prevalence of ever and current use of tobacco products



Note: Refer to Table 1 for estimates with confidence intervals.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Table 1. Prevalence of ever and current use of tobacco products

	Ever use N=493 % (95% CI)	Current use N=491 % (95% CI)
Overall	35.4 (23.2-47.7)	18.9 (8.6-29.2)
E-cigarettes	32.9 (19.6-46.2)	18.5 (7.2-29.8) [†]
Cigarettes	15.7 (7.9-23.4)	4.4 (1.0-7.7) [†]
LCC	11.3 (4.4-18.3) [†]	2.1 (0.5-3.6) [†]
Big cigars	6.4 (1.8-11.0) [†]	1.6 (0.1-3.2) [†]
Hookah	5.2 (1.6-8.7) [†]	0.8 (0.1-1.6) [†]
Smokeless	12.0 (6.7-17.3)	3.1 (0.7-5.6) [†]

[†]Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Demographic Categories

For race/ethnicity, survey participants were first grouped by whether they were of Hispanic (Latino) origin (ethnicity). Those who classified as *non-Hispanic* were further divided into specific races that they identified with. If respondents selected more than one race, they were classified as *Multiple* race. There was also an option for *Other* race. For this report, *White* and *Hispanic* were the only singular races/ethnicities reported. *Other* includes all other races (e.g., Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Black, Asian, Multiple, and Other). This is due to the low sample sizes of students reporting those races in Mariposa County, and delineating those races may compromise student confidentiality. Approximately 7.9% of students declined to answer either race/ethnicity question.

For the question on gender, there is a response option *I identify my gender in another way* in addition to *Male* and *Female*. Approximately 6.3% of participating students in Mariposa County indicated that they identified their gender in another way, and 7.9% declined to answer the gender identity question. Rates of declining to answer this type of question are comparable to those in other surveys of California’s middle and high school population (e.g., the California Student Survey and the California Healthy Kids Survey).³ For the purposes of this report, students who identified their gender in another way and declined to answer were combined to form the gender category *Other*. Students were also asked whether they identified as LGBTQ. Approximately, 13.4% of students identified this way. Due to the small sample size, however, we did not report use rates based on LGBTQ Community affiliation.

Throughout the survey, students were given the option of *I prefer not to answer*. Results from this group are presented when endorsement of this response option was considered meaningful and most likely non-random (e.g., gender/ethnicity) and/or where the group was deemed sizeable. When the proportion for the declined-to-answer group was small, they were treated as missing and excluded from analysis in order to keep the tables readable.

Overall Prevalence of Tobacco Use by Demographics

Tobacco use among students in Mariposa County was further explored across participant demographics, as presented in Table 2.

There are no significant differences in use behavior between gender categories and races/ethnicities. It should be noted that while those who identified their gender in another way or declined to answer (*Other*

category) had higher rates, their small sample size and wide confidence intervals limit our ability to determine whether differences between those students and other gender categories were due to chance.

While there were no significant differences in current tobacco use between students in grades 9–10 compared to those enrolled in grades 11–12 (25.1% and 29.4%, respectively), tobacco use was markedly higher in those grades compared to grades 7–8 (8.0%).

Table 2. Prevalence of tobacco use by gender, race/ethnicity, and grade

	N	Ever use % (95% CI)	Current use % (95% CI)
Overall	493	35.4 (23.2-47.7)	18.9 (8.6-29.2)
Gender			
Male	197	37.1 (26.0-48.2)	18.1 (7.5-28.6)
Female	218	29.1 (16.1-42.0)	17.5 (7.3-27.8)
Other	68	48.8 (36.3-61.3)	26.4 (16.3-36.5)
Race/Ethnicity			
White	195	32.6 (22.5-42.6)	17.1 (9.0-25.2)
Hispanic	120	37.7 (26.5-49.0)	18.5 (8.0-28.9)
Other	159	36.4 (19.7-53.1)	21.0 (8.1-33.8)†
Grade			
Grades 7-8	207	22.5 (20.0-25.0)	8.0 (3.5-12.6)
Grade 9-10	176	40.3 (35.8-44.9)	25.1 (21.1-29.2)
Grade 11-12	110	51.8 (46.0-57.7)	29.4 (24.0-34.7)

Notes: Gender Other = Identified in another way and declined to answer; Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Use of Specific Tobacco Products by Demographics

Ever and current use were shown by each tobacco product (Table 1). However, to preserve participant confidentiality due to the small sample sizes of current users of cigarettes, LCC, hookah, and big cigars, those products were combined to form *combustible tobacco*. Estimates will be reported based on three products: e-cigarettes, combustible tobacco, and smokeless tobacco products, for all cross-tabulations unless otherwise stated.

Table 3 indicates that among students in Mariposa County, overall tobacco use did not differ significantly between male and female students (18.1% and 17.5%, respectively). Furthermore, use of specific tobacco products was not significantly different between males and females, with the exception of smokeless tobacco (5.8% vs. 0.0%, respectively). Those who categorized as Other had generally higher rates compared to male and female gender categories. It should also be noted that students in this category may have seemingly high rates of use; however, the small sample size and wide confidence intervals limit our ability to determine whether differences between this and other groups were due to chance.

Table 3. Prevalence of current tobacco product use by gender

	Male N=196 % (95% CI)	Female N=218 % (95% CI)	Other N=68 % (95% CI)
Overall	18.1 (7.5-28.6)	17.5 (7.3-27.8)	26.4 (16.3-36.5)
E-cigarettes	16.9 (5.0-28.7)†	17.3 (6.1-28.4)†	28.6 (18.6-38.5)
Combustible tobacco*	5.2 (1.4-8.9)†	5.0 (1.0-9.1)†	10.1 (3.0-17.2)†
Smokeless	5.8 (1.8-9.8)†	0.0 (0.0-0.2)‡	4.8 (0.8-8.8)†

Note: Gender Other = Identified in another way and declined to answer.

*Combustible tobacco includes cigarettes, LCC, big cigars, and hookah. Due to varying estimates for individual tobacco products, interpret with caution.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

‡Confidence interval was computed using a method similar to Agresti–Coull for extreme proportions (see Appendix B for more information).

Table 4 presents current use of tobacco products by race/ethnicity. Following overall prevalence trends, e-cigarettes were a popular product among all racial/ethnic subgroups in Mariposa County; however, comparisons are not significant and estimates for combustible tobacco product use for this group had a variance greater than 30% and should be interpreted with caution.

Table 4. Prevalence of current tobacco product use by race/ethnicity

	White N=194 % (95% CI)	Hispanic N=120 % (95% CI)	Other N=159 % (95% CI)
Overall	17.1 (9.0-25.2)	18.5 (8.0-28.9)	21.0 (8.1-33.8)†
E-cigarettes	17.6 (9.5-25.6)	17.2 (6.2-28.2)†	20.2 (5.1-35.3)†
Combustible tobacco*	4.6 (1.2-8.1)†	7.5 (0.0-15.8)†	6.3 (3.0-9.6)
Smokeless	3.1 (0.8-5.4)†	2.6 (1.4-3.8)	3.3 (0.0-6.8)†

Note: Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

*Combustible tobacco includes cigarettes, LCC, big cigars, and hookah. Due to varying estimates for individual tobacco products, interpret with caution.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Table 5 presents tobacco product use by grade levels among students in Mariposa County. Current use of tobacco products generally increased with age (though differences were not always significant). E-cigarettes were a popular product used by grades 9–10 and 11–12. Notably, students in grades 11 and 12 reported using combustible tobacco products (14.7%) at a significantly higher rate compared to other grade categories. Smokeless tobacco was used significantly less than e-cigarettes across all grade categories.

Table 5. Prevalence of current tobacco product use by grade category

	Grades 7-8 N=207 % (95% CI)	Grades 9-10 N=175 % (95% CI)	Grades 11-12 N=109 % (95% CI)
Overall	8.0 (3.5-12.6)	25.1 (21.1-29.2)	29.4 (24.0-34.7)
E-cigarettes	6.8 (1.8-11.8)†	26.1 (21.9-30.3)	29.1 (23.6-34.6)
Combustible tobacco*	1.5 (0.0-2.9)†	5.7 (3.6-7.9)	14.7 (10.5-18.8)
Smokeless	0.5 (0.0-1.3)†	4.1 (2.2-6.0)	6.5 (3.6-9.4)

*Combustible tobacco includes cigarettes, LCC, big cigars, and hookah. Due to varying estimates for individual tobacco products, interpret with caution.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Frequency of Current Tobacco Product Use among Middle and High School Students

Overall, about two-fifths of students reported infrequent usage: a total of 38.2% of current users reported using a product either 1–2 days or 3–5 days (24.8% + 13.4% = 38.2%). Almost one-third (31.2%) of students used a product on 20 or more days in the past 30 days. Use on one or two days was most common for combustible tobacco products (62.1%).

Table 6. Frequency of use among current users of a given tobacco product

	N	1 or 2 days % (95% CI)	3-5 days % (95% CI)	6-19 days % (95% CI)	20-30 days % (95% CI)
Overall	89	24.8 (16.7-32.9)	13.4 (7.8-19.0)	30.7 (18.5-42.8)	31.2 (18.2-44.2)
E-cigarettes	82	24.4 (17.7-31.1)	14.5 (8.1-21.0)	30.8 (16.9-44.7)	30.3 (16.8-43.7)
Combustible tobacco*	29	62.1 (51.7-72.5)	13.8 (10.0-17.6)	13.8 (10.0-17.6)	10.3 (7.5-13.2)
Smokeless	15	6.6 (0.0-14.1)†	19.9 (0.0-42.4)†	33.6 (0.0-100.0)†	39.8 (0.0-84.7)†

Note: As some participants used more than one tobacco product, the sum of sample sizes for each product is greater than the overall sample size.

*Combustible tobacco includes cigarettes, LCC, big cigars, and hookah. Due to varying estimates for individual tobacco products, interpret with caution.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Students in Mariposa County who are current e-cigarette users were also asked how many puffs (hits) they take each time they use their device. More than half of those students reported one to three puffs per use (52.8%), and 15.9% of students reported puffing eleven or more times (data not shown).

Multiple Tobacco Product Use among Middle and High School Students

Table 7 presents current use of multiple products, referred to as poly use, by participant demographics. Overall, 6.5% of students reported using two or more tobacco products, representing about one-third of current users (34.4%). There were no significant differences between gender and racial/ethnic categories. However, differences in poly use by grade categories varied in ways one would expect based on tobacco use behavior (i.e., older students had higher rates of using specific tobacco products and had higher rates of poly use). Over half of current users in grades 11 and 12 reported using two or more tobacco products (56.1%). This may be due to the higher use rates of combustible tobacco products in this subgroup.

Table 7. Prevalence of current use of at least one product and of multiple tobacco products

	N	Used at least one product % (95% CI)	Used two or more tobacco products % (95% CI)
Overall	491	18.9 (8.6-29.2)	6.5 (0.7-12.3)†
Gender			
Male	196	18.1 (7.5-28.6)	6.6 (0.5-12.7)†
Female	218	17.5 (7.3-27.8)	4.1 (0.0-8.3)†
Other	68	26.4 (16.3-36.5)	13.0 (3.5-22.6)†
Race/Ethnicity			
White	194	17.1 (9.0-25.2)	5.7 (1.5-9.9)†
Hispanic	120	18.5 (8.0-28.9)	7.5 (0.0-15.8)†
Other	159	21.0 (8.1-33.8)†	6.9 (0.4-13.4)†
Grade			
Grades 7-8	207	8.0 (3.5-12.6)	0.4 (0.0-1.4)†
Grades 9-10	175	25.1 (21.1-29.2)	7.4 (5.0-9.9)
Grades 11-12	109	29.4 (24.0-34.7)	16.5 (12.1-20.9)

Notes: Gender Other = Identified in another way and declined to answer; Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Susceptibility and Tobacco Use Behavior

Intention is a strong predictor of performing a behavior.⁴ Research has shown that it is possible to identify students who are at risk of using tobacco products in the future based on their level of intention to use a tobacco product in the future.⁵ In the 2017–18 CSTS, students who had never used a particular tobacco product were asked whether they would use it if one of their best friends offered it to them (see Definitions Used in this Report). Those who answered anything other than *definitely not* were considered susceptible to future tobacco use. This section presents Mariposa County students' susceptibility to future use of any tobacco product, as well as to specific tobacco products.

Susceptibility to Tobacco Use among Middle and High School Students

Figure 2 and Table 8 shows the proportion of never users' susceptible to future tobacco use. Overall, 40.5% of never users of any tobacco product were susceptible to at least one product. Susceptibility to specific tobacco products varied according to product. Never users in Mariposa County had relatively high susceptibility to using e-cigarettes (32.5%) and hookah (31.0%), while they had relatively low susceptibility to smokeless tobacco (13.3%).

Figure 2. Susceptibility to future tobacco use among never users

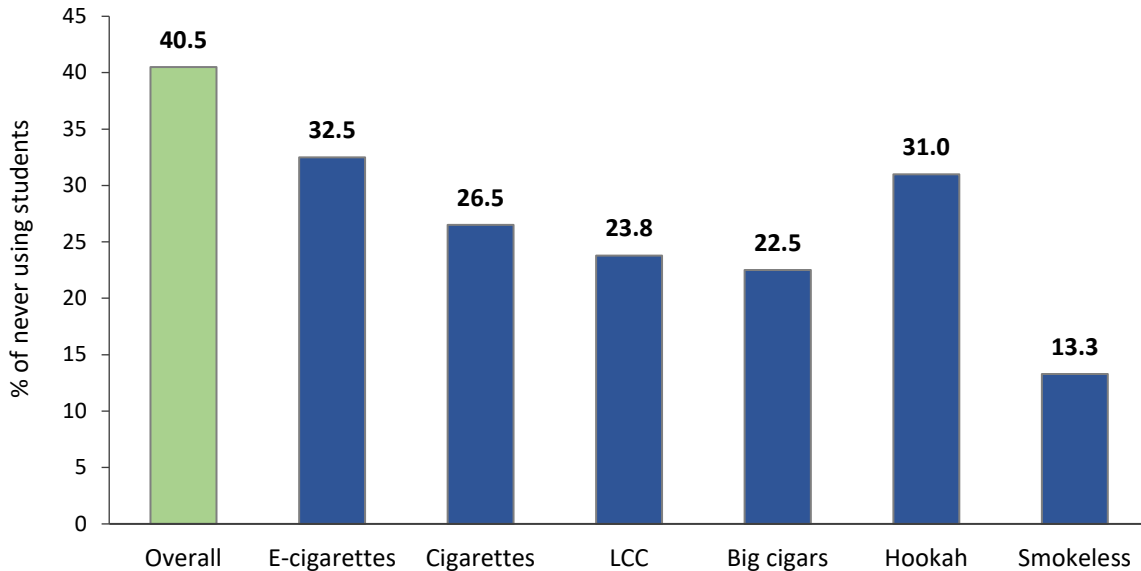


Table 8. Susceptibility to future tobacco use among never users

	Never users of the product	
	N	% (95% CI)
Overall	314	40.5 (32.0-48.9)
E-cigarettes	295	32.5 (28.1-37.0)
Cigarettes	385	26.5 (22.9-30.0)
LCC	395	23.8 (20.5-27.0)
Big cigars	432	22.5 (15.9-29.1)
Hookah	423	31.0 (23.4-38.7)
Smokeless	406	13.3 (8.9-17.6)

Susceptibility to Substance Use by Demographics

When comparing susceptibility among never users, there were no significant differences across gender and racial/ethnic groups. About one-third or more of non-users in each subgroup were susceptible to future use. There were no significant differences in susceptibility when comparing never users in 7th and 8th grades against 9th and 10th graders (33.4% and 40.8%, respectively). However, never using students in grades 11 and 12 reported being significantly more susceptible to future tobacco use (61.5%). This is likely due to the higher overall tobacco prevalence among all students in that grade category.

Table 9. Proportion of never users who are susceptible to future tobacco use

	Never users of any tobacco product	
	N	% (95% CI)
Overall	314	40.5 (32.0-48.9)
Gender		
Male	123	41.3 (33.6-49.0)
Female	152	41.6 (23.9-59.3)
Other	34	32.5 (13.5-51.5)
Race/Ethnicity		
White	130	42.5 (29.4-55.6)
Hispanic	75	46.2 (37.2-55.3)
Other	99	35.6 (27.7-43.5)
Grade		
Grades 7-8	159	33.4 (29.5-37.3)
Grades 9-10	103	40.8 (34.8-46.7)
Grades 11-12	52	61.5 (53.2-69.8)

Notes: Gender Other = Identified in another way and declined to answer; Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

CHAPTER 2 – Use of Flavored Tobacco Products

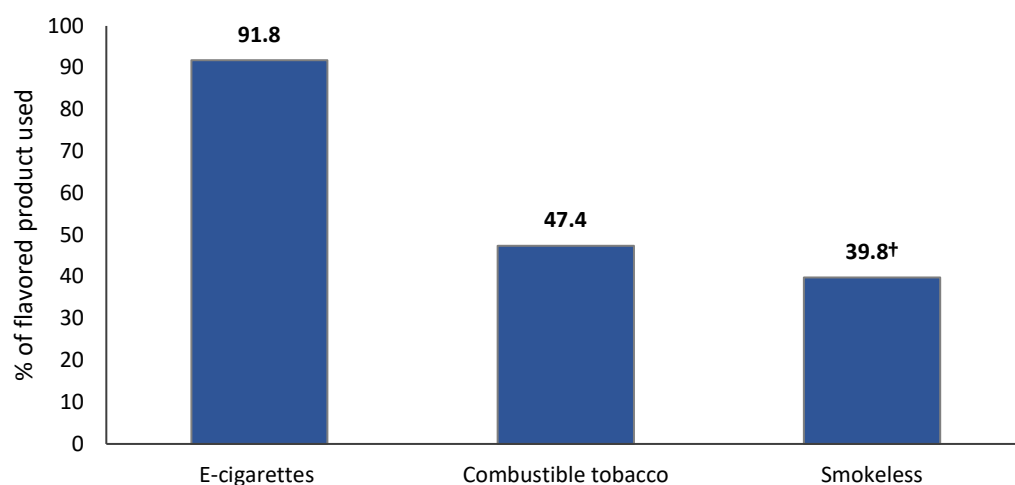
Highlights

- Overall, 85.7% of students who were current tobacco users reported using flavored tobacco products in the last 30 days, with current e-cigarette users having the highest rate of flavored product consumption (91.8%).
- Among students using flavors for their e-cigarette and combustible tobacco products (cigarettes, LCC, big cigars, and hookah combined), *fruit or sweet* flavors were reported most frequently (82.4% and 47.3%, respectively).

Flavored Tobacco Product Use among Middle and High School Students

Overall, 85.7% of students in Mariposa County who were current tobacco users reported using flavored tobacco products in the last 30 days (data not shown in Figure 3). Use of flavored tobacco products varied depending on tobacco product (Figure 3). Most users of e-cigarettes reported using a flavored product. The smokeless and combustible tobacco product user reported a lower rate of flavored product use (39.8% and 47.4%, respectively) compared to flavored e-cigarette use (91.8%).

Figure 3. Proportion using flavored products among current users



Note: Combustible tobacco includes cigarettes, LCC, big cigars, and hookah. Due to varying estimates for individual tobacco products, interpret with caution.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Table 10. Proportion using flavored products among current users

	N	Flavored product use % (95% CI)
E-cigarettes	84	91.8 (89.2-94.5)
Combustible tobacco	40*	47.4 (41.9-53.0)
Smokeless	15	39.8 (0.0-84.7)†

Note: Combustible tobacco includes cigarettes, LCC, big cigars, and hookah.

*As some participants used more than one tobacco product, the sum of the sample size for this category is greater than the number of students who answered the questions for combustible tobacco products.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Flavored Tobacco Use by Demographics among Middle and High School Students

Table 11 presents current use of any flavored tobacco product by participant demographics. Across gender, race/ethnicity, and grade levels, the vast majority of students who were current users reported using flavored tobacco products in the last 30 days.

Table 11. Proportion using flavored tobacco among current tobacco users by gender, race/ethnicity, and grade

	N	Current use % (95% CI)
Overall	91	85.7 (81.6-89.9)
Gender		
Male	35	74.1 (67.9-80.3)
Female	38	92.4 (87.5-97.3)†
Other	17	94.1 (91.0-97.3)
Race/Ethnicity		
White	32	87.9 (82.1-93.7)
Hispanic	22	81.7 (78.6-84.9)
Other	33	84.6 (78.1-91.1)
Grade		
Grades 7-8	16	81.5 (58.7-100.0)†
Grades 9-10	44	90.9 (85.5-96.3)
Grades 11-12	31	80.6 (71.8-89.5)

Notes: Gender Other = Identified in another way and declined to answer; Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Use of Specific Flavor Types among Middle and High School Students

Students who used a flavored tobacco product in the last 30 days were asked to indicate the flavor type they used most often. Possible flavor types included *fruit or sweet*, *mint*, *liquor*, *tobacco* (for e-cigarettes only), and *other*. Due to the small sample size, *liquor* and *other* flavors were combined.

As shown in Table 12, with the exception of smokeless tobacco, *fruit or sweet* flavors were the most popular. The vast majority of students who used e-cigarettes reported using *fruit or sweet* flavors (82.4%). Furthermore, 47.3% of those who used combustible tobacco products (cigarettes, LCC, big cigars, and hookah combined) used *fruit or sweet*. Mint was the most popular flavor among current smokeless tobacco users (83.3%). Very few students reported using *tobacco* flavored e-cigarettes (2.7%).

Table 12. Types of flavor among those who currently used flavored products

	N	Fruit or sweet % (95% CI)	Mint % (95% CI)	Tobacco* % (95% CI)	Other % (95% CI)
E-cigarettes	73	82.4 (75.3-89.6)	6.8 (3.4-10.2)	2.7 (1.4-4.1)	8.1 (4.4-11.7)
Combustible tobacco	19§	47.3 (4.5-90.0)†	42.2 (8.0-76.4)†	--	10.5 (2.0-19.1)†
Smokeless	6	16.7 (0.0-43.4)†	83.3 (56.6-100.0)†	--	0.0 (0.0-17.8)‡

Note: Combustible tobacco includes cigarettes, LCC, big cigars, and hookah.

*Tobacco was included as a flavor option for e-cigarettes only.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

‡Confidence interval was computed using a method similar to Agresti–Coull for extreme proportions (see Appendix B for more information).

§The sample size for this category is greater than the actual number of students who used combustible tobacco products as some students used more than one combustible tobacco product.

CHAPTER 3 – Environmental Influences

Highlights

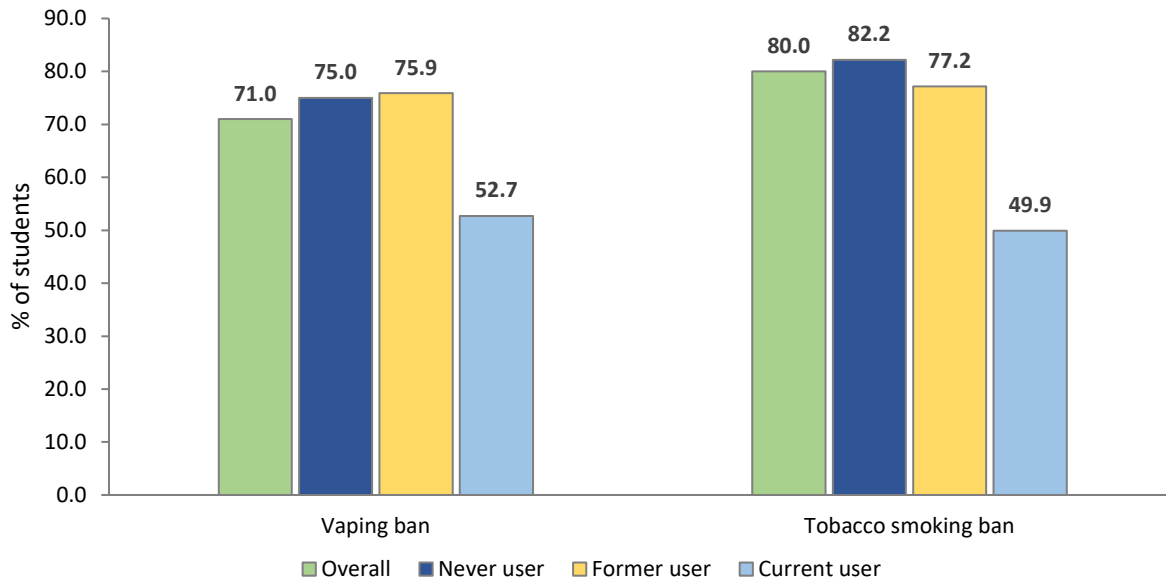
- Most students in Mariposa County reported living in a home that had complete bans on vaping (71.0%) and smoking (80.0%).
- More students had been exposed to smoke in a room than in a car.
- More than half of students had been exposed to e-cigarette-related (59.0%) or cigarette-related (62.0%) ads in the last 30 days. The majority of those students who were exposed to e-cigarette, cigarette, and LCC ads reported seeing those that discouraged use of the specific product.
- Over three-quarters of students (78.7%) reported exposure to smokeless tobacco ads at the convenience stores or small markets they had visited in the last 30 days.

Home Bans for Vaping and Smoking among Middle and High School Students

Home bans indicate whether the student’s home environment explicitly discourages smoking tobacco (cigarettes and LCC) and vaping e-cigarettes. Using two separate questions, students were asked to indicate which statement best described the rules about vaping e-cigarettes or smoking tobacco products in their home (see Definitions Used in this Report). Overall, the vast majority of students had a complete home ban on vaping and on smoking (71.0% and 80.0%, respectively).

Figure 4 presents the prevalence of complete home bans on vaping and smoking by vaping and smoking status. Vaping status (never, former, or current vaper) was determined by students’ use of e-cigarettes, while smoking status was determined by students’ use of cigarettes and LCC. More never and former vapers and smokers reported having a complete home ban relative to current vapers and smokers. However, rates of home bans on vaping were relatively high given e-cigarettes’ recent introduction to the marketplace.

Figure 4. Prevalence of complete home bans on e-cigarette vaping and tobacco* smoking by use status



*Tobacco smoke and corresponding use status were based on two products: cigarettes and LCC.

Table 13. Prevalence of complete home bans on e-cigarette vaping and tobacco* smoking by use status

Vaping ban	N	Complete home ban % (95% CI)
Overall	438	71.0 (66.4-75.5)
Never vapers	292	75.0 (67.8-82.1)
Former vapers	54	75.9 (72.2-79.5)
Current vapers	74	52.7 (48.5-56.9)
Tobacco smoking* ban	N	% (95% CI)
Overall	440	80.0 (76.0-84.0)
Never smokers	368	82.2 (76.9-87.5)
Former smokers	53	77.2 (72.1-82.3)
Current users	18	49.9 (42.6-57.1)

*Tobacco smoke and corresponding use status were based on two products: cigarettes and LCC.

Table 14 provides data on the rates of complete home bans on vaping and smoking by race/ethnicity. Similar to the overall results reported in Figure 4, across racial/ethnic groups, reports of complete home bans on smoking and vaping were high, and more students generally reported having a home ban on smoking than on vaping.

Table 14. Prevalence of complete home bans on e-cigarette vaping and tobacco* smoking by race/ethnicity

	Vaping ban		Smoking ban	
	N	Overall % (95% CI)	N	Overall % (95% CI)
Overall	438	71.0 (66.4-75.5)	440	80.0 (76.0-84.0)
White	183	71.3 (66.1-76.6)	179	83.1 (79.3-87.0)
Hispanic	109	71.1 (64.9-77.3)	113	78.6 (71.2-86.0)
Other	131	71.5 (66.5-76.6)	134	78.8 (74.4-83.2)

Abbreviations: Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

*Two products: cigarettes and LCC

Family and Friend Influences among Middle and High School Students

All students in Mariposa County were asked, “How many of your friends use smokeless tobacco (chew, dip, snuff, or snus)?” and “Do any of your family or household members use smokeless tobacco (chew, dip, snuff, or snus)?” Students who reported having any friends who used (those that answered *some*, *most*, or *all*) and/or any family or household members who used were reported in Table 15. There were no significant differences between the two use groups.

Table 15. Prevalence of students who reported having friends or family members who use smokeless tobacco

	Overall N=424 % (95% CI)
Friends who use	38.0 (20.5-55.5)
Family or household members who use	27.3 (21.3-33.4)

Exposure to Secondhand Vapor and Smoke in the Last 30 Days among Middle and High School Students

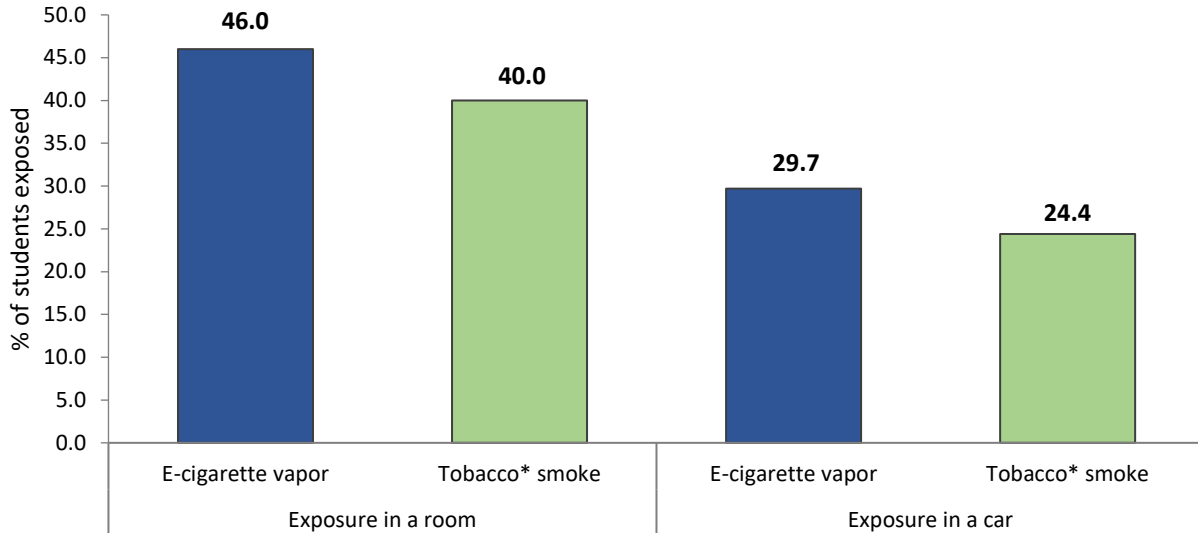
Secondhand exposure to tobacco products is a priority issue in Mariposa County, as one of the county’s goals is to educate residents on the associated risks and introduce ways to eliminate secondhand exposure within communities. More so, the county is also interested in addressing thirdhand smoke exposure, which comes from residual nicotine and other harmful chemicals from tobacco smoke that are left on surfaces. Additionally, one of Mariposa County’s objectives is to advocate for smoke-free outdoor dining areas, where the use of all tobacco products would be prohibited.

The 2017–18 CSTS asked students about secondhand exposure to vapor in a room: “In the last 30 days, how many days were you in a room when someone was using an e-cigarette (including e-hookah and hookah pens)?” Another question asked about secondhand exposure to tobacco smoke in a room: “In the last 30 days, how many days were you in a room when someone was smoking a cigarette, little cigar or cigarillo?” Students were also asked whether they had been exposed to secondhand vapor or smoke in a car.

As shown in Figure 5, students reported being exposed to tobacco smoke in a room at higher rates compared to in a car. Secondhand exposure in a room within the last 30 days was similar for vapor and

smoke (46.0% and 40.0%, respectively). Likewise, students reported being similarly exposed to vapor and smoke in a car (29.7% and 24.4%, respectively).

Figure 5. Prevalence of exposure in the last 30 days to e-cigarette vapor and tobacco* smoke in a room and car



*Two products: cigarettes and LCC

Table 16. Prevalence of exposure in the last 30 days to e-cigarette vapor and tobacco* smoke in a room and car

	N	E-cigarette vapor % (95% CI)	N	Tobacco* smoke % (95% CI)
Exposure in a room	454	46.0 (25.4-66.7)	449	40.0 (37.6-42.5)
Exposure in a car	457	29.7 (18.3-41.0)	457	24.4 (22.2-26.7)

*Two products: cigarettes and LCC

Exposure to Tobacco Ads in the Last 30 Days among Middle and High School Students

Students were asked whether they had seen ads relating to three tobacco products (e-cigarettes, cigarettes, and LCC) within the last 30 days. Table 17 shows students' overall exposure to tobacco-related ads by tobacco product. Most students had been exposed to cigarette- (62.0%) and e-cigarette-related (59.0%) ads. A much smaller proportion of students reported seeing ads relating to LCC (20.6%).

Table 17. Exposure to tobacco* ads in the last 30 days by tobacco product

Overall exposure to tobacco-related ads N=463 % (95% CI)	
E-cigarettes	59.0 (49.4-68.7)
Cigarettes	62.0 (58.9-65.1)
LCC	20.6 (16.6-24.6)

*Three products: e-cigarettes, cigarettes, and LCC.

Students who reported seeing e-cigarette-, cigarette-, or LCC-related ads within the last 30 days were asked whether those ads *promoted*, *discouraged*, or *neither promoted nor discouraged* use of that

product. Those students were also given response option *I don't know*. Table 18 shows that more students reported seeing ads that discouraged tobacco use (56.4%, 58.0%, and 33.5% for e-cigarettes, cigarettes, and LCC respectively) than promoting their use. Very few students reported seeing neutral ads for each product. Notably, many students who saw LCC ads did not know whether they promoted or discouraged LCC use (34.9%).

Table 18. Exposure to perceived types of tobacco ads in the last 30 days by tobacco product

	N	Exposure to...			
		Pro-tobacco ads % (95% CI)	Anti-tobacco ads % (95% CI)	Neutral ads % (95% CI)	I don't know % (95% CI)
E-cigarettes	264	24.7 (16.5-32.8)	56.4 (45.1-67.8)	5.4 (4.4-6.5)	13.5 (9.4-17.5)
Cigarettes	285	23.1 (14.4-31.9)	58.0 (46.3-69.8)	6.0 (3.7-8.2)	12.9 (10.1-15.6)
LCC	89	23.4 (16.7-30.1)	33.5 (29.2-37.8)	8.1 (3.6-12.6)	34.9 (25.8-44.1)

Exposure to Tobacco Ads at Convenience Stores or Small Markets in the Last 30 Days

Over four-fifths of students (82.0%) in Mariposa County reported having visited a convenience store or small market in the last 30 days (Table 19). The percentages of students who visited those locations on 1-5 days and 6-30 days were fairly similar (35.7% and 46.3%, respectively).

Table 19. Prevalence of students who visited convenience stores or small markets in the last 30 days by the number of days they visited those locations

	Visited convenience stores or small markets	
	N	% (95% CI)
0 days	449	18.0 (10.7-25.3)
1-5 days	449	35.7 (34.1-37.3)
6-30 days	449	46.3 (37.4-55.2)

Students who visited convenience stores or small markets in the last 30 days were asked, “You mentioned earlier that you visited convenience stores or small markets in the last 30 days. When you did, how often did you see ads or promotions for smokeless tobacco products?” Response options were separated into no exposure (*Never*), infrequent exposure (*Rarely* or *Sometimes*), and frequent exposure (*Most of the time* or *Always*).

As shown in Table 20, the majority of students who visited convenience stores or small markets in the last 30 days reported infrequent exposure to smokeless tobacco ads or promotions (55.0%). Those who visited convenience stores or small markets one to five days reported significantly higher rates of no exposure (30.2%) to ads or promotions for smokeless tobacco.

Table 20. Proportion of students exposed to smokeless tobacco ads or promotions at convenience stores or small markets within the last 30 days

Visited convenience stores or small markets	N	No exposure to smokeless tobacco ads or promotions	Infrequent exposure to smokeless tobacco ads or promotions	Frequent exposure to smokeless tobacco ads or promotions
		% (95% CI)	% (95% CI)	% (95% CI)
Overall	326	21.3 (14.7-27.9)	55.0 (48.9-61.1)	23.7 (22.4-24.9)
1–5 days	147	30.2 (26.8-33.5)	48.6 (44.5-52.6)	21.3 (14.2-28.3)
6–30 days	179	14.1 (5.4-22.8) [†]	60.3 (48.1-72.5)	25.6 (21.2-30.0)

CHAPTER 4 – Access to Tobacco Products

Highlights

- More students access e-cigarettes through social sources (64.5%) instead of purchasing them (35.5%).
- Many students believed that it would be easy to get e-cigarettes (61.0%) or cigarettes (51.3%) if they wanted them.
- Almost one in four (23.9%) students in Mariposa County who have never used any tobacco product had nevertheless been offered a tobacco product in the last 30 days.

Access to and Offers of Tobacco Products

Age restrictions are intended to make it difficult for students to access tobacco products. The legal age to purchase tobacco products in California is 21 years old. Because of this, it is important to monitor how underage students obtain tobacco products, particularly through social sources. This chapter presents data on how students access e-cigarettes and cigarettes and on student offers of tobacco products. Students who were current users of e-cigarettes and cigarettes were asked whether they pay for their own e-cigarettes (or e-liquid) and cigarettes. They were then asked subsequent questions on how they obtained the product. Offers were measured by use status (e.g., never, former, and current users) and across demographics based on the tobacco product.

Acquisition of E-Cigarettes among Middle and High School Students

Table 21 and 22 describe how students usually obtained e-cigarettes (or e-liquid). Of 73 current e-cigarette users, 47 students (weighted percentage, 64.5%) reported obtaining their e-cigarettes from social sources without paying for them while 26 (weighted percentage, 35.5%) reported purchasing their e-cigarettes.

Table 21 presents data for students who usually obtained their e-cigarettes (or e-liquid) through social sources (N=47). More than half of them (51.6%) reported being offered e-cigarettes. Of note, a high percentage of these students did not report how they obtained e-cigarettes (18.6%)

Table 21. Acquisition of e-cigarettes (or e-liquid) among current e-cigarette users by social source

Current e-cigarette users	
N=47	
Did not pay for own e-cigarettes (or e-liquid)	% (95% CI)
Someone else offers them to me	51.6 (39.7-63.5)
I ask someone for them	23.4 (19.0-27.8)
I get them some other way	6.4 (2.1-10.6)†
Declined to Answer	18.6 (11.2-26.0)

Note: Data are based on a subset of current e-cigarette users who reported that they do not usually pay for their e-cigarettes (64.5%; n=73).

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Table 22 presents data for students who usually purchased their e-cigarettes or e-liquid (N=26). Over half of these students reported buying e-cigarettes from the store themselves or from someone else. A smaller

group of students (19.2%) reported buying e-cigarettes from the internet (including apps). Again, a high percentage of students did not report how they bought e-cigarettes (19.2%).

Table 22. Acquisition of e-cigarettes (or e-liquid) among current e-cigarette users by purchase source

Current e-cigarette users	
N=26	
Paid for own e-cigarettes (or e-liquid)	% (95% CI)
I buy them from the store myself	23.0 (8.0-38.0)†
I buy them from someone else	31.0 (0.0-76.0)†
Internet (including apps)	19.2 (6.7-31.7)†
Other	7.7 (2.7-12.7)†
Declined to Answer	19.2 (6.7-31.7)†

Note: Data are based on a subset of current e-cigarette users who reported that they do usually pay for their e-cigarettes (35.5%; n=73).

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Offers of Tobacco Products in the Last 30 Days among Middle and High School Students

The 2017–18 CSTS assessed whether students were offered various tobacco products in the last 30 days by asking, “In the last 30 days, has anyone offered you... ?” followed by a list of tobacco products. Because these questions were asked of all students, the sufficient sample sizes allowed the reporting of offers on each specific tobacco product rather than combining some into the combustible tobacco category. Almost two-fifths of students (38.8%) in Mariposa County had been offered a tobacco product in the last month (Table 23). Significantly more current users reported tobacco product offers relative to never or former users. The overall prevalence of offers of specific tobacco products reflects the overall prevalence of use of each tobacco product: more students reported being offered e-cigarettes (the most prevalent product used by students) relative to cigarettes, LCC, or hookah.

Table 23. Prevalence of offers of tobacco products in the last 30 days by use status

	Overall		Never user of the product		Former user of the product		Current user of the product	
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)
Any of the below	475	38.8 (17.2-60.3)	317	23.9 (5.6-42.2)†	73	44.1 (30.8-57.3)	85	89.5 (87.3-91.7)
E-cigarettes	465	38.1 (15.5-60.7)	310	22.8 (4.7-40.9)†	58	43.5 (31.2-55.7)	82	90.3 (87.8-92.9)
Cigarettes	473	10.6 (6.0-15.2)	400	5.0 (3.1-7.0)	50	32.1 (25.0-39.3)	18	77.7 (74.5-80.8)
LCC	475	4.4 (1.6-7.3)†	421	1.9 (0.5-3.3)†	40	14.9 (10.3-19.6)	10	69.9 (61.9-77.9)
Hookah	472	3.0 (0.7-5.3)†	445	1.6 (0.0-3.1)†	18	22.4 (16.7-28.0)	4	50.0 (19.3-80.7)†

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Offers of Tobacco Products by Demographics

Table 24 shows the prevalence of offers of tobacco products by demographics. Overall, offers of tobacco products reflect the prevalence of tobacco use by gender, race/ethnicity, and grade. It should be noted that while there were no significant differences between high school students (grades 9 and 10 and grades 11 and 12), students in grades 7 and 8 were significantly less likely to be offered any tobacco product (16.1%). This may be due to the low prevalence of overall use in that grade subgroup.

Table 24. Prevalence of offers of tobacco* products in the last 30 days by gender, race/ethnicity, and grade

	Overall	
	N	% (95% CI)
Overall	475	38.8 (17.2-60.3)
Gender		
Male	191	42.5 (18.3-66.6)
Female	215	37.8 (17.1-58.4)
Other	61	34.2 (14.6-53.8)
Race/Ethnicity		
White	193	36.9 (20.1-53.7)
Hispanic	115	43.1 (18.2-68.1)
Other	151	37.9 (11.4-64.5)†
Grade		
Grades 7-8	200	16.1 (8.8-23.5)
Grades 9-10	167	53.9 (49.2-58.6)
Grades 11-12	108	57.4 (51.6-63.3)

Notes: Gender Other = Identified in another way and declined to answer;

Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

*Four products: e-cigarettes, cigarettes, LCC, and hookah.

†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Perceived Ease of Acquiring E-Cigarettes and Cigarettes among Middle and High School Students

Figure 6 presents the perceived ease of acquiring e-cigarettes and cigarettes among students in Mariposa County. Overall, 61.0% of students believed that it would be *somewhat easy* or *very easy* to get e-cigarettes, which is significantly more than those who believed that it would be *somewhat easy* or *very easy* to get cigarettes (51.3%). Perceived ease of access differed significantly according to product use status, with more ever using students (both former and current users) perceiving that it would be *somewhat easy* or *very easy* to get cigarettes relative to never users and more current users perceiving that it would be easy to get e-cigarettes than never users.

Figure 6. Perceived ease of acquiring e-cigarettes and cigarettes by use status

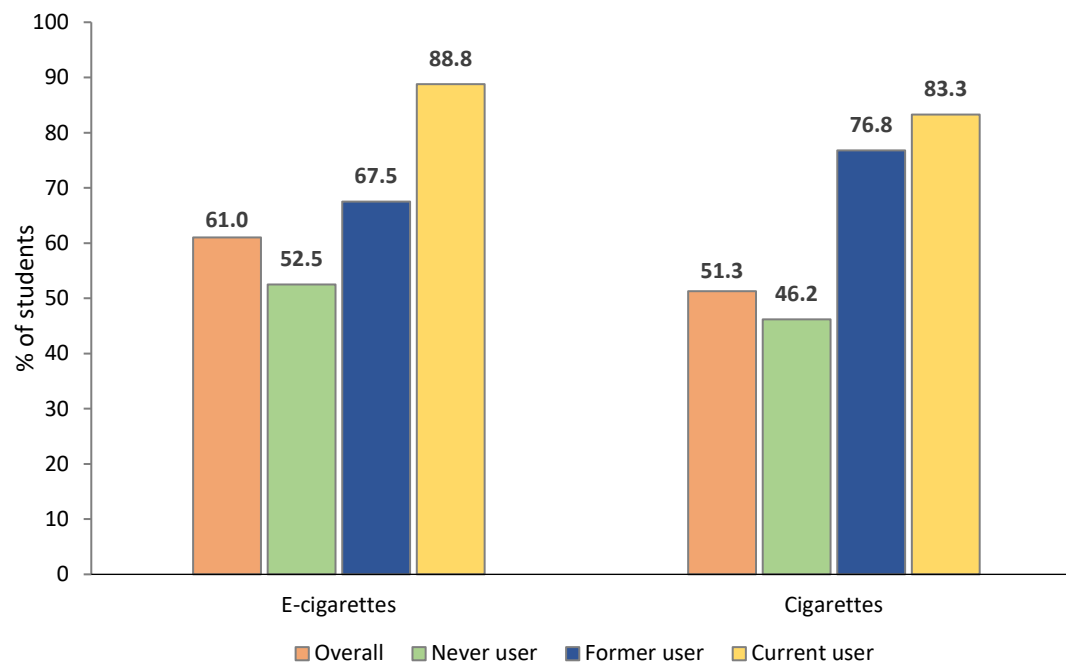


Table 25. Perceived ease of acquiring e-cigarettes and cigarettes by use status

	Overall		Never user of the product		Former user of the product		Current user of the product	
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)
Any of the below	467	68.6 (55.5-81.6)	315	60.3 (44.2-76.4)	70	77.4 (70.6-84.1)	82	92.7 (89.9-95.6)
E-cigarettes	464	61.0 (44.1-77.9)	308	52.5 (31.4-73.6)	58	67.5 (58.7-76.3)	80	88.8 (84.3-93.3)
Cigarettes	462	51.3 (43.1-59.6)	392	46.2 (37.6-54.7)	47	76.8 (66.7-87.0)	18	83.3 (80.9-85.6)

CONCLUSION

The smoking prevalence for Mariposa youth has reached a very low level. Approximately 4.4% of middle and high school students in Mariposa County smoked cigarettes in 2017–18. The rate of using any one of the other combustible tobacco products, except cigarettes, was even lower (approximately 2%). As far as the numerical goal for tobacco control is concerned, the prevalence for LCC, big cigars, and hookah among middle and high school students in Mariposa County had dropped to the level accepted by many as an end-game number.⁶ There is cause for celebration.

The low prevalence of cigarette use suggests that the social norm for smoking among teens has seriously eroded. The anti-smoking campaign in California, both at the statewide level and at the Mariposa County level, has been very successful in this regard.

We still have to be vigilant in that many students who have not used tobacco remain susceptible to future use. Many adults in Mariposa are still smokers, which contributes to the fact that almost two-fifths of students in Mariposa had reported being exposed to secondhand smoke. About one-quarter of non-using students had been offered tobacco products in the past 30 days. A majority of students considered it easy to acquire tobacco products, if they wanted them.

The biggest concern, of course, is the rising popularity of e-cigarettes among adolescents. Current e-cigarette use among middle and high school students in Mariposa in 2018 was 18.5%, which accounts for the majority of all tobacco use (18.9%). Moreover, a large proportion of students, most of whom were not current users, reported that someone had offered them e-cigarettes in the last 30 days. Being offered these products through a youth's social network could increase the rate of experimentation or the rate of transition from experimentation to regular use. The social norm for vaping is clearly different from that of cigarette smoking. Vaping is popular. The novel devices and plethora of flavors that come with these new products are attractive to teens. Many have experimented with these devices, and many who have not are susceptible to trying them in the future.

The campaign against the use of tobacco products, therefore, should focus on vaping while still attempting to curb cigarette use. New interventions must be developed to counter the influence that comes from students' immediate environment as well as the influences from the tobacco and vaping industry. The social-norm approach, which has been so successfully employed in anti-smoking campaigns, may be useful in reducing vaping among teens as well. New strategies may also be necessary given that the products and the industry itself continue to evolve.

Of special concern is the intersection of vaping nicotine and vaping marijuana. Although marijuana use prevalence (10.9%; see Appendix A), is currently lower than that for e-cigarettes for students in Mariposa this rate can change quickly given the appeal of new vaping devices for youth and those devices' ability to administer a variety of substances. The public health community has to be particularly vigilant in monitoring the impact of new vaping devices on the use of both nicotine and marijuana among school children.

In summary, findings from the 2017–18 CSTS offer much reason for celebration, while also raising new questions about the next phase of the public health campaign. The low prevalence for combustible tobacco products shows that it is possible to reduce tobacco use closer to zero, even though it took many years. Vaping does present a new challenge, and the public health community will have to be creative in developing new strategies in order to succeed in the next phase of tobacco control.

RESOURCES

- Find the *California Student Tobacco Survey Biennial Report 2017-2018* on the California Department of Public Health, California Tobacco Control Branch's website: <https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CTCB/Pages/Reports.aspx>.
- Contact Mariposa County's Tobacco Use Prevention Education (TUPE) Coordinator for local resources: www.cde.ca.gov/ls/he/at/countycoordinators.asp.
- View anti-tobacco commercials at www.tobaccofreeca.com/resources.
- Connect students to the California Smokers' Helpline (1-800-NO-BUTTS) for free, evidence-based telephone counseling. Help is available for tobacco users and the people who care about them. Visit www.nobutts.org for more information.
- Download free, print-ready tobacco education materials through the Tobacco Education Clearinghouse of California at: www.tecc.org.

APPENDIX A – Marijuana

Highlights

- Over one in five (22.8%) of students in Mariposa County reported having tried marijuana, while 10.9% reported using it in the last 30 days.

Marijuana Use among Middle and High School Students

Marijuana is described in the 2017–18 CSTS as “Marijuana (including blunts and edibles): Commonly known as cannabis, weed, pot, hash, grass, THC, or CBD. It can be smoked (joint, blunt, bong), vaped, or eaten (baked goods, candies).”

Table 26 presents the prevalence of ever and current marijuana use among students by demographic characteristics. In Mariposa County, the rates of ever using marijuana (22.8%) and currently using marijuana (10.9%) are relatively low compared to the rates of using any tobacco product.

There were no significant differences in use rates based on gender or racial/ethnic categories. The prevalence of marijuana use was higher among students in grades 9–10 and grades 11–12 (14.8% and 15.2%, respectively) compared to those in grades 7–8 (5.3%).

Table 26. Prevalence of marijuana use

	N	Ever use % (95% CI)	Current use % (95% CI)
Overall	470	22.8 (12.5-33.1)	10.9 (5.2-16.6)
Gender			
Male	187	18.3 (8.9-27.6)	10.2 (6.8-13.7)
Female	211	22.2 (12.9-31.5)	9.3 (4.0-14.6)
Other	63	36.6 (23.1-50.2)	15.1 (4.6-25.5) [†]
Race/Ethnicity			
White	186	17.3 (12.4-22.3)	6.6 (4.7-8.5)
Hispanic	115	23.6 (4.2-43.0) [†]	12.3 (0.9-23.7) [†]
Other	152	27.6 (15.4-39.7)	13.6 (6.6-20.7)
Grade			
Grades 7-8	198	12.2 (8.9-15.6)	5.3 (2.4-8.3)
Grades 9-10	166	27.1 (22.9-31.3)	14.8 (11.4-18.2)
Grades 11-12	106	35.8 (30.1-41.6)	15.2 (10.9-19.5)

Notes: Gender Other = Identified in another way and declined to answer;

Race/Ethnicity Other = Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, and those who declined to answer.

[†]Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

APPENDIX B – Survey Methodology

Survey Administration

The California Student Tobacco Survey (CSTS) is funded by the California Department of Public Health (CDPH) and has been conducted biennially since 2001–02. The 2015–16 CSTS was the first to be administered by the University of California, San Diego (UCSD). For this 2017–18 CSTS, Local Lead Agencies (LLA) of the California Tobacco Control Program (CTCP) were given the opportunity to subcontract with UCSD to analyze survey data within their health jurisdiction.

This appendix provides a brief overview of survey methodology for the 2017–18 CSTS specific to Mariposa County. Statewide survey methods can be found in the *Technical Report on Analytical Methods and Approaches Used in the California Student Tobacco Survey 2017–18* by SH. Zhu, et al.⁷ Additional details of the statewide report can be found in the *2017–18 California Student Tobacco Survey Report* by SH. Zhu, et al.⁸

Survey Content

The survey questionnaire was designed to assess use of, knowledge of, and attitudes toward cigarettes and emerging tobacco products (e.g., e-cigarettes, hookah, cigarillos). It also included questions about use of and attitudes toward marijuana and alcohol. The statewide survey contained 134 questions, including topics such as: awareness of and use of different tobacco products, history and patterns of tobacco use, tobacco purchasing patterns, knowledge of and participation in school tobacco prevention or cessation programs; perceptions of tobacco use (i.e., social norms), awareness of advertising, and susceptibility to future tobacco use. Mariposa County augmented the survey with additional county-specific questions (see Appendix C).

Participation

To increase participation in the CSTS, schools were provided a \$500 Amazon gift card for administering the survey. Participating schools also received a brief report highlighting their school's results. Teachers primarily acted as proctors for the survey, and, in some cases, other school staff proctored. UCSD provided proctors for schools that required additional support. Teachers and proctors were provided with directions for administering the survey. UCSD staff were available to answer questions from teachers and proctors.

The 2017–18 CSTS was administered online. The online survey took between 15 to 25 minutes to complete and included programmed skip logic to reduce participant burden. In other words, students were only asked survey questions based on their previous answers, allowing them to skip questions not relevant to their experiences. Answers were not mandatory, although an error message of “Oops, you didn’t answer” appeared if the question went unanswered. The student could move forward and skip the question. The 2017–18 CSTS also included the response option *I prefer not to answer* for all questions.

Student participation was voluntary and anonymous. Consent procedures were consistent with school district guidelines. In a passive consent protocol, parents had the opportunity to opt their children out of the survey if they did not want them to participate. Consent forms were distributed to parents via the students one week before the survey. Spanish forms were available as needed. In addition to obtaining consent from parents, students were also asked to give their assent to participate in the survey.

Survey Sample

Table 27 provides information about the number of schools and students that participated in the 2017–18 CSTS for each school type. The total sample included 493 students from 5 schools. Grades 9 through 12 are considered high school and grades 7 and 8 are considered middle school.

Table 27. Numbers of schools and students participating, Mariposa County middle schools vs. high school

	Middle Schools (7-8 th)	High School (9-12 th)	Total
Number of schools	4	1	5
Number of students	207	286	493

It should be noted that all schools in the statewide sample administered the survey in the 2017–18 academic year; however, all five Mariposa schools were non-randomly selected by Mariposa County’s Tobacco Education Program. Due to the delay in establishing the subcontract between UCSD and the County, all schools were given the opportunity to administer the 2017–18 CSTS to their students in the 2018–19 academic year. Because of the evolving climate of youth tobacco use and variability of student data, results in this report are not comparable with other national or statewide results that surveyed students in the 2017–18 school year.

Sampling Strategy

The statewide sampling strategy used a two-stage sampling design, in which stage 1 was the random sampling of schools within regions and stage 2 was the sampling of classrooms within schools. Sampling used the probability proportional to size (PPS) method and stratified by region with oversampling of less densely populated regions, African American students, and schools that received Tobacco-Use Prevention Education (TUPE) program funding. Participating middle schools were encouraged to survey all 8th graders, while high schools were encouraged to sample all 10th and 12th graders.

Mariposa County did not defer to the 2017–18 CSTS sample for this report. This is because the county was not considered its own region; it was augmented with others to create a region (Region 5). No schools from Mariposa County were represented in the final statewide sample. All five schools analyzed for this report were non-randomly selected by the Mariposa County Tobacco Education Program. Those schools were encouraged to have all students in grades 7 and 8 or grades 9 through 12 participate.

Analysis

The 2017–18 CSTS provided the option *I prefer not to answer* for all questions. It is important to note that it appears as though selection of this response option was not random; questions that were difficult to understand or more personal in nature tended to have higher endorsement of this response option. Respondents that declined to answer also tended to have high rates of tobacco use.

The CSTS design utilized stratified random sampling and proper weighting to provide stable statewide prevalence rates. However, the data is not representative at the county-level because it was part of a region (Region 5) in the statewide sampling strategy. The Mariposa County Tobacco Education Program non-randomly selected schools within their county not consistent with the statewide sampling strategy. The estimates for students in Mariposa County are weighted by student response rates by grade level. Variances have been adjusted for clustering by school. In addition, as more than 5% of the county’s

students participated in the survey, a finite population correction was applied in the analyses. In cases of extreme proportions (e.g., 0% or 100%), a method similar to Agresti–Coull was applied to calculate confidence intervals for these proportions.^{9,10} All estimates include 95% confidence intervals in the report.

Race/Ethnicity

The racial/ethnic background of students was determined using two primary questions. The first asked about Spanish or Hispanic (Latino) origin (i.e., ethnicity), and the second asked participants to indicate how they describe themselves (i.e., race) by marking all that apply: *American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, or Other*. The *Other* ethnic category included non-standard entries (such as Middle Eastern or Italian). Due to the small sample sizes of many racial/ethnic groups, except for Hispanic (Latino) and White students, all were combined in the *Other* category. In line with other surveys, students identifying as *Hispanic* were labeled as such regardless of the other races selected. The response option *I prefer not to answer* was also provided for both questions. Students selecting multiple races were grouped as *Multiple*. Both subgroups were combined into the *Other* category.

With the exception of the *I prefer not to answer* response option, race/ethnicity categories of the CSTS are similar to those used by the California Department of Education (CDE), allowing us to compare the prevalence of each race/ethnicity (Table 28). In many cases, the prevalence of each race/ethnicity is similar between the CSTS and CDE enrollment data. Of note, the prevalence of *Multiple* race is far higher in the CSTS than reported by CDE (19.2% vs. 7.6%, respectively). One possible reason for the difference is that CSTS is based on student self-reporting, whereas the CDE is based on parent reporting of the child’s race/ethnicity. Students and parents may not have the same perspective regarding multi-racial identification. Because of the differences in how race/ethnicity was identified between the CSTS and CDE, student responses were not weighted by race/ethnicity. Given the increasing number of people who identify themselves as two or more races, the issue of how to analyze race/ethnicity data will continue to be relevant for the CSTS.¹¹

Table 28. Prevalence of race/ethnicity categories in the CSTS and CDE enrollment data

	N=474	CSTS Sample (%)	CDE Enrollment (%)
NH-White	195	41.1	67.0
NH-Black	5	1.1	0.6
Hispanic	120	25.3	18.1
NH-Asian	5	1.1	1.4
NH-AI/AN	13	2.7	4.1
NH-NHOPI	1	0.2	0.0
NH-Other	6	1.3	1.2
NH-Multiple	91	19.2	7.6
Declined to Answer	38	8.0	0.0

Note: Race/ethnicity data above are unweighted and should not be compared with weighted estimates throughout the report. Abbreviations: NH = Non-Hispanic; AI/AN = American Indian or Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.

There are limitations with this method of classifying race/ethnicity. To provide a greater understanding of the impact of this classification of race/ethnicity, Table 29 compares how individuals are labeled using

usual methods as to whether they endorse a given race at all. It is clear that students tend to endorse multiple responses, and in particular, underrepresented races. For example, under the usual classification of labeling, the number of Black students is 5 (i.e., non-Hispanic Black who did not endorse any other racial identity). However, there were more than eight times as many students who indicated their race was Black (including those who also indicated they were Hispanic or who selected at least one other racial category). This phenomenon is even more striking for Native Hawaiian or Other Pacific Islanders (n=1 vs. 18, depending on the categorization strategy) and for American Indian or Alaska Natives (n=13 vs. 107).

Table 29. Prevalence of labeled and endorsed race/ethnicity

	Labeled		Endorsed	
	N=474	(%)	N=474	(%)
White	195	41.1	348	73.6
Black	5	1.1	40	8.5
Hispanic	120	25.3	120	25.3
Asian	5	1.1	27	5.7
AI/AN	13	2.7	107	22.6
NHOPI	1	0.2	18	3.8
Other	6	1.3	106	22.4
Multiple	91	19.2	0	0.0
Declined to Answer	38	8.0	46	9.9

Note: The percent in endorsed does not add up to 100% because students could select more than one response. Race/ethnicity data above are unweighted and should not be compared with weighted estimates throughout the report.

Abbreviations: NH = Non-Hispanic; AI/AN = American Indian or Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.

APPENDIX C – County-specific Questions

Participation

Mariposa County augmented the survey with four questions on peer and family influences and exposure to tobacco ads. Respondents were asked about whether they had been exposed to ads or promotions for smokeless tobacco products at convenience stores or small markets that were within walking distance of their school in the last 30 days. Students were also asked how many of their friends used smokeless tobacco and whether they knew of any family or household members who also used that product. Surveys were available in English and Spanish, administered online, and used programmed skip logic to reduce participant burden.

Mariposa County-specific Questions

All participating schools administered the county-specific questions. The sample size was sufficient to provide county-specific estimates for those questions. The following questions were asked after the last question in the CSTS:

MC1

How many of your friends...	None	Some	Most	All	I prefer not to answer
Use smokeless tobacco (chew, dip, snuff, or snus)?	A.	B.	C.	D.	E.

MC2 Do any of your family or household members use smokeless tobacco (chew, dip, snuff, or snus)?

- A. Yes
- B. No
- C. I prefer not to answer

MC3 You mentioned earlier that you had visited convenience stores or small markets in the last 30 days. When you did, how often how often did you see ads or promotions for SMOKELESS tobacco products (chew, dip, snuff, or snus)?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always
- F. I prefer not to answer

MC4 Were any of those stores where you saw ads or promotions for SMOKELESS tobacco products (chew, dip, snuff, or snus) WITHIN WALKING DISTANCE of your school?

- A. Yes
- B. No
- C. I prefer not to answer

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