Tobacco Use among High School Students in Fresno County: Findings from the 2017–18 California Student Tobacco Survey

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INTRODUCTION

According to the 2010 Census, Fresno County is a large county, with just under 1 million residents in the county.[1] Located in the heart of California, the county is rich in natural beauty and a leading agricultural hub. The three largest racial/ethnic groups are Hispanic or Latino (53.2%), White (29.5%), Asian (11.0%).[1]

Almost 30% of Fresno County's population is under the age of 18. In 2017–2018 school year, more than 88,000 middle and high school students attended 168 public schools from 338 districts.[2] The ethnic composition of these middle and high school student populations is similar to the U.S. Census Bureau data. The three largest ethnic groups were: Hispanic (64.0%), White (18.1%), and Asian (10.3%).[2]

This reports presents the main results from a school-based survey: the 2017–2018 California Student Tobacco Survey (CSTS). It reports findings from the 2017–18 CSTS that are specific to Fresno County, including results based on the state-wide survey questionnaire, as well as the additional questions specifically requested by the Fresno County Tobacco Prevention 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 Fresno County.

EXECUTIVE SUMMARY

This report summarizes the main findings from the 2017–18 California Student Tobacco Survey (CSTS) for Fresno County. The survey was administered to most 8th, 10th, and 12th grade students from September 2017 to June 2018. Schools were randomly selected within Fresno County. The project was conducted by the University of California, San Diego. Over the course of survey administration, 2,627 students from seven schools in Fresno County participated in the survey.

The survey was designed to assess use of, knowledge of, and attitudes towards cigarettes and other tobacco products, including e-cigarettes, big cigars, little cigars or cigarillos (LCC), hookah, and smokeless tobacco. The survey included questions that assessed use of each tobacco product, susceptibility to future use, social and environmental exposure to products, and known covariates of use. The survey also included a few questions on marijuana use.

This report focuses on high school students (i.e., 10th and 12th graders; 2,529 students). The results for 8th graders, which were sampled separately from 10th and 12th graders, are not presented in this report due to insufficient sample size. Basic results for marijuana use among high school students are presented in Appendix A.

The following key findings are presented in this report:

Key Findings

Tobacco Use Behavior

- The smoking prevalence for high school students in Fresno County has reached a historical low. In 2017–2018, only 1.9% of high school students in Fresno County reported currently using cigarettes. Use of other combustible tobacco products, like little cigars or cigarillos (LCC) and hookah, was also very low (2.6% and 2.0%, respectively).
- E-cigarettes were the most commonly used tobacco product among high school students in Fresno County (8.4%).
- Overall tobacco use was still relatively high among students in Fresno County (10.4%), which was driven mainly by the high rate of e-cigarette use.
- Use of multiple tobacco products was common. Approximately one-third of tobacco product users reported using two or more products.
- The majority of current tobacco users reported using a flavored tobacco product (79.7%). Flavored tobacco product use was high across all genders, races/ethnicities, and grades. *Fruit or sweet* was the most popular reported flavor for most tobacco products.

Risk Factors for Tobacco Use

- Among high school students in Fresno County who had never used a tobacco product, almost two in five were susceptible to future use if offered by a best friend (38.6%). Susceptibility was even higher among those who had friends who used tobacco products.
- One in five high school students in Fresno County reported being offered e-cigarettes, cigarettes, LCC, or hookah in the last 30 days. Almost one in ten (9.2%) students who had never used these products reported being offered at least one in the last 30 days.

- Less than half of high school students in Fresno County who used tobacco products reported paying for their own e-cigarettes (41.4%) and cigarettes (48.7%). Social sources were more common. Many high school students perceived that it would be easy to get e-cigarettes (53.7%) or cigarettes (48.2%) if they wanted them.

Exposure to Tobacco Use

- The vast majority of high school students in Fresno County reported having a complete home ban on vaping (83.2%) and smoking (87.5%).
- Despite home bans on smoking and vaping, the rate of exposure to secondhand vapor and smoke was still high: 22.2% of high school students were exposed to secondhand vapor and 28.1% were exposed to secondhand smoke in a room in the last 30 days.
- The majority of students (63.4%) reported seeing ads for cigarettes in the last 30 days. The majority of those students reported seeing ads that discouraged cigarette use (63.5%).
- Approximately half of students who visited convenience stores in the last 30 days reported infrequent exposure to tobacco ads or promotions. Half of those students (50.2%) reported that the convenience store or small market they saw tobacco ads and promotions in was within walking distance of their school.

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

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

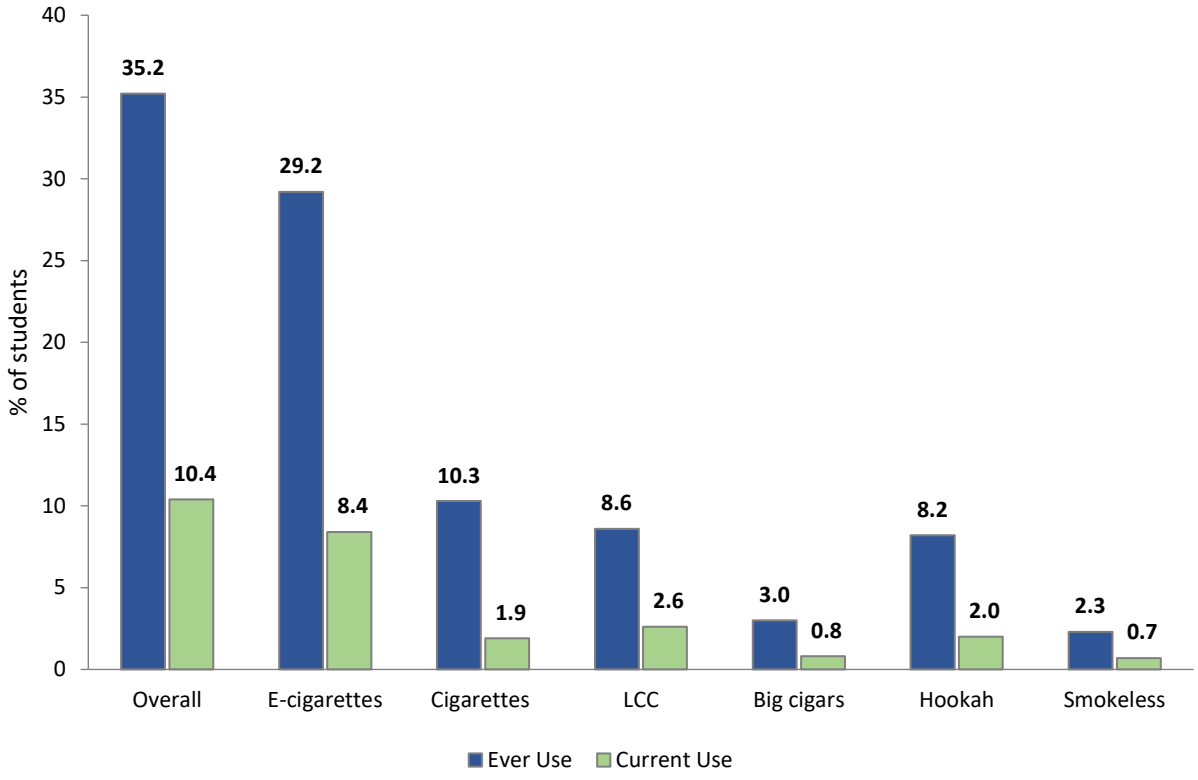
Highlights

- 10.4% of high school students in Fresno County reported using any tobacco product.
- E-cigarettes were the most popular tobacco product, with 8.4% of high school students currently using them.
- Only 1.9% of high school students in Fresno County reported smoking cigarettes.
- Current use of all combustible tobacco products was very low. This was true across gender, race/ethnicity, and grade.
- Most of the students used tobacco infrequently.
- About one-third of current users reported using more than one tobacco product.

Tobacco Product Use among High School Students

In Fresno County, 35.2% of high school students have tried any tobacco product, while 10.4% reported currently using a tobacco product (Figure 1). In both cases, the majority of use was attributed to e-cigarettes, with 8.4% of students reporting currently using the product. In contract, current use rates for all combustible tobacco products were less than 3.0%.

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



Note: Refer to Table A in Appendix D - Supplementary Tables to view estimates with confidence intervals.

Demographic Categories

For race/ethnicity, survey participants were first grouped by whether they were of Hispanic (Latino) origin. Those who classified as *non-Hispanic* were further divided into specific races/ethnicities that they identified with. If respondents selected more than one race/ethnicity, they were classified as *Multiple* race. There was also an option for *Other* race. Due to the small sample sizes for some of the ethnic groups in the survey, Native Hawaiian and other Pacific Islander, American Indian or Alaska Native, and other non-standard entries were all combined into the Other category in this report. Approximately 10.3% declined to answer either race/ethnicity question.

For question on gender, there is a response option, *I identify my gender in another way*, in addition to *Male* and *Female*. Approximately 1.8% of participating students in Fresno County indicated that they identified their gender in another way, and 9.8% 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]

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 decline 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 high school students in Fresno County was further explored across participant demographics as shown in Table 1. Table 1 shows that there are no significant differences in use behavior by gender, racial/ethnic categories, or grade.

Table 1. Prevalence of tobacco use by gender, race/ethnicity, and grade

	N	Ever use % (95% CI)	Current use % (95% CI)
Overall	2512	35.2 (30.5-39.8)	10.4 (7.2-13.6)
Gender			
Male	1064	34.9 (28.5-41.2)	11.0 (7.9-14.0)
Female	1095	31.9 (26.9-36.9)	8.1 (4.3-11.9)
Identified in Another Way	54	59.3 (43.1-75.6)	16.0 (0.8-31.2)†
Declined to Answer	258	45.1 (41.5-48.8)	16.7 (11.7-21.7)
Race/Ethnicity			
White	141	33.9 (26.6-41.3)	10.7 (4.5-16.9)
Black	44	33.4 (17.9-48.9)	6.6 (0.0-20.5)†
Hispanic	1710	35.4 (30.1-40.7)	10.0 (6.2-13.7)
Asian	162	27.8 (22.9-32.6)	9.1 (7.0-11.1)
Other	50	23.4 (11.0-35.9)	8.7 (4.0-13.4)
Multiple	86	33.6 (25.6-41.6)	9.2 (2.8-15.6)†
Declined to Answer	261	40.4 (33.1-47.7)	15.1 (9.2-21.0)
Grade			
Grade 10	1379	29.1 (24.9-33.3)	7.5 (4.3-10.8)
Grade 12	1133	40.6 (32.7-48.5)	13.0 (8.9-17.0)

Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

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

Use of Specific Tobacco Products by Demographics

Table 2 shows the use of specific tobacco products, in addition to the rate of overall tobacco use. Among high school students, overall tobacco use did not differ significantly by gender. The use of each tobacco product generally mirror trends in overall use: e-cigarettes were generally the most popular product used across gender categories, while fewer students reported using traditional tobacco products. Females had a lower use of cigarettes (0.7%), LCC (0.8%), and big cigars (0.1%) than males (2.8%, 3.6%, and 1.4%, respectively).

Table 2. Prevalence of current tobacco product use by gender

	Male N=1063 % (95% CI)	Female N=1095 % (95% CI)	Identified in Another Way N=54 % (95% CI)	Declined to Answer N=257 % (95% CI)
Overall	11.0 (7.9-14.0)	8.1 (4.3-11.9)	16.0 (0.8-31.2)†	16.7 (11.7-21.7)
E-cigarettes	8.0 (6.7-9.3)	7.3 (3.6-11.0)	10.8 (0.1-21.5)†	15.4 (10.1-20.7)
Cigarettes	2.8 (1.5-4.1)	0.7 (0.2-1.2)†	2.6 (0.0-5.4)†	3.6 (2.4-4.8)
LCC	3.6 (2.1-5.0)	0.8 (0.0-1.6)†	4.4 (0.0-10.7)†	6.1 (3.3-8.9)
Big cigars	1.4 (0.5-2.2)†	0.1 (0.0-0.2)†	2.5 (0.0-5.3)†	1.6 (0.3-2.9)†
Hookah	2.5 (1.7-3.4)	1.1 (0.2-2.1)†	3.5 (0.0-8.1)†	3.0 (1.6-4.5)
Smokeless	1.1 (0.2-2.0)†	0.1 (0.0-0.3)†	0.0 (0.0-1.0)‡	1.2 (0.3-2.0)†

†Data are statistically unreliable because relative standard error 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 3 presents current use of tobacco products by race/ethnicity. Differences in the use of tobacco products generally replicate the overall use rates. For example, e-cigarettes were generally the most used product among different racial/ethnic groups, while the use of traditional tobacco products was low.

Table 3. Prevalence of current tobacco product use by race/ethnicity

	White N=141 % (95% CI)	Black N=44 % (95% CI)	Hispanic N=1709 % (95% CI)	Asian N=162 % (95% CI)	Other N=50 % (95% CI)	Multiple N=86 % (95% CI)	Declined to Answer N=260 % (95% CI)
Overall	10.7 (4.5-16.9)	6.6 (0.0-20.5)†	10.0 (6.2-13.7)	9.1 (7.0-11.1)	8.7 (4.0-13.4)	9.2 (2.8-15.6)†	15.1 (9.2-21.0)
E-cigarettes	8.0 (1.4-14.6)†	1.6 (0.0-5.1)†	8.2 (5.6-10.9)	6.8 (3.5-10.0)	4.8 (1.1-8.4)†	8.6 (1.5-15.7)†	13.1 (7.4-18.8)
Cigarettes	3.4 (1.7-5.2)	3.3 (0.0-10.2)†	1.7 (1.1-2.3)	1.3 (0.5-2.0)	1.5 (0.0-3.9)†	0.9 (0.0-2.5)†	3.3 (1.9-4.7)
LCC	1.5 (0.0-3.6)†	3.4 (0.0-10.5)†	2.4 (1.0-3.8)	2.7 (0.0-6.4)†	2.7 (0.0-5.9)†	1.0 (0.0-2.7)†	4.6 (2.6-6.5)
Big cigars	1.9 (0.3-3.5)†	1.6 (0.0-5.1)†	0.8 (0.3-1.3)†	0.0 (0.0-0.4)‡	1.5 (0.0-3.9)†	0.0 (0.0-0.7)‡	1.1 (0.3-2.0)†
Hookah	2.3 (0.7-3.9)†	3.3 (0.0-10.2)†	1.8 (0.9-2.8)	2.8 (1.5-4.1)	1.5 (0.0-4.0)†	1.4 (0.0-3.4)†	2.4 (0.8-4.1)†
Smokeless	1.0 (0.0-2.9)†	1.6 (0.0-5.1)†	0.7 (0.3-1.1)	0.0 (0.0-0.4)‡	0.0 (0.0-1.0)‡	0.9 (0.0-2.4)†	0.7 (0.0-1.6)†

Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

†Data are statistically unreliable because relative standard error 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 tobacco product use by grade among high school students. Current use of tobacco products generally increased with grade, though increases were only significant for cigarettes (0.9% vs. 2.8%), LCC (1.2% vs. 3.7%), big cigars (0.3% vs. 1.3%), and smokeless tobacco (0.2% vs. 1.1%). E-cigarettes were consistently the most popular product used by 10th and 12th grade students, and the prevalence of use of other tobacco products was low.

Table 4. Prevalence of current tobacco product use by grade

	Grade 10 N=1378 % (95% CI)	Grade 12 N=1132 % (95% CI)
Overall	7.5 (4.3-10.8)	13.0 (8.9-17.0)
E-cigarettes	6.1 (2.9-9.4)	10.5 (7.5-13.5)
Cigarettes	0.9 (0.4-1.4)	2.8 (2.2-3.5)
LCC	1.2 (0.6-1.9)	3.7 (2.5-4.9)
Big cigars	0.3 (0.0-0.6)†	1.3 (0.8-1.8)
Hookah	1.1 (0.5-1.8)	2.8 (1.8-3.8)
Smokeless	0.2 (0.0-0.4)†	1.1 (0.5-1.7)

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

Use of Specific Tobacco Products by LGBTQ Community Affiliation

Table 5 presents tobacco product use by reported LGBTQ Community affiliation. Students who identified as LGBTQ had high rates of overall tobacco use (17.3%), though rates were not statistically different from those who did not identify with this group (9.4%). Rates of those who declined to answer (11.1%) fell in between these two groups. Consistent with previous results, e-cigarettes were the most commonly used product across groups, and use of traditional tobacco products was lower.

Table 5. Prevalence of current tobacco product use by LGBTQ Community affiliation

	Identified as LGBTQ N=209 % (95% CI)	Did not Identify as LGBTQ N=1778 % (95% CI)	Declined to Answer N=483 % (95% CI)
Overall	17.3 (10.3-24.2)	9.4 (6.4-12.4)	11.1 (6.8-15.4)
E-cigarettes	12.9 (7.2-18.6)	7.7 (5.4-10.0)	9.4 (5.9-12.9)
Cigarettes	5.7 (2.1-9.3)†	1.4 (1.2-1.6)	2.3 (0.6-4.0)†
LCC	3.8 (1.1-6.4)†	2.5 (1.4-3.5)	2.5 (1.1-3.8)
Big cigars	2.1 (0.0-4.8)†	0.7 (0.5-0.9)	0.8 (0.0-1.6)†
Hookah	5.4 (2.4-8.3)	1.6 (1.0-2.3)	1.8 (0.9-2.8)
Smokeless	1.9 (0.0-4.8)†	0.7 (0.2-1.1)†	0.2 (0.0-0.5)†

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

Frequency of Current Tobacco Product Use

Overall, more than half of students reported infrequent usage: a total of 54.7% of current users reported using a product either on 1-2 days or 3-5 days (37.8% + 16.9% = 54.7%). One in five (19.0%) students used a product on 20 or more days in the past 30 days.

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	253	37.8 (27.0-48.6)	16.9 (12.7-21.2)	26.3 (24.3-28.2)	19.0 (11.6-26.4)
E-cigarettes	197	42.6 (34.7-50.5)	21.4 (19.4-23.4)	23.2 (18.4-28.0)	12.8 (7.2-18.4)
Cigarettes	47	33.4 (21.1-45.7)	18.4 (5.0-31.8)†	20.4 (0.2-40.6)†	27.8 (18.4-37.2)
LCC	54	32.7 (26.0-39.4)	10.5 (0.0-23.1)†	32.0 (22.2-41.7)	24.9 (15.5-34.4)
Big cigars	20	31.1 (6.7-55.6)†	23.6 (0.0-49.4)†	24.9 (6.6-43.2)†	20.3 (2.8-37.8)†
Hookah	45	27.0 (14.9-39.2)	13.8 (3.5-24.2)†	41.3 (30.1-52.4)	17.9 (9.3-26.5)
Smokeless	16	25.1 (5.8-44.4)†	2.9 (0.0-9.4)†	21.9 (2.4-41.3)†	50.2 (12.6-87.7)†

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

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

Multiple Tobacco Product Use

Table 7 presents current use of multiple products, referred to as poly use, by participant demographics. Overall, 3.2% of students reported using two or more tobacco products, representing about one-third of current users. Rates of poly use were higher for students who declined to answer (7.6%) than those who were male (4.1%), which were, in turn, higher than those who were female (1.4%). There were no significant differences in poly use rates by racial/ethnic categories. Students in grade 12 (4.7%) had a higher rate of poly use than those in grade 10 (1.5%).

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	2510	10.4 (7.2-13.6)	3.2 (2.3-4.2)
Gender			
Male	1063	11.0 (7.9-14.0)	4.1 (3.2-4.9)
Female	1095	8.1 (4.3-11.9)	1.4 (0.2-2.6)†
Identified in Another Way	54	16.0 (0.8-31.2)†	3.8 (0.0-7.8)†
Declined to Answer	257	16.7 (11.7-21.7)	7.6 (5.2-10.1)
Race/Ethnicity			
White	141	10.7 (4.5-16.9)	3.9 (1.4-6.5)†
Black	44	6.6 (0.0-20.5)†	1.6 (0.0-5.1)†
Hispanic	1709	10.0 (6.2-13.7)	2.9 (1.7-4.1)
Asian	162	9.1 (7.0-11.1)	3.5 (2.5-4.6)
Other	50	8.7 (4.0-13.4)	1.4 (0.0-3.8)†
Multiple	86	9.2 (2.8-15.6)†	1.8 (0.0-5.0)†
Declined to Answer	260	15.1 (9.2-21.0)	5.8 (3.4-8.2)
Grade			
Grade 10	1378	7.5 (4.3-10.8)	1.5 (0.2-2.8)†
Grade 12	1132	13.0 (8.9-17.0)	4.7 (3.7-5.8)

Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

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

CHAPTER 2 – Use of Flavored Tobacco Products

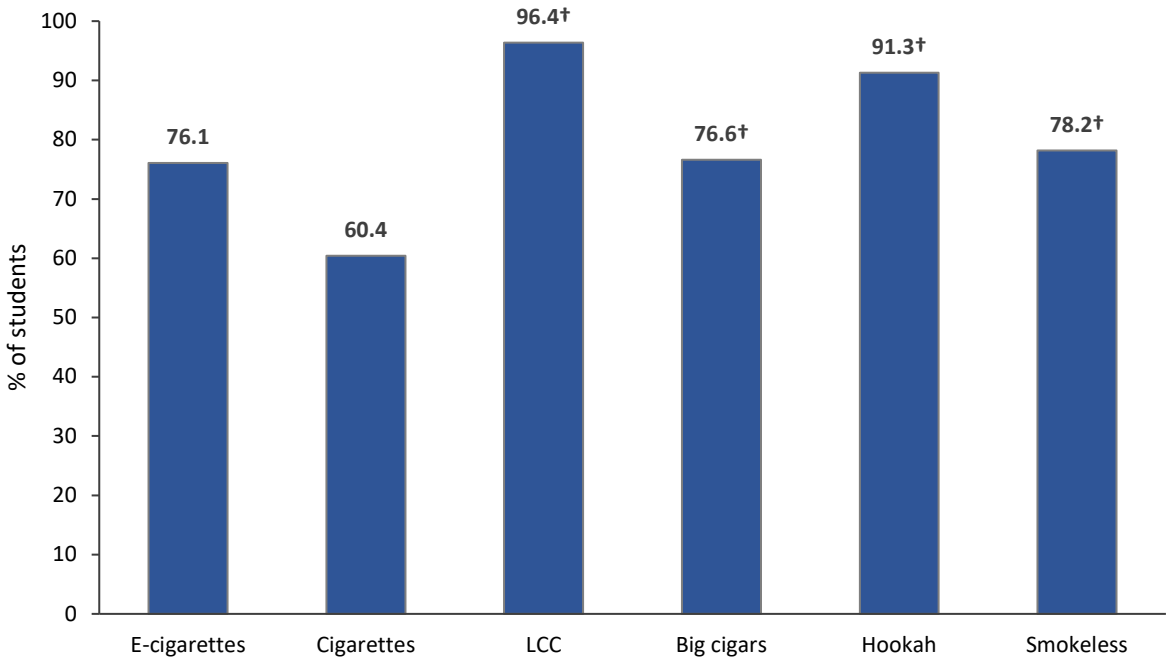
Highlights

- The vast majority (79.7%) of high school students in Fresno County who were current tobacco users reported using a flavored tobacco product.
- The highest use of flavored products was among current LCC users (96.4%), hookah users (91.3%), and smokeless tobacco users (78.2%).
- Over half of current cigarette smokers (60.4%) reported using menthol/mint cigarettes in the last 30 days.
- *Fruit or sweet* flavors were reported most frequently for all tobacco products except cigarettes and smokeless tobacco.

Flavored Tobacco Product Use among High School Students

Overall, 79.7% of students in Fresno County who were current tobacco users reported using flavored tobacco products in the last 30 days (data not shown). Use of flavored tobacco products was widespread across *all* tobacco products, even cigarettes, for which only menthol/mint flavor is available (Figure 2). The most prevalent flavored tobacco products were LCC (96.4%), hookah (91.3%), and smokeless tobacco (78.2%). Of note, more than half of cigarette smokers (60.4%) reported using flavored cigarettes in the last 30 days.

Figure 2. Proportion using flavored products among current users of a given tobacco product



Note: Refer to Table B in Appendix D - Supplementary Tables to view estimates with confidence intervals.
†Data are statistically unreliable because relative standard error is greater than 30%. Interpret with caution.

Flavored Tobacco Use by Demographics

Table 8 presents current use of any flavored tobacco product by participant demographic. Due to the small sample sizes and concerns over student confidentiality, subgroups for gender and race/ethnicity were combined together. Students who selected response option *I identify my gender in another way* or declined to answer were combined to form gender subgroup *Other.* For racial/ethnic categories, Black, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multiple, Other, declined to answer, and non-standard entries were all combined into the *Other* category in this section. Across gender, race/ethnicity, and grade, the vast majority of students reported using flavored tobacco products in the last 30 days.

Table 8. Proportion using flavored tobacco among current tobacco users by gender, race/ethnicity, and grade

	N	Current use % (95% CI)
Overall	259	79.7 (72.2-87.3)
Gender		
Male	110	75.5 (69.0-82.0)
Female	88	78.7 (65.6-91.8)†
Other	53	90.9 (81.7-100.0)†
Race/Ethnicity		
White	16	90.4 (75.7-100.0)†
Hispanic	163	76.3 (68.7-83.9)
Other	74	86.7 (75.1-98.3)†
Grade		
Grade 10	112	81.5 (75.4-87.6)
Grade 12	147	78.9 (67.8-89.9)

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 declined to answer.
†Data are statistically unreliable because relative standard error is greater than 30%. Interpret with caution.

Use of Specific Flavor Types

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 together. As shown in Table 9, with the exception of cigarettes (where *mint* is the only flavor) and smokeless tobacco, *fruit or sweet* flavors were the most popular. In fact, 89.5% of e-cigarette users in Fresno County indicated preferring to use *fruit or sweet* flavored e-cigarettes. Furthermore, the majority of students who used LCC and hookah reported using *fruit or sweet* flavors (77.3% and 66.4%, respectively). Mint was the most popular flavor among current smokeless tobacco users (45.0%). Furthermore, all current smokers used mint/menthol flavored cigarettes (100%). Few students reported using *tobacco* flavored e-cigarettes (2.1%).

Table 9. 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	150	89.5 (83.0-95.9)†	5.5 (1.9-9.1)†	2.1 (0.0-4.5)†	2.9 (0.1-5.7)†
Cigarettes	26	--	100.0	--	--
LCC	49	77.3 (68.5-86.2)	5.1 (0.6-9.6)†	--	17.6 (6.2-29.0)†
Big cigars	16	34.9 (14.5-55.3)	18.1 (0.0-48.1)†	--	47.0 (23.0-71.0)
Hookah	40	66.4 (55.0-77.9)	11.0 (0.0-23.7)†	--	22.5 (15.0-30.0)
Smokeless	10	23.5 (0.0-56.0)†	45.0 (0.0-100.0)†	--	31.5 (0.0-74.5)†

Note: For cigarettes, mint/menthol was the only flavor option provided.

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

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

CHAPTER 3 – Susceptibility to Future Tobacco Use

Highlights

- Almost two in five high school students (38.6%) in Fresno County who had never used a tobacco product were susceptible to trying at least one tobacco product in the future.
- Rates of susceptibility to different tobacco products varied across demographic variables, but generally one-third of never users in all subgroups were susceptible to using a tobacco product.
- Overall, a higher proportion of never users were susceptible to future tobacco use when they had friends that used a tobacco product.

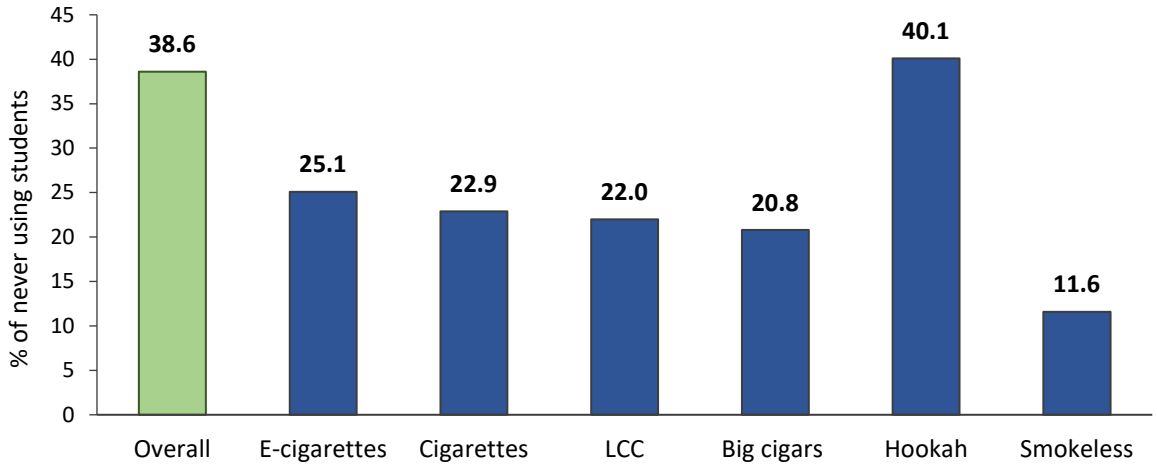
Susceptibility and Tobacco Use Behavior

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 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 for definition of susceptibility to future tobacco use). Those who answered anything other than *definitely not* were considered susceptible to future tobacco use. This chapter presents Fresno County high school students' susceptibility to future use of any tobacco product, as well as to specific tobacco products.

Susceptibility to Tobacco Use among High School Students

Figure 3 shows the proportion of high school never users' susceptibility to future tobacco use. Overall, 38.6% of never users of any tobacco product were susceptible to use of at least one product. Susceptibility to specific tobacco products generally varied according to product popularity, although hookah (used at lower rates than e-cigarettes) represents an anomaly. Never users of the product in Fresno County were most susceptible to using hookah (40.1%), followed by e-cigarettes (25.1%), and cigarettes (22.9%), and least susceptible to using big cigars (20.8%) or smokeless tobacco (11.6%).

Figure 3. Susceptibility to future tobacco use among never users



Note: Refer to Table C in Appendix D - Supplementary Tables to view estimates with confidence intervals.

Susceptibility to Tobacco Use by Demographics

When comparing susceptibility among never users, there was no significant difference by gender. While susceptibility varied somewhat across racial/ethnic groups, generally at least one-third of non-users were susceptible to future use for each subgroup. Susceptibility to future tobacco use was approximately the same for students in 10th and 12th grades (37.2% and 40.0%, respectively).

Table 10. Proportion of never users who are susceptible to future tobacco use by gender, race/ethnicity, and grade

	Never users of any tobacco product	
	N	**% (95% CI)**
Overall	1614	38.6 (32.5-44.7)
Gender		
Male	703	32.4 (25.4-39.3)
Female	736	44.7 (38.2-51.1)
Identified in Another Way	19	50.9 (32.5-69.3)
Declined to Answer	137	35.8 (30.9-40.6)
Race/Ethnicity		
White	93	33.1 (28.5-37.7)
Black	29	34.1 (28.1-40.1)
Hispanic	1105	41.6 (35.1-48.1)
Asian	115	27.6 (21.1-34.2)
Other	37	32.8 (22.7-43.0)
Multiple	53	25.6 (19.1-32.2)
Declined to Answer	146	31.4 (25.6-37.2)
Grade		
Grade 10	962	37.2 (30.7-43.7)
Grade 12	652	40.0 (34.4-45.7)

Notes: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

Susceptibility to Tobacco Use by Environmental Influences

Students indicated the proportion of their friends that used specific tobacco products. Table 11 presents never users' susceptibility to future tobacco use by the proportion of their friends that use the tobacco product. Overall, a higher proportion of never users were susceptible to future tobacco use when they had more friends who used a tobacco product. While susceptibility generally decreased for the proportion of students who reported that all of their friends use a particular product, representing an anomaly, this is likely a result of the small sample size and wide confidence intervals for this group.

The proportion of never users susceptible to future hookah use was highest across all tobacco products of friend use. As mentioned earlier in this chapter, students' high rates of susceptibility to hookah represents an anomaly given its relatively low use. This anomaly may reflect the way hookah is typically used (i.e., in a hookah lounge or similar social setting), which may increase its allure as both a social and perhaps exotic activity to try.

Table 11. Proportion of never users who are susceptible to future use by the number of tobacco-using friends

	None		Some		Most or All	
	N	% (95% CI)	N	% (95% CI)	N	% (95%)
E-cigarettes	1046	19.8 (16.1-23.5)	408	39.0 (32.4-45.6)	93	34.2 (26.6-41.8)
Cigarettes	1574	20.8 (16.3-25.3)	381	30.9 (25.4-36.5)	50	39.5 (23.6-55.4)
LCC	1719	20.4 (16.8-24.0)	249	31.6 (26.4-36.9)	50	35.5 (10.2-60.8)†
Hookah	1269	30.6 (24.2-37.1)	567	57.7 (49.9-65.4)	118	56.6 (50.2-63.0)

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

CHAPTER 4 – Environmental Influences

Highlights

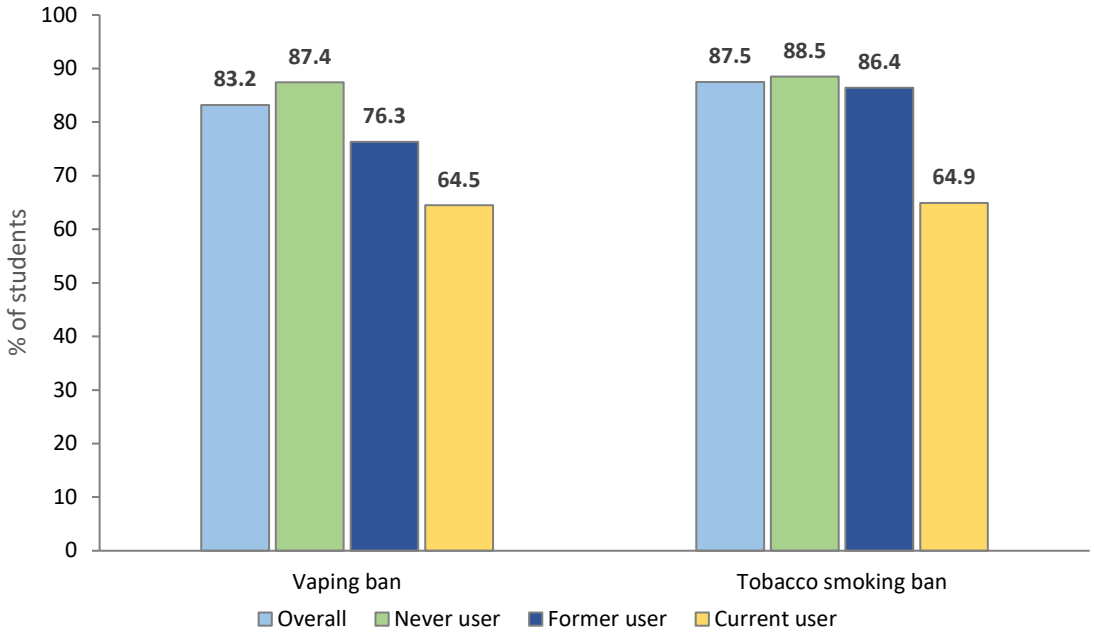
- Most high school students reported living in a home that had complete bans on vaping (83.2%) or smoking (87.5%).
- Some Fresno County students reported being exposed to secondhand vapor (15.5%) or smoke (16.2%) in a car in the last 30 days.
- More students reported being exposed to secondhand vapor (22.2%) or smoke (28.1%) in a room than being exposed in a car.
- More than half of students (63.4%) had been exposed to ads for cigarettes in the last 30 days. The majority of students who were exposed to e-cigarette, cigarette, and LCC ads reported seeing those that were discouraging use of the specific product.
- Three-quarters of students in Fresno County reported visiting convenience stores or small markets in the last 30 days. Of these students, most reported infrequent exposure to tobacco ads or promotions.

Home Bans for Vaping and Smoking among 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 or on smoking (83.2% and 87.5%, 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 vapers and never smokers reported having a complete home ban relative to current vapers and smokers. Rates of home bans among former vapers and smokers fell between those for never and current users. However, the rate of home bans for former smokers (86.4%) was much closer to that of never smokers (88.5%) than to current smokers (64.9%). Slightly fewer vapers reported having a home ban than smokers did. 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



Note: Refer to Table D in Appendix D - Supplementary Tables to view estimates with confidence intervals.
*Tobacco smoke and corresponding use status were based on two products: cigarettes and LCC.

Table 12 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 vaping and smoking were high.

Table 12. Prevalence of complete home bans on e-cigarette vaping and tobacco* smoking by race/ethnicity

	Vaping ban		Smoking ban	
		Overall		Overall
	N	% (95% CI)	N	% (95% CI)
Overall	2115	83.2 (78.9-87.5)	2155	87.5 (83.0-92.0)
White	133	76.0 (63.5-88.4)	134	79.3 (72.4-86.3)
Black	38	81.7 (64.5-98.8)†	40	77.9 (64.0-91.7)†
Hispanic	1522	85.1 (81.5-88.7)	1544	89.4 (85.0-93.7)
Asian	141	82.6 (76.2-89.0)	146	89.5 (82.5-96.4)†
Other	43	78.1 (65.0-91.2)	42	78.3 (70.0-86.5)
Multiple	74	73.5 (60.9-86.1)	76	83.9 (75.9-91.8)
Declined to Answer	132	75.3 (66.7-83.9)	138	76.2 (70.9-81.5)

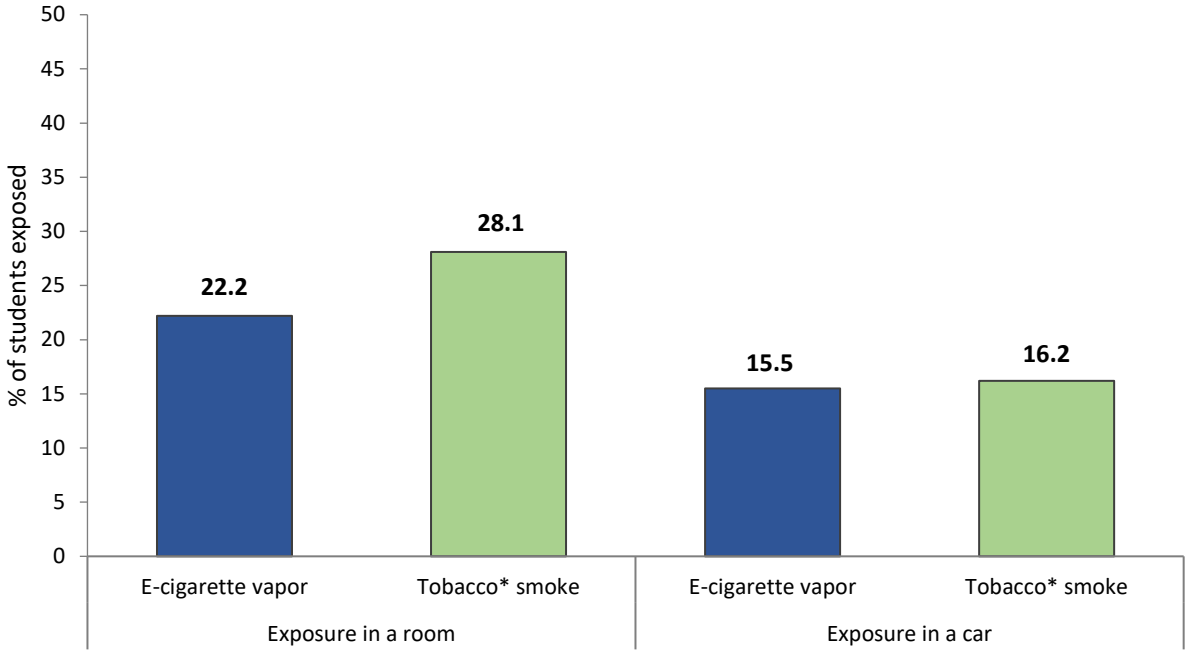
Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.
*Two products: cigarettes and LCC
†Data are statistically unreliable because relative standard error is greater than 30%. Interpret with caution.

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

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 asked whether they have been exposed in a car in the same way.

As shown in Figure 5, students reported being exposed to e-cigarette vapor and tobacco smoke in a room at higher rates compared to a car. Secondhand exposure in a car within the last 30 days was similar for vapor and smoke (15.5% and 16.2%, respectively). However, students reported being exposed to tobacco smoke at a higher rate compared to e-cigarette vapor in a room (28.1% vs. 22.2%, respectively).

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



Note: Refer to Table E in Appendix D – Supplementary Tables to view estimates with confidence intervals.
*Two products: cigarette and LCC

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

Students were asked whether they had seen ads for three tobacco products (e-cigarettes, cigarettes, and LCC) within the last 30 days. Table 13 shows students' overall exposure to tobacco ads by tobacco product. Most students had been exposed to cigarette (63.4%) ads. A smaller proportion of students reported seeing ads for e-cigarettes (41.3%) or LCC (29.4%).

Table 13. Exposure to tobacco ads in the last 30 days by tobacco product

	N	Overall exposure to tobacco-related ads % (95% CI)
E-cigarettes	2284	41.3 (33.2-49.5)
Cigarettes	2297	63.4 (61.4-65.5)
LCC	2287	29.4 (26.7-32.1)

Students who reported seeing e-cigarette, cigarette, or LCC 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 14 shows that more students reported seeing ads that discouraged tobacco use (43.8%, 63.5%, and 42.4% 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 (25.8%).

Table 14. Exposure to perceived types of tobacco ads in the last 30 days by tobacco product

		Exposure to...			
	N	Pro-tobacco ads % (95% CI)	Anti-tobacco ads % (95% CI)	Neutral ads % (95% CI)	I don't know % (95% CI)
E-cigarettes	929	29.5 (21.9-37.1)	43.8 (34.5-53.0)	9.7 (6.9-12.5)	17.1 (14.1-20.1)
Cigarettes	1447	17.6 (14.6-20.6)	63.5 (60.4-66.6)	6.4 (5.2-7.5)	12.5 (10.2-14.9)
LCC	637	21.1 (16.4-25.9)	42.4 (38.9-46.0)	10.6 (7.7-13.5)	25.8 (20.7-30.9)

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

Three-quarters of students (75.1%) in Fresno County reported having visited a convenience store or small market in the last 30 days (Table 15). The proportion of students who reported visiting convenience stores or small markets 1–5 days (36.2%) versus 6–30 days (38.9%) was similar.

Table 15. 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=2251 % (95% CI)
0 days	24.9 (17.6-32.3)
1-5 days	36.2 (29.3-43.0)
6-30 days	38.9 (36.3-41.5)

Students in Fresno County who visited convenience stores or small markets in the last 30 days were asked, "You mentioned earlier that you had visited convenience stores or small markets in the last 30 days. When you did, how often did you see ads or promotions for cigarettes and other 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 16, the majority of these students reported infrequent exposure to ads or promotions for any tobacco product (54.3%). Only 17.1% of those students reported no exposure to any tobacco ads or promotions. Frequent exposure to tobacco ads or promotions was highest for students who visited these stores 6–30 days within the last 30 (34.6%). However, those who visited convenience stores or small markets 6–30 days were no different in their rates of exposure than students who visited these venues on 1–5 days.

Table 16. Proportion of students who visited convenience stores or small markets in the last 30 days and were exposed to tobacco ads or promotions by the number of days they visited those locations

Visited convenience stores or small markets	N	No exposure to tobacco ads or promotions % (95% CI)	Infrequent exposure to tobacco ads or promotions % (95% CI)	Frequent exposure to tobacco ads or promotions % (95% CI)
Overall	973	17.1 (12.2-22.0)	54.3 (47.7-60.8)	28.6 (23.1-34.2)
1-5 days	481	20.0 (16.1-23.9)	57.9 (49.9-65.9)	22.1 (14.0-30.2)
6-30 days	492	14.4 (7.9-21.0)	51.0 (45.2-56.8)	34.6 (28.9-40.2)

Of those students who visited convenience stores or small markets in the last 30 days and were exposed to any tobacco ads, half (50.2%) reported that the store was within walking distance of their school (Table 17).

Table 17. Proportion of students who reported visiting convenience stores or small markets that were within walking distance of their school among those who visited those locations in the last 30 days and were exposed to tobacco ads or promotions

	Convenience stores or small markets are within walking distance of school N=794 % (95% CI)
Yes	50.2 (31.8-68.7)
No	37.8 (20.7-54.9)
I don't know	11.9 (0.0-24.1)†

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

CHAPTER 5 – Access to Tobacco Products

Highlights

- More students accessed e-cigarettes and cigarettes through social sources than purchasing them through retail sources.
- Many students believed that it would be easy to get e-cigarettes (53.7%) or cigarettes (48.2%) if they wanted them.
- One in ten (9.2%) high school students who have never used any tobacco product have 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 or cigarettes were asked whether they pay for their own e-cigarettes (or e-liquid) or 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 tobacco product.

Acquisition of E-Cigarettes and Cigarettes among High School Students

Table 18 and 19 describe how students usually obtain e-cigarettes (or e-liquid). Of 178 current e-cigarette users, 99 students (weighted percentage, 58.6%) reported obtaining their e-cigarettes from social sources without paying for them while 79 (weighted percentage, 41.4%) reported purchasing their e-cigarettes.

Table 18 presents data for students who usually obtained their e-cigarettes (or e-liquid) through social sources (N=99). More than one third of them (37.8%) reported being offered e-cigarettes. Of note, a high percentage of these students did not report how they obtained e-cigarettes (23.9%).

Table 18. Acquisition of e-cigarettes (or e-liquid) among current e-cigarette users by social source

Did not pay for own e-cigarettes (or e-liquid)	Current e-cigarette users N=99 % (95% CI)
Someone else offers them to me	37.8 (27.6-48.0)
I ask someone for them	12.5 (8.2-16.8)
I get them some other way	25.8 (16.5-35.0)
Declined to Answer	23.9 (10.0-37.8)

Note: data are based on a subset of current e-cigarette users who reported that they do not usually pay for their e-cigarettes (58.6%; n=178).

Table 19 presents data for students who usually purchased their e-cigarettes or e-liquid (N=79). Almost two-thirds of these students reported buying e-cigarettes from the store themselves or from someone else. A smaller group of students (12.8%) reported buying e-cigarettes from the internet (including apps). Again, a high percentage of students did not report how they bought e-cigarettes (19.8%).

Table 19. Acquisition of e-cigarettes (or e-liquid) among current e-cigarette users by purchase source

Paid for own e-cigarettes (or e-liquid)	Current e-cigarette users N=79 % (95% CI)
I buy them from the store myself	18.9 (12.0-25.8)
I buy them from someone else	46.0 (32.9-59.1)
Internet (including apps)	12.8 (1.0-24.6)†
Other	2.5 (0.0-5.2)†
Declined to Answer	19.8 (12.1-27.6)

Note: data are based on a subset of current e-cigarette users who reported that they usually pay for their e-cigarettes (41.4%; n=178).

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

Table 20 and 21 describe how students usually obtain their cigarettes. Of current cigarette smokers (N=41), 21 students (weighted percentage, 51.3%) reported obtaining their cigarettes through social sources without paying for them, while 19 students (weighted percentage, 48.7%) reported purchasing their cigarettes.

Table 20 presents data for students who usually obtained their cigarettes through social sources (N=21). About half of these students reporting being offered cigarettes (54.7%).

Table 20. Acquisition of cigarettes among current cigarette users by social source

Did not pay for own cigarettes	Current cigarette users N=21 % (95% CI)
Someone else offers them to me	54.7 (22.5-87.0)†
I ask someone for them	11.2 (0.0-34.1)†
I get them some other way	24.9 (3.7-46.1)†
Declined to Answer	9.2 (0.0-18.6)†

Note: data are based on a subset of current cigarette users who reported that they do not usually pay for their cigarettes (51.3%; n=41).

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

Table 21 presents data for students who usually purchased their cigarettes (N=19). Over half reported buying cigarettes from the store themselves or from someone else. A smaller group of students (12.1%) reported buying cigarettes from the internet (including apps). Of note, just as with e-cigarette users, a high percentage of students did not report how they bought cigarettes (32.1%).

Table 21. Acquisition of cigarettes among current cigarette users by purchase source

Paid for own cigarettes	Current cigarette users N=19 % (95% CI)
I buy them from the store myself	28.1 (11.5-44.7)
I buy them from someone else	27.7 (8.5-46.9)†
Internet (including apps)	12.1 (0.0-36.7)†
Other	0.0 (0.0-3.5)‡
Declined to Answer	32.1 (9.1-55.1)†

Note: data are based on a subset of current cigarette users who reported that they usually pay for their cigarettes (48.7%; n=41).
†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).

Students who reported buying e-cigarettes or cigarettes from a store were asked the specific store type where they bought the tobacco product. Due to the small sample size, we are unable to report these data for students in Fresno County. However, state-level data indicate that most students report buying e-cigarettes from vape shops and cigarettes from gas stations or convenience stores.

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

The 2017–18 CSTS assessed whether high school 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. Overall, about one-fifth of students (21.1%) in Fresno County were offered a tobacco product in the last month (Table 22). More current users reported any 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 high school students) relative to cigarettes, LCC, or hookah.

Table 22. 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	2404	21.1 (17.4-24.8)	1583	9.2 (7.6-10.9)	578	33.9 (28.1-39.7)	239	67.0 (59.3-74.7)
E-cigarettes	2388	16.2 (12.6-19.8)	1681	6.2 (4.0-8.3)	451	30.6 (22.7-38.6)	190	61.2 (52.0-70.4)
Cigarettes	2398	5.2 (3.9-6.5)	2148	2.4 (1.2-3.6)	182	17.5 (13.2-21.9)	39	77.2 (59.0-95.3)†
LCC	2398	4.8 (3.9-5.7)	2179	2.1 (1.2-3.0)	134	25.7 (20.4-31.0)	50	49.2 (24.2-74.1)
Hookah	2394	9.4 (7.7-11.2)	2159	6.9 (5.1-8.7)	143	25.8 (16.8-34.9)	44	74.7 (61.0-88.5)

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

Offers of Tobacco Products by Demographics

Table 23 shows the prevalence of offers of tobacco products by demographics. Overall, offers of tobacco products according to demographic characteristics reflect the prevalence of tobacco use by gender, race/ethnicity, and grade. Students who identified their gender another way reported significantly more offers (40.1%) than male (19.5%) or female (21.0%) students. The prevalence of offers was similar across race/ethnicity groups. There was no significant differences in offers between grade levels.

Table 23. Prevalence of offers of tobacco products* in the last 30 days by gender, race/ethnicity, and grade

	Overall	
	N	**% (95% CI)**
Overall	2404	21.1 (17.4-24.8)
Gender		
Male	1045	19.5 (16.1-22.9)
Female	1073	21.0 (16.8-25.3)
Identified in Another Way	50	40.1 (27.1-53.1)
Declined to Answer	204	22.7 (13.4-32.0)
Race/Ethnicity		
White	140	20.3 (16.3-24.3)
Black	43	21.2 (2.9-39.5)†
Hispanic	1671	21.3 (17.4-25.1)
Asian	160	17.8 (13.7-22.0)
Other	49	16.6 (9.5-23.8)
Multiple	84	23.0 (17.2-28.9)
Declined to Answer	210	21.4 (12.2-30.5)
Grade		
Grade 10	1333	21.4 (17.6-25.3)
Grade 12	1071	20.9 (15.0-26.7)

Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and other non-standard entries.

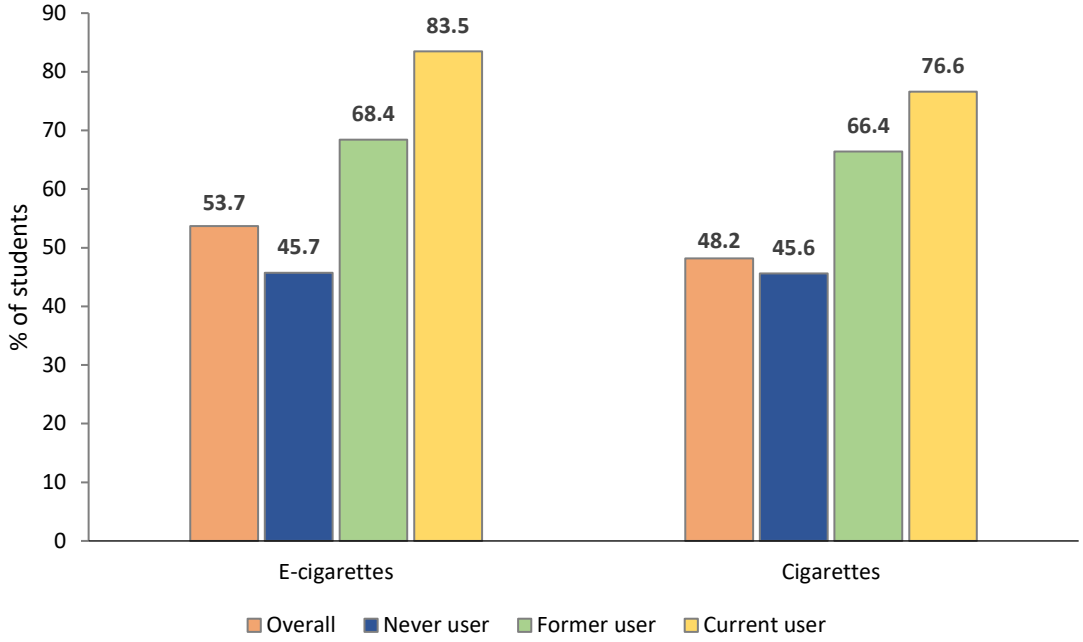
*Four products: e-cigarettes, cigarettes, LCC, and hookah

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

Perceived Ease of Acquiring E-Cigarettes and Cigarettes

Figure 6 presents the perceived ease of acquiring e-cigarettes and cigarettes among high school students. Overall, among never, former, and current users, approximately half of students through it would be *very easy* or *somewhat easy* to get e-cigarettes or cigarettes (53.7% and 48.2%, respectively). Perceived ease of access differed according to product use status, with the highest percentage of current users perceiving that it would be *very easy* or *somewhat easy* to get e-cigarettes or cigarettes relative to never or former users.

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



Note: Refer to Table F in Appendix D - Supplementary Tables to view estimates with confidence intervals.

CONCLUSION

The smoking prevalence for Fresno youth, like the rest of California, has reached a historic low. Only 1.9% of high school students in Fresno County smoked cigarettes in 2017–18. Few would have imagined such a low prevalence only a few years ago. In fact, the rate of using any one of the combustible tobacco products was very low (all are lower than 3%). As far as the numerical goal for tobacco control is concerned, the prevalence for each of the combustible tobacco products among high school students in Fresno had dropped to the level accepted by many as an end-game number.[6] There is cause for celebration.

The low prevalence suggests that the social norm for cigarette smoking among teens has collapsed. Smoking is simply no longer a cool thing to do. The anti-smoking campaign in California, both at the statewide level and at the Fresno 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 California are still smokers, which contributes to the fact that more than one-third of high school students reported being exposed to secondhand smoke. 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 high school students in Fresno in 2017–18 was 8.4%, which accounts for the majority of all tobacco use (10.4%). Moreover, many high school students reported that someone had offered e-cigarettes to them 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. 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. The marijuana use prevalence is currently even higher than that for e-cigarettes for high school students in Fresno County (16.2%; Appendix A). Even though most of the teens who currently use marijuana are smoking it, the method of use can change quickly given the appeal of new vaping devices for youth. 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 very low prevalence for all combustible tobacco products shows that it is possible to reduce tobacco use closer to nearly 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 Fresno 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

- One-third (35.6%) of high school students in Fresno County reported having tried marijuana, while 16.2% reported using it in the last 30 days.

Marijuana Use among 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 24 presents the prevalence of ever and current marijuana use among high school students by demographic characteristics.

In Fresno County, the rates of ever using marijuana (35.6%) and currently using marijuana (16.2%) are higher than the rate of using tobacco products. Male, female, and students who identified their gender another way had similar marijuana use rates (16.8%, 13.0%, and 17.9%, respectively). Students who declined to report their gender had a significantly higher current marijuana use rate (28.9%) than male or female students. Students who identified as Other or Asian had the lowest rates of marijuana use (4.6% and 8.6%, respectively) of all racial/ethnic groups. The prevalence of marijuana use was significantly higher among 12th grade students relative to 10th grade students (20.1% and 11.7%, respectively).

Table 24. Prevalence of marijuana use by gender, race/ethnicity, and grade

		Ever use	Current use
	N	% (95% CI)	% (95% CI)
Overall	2419	35.6 (30.3-41.0)	16.2 (13.3-19.2)
Gender			
Male	1032	34.7 (29.4-40.0)	16.8 (14.2-19.3)
Female	1063	33.4 (26.7-40.1)	13.0 (9.0-17.0)
Identified in Another Way	51	42.5 (30.4-54.7)	17.9 (8.8-26.9)
Declined to Answer	236	47.3 (43.7-50.9)	28.9 (25.5-32.3)
Race/Ethnicity			
White	138	28.9 (23.1-34.7)	16.7 (12.4-21.0)
Black	43	41.9 (29.0-54.9)	20.8 (8.4-33.1)
Hispanic	1660	36.9 (30.3-43.5)	15.7 (11.6-19.9)
Asian	156	15.8 (12.7-18.9)	8.6 (2.7-14.4)†
Other	50	18.6 (8.8-28.4)	4.6 (1.0-8.3)†
Multiple	78	30.8 (21.5-40.1)	10.4 (0.0-22.3)†
Declined to Answer	241	43.0 (37.8-48.2)	26.5 (22.9-30.0)
Grade			
Grade 10	1323	29.2 (24.7-33.8)	11.7 (8.6-14.8)
Grade 12	1096	41.2 (33.8-48.7)	20.1 (16.9-23.4)

Note: Race/Ethnicity category Other includes Native Hawaiian and Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

†Data are statistically unreliable because relative standard error 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 the 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 Fresno 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 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. Fresno 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 25 provides information about the number of schools and students that participated in the 2017–18 survey for each of the three grades. The total sample included 2,627 students from 7 schools. Grades 10 and 12 are considered high school and grade 8 is considered middle school. Due to participation of only one middle school and the resulting insufficient sample size, results of students in grade 8 are not presented in this report.

Table 25. Numbers of schools and students participating, Fresno County middle school vs. high schools

	Middle School (8th)	High Schools (10th & 12th)	Total
Number of schools	1	6	7
Number of students	98	2529	2627

It should be noted that all schools in the statewide sample administered the survey in the 2017–18 academic year; however, one school was non-randomly selected by Fresno County's Tobacco Prevention Program. Due to difficulty in obtaining district and school participation, the County requested that we survey an additional school in the 2018–19 academic year to obtain a representative sample of its jurisdiction. There were no significant differences in current and ever use rates of each tobacco product for that school compared to the county. However, 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

Fresno County deferred to the statewide CSTS sample for this report and augmented the county's sample size by non-randomly selecting one additional school. 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. Fresno County was considered its own region (Region 8) in the 2017–18 CSTS. 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.

The participating middle school was encouraged to survey all 8th graders, while the high schools were encouraged to survey all 10th and 12th graders. For the minority of schools that chose not to survey all students in the selected grades (14.3% of schools), classrooms within a grade were randomly sampled for participation.

Analysis

The 2017–18 CSTS provided the option *I prefer not to answer* for all questions. Rates of endorsement varied considerably. 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. Fresno County surveyed an adequate sample size to allow for county-level data. Data are weighted to account for the study's sampling design, and the weighting procedure is described

elsewhere.[7] Fresno County Public Health Department, Tobacco Prevention Program deferred to the statewide sampling strategy. In addition, as more than 5% of California's students participated in the survey, a finite population correction was applied in the analyses. This correction will reduce the variance, resulting in narrower confidence intervals for all estimates. 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 Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and Other groups, these groups were combined in the *Other* category. The response option *I prefer not to answer* was also provided for both questions. In line with other surveys, students identifying as *Hispanic* were labeled as such regardless of the other races selected. Students selecting multiple races were grouped as *Multiple* in tables that include racial/ethnic categories.

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 26). 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 (3.5% vs. 1.6%, 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 ethnic diversity of Fresno County, and 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 26. Prevalence of race/ethnicity categories in the CSTS and CDE enrollment data

	N=2564	CSTS Sample (%)	CDE Enrollment (%)
NH-White	145	5.7	18.5
NH-Black	44	1.7	4.9
Hispanic	1793	69.9	63.6
NH-Asian	162	6.3	10.3
NH-AI/AN	9	0.4	0.7
NH-NHOPI	5	0.2	0.3
NH-Other	39	1.5	0.2
NH-Multiple	90	3.5	1.6
Declined to Answer	277	10.8	0.0

Note: Race/ethnicity data 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 27 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 select multiple responses, and in particular, underrepresented races. For example, under the usual classification of labeling, the number of Black students in Fresno County is 44 (i.e., non-Hispanic Black who did not endorse any other racial identity). However, there were more than four 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).

Table 27. Prevalence of labeled and endorsed race/ethnicity

	Labeled		Endorsed	
	N=2564	**(%)**	**N=2564**	**(%)**
White	145	5.7	615	24.2
Black	44	1.7	174	6.9
Hispanic	1793	69.9	1793	70.0
Asian	162	6.3	266	10.5
AI/AN	9	0.4	179	7.0
NHOPI	5	0.2	67	2.6
Other	39	1.5	1135	44.7
Multiple	90	3.5	0	0.0
Declined to Answer	277	10.8	581	22.9

Notes: The percent in endorsed does not add up to 100% because students could select more than one response. Race/ethnicity data 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

Fresno County was given the opportunity to augment the 2017–18 CSTS with additional questions (see *Fresno County-specific Questions*). The county augmented the survey with six questions on environmental influences specific to its students. Respondents were asked about their exposure to tobacco ads or promotions at convenience stores or small markets they reported visiting in the last 30 days, whether these stores were within walking distance to their schools, and whether the types of stores they reported buying cigarettes or e-cigarettes from were within walking distance to their schools. Data regarding whether students reported buying cigarettes or e-cigarettes from stores within walking distance to their schools were not provided in this report due to insufficient sample size. Surveys were available in English and Spanish.

Out of the seven schools that completed the survey, three schools (two high and one middle) were surveyed before the county-specific questions were programmed. This was due to a delay in receiving the county's additional questions. However, the sample size was still large enough to provide county-specific estimates for those questions.

Table 28. Numbers of schools and students that received county-specific questions, Fresno County middle vs. high schools

	Middle School (8th)	High School (10th & 12th)	Total
Number of schools	0	4	4
Number of students	0	1694	1694

Fresno County-specific Questions

Students from Fresno County schools received the following additional questions after the last question in the CSTS survey. Questions 3 and 4 were not analyzed as the sample set was too small to report findings.

FRESNO 1. You mentioned earlier that you had visited convenience stores or small markets in the last 30 days. When you did, how often did you see ads or promotions for cigarettes and other tobacco products?

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

FRESNO 2. Were any of those stores where you saw tobacco ads or promotions WITHIN WALKING DISTANCE of your school?

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

FRESNO 3. You mentioned earlier that you usually buy your CIGARETTES from a _____. Is it WITHIN WALKING DISTANCE of your school?

A. Yes
B. No
C. I don't know
D. I prefer not to answer

FRESNO 4. You mentioned earlier that you usually buy your E-CIGARETTES from a _____. Is it WITHIN WALKING DISTANCE of your school?

A. Yes
B. No
C. I don't know
D. I prefer not to answer

APPENDIX D – Supplementary Tables

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

	Ever use N=2512 % (95% CI)	Current use N=2510 % (95% CI)
Overall	35.2 (30.5-39.8)	10.4 (7.2-13.6)
E-cigarettes	29.2 (25.6-32.7)	8.4 (6.1-10.8)
Cigarettes	10.3 (7.9-12.7)	1.9 (1.4-2.4)
LCC	8.6 (6.3-11.0)	2.6 (1.6-3.6)
Big cigars	3.0 (2.6-3.4)	0.8 (0.5-1.2)
Hookah	8.2 (6.5-9.9)	2.0 (1.4-2.6)
Smokeless	2.3 (1.5-3.2)	0.7 (0.3-1.0)

Table B. Proportion using flavored tobacco products among current users of a given tobacco product

		Flavored product use
	N*	% (95% CI)
E-cigarettes	199	76.1 (66.0-86.3)
Cigarettes	47	60.4 (45.8-74.9)
LCC	57	96.4 (92.2-100.0)†
Big cigars	20	76.6 (60.4-92.9)†
Hookah	48	91.3 (83.3-99.3)†
Smokeless	15	78.2 (57.1-99.2)†

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

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

Table C. Susceptibility to future tobacco use among never users

	Never users of the product	
	N	% (95% CI)
Overall	1614	38.6 (32.5-44.7)
E-cigarettes	1634	25.1 (21.2-28.9)
Cigarettes	2119	22.9 (18.4-27.3)
LCC	2139	22.0 (18.2-25.9)
Big cigars	2272	20.8 (17.8-23.7)
Hookah	2064	40.1 (32.9-47.3)
Smokeless	2318	11.6 (9.6-13.5)

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

		Complete home ban
Vaping Ban	**N**	**% (95% CI)**
Overall	2115	83.2 (78.9-87.5)
Never vapers	1504	87.4 (83.9-91.0)
Former vapers	410	76.3 (69.1-83.4)
Current vapers	157	64.5 (58.4-70.7)
Smoking Ban	**N**	**% (95% CI)**
Overall	2155	87.5 (83.0-92.0)
Never smokers	1872	88.5 (84.4-92.7)
Former smokers	208	86.4 (78.5-94.2)
Current users	67	64.9 (54.3-75.5)

*Tobacco smoke and corresponding use status were based on cigarette and LCC use

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

		E-cigarette vapor		Tobacco* smoke
	N	**% (95% CI)**	**N**	**% (95% CI)**
Exposure in a room	2297	22.2 (17.4-27.0)	2297	28.1 (23.3-33.0)
Exposure in a car	2286	15.5 (12.3-18.7)	2302	16.2 (12.2-20.2)

*Two products: cigarettes and LCC

Table F. 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	2293	61.6 (56.5-66.6)	1566	54.2 (48.3-60.0)	507	74.0 (67.6-80.5)	208	85.1 (81.3-89.0)
E-cigarettes	2266	53.7 (48.7-58.7)	1579	45.7 (39.5-51.9)	435	68.4 (62.8-74.1)	186	83.5 (78.5-88.6)
Cigarettes	2263	48.2 (42.9-53.6)	2013	45.6 (40.1-51.1)	181	66.4 (61.8-71.0)	40	76.6 (63.9-89.2)

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