Tobacco Use Among High School Students in Sacramento County: Findings from the 2019–20 California Student Tobacco Survey

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INTRODUCTION

Located in the north-central region of California and home to the state capitol, Sacramento County boasts approximately one and a half million residents, which makes up about 4% of the state's population.[1] The county has a rich culture with diverse racial/ethnic groups. The four largest racial/ethnic groups are White (43.8%), Hispanic or Latino (23.6%), Asian (17.0%), and African American or Black (10.9%).[1]

Just over 20% of Sacramento County's population is under the age of 18. In the 2019–2020 school year, 134,229 students enrolled in grades 6-12 were attending 321 schools from 15 districts.[2] The racial/ethnic composition of these students differs from the County as a whole, yet remains very diverse with the four largest racial/ethnic groups being: Hispanic or Latino (32.5%), White (29.1%), Asian (15.0%), and African American or Black (11.4%).[2] The racial/ethnic composition of youth can foreshadow the County's racial/ethnic distribution in the future.

This report presents the main results from a school-based survey: the 2019–2020 California Student Tobacco Survey (CSTS). It reports findings from the 2019–20 CSTS that are specific to Sacramento County and 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—wherein the use of cigarettes, vapes, and their co-use with marijuana is in flux. The findings presented in this report can assist the development of tobacco-control interventions to reduce tobacco use and secondhand exposure among youth in Sacramento County.

EXECUTIVE SUMMARY

This report summarizes the main findings from the 2019–20 California Student Tobacco Survey (CSTS) for Sacramento County. The survey was administered to 8th, 10th, and 12th grade students from September 2019 to March 2020. Schools were randomly selected within Sacramento County. Survey administration was planned to end in April 2020 but ended in March 2020 as schools across the state began to close due to the COVID-19 pandemic. While closures occurred on different dates, most schools closed between March 13-18, 2020.[3] Despite school closures, administration of the survey was considered complete as the majority of schools sampled for the survey had completed it prior to the closures. Throughout the 2019-20 academic year, 6,433 students from 15 schools (11 high and four middle) in Sacramento County participated in the survey. The survey was administered online during the school day at each of the schools by the University of California San Diego (UC San Diego).

The survey was designed to assess the use of, knowledge of, and attitudes towards cigarettes and other tobacco products, including vapes, little cigars or cigarillos (LCC), big cigars, hookah, smokeless tobacco, and heated tobacco products (HTP). The survey included questions that assessed the use of each tobacco product, the use of flavors, perceptions of vaping and smoking, social and environmental exposure to products, access to vapes, and factors known to be associated with use. Marijuana was also included in the survey since the co-use of marijuana and tobacco products is common, and potentially of concern given the intersection of vaping nicotine and vaping marijuana.

This report focuses on high school students (10th and 12th graders; 5,523 students). Key results for 8th graders (910 students), who were sampled separately from 10th and 12th graders, are presented in Appendix A.

Key Findings

Tobacco Use Behavior

- In 2019-20, 28.2% of high school students in Sacramento County had ever used a tobacco product and 10.1% had used tobacco in the last 30 days.
- The current cigarette smoking prevalence in Sacramento County reached a historical low, as only 1.4% of students reported smoking in the last 30 days.
- Current use of all other combustible tobacco products among high school students was also very low. In 2019-20, the prevalence of current use was 3.2%, 0.7%, and 0.6%, for little cigars or cigarillos (LCC), hookah, and big cigars, respectively.
- Vapes were the most popular tobacco product, with 23.4% of high school students having ever used them and 8.2% being current users.
- Use of multiple tobacco products was common, representing over one-quarter (28.7%) of current users.

- Students who rated their mental health as poor had twice the current tobacco use prevalence (15.8%) compared to those who rated their mental health as good to excellent (7.7%).
- More than half of vapers were infrequent users: 56.2% of current vapers reported using vapes on either 1-2 or 3-5 days in the last 30 days. Less than one-quarter (23.4%) of current vapers used vapes on 20 or more in the last 30 days.
- The vast majority of current tobacco users reported using a flavored tobacco product (89.1%), with the use of flavored vapes (96.2%), hookah (78.0%), and smokeless tobacco (75.7%) being the highest. Half of current cigarette smokers (52.1%) reported using menthol cigarettes. Flavored tobacco product use was high across all genders, races/ethnicities, and grades. *Fruit* was the most popular flavor reported for vapes.

Perceptions of Vaping and Smoking

- The majority of students (83.7%) believed that the reason people their age used vapes with nicotine or just flavoring was because their friends did.
- Almost all students believed that adults who were important to them would feel negatively about the student vaping (95.9%) or smoking cigarettes (96.3%).
- While most students believed their close friends and other students perceived smoking cigarettes negatively (91.2% and 81.5%, respectively), fewer students believed vaping was perceived negatively by close friends and other students (73.7% and 46.3%, respectively).

Secondhand Exposure and Other Environmental Influences

- Most high school students in Sacramento County reported having a complete home ban on vaping (80.7%) and tobacco smoking (81.4%).
- Despite high rates of home bans, the rate of exposure to secondhand vapor was still high: more than one in five students were exposed to secondhand vapor in a room (22.9%) in the last 2 weeks. The rate of exposure to secondhand tobacco smoke in a room (10.4%) was lower.
- Just over one in five students reported that their parent or guardian had talked to them about the risks of vape (24.7%) and cigarette use (22.6%) in the last 30 days.
- A substantial percentage of high school students were exposed to advertisements related to vapes (67.7%) and cigarettes (52.1%) in the last 30 days. About one in five of those ads were perceived by students as promoting the use of these products and three in five were perceived as discouraging their use.

Access to Vapes

- Among current vapers, 58.5% reported not paying for their vapes and 41.5% reported paying for them.

- Out of those who did not pay for their vapes, over half reported being given vapes (56.4%). Out of those who did pay for their vapes, 39.8% bought them from someone and 21.2% bought them from a store themselves.
- Among those who reported buying from a store, *tobacco or smoke shops* (51.9%) and *vape shops* (29.4%) were the most popular store types for purchasing vapes.
- One-quarter (25.6%) of all students were offered a vape in the last 30 days, with about one in six (17.3%) of those who had never used vapes having been offered one.

Marijuana and Tobacco Co-Use

- Almost one-third (32.7%) of high school students in Sacramento County reported having tried marijuana, while 16.2% reported using it in the last 30 days.
- The rate of currently using marijuana (16.2%) was higher than that of all tobacco products (10.1%).
- Half of current marijuana users (49.4%) co-used marijuana with a tobacco product.

LIST OF TERMS

Tobacco Products and Marijuana

Vapes: Electronic devices like vape pens, e-cigarettes, e-hookah, hookah pens, e-vaporizers, tanks, pods, or mods used to inhale a vapor. Can be used to vape many things, like nicotine, marijuana, or just flavoring. Popular brands are Juul, Suorin, SMOK, Starbuzz E-Hookah, Zodiac Constellation, Stiiizy, Brass Knuckles, and Heavy Hitters. Questions about hookah pens were asked separately to ensure that students who reported using a hookah pen, but not a vape were captured. For prevalence estimates in this report, vape use included students who reported vaping or using a hookah pen with nicotine or just flavoring (not vaping marijuana).

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

Little cigars or cigarillos (LCC): Tobacco wrapped in tobacco leaf or brown paper, about the size of a cigarette. May be flavored. Popular brands are Swisher Sweets, Backwoods, Dutch Masters, Captain Black, Prime Time, White Owl, and Black & Mild. Little cigars or cigarillos were abbreviated to LCC throughout this report.

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

Hookah: Water pipe used to smoke tobacco (shisha) or something else. Popular brands are Starbuzz, Al Fakher, Samba, Fumari, Nakhla, 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 was abbreviated to smokeless throughout this report.

Heated tobacco products (HTP; also known as heat-not-burn tobacco products): Tobacco in the form of heat-sticks or capsules that is heated, instead of being combusted or burned, using an electronic device. These are different from vapes because they include tobacco. Popular brands include iQOS, glo, and Ploom Tech. For prevalence estimates in this report, HTP use was limited to students who reported the use of a known HTP brand because of 1) the possible confusion among respondents in differentiating HTP from vapes; and 2) the limited and identifiable number of HTP brands at the time of survey administration. Heated tobacco products were abbreviated to HTP throughout this report.

Marijuana (including joints, blunts, vapes, and edibles): Commonly known as cannabis, weed, pot, hash, grass, THC, or CBD. It can be smoked (joint, blunt, bong), vaped, eaten (baked goods, candies), drank (tea, cola, alcohol), or dabbed. For prevalence estimates in this report, marijuana use included students who reported using marijuana in any of these ways. It also included those who reported using marijuana “in some other way.”

Product Use

Ever use: Used within a lifetime.

Current use: Used within the last 30 days.

Poly use: Used two or more tobacco products within the last 30 days.

Flavored tobacco product use: Used a flavored tobacco product within the last 30 days.

Mint/menthol flavored product use: Used any menthol-flavored cigarettes (the only flavor available for cigarettes) or used mint flavor most often when using any other flavored tobacco product within the last 30 days.

Co-use: Used marijuana and at least one tobacco product within the last 30 days. For this report, co-use was not limited to the simultaneous use of products.

Never user: A student who reported never using the tobacco product(s).

Former user: A student who reported ever using the tobacco product(s), but not within the last 30 days (this included those who had quit using).

Current user: A student who reported using the tobacco product(s) within the last 30 days.

Other Terms

Identified in another way: Respondents who reported their gender identity as:

- *female-to-male (FTM)/transgender male/trans man*;
- *male-to-female (MTF)/transgender female/trans woman*;
- *genderqueer, neither exclusively male nor female*; or
- *additional gender category or other*.

Sexual and/or gender minority (SGM): Respondents who were categorized as identifying their gender in another way (see above definition) and/or reported their sexual orientation as:

- *lesbian, gay, or homosexual*;
- *bisexual*;
- *something else*; or
- did not know their sexual orientation.

Non-SGM: Respondents who reported:

- their gender identity as *male* / *female;* and
- their sexual orientation as *straight or heterosexual*.

Unclear SGM status: Respondents who did not provide enough information about their gender identity and/or sexual orientation to classify their SGM status. This included those who:

- identified as binary (*male* / *female*) / chose not to disclose their gender identity, and did not know / chose not to disclose their sexual orientation; or

- chose not to disclose their gender identity, and identified their sexual orientation as *straight or heterosexual*.

Hispanic: Responded *yes* to the ethnic question: "Are you of Spanish or Hispanic (Latino or Latina) origin?", regardless of race(s) reported.

Non-Hispanic single race (American Indian or Alaska Native [AI/AN]; Asian; African American/Black; Native Hawaiian or Other Pacific Islander [NHOPI]; White): Responded *no* to the ethnicity question (see above definition) and reported one of the following races: *American Indian or Alaska Native*; *Asian*; *Black or African American*; *Native Hawaiian or Other Pacific Islander*; or *White*, when asked "How do you describe yourself?"

Multiple race: Responded *no* to the ethnicity question and reported two or more races.

Other race: Responded *no* to the ethnicity question and reported *Other* race. Non-Hispanic AI/AN and NHOPI were also categorized as Other race due to the small sample sizes.

General mental health: Responded good to excellent (*good*, *very good*, or *excellent*), *fair*, or *poor* to the question: "In general, how would you rate your mental health?"

Complete home ban on vaping: Indicated that *vaping is not allowed anywhere or at any time inside my home* when asked about the rules about vaping inside their home.

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

Exposure to secondhand vapor in a room: Indicated being in a room *when someone was using a vape* in the last 2 weeks.

Exposure to secondhand vapor in a car: Indicated being in a car *when someone was using a vape* in the last 2 weeks.

Exposure to secondhand tobacco smoke in a room: Indicated being in a room *when someone was smoking a cigarette, little cigar, or cigarillo* in the last 2 weeks.

Exposure to secondhand tobacco smoke in a car: Indicated being in a car *when someone was smoking a cigarette, little cigar, or cigarillo* in the last 2 weeks.

Offers of tobacco products: Responded yes to the question: "In the last 30 days, has ANYONE offered you" tobacco products (vapes).

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

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

- Among high school students in Sacramento County, 28.2% had ever used any tobacco product in their lifetime, with 10.1% classified as current users (i.e., used in last 30 days).
- Vapes were the most popular tobacco product, with 23.4% of students having ever used them and 8.2% being current users.
- More than half of current vapers reported using vapes infrequently.
- Only 6.5% of students reported ever smoking cigarettes, with 1.4% classified as current smokers.
- LCC were the most used combustible tobacco product, with 3.2% of students being current users.
- Current use of all other tobacco products (big cigars, hookah, and smokeless tobacco) was very low. This was generally true across gender, race/ethnicity, and grade.
- Over one-quarter (28.7%) of current tobacco users reported using more than one tobacco product.
- Students who rated their mental health as poor had twice the current tobacco use prevalence (15.8%) compared to those who rated their mental health as good to excellent (7.7%).

Tobacco Product Categories

Since the previous survey in 2017-18, e-cigarette devices and the language used to refer to these devices changed rapidly. To increase the validity of these questions, the term “e-cigarette” was replaced with “vape” in the 2019-20 CSTS. The accompanying image and definition of vapes were also updated to include common devices and brands. Since these devices can be used to vape different substances, the survey included separate questions on vaping nicotine, marijuana, and just flavoring to determine prevalence estimates. Some questions asked about vapes more generally (e.g., questions about perceptions, exposure to secondhand vapor). Questions about hookah pens were asked separately to ensure that students who reported using a hookah pen, but not a vape were captured. For the prevalence estimates included in this report, vape use included students who reported vaping or using a hookah pen with nicotine or just flavoring. Due to the changes to this measure, vape data presented in this report are not directly comparable to e-cigarette data from earlier CSTS cycles.

Heated tobacco products (HTP), new to the U.S. market in 2019, were included in the 2019-20 CSTS for the first time. Only those users who reported the use of a known HTP brand were defined as HTP users because of 1) the possible confusion among respondents in differentiating HTP from

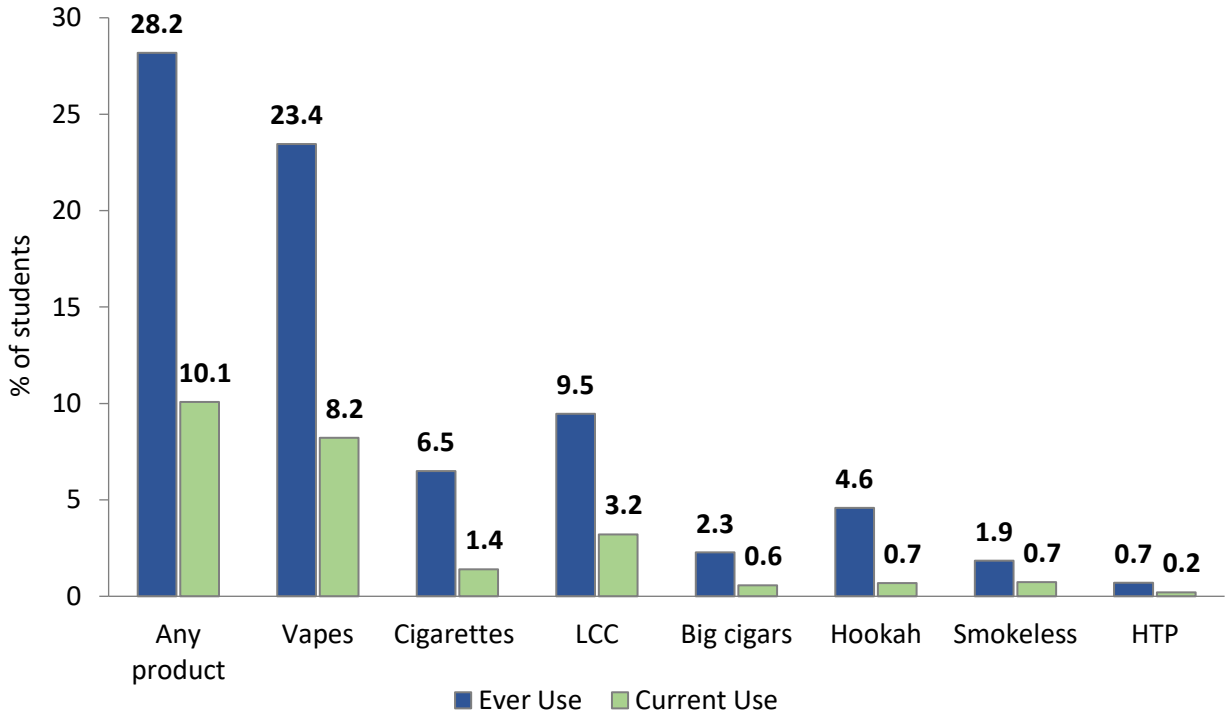
vapes; and 2) the limited and identifiable number of HTP brands at the time of survey administration.

Tobacco Product Use Among High School Students

Figure 1 presents ever and current use of tobacco products among high school students. *Ever* use is defined as use within a lifetime and *current use* is defined as use within the last 30 days. In Sacramento County, 28.2% of high school students had tried any tobacco product, while 10.1% reported currently using a tobacco product (Figure 1). In both cases, the majority of use was attributed to vapes, with 23.4% of students having ever vaped and 8.2% reporting current use. By contrast, only 6.5% of students had ever tried cigarettes and 1.4% reported currently smoking them. LCC were the most popular combustible tobacco product, with 9.5% of students having ever used them and 3.2% being current users. Rates of current use for any other tobacco product were less than 1.0%.

Due to the low prevalence of use for all tobacco products besides vapes and the resulting instability of estimates, subgroup analyses in this report were limited. Specifically, HTP was not reported in subgroup analyses and, in some cases, only vape data were reported. However, HTP use was included in the overall estimates of tobacco use

Figure 1. Prevalence of ever and current use of tobacco products among high school students



Note: Refer to Table A in Appendix C – Supplementary Tables to view estimates with confidence intervals.
Abbreviations: LCC = little cigars or cigarillos; HTP = heated tobacco products.

Demographic Categories

For race/ethnicity, survey participants were first grouped by whether they were of Spanish or Hispanic (Latino) origin (ethnicity). Those 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. Due to the small sample sizes for some of the racial/ethnic groups in the survey, *Native Hawaiian or other Pacific Islander*, *American Indian or Alaska Native*, and non-standard entries were all combined in the *Other* category in this report.

For the question on gender, the following response options were provided in addition to *male* and *female*: *female-to-male (FTM)/transgender male/trans man*; *male-to-female (MTF)/ transgender female/trans woman*; *genderqueer, neither exclusively male nor female;* and *additional gender category or other*. Students could also select *choose not to disclose*. For this report, response options other than *male*, *female*, and *choose not to disclose* were combined and classified as *identified in another way* due to the small sample sizes. Approximately 2.6% of participating students in Sacramento County indicated that they identified their gender in a way other than *male* or *female*, and 2.9% declined to answer the gender-identity question.

It should be noted that the previous, 2017-18 CSTS included an option for *I prefer not to answer* throughout the survey, with the percentages of students endorsing this option varying considerably. In the 2019-20 CSTS, this response option was removed from all questions except those asking about students' gender identity and sexual orientation. As a result, data on demographic subgroups presented in this report are not directly comparable to those from the 2017-18 CSTS.

Prevalence of Tobacco Use by Demographics

Tobacco use among high school students in Sacramento County was examined across participant demographics. Table 1 shows that there were no significant differences in use behavior between male and female students, with roughly one out of ten male and female students currently using any tobacco product. Students who identified their gender in another way or declined to answer tended to have higher rates of use.

By race/ethnicity, White students had the highest rate of current tobacco use (16.4%). Students of Other and Multiple race/ethnicity had the second-highest rates of current use (each 9.9%) followed by Hispanic (9.8%) and African American/Black (8.2%) students. Asian students had the lowest rate of current use (4.2%).

Tobacco use was higher among 12th graders (11.3%) compared to 10th graders (8.9%, $p<0.01$).

Table 1. Prevalence of tobacco use by gender, race/ethnicity, and grade among high school students

	N	Ever use % (95% CI)	Current use % (95% CI)
Overall	5520	28.2 (23.5-32.9)	10.1 (6.8-13.4)
Gender			
Male	2448	26.6 (21.2-31.9)	9.3 (5.6-12.9)
Female	2685	28.6 (24.1-33.1)	9.5 (6.6-12.5)
Identified in Another Way	139	32.7 (23.3-42.2)	15.4 (6.7-24.2)
Declined to Answer	166	35.9 (24.1-47.7)	17.5 (8.3-26.7)
Race/Ethnicity			
White	1077	37.3 (31.9-42.7)	16.4 (11.0-21.9)
African American/Black	327	25.3 (20.3-30.3)	8.2 (4.7-11.7)
Hispanic	1769	29.1 (24.7-33.5)	9.8 (6.8-12.8)
Asian	1286	18.3 (14.3-22.3)	4.2 (2.8-5.6)
Other	332	31.7 (24.1-39.2)	9.9 (6.9-12.8)
Multiple	647	26.2 (20.8-31.5)	9.9 (7.0-12.8)
Grade			
Grade 10	2952	25.0 (20.9-29.2)	8.9 (5.9-11.9)
Grade 12	2568	31.5 (25.7-37.3)	11.3 (7.5-15.2)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

Use of Specific Tobacco Products by Demographics

Table 2 shows the rates of overall tobacco use, as well as the use of specific tobacco products by gender among high school students. Male and female students had similar overall tobacco use rates. However, male students tended to use cigarettes, big cigars, hookah, and smokeless at higher rates than females, while the latter tended to use vapes at a higher rate. Use of LCC was similar between male and female students. Those who declined to answer had the highest rates of use for all tobacco products, followed by those who identified their gender in another way.

Table 2. Prevalence of current tobacco product use by gender among high school students

	Male N=2448 % (95% CI)	Female N=2685 % (95% CI)	Identified in Another Way N=139 % (95% CI)	Declined to Answer N=166 % (95% CI)
Any of the below	9.3 (5.6-12.9)	9.5 (6.6-12.5)	15.4 (6.7-24.2)	17.5 (8.3-26.7)
Vapes	7.3 (3.9-10.8)	8.0 (5.2-10.9)	10.4 (2.5-18.4)†	15.5 (6.5-24.6)
Cigarettes	1.2 (0.5-1.9)†	0.9 (0.3-1.6)†	3.2 (0.0-6.7)†	7.6 (2.3-12.8)†
LCC	2.7 (1.6-3.9)	2.6 (1.7-3.4)	8.0 (4.7-11.3)	10.5 (4.3-16.6)†
Big cigars	0.5 (0.2-0.8)	0.1 (0.0-0.2)†	3.1 (0.0-6.6)†	5.2 (2.5-7.8)
Hookah	0.5 (0.2-0.8)	0.3 (0.1-0.5)	3.2 (0.0-6.7)†	6.2 (3.1-9.4)
Smokeless	0.7 (0.2-1.2)†	0.1 (0.0-0.3)†	3.1 (0.0-6.6)†	6.8 (3.0-10.5)

Abbreviations: LCC = little cigars or cigarillos.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Table 3 presents the current use of tobacco products by race/ethnicity. Differences in the use of specific tobacco products tended to replicate differences in the overall rates of use (e.g., White students had the highest rate of overall tobacco use, as well as the highest use of some tobacco products), although there were some exceptions. For example, although African American/Black students did not have the highest overall current use rate, this group had the highest use of LCC (5.5%). Another difference was shown in current hookah use, where students reporting Other race/ethnicity had the highest rate of use (1.8%).

Table 3. Prevalence of current tobacco product use by race/ethnicity among high school students

	White	African American/Black	Hispanic	Asian	Other	Multiple
	N=1077	N=327	N=1769	N=1286	N=332	N=647
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Any of the below	16.4 (11.0-21.9)	8.2 (4.7-11.7)	9.8 (6.8-12.8)	4.2 (2.8-5.6)	9.9 (6.9-12.8)	9.9 (7.0-12.8)
Vapes	14.6 (8.9-20.2)	5.8 (2.9-8.7)	7.4 (4.6-10.2)	3.8 (2.4-5.2)	6.6 (3.4-9.8)	7.8 (4.9-10.7)
Cigarettes	2.5 (1.3-3.8)	0.4 (0.0-1.0)†	1.2 (0.5-2.0)†	0.4 (0.0-0.8)†	1.2 (0.1-2.3)†	1.5 (0.6-2.4)†
LCC	3.7 (2.0-5.4)	5.5 (3.0-7.9)	3.7 (2.6-4.8)	0.7 (0.1-1.3)†	2.9 (1.3-4.6)	3.6 (2.0-5.2)
Big cigars	0.8 (0.4-1.2)	0.5 (0.0-1.5)†	0.7 (0.2-1.3)†	0.1 (0.0-0.3)†	0.5 (0.0-1.0)†	0.4 (0.1-0.7)†
Hookah	0.8 (0.3-1.3)†	0.3 (0.0-0.8)†	0.7 (0.2-1.2)†	0.1 (0.0-0.3)†	1.8 (0.8-2.9)	0.7 (0.2-1.2)†
Smokeless	1.7 (0.6-2.8)†	0.5 (0.0-1.5)†	0.7 (0.2-1.2)†	0.1 (0.0-0.2)†	0.5 (0.0-1.0)†	0.5 (0.1-0.9)†

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

Abbreviations: LCC = little cigars or cigarillos.

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

Table 4 presents the current use of tobacco products by grade among high school students. As expected, current use of tobacco products tended to increase with grade. Vapes were consistently the most popular product used by both 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 among high school students

	Grade 10 N=2952 % (95% CI)	Grade 12 N=2568 % (95% CI)
Any of the below	8.9 (5.9-11.9)	11.3 (7.5-15.2)
Vapes	7.1 (4.0-10.1)	9.4 (5.9-13.0)
Cigarettes	0.9 (0.4-1.4)†	2.0 (0.8-3.1)
LCC	2.6 (1.8-3.3)	3.9 (2.6-5.2)
Big cigars	0.4 (0.2-0.7)	0.7 (0.4-1.1)
Hookah	0.4 (0.1-0.7)†	1.0 (0.6-1.3)
Smokeless	0.5 (0.1-0.8)†	1.0 (0.5-1.5)

Abbreviations: LCC = little cigars or cigarillos.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Use of Specific Tobacco Products by Sexual and/or Gender Minority Status

Students were asked to indicate their sexual orientation and gender identity in two separate questions. Using responses from these questions, three groups were created: a sexual and/or gender minority (SGM) group, a non-SGM group, and an unclear SGM status group (see List of Terms). Table 5 presents current tobacco product use by SGM status. Students who identified as SGM had the highest rate of overall tobacco use (15.3%), followed by those who did not identify with this group (9.2%) and those whose SGM status was unclear (7.1%). Consistent with previous results, vapes were the most commonly used products across all groups, followed by LCC.

Table 5. Prevalence of current tobacco product use by SGM status among high school students

	SGM N=802 % (95% CI)	Non-SGM N=3977 % (95% CI)	Unclear SGM Status N=640 % (95% CI)
Any of the below	15.3 (10.5-20.2)	9.2 (5.9-12.5)	7.1 (3.6-10.5)
Vapes	11.2 (6.6-15.8)	7.8 (4.5-11.0)	5.6 (2.7-8.5)
Cigarettes	3.1 (0.9-5.4)†	0.8 (0.4-1.3)	1.9 (0.4-3.3)†
LCC	6.5 (4.7-8.3)	2.5 (1.6-3.3)	2.5 (1.2-3.7)
Big cigars	1.1 (0.3-1.8)†	0.3 (0.1-0.4)	1.4 (0.4-2.5)†
Hookah	1.3 (0.4-2.2)†	0.4 (0.2-0.6)	1.3 (0.5-2.1)†
Smokeless	1.4 (0.6-2.3)	0.5 (0.1-0.8)†	1.3 (0.6-2.0)

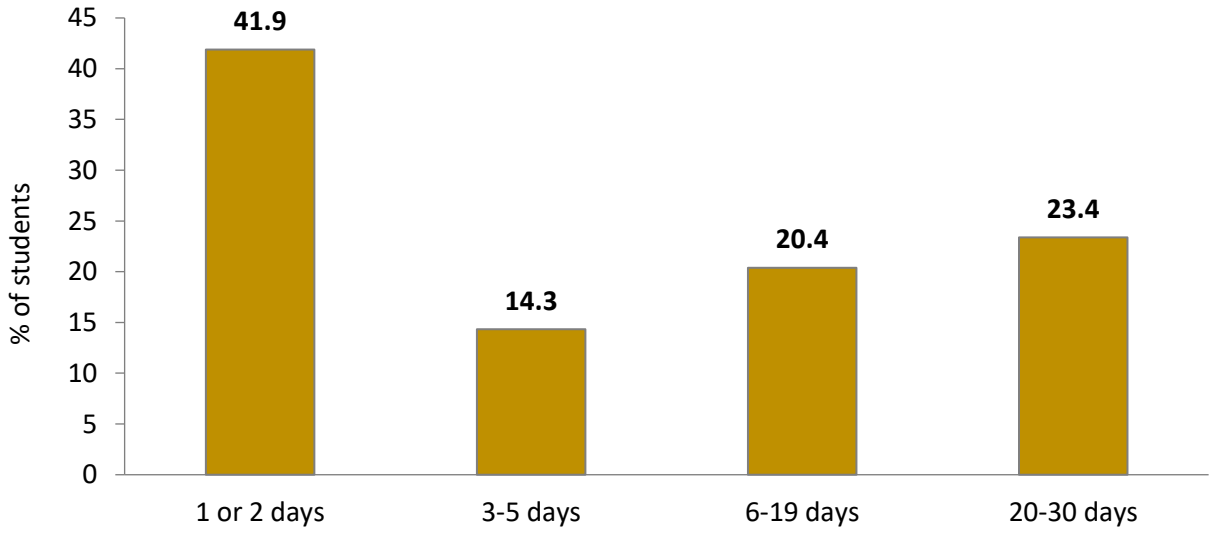
Abbreviations: LCC = little cigars or cigarillos.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Frequency of Current Vape Use

The 2019-20 CSTS asked current users of a tobacco product to indicate how many days they used the product within the last 30 days. Figure 2 presents the frequency of vape use among current vapers. Data were restricted to vapes due to the small sample sizes and resulting instability of estimates for other tobacco products.

More than half of current vapers reported infrequent usage: 56.2% reported using vapes on either 1–2 days or 3–5 days (41.9% + 14.3% = 56.2%) in the last 30 days. Nearly one in four (23.4%) students used vapes on 20 or more days of the past 30 days.

Figure 2. Frequency of current vape use among those high school students who were current vapers



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

Multiple Tobacco Product Use

Table 6 presents the current use of multiple products, often referred to as poly use, by participant demographics. Overall, 2.9% of students reported using two or more tobacco products, representing over one-quarter of current users (2.9% / 10.1% = 28.7%). Differences in poly use by demographic characteristics varied in ways one would expect based on tobacco use behavior (i.e., those who had higher rates of using specific products were also the ones who had higher rates of poly use). For example, those who declined to answer the gender-identity question had higher rates of poly use than male and female students.

Table 6. Prevalence of current use of at least one product and of multiple tobacco products by gender, race/ethnicity, and grade among high school students

	N	Used at least one product % (95% CI)	Used two or more tobacco products % (95% CI)
Overall	5520	10.1 (6.8-13.4)	2.9 (1.8-3.9)
Gender			
Male	2448	9.3 (5.6-12.9)	2.8 (1.6-3.9)
Female	2685	9.5 (6.6-12.5)	2.0 (1.0-3.0)
Identified in Another Way	139	15.4 (6.7-24.2)	3.6 (0.2-7.1)†
Declined to Answer	166	17.5 (8.3-26.7)	12.0 (5.5-18.5)
Race/Ethnicity			
White	1077	16.4 (11.0-21.9)	4.6 (3.3-6.0)
African American/Black	327	8.2 (4.7-11.7)	3.2 (1.1-5.3)†
Hispanic	1769	9.8 (6.8-12.8)	2.5 (1.3-3.8)
Asian	1286	4.2 (2.8-5.6)	0.7 (0.2-1.3)†
Other	332	9.9 (6.9-12.8)	2.7 (0.9-4.4)†
Multiple	647	9.9 (7.0-12.8)	3.2 (2.3-4.1)
Grade			
Grade 10	2952	8.9 (5.9-11.9)	1.8 (1.1-2.5)
Grade 12	2568	11.3 (7.5-15.2)	4.0 (2.1-5.9)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

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

Tobacco Use by General Mental Health

Table 7 presents students' ever and current tobacco use according to reported general mental health (see List of Terms). Students who rated their mental health as poor had the highest rate of current tobacco use (15.8%), followed by those who rated their mental health as fair (12.3%). Students who rated their mental health as good to excellent had the lowest current use rate (7.7%).

Table 7. Prevalence of tobacco use by general mental health among high school students

	N	Ever use % (95% CI)	Current use % (95% CI)
Good to excellent	3437	23.7 (20.0-27.3)	7.7 (4.9-10.5)
Fair	1217	33.0 (24.8-41.2)	12.3 (7.6-17.1)
Poor	797	39.7 (34.5-45.0)	15.8 (11.4-20.2)

CHAPTER 2 – Use of Flavored Tobacco Products

Highlights

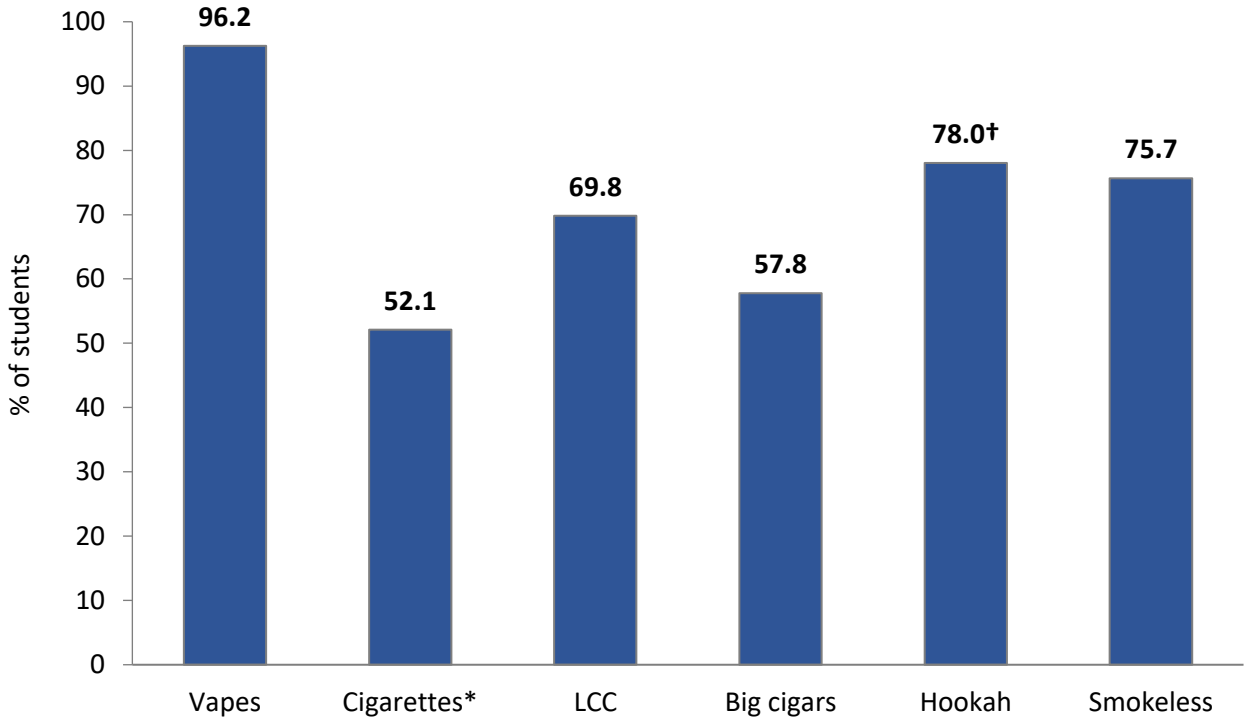
- The vast majority (89.1%) of high school students in Sacramento County who were current tobacco users reported using a flavored tobacco product.
- The highest use of flavored tobacco products was among current vapers (96.2%), hookah users (78.0%), and smokeless tobacco users (75.7%).
- Half of current cigarette smokers (52.1%) reported using menthol cigarettes in the last 30 days.
- The use of *fruit* (62.7%) flavor was reported most frequently by current vapers.

This chapter presents the proportion of current tobacco users who used flavored products. The use of flavored tobacco products is a concern because it may increase susceptibility, initiation, and progression to regular use.[4–6] It also presents the use of specific flavors. It should be noted that the flavored vape use reported in this chapter includes students who reported using flavored vapes with nicotine or vapes with just flavoring.

Flavored Tobacco Product Use

Overall, 89.1% of students in Sacramento County who were current tobacco users reported using a flavored tobacco product in the last 30 days (data not shown in figure). Use of flavored products was widespread across *all* tobacco products (Figure 3). The most prevalent flavored tobacco product was vapes (96.2%). Use of flavored hookah (78.0%) and smokeless tobacco (75.7%) were also common. Of note, more than half of cigarette smokers (52.1%) reported using menthol cigarettes in the last 30 days, where menthol is the only flavor available.

Figure 3. Proportion using flavored tobacco products among those high school students who were current users of a given tobacco product



Note: Refer to Table C in Appendix C – Supplementary Tables to view estimates with confidence intervals.
Abbreviations: LCC = little cigars or cigarillos.
**Menthol* was the only available flavor for cigarettes
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Flavored Tobacco Use by Demographics

Table 8 presents the current use of any flavored tobacco product by participant demographics. Across gender, race/ethnicity, and grade, the large majority of current users reported using a flavored tobacco product in the last 30 days.

Table 8. Proportion using flavored tobacco among those high school students who were current tobacco users, by gender, race/ethnicity, and grade

	N	Current use % (95% CI)
Overall	583	89.1 (85.7-92.5)
Gender		
Male	245	88.1 (83.0-93.3)
Female	263	90.1 (86.4-93.8)
Identified in Another Way	23	79.6 (65.1-94.1)†
Declined to Answer	31	100.0
Race/Ethnicity		
White	187	92.6 (90.2-95.0)
African American/Black	31	79.3 (65.5-93.1)†
Hispanic	185	85.7 (80.6-90.7)
Asian	59	92.2 (85.4-99.0)†
Other	34	97.2 (92.5-100.0)†
Multiple	67	85.8 (70.8-100.0)†
Grade		
Grade 10	279	89.5 (84.7-94.3)
Grade 12	304	88.7 (86.0-91.5)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Use of Specific Vape 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*, *candy or sweet, mint*, *liquor*, *tobacco*, and *other*. Due to the small sample sizes, *alcohol or liquor* and *other* flavors were combined. Only the specific flavors used by current vapers were presented due to the small sample sizes and resulting instability of estimates for other tobacco products.

As shown in Table 9, *fruit* flavor was by far the most popular. In fact, 62.7% of vape users in Sacramento County indicated preferring to use fruit flavor. *Candy or sweet* (14.5%) and *mint* (13.0%) flavors were less popular than *fruit*. Few students reported using *tobacco* or *other* flavored vapes (3.9% and 5.9%, respectively).

Table 9. Proportion using flavored vapes among those high school students who were current vapers, by flavor type

	Vapes N=461 % (95% CI)
Fruit	62.7 (56.3-69.2)
Candy or sweet	14.5 (10.2-18.7)
Mint	13.0 (5.6-20.3)
Tobacco	3.9 (0.8-7.0)†
Other*	5.9 (4.6-7.3)

Note: Students who (1) vaped just flavoring, (2) vaped nicotine, or (3) used a hookah pen with nicotine or just flavoring, were asked about their use of flavor for each product. If students used at least two of the above, their flavor type was considered in the following order: the flavor type they used when they (1) vaped just flavoring, (2) vaped nicotine, (3) used a hookah pen with nicotine or just flavoring.
*_Alcohol or liquor_ and _other_ flavors were combined.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

CHAPTER 3 – Perceptions of Vaping and Smoking

Highlights

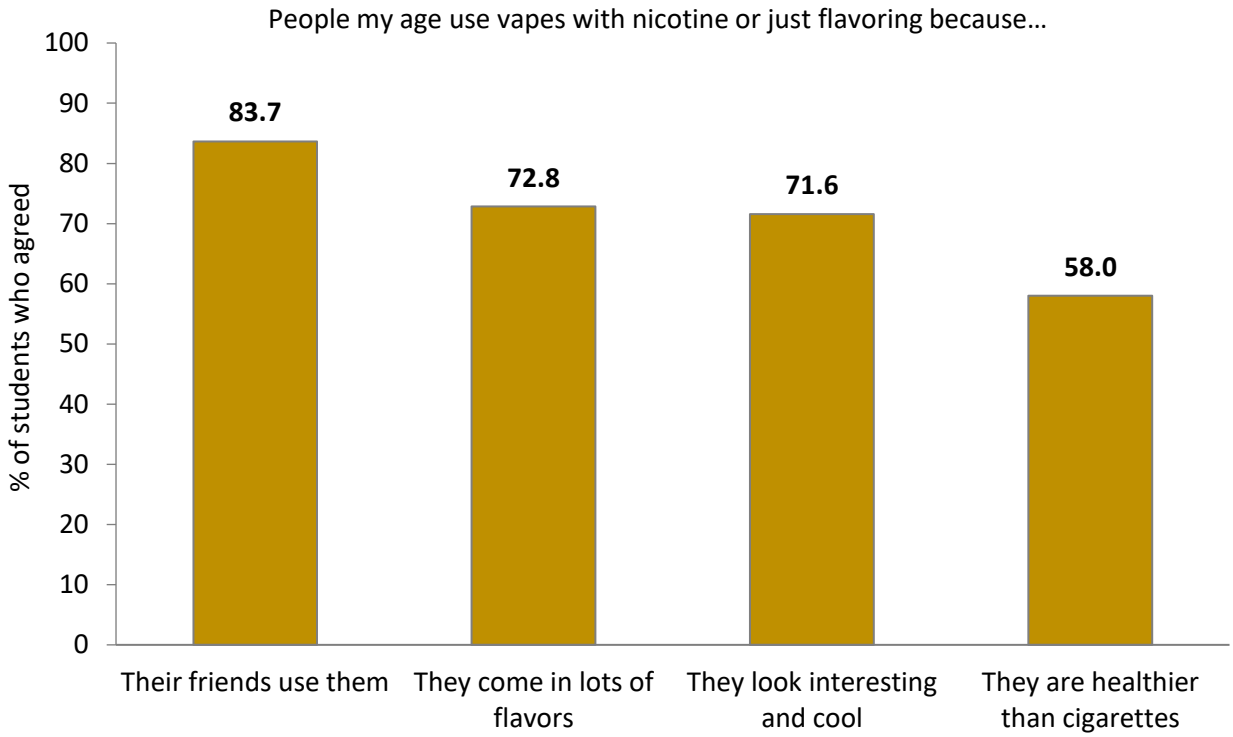
- Most students (83.7%) agreed that the reason people their age used vapes with nicotine or just flavoring was because their friends did.
- Almost all students believed adults important to them would feel negatively about the student vaping (95.9%) or smoking cigarettes (96.3%) .
- The large majority of students believed their close friends and other students at school would view smoking negatively (91.2% and 81.5%, respectively).
- About three-fourths of students (73.7%) believed that their close friends would view vaping negatively, while less than half (46.3%) believed other students at school would.
- About three-fourths of students believed that vaping companies were part of the tobacco industry (77.0%) and that tobacco companies targeted people their age by advertising flavored tobacco products in stores and on social media (73.4%).

Perceived social norms have an important influence on tobacco use behavior, particularly among youth. Perceptions of peer and adult attitudes towards tobacco use can influence a student's use. This chapter presents data on the perceived reasons for vaping among students. It also presents data on how students believed adults, peers or classmates, and friends perceived vaping and smoking cigarettes. Finally, students' opinions of the tobacco industry are reported. It should be noted that the questions about vapes reported in this chapter specified the type of substance in the vape (e.g., nicotine or just flavoring).

Perceived Reasons for Vaping

Students were asked about their level of agreement with four reasons why people their age used vapes with nicotine or just flavoring. Figure 4 shows the percentage of students who *strongly agreed* or *somewhat agreed* with each reason. The large majority of students (83.7%) agreed that people their age vaped because their friends did. Many students also agreed that people their age used vapes because they came in lots of flavors (72.8%) and looked interesting and cool (71.6%). Over half (58.0%) agreed that people their age used vapes because they were healthier than cigarettes.

Figure 4. Perceived reasons for vaping among high school students



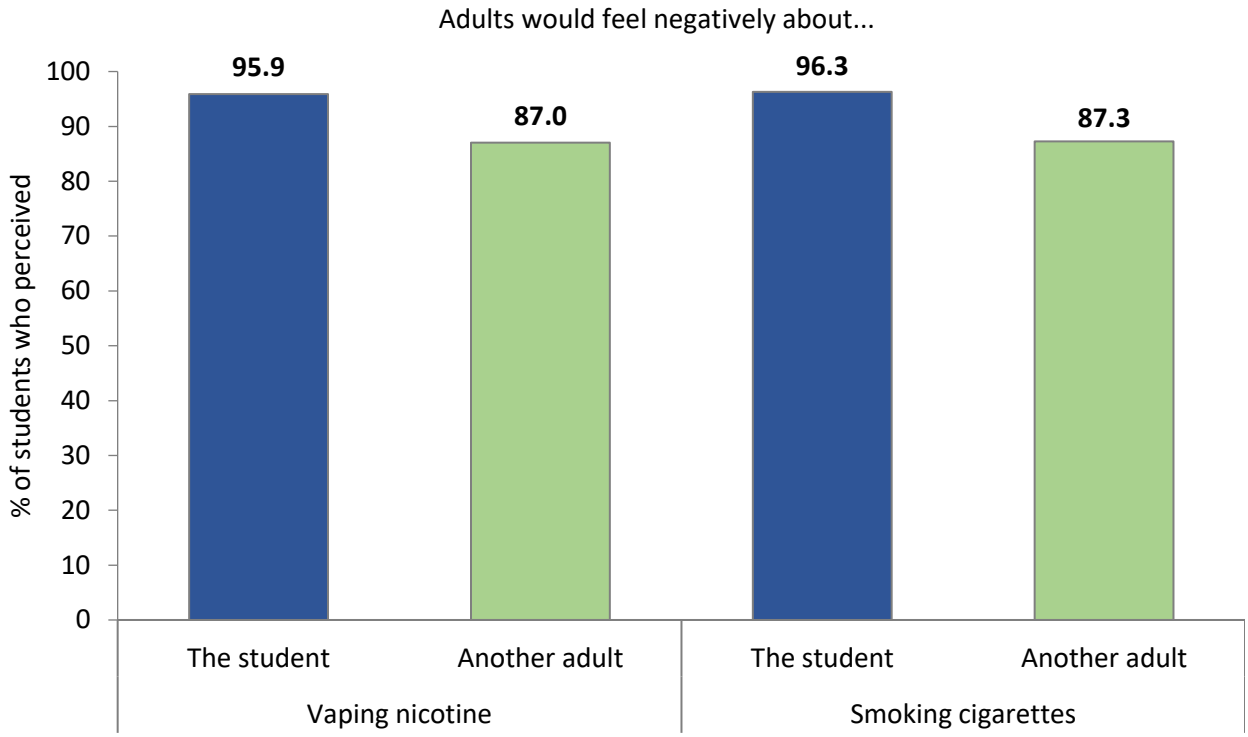
Note: Refer to Table D in Appendix C – Supplementary Tables to view estimates with confidence intervals.

Perceptions of Adults' Views on Vaping and Smoking

Students were asked how adults who were important to them (such as parents, teachers, coaches, or relatives) would feel about them vaping nicotine. They were also asked how the same adults would feel about another adult vaping nicotine. Response options included *very positive*, *positive*, *negative*, and *very negative*. The same questions were asked about smoking cigarettes.

Figure 5 presents the percentage of students who reported that an adult important to them would feel negatively (*negative* and *very negative*) about the student or another adult vaping or smoking cigarettes. Almost all students thought adults important to them would feel negatively about the student vaping and smoking cigarettes (95.9% and 96.3%, respectively). The large majority also thought these adults would feel negatively about another adult vaping and smoking cigarettes (87.0% and 87.3%, respectively).

Figure 5. Percentage of high school students who believed that adults would feel negatively about them or another adult if they vaped or smoked



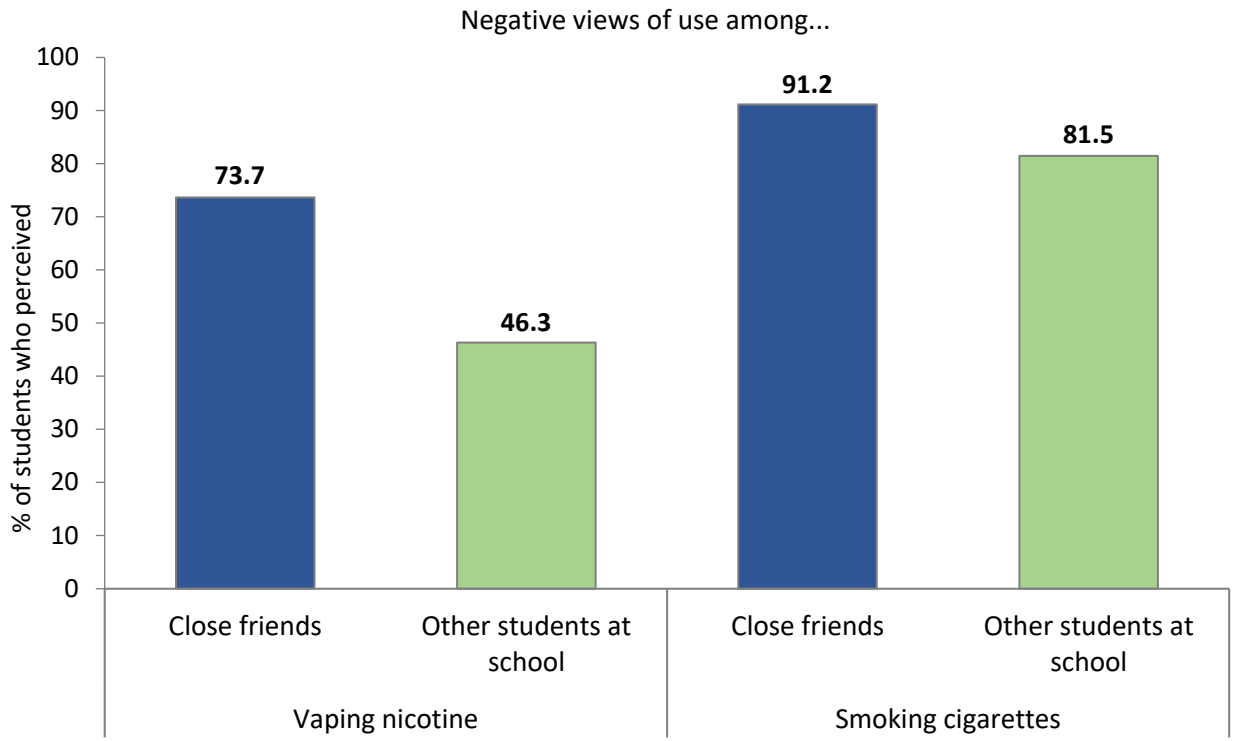
Note: Refer to Table E in Appendix C – Supplementary Tables to view estimates with confidence intervals.

Perceptions of Peers' Views on Vaping and Smoking

Students were asked how they would describe their close friends' views on using vapes with nicotine. They were also asked to describe the views of students at their school. Response options included: *very positive*, *positive*, *negative*, and *very negative*. The same questions were asked about smoking cigarettes.

Figure 6 presents the percentage of students who believed that their close friends or other students at their school would view vaping nicotine or smoking cigarettes negatively (*negative* and *very negative*). Almost three-quarters of students (73.7%) believed that their close friends viewed vaping negatively. However, less than half (46.3%) thought other students at their school would view vaping negatively. Greater percentages of students thought that their close friends (91.2%) and other students at their school (81.5%) viewed smoking cigarettes negatively.

Figure 6. Percentage of high school students who believed that their close friends or other students at their school would view vaping or smoking negatively



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

Opinions of the Tobacco Industry

Table 10 shows the percentage of students who *strongly agreed* or *somewhat agreed* with three statements about the tobacco industry. Overall, about three-quarters of students believed that vaping companies were part of the tobacco industry (77.0%) and that tobacco companies targeted people their age by advertising flavored tobacco products in stores and on social media (73.4%). The majority of students (59.1%) believed that tobacco companies targeted people their age by selling tobacco products near schools.

Table 10. Opinions of the tobacco industry by use status among high school students

	Agreed	
	N	**% (95% CI)**
Vaping companies are part of the tobacco industry	5428	77.0 (74.3-79.7)
Tobacco companies target people my age by advertising flavored cigarettes, LCC, or vapes in stores and on social media	5434	73.4 (71.4-75.3)
Tobacco companies target people my age by selling cigarettes, LCC, or vapes in stores near schools	5435	59.1 (56.5-61.7)

CHAPTER 4 – Secondhand Exposure and Other Environmental Influences

Highlights

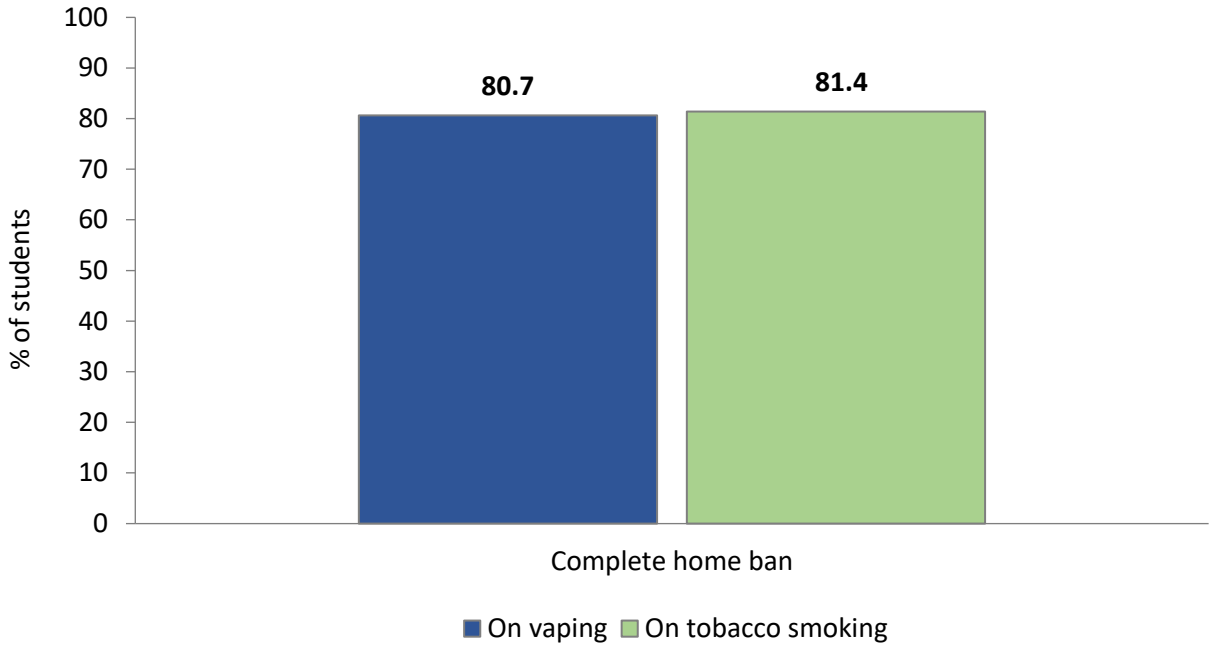
- Most high school students reported living in a home that had complete bans on tobacco smoking (81.4%) and vaping (80.7%).
- Over one in five (22.9%) students were exposed to secondhand vapor in a room within the last 2 weeks. Students' secondhand tobacco smoke (10.4%) was much lower. Exposure to secondhand vapor (13.9%) and tobacco smoke (8.1%) in a car in the last 2 weeks was also concerning.
- Just over one in five students reported that their parent or guardian had talked to them about the risks of vape (24.7%) and cigarette (22.6%) use in the last 30 days.
- Most students had been exposed to vape and cigarette ads (67.7% and 52.1%, respectively) in the last 30 days, with a greater percentage of students reporting ads they perceived to discourage rather than promote the use of the products.

This chapter focuses on several key environmental influences of tobacco use, all of which have been shown to affect use among youth.[7,8] It presents whether students had home bans on vaping and tobacco smoking and their exposure to secondhand vapor and tobacco smoke. It also presents the prevalence of exposure to advertisements (ads) promoting or discouraging vape and cigarette use in the last 30 days. It should be noted that the questions about vapes reported in this chapter asked about vapes generally and did not specify the substance in the vape (e.g., nicotine, marijuana, or just flavoring). As a result, responses could include exposure to vapes with marijuana.

Home Bans on Vaping and Tobacco Smoking

Home bans indicate whether the student's home environment explicitly discourages vaping and smoking cigarettes or other tobacco products. Using two separate questions, students were asked to indicate which statement best described the rules about *vaping* or *smoking cigarettes or other tobacco products* in their home (see List of Terms). Figure 7 shows that the large majority of students had a complete home ban on vaping and on tobacco smoking (80.7% and 81.4%, respectively).

Figure 7. Prevalence of complete home bans on vaping and tobacco smoking among high school students



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

Table 11 provides data on the rates of complete home bans on vaping and tobacco smoking by race/ethnicity. African American/Black students (72.9%) reported lower rates of home bans on vaping compared to White (82.0%, $p<0.05$), Hispanic (82.8%) and Asian (81.1%) students. A similar pattern of differences by racial/ethnic group was found for home bans on tobacco smoking.

Table 11. Prevalence of complete home bans on vaping and tobacco smoking by race/ethnicity among high school students

	Vaping ban		Tobacco smoking ban	
	N	% (95% CI)	N	% (95% CI)
Overall	5422	80.7 (77.3-84.0)	5417	81.4 (79.1-83.7)
White	1068	82.0 (74.3-89.6)	1067	83.5 (77.2-89.8)
African American/Black	324	72.9 (69.0-76.8)	321	70.3 (63.3-77.3)
Hispanic	1746	82.8 (80.0-85.6)	1751	83.6 (81.6-85.6)
Asian	1277	81.1 (77.0-85.1)	1275	81.4 (78.5-84.3)
Other	328	76.5 (70.8-82.2)	326	75.0 (70.5-79.5)
Multiple	645	77.4 (72.0-82.8)	644	81.0 (77.5-84.5)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

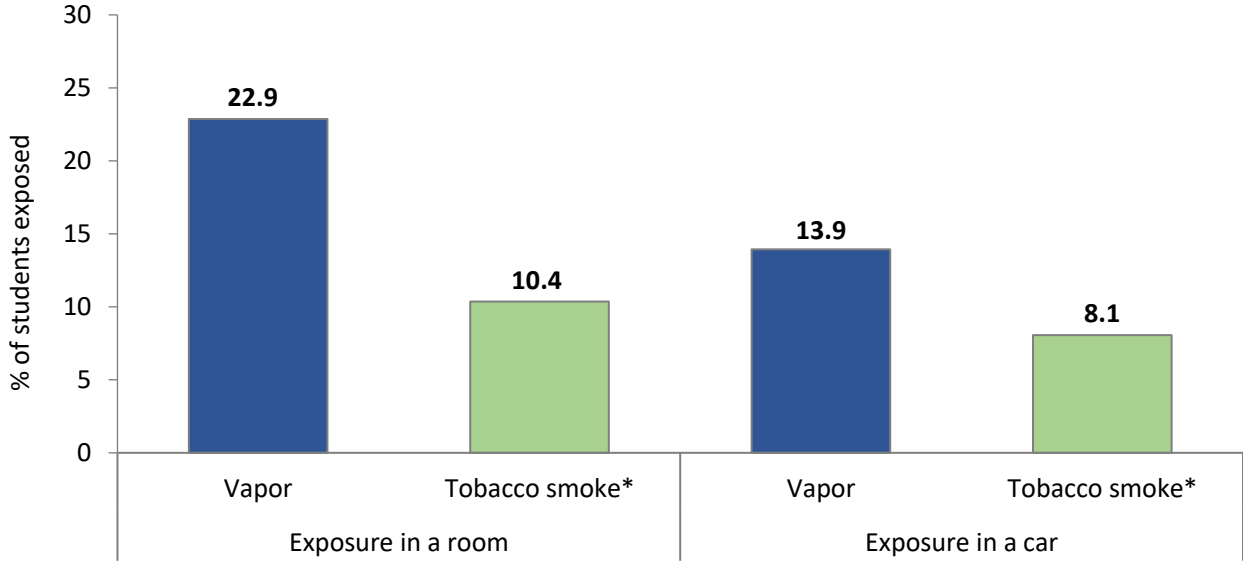
Exposure to Secondhand Vapor and Tobacco Smoke in the Last 2 Weeks

A primary avenue for achieving social norm change is through enactment of tobacco control policies, such as creating smoke-free environments. Creating smoke-free environments helps to change social norms, which reduces the chances of youth starting to smoke while encouraging smokers to quit or reduce their tobacco use.[9] Secondhand exposure to tobacco products is an important issue to Sacramento County, which has taken precautionary steps to restrict tobacco smoking and vaping in areas that may increase youth risk to secondhand smoke and vapor exposure.[10] However, 32.9% of students had still been exposed to secondhand vapor or tobacco smoke, in a room or in a car, within the last 2 weeks (data not shown in figure).

The 2019–20 CSTS asked students about secondhand exposure to vapor in a room: "In the last 2 weeks, were you in a room when someone was using a vape?" Another question asked about secondhand exposure to tobacco smoke in a room: "In the last 2 weeks, 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. It should be noted that the timeframe referenced in the question was changed in 2019-20, from "in the last 30 days" to the "in last 2 weeks." As a result, rates of secondhand exposure are not directly comparable to those of earlier CSTS surveys.

As shown in Figure 8, students reported being exposed to vapor and tobacco smoke in a room at higher rates compared to in a car. Secondhand exposure in a room within the last 30 days was higher for vapor than for tobacco smoke (22.9% and 10.4%, respectively). Similarly, students reported being exposed to vapor at a higher rate compared to tobacco smoke in a car (13.9% and 8.1%, respectively).

Figure 8. Prevalence of last 2-week exposure to vapor and tobacco smoke* in a room and car among high school students



Note: Refer to Table H in Appendix C – Supplementary Tables to view estimates with confidence intervals.
*Two products: Cigarettes and little cigars or cigarillos (LCC).

Exposure to Vape and Cigarette Prevention Messages at Home in the Last 30 Days

Table 12 presents students who reported that their parent or guardian had talked to them about the risks of vape and cigarette use in the last 30 days, by use status. Overall, just over one in five students reported that their parent or guardian talked to them about the risks of vape and cigarette use (24.7% and 22.6%, respectively). Current users reported that their parent or guardian talked to them about the risks of vape and cigarette use at the highest rates.

Table 12. Percentage of high school students whose parent/guardian talked to them about the risks of vape and cigarette use in the last 30 days, by use status

	Vapes		Cigarettes	
	N	% (95% CI)	N	% (95% CI)
Overall	5156	24.7 (20.0-29.3)	5155	22.6 (20.3-24.9)
Never users of the product	3956	23.5 (19.9-27.0)	4828	22.3 (19.8-24.9)
Former users of the product	759	23.9 (18.7-29.1)	252	25.3 (19.2-31.3)
Current users of the product	441	37.3 (25.0-49.7)	72	29.7 (16.7-42.7)

Exposure to Vape and Cigarette Ads in the Last 30 Days

Participants were asked whether they had seen ads that either promoted or discouraged the use of vapes or cigarettes within the last 30 days. Table 13 shows that students reported greater exposure to vape ads than cigarette ads (67.7% and 52.1%, respectively).

Table 13. Exposure to vape and cigarette ads in the last 30 days among high school students

	Overall exposure to tobacco-related ads N=5438 % (95% CI)
Vapes	67.7 (62.8-72.6)
Cigarettes	52.1 (49.0-55.1)

Those students who reported having seen ads for either of these products were asked whether the ads they saw *mostly promoted*, *mostly discouraged*, or *neither promoted nor discouraged* their use. There was also a response option for *I don't know*. Table 14 shows that ads perceived to be anti-tobacco were the most common type of ad seen for both products. A greater percentage of students reported seeing ads that were perceived to be anti-tobacco for vapes (42.8%) than for cigarettes (32.5%). Similarly, a greater percentage of students reported seeing ads that were perceived to be pro-tobacco for vapes (13.7%) than for cigarettes (10.0%).

Proportionally, about one in five vape-related ads were perceived to promote vape use (13.7% / 67.7% = 20.2%), while three in five were perceived to be discouraging its use (42.8% / 67.7% = 63.2%). The rest of the ads were not clearly perceived as being either for or against the product. Similarly, about one in five cigarette-related ads were perceived to promote smoking cigarettes (10.0% / 52.1 = 19.2%), while three in five were perceived to be discouraging their use (32.5% / 52.1% = 62.4%).

Table 14. Exposure to perceived types of vape and cigarette ads in the last 30 days among high school students

	Exposure to...			
N=5433	**Pro-tobacco ads %(95% CI)**	**Anti-tobacco ads % (95% CI)**	**Neutral ads % (95% CI)**	**I don't know % (95% CI)**
Vapes	13.7 (11.9-15.5)	42.8 (38.5-47.1)	3.7 (3.4-4.1)	7.4 (6.9-8.0)
Cigarettes	10.0 (8.7-11.4)	32.5 (29.4-35.7)	3.5 (3.0-4.0)	6.0 (5.2-6.8)

CHAPTER 5 – Access to Vapes

Highlights

- Among current vapers, 58.5% reported not paying for their vapes and 41.5% reported paying for them.
- Out of those who did not pay for their vapes, over half reported being given vapes (56.4%). Out of those who did pay for their vapes, 39.8% bought them from someone and 21.2% bought them from a store themselves.
- Among those who reported buying from a store, *tobacco or smoke shops* (51.9%) and *vape shops* (29.4%) were the most popular store types for purchasing vapes.
- One-quarter (25.6%) of all students were offered a vape in the last 30 days, with one in six (17.3%) who had never used vapes having been offered one.

Limiting access to tobacco products among youth reduces opportunities to use such products, and 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 accessed vapes and on student offers of vapes. Students who were current vape users were asked whether they paid for their own vapes (or pods or e-liquid). They were then asked subsequent questions on how they obtained the product. Vape offers were measured by use status (e.g., never, former, and current users).

It should be noted that the questions about the acquisition and sources of vapes reported in this chapter asked about vapes with nicotine or just flavoring specifically; whereas the question about offers asked about vapes generally. As a result, responses to the question on offers could include vapes with marijuana. Data on access to tobacco products other than vapes were not presented due to the small sample size and resulting instability of estimates.

Acquisition of Vapes

Of current vapers, 58.5% reported not paying for their own vapes (or pods or e-liquid) and 41.5% reported paying for them (data not shown in table). Table 15 shows how those 58.5% of students usually got their vapes (or pods or e-liquid) from social sources. Over half of these students (56.4%) reported being given vapes. Almost one-fourth (23.7%) of them reported asking someone for vapes.

Table 15. Acquisition of vapes (or pods or e-liquid) among those high school students who were current vapers, by social source

Did not pay for own vapes (or pods or e-liquid)	Current vapers N=272 % (95% CI)
Someone gives them to me	56.4 (51.8-61.1)
I ask someone for them	23.7 (20.7-26.8)
I take them from someone	6.4 (3.7-9.1)
I get them some other way	13.5 (10.5-16.5)

Table 16 presents the methods of purchase among those 41.5% of students who paid for their vapes (or pods or e-liquid). About two in five of them (39.8%) reported buying vapes from someone else. Another 21.2% bought vapes from the store themselves and 18.6% asked someone to buy vapes for them. Relatively few students (6.8%) reported buying vapes from the Internet (including apps).

Table 16. Acquisition of vapes (or pods or e-liquid) among those high school students who were current vapers, by purchase source

Paid for own vapes (or pods or e-liquid)	Current vapers N=203 % (95% CI)
I buy them from the store myself	21.2 (15.2-27.3)
I buy them from someone	39.8 (35.1-44.6)
I ask someone to buy them for me	18.6 (14.7-22.5)
I buy them from the Internet (including apps)	6.8 (2.2-11.4)†
I buy them some other way	13.5 (10.0-17.1)

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

Sources of Vapes Among High School Students Purchasing from a Store

Students who reported buying vapes from the store were asked the specific store type where they bought the tobacco product. As shown in Table 17, among current vapers, *tobacco or smoke shops* (51.9%) and *vape shops* (29.4%) were the most popular store types for purchasing vapes.

Table 17. Sources of vapes among those high school students who bought vapes from a store, by store type

	Bought vapes from a store N=41 % (95% CI)
Gas station or convenience store	6.8 (0.0-13.7)†
Grocery store	5.0 (1.1-8.9)†
Drugstore or pharmacy	0.0
Liquor store	0.0
Tobacco or smoke shop	51.9 (39.4-64.3)
Vape shop	29.4 (13.7-45.1)
A mall or shopping center kiosk/stand	0.0
Other	6.8 (0.0-15.8)†

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

Offers of Vapes in the Last 30 Days

The 2019-20 CSTS assessed whether high school students were offered vapes in the last 30 days. Overall, one-quarter of students (25.6%) in Sacramento County were offered a vape product in the last 30 days (Table 18). Significantly more current vapers (80.9%) reported being offered vapes relative to never (17.3%) and former vapers (38.1%).

Table 18. Prevalence of offers of vapes in the last 30 days among high school students, by use status

		Vapes
	N	% (95% CI)
Overall	5452	25.6 (19.2-31.9)
Never vapers	4165	17.3 (13.5-21.1)
Former vapers	821	38.1 (31.8-44.4)
Current vapers	466	80.9 (75.4-86.5)

CHAPTER 6 – Marijuana and Tobacco Co-Use

Highlights

- One-third (32.7%) of high school students in Sacramento County reported having tried marijuana, while 16.2% reported using it in the last 30 days.
- The rate of currently using marijuana (16.2%) was higher than that of all tobacco products (10.1%).
- About half of current marijuana users (49.4%) co-used marijuana with a tobacco product.

The legalization of both medicinal and recreational marijuana in California can present increased opportunities for youth to use marijuana, even though they have not reached legal age to use it. Marijuana can be used alone and in conjunction with tobacco products. This chapter presents the use of marijuana and co-use of marijuana and any tobacco among high school students in Sacramento County.

Marijuana Use

Table 19 presents the prevalence of ever and current marijuana use among high school students by demographic characteristics. In Sacramento County, the rate of currently using marijuana (16.2%) was higher than the current use rate of all tobacco products (10.1%, $p<0.01$). Current use rates of marijuana among female and male students were similar. Students who identified their gender in another way or declined to report their gender had the highest current marijuana use rates. Asian students had the lowest rate of marijuana use (5.8%) of all racial/ethnic groups. Marijuana use tended to increase by grade.

Table 19. Prevalence of marijuana use by gender, race/ethnicity, and grade among high school students

	N	Ever use % (95% CI)	Current use % (95% CI)
Overall	5520	32.7 (27.6-37.9)	16.2 (12.4-20.1)
Gender			
Male	2448	29.4 (23.8-35.1)	14.4 (10.1-18.8)
Female	2685	35.0 (29.7-40.4)	16.5 (12.9-20.2)
Identified in Another Way	139	39.3 (29.9-48.7)	24.1 (14.3-33.9)
Declined to Answer	166	33.1 (28.1-38.2)	22.2 (14.2-30.3)
Race/Ethnicity			
White	1077	41.1 (35.8-46.3)	23.4 (19.8-26.9)
African American/Black	327	39.2 (32.5-45.8)	20.0 (15.7-24.2)
Hispanic	1769	36.5 (31.6-41.3)	17.4 (12.8-21.9)
Asian	1286	16.1 (12.9-19.2)	5.8 (3.9-7.6)
Other	332	31.1 (25.0-37.3)	14.6 (10.0-19.2)
Multiple	647	34.3 (27.7-40.9)	16.2 (12.7-19.7)
Grade			
Grade 10	2952	29.2 (24.2-34.2)	14.6 (10.8-18.3)
Grade 12	2568	36.5 (30.3-42.6)	18.0 (13.2-22.8)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

Marijuana and Tobacco Co-Use

Table 20 further categorizes current marijuana use based on whether students used marijuana only or with any tobacco product (i.e., co-use). Overall, 8.3% used marijuana only and 8.0% co-used marijuana with any tobacco product. In other words, about half (49.4%) of marijuana users also used at least one tobacco product.

Males tended to use marijuana only and co-use marijuana and any tobacco at similar rates. Students who were female tended to have a higher rate of marijuana only use than tobacco co-use, while the reverse was true of those who identified their gender in another way or declined to report their gender.

Most racial/ethnic groups tended to have higher marijuana only use than tobacco co-use rates. This was most noticeable for African American/Black students, with 13.4% using marijuana only and 6.6% co-using marijuana and tobacco. White students demonstrated the opposite pattern, tending to co-use at a higher rate that using marijuana only. It should be noted that differences by gender and race/ethnicity did not necessarily reach statistical significance.

Students in 10th and 12th grades had similar rates of marijuana only use and co-use.

Table 20. Prevalence of current marijuana only use and co-use of marijuana/any tobacco product by gender, race/ethnicity, and grade among high school students

	N	Marijuana only use % (95% CI)	Co-use of marijuana and any tobacco product % (95% CI)
Overall	5520	8.3 (6.9-9.6)	8.0 (5.0-11.0)
Gender			
Male	2448	7.4 (6.0-8.8)	7.1 (3.7-10.5)
Female	2685	8.9 (7.3-10.6)	7.6 (5.1-10.2)
Identified in Another Way	139	10.0 (6.5-13.6)	14.1 (5.2-22.9)†
Declined to Answer	166	6.0 (2.3-9.8)†	16.2 (7.6-24.9)
Race/Ethnicity			
White	1077	10.2 (8.5-11.9)	13.2 (8.9-17.5)
African American/Black	327	13.4 (10.0-16.7)	6.6 (3.6-9.7)
Hispanic	1769	9.0 (7.0-11.1)	8.3 (5.4-11.2)
Asian	1286	3.3 (2.3-4.3)	2.5 (1.4-3.6)
Other	332	8.1 (5.3-10.9)	6.5 (3.6-9.4)
Multiple	647	8.2 (7.1-9.3)	8.0 (5.0-11.0)
Grade			
Grade 10	2952	7.6 (5.3-9.9)	7.0 (4.4-9.6)
Grade 12	2568	9.0 (7.3-10.7)	9.0 (5.4-12.6)

Note: With the exception of Hispanic, all ethnicities are classified as Non-Hispanic. Race/Ethnicity category Other includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and non-standard entries.

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

CONCLUSION

The most encouraging result from the 2019-20 CSTS is that current cigarette smoking (i.e., use in the last 30 days) among Sacramento County high school students has reached a historical low of 1.4%. This is lower than any report of adolescent current smoking prevalence in recent years.[11] The historically low rate of current cigarette smoking suggests that 30 years of campaigning against smoking since Proposition 99 have succeeded in changing the social norms against smoking. This is further evidenced by the overwhelming percentage of high school students (91.2%) who believed that their close friends viewed smoking cigarettes negatively.

Much work remains, however, as over one-quarter (28.2%) of high school students in Sacramento County have experimented with at least one type of tobacco product. Most of those experimenters tried vaping (23.4%), with 8.2% of high school students currently using vapes. One-quarter (25.6%) of high school students were offered a vape in the last 30 days, with one in six (17.3%) of those who had never used vapes having been offered one. Being offered these products through a youth's social framework 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, with vaping being more popular and acceptable. Over half (53.7%) of the high school students in 2019-20 believed that their fellow students did not view vaping negatively.

There are interesting developments in student perceptions that suggest adolescents have grouped vaping with tobacco use when it comes to industry promotion. Three-quarters of high school students believed that vaping companies were part of the tobacco industry and that tobacco companies targeted their age group by advertising flavored tobacco products in stores and on social media. The perception of a vaping company as part of the tobacco industry may mobilize youth against the use of their products because of the negativity associated with the latter, as an industry that has manipulated the facts to addict young people.[12,13]

The intersection of vaping nicotine and vaping marijuana is a concern. Marijuana use in general was much higher than vaping nicotine or just flavoring among high school students in Sacramento County. New products for marijuana, including those using new vaping devices, can be appealing to youth. The public health community must be particularly vigilant in monitoring the impact of new vaping devices on the use of both nicotine and marijuana among adolescents.

In summary, findings from the 2019–20 CSTS reveal significant achievements, while also raising new questions about the next phase of the public health campaign. The very low smoking prevalence among high school students suggests that an end-game for the use of combustible tobacco is within sight. Vaping remains a 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 2019-2020* on the California Department of Public Health, California Tobacco Control Branch's website: https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CTCB/Pages/FactSheetsAndReports.aspx
- Learn about Tobacco-Use Prevention Education (TUPE) resources, news, and partnerships near you: https://tupeca.org/
- View anti-tobacco commercials at http://www.tobaccofreeca.com
- Connect students to the California Smokers' Helpline (1-844-8-NOVAPE, 1-800-NO-BUTTS) for free, evidence-based telephone counseling and online support to help quit vaping or smoking. Help is available for tobacco users and the people who care about them. Visit http://www.nobutts.org/youthvaping for more information.
- Learn about *Youth Vaping Alternative Program Education (YVAPE)*, an alternative to suspension program with telephone counseling and educational materials for California middle and high school students facing disciplinary action for vaping at school. Visit https://yvape.org/ for more information.
- Download free, print-ready tobacco education materials through the Tobacco Education Clearinghouse of California at: www.tecc.org

APPENDIX A – 8th Grade Tobacco Use

Highlights

- Few 8th grade students (5.8%) reported using a tobacco product in the last 30 days.
- Vapes were the most prevalent product used (4.2%). The use of all other tobacco products was low (less than 3%).
- Students in 8th grade reported similar levels of exposure to vapor and tobacco smoke in a room (14.3% and 13.6%, respectively), and a lower exposure to vapor than tobacco smoke in a car (10.0% and 13.7%, respectively).

The following section summarizes key tobacco use data for 8th grade students in Sacramento County. It should be noted that the middle schools in this county were sampled as part of a statewide survey design without stratification by county. Therefore, the data for 8th grade students may not be representative of the 8th graders in the county and must be interpreted cautiously.

Tobacco Product Use Among 8th Grade Students

Table 21 presents the prevalence of current use of tobacco products among 8th grade students. Overall, the prevalence of current tobacco use was significantly lower for 8th grade students than that of high school students: 5.8% of 8th grade students in Sacramento County reported currently using a tobacco product compared with 10.1% of high school students. Similar to high school students, vapes were the most commonly used product (4.2%) among 8th graders, followed by LCC (2.2%). The use of all other tobacco products was low.

Table 21. Prevalence of current tobacco product use among 8th grade students

	Current use N=910 % (95% CI)
Any of the below	5.8 (5.3-6.4)
Vapes	4.2 (3.7-4.7)
Cigarettes	1.1 (0.0-2.2)†
LCC	2.2 (1.8-2.5)
Big cigars	0.7 (0.0-1.5)†
Hookah	0.6 (0.1-1.2)†
Smokeless	0.8 (0.3-1.3)†

Abbreviations: LCC = little cigars or cigarillos.
†Data are statistically unreliable because relative variance is greater than 30%. Interpret with caution.

Secondhand Exposure to Vapor and Tobacco Smoke Among 8th Grade Students

Table 22 reports 8th grade students' exposure to secondhand vapor or smoke in a room and in a car in the last 2 weeks (see List of Terms). Students in 8th grade reported similar levels of exposure to vapor and tobacco smoke in a room (14.3% and 13.6%, respectively), and a lower exposure to vapor than tobacco smoke in a car (10.0% and 13.7%, respectively). Regarding location of exposure, 8th grade students had a higher rate of exposure to vapor in a room (14.3%) than a car (10.0%). There was no difference in exposure to tobacco smoke by location.

Table 22. Prevalence of last 2-week exposure to vapor and tobacco smoke* in a room and car among 8th grade students

	Vapor		Tobacco smoke*	
	N	**% (95% CI)**	**N**	**% (95% CI)**
Exposure in a room	886	14.3 (13.0-15.5)	888	13.6 (11.0-16.1)
Exposure in a car	890	10.0 (9.1-11.0)	891	13.7 (11.7-15.6)

*Two products: Cigarettes and little cigars or cigarillos (LCC).

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 (UC San Diego). For the 2019–20 CSTS, Local Lead Agencies (LLA) of the California Tobacco Control Program (CTCP) were given the opportunity to subcontract with UC San Diego to analyze survey data within the LLA's health jurisdiction.

The main goal of the survey is to obtain statewide prevalence estimates for various tobacco products used by middle and high school students in California. The survey samples students from 8th, 10th, and 12th grades, similar to the well-known Monitoring the Future Survey. However, the CSTS focuses mainly on high school students, with 8th grade students sampled in smaller numbers. This appendix provides a brief overview of survey methodology for the 2019–20 CSTS specific to Sacramento County. Additional details of the statewide report can be found in the *Results of the Statewide 2019–20 California Student Tobacco Survey* Report by S-H. Zhu, et al.[14] Statewide survey methods can be found in the *Technical Report on Analytical Methods and Approaches Used in the California Student Tobacco Survey 2019–20* by S-H. Zhu, et al.[15]

Survey Content

The survey was designed to assess the use of, knowledge of, and attitudes toward cigarettes and emerging tobacco products (e.g., vapes, hookah, little cigars or cigarillos [LCC]). It also included questions about the use of and attitudes toward marijuana and alcohol. The survey contained 160 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.

Similar to previous years, the 2019-20 CSTS included images and product definitions with examples of common brands of tobacco products. The 2019-20 survey also referred to "e-cigarettes" as "vapes" to be consistent with changes in devices and the language used by youth to refer to these devices. The survey included separate questions on vaping nicotine, marijuana, and just flavoring to determine prevalence estimates; although, some questions asked about vapes more generally. Questions about hookah pens were also asked separately to ensure that students who reported using a hookah pen, but not a vape were captured.

Another major change in the 2019-20 survey was the removal of the *I prefer not to answer* response option. This response option was removed for all questions except for those that asked about students' gender identity or sexual orientation.

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. UC San Diego provided proctors for schools that required additional support. Teachers and proctors were provided with directions for administering the survey. UC San Diego staff were available to answer questions from teachers and proctors.

The 2019–20 CSTS was administered online during the school day. The online survey included programmed skip logic to reduce participant burden and took a median of 21 minutes to complete. A few questions in the survey were mandatory, these asked about the respondents' 1) willingness to participate in the survey; 2) school verification; and 3) grade level. The remaining survey questions were not mandatory, although an error message of "Oops, you didn't answer" appeared if the question was unanswered. The student was allowed to move forward and skip the question if desired.

Student participation was voluntary and anonymous. Consent procedures were consistent with school district guidelines. In a passive consent protocol, parents could opt their children out of the survey if they did not want them to participate. In an active consent protocol, only students who returned a consent form signed by the parent could participate in the survey. All participating districts accepted passive consent. 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 2019–20 CSTS

Table 23 provides information about the number of schools and students that participated in the 2019–20 survey for each of the three grades. The total sample included 6,433 students from 15 schools. Grades 10 and 12 were considered high school, and grade 8 was considered middle school.

Table 23. Numbers of participating schools and students, Sacramento County middle schools vs. high schools

	Middle school (8^{th})	High school (10^{th} & 12^{th})	Total
Number of schools	4	11*	15
Number of students	910	5,523	6,433

*Note: One high school surveyed before the question reported in Table 12 was programmed in the survey.

Sampling Strategy

Sacramento County conformed to the statewide CSTS sample for this report. 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. Sacramento County was considered its own region (Region 30) in the 2019–20 CSTS. Sampling used the probability proportional to size (PPS) method and stratified by region with oversampling of schools in less densely populated (and more rural) regions, with higher African American enrollment, and with funding from the California Tobacco-Use Prevention Education (TUPE) program. Middle schools were sampled using simple statewide random sampling without stratification. Since the survey focuses on 10th and 12th graders, high schools were stratified by region. For high schools, the state was divided into 35 regions based on geographic contiguity and cultural similarity.

Participating middle schools were encouraged to survey all 8th graders, while high schools were encouraged to survey all 10th and 12th graders. For the minority of schools in Sacramento County that chose not to survey all students in the eligible grades (7% of schools), five class sections within a grade were randomly sampled for participation.

Analysis

The CSTS design utilized stratified random sampling and proper weighting to provide stable statewide prevalence rates. For high schools, Sacramento County conformed to the statewide sampling strategy. Middle schools were sampled as part of the statewide survey without stratification by county. Therefore, the data for 8th grade students may not be representative of the 8th graders in the county and must be interpreted cautiously. Data are weighted to account for the study's sampling design, and the weighting procedure is described elsewhere.[15] In addition, as more than 5% of the county's students participated in the survey, a finite population correction was applied in the analyses. All estimates include 95% confidence intervals in the report. A difference test was performed for two estimates with overlapping confidence intervals to determine a significant difference (i.e., $p<0.05$) as needed.

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* category included non-standard entries (such as Middle Eastern or Italian). Due to the small sample size of Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and Other groups, these groups were combined to form the *Other* category. In line with other surveys, students who identified as *Hispanic* were labeled as such regardless of the other races selected. Students who selected multiple races were grouped as *Multiple* in tables that included racial/ethnic categories.

Race/ethnicity categories of the CSTS are similar to those used by the California Department of Education (CDE), allowing us to compare the percentage of each race/ethnicity (Table 24). In some cases, the percentage of each race/ethnicity was similar between the CSTS and CDE enrollment data. Of note, the percentage of Multiple race/ethnicity was far higher in the CSTS than reported by the CDE (12.5% vs. 5.2%, respectively). One possible reason for the difference is that the CSTS was based on student self-reporting, whereas the CDE was 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 Sacramento 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.[16]

Table 24. Percentage of race/ethnicity categories in the CSTS and CDE enrollment data

	CSTS Sample		CDE Enrollment	
	N=6311	(%)	N=52138	(%)
NH-White	1195	18.9	16568	31.8
NH-African American/Black	395	6.3	6123	11.7
Hispanic	2163	34.3	15851	30.4
NH-Asian	1364	21.6	9509	18.2
NH-AI/AN	32	0.5	356	0.7
NH-NHOPI	137	2.2	747	1.4
NH-Other	239	3.8	281	0.5
NH-Multiple	786	12.5	2703	5.2

Note: CDE enrollment data were restricted to schools that were considered eligible to participate in the CSTS. 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 25 compares how individuals were labeled using usual methods as to whether they endorsed a given race at all. It is clear that students tended to endorse multiple responses, and in particular, underrepresented races. For example, under the usual classification of labeling, the number of African American/Black students was 395 (i.e., non-Hispanic African American/Black who did not endorse any other racial identity). However, there were more than twice as many students who indicated their race was African American/Black (including those who also indicated they were Hispanic or who selected at least one other racial category). This phenomenon was also striking for Whites (1195 vs. 2294, depending on the categorization strategy), Asians (1364 vs. 1915), American Indian or Alaska Natives (n=32 vs. 350), Native Hawaiian or Other Pacific Islanders (n=137 vs. 423), and those of Other race/ethnicity (n=239 vs. 1772).

Table 25. Percentage of labeled and endorsed race/ethnicity

	Labeled		Endorsed	
	N=6311	(%)	N=6311	(%)
White	1195	18.9	2294	37.0
African American/Black	395	6.3	923	14.9
Hispanic	2163	34.3	2163	34.3
Asian	1364	21.6	1915	30.9
AI/AN	32	0.5	350	5.6
NHOPI	137	2.2	423	6.8
Other	239	3.8	1772	28.6
Multiple	786	12.5	--	--

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: AI/AN = American Indian or Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.

APPENDIX C – Supplementary Tables

Table A. Prevalence of ever and current use of tobacco products among high school students

	Ever use N=5520 % (95% CI)	Current use N=5520 % (95% CI)
Any of the below	28.2 (23.5-32.9)	10.1 (6.8-13.4)
Vapes	23.4 (18.9-28.0)	8.2 (5.0-11.5)
Cigarettes	6.5 (4.7-8.3)	1.4 (0.7-2.1)
LCC	9.5 (7.4-11.5)	3.2 (2.4-4.0)
Big cigars	2.3 (1.4-3.2)	0.6 (0.3-0.8)
Hookah	4.6 (3.7-5.4)	0.7 (0.4-0.9)
Smokeless	1.9 (1.1-2.6)	0.7 (0.4-1.1)
HTP	0.7 (0.5-0.9)	0.2 (0.1-0.3)

Abbreviations: LCC = little cigars or cigarillos; HTP = heated tobacco products.

Table B. Frequency of current vape use among those high school students who were current vapers

	Current vape use N=480 % (95% CI)
1 or 2 days	41.9 (35.9-47.8)
3-5 days	14.3 (12.6-16.1)
6-19 days	20.4 (16.8-24.0)
20-30 days	23.4 (19.9-26.9)

Table C. Proportion using flavored tobacco products among those high school students who were current users of a given tobacco product

	N	Flavored product use % (95% CI)
Vapes	482	96.2 (95.1-97.4)
Cigarettes*	81	52.1 (42.0-62.2)
LCC	182	69.8 (62.0-77.6)
Big cigars	31	57.8 (39.3-76.3)
Hookah	40	78.0 (58.6-97.5)†
Smokeless	37	75.7 (63.3-88.1)

Abbreviations: LCC = little cigars or cigarillos

**Menthol* was the only available flavor for cigarettes.

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

Table D. Perceived reasons for vaping among high school students

People my age use vapes with nicotine or just flavoring because…	Overall	
	N	% (95% CI)
their friends use them	5459	83.7 (81.3-86.0)
they come in lots of flavors	5458	72.8 (71.3-74.3)
they look interesting and cool	5458	71.6 (69.7-73.5)
they are healthier than cigarettes	5451	58.0 (56.2-59.9)

Table E. Percentage of high school students who believed that adults would feel negatively about them or another adult if they vaped or smoked

Adults would feel negatively about…	Vaping nicotine		Smoking cigarettes	
	N	% (95% CI)	N	% (95% CI)
the student	5441	95.9 (95.0-96.8)	5447	96.3 (95.5-97.1)
another adult	5413	87.0 (85.3-88.8)	5413	87.3 (85.7-88.8)

Table F. Percentage of high school students who believed that their close friends or other students at their school would view vaping or smoking negatively

Negative views of use among…	Vaping nicotine		Smoking cigarettes	
	N	% (95% CI)	N	% (95% CI)
close friends	5444	73.7 (69.8-77.5)	5443	91.2 (90.0-92.3)
other students at school	5434	46.3 (38.9-53.8)	5434	81.5 (78.4-84.6)

Table G. Prevalence of complete home bans on vaping and tobacco smoking among high school students

	Complete home ban	
	N	% (95% CI)
On vaping	5422	80.7 (77.3-84.0)
On tobacco smoking	5417	81.4 (79.1-83.7)

Table H. Prevalence of last 2-week exposure to vapor and tobacco smoke* in a room and car among high school students

	Vapor		Tobacco smoke*	
	N	% (95% CI)	N	% (95% CI)
Exposure in a room	5445	22.9 (16.3-29.4)	5450	10.4 (9.0-11.7)
Exposure in a car	5448	13.9 (10.0-17.9)	5456	8.1 (6.6-9.5)

*Two products: Cigarettes and little cigar or cigarillos (LCC).

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