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California Tobacco Retail Surveillance Study 2018

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EXECUTIVE SUMMARY

The 2018 California Tobacco Retail Surveillance Study (CTRSS) characterized the retail availability of tobacco in a large, representative sample of licensed tobacco retailers in the state. The study also assessed neighborhood differences in product availability and the presence of advertising and promotions, adjusting for store type. This report refers to the combination of electronic cigarettes (e-cigarettes), other electronic nicotine delivery systems, and e-liquids as vaping products. Cigar products included cigarillos/blunts, cigar/blunt wraps, little-filtered cigars, and large cigars. In this report, vape shops refer to stores that did not sell any conventional tobacco products, a definition that was derived from observations in the field. For the first time, the 2018 surveillance instrument included observations about Juul, the top-selling vaping product. It also differentiated between tobacco products with explicit flavors (mint/menthol, fruit, candy, or alcohol) and products with ambiguous flavor names, which we refer to as “concept” flavors.

This report includes the following key findings from a statewide random sample of 1199 tobacco retailers:

- Vape shops represented 3.8 percent of licensed tobacco retailers in 2018. The combination of vape shops, tobacco shops, and head shops suggests that at least 13.5 percent of licensed tobacco retailers are age-restricted stores.
- Although more than half of licensed tobacco retailers (61.5 percent) sold vaping products, only 24.4 percent sold Juul. No pharmacies sold Juul, even though the manufacturer claims it is smoking cessation product.
- At an average price of \$6.31 per pod, Juul provides at least as much nicotine as a pack of high-nicotine cigarettes for a lower price point.
- After a \$2.00 tax increase, the average price of the cheapest pack of cigarettes regardless of brand was \$6.94 (SD=1.20), still less than the average price of the cheapest e-liquid (\$9.78, SD=5.91) and a blu disposable e-cigarette (\$11.17, SD=2.40).
- Price discounts for tobacco products were visible in 63.8 percent of stores, and such advertising was most prevalent in pharmacies.
- Cigarettes remain the most widely advertised tobacco product (71.1 percent of stores) and the most widely discounted tobacco product (65.6 percent of stores).
- Overall, 24.4 percent of stores advertised mobile coupons for tobacco products, and such advertising was more common at stores in neighborhoods with a higher proportion of school-age youth.
- Menthol cigarettes were sold in 98.3 percent of stores that sold cigarettes.
- Advertising for menthol cigarettes was significantly more common in neighborhoods with a higher proportion of school-age youth, young adults and African-American residents.
- Among stores that sold cigar products, explicit flavors were ubiquitous (in 95.6 percent of stores) and the vast majority (86.1 percent) of stores sold cigars marketed with concept flavor names.
- Advertising for cigars with explicit flavor names was more common in neighborhoods with a higher proportion of Hispanic residents and African-American residents.

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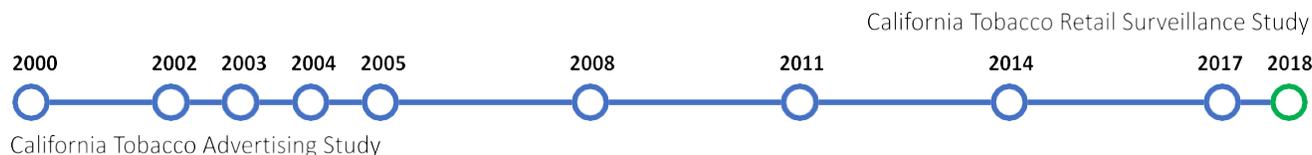
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BACKGROUND

The California Tobacco Retail Surveillance Study (CTRSS), formerly known as the California Tobacco Advertising Study (CTAS), represents the longest-running tobacco marketing surveillance system in any United States state. Retail observations were completed ten times starting in 2000 (Figure 1). The 2018 survey was conducted between April and September, approximately one year after the implementation of Proposition 56, which increased the state excise tax on cigarettes and other tobacco products. A main focus of the 2018 CTRSS data collection was to evaluate the \$2 tax increase on cigarettes, and those longitudinal results are summarized elsewhere.¹ The focus of this cross-sectional report is to characterize neighborhood variation in retail availability and marketing of vape products and conventional tobacco products, as well as availability of mobile coupons and other price discounts. For the first time, this report differentiates between products with explicit flavors (mint/menthol, fruit, candy, or alcohol) and products with concept flavor names (sometimes referred to as “concept” flavors) because such descriptors make it more difficult for retailers and regulators to enforce restrictions on the sale of flavored tobacco.² Juul, the top-selling vape product, with a 75 percent market share in the third quarter of 2018, was also a new focus of CTRSS 2018.³

Figure 1: Timeline of retail marketing observations in California since 2000



METHODS

Sample

Beginning in 2017, stores that sold any tobacco product (including vape products) were eligible for the CTRSS sample. The CTRSS 2018 sampling frame combined two sources: (1) the CTRSS 2017 sample (n=1277) and (2) a replenished sample from the state tobacco retail licensing list obtained from the California Department of Tax and Fee Administration (CDTFA) in December 2017. We telephone verified whether all 1277 stores assessed in 2017 still sold tobacco in 2018, and continued phone verifications using randomly selected licensed tobacco retailers from the state licensing list until achieving our target sample size of 1275. Our telephone verification protocol asked whether stores sold cigarettes or cigars. If neither were sold, we asked about “vaping stuff or e-cigs”, and then any tobacco products including pipe tobacco, chew or snus. Up to three attempts were made to telephone each store’s primary and secondary phone numbers. Repeat calls were attempted at varying times of day to maximize completion. Telephone verifications were performed by Ewald & Wasserman, LLC, (E&W) the same contractor that collected retailer surveillance data.

Of the CTRSS 2017 stores (n=1277), telephone verifications confirmed 1142 were eligible for CTRSS 2018 and 22 were ineligible because they did not sell tobacco, either conventional or vaping products. This left 113 stores from CTRSS 2017 with incomplete telephone verifications

(e.g., permanently closed, answering machine, refusal), Stanford Research Prevention Center (SPRC) staff reclassified 61 of these stores as eligible from online searches. In order to achieve a target of 1275 eligible retailers for the final sample, E&W telephone verified randomly selected stores from the state tobacco retail licensing list until 72 eligible stores were identified.

Data collection

Marketing surveillance was conducted by ten professional data collectors from E&W using a survey programmed with Qualtrics. SPRC staff conducted a day-long training session that included classroom instruction, a detailed manual, sentinel products for category and brand identification, field practice and debriefing. After the first few days of data collection, SPRC staff conducted a teleconference with all data collectors to address questions and clarify instructions, as needed.

Data were collected between April and September, 2018. The average time to complete a store observation was 22.4 minutes (SD=33.6). Inter-rater reliability was assessed in 100 randomly selected stores which were visited by two different data collectors on separate occasions. The mean number of days between visits was 4.3 days (SD=3.4, min=0, max=13).

Measures

This section summarizes the major constructs included in this report and the Appendix contains a copy of the online survey instrument.

Store type. Data collectors classified stores into 1 of 10 categories: convenience stores (with or without gas), discount store (i.e., dollar stores and Walmart), head shop, liquor store, pharmacy, small market/deli/produce market (“small market”), supermarket/large grocery store, tobacco shop, vape shop, or other. For data collectors in the field, head shops were defined as primarily selling accessories for smoking marijuana, and many also sold tobacco or other items such as hats or clothing; vape shops were stores where 50 percent or more of visible merchandise was vaping products, including e-cigarettes, other vaping devices, and e-juice; tobacco shops were primarily engaged in the sales of tobacco products (including vaping products and e-liquid, but no more than 50 percent).

Product availability. For conventional tobacco products, data collectors noted the availability of: cigarettes, cigar products, loose tobacco/roll your own (“RYO”), and hookah. Within the cigar products category, data collectors recorded availability of cigarillos, large cigars, little filtered cigars, and blunt/cigar wraps. The availability of vaping products was recorded separately for e-cigarettes/cartridges, closed-tank systems (with pre-filled cartridges or pods), open-tank systems (designed for user to refill), and e-liquids. Different from 2017, data collectors did not differentiate “disposable” and “reusable” products, since their cost was similar. The categories for “e-hookah” and “e-cigars” were also removed and collapsed into the e-cigarettes/cartridges category since these are the same underlying technology and form factor. Data collectors noted the availability of Juul by product category (i.e., starter kit, device or pods).

Flavors. Product flavors were classified into one of four categories: mint/menthol flavors; fruit flavors (e.g., apple, grape, strawberry); candy flavors (e.g., bubblegum, honey, vanilla); and

alcohol flavors (e.g., margarita, piña colada, wine grape). For the first time, data collectors were asked to identify the presence of ambiguous (“concept”) flavors, with product descriptors that do not reference an explicit taste (e.g., jazz, summer breeze, or colors). Product availability by flavor category (mint/menthol, fruit, candy, alcohol, concept) was noted for a subset of cigar products, little filtered cigars/cigarillos, and blunt cigar/wraps, vaping devices (including cartridges), and e-liquids that contain nicotine. Cigarettes were categorized as regular (non-menthol) or menthol.

Advertising. Advertisements were defined as professionally manufactured and branded materials with the intent to sell tobacco products. Data collectors noted presence of advertisements on store interiors and exteriors by tobacco product type for cigarettes, cigars, and vaping products. They noted the presence of advertisements by product category and flavor: cigarettes (regular and menthol); cigar products (any mint/menthol, fruit, sweet, alcohol or other explicit flavor), and any vaping products (any flavor). The presence of advertising for Juul was collected for the first time.

Price. Data collectors recorded four prices: (1) the cheapest pack of cigarettes regardless of brand, (2) a four-pack of Juul pods, (3) a blu e-cigarette (classic tobacco disposable single unit), and (4) the cheapest bottle of e-liquid (regardless of bottle size). If prices were not advertised, data collectors asked clerks when prices were not advertised. For each recorded price, data collectors indicated whether or not that price included sales tax. We also compare the price of a 4-pack of Juul pods to four packs of Newport cigarettes to examine relative price of these two products.

Mobile coupons. Data collectors recorded presence of advertising for mobile coupons for tobacco on the store exterior. They also recorded their presence inside stores. Data collectors noted location (interior/exterior) and product category (cigarettes, cigar products and vaping products).



Discounts. Discounts were defined as temporary price promotions that could be displayed on packaging, shelf strips, or advertisements.^{4,5} Inside stores, presence of discounts on packages and on unbranded shelf strips that were not large enough to meet the definition of advertisements was collected for cigarettes and vaping products. For interior and exterior, presence of a discount was noted by product category (cigarette, cigar, vape product), and for menthol cigarettes (menthol) and flavored cigars.

ANALYSES

This report highlights cross-sectional findings in 2018; other research examined change from 2017 to 2018 to evaluate the \$2 tax increase.¹ The main objectives of this analysis was to characterize the retail environment for tobacco by product category, flavor and store type. Descriptive analyses characterized the relative price of Juul pods to the price of a top-selling brand of menthol cigarettes and the cheapest cigarette pack regardless of brand. Another goal of descriptive analyses was to characterize the availability of advertisements and price discounts by product category. Descriptive statistics were calculated for the subset of stores that sold the product of interest (e.g., Juul, vaping products, cigarettes, cigars) and results were split by store type and flavor category (when measured).

The following variables were derived from observational data:

Store type. After data collection, write-in cases for six (6) of the 46 “other” store types were reclassified to existing categories. In addition, if stores that were identified in the field as “vape shops” sold any conventional tobacco products (e.g., cigarillos), they were reclassified as tobacco shops. The remaining vape shops are stores that do not sell any conventional tobacco products, only vaping products, and are reported in tables and graphs as “vape (only) shops.” Owing to low frequencies of some store categories, we combined tobacco and head shops, a distinction that data collectors reported as being difficult to make. We also combined discount stores with the “other” category. This yielded eight (8) categories for store type: convenience stores, liquor stores, pharmacies, small markets, supermarkets, tobacco/head shops, vape shops (i.e., “vape (only) shops”), and discount/other. Because regulation to eliminate the sales of tobacco in pharmacies would include all stores with a pharmacy counter, SPRC interns used a telephone verification protocol to confirm whether a pharmacy counter was present in supermarkets and Walmarts (completion rate=100 percent).

Presence of explicit flavors. For vaping products, e-liquids, little cigars and cigar products, product availability was reported by flavor category (mint/menthol, fruit, candy, alcohol, and concept) and store type. A variable for the presence of explicit flavors was created from combining mint/menthol, fruit, candy, and alcohol categories. In addition, the prices of a Juul 4-pod pack, a blu disposable e-cigarette, and the cheapest e-liquid were compared to the price of the cheapest pack of cigarettes, regardless of brand.

Prices. Following procedures our team developed previously,⁶ observed prices were converted to price before sales tax. Surveyed stores were geocoded by SPRC staff using ArcGIS version 10.6.1 (Figure 2). With information from geocoding stores to jurisdictions, we obtained the local sales tax rates from CDTFA⁷ and subtracted the sales tax from the small subset of prices that were advertised with sales tax. A \$0.25 litter mitigation fee was included in prices from all San Francisco stores.

Multivariate models. We modeled product availability, advertising, and price as a function of store type, neighborhood demographics, and school proximity. To investigate how retail tobacco marketing differed by neighborhood demographics, the analyses followed procedures in previous work by SPRC and others.^{4,8,9} Specifically, store neighborhood was defined as a half-mile (roadway) store-centered buffer (i.e., the area you could drive in any direction for ½

mile from each store). We linked these buffers to census tract estimates from the American Community Survey (2012-2016). If buffers intersected more than one tract, characteristics were weighted in proportion to tract area in the buffer. For each store neighborhood, we calculated: race/ethnicity (percent of population: Non-Hispanic Black; Non-Hispanic Asian/Pacific Islander; Hispanic; American Indian, Alaskan Native (“AIAN”), other, multiple); age (5 to 17 years – school age; 18 to 24 years – young adult); poverty (percent of population with household income less than 185 percent of the federal poverty level); and population density (residents per square mile). Using data for public school boundary shapefiles that we created, proximity to school was determined by calculating the straightline distance between each store and the nearest K-12 public school boundary, then categorizing whether stores were within 1000 feet of a public school (yes/no).¹⁰

Ordinary least squares regression models (“OLS”) for numeric outcomes (price) and logistic regression models for dichotomous outcomes (product availability and advertising) were fit. All models controlled for store type, with the most prevalent category (convenience store) as the reference group. To accommodate potential non-linear relationships, quartiled versions of census-based variables (race/ethnicity, age, poverty, density) were entered with the lowest quartile serving as the referent category. We used **quartiles** to categorize store neighborhoods into four equal groups (number of cases) based on their ranking from lowest to highest on each of 8 neighborhood demographic variables (e.g., percent African-American residents, percent school-age youth, etc.). For example, the lowest quartile (Quartile 1) includes stores in the lowest 25% of neighborhoods for percent African-American residents, and the highest quartile (Quartile 4) includes the 25 percent of cases with the highest values for the variable.

The number of cases in each model varied. The logistic regression model for any tobacco discount included all cases, while logistic regression models for menthol cigarette, flavored cigar and vape product advertisements only included stores selling the respective product (flavor) type. The **Odds Ratios** (OR) from logistic regressions compare the odds that an outcome will occur for two groups by calculating the ratio of the two groups’ odds. Odds ratios greater than 1.00 indicate greater odds of the outcome of interest when the predictor is present (coded 1=present vs. 0=not present), while odds ratios less than 1.00 indicate lower odds of the outcome of interest when the predictor is present. An odds ratio with a confidence interval that includes 1.00 indicates the odds of an outcome of interest occurring is not related to the condition of the predictor for the value coded as 1 vs. 0. Adjusted odds ratio (AOR) has been adjusted for one or more other variables, typically “store type” and neighborhood demographics in this report.

For models of availability of Juul and presence of any mobile coupons, some store types were excluded due to low frequency (or no availability/presence) because including store types with low frequency or zero prevalence yielded poor model fit (i.e., irregularly large standard errors). For OLS models of price (Juul pods, blu e-cigarette, cheapest e-liquid), only the cases with valid price data were included. All analyses were performed using IBM SPSS Statistics V25 for Windows.

Statistical significance refers to differences or relationships that have been observed in sample data when the probability is very low that they are due to chance alone. In this report,

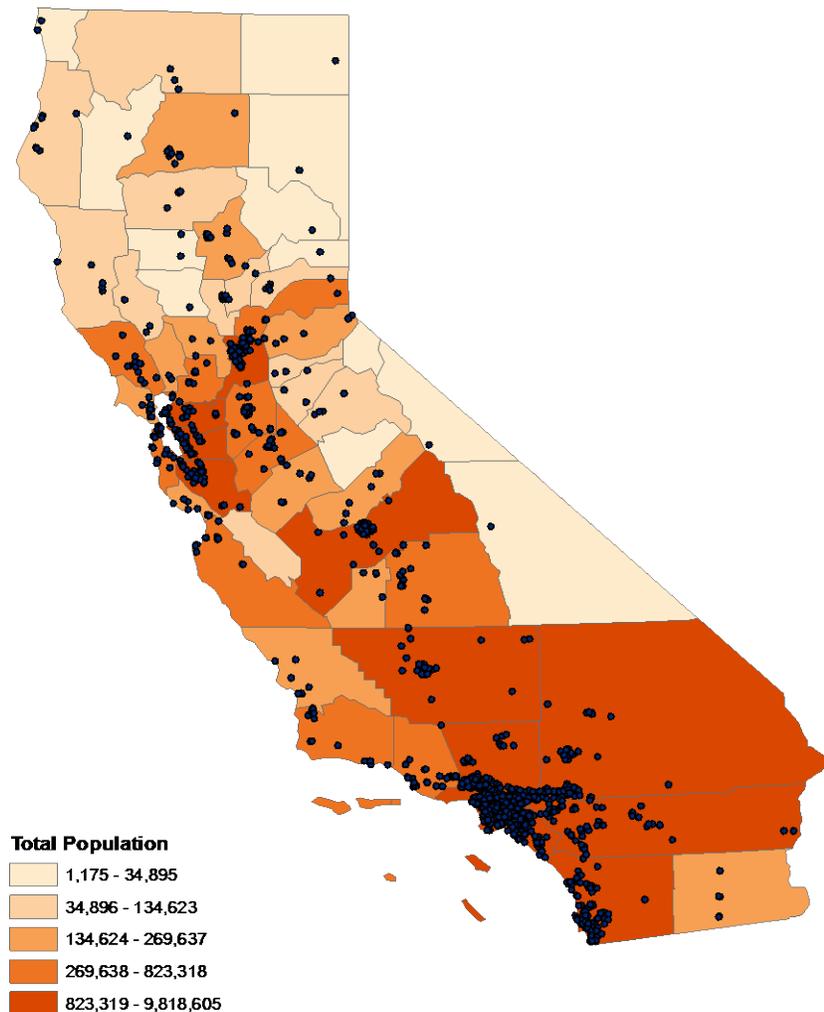
we deem differences or relationships to be statistically significant when the probability that they are due to random chance is less than .05.

Inter-rater reliability. We computed Cohen's Kappa statistics for binary measures and Intraclass Correlation Coefficient (ICC) for numeric measures. Inter-rater reliability varied by product category: Kappa ranged from 0.25 for retail availability of Juul pods (due to low event rate) to 0.80 for concept flavors of e-liquids (Appendix I). Good reliability was obtained for price of cheapest pack of cigarette (ICC=0.88) and fruit flavored product availability (Kappa= 0.79 for cigars products; Kappa=0.68 for vaping products; kappa=0.80 for e-liquids). Inter-rater reliability for the price of Juul could not be computed because too few stores with repeat visits sold this product. This was true for select other products where the incidence was too low to estimate.

RESULTS

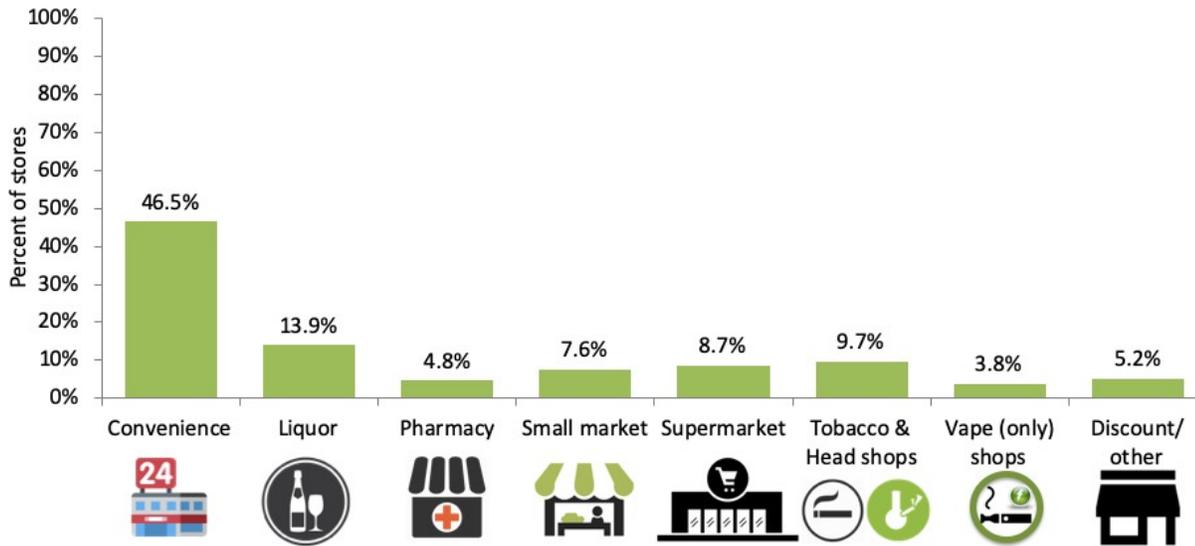
Retail marketing surveillance was completed in 1199 stores out of 1275 attempted. The observations could not be completed in a total of 76 stores because of merchant refusal (n=60), store closure (n=11), store did not sell tobacco (n=4), or store required a membership to enter (n=1). Excluding five ineligible stores, the completion rate was 94.4 percent. Figure 2 illustrates the location of the final sample relative to counties and their population density. Overall 27.8 percent of stores were within 1000 feet of a public school boundary. However, school proximity was not significant in any multivariate models and is not mentioned further.

Figure 2: CTRSS 2018 sample, by county & population density



Convenience stores represented nearly half (46.5 percent) of all tobacco retailers in 2018 (Figure 3). Vape shops that did not sell any conventional tobacco were the smallest category (3.8 percent). Tobacco and head shops (9.7 percent) represented a larger proportion of the sample than small markets (7.6 percent) and traditional pharmacies represented 4.8 percent of the CTRSS sample, all but one of which was a Walgreens or Rite Aid. The proportion of stores with a pharmacy counter was 7.8 percent.

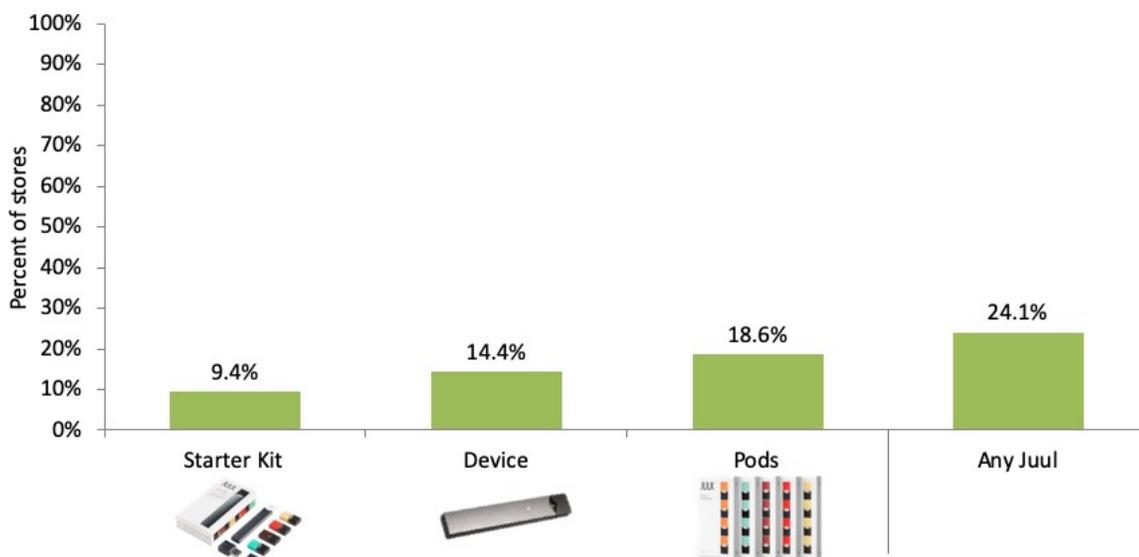
Figure 3: CTRSS 2018 sample composition (n=1199)



Section 1: Juul availability, advertising and price

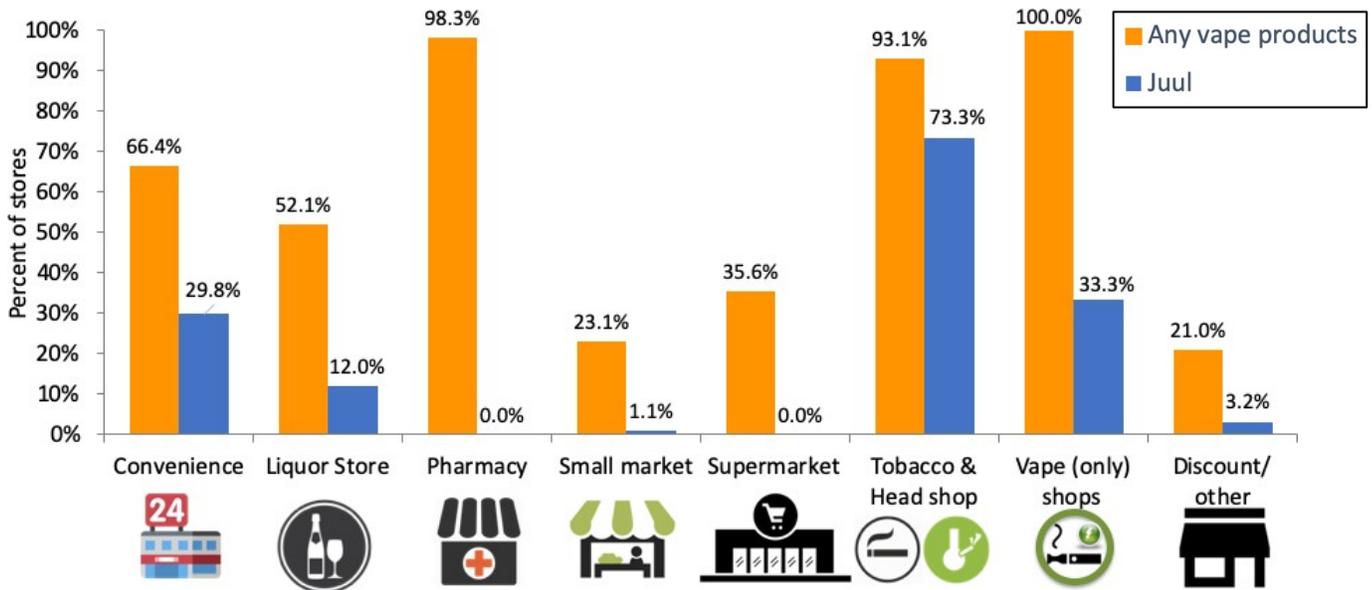
In spite of the large market share for Juul, only 1 in 4 stores (24.1 percent) sold Juul products in 2018 (Figure 4). Juul pods were the most commonly available (18.6 percent of stores) and starter kits were the least commonly available (9.4 percent of stores). No pharmacies or supermarkets sold any Juul products (Table 1).

Figure 4: Juul availability, by product type (n=1199)



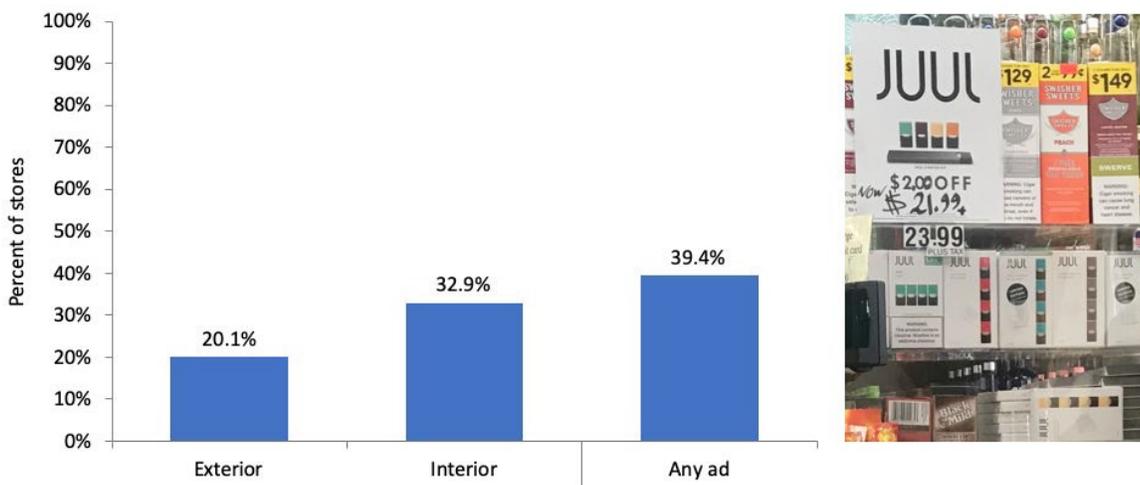
As shown in Figure 5, Juul was most commonly sold in tobacco/head shops (73.3 percent). Juul was nearly equally prevalent in convenience stores (29.8 percent) and vape shops (33.3 percent). Although 98.3 percent of pharmacies sold vaping products, no pharmacies sold Juul.

Figure 5: Availability of vaping products by store type (n=1199)



The majority of stores that sold Juul did not advertise the brand. As shown in Figure 6, only 39.4 percent contained any Juul advertisement and 20.1 percent contained Juul ads on the store exterior. Only 9.7 percent of stores that sold Juul advertised a discount for the products (Table 2).

Figure 6: Presence of at least one Juul advertisement (n=289*)

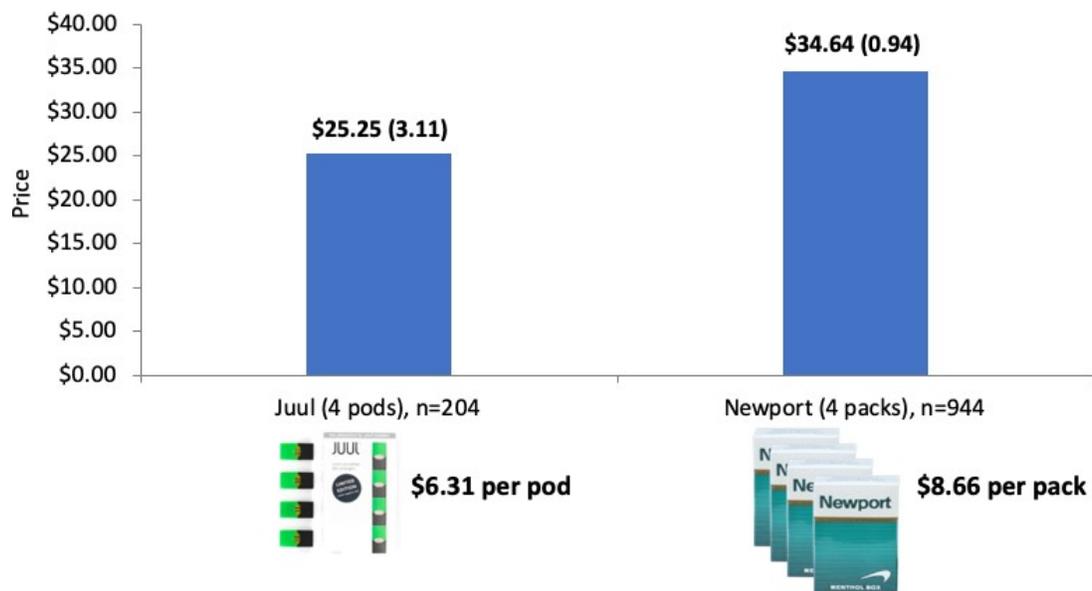


*Subgroup of stores that sold Juul.

Availability of Juul products varied by neighborhood demography in multivariate models (Table 3). Stores in neighborhoods with a greater proportion of young adults were significantly more likely to sell Juul, except for neighborhoods with the highest proportion of young adults (Table 3). The opposite pattern was observed for school-age youth, with lower odds of selling Juul at stores located in neighborhoods with greater proportions of school-age youth. Controlling for store type, stores in neighborhoods with the highest proportion of African American residents were significantly less likely to sell Juul (AOR=0.52, 95%CI 0.30, 0.89). A similar pattern was observed for poverty: Stores in neighborhoods with higher proportions of residents in poverty were significantly less likely to sell Juul. Juul was also a more “urban” product; that is, stores in neighborhoods with higher than median population density were more likely to sell Juul. (Table 3)

As shown in Figure 7, the average price of a 4-pack of Juul pods was \$25.25 (SD=3.11). Assuming the price was constant across flavor varieties, the relative price of menthol pods was substantially cheaper than the price for a similar supply of top-selling menthol cigarettes. For example, the average unit price was \$6.31 per Juul pod versus \$8.66 per Newport pack (27.1 percent less per pod). The nicotine content of one Juul pod is equivalent to at least one pack of cigarettes with high nicotine content.^{11,12}

Figure 7: Price (before sales tax) of Juul and Newport menthol cigarettes, mean(sd)



Note: The single-pack price of Newport was M=\$8.66, SD=0.94.

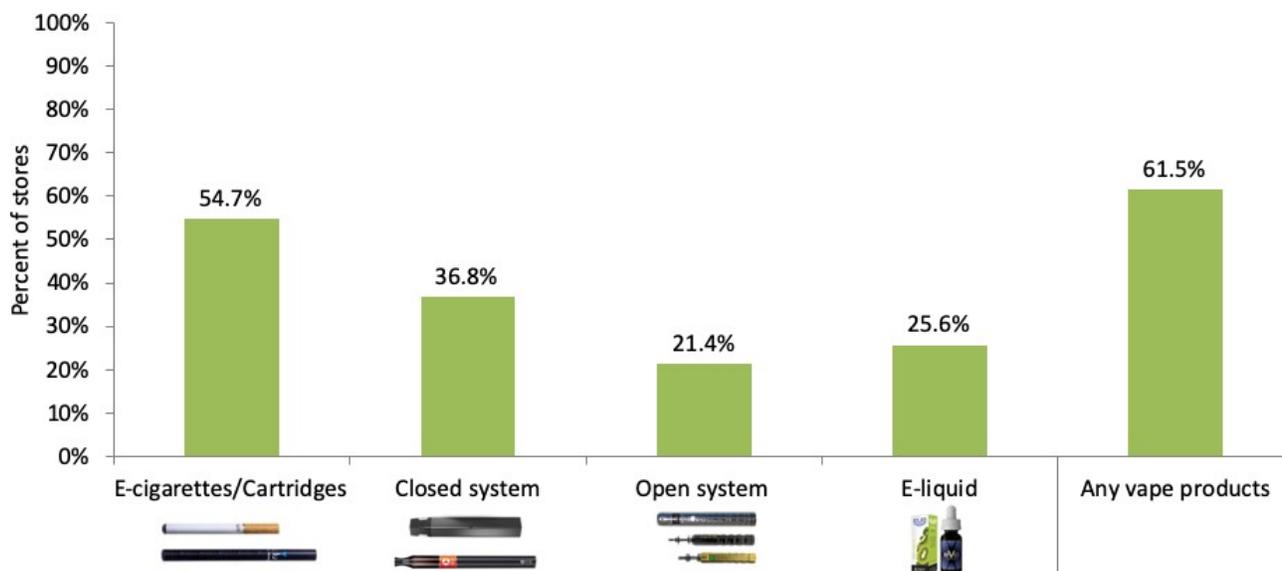
As shown in Table 4, the estimated price of any flavor Juul 4-pod pack in convenience stores was \$26.72, with a significantly higher price in liquor stores than in convenience stores. Juul cost significantly less at stores in some neighborhoods with a higher proportion of Hispanic residents (Table 4). There was no other significant variation in the price of Juul pods by neighborhood demographics.

Section 2: Availability, advertising and price of vaping products

This section characterizes retail availability and advertising of vaping products (including Juul) by product and flavor category. It also compares the relative price of a top-selling disposable e-cigarette (blu), the cheapest e-liquid, and the cheapest pack of cigarettes regardless of brand.

As shown in Figure 8, the majority of stores (61.5 percent) sold vaping products in 2018. Of these stores, 54.7 percent sold e-cigarettes and one fourth (25.6 percent) sold e-liquid that contain nicotine.

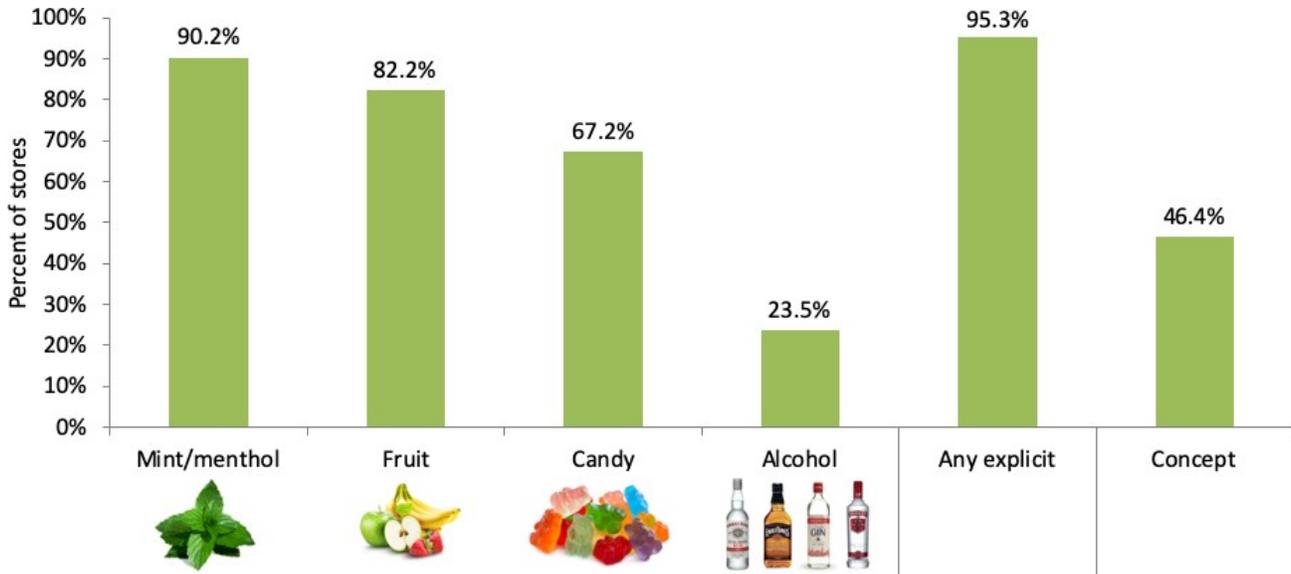
Figure 8: Retail availability of vaping products, by product type (n=1199)



Among stores that sold any vaping products (n=737), nearly all of them (95.3 percent) sold explicit flavored products (mint/menthol, fruit, candy or alcohol) and approximately half (46.4 percent) sold concept flavors

Figure 9). Mint/menthol flavors were most commonly available (90.2 percent), followed by fruit flavors (82.2 percent).

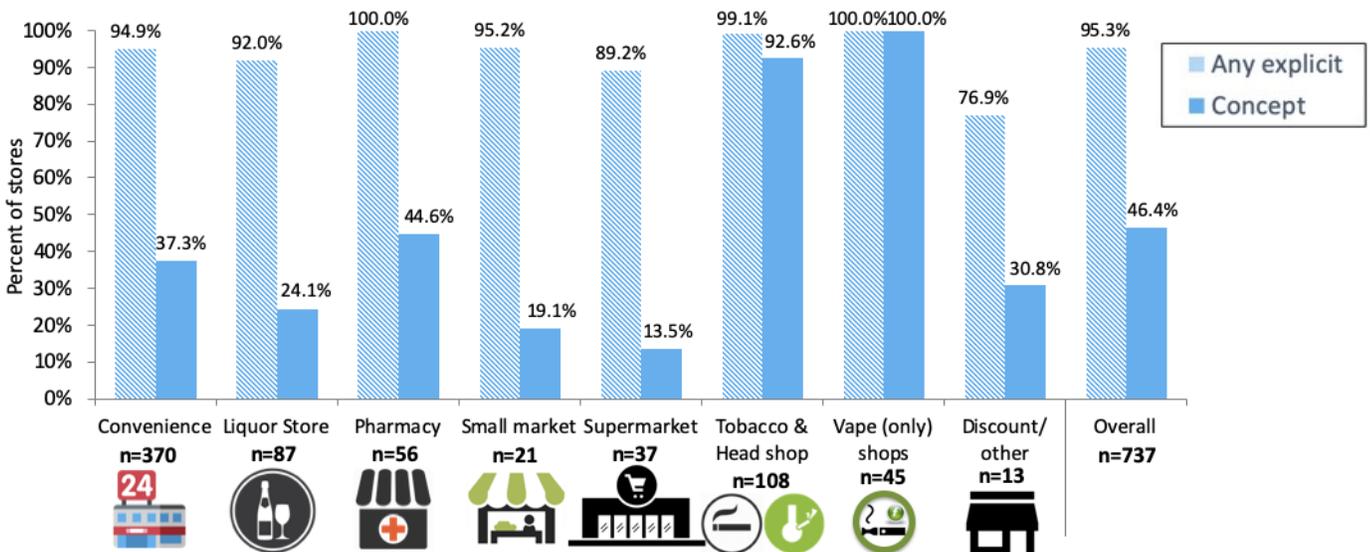
Figure 9: Availability of vaping products, by flavors (n=737*)



*Subgroup of stores that sold vaping products.

As shown in Figure 10, almost all vape products sold by retailers contained explicit flavors (95.3 percent). Approximately half (46.4 percent) sold concept flavors, and these were most common in tobacco/head shops and vape shops.

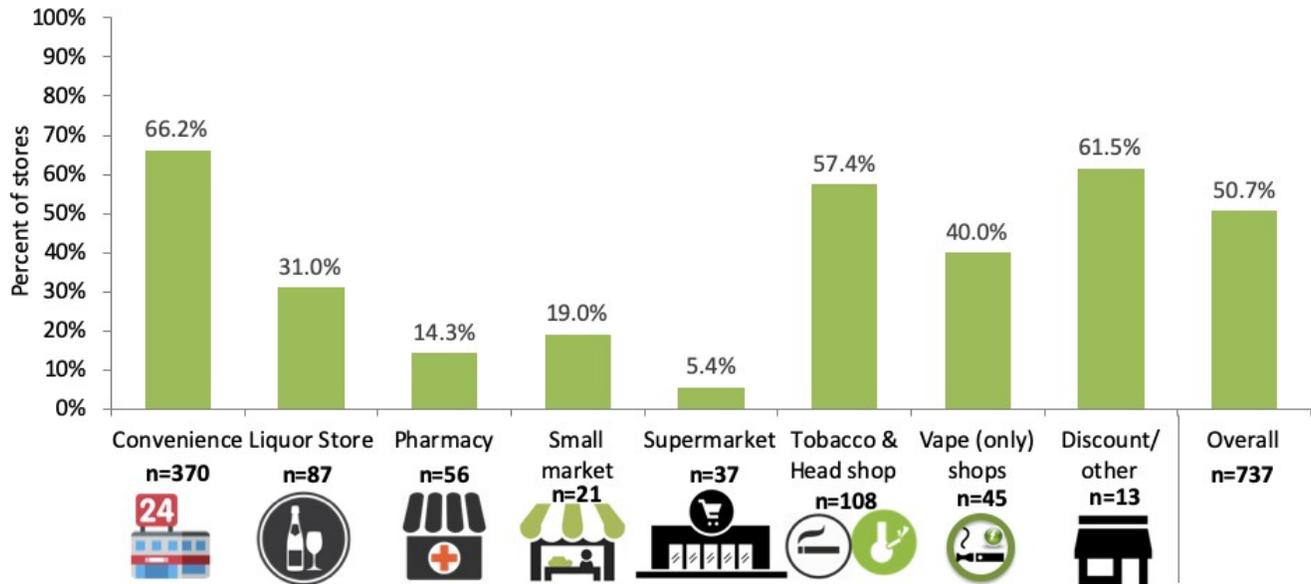
Figure 10: Availability of vaping products, by flavor category and store type (n=737*)



*Subgroup of stores that sold vaping products.

Half of stores that sold vaping products also advertised these products (Figure 11). Advertising for vaping products was most prevalent in convenience stores (66.2 percent), discount/other stores (61.5 percent) and tobacco/head shops (57.4 percent). Notably, only 14.1 percent of stores that sold vaping products advertised a discount for the products (Table 5).

Figure 11: Presence of at least one vaping product advertisement, by store type (n=737*)



*Subgroup of stores that sold vaping products.

Compared to convenience stores, advertising for vaping products was less common in most store types (AOR ranged from 0.02 to 0.29) except for tobacco/head shops and other/discount stores (Table 3). Adjusting for store type, the only neighborhood correlate associated with a higher likelihood of vape product advertising was the percent of Asian/Pacific Islander residents (see Table 3).

Vaping product prices. On average, the price of a disposable e-cigarette (blu) was \$11.17 and the price of the cheapest e-liquid (regardless of brand, size and nicotine content) was \$9.78 (Figure 12). In the multivariate models, pharmacies charged significantly higher prices than convenience stores for a blu e-cigarette (Table 4). This product cost significantly less at stores in neighborhoods with a higher proportion of Hispanic residents and cost significantly more in some neighborhoods with a higher proportion of African-American residents, but not in neighborhoods with the highest proportion of African-American residents (Table 4). A blu e-cigarette was also cheaper in neighborhoods with a higher population density but not in neighborhoods with the highest population density (Table 4). There was no other significant variation in the price of blu by neighborhood demographics.

Notably, pharmacies also charged significantly higher prices for the cheapest e-liquid than convenience stores (Table 4). The cheapest e-liquid cost significantly more at stores in some

neighborhoods with a higher proportion of young-adult residents (Table 4). There was no other significant variation in the price of the cheapest e-liquid by neighborhood demographics.

Figure 12: Price before sales tax of cheapest cigarette pack and three vaping products in 2018: Mean (standard deviation)

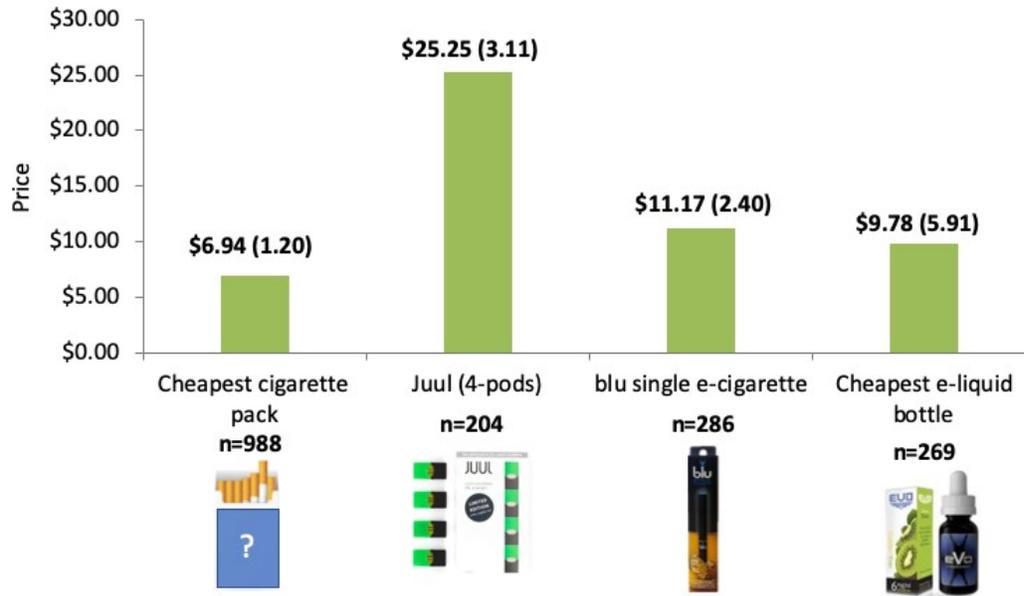
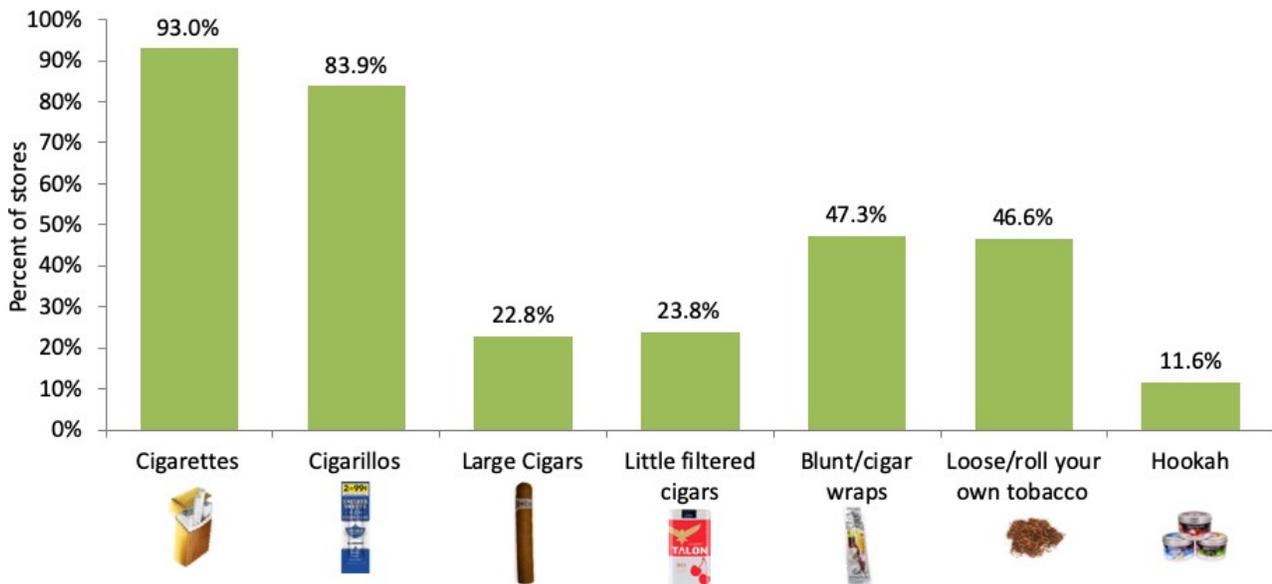


Table 6 compares relative price of three vaping products (blu single e-cigarette, cheapest bottle of e-liquid, and Juul pods 4-pack, respectively) to the cheapest cigarette pack regardless of brand. For example, we computed the price of Juul minus the price of the cheapest cigarette pack within each store. The average differences were \$18.72 (SD=3.19) for Juul, \$4.53 (SD=2.35) for blu, and \$3.36 (SD=6.12) for the cheapest bottle of e-liquid. Comparing prices for products within the same stores (Table 6), blu e-cigarette was consistently more expensive than the cheapest combustible cigarette. Relative to the cheapest pack of cigarettes, a Juul pod pack also cost more in every store that sold both products. However, e-liquids cost less than cigarettes in some stores, particularly liquor stores and small markets.

Section 3: Availability and advertising for conventional tobacco

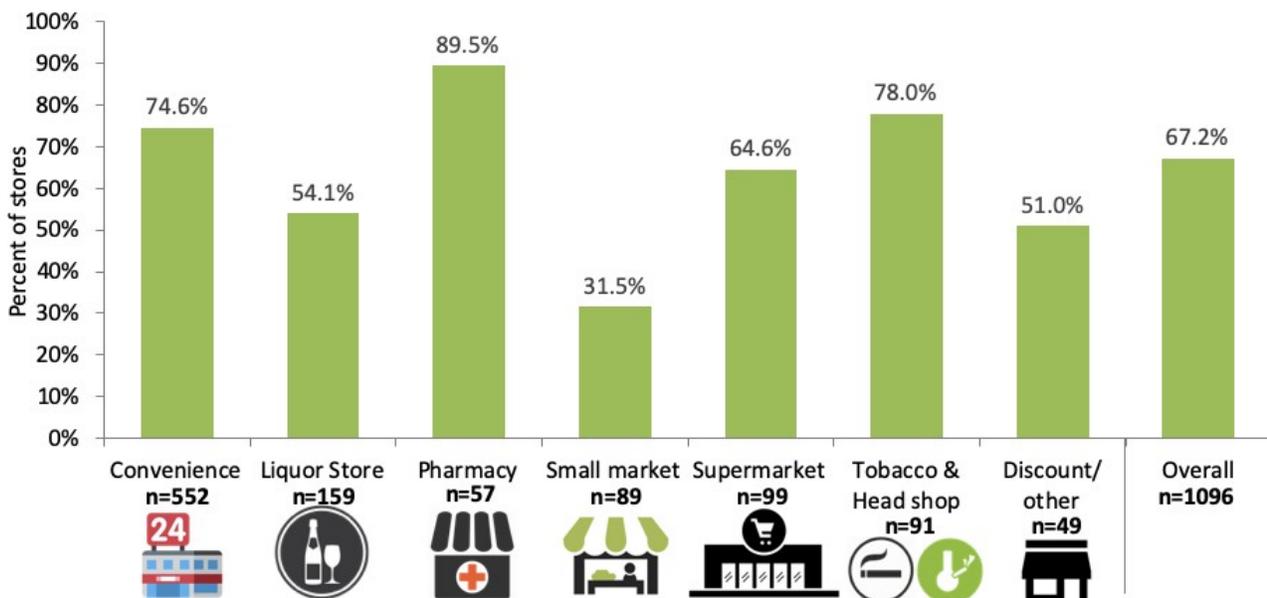
This section summarizes the retail availability of conventional tobacco, by product category and flavor. As shown in Figure 13, nearly all stores sold cigarettes (93.0 percent). The next most common tobacco product was cigarillos (83.9 percent). Also common were blunt/cigar wraps and loose tobacco, found in nearly half of stores. Hookah was the least common tobacco product, found in 11.6 percent of stores.

Figure 13: Retail availability of conventional tobacco in 2018 (n=1199)



Among the 1115 stores that sold cigarettes, nearly all (98.3 percent) sold menthol varieties (Table 7), including all pharmacies and tobacco/head shops. Menthol cigarettes were advertised in 67.2 percent of the stores that sold the product (Figure 14). Notably, menthol cigarette advertising was most prevalent in pharmacies (89.5 percent).

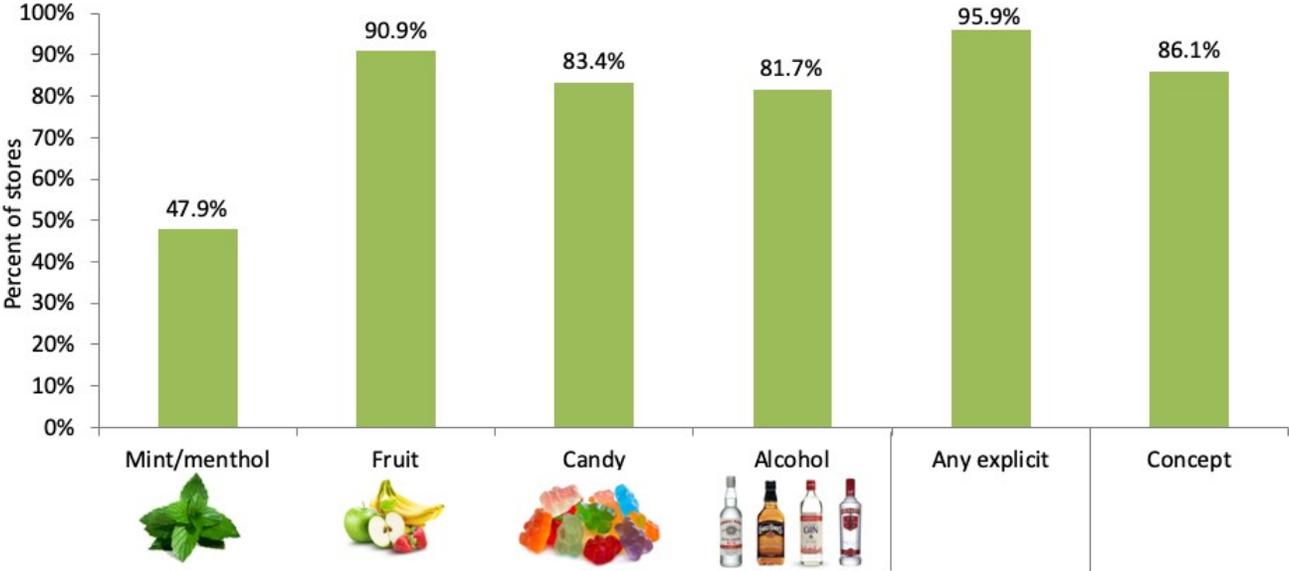
Figure 14: Presence of ads for menthol cigarettes, by store type (n=1096*)



*Subgroup of stores that sold menthol cigarettes.

Among stores that sold cigar products, explicit flavors were ubiquitous (95.9 percent of stores) (Figure 15). The most prevalent flavor category was fruit (90.9 percent), followed by candy (83.4 percent), alcohol (81.7 percent), and mint/menthol (47.9 percent). Concept flavored cigars were widely available (86.1 percent of stores that sold cigar products).

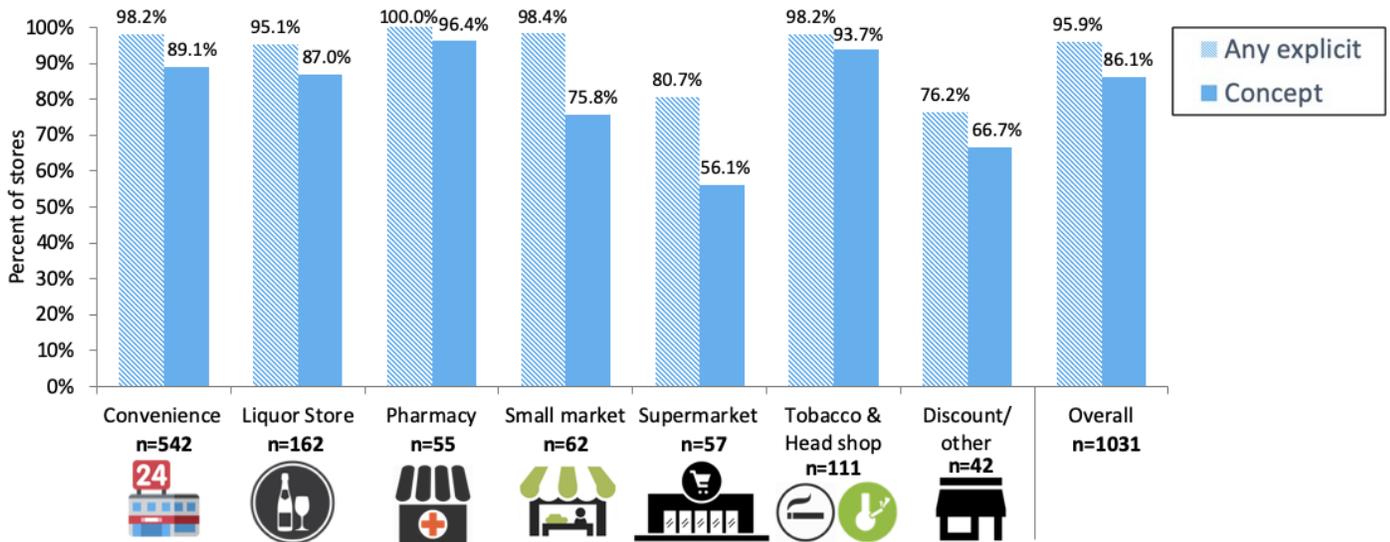
Figure 15: Percent of stores that sold flavored cigars, by flavor category (n=1031*)



*Subgroup of stores that sold cigar products (cigarillos/blunts, cigar/blunt wraps, little filtered cigars).

As shown in Figure 16, both explicit and concept flavored cigar products were commonly sold across all store types and in nearly all pharmacies that sold cigars.

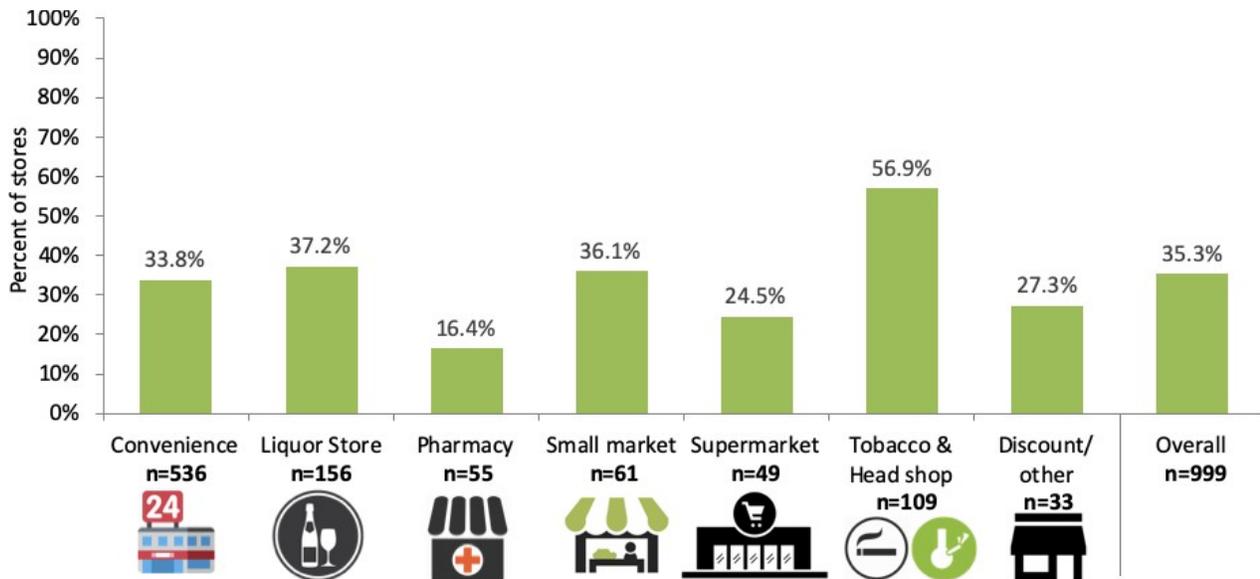
Figure 16: Availability of flavored cigar products, by explicit/concept categories and store type (n=1031*)



*Subgroup of stores that sold cigar products: cigarillos/blunts, cigar/blunt wraps, and little filtered cigars.

As shown in Figure 17, advertising for flavored cigars was evident in 35.3 percent of stores and most common in tobacco/head shops (56.9 percent), liquor stores (37.2 percent), small markets (36.1 percent), and convenience stores (33.8 percent). Even though most pharmacies sold flavored cigars, only 16.4 percent advertised these products.

Figure 17: Any flavored cigar advertising among stores that sold flavored cigars (n=999*)



Neighborhood correlates of advertising for flavored tobacco differed by product category and store type (Table 9). Compared to convenience stores, pharmacies were significantly more likely to advertise menthol cigarettes (AOR=2.93, 95% CI=1.20, 7.14). With the exception of supermarkets and tobacco/head shops, all other store types were significantly less likely than convenience stores to advertise menthol cigarettes (AOR ranged from 0.17 to 0.66). Controlling for store type, advertising for menthol cigarettes was significantly more common in neighborhoods with higher proportions of school-age youth and with higher proportions of young adults, and in neighborhoods with the highest quartile of African-American residents (Table 9).

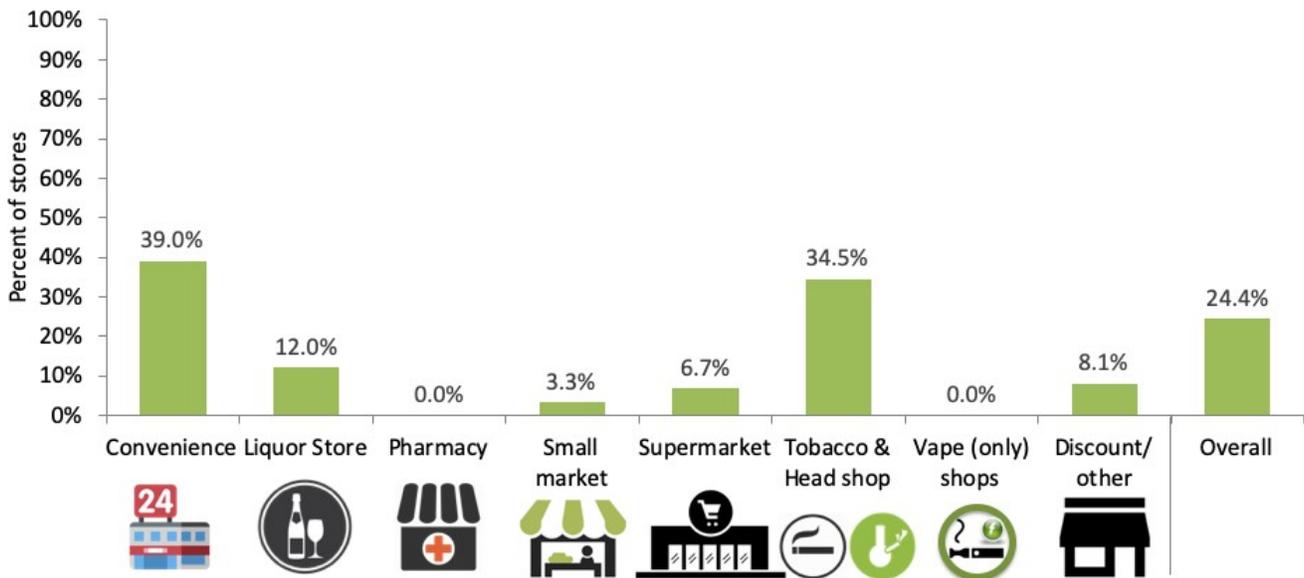
The presence of advertising for flavored cigars also varied by store type and neighborhood demographics (Table 9). Among stores that sold these products, flavored cigar advertising was more common in neighborhoods with higher proportions of Hispanic residents. The results suggest a possible dose-response relationship, with larger odds of advertising flavored cigars as the proportion of Hispanic residents increased. Stores were significantly more likely to advertise flavored cigars in neighborhoods with the highest quartile of African-American residents and in neighborhoods with the highest population density. However, stores in some neighborhoods with higher levels of poverty and stores in neighborhoods with the highest quartile of school-age residents were significantly less likely to advertise flavored cigars (Table 9).

Section 4: Mobile coupons and other price discounts

This section characterizes the presence of at least one advertisement for mobile coupons and for other price discounts on tobacco products. Multivariate models examined the presence of these forms of tobacco promotion as a function of store type and neighborhood demographics.

Mobile coupons. As shown in Figure 18, one in four stores (24.4 percent) advertised mobile coupons for tobacco products. Such advertising was more commonly found in convenience stores (39.0 percent) and tobacco/head shops (34.5 percent) than in other store types.

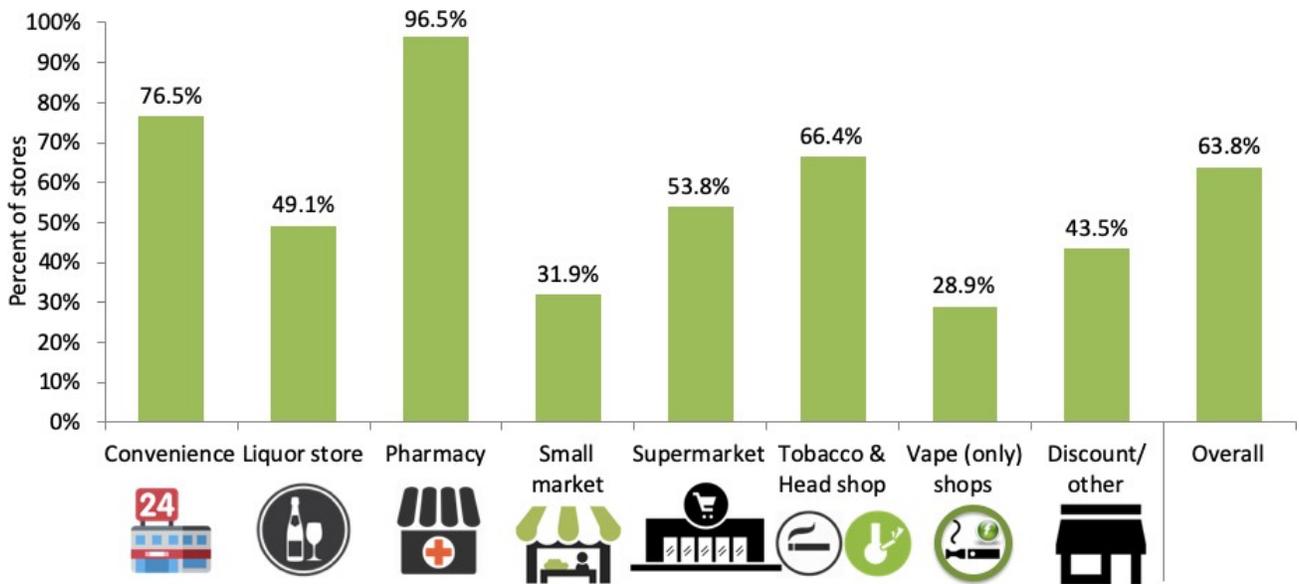
Figure 18: At least one advertisement for mobile coupons, by store type (n=1199)



In a multivariate model, the presence of advertising for mobile coupons was related to store type as well as neighborhood demographics (Table 10). Controlling for store type, mobile coupons were more common at stores in neighborhoods with higher proportions of school-age youth. However, there was an inverse relationship between proportion of Hispanic residents and advertising for mobile coupons. Specifically, stores in neighborhoods with the highest proportion of Hispanic residents were less likely to advertise mobile coupons (Table 10).

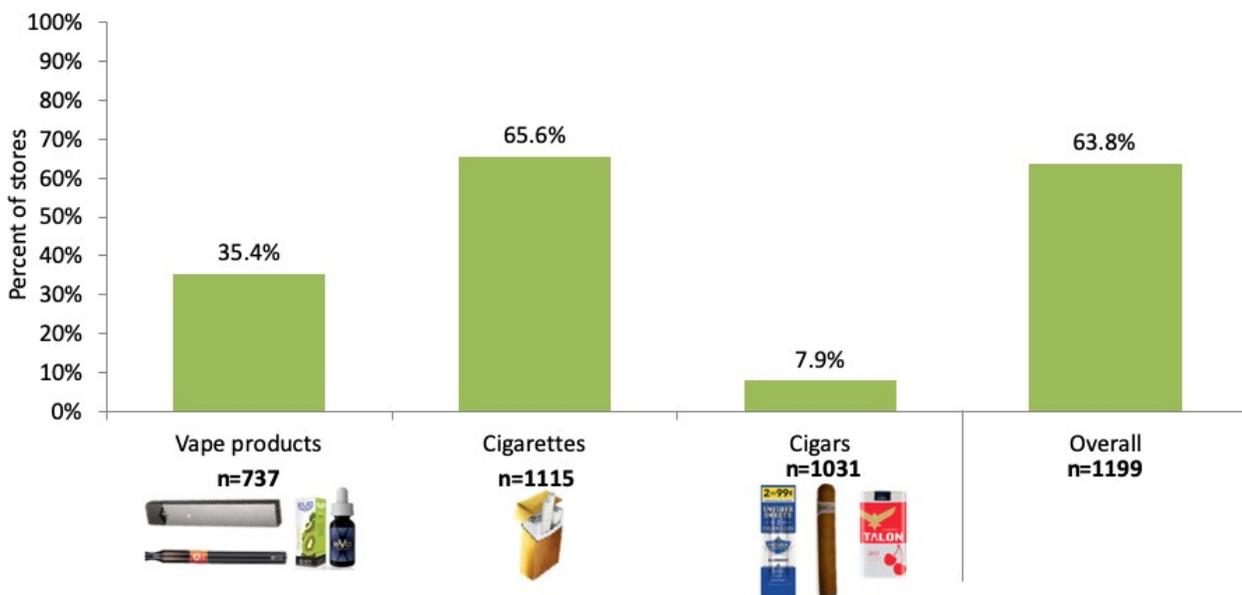
Price discounts. In 2018, 63.8 percent of stores contained at least one advertised discount for tobacco products (Figure 19). Such advertising was most common in pharmacies (96.5 percent), and more commonly found in convenience stores (76.5 percent) and tobacco/head shops (66.4 percent) than in other store types.

Figure 19: Presence of at least one advertised discount for any tobacco, by store type (n=1199)



As shown in Figure 20, advertised discounts on cigarettes were most common (65.6 percent of stores that sold that product) followed by advertised discounts for vaping products (35.4 percent). Few stores that sold cigar products advertised any discounts on those products (7.9 percent).

Figure 20: Presence of at least one advertised discount, by product category*



*Sample sizes vary based on the number of stores that sold each product.

In a multivariate model (Table 10), the presence of at least one advertised discount for any tobacco product was significantly more common in pharmacies compared to convenience stores (AOR=8.29, 95% CI=1.98, 34.69) and significantly less common in all other store types (AORs ranged from 0.11 to 0.57). Controlling for store type, the presence of advertised discounts for any tobacco product was greater in neighborhoods with higher proportions of school-age youth. The presence of advertised discounts was greater in some neighborhoods with higher proportions of young adults, but not in neighborhoods with the highest proportion of young adults (Table 10).

CONCLUSION AND RECOMMENDATIONS

For the first time in 2018, marketing surveillance in California's tobacco retail environment assessed the availability, advertising, and price of Juul. For a product with such a substantial market share, Juul had comparatively little retail presence. The majority of licensed tobacco retailers sold vaping products (61.5 percent), but just 24.4 percent sold Juul. Although the company claims that its product is designed to help adult smokers quit, it does not sell Juul in pharmacies, where smokers seek to purchase cessation aids.¹³ Sold in 4-packs at an average price of \$6.31 per pod, Juul provides substantially more nicotine at a lower price point. On average, one Juul pod cost substantially less than the cheapest pack of cigarettes regardless of brand (Mean=\$6.94, SD=1.20) and premium-brand cigarettes with youth appeal, such as Newport menthol (Mean=\$8.66, SD=0.94). Additional research is needed to understand how California's tobacco tax increase is being passed through to vape product users, generally, and to Juul users, specifically.

After a \$2.00 tax increase, the average price of the cheapest pack of cigarettes regardless of brand (\$6.94) was still substantially less than the average price of a movie ticket (\$9.11),¹⁴ but was more costly than 2018 prices for a pound of ground beef (\$4.08), coffee beans (\$4.29), potato chips (\$4.95), and a half-gallon of ice cream (\$4.84).¹⁵ Even as the prevalence of cigarette smoking has declined,¹⁶ cigarettes remain the most commonly discounted tobacco product (in 65.6 percent of stores where they were sold). Such advertising was more common at stores in neighborhoods with higher proportions of school-age youth and young adults, which raises concerns about policy remedies to protect price-sensitive consumers. Examples of non-tax mechanisms that are recommended strategies to bolster the effect of tax increases are to establish minimum prices,^{17,18} as in New York City, and to eliminate coupon redemption and discounts, as in Providence, Rhode Island; New York City; and more recently in Oakland, California.^{19,20} In 2018, discounts on cigar products were rarely observed, possibly because the price for these products is already so low.^{8,9} In addition, we note that pre-printed packaging that offers "more for less" (e.g., 5 cigarillos for the price of 3) or "2 for 99 cents" did not meet our definition of a temporary discount.²¹

The CTRSS 2018 instrument was also the first to assess the presence of mobile coupons both inside and outside stores. Approximately 1 in 4 stores advertised mobile coupons for tobacco products. Notably, mobile coupons were more common at stores in neighborhoods with a higher proportion of school-age youth. For advertised discounts, the results suggest a possible dose-response relationship, with larger odds of advertising at least one discount as the proportion of school-age youth increased. Tobacco industry practices that target consumers

based on proximity to stores, with promotions that are location-specific and/or time-sensitive are under-studied.^{22,23} Retail surveillance is limited in its ability to study other forms of coupon redemption at the point of sale. To better understand price discounts, analyses of scanner data from Nielsen or other sources should complement CTRSS.²⁴

Results from CTRSS 2018 paint a dismal picture of pharmacy chains that refuse to abandon the sale of tobacco. Pharmacies were the store type most likely to advertise menthol cigarettes and the store type most likely to advertise at least one discount on tobacco products. Pharmacies were also a key source of cheap, flavored tobacco. Nearly all pharmacies sold both explicit- and concept-flavored cigars. Compared to convenience stores, pharmacies charged higher prices for a blu e-cigarette and the cheapest e-liquid, which was probably driven by the larger bottle size at pharmacies. In our previous research, pharmacies sold cigarettes cheaper than other stores, but charged more for bottled water.²⁵ Surprisingly, the policy solution to ban tobacco sales in pharmacies that originated in San Francisco in 2008 has not been widely adopted in California. Fewer than 21 communities or counties have enacted similar local ordinances over the past decade.^{26,27} Results from this surveillance suggest that a statewide ban on tobacco sales in pharmacies would affect 7.8 percent of licensed tobacco retailers (approximately 2400 stores in 2018) and would eliminate a significant retail source of cheap combustible tobacco.

Neighborhood differences in the prevalence of advertising for flavored tobacco remain a persistent cause for concern about health equity. For example, advertising for menthol cigarettes was significantly more common in neighborhoods with a higher proportion of school-age youth and young adults. Stores were more likely to advertise menthol cigarettes and flavored cigars in neighborhoods with the highest proportion of African-American residents. In addition, the likelihood that stores advertised flavored cigars appeared to increase with the proportion of Hispanic residents nearby. A comprehensive sales restriction on flavored tobacco that includes menthol would remedy these inequities as long as stores stopped advertising products that are not legal for sale.² Research is needed to document how exemptions for adult-only/tobacco-only retailers, as specified in some flavored tobacco ordinances in California, affect the availability and accessibility of flavored tobacco to priority populations.

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TABLES

Table 1: Retail availability of vaping products, by product and store type (n=1199)

	Number of stores	E-cigs/ Cartridges	Closed tank systems	Open tank systems	E-liquid	Any device	Any vaping products (devices or e-liquid)	Any type of Juul product
Store type Store Type	n	%	%	%	%	%	%	%
Convenience Convenience	557	62.8%	43.8%	7.2%	11.9%	65.2%	66.4%	29.8%
Liquor store Liquor store	167	47.9%	18.0%	10.2%	16.2%	50.3%	52.1%	12.0%
Pharmacy pharmacy	57	98.2%	78.9%	78.9%	91.2%	98.3%	98.3%	0.0%
Small market small market	91	23.1%	1.1%	0.0%	2.2%	23.1%	23.1%	1.1%
Supermarket spermarket	104	35.6%	2.9%	3.8%	6.7%	35.6%	35.6%	0.0%
Tobacco/head shops	116	77.6%	78.4%	87.9%	90.5%	93.1%	93.1%	73.3%
Vape (only) shops	45	20.0%	46.7%	100.0%	100.0%	100.0%	100.0%	33.3%
Discount/other discount/other	62	21.0%	9.7%	6.5%	4.8%	21.0%	21.0%	3.2%
Total total	1199	54.7%	36.8%	21.4%	25.6%	60.6%	61.5%	24.1%

Table 2: Presence of Juul ads and discounts, by store type (n=289*)

Store type store type	Number of stores	Juul ads (among subgroup of retailers that sold Juul, n=289)			Juul ad with discount (did not ask about Juul-specific mobile or on pack/shelf strip price promos)		
		Interior	Exterior	Any ad	Interior	Exterior	Any ad
Convenience convenience	168	40.4%	26.5%	48.8%	10.8%	11.4%	14.5%
Liquor store liquor store	20	15.0%	0.0%	15.0%	0.0%	0.0%	0.0%
Pharmacy pharmacy	0	N/A	N/A	N/A	N/A	N/A	N/A
Small market small market	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Supermarket supemarket	0	N/A	N/A	N/A	N/A	N/A	N/A
Tobacco/head shops	85	24.7%	12.9%	30.6%	1.2%	1.2%	2.4%
Vape (only) shops	15	20.0%	13.3%	20.0%	6.5%	6.7%	6.7%
Discount/other discount/other	2	60.0%	50.0%	50.0%	0.0%	50.0%	50.0%
Total total	289	32.9%	20.1%	39.4%	6.9%	7.6%	9.7%

*Subgroup of stores that sold Juul.

Table 3: Multivariate models for Juul availability, vape product availability, vape product ads

	Sold Juul, n=885		Sold Any Vaping products, n=1097		Any vape product ads, among stores selling vaping products, n=737	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Constant <small>constant</small>	0.41	95	2.13	95	1.39	95
Store type <small>store type</small>						
Convenience store <small>convenience</small>	Ref. ref	Ref. ref	Ref. ref	Ref. ref	Ref. ref	Ref. ref
Liquor store	0.25	(0.15, 0.43)	0.51	(0.35, 0.75)	0.24	(0.14, 0.40)
Pharmacy	N/A	N/A	N/A	N/A	0.06	(0.03, 0.14)
Small market	N/A	N/A	0.18	(0.11, 0.32)	0.11	(0.03, 0.33)
Supermarket	N/A	N/A	0.24	(0.15, 0.37)	0.02	(0.00, 0.08)
Tobacco/head shops	5.96	(3.69, 9.64)	6.20	(2.91, 13.19)	0.69	(0.43, 1.11)
Vape only shops	0.92	(0.47, 1.83)	N/A	N/A	0.29	(0.15, 0.57)
Discount/other	N/A	N/A	0.11	(0.06, 0.22)	0.69	(0.21, 2.27)
Race/ethnicity, % Quartile 1 is referent category						
% African American						
Quartile 2	0.72	(0.44, 1.16)	1.44	(0.96, 2.17)	1.31	(0.79, 2.15)
Quartile 3	0.79	(0.48, 1.30)	1.39	(0.92, 2.11)	1.04	(0.62, 1.74)
Quartile 4	0.52	(0.30, 0.89)	0.93	(0.61, 1.44)	1.09	(0.63, 1.89)
% Asian/Pacific Islander						
Quartile 2	1.30	(0.78, 2.17)	0.99	(0.66, 1.50)	1.27	(0.77, 2.11)
Quartile 3	1.04	(0.60, 1.81)	0.73	(0.46, 1.14)	1.81	(1.04, 3.14)
Quartile 4	1.18	(0.68, 2.05)	0.89	(0.56, 1.42)	1.59	(0.91, 2.78)
% Other/AIAN/Multiple races						
Quartile 2	1.07	(0.62, 1.86)	1.52	(0.98, 2.35)	1.08	(0.60, 1.93)
Quartile 3	1.26	(0.69, 2.27)	1.10	(0.68, 1.79)	0.86	(0.46, 1.62)
Quartile 4	1.31	(0.70, 2.45)	0.98	(0.59, 1.63)	0.81	(0.42, 1.59)
% Hispanic						
Quartile 2	1.55	(0.96, 2.49)	0.73	(0.47, 1.12)	1.12	(0.69, 1.83)
Quartile 3	1.67	(0.92, 3.03)	0.43	(0.25, 0.73)	1.30	(0.70, 2.40)
Quartile 4	1.65	(0.74, 3.67)	0.26	(0.13, 0.51)	1.19	(0.51, 2.79)
Age, Quartile 1 is referent category						
% School age, 5-17 years						
Quartile 2	0.62	(0.39, 0.97)	1.05	(0.69, 1.60)	1.22	(0.77, 1.93)
Quartile 3	0.56	(0.34, 0.90)	1.02	(0.66, 1.57)	1.11	(0.67, 1.85)
Quartile 4	0.38	(0.21, 0.67)	1.30	(0.80, 2.12)	0.70	(0.39, 1.25)
% Young adult, 18-24 years						
Quartile 2	1.91	(1.19, 3.07)	1.48	(0.97, 2.25)	1.24	(0.77, 2.00)
Quartile 3	1.80	(1.05, 3.10)	1.55	(0.97, 2.48)	1.60	(0.92, 2.79)
Quartile 4	1.68	(0.96, 2.96)	1.37	(0.85, 2.23)	1.60	(0.89, 2.88)
Population density						
Quartile 2	1.46	(0.90, 2.39)	1.30	(0.87, 1.95)	0.78	(0.48, 1.27)
Quartile 3	1.94	(1.18, 3.18)	1.56	(1.03, 2.37)	0.97	(0.59, 1.61)
Quartile 4	2.31	(1.37, 3.90)	1.33	(0.86, 2.05)	0.83	(0.48, 1.43)
Poverty, <185% FPL						
Quartile 2	0.49	(0.30, 0.80)	1.03	(0.66, 1.60)	1.13	(0.68, 1.86)
Quartile 3	0.37	(0.21, 0.64)	0.82	(0.51, 1.32)	0.71	(0.40, 1.24)
Quartile 4	0.34	(0.18, 0.64)	0.68	(0.40, 1.17)	1.07	(0.55, 2.09)
Near school, within 1,000 ft. of K-12 public school boundary	0.90	(0.62, 1.32)	0.88	(0.65, 1.20)	1.06	(0.71, 1.57)

Cell entries are adjusted odds ratio and 95% confidence intervals. Flavored cigars include concept flavors and explicit flavors. For some outcomes, select store types removed because of low frequency yielding non-convergence or poor model fit (irregular SEs etc.). FPL=Federal poverty level. AIAN=American Indian Alaskan Native.

Table 4: Multivariate models for price (before sales tax), by product

	Cheapest cigarette n=988		Juul 4-pod pack n=204		blu e-cigarette n=286		Cheapest e-liquid n=269	
	Coef. (\$)	95% CI	Coef. (\$)	95% CI	Coef. (\$)	95% CI	Coef. (\$)	95% CI
Constant	7.55	(7.22, 7.89)	26.72	(24.42, 29.03)	11.85	(10.68, 13.03)	7.55	(3.92, 11.18)
Store type								
Convenience store	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Liquor store	0.01	(-0.22, 0.23)	2.02	(0.19, 3.85)	0.66	(-0.18, 1.50)	-1.42	(-4.10, 1.25)
Pharmacy	-0.03	(-0.34, 0.28)	N/A	N/A	3.18	(2.50, 3.87)	8.31	(6.19, 10.42)
Small market	0.74	(0.47, 1.00)	N/A	N/A	1.37	(-0.22, 2.96)	-1.59	(-9.25, 6.07)
Supermarket	0.32	(0.08, 0.56)	N/A	N/A	-0.77	(-1.90, 0.36)	9.41	(5.14, 13.69)
Tobacco/head shops	-0.64	(-0.90, -0.38)	0.62	(-0.42, 1.65)	0.86	(0.10, 1.63)	0.59	(-1.21, 2.38)
Vape only shops	N/A	N/A	-0.87	(-3.05, 1.31)	N/A	N/A	2.81	(0.66, 4.96)
Discount/other	0.80	(0.47, 1.13)	-1.63	(-8.13, 4.87)	1.25	(-0.43, 2.92)	1.24	(-4.88, 7.37)
Race/ethnicity (%), Quartile 1 is the referent category								
African American								
Quartile 2	-0.01	(-0.22, 0.20)	1.02	(-0.39, 2.44)	0.18	(-0.55, 0.91)	-0.28	(-2.37, 1.81)
Quartile 3	-0.08	(-0.29, 0.13)	1.31	(-0.15, 2.77)	0.80	(0.03, 1.57)	-0.02	(-2.17, 2.12)
Quartile 4	-0.06	(-0.29, 0.17)	0.76	(-0.96, 2.48)	0.66	(-0.13, 1.46)	0.06	(-2.18, 2.31)
Asian/Pacific Islander								
Quartile 2	0.08	(-0.14, 0.29)	0.09	(-1.48, 1.67)	-0.80	(-1.57, -0.02)	0.27	(-1.83, 2.36)
Quartile 3	0.20	(-0.03, 0.43)	-0.58	(-2.21, 1.04)	-0.49	(-1.36, 0.37)	-0.05	(-2.33, 2.22)
Quartile 4	0.21	(-0.03, 0.45)	-0.19	(-1.85, 1.46)	-0.54	(-1.41, 0.32)	0.75	(-1.51, 3.01)
Other/AIAN/Multi-racial								
Quartile 2	-0.14	(-0.38, 0.09)	-1.34	(-3.16, 0.47)	0.12	(-0.76, 0.99)	0.09	(-2.11, 2.30)
Quartile 3	0.03	(-0.22, 0.28)	-0.98	(-2.82, 0.86)	-0.09	(-1.02, 0.83)	-0.20	(-2.66, 2.26)
Quartile 4	-0.02	(-0.29, 0.25)	-0.55	(-2.50, 1.40)	-0.42	(-1.40, 0.56)	0.13	(-2.44, 2.71)
Hispanic								
Quartile 2	-0.18	(-0.40, 0.03)	-1.46	(-2.83, -0.10)	-0.95	(-1.64, -0.26)	-0.56	(-2.49, 1.37)
Quartile 3	-0.28	(-0.55, -0.02)	-1.31	(-3.03, 0.40)	-1.30	(-2.17, -0.42)	-0.98	(-3.27, 1.31)
Quartile 4	-0.24	(-0.59, 0.11)	-2.65	(-5.15, -0.16)	-1.27	(-2.50, -0.04)	-0.71	(-3.97, 2.55)
Age (%), quartile 1 is the referent category								
School age, 5-17 years								
Quartile 2	-0.30	(-0.51, -0.09)	0.41	(-0.80, 1.61)	-0.20	(-0.87, 0.47)	-0.91	(-2.64, 0.82)
Quartile 3	-0.31	(-0.53, -0.09)	0.54	(-0.73, 1.81)	0.58	(-0.15, 1.31)	-1.28	(-3.28, 0.71)
Quartile 4	-0.26	(-0.50, -0.01)	0.98	(-0.66, 2.63)	-0.28	(-1.10, 0.54)	-0.35	(-2.79, 2.09)
Young adult, 18-24 years								
Quartile 2	-0.23	(-0.45, -0.02)	-0.78	(-2.08, 0.53)	0.28	(-0.40, 0.96)	2.10	(0.23, 3.97)
Quartile 3	-0.41	(-0.66, -0.17)	-0.88	(-2.51, 0.76)	-0.21	(-1.00, 0.58)	0.17	(-2.02, 2.36)
Quartile 4	-0.36	(-0.61, -0.11)	-0.02	(-1.69, 1.65)	-0.27	(-1.12, 0.59)	2.15	(-0.16, 4.46)
Poverty, <185% FPL								
Quartile 2	-0.02	(-0.24, 0.20)	0.43	(-0.86, 1.72)	0.07	(-0.61, 0.76)	1.24	(-0.60, 3.09)
Quartile 3	-0.10	(-0.34, 0.14)	0.07	(-1.54, 1.67)	0.24	(-0.55, 1.04)	0.84	(-1.38, 3.06)
Quartile 4	-0.06	(-0.34, 0.22)	0.47	(-1.52, 2.46)	1.03	(0.00, 2.07)	-0.06	(-2.62, 2.49)
Population density								
Quartile 2	-0.04	(-0.25, 0.17)	-0.78	(-2.21, 0.65)	-0.83	(-1.50, -0.15)	-1.04	(-2.91, 0.84)
Quartile 3	-0.15	(-0.36, 0.07)	-1.16	(-2.54, 0.22)	-0.91	(-1.61, -0.21)	-1.24	(-3.24, 0.76)
Quartile 4	-0.05	(-0.27, 0.17)	-0.81	(-2.26, 0.65)	-0.51	(-1.27, 0.26)	-0.78	(-2.81, 1.25)
Near school, within 1000 ft. of K-12 public school boundary	0.02	(-0.14, 0.18)	0.93	(-0.17, 2.02)	-0.30	(-0.88, 0.28)	1.20	(-0.47, 2.88)
For some outcomes, select store types removed because of no/low prices for product of interest. FPL=Federal poverty level. AIAN=American Indian Alaskan Native.								

Table 5: Presence of vape product advertisements, by store type (n=737*)

		Vape product (devices inc Juul, e-liquids) ads (interior/exterior) among subgroup of stores that sold any vaping products (n=737)
Store type	Number of stores	Contained at least one ad (%)
Convenience	370	24.3%
Liquor store	87	4.6%
Pharmacy	56	0.0%
Small market	21	4.8%
Supermarket	37	0.0%
Tobacco/head shops	108	6.5%
Vape (only) shops	45	2.2%
Discount/other	13	7.7%
Total	737	14.1%

*Subgroup of stores that sold vaping products.

Table 6: Price of vaping products relative to cheapest cigarette pack, regardless of brand

Store type	blu e-cigarette			Cheapest bottle of e-liquid			Juul pods 4-pack		
	Number of stores	Mean	SD	Number of stores	Mean	SD	Number of stores	Mean	SD
Convenience	132	3.66	1.91	51	1.42	2.88	102	18.43	3.09
Liquor store	26	4.28	2.31	19	-1.43	2.30	11	19.55	3.88
Pharmacy	48	6.93	2.08	45	8.77	7.49	N/A	N/A	N/A
Small market	7	5.12	3.12	2	-0.28	3.09	N/A	N/A	N/A
Supermarket	13	3.26	1.19	7	9.64	10.22	N/A	N/A	N/A
Tobacco/head shops	34	5.01	2.19	73	2.16	4.47	56	19.07	3.26
Vape (only) shops	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Discount/other	6	4.94	1.37	3	2.49	3.94	1	19.99	-
Total	266	4.53	2.35	200	3.36	6.12	170	18.72	3.19

NOTE: Outcome is the price of vape product minus price of cheapest cigarette pack (within-store difference). The price of blu was more than price of cheapest cigarette in all n=266 stores with price data for both products. Stores needed to have valid price data for both measures to be included, yielding smaller sample sizes.

Table 7: Availability of menthol cigarettes, by store type (n=1115*)

Store type	Number of stores	Sold menthol
Convenience	556	99.3%
Liquor store	160	99.4%
Pharmacy	57	100.0%
Small market	91	97.8%
Supermarket	104	95.2%
Tobacco/head shops	91	100.0%
Vape (only) shops	0	N/A
Discount/other	56	87.5%
Total	1115	98.3%

* Subgroup of stores that sold cigarettes

Table 8: Presence of advertisements by product, location and store type (n=1199)

Store type	Number of stores	Vaping products	Cigarettes			Cigar products		
		Any ads	Interior	Exterior	Any ads	Interior	Exterior	Any ads
Convenience	557	44.0%	79.9%	46.9%	82.4%	42.9%	7.4%	45.1%
Liquor store	167	16.2%	65.3%	29.9%	70.1%	40.7%	10.8%	44.3%
Pharmacy	57	14.0%	94.7%	1.8%	94.7%	15.8%	0.0%	15.8%
Small market	91	4.4%	44.0%	17.6%	49.5%	27.5%	6.6%	28.6%
Supermarket	104	1.9%	68.3%	1.9%	68.3%	13.5%	0.0%	13.5%
Tobacco/head shops	116	53.5%	62.1%	57.8%	67.2%	65.5%	44.0%	68.1%
Vape (only) shops	45	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Discount/other	62	12.9%	43.6%	21.0%	46.8%	25.8%	4.8%	27.4%
Total	1199	31.2%	68.2%	34.2%	71.1%	37.3%	9.9%	39.2%

Table 9: Multivariate model of presence of any advertising for menthol cigarettes, flavored cigars

	Any menthol cigarette ads, among stores selling menthol cigarettes, n=1096		Any flavored cigar ads, among stores selling flavored cigars, n=999	
	AOR	95% CI	AOR	95% CI
Constant	0.86		0.245	
Store type				
Convenience store	Ref.	Ref.	Ref.	Ref.
Liquor store	0.38	(0.26, 0.57)	0.97	(0.65, 1.44)
Pharmacy	2.93	(1.20, 7.14)	0.38	(0.18, 0.82)
Small market	0.17	(0.10, 0.28)	1.08	(0.59, 1.98)
Supermarket	0.66	(0.41, 1.05)	0.64	(0.32, 1.29)
Tobacco/head shops	1.16	(0.66, 2.02)	2.78	(1.76, 4.37)
Vape only shops	N/A	N/A	N/A	N/A
Discount/other	0.36	(0.19, 0.67)	0.69	(0.30, 1.61)
Race/ethnicity, %, Quartile 1 is the referent category				
African American				
Quartile 2	1.00	(0.67, 1.49)	1.17	(0.76, 1.81)
Quartile 3	1.44	(0.95, 2.19)	1.20	(0.78, 1.86)
Quartile 4	1.78	(1.14, 2.78)	2.17	(1.38, 3.42)
Asian/Pacific Islander				
Quartile 2	1.26	(0.83, 1.90)	1.00	(0.65, 1.54)
Quartile 3	1.07	(0.69, 1.67)	0.81	(0.51, 1.29)
Quartile 4	1.09	(0.69, 1.73)	1.01	(0.63, 1.63)
Other/AIAN/Multi-racial				
Quartile 2	1.28	(0.82, 2.00)	1.51	(0.95, 2.38)
Quartile 3	1.09	(0.67, 1.77)	1.03	(0.62, 1.72)
Quartile 4	0.99	(0.59, 1.65)	1.04	(0.60, 1.80)
Hispanic				
Quartile 2	1.06	(0.69, 1.63)	1.82	(1.15, 2.88)
Quartile 3	0.77	(0.45, 1.29)	2.03	(1.16, 3.55)
Quartile 4	0.59	(0.30, 1.15)	6.46	(3.15, 13.25)
Age, %, Quartile 1 is the referent category				
School-age youth, 5-17 years				
Quartile 2	2.29	(1.52, 3.44)	0.83	(0.55, 1.27)
Quartile 3	2.04	(1.33, 3.13)	0.88	(0.57, 1.37)
Quartile 4	2.98	(1.80, 4.92)	0.41	(0.24, 0.68)
Young adult, 18-24 years				
Quartile 2	1.65	(1.09, 2.50)	0.95	(0.61, 1.48)
Quartile 3	1.81	(1.13, 2.90)	1.18	(0.72, 1.93)
Quartile 4	1.74	(1.07, 2.82)	1.18	(0.72, 1.95)
Population density, Quartile 1 is the referent category				
Quartile 2	1.12	(0.74, 1.68)	1.19	(0.78, 1.82)
Quartile 3	1.11	(0.73, 1.70)	1.15	(0.75, 1.78)
Quartile 4	0.78	(0.51, 1.20)	1.70	(1.10, 2.65)
Poverty, <185% FPL, %, Quartile 1 is the referent category				
Quartile 2	1.33	(0.85, 2.06)	0.68	(0.43, 1.05)
Quartile 3	1.03	(0.64, 1.66)	0.47	(0.28, 0.77)
Quartile 4	0.65	(0.38, 1.13)	0.42	(0.24, 0.75)
Near school, within 1000 ft. of K-12 public school boundary	1.09	(0.80, 1.49)	1.23	(0.90, 1.69)

Cell entries are adjusted odds ratio and 95% confidence intervals. Flavored cigars refers to explicit flavors. FPL=Federal poverty level. AIAN=American Indian Alaskan Native. For some outcomes, select store types removed because of low frequency yielding non-convergence or poor model fit (i.e., irregular standard errors).

Table 10: Multivariate models for presence of advertising for mobile coupons and any discount

	Any mobile coupon (cigarettes, cigar, vaping products) interior/exterior, n=1097		Any tobacco discount (ads, on-pack cigarettes, unbranded shelf strip, mobile coupons), n=1199	
	AOR	95% CI	AOR	95% CI
Constant	0.15		1.39	
Store type				
Convenience store	Ref.	Ref.	Ref.	Ref.
Liquor store	0.20	(0.12, 0.34)	0.29	(0.20, 0.42)
Pharmacy	N/A	N/A	8.29	(1.98, 34.69)
Small market	0.06	(0.02, 0.19)	0.15	(0.09, 0.25)
Supermarket	0.10	(0.04, 0.22)	0.36	(0.23, 0.57)
Tobacco/head shops	0.77	(0.49, 1.21)	0.57	(0.36, 0.89)
Vape only	N/A	N/A	0.11	(0.05, 0.22)
Discount/other	0.12	(0.05, 0.32)	0.21	(0.12, 0.38)
Race/ethnicity, % quartiles				
African American				
Quartile 2	1.36	(0.86, 2.13)	1.11	(0.76, 1.63)
Quartile 3	1.21	(0.76, 1.91)	1.35	(0.90, 2.00)
Quartile 4	0.90	(0.55, 1.48)	1.13	(0.75, 1.72)
Asian/Pacific Islander				
Quartile 2	1.17	(0.74, 1.84)	1.06	(0.71, 1.57)
Quartile 3	1.24	(0.76, 2.03)	0.96	(0.63, 1.46)
Quartile 4	0.99	(0.59, 1.65)	0.89	(0.58, 1.38)
Other/AIAN/Multi-racial				
Quartile 2	1.51	(0.91, 2.50)	1.40	(0.91, 2.14)
Quartile 3	1.07	(0.61, 1.86)	1.50	(0.94, 2.38)
Quartile 4	1.47	(0.83, 2.61)	1.27	(0.78, 2.07)
Hispanic				
Quartile 2	1.22	(0.77, 1.91)	1.18	(0.79, 1.76)
Quartile 3	0.82	(0.47, 1.43)	0.79	(0.48, 1.29)
Quartile 4	0.44	(0.21, 0.93)	0.80	(0.42, 1.50)
Age, %, quartiles, Quartile 1 is the referent category				
School age, 5-17 years				
Quartile 2	2.54	(1.61, 4.01)	1.64	(1.12, 2.40)
Quartile 3	2.89	(1.78, 4.69)	1.60	(1.07, 2.40)
Quartile 4	4.15	(2.42, 7.13)	1.79	(1.13, 2.85)
Young adult, 18-24 years				
Quartile 2	1.09	(0.70, 1.70)	1.58	(1.07, 2.35)
Quartile 3	1.26	(0.76, 2.09)	1.59	(1.02, 2.47)
Quartile 4	1.35	(0.80, 2.29)	1.46	(0.92, 2.30)
Population density, Quartile 1 is the referent category				
Quartile 2	1.17	(0.76, 1.80)	0.96	(0.65, 1.42)
Quartile 3	1.40	(0.89, 2.18)	0.94	(0.63, 1.40)
Quartile 4	1.01	(0.62, 1.65)	0.69	(0.46, 1.04)
Poverty, <185% FPL, %, Quartile 1 is the referent category				
Quartile 2	1.38	(0.86, 2.19)	1.25	(0.83, 1.89)
Quartile 3	1.11	(0.67, 1.85)	0.96	(0.61, 1.51)
Quartile 4	0.98	(0.54, 1.79)	0.85	(0.51, 1.41)
Near school, within 1000 ft. of K-12 public school boundary	0.99	(0.70, 1.40)	1.06	(0.79, 1.42)
*FPL= Federal poverty level. AIAN=American Indian Alaskan Native. Cell entries are adjusted odds ratio and 95% confidence intervals. Advertisements could be exterior or interior. For some outcomes, select store types removed because of low frequency yielding non-convergence or poor model fit (irregular SEs etc.).				

APPENDIX I: Inter-rater reliability analysis for select variables (n=100)

	Kappa	Percent agreement
AVAILABILITY, BY PRODUCT TYPE AND FLAVOR CATEGORY		
Cigarettes		
Non-menthol		100%
Menthol	0.75	97%
Cigars		
Cigarillos	0.78	94%
Cigar wraps/blunt wraps	0.60	80%
Large cigars	0.71	90%
20-packs little filtered cigars	0.35	85%
Cigar product flavors		
Mint/menthol	0.31	65%
Fruit	0.79	93%
Candy	0.53	82%
Alcohol	0.70	88%
Concept	0.55	83%
Juul product availability		
Starter kit	Too few to est	78%
Pods alone	0.25	80%
Device alone	Too few to est	80%
Vaping device availability (includes cartridges)		
E-cigarettes	0.70	85%
Closed tank systems	0.71	87%
Open tank systems	0.74	92%
Vaping device flavors (includes cartridges)		
Mint/menthol	0.69	88%
Fruit	0.68	88%
Candy	0.58	86%
Alcohol	0.30	92%
Concept flavors	Too few to est	87%
E-liquid	0.78	93%
E-liquid flavors		
Mint/menthol	0.79	94%
Fruit	0.80	94%
Candy	0.80	94%
Alcohol	0.75	95%
Concept	0.80	95%
ADVERTISING MEASURES		
Mobile coupons		
Any interior	0.28	77%
Any exterior	0.67	84%
Discount on pack, unbranded shelf strip	0.44	87%
Any vape		
Any cigarette	0.58	80%
Cigarette ads		
Interior ad with discount	0.37	71%
Exterior ad with discount	0.34	84%
Cigar ads		
Interior	0.20	60%
Exterior	0.60	89%
Interior ad with discount	N/A	91%
Exterior ad with discount	0.39	97%
PRICES (BEFORE SALES TAX)		
		ICC
Cheapest pack of cigarettes		0.88
Juul	Too few cases to estimate	
E-liquid		0.77
blu		0.69

APPENDIX II: CTRSS 2018 Marketing Surveillance Instrument

CTRSS 2018

Stanford

Refresh Last refreshed June 24, 2019 10:16 AM

Store ID (6-digit ID)

Saved Responses

0 pending responses

0 uploaded responses

Take Survey

Ready to collect responses.

Manage Upload

Stanford

Q1. Store ID (6-digit ID)

Q2. Please re-enter Store ID (6-digit ID)

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Stanford

Q3. Coder ID (2-character ID)

Q4. What is the store name?

Q5. What is the store address? (Number and street only, e.g. 111 Pine Street)

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Stanford

Q6. Will you attempt to survey this store? (Select one)

- Yes
- No, store is closed
- No, membership or fee required to enter
- No, environment unsafe for me
- No, tobacco products not sold
- No, other (specify)

Powered by Qualtrics

Stanford

Q7. What type of store is this? (Select one)

- Convenience store (with or without gas)
- Discount store (i.e., Dollar General, 98 Cent Store, Discounts R US, Walmart)
- Head shop
- Liquor store
- Pharmacy (Walgreens, etc.)
- Small market/deli/produce market
- Supermarket/large grocery store
- Tobacco shop
- Vape shop
- Other (specify, e.g. gas kiosk):

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Stanford

Q8. Part 2: Products

Regular Menthol



Q9. Which cigarettes are sold?

- Regular (non-menthol)
- Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Marlboro Ice)
- None

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Stanford

Q10.
Which **cigarettes** have price promotions on-pack or on unbranded shelf strips?

Regular (non-menthol)

Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Marlboro Ice)

None

<< >>

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Stanford

Cigarillos Cigar wraps Large cigars 20-packs of little cigars



Q11. Which **cigar products** are sold? (Select all)

Cigarillos, including blunts

Cigar wraps, including blunt wraps

Large cigars

20-packs of little cigars (e.g., Talon, Swisher Sweets, Prime Time)

None

<< >>

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Stanford

Q12. **Cigar products** are available in which flavors: (Select all)

Menthol or mint (e.g., ice, peppermint, spearmint, frost)

Fruit (e.g., apple, grape, strawberry)

Candy/sweet/spice (e.g., bubblegum, honey, vanilla)

Alcohol/cocktail (e.g., margarita, pina colada, wine grape)

"Concept" flavor (e.g., color, jazz, summer breeze)

None of the above

<< >>

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Stanford

Q13.
Cigarillos: What is the minimum pack size of cigarillos? (Select one)

One (sold as singles)

Two

Three

Four

Five

Six or more

<< >>

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Stanford

Q14. **Cigarillos:** What's the largest pack of cigarillos for less than \$1? (Select one)

1

2

3

4 or more

None, because all packs cost \$1 or more

<< >>

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Stanford

Q15. **Little cigars:** 20-packs of little cigars come in which flavors: (e.g., Talon, Swisher Sweets, Prime Time)(Select all)

Menthol or mint (e.g., ice, peppermint, spearmint, frost)

Fruit (e.g., apple, grape, strawberry)

Candy/sweet/spice (e.g., bubblegum, honey, vanilla)

Alcohol/cocktail (e.g., margarita, pina colada, wine grape)

"Concept" flavor (e.g., color, jazz, summer breeze)

None

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Q16. Little cigars: Cheapest price for 20-pack of little cigars? (e.g., Talon, Swisher Sweets, Prime Time)

\$1.99 or less
 \$2.00-\$2.87
 \$2.88 or more
 Cannot determine

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Q17. Products that associate marijuana with tobacco products. Does this store sell:

	Select one per row	
	Yes	No
Hemp rolling papers (e.g., RAW, OCB, Pure Hemp)	<input checked="" type="radio"/>	<input type="radio"/>
Blunt in a cigar brand name (e.g., Royal Blunts) or product descriptor (e.g., blunt wraps or Phillies blunts)	<input checked="" type="radio"/>	<input type="radio"/>
Cigar products that reference marijuana in flavor names (e.g., Cali Green, Chiba, Indo/High Indo, Kush) or pack imagery (e.g., Spitarillos, Happy Times clock face)	<input checked="" type="radio"/>	<input type="radio"/>

Q18. Other examples of marijuana flavor names: Loud, OGK, Pineapple Express, Purple Haze

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Hookah Loose or pipe tobacco



Q19. **Other tobacco products:** Which are sold? (Select all)

Hookah/Shisha (e.g., Starbuzz, Fumari, Tangiers)
 Loose or pipe tobacco (e.g., Captain Black, ZigZag)
 None

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Herbal wraps Cigarette rolling papers Dry-chamber vaporizers Tobacco pipes Marijuana pipes



Q20. Which products are sold? (Select all)

Herbal wraps (e.g., Primal, High Hemp)
 Cigarette rolling papers (e.g., ZigZag)
 Dry-chamber vaporizers (e.g., Pax, Firefly)
 Tobacco pipes (traditional)
 Marijuana pipes (e.g., glass, ceramic, etc.)
 None

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Starter kit Pods alone Device alone



Q21. **JUUL:** Which JUUL products are sold? (Select all)

Starter kit (device and pods)
 Pods alone (no device in box)
 Device alone (no pods in box)
 None

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E-cigarette/cartridges Closed-tank systems Open-tank systems



Q22. **Vaping devices:** Which types are sold? (Select all)

E-cigarettes/cartridges (e.g., Vuse Solo, MarkTen, Blu Plus/Disposable)
 Closed-tank systems (e.g., JUUL, MyBlu, Vuse Vibe, MarkTen)
 Open-tank systems you fill with e-liquid (e.g., Blu Pro, NJOY Tank)
 None

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Q23. **Vaping devices:** Which have promotions on-pack or on unbranded shelf strips? (Select all)

- E-cigarettes/cartridges (e.g., Vuse Solo, MarkTen, Blu Disposable/Plus, Logic)
- Closed-tank systems (e.g., JUUL, MyBlu, Vuse Vibe, MarkTen)
- Open-tank systems you fill with e-liquid (e.g., Blu Pro, NJOY Tank)
- None

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Q24. **Vaping devices** come in which flavors: (Includes cartridges)(Select all)

- Menthol or mint (e.g., ice, peppermint, spearmint, frost)
- Fruit (e.g., apple, grape, strawberry)
- Candy/sweet/spice (e.g., bubblegum, honey, vanilla)
- Alcohol/cocktail (e.g., margarita, pina colada, wine grape)
- "Concept" flavor (e.g., color, jazz, summer breeze)
- None

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E-liquid

Q25. **E-liquids:** Are they sold?

Yes
 No

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Q26. **E-liquids:** Do any have promotions on-pack or on unbranded shelf strips?

Yes
 No

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Q27. **E-liquids** come in which flavors: (Select all)

- Menthol or mint (e.g., ice, peppermint, spearmint, frost)
- Fruit (e.g., apple, grape, strawberry)
- Candy/sweet/spice (e.g., bubblegum, honey, vanilla)
- Alcohol/cocktail (e.g., margarita, pina colada, wine grape)
- "Concept" flavor (e.g., color, jazz, summer breeze)
- None

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Q28. **Zero nicotine:** Which products are sold without nicotine? (Select all)

- Vaping devices/cartridges
- E-liquids
- None

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<p>Q29. Part 3: Advertisements</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q30. Cigarette ads: Which products are <u>advertised</u>? (Select all)</p> <p><input type="checkbox"/> Regular (non-menthol), (e.g., Marlboro red, Newport red, Natural American Spirit)</p> <p><input type="checkbox"/> Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Marlboro Ice)</p> <p><input type="checkbox"/> None</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q31. Cigarette ads: Which ads have <u>price promotions</u>? (Select all)</p> <p><input type="checkbox"/> Regular (non-menthol, e.g., Marlboro red, Newport red, Natural American Spirit)</p> <p><input type="checkbox"/> Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Marlboro Ice)</p> <p><input type="checkbox"/> None</p> <p><< >></p> <p>Powered by Qualtrics</p>

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<p>Q32. Cigar product ads: Which products are <u>advertised</u>? (Includes cigarillos, little cigars, blunts, cigar wraps, large cigars) (Select all)</p> <p><input type="checkbox"/> Unflavored (e.g., brand name only or original, plain, zero)</p> <p><input type="checkbox"/> Concept flavor (e.g., color or experiential term such as Tropical twist, Jazz)</p> <p><input type="checkbox"/> Any other flavor (e.g., fruit, candy/sweet, alcohol, mint/menthol)</p> <p><input type="checkbox"/> None</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q33. Cigar product ads: Which ads have <u>price promotions</u>? (Includes cigarillos, little cigars, blunts, cigar wraps, large cigars)</p> <p><input type="checkbox"/> Unflavored (e.g., brand name only or original, plain, zero)</p> <p><input type="checkbox"/> Concept flavor (e.g., color or experiential term such as Tropical twist, Jazz)</p> <p><input type="checkbox"/> Any other flavor (e.g., fruit, candy/sweet, alcohol, mint/menthol)</p> <p><input type="checkbox"/> None</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q34. Vaping product ads: Which products are <u>advertised</u>? (Select all)</p> <p><input type="checkbox"/> JUUL</p> <p><input type="checkbox"/> Other vaping devices/cartridges (e.g., Vuse, Blu, NJOY)</p> <p><input type="checkbox"/> E-liquids (e.g., NJOY, Blu)</p> <p><input type="checkbox"/> None</p> <p><< >></p> <p>Powered by Qualtrics</p>

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Q35. **Vaping product ads:** Do any ads contain price promotions? (Select all)

- JUUL
- Other vaping devices/cartridges (e.g., Vuse, Blu, Mark Ten)
- E-liquids (e.g., NJOY, Blu)
- None

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Q36. **Mobile coupons** are advertised for which products? (Select all)

- Cigarettes (e.g., Marlboro Mobile)
- Cigar products (e.g., Swisher Sweets)
- Vaping devices/e-liquids (e.g., JUUL, Vuse, Blu, Mark Ten)
- None

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Stanford

Q37. The next questions are about price of Aquafina water:



Q38. Is **Aquafina water** 1 L/33.8 oz bottled water sold here? (Select one)

- Sold
- Not sold
- Sold but cannot obtain price

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Q39. **Aquafina water:** Enter single bottle price (1 L/33.8 oz): \$___. (e.g., X.XX)

Q40. Is sales tax included in the price? (Select one)

- Yes
- No
- Cannot determine

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Q41. The next questions are about price of **Dasani water:**



Q42. Is **Dasani** 1 L/33.8 oz bottled water sold here? (Select one)

- Sold
- Not sold
- Sold but cannot obtain price

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Q43. **Dasani water:** Enter single bottle price (1 L/33.8 oz): \$___. (e.g., X.XX)

Q44. Is sales tax included in the price? (Select one)

- Yes
- No
- Cannot determine

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<p>Stanford</p>  <p>Q45. Are Marlboro "reds" (original regular) cigarettes sold?</p> <p><input type="radio"/> Sold</p> <p><input type="radio"/> Not sold</p> <p><input type="radio"/> Sold but can't determine price</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Stanford</p> <p>Q46. Marlboro "reds": Enter single-pack price: \$___ (e.g., X.XX)</p> <input type="text"/> <p>Q47. Is sales tax included in the price? (Select one)</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Unable to determine</p> <p>Q48. Is the price discounted?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Stanford</p>  <p>Q49. Are Newport menthol cigarettes sold? (green hard pack)</p> <p><input type="radio"/> Sold</p> <p><input type="radio"/> Not sold</p> <p><input type="radio"/> Sold but can't determine price</p> <p><< >></p> <p>Powered by Qualtrics</p>
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<p>Stanford</p> <p>Q50. Newport menthol: Enter single-pack price: \$___ (e.g., X.XX)</p> <input type="text"/> <p>Q51. Is sales tax included? (Select one)</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Unable to determine</p> <p>Q52. Is the price discounted?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Stanford</p>   <p>Q53. Are Natural American Spirit mellow (yellow pack) sold? NOT organic gold pack</p> <p><input type="radio"/> Sold</p> <p><input type="radio"/> Not sold</p> <p><input type="radio"/> Sold but can't determine price</p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Stanford</p> <p>Q54. Natural American Spirit mellow: Enter single-pack price: \$___ (e.g., X.XX)</p> <input type="text"/> <p>Q55. Is sales tax included? (Select one)</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Unable to determine</p> <p>Q56. Is the price discounted?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><< >></p> <p>Powered by Qualtrics</p>
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Stanford	Stanford	Stanford
 <p>Q57. Are Pall Mall regular (red) cigarettes sold? (hard pack)</p> <p> <input type="radio"/> Sold <input type="radio"/> Not sold <input type="radio"/> Sold but can't determine price </p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q58. Pall Mall regular: Enter single-pack price: \$__ (e.g., X.XX)</p> <input type="text"/> <p>Q59. Is sales tax included? (Select one)</p> <p> <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unable to determine </p> <p>Q60. Is the price discounted?</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q61. Cheapest Pack of Cigarettes: Ask the cashier "What's the cheapest single pack of cigarettes? How much is it?" If the cashier refuses, obtain cheapest pack price by looking at advertised prices. Can you get a price?</p> <p> <input type="radio"/> Yes <input type="radio"/> No, unable to obtain </p> <p><< >></p> <p>Powered by Qualtrics</p>

Stanford	Stanford	Stanford
<p>Q62. Cheapest cigarette pack: Enter single-pack price: \$__ (e.g., X.XX)</p> <input type="text"/> <p>Q63. Is sales tax included? (Select one)</p> <p> <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unable to determine </p> <p>Q64. Is the price discounted?</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p> <p><< >></p> <p>Powered by Qualtrics</p>	  <p>Q65. Are blu e-cigarettes, classic tobacco flavor sold? (Disposable single unit)</p> <p> <input type="radio"/> Sold <input type="radio"/> Not sold <input type="radio"/> Sold but can't determine price </p> <p><< >></p> <p>Powered by Qualtrics</p>	<p>Q66. blu e-cigarette: Enter single-unit price: \$__ (e.g., X.XX)</p> <input type="text"/> <p>Q67. Is sales tax included? (Select one)</p> <p> <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unable to determine </p> <p>Q68. Is the price discounted?</p> <p> <input type="radio"/> Yes <input type="radio"/> No </p> <p><< >></p> <p>Powered by Qualtrics</p>

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Q69. Can you get a price of **JUUL Pods** (4-pack, any flavor)?

Yes

No

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Q70. Enter 4-pack price: \$___. (e.g., XX.XX)

Q71. Is sales tax included? (Select one)

Yes

No

Unable to determine

Q72. Is the price discounted?

Yes

No

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Q73.

Cheapest e-cigarette: Ask the cashier "What is the cheapest price for ONE e-cigarette? If none, ask for e-hookah or other vaping device." If the cashier refuses, obtain cheapest price by looking at advertised prices. **Can you obtain a price?**

Yes

Unable to obtain

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Q74. Enter single-unit price: \$___. (e.g., X.XX)

Q75. Is sales tax included? (Select one)

Yes

No

Unable to determine

Q76. Is the price discounted?

Yes

No

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E-cigarettes/cartridges Closed-tank systems Open-tank systems



Q77. What type of product is this?

E-cigarette

Closed-tank systems (e.g., JUUL, MyBlu, Vuse Vibe, MarkTen)

Open-tank systems you fill with e-liquid (e.g., Blu Pro, NJOY Tank)

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E-liquid NOT CARTRIDGES/PODS



Q78. Can the price for the **cheapest e-liquid** be obtained? (E-liquid only, not cartridges)

Yes

No

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Q79. Enter single-unit price: \$___. (e.g., X.XX)

Q80. How much do you get for that price?

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Q81. Enter the size of the bottle for that price:

Q82. Units:

ML

OZ

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Q83. Is sales tax included? (Select one)

Yes

No

Unable to determine

Q84. Is the price discounted?

Yes

No

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Q85. Part 5: Exterior. This includes building walls, windows, and areas around buildings, e.g., fences, light poles, gas pumps, garbage cans, etc.

Q86. **Cigarette ads:** How many are on the store exterior? (Enter how many ads or 0 for none)

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Regular
Menthol



Q87. **Cigarette ads:** Which products are advertised?

Regular (non-menthol)

Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Camel menthol)

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Q88. **Cigarettes ads:** Which ads have price promotions?

Regular (non-menthol)

Menthol (e.g., Newport green, Camel Crush, Marlboro NXT, Camel menthol)

None

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Stanford	Stanford	Stanford
<p>Q89. Cigar product ads: How many are on the store exterior? (Includes cigarillos, little cigars, blunts/wraps, large cigars; Enter how many ads or 0 for none)</p> <input data-bbox="272 373 592 401" type="text"/> <p data-bbox="272 428 326 457"><<</p> <p data-bbox="537 428 591 457">>></p> <p data-bbox="370 512 495 531">Powered by Qualtrics</p>	<p>Q90. Cigar product ads: Which products are advertised?</p> <p><input data-bbox="646 323 662 344" type="checkbox"/> Unflavored (e.g., brand name only or original, plain, zero)</p> <p><input data-bbox="646 378 662 399" type="checkbox"/> Concept flavor (e.g., color or experiential term such as Tropical twist, Jazz)</p> <p><input data-bbox="646 432 662 453" type="checkbox"/> Any other flavor (e.g., fruit, candy/sweet, alcohol, mint/menthol)</p> <p data-bbox="646 506 699 535"><<</p> <p data-bbox="915 506 969 535">>></p> <p data-bbox="745 590 870 609">Powered by Qualtrics</p>	<p>Q91. Cigar product ads: Which ads have <u>price promotions</u>?</p> <p><input data-bbox="1011 323 1027 344" type="checkbox"/> Unflavored (e.g., brand name only or original, plain, zero)</p> <p><input data-bbox="1011 378 1027 399" type="checkbox"/> Concept flavor (e.g., color or experiential term such as Tropical twist, Jazz)</p> <p><input data-bbox="1011 432 1027 453" type="checkbox"/> Any other flavor (e.g., fruit, candy/sweet, alcohol, mint/menthol)</p> <p><input data-bbox="1011 487 1027 508" type="checkbox"/> None</p> <p data-bbox="1011 541 1065 571"><<</p> <p data-bbox="1297 541 1351 571">>></p> <p data-bbox="1120 625 1245 644">Powered by Qualtrics</p>

Stanford	Stanford	Stanford
<p>Q92. Vaping product ads: How many are on the store exterior? (Includes vaping devices and e-liquids; Enter how many ads or 0 for none)</p> <input data-bbox="272 1108 592 1136" type="text"/> <p data-bbox="272 1163 326 1192"><<</p> <p data-bbox="537 1163 591 1192">>></p> <p data-bbox="370 1247 495 1266">Powered by Qualtrics</p>	<p>Q93. Vaping products: Which products are advertised?</p> <p><input data-bbox="646 1062 662 1083" type="checkbox"/> JUUL</p> <p><input data-bbox="646 1096 662 1117" type="checkbox"/> Other vaping devices/cartridges (e.g., Vuse, Blu, NJOY)</p> <p><input data-bbox="646 1150 662 1171" type="checkbox"/> E-liquids (e.g., NJOY, Blu)</p> <p data-bbox="646 1203 699 1232"><<</p> <p data-bbox="915 1203 969 1232">>></p> <p data-bbox="745 1287 870 1306">Powered by Qualtrics</p>	<p>Q94. Vaping products: Which ads have <u>price promotions</u>?</p> <p><input data-bbox="1011 1062 1027 1083" type="checkbox"/> JUUL</p> <p><input data-bbox="1011 1096 1027 1117" type="checkbox"/> Other vaping devices/cartridges (e.g., Vuse, Blu, NJOY)</p> <p><input data-bbox="1011 1150 1027 1171" type="checkbox"/> E-liquids (e.g., NJOY, Blu)</p> <p><input data-bbox="1011 1184 1027 1205" type="checkbox"/> None</p> <p data-bbox="1011 1236 1065 1266"><<</p> <p data-bbox="1297 1236 1351 1266">>></p> <p data-bbox="1109 1320 1234 1339">Powered by Qualtrics</p>

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<p>Q95. Mobile coupons are advertised for which products? (Select all)</p> <p><input type="checkbox"/> Cigarettes (e.g., Marlboro Mobile)</p> <p><input type="checkbox"/> Cigar products (e.g., Swisher Sweet, Black & Mild)</p> <p><input type="checkbox"/> Vaping products (e.g., Juul, Vuse, Blu, NJOY)</p> <p><input type="checkbox"/> None</p> <p><< >></p>	<p>Q96. Upload the photo that was taken of the exterior of the store.</p> <p>Drop files or click here to upload</p> <p><< >></p>	<p>Q97. Final disposition (Select one)</p> <p><input type="radio"/> Completed (optional extra text):</p> <p><input type="text"/></p> <p><input type="radio"/> Partial/Exception (explain):</p> <p><input type="text"/></p> <p><< >></p>
<p>Powered by Qualtrics</p>	<p>Powered by Qualtrics</p>	<p>Powered by Qualtrics</p>