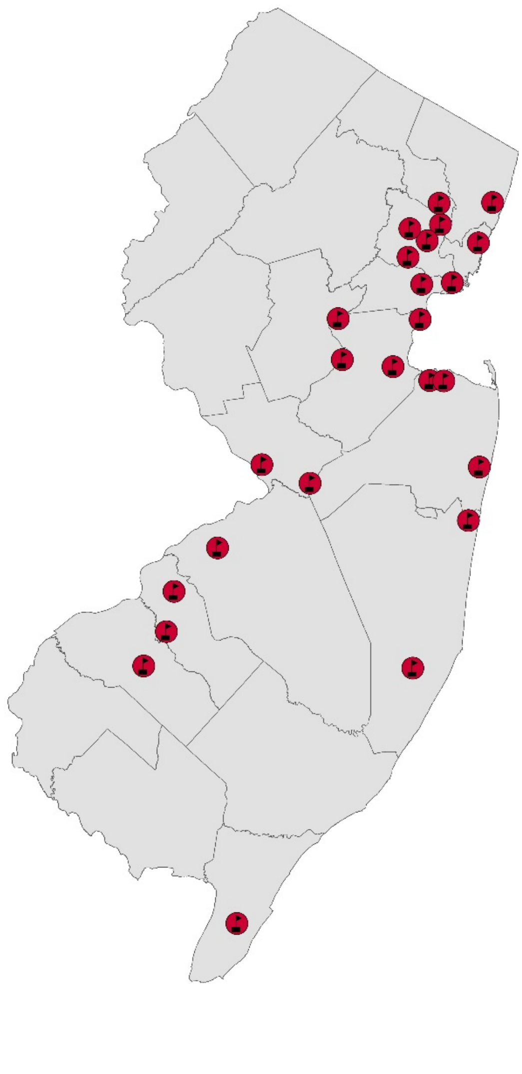
# New Jersey Tobacco Point-of-Sale Project

October 2018



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## ACKNOWLEDGEMENTS

The New Jersey Office of Tobacco Control, Nutrition, and Fitness is a unit of the New Jersey Department of Health (DOH) under the direction of Commissioner Shereef Elnahal, MD, MBA. The Office is administratively located within the Community Health and Wellness Unit in the Division of Family Health Services. This report was prepared by Rutgers, The State University of New Jersey through funding from the New Jersey Department of Health. The interpretations of data, conclusions, and recommendations expressed in this report are those of the authors and may not represent the views of the New Jersey Department of Health.


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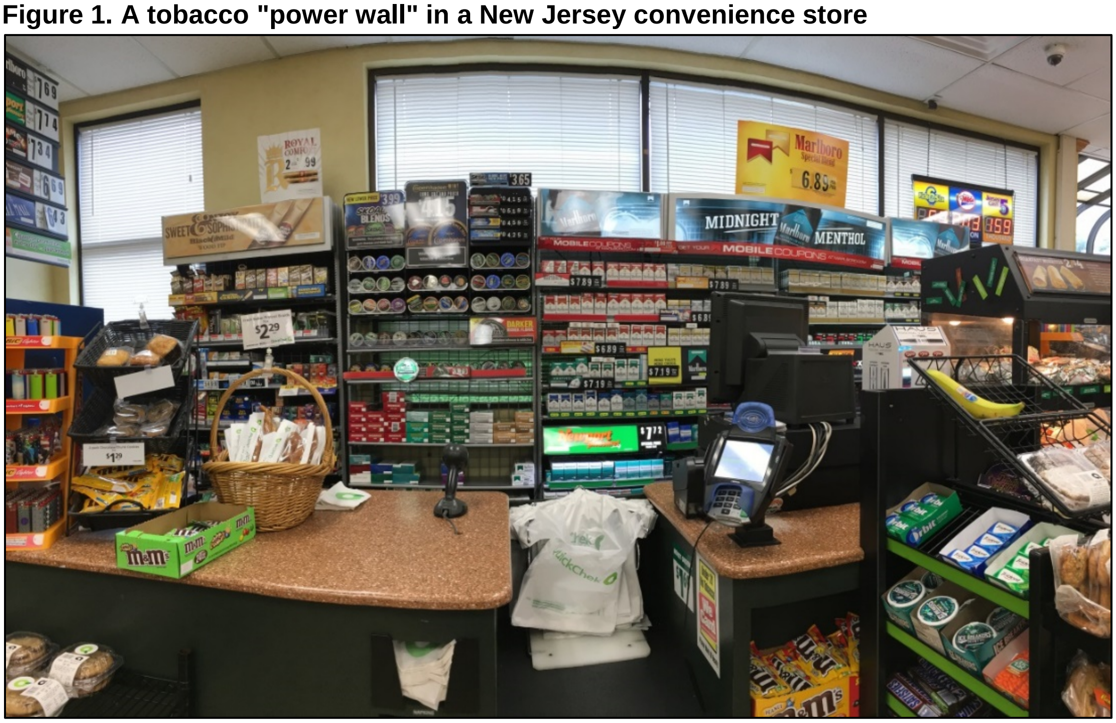
**Suggested Citation**

Ackerman C, Kurti M, Hrywna M. 2018 New Jersey Tobacco Point-of-Sale Project. New Brunswick, NJ: Rutgers School of Public Health; October 2018.

## BACKGROUND

The tobacco industry has innovated many advertising methods including color lithography of the pack, skywriting, billboard photolithography, stop-motion animation, and coast to coast radio sponsorship.[1] Prior to the ban on traditional forms of advertisements (e.g., billboards, transit advertisements, sponsorships, and product placement in the media), industry executives were ready to mobilize towards point of sale (POS) advertising where their brands could be "dominantly displayed and advertised."[2] It is not that surprising then, that after the 1998 Master Settlement Agreement (MSA) banned many traditional forms of tobacco advertising, the tobacco industry began investing billions of dollars marketing its products at the point-of-sale. For example, in 2016, cigarette and smokeless tobacco companies spent more than 9 billion dollars on product marketing, most of which occurred in the retail setting.[3,4] The tobacco industry provides incentives to retailers to post signage inside and outside of their stores to promote their products. Among the most popular is a "power wall," an interior large shelving display that showcases numerous tobacco products, and features company logos and other advertisements (see Figure 1).

**Figure 1. A tobacco "power wall" in a New Jersey convenience store**



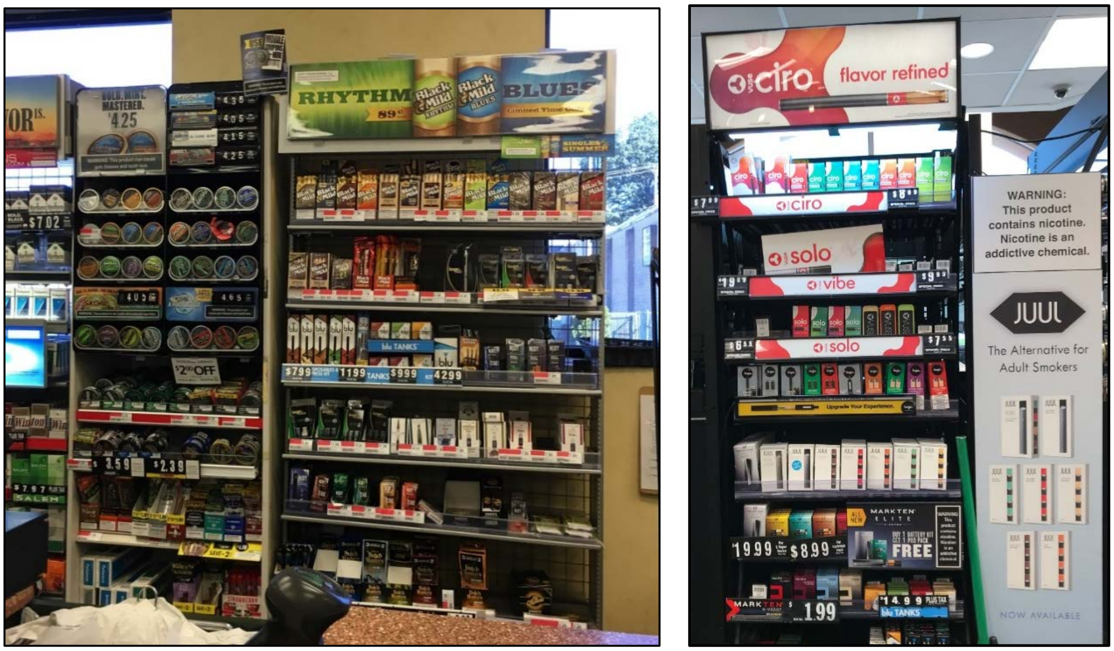
Tobacco advertisements in retail settings have the potential to encourage current users to keep buying tobacco products, entice non-users to start, and perpetuate the idea that smoking is socially acceptable. Exposure to tobacco promotions in stores is also known to influence product use among youth. The tobacco retail environment in areas where youth spend time (e.g., near parks, schools) seems particularly influential. Several studies have documented a consistent relationship between tobacco advertising near schools and cigarette smoking among students.[5,6]

Although rates of cigarette smoking among youth have declined in recent years, use of non-cigarette tobacco products, such as cigars/cigarillos, smokeless tobacco, electronic cigarettes (e-cigarettes), and hookah remains high (Figure 2, below, describes these non-cigarette tobacco products). Data from the 2016 New Jersey Youth Tobacco Survey (NJYTS) showed that while 4.7% of high school students were current cigarette smokers, 9.6% were current users of e-cigarettes, 7.0% were current hookah tobacco users, 6.8% were current cigar/cigarillo smokers, and 2.9% were current users of smokeless tobacco.[7] The promotion of non-cigarette tobacco products such as e-cigarettes and cigars/cigarillos in retail settings is understudied, but emerging evidence suggests that these products are advertised in much the same way as cigarettes.[8] Figure 3 highlights the visibility of non-cigarette tobacco product advertising in a New Jersey convenience store.

**Figure 2. Description of non-cigarette tobacco products**

| Product | Description | Examples |
|---|---|---|
| **Cigars or cigarillos** | Roll of tobacco wrapped in a tobacco leaf or another substance containing tobacco. Products come in many different sizes and some include wooden or plastic tips. Among young people, cigarillos are sometimes used to roll blunts with marijuana. Popular brands include Black & Mild, Swisher Sweets, and Dutch Masters. |   |
| **Smokeless tobacco** | Typically refers to moist snuff (sometimes called “dip”) and snus (a Swedish type of moist snuff). The user places the shredded or ground tobacco between their lip and their gum. Popular brands include Grizzly, Copenhagen, and Camel Snus. |   |
| **Electronic cigarettes (“e-cigarettes”)** | A battery-powered device that produces a vapor that the user inhales. The vapor often contains nicotine, flavorings, and other chemicals. Popular brands include JUUL, Blu, Logic, Vuse and Mark Ten. |   |
| **Hookah Tobacco** | A mix of tobacco and molasses, with additive flavors, smoked through a single- or multi-stemmed charcoal-heated apparatus. Popular brands include Al Fakher and Starbuzz. |   |

**Figure 3. Non-cigarette tobacco product advertising in a New Jersey convenience store**




## AIMS

Surveillance of tobacco marketing at the point-of-sale near high schools can provide insight into factors that may contribute to elevated rates of tobacco use among students. This project collected repeated point-of-sale data (interior and exterior of stores) drawn from stores surrounding a representative sample of New Jersey high schools (n=41) between 2015 and 2018. We present cross sectional (2018) and longitudinal (2015-2018) analyses that include the prevalence of product availability and advertising across all schools as well as differences by store type and locality (urban vs. non-urban school districts).

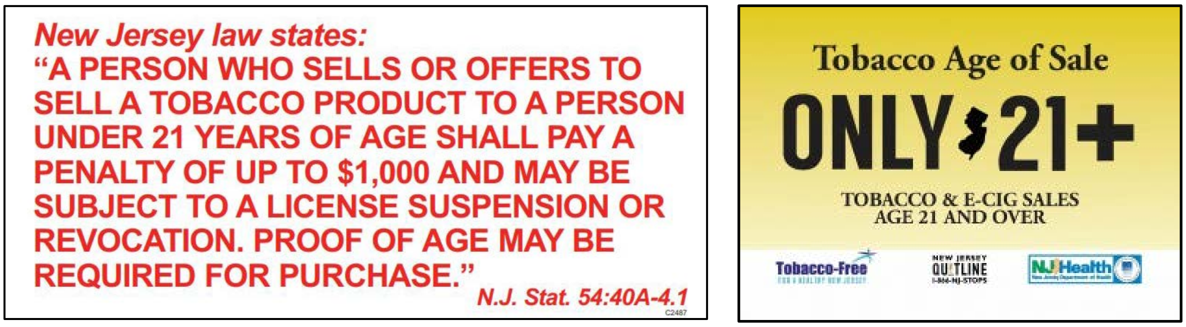
## METHODS

In 2015, we mapped the locations of the 41 high schools participating in the 2014 NJYTS and drew a half-mile buffer around each school. The half-mile radius (2,640 ft.) was chosen as the cutoff based on the premise that this was the most convenient distance that students would travel before, during, and after school. Of the 41 schools participating in the 2014 NJYTS, 15 (36.6%) had no tobacco retailers within a half-mile radius and these were excluded from data collection. The remaining 26 schools had a total of 211 licensed tobacco retailers within a half-mile radius. In 2017, one high school changed location but we repeated audits in the two licensed tobacco retailers located nearby.

We attempted audits each year at all 211 licensed tobacco retailers identified in the original sample in 2015. Between 2015 and 2017, we repeated audits in 191 stores - a number of stores either closed or no longer sold tobacco products and new stores were added to the sample if operated within the half mile buffer. To examine trends in tobacco product availability and accessibility at the point of sale, in 2018 we only audited stores for which data were collected in the three previous years, further reducing the sample to 174 stores. Using a Qualtrics survey on a smartphone device, two trained auditors collected detailed information each year on interior and exterior advertisements of tobacco products, tobacco product availability, and presence of New Jersey tobacco age of sale signage. Data collection was divided geographically (southern and northern New Jersey) between two auditors; one visited the southern region consisting of 88 stores (54%) and one visited the northern region consisting of 75 stores (46%). In addition, 19 of the stores (11.7%) were independently coded by both auditors to ensure high reliability.

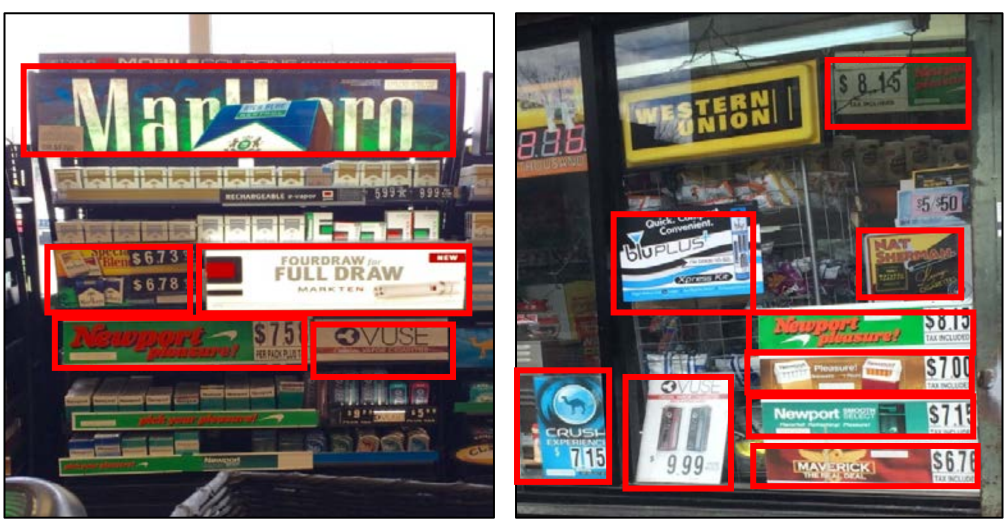
Given the shifts in the tobacco marketplace, the survey underwent modifications over the years to include availability of emerging tobacco products and retail policy changes. For example, in 2018 we added questions pertaining to the availability of tobacco age of sale signs in stores. In November 2017, New Jersey passed a law that prohibited retailers from selling tobacco products to a person under 21 and required that retailers post age of sale signs. To complement these efforts, the New Jersey Department of Health distributed additional signs to tobacco retailers. Figure 4 shows the two age of sale signs recorded by auditors that were mandatory and non-mandatory. Also, in 2018 we added items that measured the availability of JUUL products. JUUL is an e-cigarette product introduced in 2015 by PAX Labs with growing popularity among young adults.[9] By May 2018, JUUL accounted for almost half of the dollar market share in the electronic nicotine delivery systems (ENDS) sales.[10] In 2018, each store audit took approximately 10 minutes.,

**Figure 4. Required New Jersey licensed tobacco retailer age of sale (left) and non-mandatory New Jersey Department of Health tobacco age of sale signage (right)**




For this project, an "advertisement" was defined as an industry-made sign featuring a company's logo and/or an image of the product. Signs that said "Cigarettes sold here," for example, were not included. Only advertisements that were clearly visible and larger than the size of an index card (3" x 5") were counted. Smaller ads are burdensome for data collectors to locate and count, but more importantly, they may be less noticeable to youth visiting the stores. Figure 5 highlights (in red) examples of tobacco advertisements that would be counted for this project.

**Figure 5. Examples of advertisements that were counted for this project**



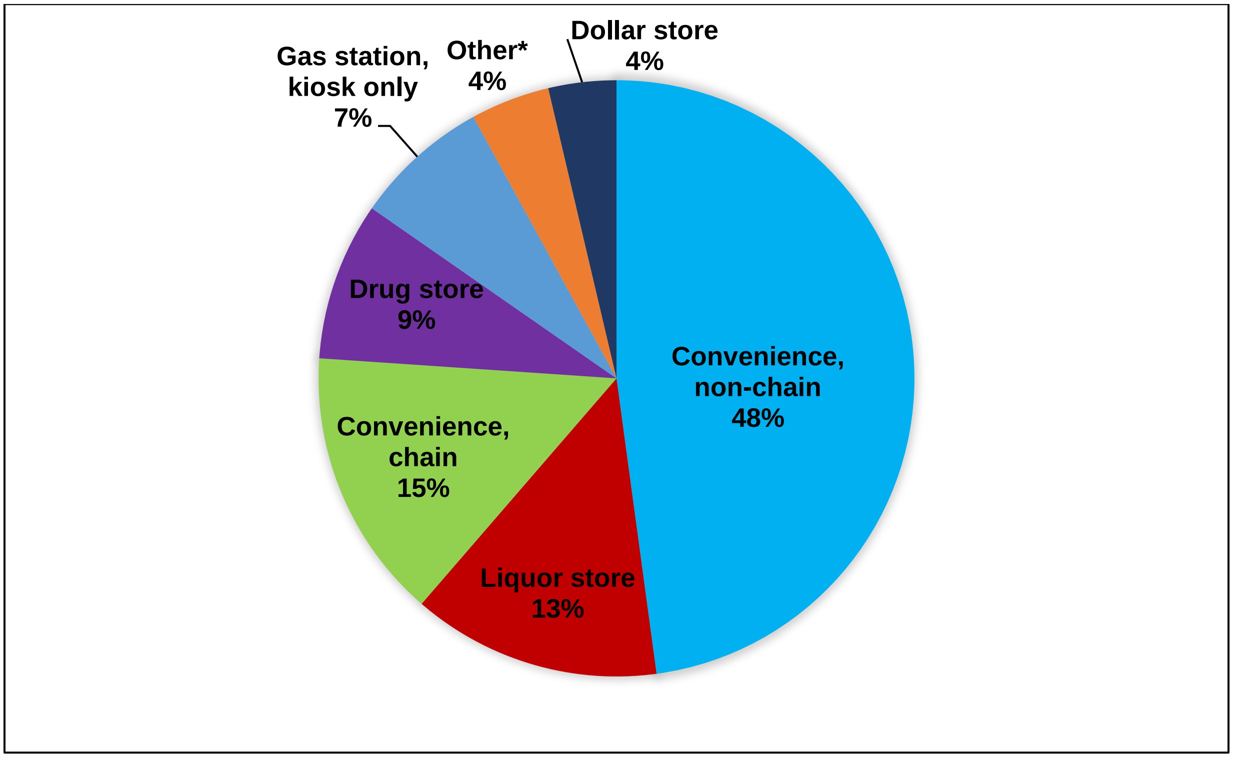

For each of the tobacco products studied in this project (e.g., cigarettes, cigars/cigarillos, smokeless tobacco, e-cigarettes, JUUL products, and hookah tobacco), we present data on the prevalence of exterior and interior advertisements and product availability across all stores in the sample. Additionally, we describe differences by store type (i.e., convenience stores, liquor stores, drug stores, gas station kiosks, dollar stores, "other" types of stores) and locality (urban vs. non-urban school districts). Urban districts were defined as municipalities with more than 10,000 residents per square mile (US Census, 2010) [11] and where schools have greater than 50% non-white enrollment. [12]

## RESULTS

In 2018, we successfully audited 93.7% of the 174 stores for a total of 163 repeated audits. Nine (9) stores were closed and two no longer sold tobacco. This completion rate matches our previous collection efforts in 2015 (89.7%), 2016 (89.7%) and 2017 (90.5%). The number of stores audited per school ranged from one to 36, with an average of 6.3 tobacco retailers per high school within a half-mile radius.

Figure 6 displays the distribution of store types in the sample. The majority of stores audited were non-chain convenience stores (48%, e.g., independent shops, urban bodegas), followed by chain convenience stores (15%; e.g., Wawa, QuickChek, 7-Eleven, with or without gas station attached), liquor stores (13%), drug stores (9%), gas station kiosks (7%), other stores (4%), and dollar stores (4%).

**Figure 6. Store type %, 2018 (n=163)**




*Other includes Tobacco store (2), Supermarket (2), Market (1), Deli (1), Botanica (religious goods store) (1)

Six of the schools in the sample were located in urban districts and the remaining 19 schools were in non-urban districts. Stores located near schools in urban districts (n=96) were more likely to be non-chain convenience stores compared to stores in non-urban districts (n=67). Indeed, nearly two-thirds (65.6%) of urban stores were non-chain convenience stores, compared to 22.4% of non-urban stores. Conversely, stores near non-urban schools were more likely to be chain convenience stores, drug stores and gas station kiosks (Table 1).

**Table 1. Store types in urban vs. non-urban districts, 2018**

| Store type | Urban district n (%) | Non-urban district n (%) |
|---|---|---|
| Convenience, non-chain | 63 (65.6) | 15 (22.4) |
| Liquor store | 12 (12.5) | 10 (14.9) |
| Convenience, chain | 5 (5.2) | 19 (28.4) |
| Drug store | 5 (4.2) | 9 (13.4) |
| Gas station, kiosk only | 2 (2.1) | 10 (14.9) |
| Other | 5 (5.2) | 2 (3.0) |
| Dollar store | 4 (4.2) | 2 (3.0) |
| **Total** | **96 (100%)** | **67 (100%)** |

## Cigarettes

Table 2 describes the presence of exterior and interior ads by store type, as well as the availability of cigarettes. Overall, only three stores (1.8%) did not sell cigarettes but did sell other tobacco products. Almost half of all stores had at least one exterior cigarette advertisement, but exterior advertising was more prevalent among chain (70.8%) and non-chain convenience stores (53.9%). Notably, no drug stores in the sample had exterior cigarette advertisements. Despite having no exterior ads, 78.6% of drug stores had interior cigarette advertising, though interior advertising was more common in chain convenience stores (95.8%).

Only 16.6% of stores had 5 or more exterior ads for cigarettes (Table 3). In general, chain convenience stores had the highest volume of exterior cigarette advertising, with 41.7% displaying five or more ads. One gas station kiosk had 28 exterior cigarette ads, the highest number recorded in the sample. Among the other stores with exterior cigarette ads, most had between one to four advertisements. The volume of interior advertisements followed slightly different trends (Table 4). Over 40% of all stores had five or more interior cigarette ads. Most of the chain convenience stores (87.5%) had five or more interior ads.

**Table 2. Presence of cigarette ads and availability by store type, 2018**

| | **Availability** | **Exterior ads** | **Exterior menthol ads** | **Interior ads** | **Interior menthol ads** |
|---|---|---|---|---|---|
| **Store type** | % | % | % | % | % |
| Convenience, non-chain (n=78) | 97.4 | 53.9 | 47.4 | 69.2 | 57.7 |
| Convenience, chain (n=24) | 100.0 | 70.8 | 62.5 | 95.8 | 91.7 |
| Liquor store (n=22) | 100.0 | 27.3 | 22.7 | 77.3 | 68.2 |
| Drug store (n=14) | 100.0 | 0.0 | 0.0 | 78.6 | 78.6 |
| Gas station, kiosk only (n=12) | 100.0 | 50.0 | 41.7 | 16.7 | 8.3 |
| Other (n=7) | 85.7 | 14.3 | 14.3 | 42.9 | 14.3 |
| Dollar store (n=6) | 100.0 | 50.0 | 33.3 | 83.3 | 66.7 |
| **Overall (n=163)** | **98.2** | **46.0** | **39.9** | **70.6** | **60.7** |

**Table 3. Number of exterior cigarette ads by store type, 2018**

| Store type | 0 ads<br>% | 1 to 4 ads<br>% | 5 or more ads<br>% |
|---|---|---|---|
| Convenience, non-chain (n=78) | 46.2 | 39.7 | 14.1 |
| Convenience, chain (n=24) | 29.1 | 29.1 | 41.7 |
| Liquor store (n=22) | 72.7 | 22.7 | 4.6 |
| Drug store (n=14) | 100.0 | 0.0 | 0.0 |
| Gas station, kiosk only (n=12) | 50.0 | 25.0 | 25.0 |
| Other (n=7) | 85.7 | 0.0 | 14.3 |
| Dollar store (n=6) | 50.0 | 33.3 | 16.7 |
| **Overall (n=163)** | **54.0** | **29.5** | **16.6** |

**Table 4. Number of interior cigarette ads by store type, 2018**

| Store type | 0 ads<br>% | 1 to 4 ads<br>% | 5 or more ads<br>% |
|---|---|---|---|
| Convenience, non-chain (n=78) | 30.8 | 32.1 | 37.2 |
| Convenience, chain (n=24) | 4.2 | 8.3 | 87.5 |
| Liquor store (n=22) | 22.7 | 50.0 | 27.3 |
| Drug store (n=14) | 21.4 | 35.7 | 42.9 |
| Gas station, kiosk only (n=12) | 83.3 | 16.7 | 0.0 |
| Other (n=7) | 57.1 | 28.6 | 14.3 |
| Dollar store (n=6) | 16.7 | 83.3 | 0.0 |
| **Overall (n=163)** | **29.5** | **31.9** | **38.7** |

Figures 7 and 8 highlight differences in the prevalence and volume of cigarette advertising in urban vs. non-urban stores. Non-urban stores were generally more likely to have a greater prevalence of interior cigarette ads, while urban stores had slightly higher exterior ad prevalence. Although approximately 70% of all stores had at least one interior cigarette ad, non-urban stores were more likely to have a higher *volume* of both exterior and interior ads. For example, over a quarter of non-urban stores had five or more exterior cigarette ads, while only 10.4% of urban stores displayed five or more exterior cigarette ads. Similarly, nearly half of non-urban stores had five or more interior cigarette ads compared to almost a third of urban stores.

**Figure 7. Presence of cigarette advertising in urban (n=96) and non-urban (n=67) stores %, 2018**

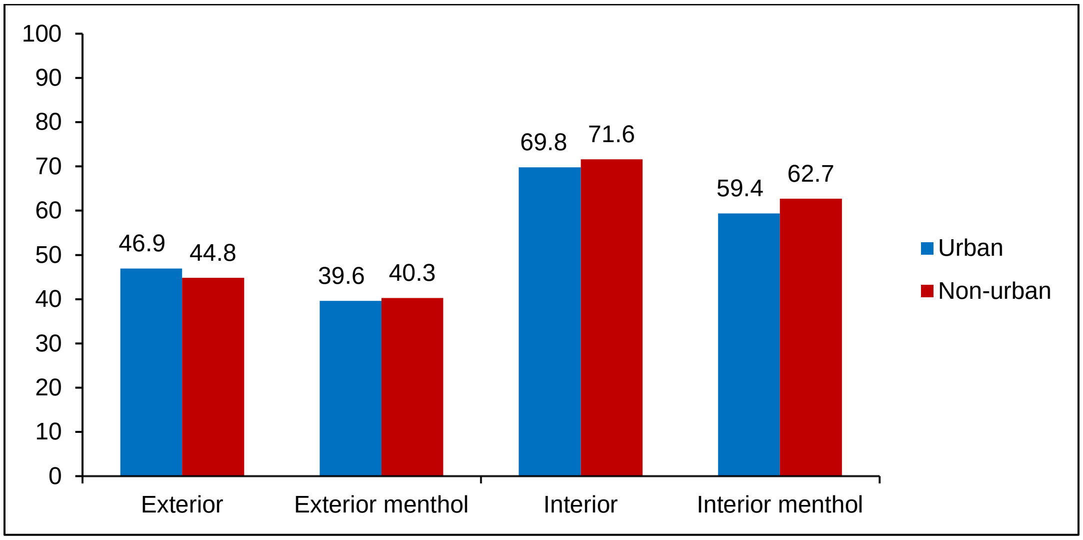
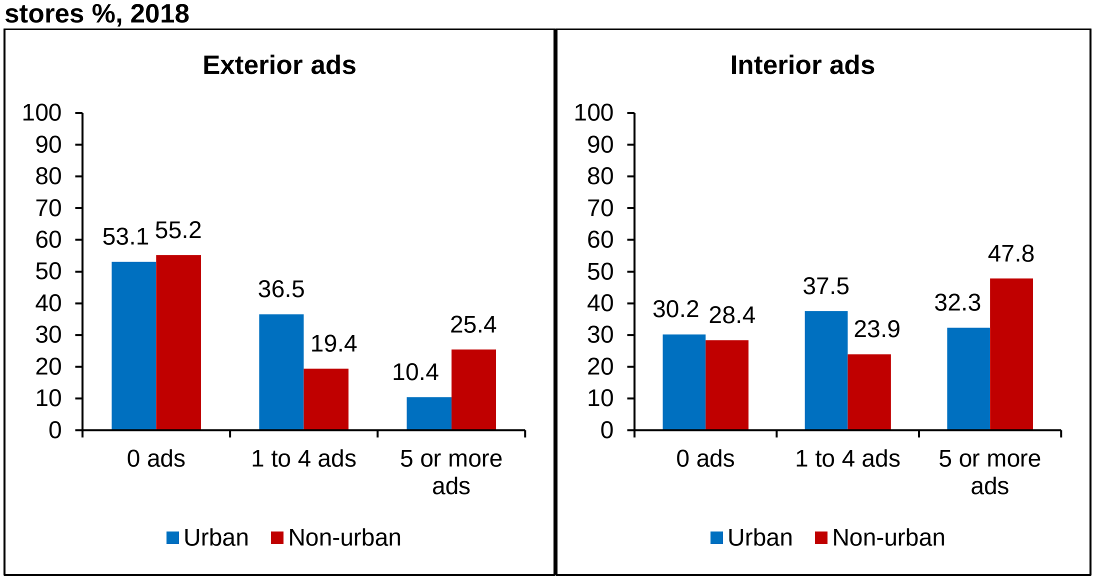



**Figure 8. Number of exterior and interior cigarette ads in urban (n=96) and non-urban (n=67) stores %, 2018**




## Cigars/cigarillos

Cigar products, including large cigars and cigarillos, were the second most commonly sold tobacco product in stores following cigarettes. As shown in Table 5, 89.6% of all stores sold cigars and nearly all of those stores offered flavored varieties (87.1%). Cigar availability was highest in convenience stores (both chain and non-chain).

**Table 5. Cigar/cigarillo availability by store type, 2018**

| Store type | Cigar availability % | Flavored cigar availability % |
|---|---|---|
| Convenience, non-chain (n=78) | 96.2 | 96.2 |
| Convenience, chain (n=24) | 100.0 | 100.0 |
| Liquor store (n=22) | 81.8 | 72.7 |
| Drug store (n=14) | 78.6 | 78.6 |
| Gas station, kiosk only (n=12) | 83.3 | 66.7 |
| Other (n=7) | 42.9 | 42.9 |
| Dollar store (n=6) | 83.3 | 83.3 |
| **Overall (n=163)** | **89.6** | **87.1** |

Next to cigarettes, cigars were the most commonly advertised tobacco product in stores. Cigar advertisements, however, were substantially less common than cigarette ads. Only 20.9% of stores had at least one exterior cigar ad and 25.8% displayed at least one interior cigar ad (Table 6). Prevalence of cigar advertising was generally highest in chain convenience stores, especially the interior. The vast majority of stores that advertised cigars had only 1 or 2 ads (data not shown). Interestingly, although 86.7% of drug stores carried cigars, none advertised these products.

**Table 6. Presence of cigar/cigarillo ads by store type, 2018**

| Store type | Exterior ads % | Exterior flavored ads % | Interior ads % | Interior flavored ads % |
|---|---|---|---|---|
| Convenience, non-chain (n=78) | 24.4 | 19.2 | 21.8 | 16.7 |
| Convenience, chain (n=24) | 41.7 | 29.2 | 75.0 | 54.2 |
| Liquor store (n=22) | 4.6 | 4.6 | 13.6 | 9.1 |
| Drug store (n=14) | 0.0 | 0.0 | 0.0 | 0.0 |
| Gas station, kiosk only (n=12) | 25.0 | 16.7 | 0.0 | 0.0 |
| Other (n=7) | 14.3 | 0.0 | 14.3 | 0.0 |
| Dollar store (n=6) | 0.0 | 0.0 | 50.0 | 33.3 |
| **Overall (n=163)** | **20.9** | **15.3** | **25.8** | **18.4** |

A comparison of urban and non-urban stores revealed that exterior and interior cigar advertisements were more prevalent in non-urban stores (Figure 9). Non-urban stores were almost twice as likely to have exterior cigar advertising compared to urban stores (15.6% vs. 28.4%). Exterior ads for *flavored* cigars/cigarillos were slightly more common in non-urban stores.

Despite heavier advertising in non-urban stores, the availability of flavored cigars was higher in urban stores (Figure 10).

**Figure 9. Presence of cigar ads in urban (n=96) and non-urban (n=67) stores %, 2018**

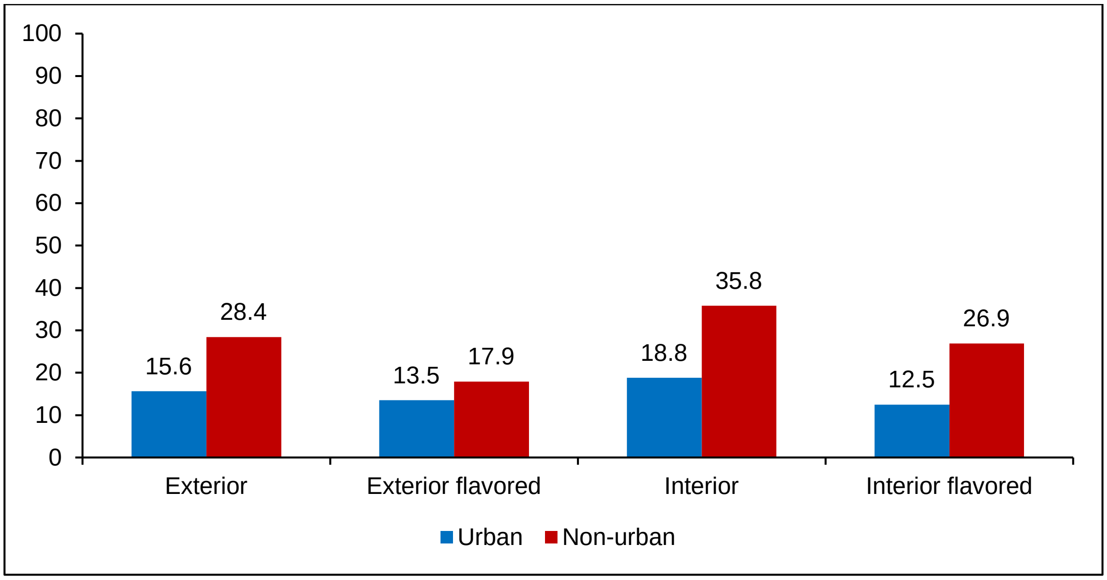
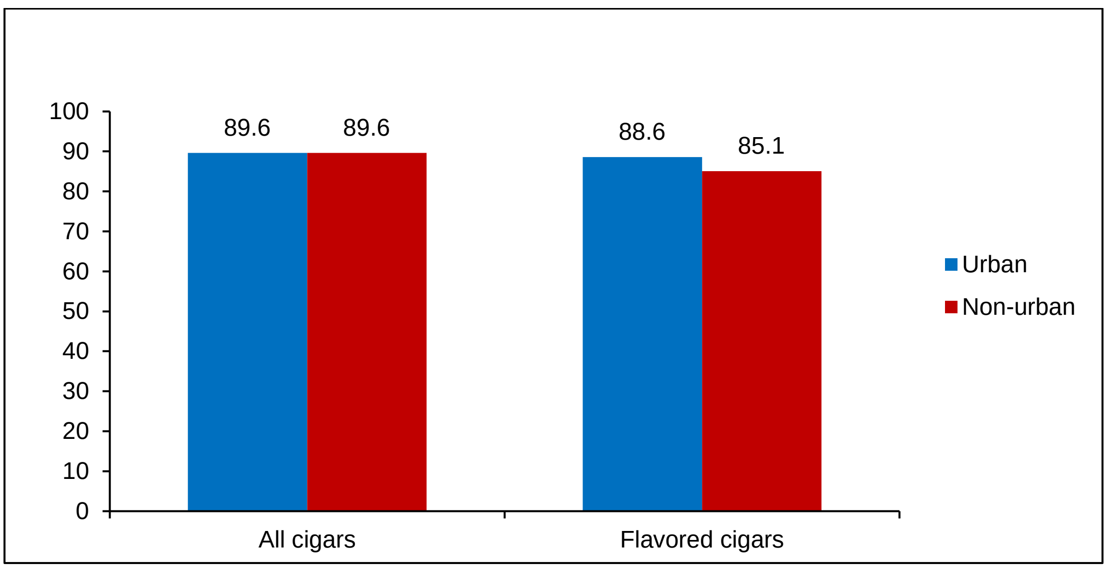



**Figure 10. Cigar and flavored cigar availability in urban (n=96) and non-urban (n=67) stores %, 2018**



## Smokeless Tobacco

Smokeless tobacco (including snus and snuff) was sold in 23.9% of all stores in the sample but was most commonly available in chain convenience stores (87.5%). Moist snuff was available in less than a third of all other store types (Table 7).

**Table 7. Smokeless Tobacco availability by store type, 2018**

| Store type | Smokeless tobacco availability % |
|---|---|
| Convenience, non-chain (n=78) | 15.4 |
| Convenience, chain (n=24) | 87.5 |
| Liquor store (n=22) | 4.6 |
| Drug store (n=14) | 14.3 |
| Gas station, kiosk only (n=12) | 8.3 |
| Other (n=7) | 0.0 |
| Dollar store (n=6) | 33.3 |
| **Overall (n=163)** | **23.9** |

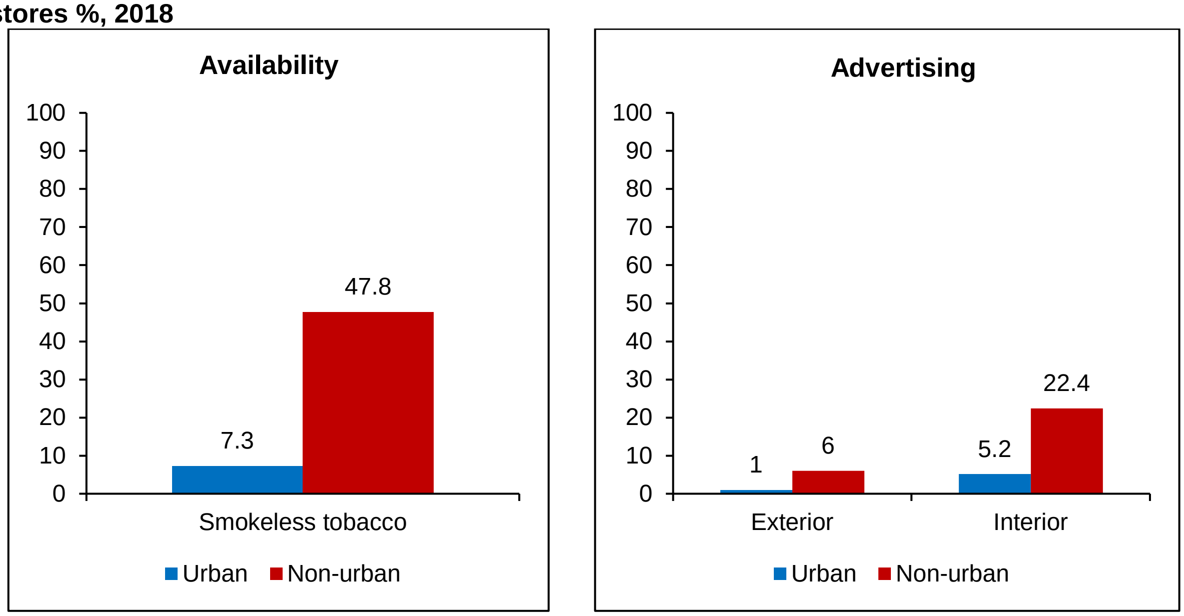
Table 8 presents the prevalence of smokeless tobacco advertising by store type. Overall, exterior ads for smokeless tobacco were uncommon (3.1% of stores), but the prevalence was relatively high among gas station kiosks and chain convenience stores (both 8.3%). Interior ads were more common (12.3% of all stores) and most prevalent in chain convenience stores (66.7%). The overwhelming majority of stores with smokeless tobacco advertising only displayed one or two ads (data not shown).

**Table 8. Smokeless tobacco advertising by store type, 2018**

| Store type | Exterior ads % | Interior ads % |
|---|---|---|
| Convenience, non-chain (n=78) | 15.4 | 5.1 |
| Convenience, chain (n=24) | 87.5 | 66.7 |
| Liquor store (n=22) | 4.6 | 0.0 |
| Drug store (n=14) | 14.3 | 0.0 |
| Gas station, kiosk only (n=12) | 8.3 | 0.0 |
| Other (n=7) | 0.0 | 0.0 |
| Dollar store (n=6) | 33.3 | 0.0 |
| **Overall (n=163)** | **23.9** | **12.3** |

Both exterior and interior smokeless tobacco ads were extremely uncommon in urban stores. For example, only one urban store in the sample had any exterior ads for smokeless tobacco. Likewise, smokeless tobacco was substantially more available in non-urban compared to urban stores. Close to half (47.8%) of non-urban stores sold smokeless tobacco, compared to less than 8% of urban stores (Figure 11).

**Figure 11. Advertising and availability of smokeless tobacco in urban (n=96) and non-urban (n=67) stores %, 2018**




### E-cigarettes

E-cigarettes, including JUUL, were available in almost half of all stores audited (42.9%) (Table 9). All but one of the stores in our sample sold flavored e-cigarettes including fruit flavors. Sale of e-cigarettes was most common in chain convenience stores (91.7%) and drug stores (78.6%). Only a third of non-chain convenience stores sold e-cigarettes.

**Table 9. Availability of e-cigarettes and flavored e-cigarettes, 2018**

| Store type | E-cig availability % | Flavored e-cig availability % |
|---|---|---|
| Convenience, non-chain (n=78) | 34.6 | 33.3 |
| Convenience, chain (n=24) | 91.7 | 91.7 |
| Liquor store (n=22) | 22.7 | 22.7 |
| Drug store (n=14) | 78.6 | 78.6 |
| Gas station, kiosk only (n=12) | 8.3 | 8.3 |
| Other (n=7) | 28.6 | 14.3 |
| Dollar store (n=6) | 33.3 | 33.3 |
| **Overall (n=163)** | **42.9** | **41.7** |

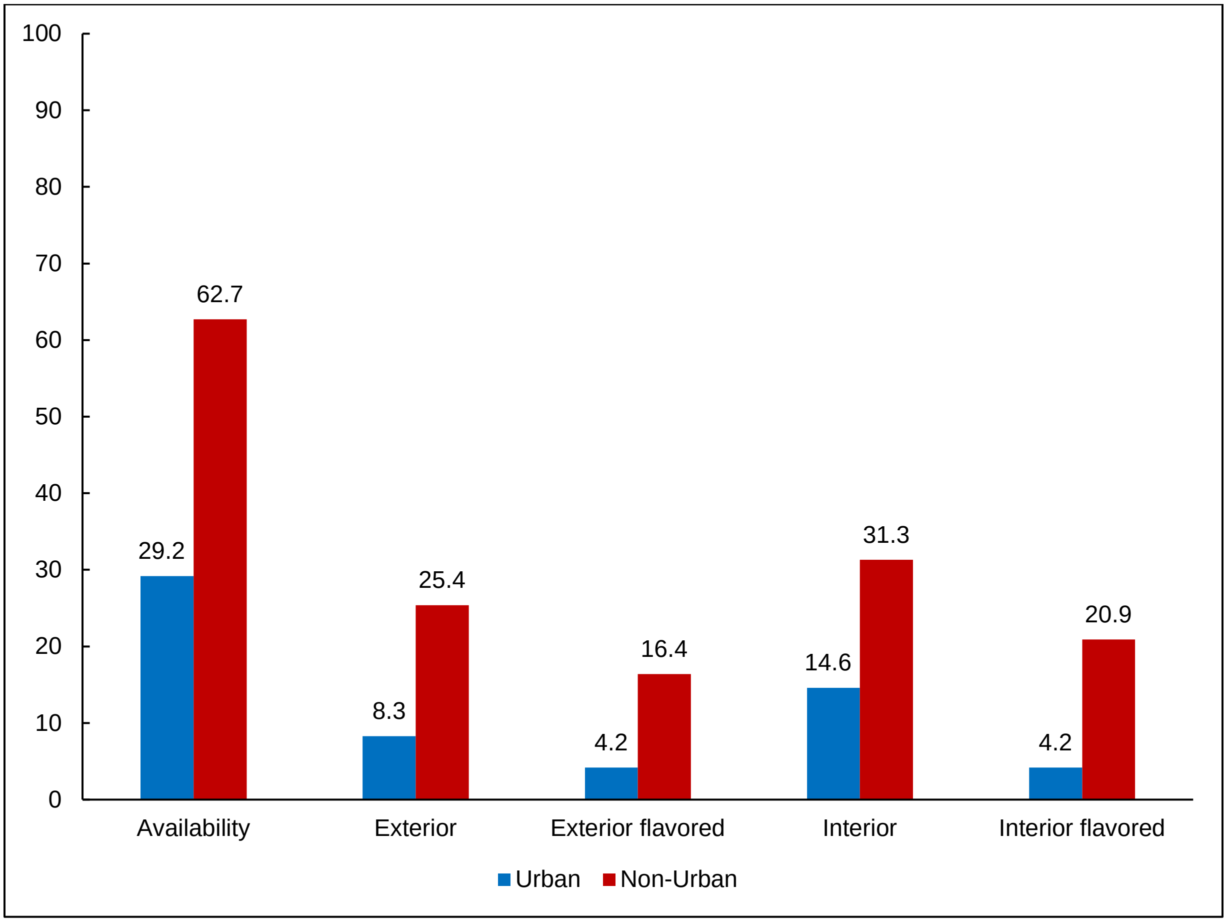
In 2015 and 2016, e-cigarettes were the second most advertised tobacco product after cigarettes. However, in 2017, e-cigarette advertising were the third most advertised product (Table 10). Although e-cigarette advertising increased from 2017 to 2018, cigar advertisements remained the second most advertised tobacco product after cigarettes. Less than 22% of all stores had exterior or interior e-cigarette advertisements. Of these, a little more than half of the advertisements were for flavored e-cigarettes. Interestingly, most drug stores carried e-cigarette products, but few displayed any e-cigarette advertisements (7.1%). Mirroring trends in availability, chain convenience stores frequently had e-cigarette advertisements. Most stores with e-cigarette advertising only had one or two ads (data not in table).

**Table 10. Presence of e-cigarette advertising by store type, 2018**

| Store type | Exterior ads % | Exterior flavored ads % | Interior ads % | Interior flavored ads % |
|---|---|---|---|---|
| Convenience, non-chain (n=78) | 12.8 | 6.4 | 20.5 | 11.5 |
| Convenience, chain (n=24) | 45.8 | 33.3 | 62.5 | 29.2 |
| Liquor store (n=22) | 4.6 | 4.6 | 9.1 | 4.6 |
| Drug store (n=14) | 0.0 | 0.0 | 7.1 | 0.0 |
| Gas station, kiosk only (n=12) | 8.3 | 0.0 | 0.0 | 0.0 |
| Other (n=7) | 14.3 | 0.0 | 0.0 | 0.0 |
| Dollar store (n=6) | 16.7 | 16.7 | 16.7 | 16.7 |
| **Overall (n=163)** | **15.3** | **9.2** | **21.5** | **11.0** |

E-cigarette advertising was more prevalent in non-urban stores (Figure 12). The prevalence of exterior e-cigarette advertising in non-urban stores (25.4%) was more than three times that of urban stores (8.3%). Interior e-cigarette advertising in non-urban stores (31.3%) was over two times more prevalent than in urban stores (14.6%). Additionally, the availability of e-cigarette products was substantially greater in non-urban stores. Less than a third of urban stores sold any type of e-cigarette, compared to 62.7% of non-urban stores.

**Figure 12. E-cigarette availability and presence of e-cigarette ads in urban (n=96) and non-urban (n=67) stores %, 2018**




## JUUL Products

Given the popularity of JUUL products, we examined availability and placement of JUUL in stores, separately from other e-cigarette products. Overall, JUUL products were available in 22.7% of audited stores. Of these, chain convenience stores had the highest availability of JUUL products (75.0%). JUUL products were not found in drug stores, dollar stores or stores categorized as other (see Table 11). The presence of JUUL advertisements was quite low –only

4.3% of stores had exterior JUUL advertisements and 6.8% had interior JUUL advertisements (data not reported in tables). JUUL products were almost three times more available in non-urban stores (37.3%) than in urban stores (12.5%).

**Table 11. JUUL availability by store type, 2018**

| Store type | Availability % |
|---|---|
| Convenience, non-chain (n=78) | 21.8 |
| Convenience, chain (n=24) | 75.0 |
| Liquor store (n=22) | 4.6 |
| Drug store (n=14) | 0.0 |
| Gas station, kiosk only (n=12) | 8.3 |
| Other (n=7) | 0.0 |
| Dollar store (n=6) | 0.0 |
| **Overall (n=163)** | **22.7** |

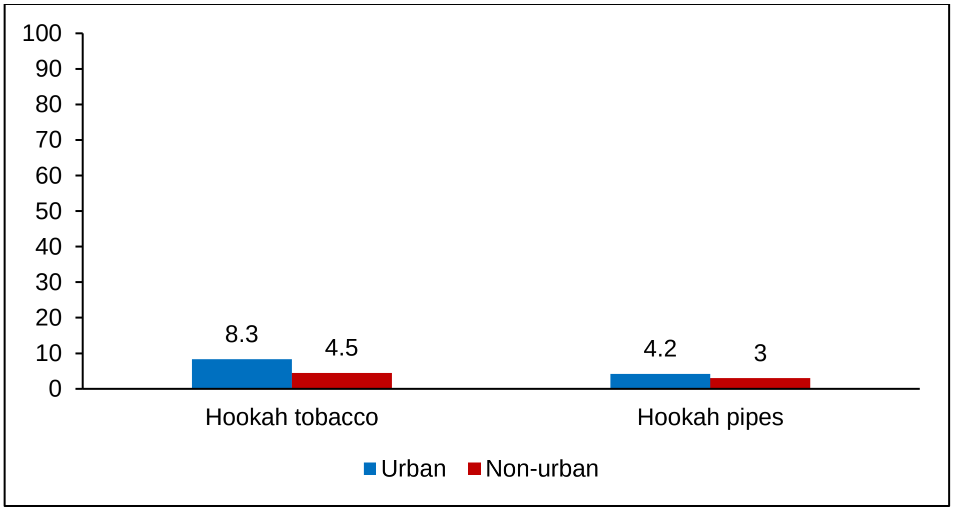
## Hookah

Hookah tobacco was available in 6.8% of all stores, while hookah pipes were available in 3.7% of all stores (see Table 12). Other stores, which included specialty tobacco stores, had the highest percentages of hookah tobacco availability (14.3%). Non-chain convenience stores were more than twice as likely to carry hookah tobacco as chain convenience stores. Figure 13 illustrates the differences in hookah tobacco and hookah pipe availability in urban and non-urban stores. Hookah tobacco and pipes were substantially more available in urban stores than non-urban stores. Although some stores that sold hookah tobacco and pipes displayed signage that they carried these products, POS advertising from hookah manufacturers was non-existent.

**Table 12. Hookah tobacco and hookah pipe availability by store type, 2018**

| Store type | Hookah tobacco availability % | Hookah pipe availability % |
|---|---|---|
| Convenience, non-chain (n=78) | 11.5 | 6.4 |
| Convenience, chain (n=24) | 4.1 | 4.2 |
| Liquor store (n=22) | 0.0 | 0.0 |
| Drug store (n=14) | 0.0 | 0.0 |
| Gas station, kiosk only (n=12) | 0.0 | 0.0 |
| Other (n=7) | 14.3 | 0.0 |
| Dollar store (n=6) | 0.0 | 0.0 |
| **Overall (n=163)** | **6.8** | **3.7** |

**Figure 13. Hookah tobacco and hookah pipe availability in urban (n=96) and non-urban (n=67) stores %, 2018**




## Compliance with New Jersey Tobacco Age of Sale Signs

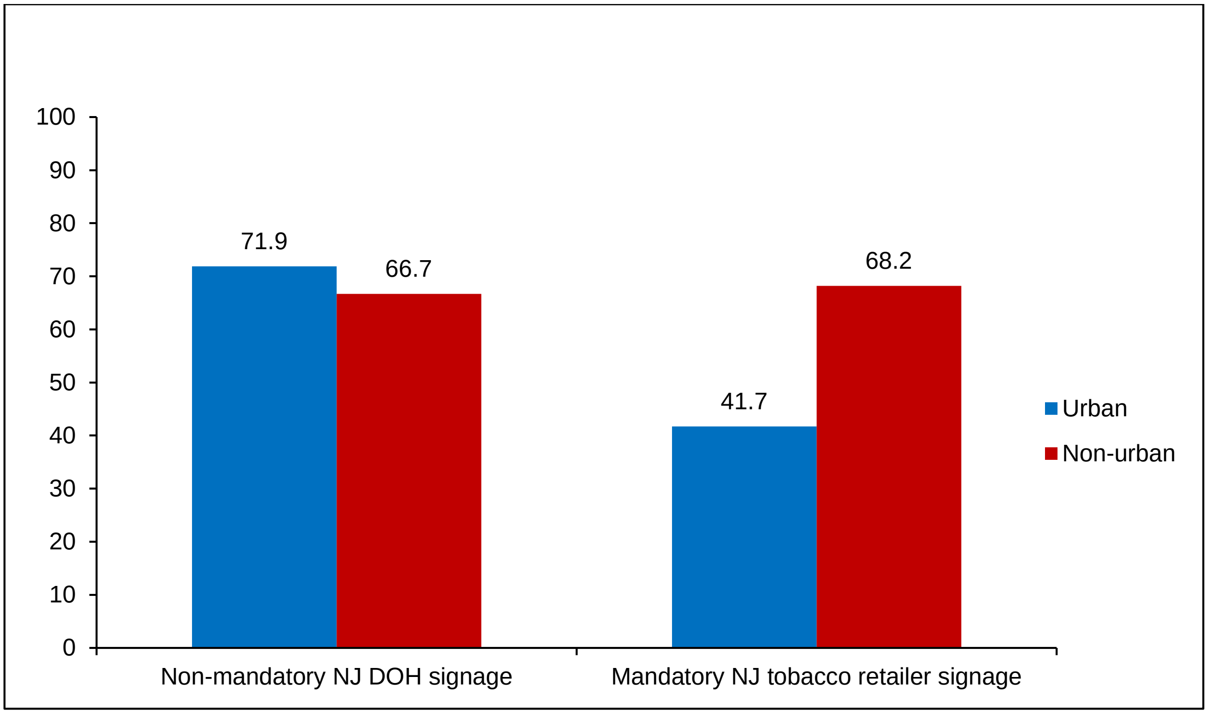
As shown in Table 14, the presence of mandatory tobacco age of sale signs were found in slightly more than half of all stores (52.5%). Drug stores (78.6%) and chain convenience stores (70.8%) had the highest percentage of compliance with mandatory signage. Non-mandatory age of sale signs provided by the New Jersey Department of Health were observed in nearly seventy percent of all stores. Dollar stores (100%) and liquor stores (81.8%) had the highest percentage of non-mandatory signage availability.

**Table 14. New Jersey tobacco age of sale signage by store type, 2018**

| Store type | Non-mandatory (NJ DOH) signage observed % | Mandatory NJ tobacco retailer signage observed % |
|---|---|---|
| Convenience, non-chain (n=78) | 70.1 | 44.2 |
| Convenience, chain (n=24) | 66.7 | 70.8 |
| Liquor store (n=22) | 81.8 | 59.1 |
| Drug store (n=14) | 57.1 | 78.6 |
| Gas station, kiosk only (n=12) | 58.3 | 33.3 |
| Other (n=7) | 57.1 | 42.9 |
| Dollar store (n=6) | 100.0 | 50.0 |
| **Overall (n=163)** | **69.8** | **52.5** |

There were minimal differences in non-mandatory New Jersey age of sale signage between urban and non-urban stores. However, mandatory age of sale signage was greater in non-urban stores (68.2%) versus urban stores (41.7%) (see Figure 15 below).

**Figure 15. New Jersey tobacco age of sale signage in urban (n=96) and non-urban (n=67) stores %, 2018**




### Changes in product advertising, 2015-2018

Audits were successfully repeated in a total of 163 stores between 2015 and 2018. Table 15 highlights changes in the prevalence of product advertising over these years. Although exterior advertising for cigarettes steadily decreased over the time period, interior advertising for cigarettes increased, peaking in 2017. There were notable increases in exterior and interior advertising of cigar/cigarillo products, including a 66% increase in the prevalence of exterior ads for flavored cigars from 2017. Since data collection began in 2015, the prevalence of exterior cigar ads doubled while the prevalence of interior ads increased by almost 70%. The prevalence of smokeless advertising remained relatively unchanged during this time period. E-cigarettes were the only products for which advertising substantially decreased between 2015 and 2017. However, in 2018, the prevalence of e-cigarette ads slightly increased from the previous year yet remained far below the 2015 numbers with the exception of exterior flavored advertisements.

**Table 15. Changes in the prevalence of product advertising between 2015-2018 (n=163)**

| | 2015 % | 2016 % | 2017 % | 2018 % | Percentage Point Change 2015 vs. 2018 |
|---|---|---|---|---|---|
| **Cigarettes** | | | | | |
| Exterior cigarette ads | 57.7 | 53.4 | 50.3 | 46.0 | -11.7 |
| Exterior menthol cigarette ads | 45.4 | 45.4 | 44.2 | 39.9 | -5.5 |
| Interior cigarette ads | 66.3 | 65.0 | 71.2 | 70.6 | +4.3 |
| Interior menthol cigarette ads | 56.4 | 54.0 | 61.3 | 60.7 | +4.3 |
| **Cigars** | | | | | |
| Exterior cigar ads | 10.4 | 15.3 | 19.0 | 20.9 | +10.5 |
| Exterior flavored cigar ads | 8.6 | 9.8 | 9.2 | 15.3 | +6.7 |
| Interior cigar ads | 15.3 | 23.3 | 23.9 | 25.8 | +10.5 |
| Interior flavored cigar ads | 6.8 | 13.5 | 14.7 | 18.4 | +11.6 |
| **Smokeless tobacco** | | | | | |
| Exterior smokeless ads | 3.7 | 3.7 | 3.1 | 3.1 | -0.6 |
| Interior smokeless ads | 11.7 | 13.5 | 11.0 | 12.3 | +0.6 |
| **E-cigarettes** | | | | | |
| Exterior e-cig ads | 32.5 | 21.5 | 14.1 | 15.3 | -17.2 |
| Exterior flavored e-cig ads | 8.0 | 5.5 | 5.5 | 9.2 | +1.2 |
| Interior e-cig ads | 35.6 | 27.6 | 17.8 | 21.5 | -14.1 |
| Interior flavored e-cig ads | 12.9 | 10.4 | 9.8 | 11.0 | -1.9 |

### Changes in product availability, 2015-2018

Table 16 displays changes in product availability between 2015 and 2018. Cigarettes were almost universally available across years. Availability of cigars/cigarillos, moist snuff, and snus products increased between 2015 and 2018. Mirroring trends in product advertising, e-cigarette availability decreased by 26% from 2015 to 2018. However, there were no changes in e-cigarette availability from 2017 to 2018 and nearly a 10% increase in the availability of flavored e-cigarettes from last year.

**Table 16. Changes in product availability between 2015-2018 (n=163)**

| Product type | 2015 % | 2016 % | 2017 % | 2018 % | Percentage Point Change 2015 vs. 2018 |
|---|---|---|---|---|---|
| Cigarettes | 98.8 | 98.8 | 98.2 | 98.2 | -0.6 |
| Cigars | 84.7 | 90.2 | 90.2 | 89.6 | +4.9 |
| Flavored cigars | 82.2 | 87.1 | 87.1 | 87.1 | +4.9 |
| Moist snuff | 21.5 | 18.4 | 23.9 | 23.9 | +2.4 |
| E-cigarettes | 57.7 | 47.2 | 42.9 | 42.9 | -14.8 |
| Flavored e-cigarettes | 44.8 | 36.2 | 38.0 | 41.7 | -3.1 |

## SUMMARY

Over 60% of the high schools participating in the 2014 New Jersey Youth Tobacco Survey had at least one tobacco retailer within a half-mile radius. Cigarettes were by far the most available and advertised tobacco product across all stores in the selected sample. Furthermore, over a third of stores had a *high number* of cigarette ads (i.e., 5 or more). Cigars and cigarillos were also widely available but were more likely to be found in urban stores. Similarly, hookah tobacco and pipes were more available in urban stores than non-urban stores. Conversely, smokeless tobacco and e-cigarettes were harder to find in urban stores compared to non-urban stores.

The notable difference in cigarette promotion between urban and non-urban stores was the higher *number* of both exterior and interior ads in non-urban stores. Advertising *prevalence* for other tobacco products, such as cigars/cigarillos, smokeless tobacco, and e-cigarettes, was substantially greater in non-urban stores. This is likely a function of the types of stores that dominate urban versus non-urban school districts. For example, the stores around non-urban schools were more likely to be chain convenience stores which were found to have a high prevalence of non-cigarette tobacco product advertising. On the contrary, stores near urban schools were more likely to be independently owned ("mom and pop") stores or bodegas, which may not heavily advertise non-cigarette tobacco products.

Between 2015 and 2018, the promotion and availability of cigars and cigarillos increased among stores in the sample, but the data suggest that retailers may be reducing their promotion of e-cigarettes. It will be important to monitor whether changes in the tobacco retail environment will mirror changes in youth tobacco use behaviors as reflected in the New Jersey Youth Tobacco Survey. In 2018, we were able to measure the availability of JUUL, a new ENDS product that is growing in popularity. Overall, we find that JUUL is available in 22.7% of all stores. Further, in our 2018 audit, we measured compliance with New Jersey tobacco age of sale signage. We found that slightly more than half of stores (52.5%) featured mandatory age of sale signs and more than 70% of stores featured non-mandatory age of sale signs. Differences between the two may correspond with outreach methods and/or agency contacts.

This report provides important findings about the accessibility and promotion of various tobacco products near New Jersey high schools. During a time when cigarette smoking rates are declining among youth, it is critical to continue to monitor the marketing of other tobacco products in areas where youth spend time (e.g., near schools). The heavy promotion of cigars, cigarillos, and e-cigarettes is particularly concerning given that on average these products are cheaper to purchase than cigarettes. Unsurprisingly, these are three of the most common tobacco products used among youth in New Jersey. Future surveillance efforts should monitor how tobacco product promotion changes over time and collect data from other retail locations where youth spend time, including stores near parks, shopping malls and residential neighborhoods. Moreover, research should examine the relationship between exposure to tobacco advertising in the retail setting and use among youth.

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