

# Evaluation Report: Central Health Equity Policy Council's First Campaign-- Amending Austin's Smoking in Public Places Ordinance to Regulate Electronic Cigarettes



Submitted by



June 15, 2018

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*This report was produced by Toni Watt, Ph.D. and Lisa Kerber, Ph.D. We wish to thank Central Health and the Central Health Equity Policy Council Members, especially Megan Cermak and Sarah Seidel, who provided materials and information for the evaluation. We also want to thank the patrons, owners, and managers of Austin’s bars and restaurants who responded to our surveys.*

## **EXECUTIVE SUMMARY**

### **Background and Purpose**

Central Health is the local public tax entity that provides access to health care for low-income, underinsured, and uninsured Travis County residents. Central Health created the Central Health Equity Policy Council (CHEP) in 2015 to develop effective public health policies, reduce disparities, and improve the health of Travis County residents. In 2015, the CHEP Council adopted its first public health initiative. The initiative had two components. 1) The Council proposed adding e-cigarettes to the Smoking in Public Places Ordinance (SIPPO), which would ban e-cigarettes in all places where smoking is prohibited. 2) The CHEP Council also proposed a policy to prohibit smoking *and* vaping on bar and restaurant patios. In July 2017, the CHEP Council and other stakeholders successfully amended SIPPO to include e-cigarettes. The CHEP Council decided to postpone its efforts to ban smoking and vaping on bar and restaurant patios.

This evaluation examined issues relevant to the first year of the new ordinance. Its goals were to 1) assess implementation of the ordinance, 2) measure public attitudes toward e-cigarettes and the new ordinance, and 3) provide baseline data on e-cigarette use, which can be used in future evaluations to assess the impact of the ordinance over time.

### **Methodologies**

Methodologies included a review of strategies employed by the City of Austin, observational research at Austin bars, restaurants, and public parks, a survey administered to patrons and owners and managers of bars and restaurants, and analysis of the Texas Behavioral Risk Factor Surveillance System (2015-2016). Primary data collection took place from April 25<sup>th</sup> to May 9<sup>th</sup>, 2018. (Refer to **Appendix 1** for a more detailed description of the methodology.)

### **Summary of Key Findings and Recommendations**

The e-cigarette ban has been successful in its first year of implementation. A large percentage of bar and restaurant owners/managers and patrons know about the ban, support it, and comply with the ordinance in bars and restaurants. Benchmark data on e-cigarette use rates reveal that Austin is a prime candidate for the ban. In Austin, there are higher use rates, more use for pleasure, and rising use rates among minorities.

There is still room for improvement in the initiative. First, the SIPPO packets may not be the most effective method of educating owners/managers of bars and restaurants, and more communication strategies are warranted. Additionally, more education is needed to raise public awareness of the ban in the city's public parks. Finally, it is unclear if the ordinance will change actual behaviors. Most users said that the ban is unlikely to influence their intention to quit using e-cigarettes. Additional evaluation is needed to see how use rates change over time for Austin relative to other large cities.

## **BACKGROUND AND PURPOSE**

In August 2014, the City of Austin and the Central Health Equity Policy (CHEP) Council succeeded in prohibiting the sales and delivery of electronic cigarettes to minors. In July 2017, the City and the CHEP Council scored a victory in amending SIPPO to include the ban of vaping in public places.

Central Health hired Nybeck Analytics in November 2017 to conduct an evaluation related to the SIPPO amendment. The evaluation assessed 1) implementation, knowledge, and compliance and 2) public support and attitudes toward e-cigarettes and the new ordinance. Nybeck consultants also compared rates of e-cigarette use in Austin to rates in other large cities in Texas. Data on e-cigarette use rates in Austin and other large cities can reveal whether Austin is a good candidate for regulation (if use rates are comparatively high and/or rising). These data can also serve as a benchmark for future evaluations that assess the ordinance's impact over time. This report presents findings from the evaluation.

This evaluation report complements *Case Study: Central Health Equity Policy Council's First Campaign--Amending Austin's Smoking in Public Places Ordinance to Regulate Electronic Cigarettes*. The case study provides more detailed information on e-cigarettes and the Central Health Equity Policy Council. It explains how the CHEP Council and its partners pursued changes to local laws related to smoking and the use of electronic cigarettes.

## **SUMMARY OF METHODOLOGY**

To assess implementation, Nybeck consultants reviewed the strategies employed by the City of Austin to inform the public about the new ordinance. We also conducted observational research to measure compliance. We observed e-cigarette use and smoking in public spaces and in outdoor areas of bars/restaurants from March 17<sup>th</sup> to May 7<sup>th</sup>, 2018. A quota sampling technique was used to select bars and restaurants in five geographic areas of Austin (NW, NE, SW, SE, and downtown) using Lady Bird Lake and I-35 as geographic dividers.<sup>1</sup> Compliance checks were done at 29 different bar/restaurants and 6 of the city's public parks. Most observations in bars and restaurants were conducted between 3:00PM to 12:00AM and on weekends. Seven sites were observed after 10pm, when it may be more likely to see people smoking or vaping. Indoor areas of bars/restaurants generally had 25 or fewer patrons present. Outdoor patios tended to be much busier, where more than half of the sites had 25 to 100 people or more present. Average length of time researchers spent at any given site was a little over an hour and a half.

We also collected survey data from April 25<sup>th</sup> to May 9<sup>th</sup>, 2018 in the same five regions of Austin. Using SurveyMonkey, two surveys were created, one for patrons and one for owners/managers of bars and restaurants. Surveys were administered in-person using an iPad, by phone, and by email with a link to the survey. Purposive samples of 30 patrons and 35 owners/managers of bars

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<sup>1</sup> Source for areas: "Major Zoning Districts, City of Austin, Full and Limited Purpose Jurisdiction Areas," Planning and Zoning Dept., Created Aug. 14, 2017.

and restaurants were a cost-effective way to obtain estimates of community support with a reasonable error rate (15%) in the estimate.

To measure prevalence, knowledge and attitudes, and to create a benchmark for future evaluations that can assess the ordinance's impact over time, we used the Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a probability sample of the population that obtains survey data on attitudes and behaviors related to vaping and smoking. The Texas BRFSS has included several questions on the use of e-cigarettes since 2015. The survey asks, "Have you ever used an e-cigarette or other electronic 'vaping' product, even just one time, in your entire life?", "Do you now use e-cigarettes or other electronic "vaping" products every day, some days, or not at all?", and "What best describes your reason for using or trying these products?".

Using the BRFSS data, we defined other large cities as those with populations that are similar (within 100,000) or larger than the Austin population. This category includes Fort Worth, Dallas, San Antonio, and Houston. The BRFSS data were weighted using the final weight for land lines and cell phones. We validated our approach by cross-referencing our sample sizes and weighted estimates for key variables (as recommended) using the published BRFSS excel tables. We conducted descriptive analyses to compare use rates in Austin to the other cities. We also conducted multivariate analyses to determine whether Austin's use rates differ from other large cities when controlling for demographic differences in the cities' populations. (Refer to **Appendix 1** for a detailed description of the methodology.)

## **FINDINGS**

### **Implementation, Knowledge, and Compliance**

#### **Implementation**

After SIPPO was successfully amended in July 2017, the City of Austin's Environmental Health Services Division (EHSD) and Austin Public Health's Chronic Disease & Injury Prevention (CDIP) Division were enlisted to promote awareness and compliance among business owners and the public. Efforts included the following:

1. CDIP developed new building signs for the ordinance.
2. EHSD provided food establishments with "No Smoking" signage, updated to depict the prohibition of electronic smoking devices in public areas.
3. EHSD published a SIPPO update in the Fall 2017 edition of EHSD's Health Wise Newsletter, highlighting new regulations of electronic smoking devices.
4. EHSD, in July 2017, sent over 8,600 email notifications to food safety representatives and public health stakeholders announcing the prohibition of electronic smoking devices in all locations where smoking is currently prohibited.
5. CDIP, in September 2017, developed a flight of radio ads on two radio stations that promoted the new ordinance.
6. EHSD updated its website to include information and links to the updated SIPPO ordinance.

7. EHSD Environmental Health Officers continue to routinely monitor Austin's approximately 5,000 food establishments for compliance with the City's SIPPO regulations, including the prohibited use of electronic smoking devices.
8. Austin Public Health amended social service contracts to include Tobacco-Free Workplace Requirement provisions that now equally apply to using electronic smoking devices.
9. Austin Public Health is disseminating information about the City's new electronic smoking device regulations to the media and City stakeholders.
10. CDIP developed a Smoke- and Electronic Cigarette-Free Events Toolkit for event planners and purchased three sets of signs to be shown at events. Event planners can borrow the signs.

Articles, news pieces, and public service announcements publicized the new amendment to SIPPO (**Appendix 2**). An article in the *Austin Business Journal* (June 22, 2017) explained the new ban. A piece on KVUE (July 3, 2017) emphasized the negative aspects of vaping (smoke, lingering smells, health concerns), explained how electronic cigarettes may be a tool to quit smoking, and described the ban, saying it applies to all workplaces, public parks, city buildings, bars, and restaurants. The KVUE piece noted that a manager of a vape shop supports the ban and encourages others to respect it. A piece on KXAN (July 3, 2017) explained the ban, the \$2000 fine, and highlighted a manager of a vape shop who respects the ban and says e-cigs are a good alternative to smoking. The City of Austin ran two Public Service Announcements (PSAs) in September 2017. One said, "tobacco kills," and e-cigarettes are "bad." It went on to explain that vaping is now banned in city buildings, public parks, restaurants, and bars. "Let's contribute to cleaner air." The PSA encouraged people to quit smoking and vaping. The second one explained that vaping is now banned at the Austin City Limits Festival, city buildings, public parks, restaurants, and bars. The "Let's contribute to cleaner air" PSA also encouraged people to quit smoking and vaping.

### **Knowledge**

The survey showed 40% of patrons (n=12) knew that SIPPO was amended to include e-cigarettes. They said they learned of the new ordinance from a variety of sources, including restaurant/bar staff, the news, or word of mouth from friends and family.

According to the survey, 66% of owners/managers knew about the ban. Of those that said they were aware of the ban, most found out about it from some form of news (57%). Others reported hearing about it via word of mouth (30%) or from the owner or other managers (17%). Only 2% of respondents who knew about the ban found out about it from the SIPPO packet, which was a packet of information delivered to bars and restaurants by the City of Austin's Environmental Health Services Division.

## Compliance

According to the survey, 57% of patrons currently vape (use in past 30 days). Forty-three percent of all patrons said they have done so in a public place (bar, restaurant, a work place, public park) since July 2017 (Figure 1).

Used e-cig/vape (last 30 days)	57%
Vaped in a "public place" since the ban	43%

The survey suggests that patrons who vaped in a public place did not know about the ban before taking the survey. Though our sample is small, 77% of the patrons who currently use e-cigarettes and who had vaped in a public place did not know about the ban before taking the survey.

The survey suggests that non-compliance is high among current e-cigarette users, but we observed low rates of non-compliance inside bars and restaurants. Only one site check revealed a person vaping *inside*, and the person vaping was a member of an out-of-town band crew, setting up sound at a venue. *No patrons were seen smoking inside any of the sites.* A bar owner explained that patrons “generally are aware and don't do it inside our business.”

These contradictions in findings may be explained by the relatively low prevalence of e-cigarette use. Perhaps, general compliance observed first-hand seems high because most adult patrons do not vape. Another explanation is that current users respect the ordinance as it relates to bar and restaurant buildings but not in city buildings and public parks.

Our findings suggest that the public does not seem to know about or follow SIPPO guidelines as they relate to the city's public parks. In all public parks observed, there was some combination of smokers and vapers. At Eeyore's Birthday Party, 38 people were seen smoking or vaping. Austin Police were monitoring Eeyore's but seemed not to enforce the ordinance. The ban against smoking in public parks partly resulted from the Bastrop fires in 2011. Perhaps, people don't know what led to the ban and assume it is legal to smoke and vape outside on public park land because smoking/vaping continues to be legal on outside patios.

Nybeck consultants observed several smokers and vapers *outside* on patios, although they were still a minority among patrons. In 37% of bar/restaurant patios, patrons were seen vaping; at 57% of bar/restaurant patios, patrons were seen smoking. The presence of smoking and vaping on outdoor patios suggests that patrons who smoke or vape respect the ban inside bars/restaurants and choose to smoke/vape on the patios.

## Attitudes and Support for Ordinance

### Prevalence and Intention to Quit among Survey Respondents

Fifty-seven percent of our survey respondents (n=17) have used e-cigarettes, vapes, or other electronic smoking devices in the past 30 days. The prevalence among patrons in our study was much higher than the prevalence of vaping in the general public in Austin. The BRFSS showed that 5% of adults in Austin in 2016 currently use e-cigarettes or a similar device. Reasons for the relatively high prevalence in our study may be that our sample included:

- Adults frequenting patio areas of bars and restaurants
- Relatively young adults aged 20 to 39
- Adults using dab pens, CBD oil, or THC oil in past 30 days via an e-cigarette device

The recent ban does not seem to affect current e-cigarette users’ intention to quit. More than half of those who have used an e-cigarette in the past 30 days report that they are not at all likely to quit vaping in the next 6 months (**Figure 2**). Only 15% of owners/managers (n=5) have vaped in the past 30 days. Three said they’re not at all likely to quit using, and two reported that they are very likely to quit.

**Fig. 2. Likelihood of Quitting within Next Six Months Among Patrons Who Are Current E-Cigarette Users**

Not at all likely	53%
A little likely	23%
Somewhat likely	12%
Very likely	12%

### Attitudes toward Vaping

Among adult patrons and owners/managers surveyed, over 90% believe that e-cigarettes pose health risks (**Figure 3**). However, the majority believe that the health risks are not significant. And many adult patrons told Nybeck consultants that they believe the use of e-cigarettes is a less harmful alternative to smoking. Several also told Nybeck consultants that e-cigarettes would be a helpful step in the process to quit smoking.

**Fig. 3. Percentage of Respondents Who Believe E-Cigarettes Pose Health Risks**

	Patrons	Owners/ Managers
No risk	10%	6%
Yes, some health risks	53%	56%
Yes, significant health risks	37%	38%

The evaluation assessed change in attitudes since the new ordinance went into effect on July 3, 2017. Survey respondents were asked if the ban changed their opinion of e-cigarettes or affected how often they go to bars. The recent ban does not seem to affect many people’s attitudes toward vaping. Only 3% of patrons and 12% of owners/managers viewed vaping as more harmful due to the new ban (**Figure 4**). The ban does not seem to affect many patrons’ behaviors when it comes to going to bars and restaurants. Only 3% of patrons said it affected their choice to go out. These 3% said they go to bars and restaurants *more* often because of the ban.



**Fig. 4. Perception of Risks, Attitudes, and Behaviors after Ordinance Passed**

	Patrons	Owners/ Managers
<b>New ordinance changed your attitude toward vaping?</b>		
<i>No</i>	97%	85%
<i>Yes, I see vaping as more harmful due to ban</i>	3%	12%
<i>Yes, I see vaping as less harmful due to ban</i>	-	3%
<b>As a result of new ban, do you go to bars and restaurants...</b>		
<i>About the same</i>	97%	-
<i>More often</i>	3%	-
<i>Less often</i>	-	-
- Less than .05%		

**Support for Ordinance**

Nybeck assessed the level of public support for the new ordinance. The survey showed most patrons (70%) and owners/managers of bars and restaurants (91%) support the ban, with more support coming from owners/managers (**Figure 5**).

**Fig. 5. Attitudes Toward New Ordinance Enacted in July 2017**

	Patrons	Owners/ Managers
Strongly support	23%	64%
Somewhat support	47%	27%
Somewhat oppose	30%	6%
Strongly oppose	-	3%
- Less than .05%		

Most owners/managers believe the ban helps to enforce SIPPO in their establishments. Some 28% of respondents said it helps to “a great extent.” Most owners/managers feel that the ban helps (48%) or does not affect (46%) their businesses in other ways (**Figure 6**).

For example, several owners/managers described how the ban helps them to enforce SIPPO:

- “All smoking is on the patio outside. One rule is easier to deal with than two.”
- “If I see someone smoking an e-cigarette inside, I ask them to take it outside. If I can also say, ‘It is Austin law,’ that helps.”
- “It gives us better grounds to ask people not to vape indoors.”
- “It’s helpful to have a ban in place that is backed by the city. When we say something is not allowed, it’s not only our decision but one supported by the city as a whole.”

**Fig. 6. Percentage of Owners/Managers Reporting on Effects of Ban on Management and Business**

<b>Does new ban help your bar or restaurant enforce SIPPO?</b>	
<i>A great extent</i>	27%
<i>Somewhat</i>	39%
<i>Very little</i>	12%
<i>Not at all</i>	21%
<b>Does new ban help or hurt your business in other ways?</b>	
<i>Very helpful</i>	36%
<i>Somewhat helpful</i>	12%
<i>Neutral/no effect</i>	46%
<i>Somewhat harmful</i>	-
<i>Very harmful</i>	6%
- Less than .05%	

Several owners/managers felt strongly that ban is good for business. For example,

- “The ban helps because the vapors are often strongly scented, and giant clouds of it are disturbing to guests.”
- “It helps by not letting the smell of vaping permeate the air and interfere with another person’s olfactory senses and the ability to enjoy their food and beverage.”
- “It is helpful to our business because most patrons do not appreciate a smoke-filled area indoors, especially non-smokers/non-vapers.”
- “My clients don't like the smell of cigarettes in my establishment or e-cigarettes, so it helps keep my customers. I also don't like it myself.”
- “Nobody wants to smell that shit. They can call it whatever custom flavor they want, but it’s gross as #\$@&%\*!. Outside the wind carries it away. Inside, that ass cloud would linger forever.”
- “Nobody wants to smell that strawberry pancake propylene glycol shit. #\$@&%\*!ing douchebags and their smelly vape clouds.”
- “Only selfish dickheads vape indoors. It smells like crap and hangs in the air like Pig Pen from the Peanuts cartoons. Our customers and employees love that they don’t have to deal with it inside anymore.”

One owner/manager did say that e-cigarette users are less offensive than smokers: “E-cigarettes and vaping share none of the same negative side effects to people nearby that traditional tobacco does.”

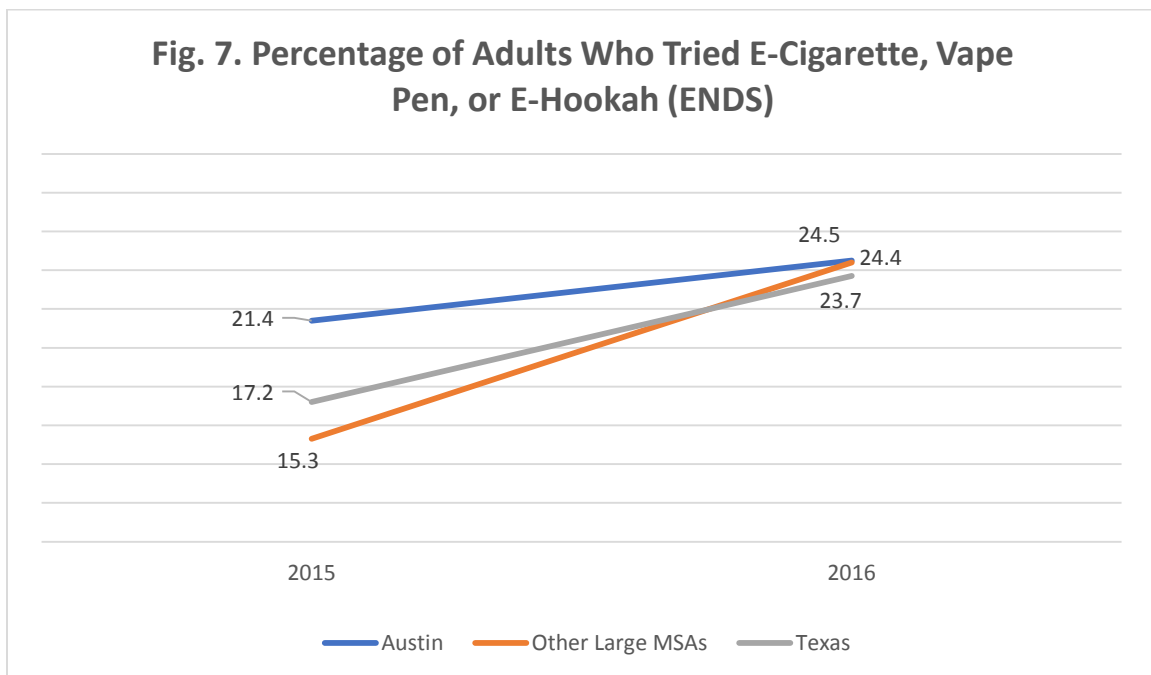
Only 6% of respondents indicated that the ban is harmful for business (**Figure 6**). For example: “A lot of people prefer to not come because they want to smoke here, including the e-cigarettes. Hurts overall. I assume [patrons who vape or smoke] would rather stay at home and not come here.”

## Population Health: E-Cigarette Use Patterns

### Prevalence and Increase over Time in Texas

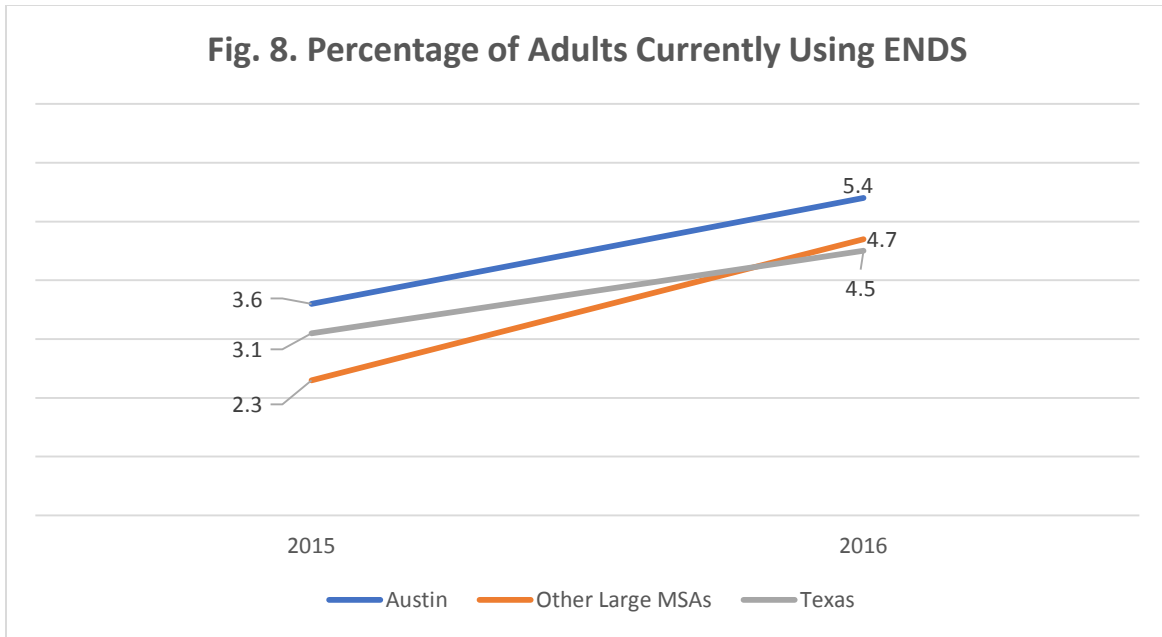
The BRFSS provides estimates of the use of Electronic Nicotine Delivery Systems (ENDS) for the general Texas population. The term, *ENDS users*, includes those who have tried or currently use e-cigarettes, e-hookahs, or vape pens. The percentage of Texas respondents who have ever tried an e-cigarette, e-hookah, and/or vape pen has increased from 2015 (17%) to 2016 (24%). The increase is statistically significant.

**Figure 7** provides estimates of ENDS use for Austin, other large Texas cities, and Texas overall. ENDS use has increased over time for all geographic areas. In 2015, Austin had significantly higher rates of ENDS use compared to other large cities and Texas. However, the increases over time have been larger for areas outside of Austin, resulting in a comparable level of ENDS use in 2016 for the areas examined. In 2016, the percentage of ENDS use was 25% in Austin, 24% in other large MSAs, and 24% in Texas.



*\*All changes from 2015 to 2016 are statistically significant,  $p \leq .000$*

The BRFSS survey asks if respondents used ENDS every day, some days, or not at all. About 5% of respondents report current use (daily or some days) of ENDS (**Figure 8**). The percentage has increased over time. In addition, Austin has the highest estimate of current use in 2015 and 2016 compared to other large cities and Texas in general.



*\*All changes from 2015 to 2016 are statistically significant at  $p < .000$*

### Reasons for Using ENDS

**Figure 9** shows the reasons why respondents have tried or used ENDS. In 2015 and 2016, the most common answer given was to try to cut down on smoking. However, a shift occurred. In 2016, respondents (in Texas and other large cities) were less likely to say they tried ENDS devices for smoking cessation, and they were more likely to say, “I just tried it a few times.” This suggests that ENDS use is moving from a strategy to cut down on smoking and becoming something people are simply curious about trying. In Austin, the pattern is different. In Austin, both reasons (smoking cessation and experimentation) declined from 2015 to 2016. Perhaps, people in Austin preceded Texans in general with trying ENDS. While experimentation declined in Austin, the use of ENDS for pleasure increased in Austin, compared to other large cities and Texas in general. In Austin, the percentage of people who used ENDS for pleasure or enjoyment doubled from 9% to 18%. These findings, along with the higher rate of current users in Austin, suggest that Austin is a city with a unique risk of regular or possibly long-term ENDS use.

**Fig. 9. Reasons for Using ENDS (2015 and 2016)**

	Austin		Large MSAs		Texas	
	2015	2016	2015	2016	2015	2016
Cut down smoking	42%	36%	43%	34%	43%	36%
Can't smoke in public places	2%	3%	2%	2%	2%	3%
Pleasure/enjoyment	9%	18%	10%	11%	10%	11%
Tried a few times	39%	34%	42%	49%	41%	46%
Other	8%	10%	4%	4%	4%	4%

### Ever Use and Current Use by Selected Variables

The higher rate of current use in Austin may be due to the city’s demographic profile. Austin’s population is younger, less likely to be married, more educated, and higher income than BRFSS respondents of other large cities. Thus, we conducted multivariate analyses to examine whether Austin’s rate remains high when demographic variables are taken into account.

For the logistic analysis (**Figure 10**), we used a subsample of respondents from Austin and other large cities because we felt this was the most relevant comparison. Odds ratios are interpreted relative to 1. Any ratio over 1 represents an increase in the odds that a respondent will have tried or be a current user. Any ratio under 1 reflects a decrease in the odds of ENDS use. The change in odds columns show percentage increases or decreases. In our analysis, we compare Austin to other large cities, females to males, African-Americans, Hispanics, and “other/multiracial” to whites. For other variables, the change in odds is associated with each unit increase in the independent variable, e.g. each additional year of age, low to high education, low to high income levels.

**Fig. 10. Logistic Regressions of ENDS Use: Austin and Other Large Cities (2015 & 2016)**

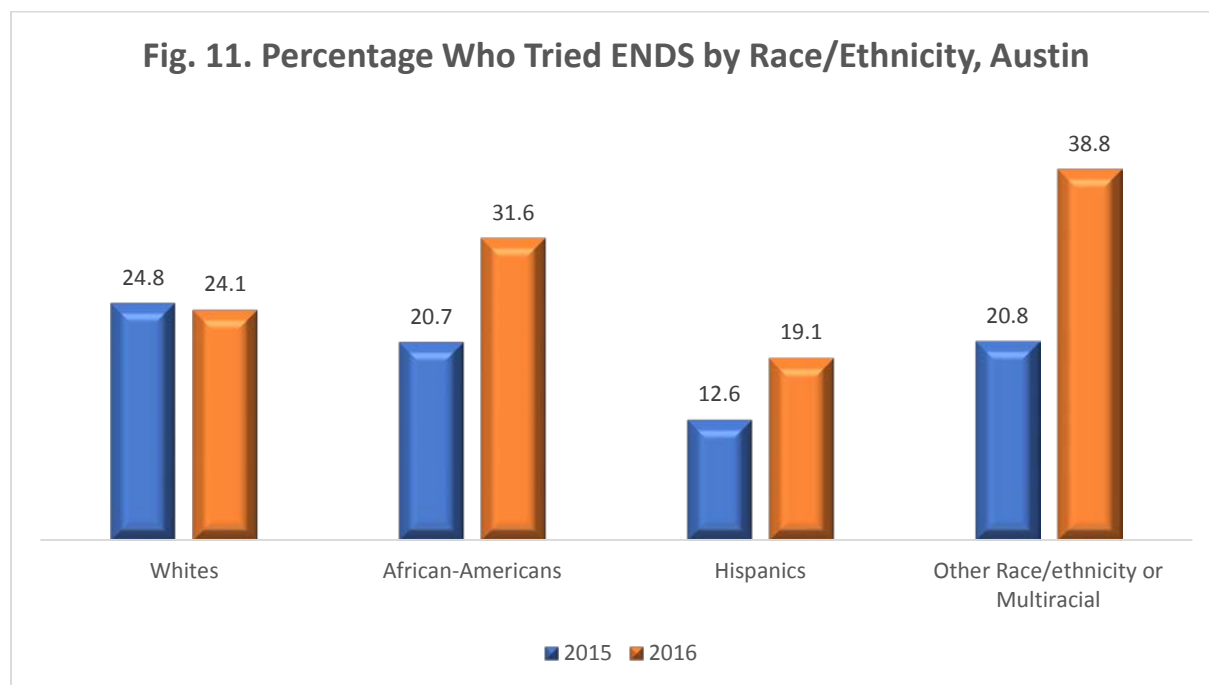
Respondent Characteristics	Tried ENDS (n=9,000)		Current ENDS User (n=10,326)	
	Odds Ratio* in 2016	Change in Odds from 2015-2016	Odds Ratio* in 2016	Change in Odds from 2015-2016
Austin	1.13	13%	1.22	22%
Age (years)	0.98	-2%	0.99	-1%
Sex (female)	0.51	-49%	0.37	-63%
Unmarried	3.06	306%	2.59	259%
Education (4 categories)	0.81	-19%	0.69	-31%
Income (3 categories)	1.05	5%	1.18	18%
Race/ethnicity				
White (reference category)	-----			
African-American	0.70	-30%	0.84	-16%
Hispanic	0.52	-48%	0.24	-76%
Other/Multiracial	0.53	-47%	1.35	35%

*\* All odds ratios are significant at p<=.0005.*

Younger, male, and less educated respondents are more likely to use ENDS. Unmarried respondents are three times more likely than married respondents to report trying ENDS (3.06) and 2.59 times more likely to currently use. Higher income is associated with a greater likelihood of ENDS use. This may relate to the cost of electronic devices. African-American and particularly Hispanic respondents are much less likely to use ENDS than white respondents. However, those who identify as multiracial or some other race/ethnicity are 35% more likely to be current ENDS users than whites. Finally, Austin ENDS use is statistically higher than that of other large cities, even when controlling for demographic factors that may explain use patterns. Austin

respondents were 13% more likely to try ENDS and 22% more likely to currently use ENDS than respondents from other large MSAs.

**Figure 11** shows the percentage of racial/ethnic groups in Austin that have tried e-cigarettes, e-hookahs, or vape pens and how these rates have changed over time. The percentage for users among whites is flat. However, the percentage of users significantly and substantially increased among African-Americans, Hispanics, and other racial/ethnic groups.



## SUMMARY AND RECOMMENDATIONS

### Implementation, Knowledge, and Compliance

The City of Austin made a concerted effort to raise public awareness of the ban by distributing SIPPO packets to bars and restaurants and carrying out a media campaign. The survey among patrons and owners/managers of bars and restaurants showed 40% of patrons and 66% of owners/managers knew about the ban. Most owners/managers found out about the new ordinance via the news and word of mouth. City of Austin may want to enhance its marketing to bars and restaurants by distributing more SIPPO packets and signs or by developing a new way to communicate if owners/managers do not read the SIPPO packets.

Results from observation show strong compliance in bars and restaurants. However, a sizable percentage of current users reported vaping in a public place since the ban, and a high rate of use was found in public parks. While bars and restaurants are doing a good job of enforcing the ban, more may need to be done to educate the public and enforce compliance in public parks.

## **Attitudes and Support of New Ordinance**

Survey results suggest that the majority of patrons and owners/managers believes e-cigarettes pose some health risks but not significant health risks. Knowledge of the ban does not seem to affect many people's attitudes toward vaping, the frequency with which people go to bars and restaurants, or e-cigarette users' intent to quit vaping in the next six months.

The survey showed that most patrons and owners/managers support the ban of e-cigarettes in public places. Owners/managers are more likely than patrons to support it and to strongly support it. Most owners/managers felt strongly that the ban helped them to enforce SIPPO. Ninety-four percent of owners/managers felt that the ban either helped or had no effect on their business. Almost half (48%) said it helped their businesses in other ways, such as improving the experience of all patrons.

## **Population Health: E-Cigarette Use Patterns**

Results from the BRFSS reveal that ENDS use has increased from 2015 to 2016 in Austin, other large cities, and Texas in general. This includes the percentage of respondents who have tried an e-cigarette, e-hookah, and/or a vape pen as well as those who currently use ENDS daily or on some days. Austin adults were more likely to have tried or to currently use electronic nicotine delivery systems than adults in other large cities, even when controlling for demographic differences in these cities. And Austin residents are also more likely to report ENDS use for pleasure than people in other geographic areas. Finally, the increases in use over time in Austin were entirely attributable to increases in use among minority populations. These BRFSS findings suggest that e-cigarette regulation in Austin was appropriate, timely, and an equity issue.

When data for 2017 and later years become available, we recommend using the BRFSS to evaluate behavior change and population health by comparing trends in e-cigarette use in Austin pre- and post-regulation to trends in other large cities that have not passed this type of regulation.

## APPENDIX 1. METHODOLOGY

### Observation at Bars, Restaurants, and City's Public Parks

To measure implementation, we reviewed the activities of City of Austin. To measure aspects of compliance, we observed vaping and smoking in public spaces and on outdoor patios of bars and restaurants from March 17 to May 7, 2018. A quota sampling technique was used to select bars and restaurants in five geographic areas of Austin (NW, NE, SW, SE, and downtown) using Lady Bird Lake and I-35 as geographic dividers.<sup>2</sup> Compliance checks were done at 29 different bar/restaurants and 6 parks (**Figure 12**). Most observations in bars and restaurants were conducted between 3:00PM to 12:00AM and predominantly on weekends. Seven sites were observed after 10pm, when it may be more likely to see people smoking or vaping. Indoor areas generally had 25 or fewer patrons present. Outdoor areas tended to be much busier, where more than half of the sites had anywhere from 25 to over 100 people present. Average length of time researchers spent at any given site was 1.5 hours.

**Fig. 12. Locations of Observations**

Name	Area
<b>Bar or Restaurant</b>	
Aviary Wine and Kitchen	SW
Back Lot	NW
Bennu Coffee & More (E. MLK)	NE
Black Sheep Lounge	SW
Bungalow	CBD
Buzzmill	SE
C-Boy's Heart & Soul	SW
Conan's Pizza	SW
Container Bar	CBD
Corner Bar	SW
Cosmic Coffee & Beer Garden	SW
Eastside Tavern	NE
Flower Child	CBD
Grackle, The	NE
Hecho en Mexico	SE
Hi Hat	NE
Imagine Art Music Venue	NE
Jackalope, The	SE
Latitude	CBD
Lazarus Brewing	NE
Monkey Nest Coffee	NW
Numero 21 Pizzeria	CBD
Perla's	SW
Radio Coffeehouse	SW
Sahara Lounge	NE
San Jose Hotel (SXSJ)	SW
Shoal Creek Saloon	NW
Spider House	NW
Whistlers	NE
<b>Public Park</b>	
Barton Springs	SW
Butler Park	SW
Gus Fruh Greenbelt	SW
Pease Park	CBD
Twin Falls	SW
Zilker Park around big rock	SW

<sup>2</sup> Source for areas: "Major Zoning Districts, City of Austin, Full and Limited Purpose Jurisdiction Areas," Planning and Zoning Dept., Created Aug. 14, 2017.



## Survey

### Sample

Public support for an ordinance is typically assessed through survey data administered to a sample of the population. The relevant population could be broadly defined as residents of Austin, those likely to visit affected areas, or smokers. Due to budget constraints, it was not feasible to draw a random probability sample of any of these populations. Thus, Nybeck Analytics drew two purposive samples that targeted groups of people diverse in age and race/ethnicity and who frequent different types of establishments. Types of venues included bars, bar/restaurants, bar/coffee houses, wineries, breweries, and dance clubs, a few of which were predominantly Spanish-speaking. Survey data were collected from the same five different regions of Austin. Sample sizes were determined by the acceptable margin of error in the estimates of public support. Samples of 30 patrons in 16 bars and restaurants and 35 owners/managers of 33 bars and restaurants were a cost-effective way to obtain estimates of community support with a reasonable error rate (15%) in the estimate (**Figures 13-15**).

**Fig. 13. Number of Bars and Restaurants in Survey Samples**

Area	Patron	Managers and Owners
Central Business District: west of I35 and north of river	4	5
NE: north of the river and east of I35	4	9
NW: west of I35 and north of the CBD	2	5
SE: east of I35 and south of the river	2	3
SW: west of I35 and south of the river	4	7
Missing	0	4
<b>Total</b>	<b>16</b>	<b>33</b>

Source: "Major Zoning Districts, City of Austin, Full and Limited Purpose Jurisdiction Areas," Planning and Zoning Dept., Created Aug. 14, 2017.

**Fig. 14. Sample of Owners and Managers**

	#	%
<b>Respondent</b>		
Owner	17	37%
Manager	16	63%
<b>Area</b>		
Central Business District:	5	14%
NE	11	31%
NW	5	14%
SE	3	9%
SW	7	20%
Missing	4	11%

Source: "Major Zoning Districts, City of Austin, Full and Limited Purpose Jurisdiction Areas."

**Fig. 15. Sample of Adult Patrons**

	#	%
<b>Sex</b>		
Male	11	37%
Female	19	63%
<b>Age Group</b>		
21-29	12	40%
30-39	15	50%
40-49	3	10%
<b>Race/Ethnicity</b>		
White	19	63%
Black	3	10%
Hispanic	8	27%
<b>Area</b>		
CBD	6	20%
NE	6	20%
NW	6	20%
SE	5	17%
SW	7	23%

The patron survey sample was diverse. Respondents were predominantly female, in the 30- to 39-year-old age group, and most were white (**Figure 15**).

Source: "Major Zoning Districts, City of Austin, Full and Limited Purpose Jurisdiction Areas."

### Instrument and Data Collection

The survey included measures that can be used as a baseline against which to measure changes in public attitudes about health risks, smoking behaviors, and public policy related to a smoke-free bar patio initiative. The brief survey used established measures of 1) perceived health hazards of e-cigarettes, 2) perceived health hazards of second-hand smoke, 3) smoking behaviors, 4) knowledge of public ordinances regarding smoke-free areas, and 5) support for bans on e-cigarettes. The survey for owners/managers included questions on the effect of the new ordinance on management and business.

Two surveys were created using SurveyMonkey, one for patrons and one for owners/managers. The interviewer administered most patron surveys face to face. When wi-fi was available, the interviewer gave patrons a self-administered survey using an iPad Tablet. Some owner/manager surveys were administered face-to-face using an iPad. Because owners and managers were often absent from the bar/restaurant or were too busy to complete the survey with the interviewer, the interviewer often followed up with an email invitation with a link to the survey. The Nybeck consultant contacted owners/managers by phone, email, or website. Survey administration was completed in-person or directly by the owner/manager using a link to the survey. In this way, most owners/managers completed the survey via SurveyMonkey. Three surveys were conducted via phone in Spanish.

## **Analysis of Behavioral Risk Factor Surveillance System Data**

The Behavioral Risk Factor Surveillance System (BRFSS) is a probability sample of the population that obtains survey data on attitudes towards smoking and smoking behavior. The Texas BRFSS has included several questions on the use of e-cigarettes since 2015. The survey asks, “Have you ever used an e-cigarette or other electronic ‘vaping’ product, even just one time, in your entire life?”, “Do you now use e-cigarettes or other electronic “vaping” products every day, some days, or not at all?”, and “What best describes your reason for using or trying these products?”. While we cannot use the BRFSS to assess the impact of e-cigarette regulation, the BRFSS can be used for the evaluation’s stated purposes.

The BRFSS is conducted annually, and thus a time-series analytical approach can identify historical trends in smoking behaviors and whether there is a statistically significant change following policy implementation. Our initial plan was to use the BRFSS to create a quasi-experimental design to evaluate the impact of e-cigarette regulation. Our intent was to examine e-cigarette use over time for cities with and without regulation and to compare Austin trends to these patterns. However, we accessed the BRFSS data and found it to have significant limitations, which preclude us from using it in these ways. The sample sizes for cities that have regulated e-cigarettes are too small, and data for Austin post-regulation have not been released. When data for 2017 and later years become available, we recommend using the BRFSS to evaluate behavior change and population health by comparing trends in e-cigarette use in Austin pre- and post-regulation to trends in other large cities that have not passed this type of regulation. However, we have found no other data sets capable of assessing the impact of the regulation or which are superior to the BRFSS methodology for tracking use rates over time in Austin and other Texas cities.

We defined other large cities in Texas as those with similar (within 100,000) or larger populations than Austin’s population. This category includes Fort Worth, Dallas, San Antonio, and Houston.

The BRFSS data were weighted using the final weight for land lines and cell phones. We validated our approach by cross-referencing our sample sizes and weighted estimates for key variables (as recommended) using the published BRFSS excel tables.

## **APPENDIX 2. MEDIA COVERAGE ON ORDINANCE AFTER AMENDMENT PASSED**

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