

Electronic Nicotine Delivery Systems (E-Cigarette) Report

**As Required by
Texas Health and Safety Code,
Section 161.0902**



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Executive Summary

Electronic cigarettes (e-cigarettes), also known as Electronic Nicotine Delivery Systems (ENDS), are devices that simulate smoking by using a mechanical heating element, battery, or electronic circuit to deliver nicotine or other substances by inhalation.

In May 2016, the U.S. Food and Drug Administration (FDA) amended a rule to include e-cigarettes in its legal definition of a tobacco product, thus restricting their sale to minors. This rule complements Texas law regarding the possession and access of ENDS among minors, which includes e-cigarettes, in tobacco regulations and requires the Department of State Health Services (DSHS) to report on the status of e-cigarettes in Texas.

The FDA contracts with states, including Texas, to help enforce federal tobacco regulations. Between September 1, 2016 and August 31, 2018, a total of 11,357 inspections were completed in Texas, resulting in the identification of 228 ENDS and e-liquids sold to minors.

Statewide survey data indicate the following about tobacco use in Texas:

- 20.8 percent of adults in Texas report using or trying ENDS;
- 32.5 percent of high school students, and 11.3 percent of middle school students have ever tried or used ENDS;
- The highest prevalence of ever using ENDS was among adults ages 18 to 29 years (34.5 percent); and
- Adult men had a higher prevalence of ever ENDS use compared to adult women (23.4 percent compared to 18.3 percent, respectively).

DSHS has worked to include ENDS into its existing tobacco prevention and control activities through the multiple initiatives, including tobacco coalitions, regional tobacco prevention coordinators, and targeted intervention programs.

Although information about the health effects of ENDS is still limited, DSHS will continue to address ENDS as a part of its comprehensive tobacco control efforts. As more information on the effects of ENDS becomes available, DSHS will implement evidence-based interventions to address the needs and gaps regarding ENDS use.

1. Introduction

Texas Health and Safety Code, [Section 161.0902](#), requires the Department of State Health Services (DSHS) to report to the Governor, Lieutenant Governor, and Speaker of the House of Representatives on the use of e-cigarettes in Texas.

The report must be submitted no later than January 5th of each odd-numbered year, and at a minimum, must include following information.

- A baseline of statistics and analysis regarding retail compliance with Texas statute.
- A baseline of statistics and analysis regarding illegal e-cigarette sales, including sales to minors, enforcement actions concerning minors, and sources of citations.
- E-cigarette controls and initiatives by DSHS, or any other state agency, including an evaluation of the effectiveness of the controls and initiatives.
- The future goals and plans of DSHS to decrease the use of e-cigarettes.
- The educational programs of DSHS and the effectiveness of those programs.
- The incidence of use of e-cigarettes by region in the state, including use of e-cigarettes by ethnicity.

The purpose of this report is to meet the requirements of Texas Health and Safety Code, Section 161.0902. To do so, this report provides data on e-cigarette use and retailer compliance, as well as the initiatives carried out by DSHS and other state agencies to prevent e-cigarette use and promote cessation.

2. Background

The term for e-cigarettes preferred by the Centers for Disease Control and Prevention (CDC) is Electronic Nicotine Delivery Systems (ENDS). An ENDS is any device that simulates smoking by using a mechanical heating element, battery, or electronic circuit to deliver nicotine or other substances by inhalation. Common names for ENDS include electronic smoking devices, e-cigarettes, e-cigs, e-cigars, e-hookah, mods, hookah pens, vape pens, vape sticks, personal vaporizers, tank systems, and JUUL.

Many ENDS may look like traditional cigarettes, cigars or pipes, but others resemble pens, USB sticks, and other non-tobacco products. ENDS are comprised of three components: a battery; a cartridge containing a fluid called e-liquid or e-juice comprised of propylene glycol and/or vegetable glycerin, nicotine, and various chemicals; and a vaporizer that transforms the e-liquid into an aerosol.¹

As the user draws on the device, the battery heats the e-liquid to produce aerosol, which is inhaled into the lungs. Use of an ENDS is called “vaping” and shops with a significant focus on selling ENDS are called “vape shops.” E-liquid is often flavored, with more than 7,700 flavors available and nearly 500 brands of e-cigarettes.²

Since the invention of the modern ENDS in 2003, several generations of the device have been developed. The first generation of ENDS consists of a device that closely resembles a conventional cigarette, and are generally a disposable, closed-system (non-refillable) device. The second generation of ENDS resembles a pen, is typically an open-system (refillable), and is rechargeable. The second generation introduced the sale of e-juice or e-liquids. E-liquids usually contain nicotine and are necessary to use the device. The third generation of ENDS consist of a device with a much larger battery, tank, and heating device. This generation of ENDS are especially used to smoke forms of liquid tetrahydrocannabinol (THC) or hash oils.³

¹ Americans for Nonsmokers’ Rights. 2014. Electronic smoking devices and secondhand aerosol. Retrieved from: <https://no-smoke.org/electronic-smoking-devices-secondhand-aerosol/>

² American Lung Association. 2018. Myths and Facts About E-cigarettes. Retrieved from: lung.org/stop-smoking/smoking-facts/myths-and-facts-about-e-cigs.html

³ U.S. Department of Health and Human Services. E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and

In 2015, a new ENDS product, JUUL, entered the U.S. market and rapidly emerged as one of the top ENDS brands. JUUL is especially popular among youth due to its sleek design resembling a computer flash drive. The JUUL system consists of the vaping device and the pod cartridge that contains the e-liquid. The JUUL pod is intended to be a “close-system” cartridge, meaning that it is pre-filled with e-liquid and intended for single use only. However, some users have found ways to refill the cartridges with other e-liquids or other substances such as cannabis.

ENDS are commonly promoted as a safer alternative to smoking and as a tool to help people quit smoking, but this has not been proven. Although ENDS may help some smokers quit, others may transfer their cigarette addiction to ENDS or use both.⁴

Because ENDS are new products, there has been insufficient time to study the long-term health and safety consequences of their use. However, ENDS are known to contain nicotine, volatile organic chemicals, and carcinogens, all of which can have negative effects on health.⁵

ENDS often contain nicotine, the same addictive chemical found in traditional tobacco products. Aside from potential addiction, long-term nicotine exposure can lead to increased blood pressure, heart rate, and problems associated with diabetes.⁶ Secondhand exposure to exhaled ENDS aerosol may also cause negative health effects due to the nicotine, ultrafine particles, and toxins that are released into environment. E-liquids can have toxic effects, especially to children, and can cause nicotine poisoning if e-liquid is consumed or absorbed through the skin.⁷

Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.

⁴ Rahman, M.A., Nicholas, H., Wilson, A., Worrall-Carter, L. (2014). Electronic cigarettes: patterns of use, health effects, use in smoking cessation, and regulatory issues. *Tobacco Induced Diseases*, 12(21). Retrieved from tobaccoinduceddiseases.com/content/12/1/21

⁵ U.S. Surgeon General. 2018. Know the Risks: E-cigarettes & Young People. Retrieved from: e-cigarettes.surgeongeneral.gov/knowtherisks.html

⁶ National Conference of State Legislatures. (2014, June 16). Alternative nicotine products: Electronic cigarettes. Retrieved from ncsl.org/research/health/alternative-nicotine-products-e-cigarettes.aspx

⁷ U.S. Department of Health and Human Services. E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.

In recent years, the popularity of ENDS products has increased rapidly, especially among youth and young adults (18-25 years of age). Since 2011, the prevalence of ever using e-cigarettes among middle and high school students has more than tripled (0.6 to 5.3 percent for middle school, and 1.5 to 16.0 percent for high school youth, respectively).⁸ Dual use, or using both ENDS and conventional cigarettes, is common among youth and young adults. In 2015, over half of high school students who were current combustible tobacco users were also current e-cigarette users.⁵ Furthermore, e-cigarette use may actually increase the risk of youth ever using combustible cigarettes.⁹

Nicotine exposure during adolescence is especially concerning. Research is limited, but preliminary studies have shown that nicotine exposure can harm developing brains and may prime adolescents for addictive behaviors.⁵

⁸ Singh T, Arrazola RA, Corey CG, et al. Tobacco Use Among Middle and High School Students — United States, 2011–2015. *MMWR Morb Mortal Wkly Rep* 2016;65:361–367. Retrieved from: www.cdc.gov/

⁹ National Academies of Sciences, Engineering and Medicine. 2018. *Public health consequences of e-cigarettes*. Washington, DC: The National Academies Press.

3. Tobacco Regulation in Texas

On May 10, 2016, the U.S. Food and Drug Administration (FDA), using its authority under the Tobacco Control Act, finalized a rule to regulate all products meeting the legal definition of a tobacco product, including e-cigarettes, cigars, pipe tobacco, nicotine gels, hookah tobacco and dissolvables.

The FDA rule requires manufacturers of all newly-regulated products to 1) show that the products meet the applicable public health standards set forth in the law, and 2) receive marketing authorization from the FDA, unless the product was commercially marketed in the United States between February 15, 2007 and March 22, 2011. The tobacco product review process gives the agency the ability to evaluate important factors such as ingredients, product design, health risks, as well as their appeal to youth and non-users.

In addition, on August 8, 2016, several federal provisions took effect restricting the sale of newly-regulated tobacco products to youth:

- Retailers must not sell e-cigarettes, hookah or pipe tobacco, or cigars to people under 18 years of age, and must check a photo ID of everyone under the age of 27 who is attempting to purchase such products.
- Retailers must not sell tobacco products covered under the rule in a vending machine (except in a facility where people under the age of 18 are never allowed on the premises).
- Retailers, manufacturers, importers, and distributors must not give away free samples of any newly-regulated tobacco products.

The FDA contracts with states to help enforce federal tobacco regulations. In Texas, the FDA contracts with DSHS who subsequently contracts with Texas State University to fund local law enforcement agencies (police departments, sheriffs, constables). Local law enforcement agencies conduct random, unannounced controlled buys using minor decoys to ensure tobacco retailers comply with the law.

Through these contracts, Texas began implementing the new FDA rule by conducting undercover buy compliance inspections using trained minors in August 2016. In January 2017, FDA began tracking ENDS and e-liquids as a single category. Between September 1, 2016 and August 31, 2018, 11,357 undercover buy compliance inspections were conducted with 228 ENDS and e-liquid products sold by a retailer to a minor.

Between June 15 and August 31, 2018, the FDA initiated Summer Priority Inspections, which mandated all FDA Tobacco Compliance contractors to prioritize the purchase of ENDS and e-liquids at non-vape shops during undercover buy inspections using trained minors. The Summer Priority Inspections resulted in more than 1,300 warning letters and civil money penalty complaints to retailers nationwide who illegally sold e-cigarette products to minors this past summer. As a result of these violations, the FDA declared e-cigarette use among youth have hit epidemic proportions.

Texas has state tobacco regulations that overlap with or are in addition to federal rules, many of which are enforced by the Texas Comptroller of Public Accounts. The Comptroller's Tobacco Enforcement Program helps protect youth from the harmful effects of cigarettes, e-cigarettes, and other tobacco products. The Program uses a multi-pronged approach to enforce Texas tobacco laws: providing compliance education to retailers, peace officers, and school-age youth; prosecuting illegal tobacco sales to minors; and, citing minors in possession of cigarettes, e-cigarettes and other tobacco products. The Comptroller's office also conducts controlled buys using a minor decoy to identify retailers who ignore the law and continue to sell to underage customers. The combination of retailer education and active, graduated enforcement of cigarette, e-cigarette, and tobacco access laws has proven to be effective in reducing illegal sale of tobacco to minors.

The Comptroller's office also established and carries out the "Under 18, I Can't Sell — You Can't Buy" initiative to enforce retailer compliance and reduce youth access to cigarettes, e-cigarettes, and tobacco products. The office conducts inspections to ensure retailers post state-mandated warning signs, are training employees on compliance, and are not advertising tobacco products outdoors within 1,000 feet of a church or school. The public can anonymously report violations through the Comptroller's Texas Tobacco Hotline.

Selling tobacco to people under the minimum legal age of 18 years can result in consequences for both the retailer and employee, including:

- Retail employees can be fined up to \$500;
- Retailers can be fined up to \$1,000, or have their tobacco permit suspended or revoked for multiple offenses; and
- Selling tobacco to a minor is a Class C misdemeanor and violators are subject to criminal prosecution.

4. Prevalence of ENDS Use in Texas

The Department of State Health Services (DSHS) uses multiple data sources to monitor tobacco trends in Texas. These sources allow DSHS to track ENDS use among adults, youth, and traditional tobacco users.

Adult Use of ENDS

ENDS use in Texas was similar to the nation for 2017. The Centers for Disease Control and Prevention (CDC) estimates that in 2016, 21.7 percent of American adults had used or tried ENDS products, and 4.5 percent reported currently using an ENDS product.¹⁰

The CDC's 2017 Behavioral Risk Factor Surveillance System (BRFSS) survey provides the latest figures, below, on the prevalence of ENDS among adults in Texas. [Appendix A](#) references additional survey details.

- 20.8 percent of Texas adults have used or tried an ENDS product, an increase from the 17.2 percent of Texas adults who had used or tried an ENDS product in 2015.^{11,12}
- 4.7 percent of Texas adults reported currently using an ENDS product, which is consistent with previous years.¹¹
- Males, at 23.4 percent, were more likely to report having ever used an ENDS product, compared to 18.3 percent of females. There were no significant differences between male and female with respect to current ENDS usage.
- 23.5 percent of white adults in Texas reported ever using or trying ENDS products, compared to 20.6 percent of African Americans, 18.5 percent of Hispanics, and 17.3 percent of respondents identifying as other/multiracial.
- 5.4 percent of white adults and 3.8 percent of Hispanics in Texas reported currently using ENDS products, and there was not sufficient sample size to

¹⁰ Behavioral Risk Factor Surveillance System (BRFSS) Web Analysis Tool. Centers for Disease Control and Prevention. Retrieved from: nccd.cdc.gov/weat/index.html#/crossTabulation/selection/2016

¹¹ Texas Behavioral Risk Factor Surveillance Public Use Data File, 2017. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

¹² Texas Behavioral Risk Factor Surveillance Public Use Data File, 2015. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

yield reliable estimates for African American respondents and respondents identifying as other/multiracial.

- The highest prevalence of ever using ENDS in Texas was among adults ages 18 to 29 years (34.5 percent).
- In Texas, current cigarette smokers were significantly more likely to report having tried (62.0 percent) and to currently use (16.9 percent) ENDS products as compared to former smokers (25.9 percent tried and 6.0 percent currently use) or people who never smoked (9.3 percent tried and 1.3 percent currently use).

Youth Use of ENDS

Nationally, the CDC estimated that in 2017, 11.7 percent of high school students and 3.3 percent of middle school students reported ENDS product use in the past month.¹³

The 2018 Texas Youth Tobacco Survey (YTS) provides the latest figures, below, on the prevalence of ENDS among youths in Texas.¹⁴

- 22.8 percent of middle and high school students in Texas have used or tried ENDS in 2018. This is similar to the percent of Texas students in 2014 (23.6 percent) and 2016 (25.4 percent).^{15, 16}
- 13.0 percent of middle and high school students in Texas reported using ENDS in the past month, also similar to previous years.
- Almost one-third (32.5 percent) of Texas high school students reported ever using ENDS. Specifically, for students in 12th grade, the proportion increased to 43.3 percent having ever used ENDS.
- The proportion of Texas students ever using ENDS decreased for middle school students (11.3 percent).

¹³ Wang TW, Gentzke A, Sharapova S, Cullen KA, Ambrose BK, Jamal A. Tobacco Product Use Among Middle and High School Students – United States, 2011 – 2017. *MMWR Morb Mortal Wkly Rep* 2018;67:629 – 633. DOI: [dx.doi.org/10.15585/mmwr.mm6722a3](https://doi.org/10.15585/mmwr.mm6722a3).

¹⁴ Texas Youth Tobacco Survey (YTS), 2018, Texas A&M University, College Station, Texas.

¹⁵ Texas Youth Tobacco Survey (YTS), 2014, Texas A&M University, College Station, Texas.

¹⁶ Texas Youth Tobacco Survey (YTS), 2016, Texas A&M University, College Station, Texas.

- The prevalence of having ever used traditional cigarettes among high school and middle school students is similar to that of ENDS: 30.2 percent and 12.1 percent, respectively.
- Almost 18.9 percent of Texas high school students reported using ENDS in the past month compared to 6.0 percent of middle school students.
- 13.7 percent of males and 12.3 percent of female students in Texas reported use of ENDS in the past month.
- 28.1 percent of white students in Texas reported ever using ENDS, compared to 22.4 percent of Hispanic students, 12.0 percent of African American students, and 21.4 percent of students reporting other race/ethnicity.
- 16.8 percent of white students in Texas reported using ENDS in the past month, compared to 12.7 percent of Hispanic students, 4.6 percent of African American students, and 12.9 percent of students reporting other race/ethnicity.
- Comparatively, the past month use of traditional cigarettes among high school and middle school students in Texas was 11.3 percent and 3.7 percent, respectively.

Due to the sampling method used to conduct the YTS, data at the regional-level is not available ([Appendix A, Table 1](#)).

ENDS Use Among Traditional Tobacco Users

DSHS used the 2017 Texas BRFSS survey results, below, to better understand the behaviors of current traditional tobacco users.

- 62.0 percent of current smokers in Texas reported having used or tried an ENDS product.¹¹
- The prevalence of current use of ENDS products was over two times higher among current smokers (16.9 percent) than former smokers (6.0 percent).¹¹
- Current smokers were significantly more likely to report having used, or currently be using ENDS, than former smokers or people who never smoked.¹¹

5. DSHS E-Cigarette Controls and Initiatives

The Department of State Health Services (DSHS) follows the Centers for Disease Control and Prevention (CDC) Best Practices for Comprehensive Tobacco Control Programs, which treats ENDS the same way as traditional tobacco products in its tobacco control efforts. DSHS also includes ENDS education and prevention in existing outreach efforts.

Current Initiatives

DSHS-Funded Community Coalitions

In 2014, DSHS awarded nine organizations to organize and operate comprehensive community coalitions in 12 counties for five years. Due to budget reductions in 2017, the number of funded coalitions was reduced to six organizations operating in seven counties. Recently, DSHS procured a new cohort of three organizations to serve six counties for five years, from September 1, 2018 to August 31, 2023. Comprehensive community coalitions follow the CDC's Best Practices for Comprehensive Tobacco Control Programs and the Substance Abuse Mental Health Services Administration's (SAMHSA) Strategic Prevention Framework to create the following six goals:

- prevent tobacco use among young people;
- ensure compliance with state and local tobacco laws with adequate enforcement;
- increase cessation among young people and adults;
- eliminate exposure to secondhand smoke;
- reduce tobacco use among populations with the highest burden of tobacco related health disparities; and
- develop and maintain state and community capacity for comprehensive tobacco prevention and control.

The coalitions have adapted their outreach strategies to integrate ENDS education on a multitude of platforms and strategies. The total impact of the coalitions outreach efforts is outlined in [Appendix B, Table 6 and Figures 1-3](#).

Regional Coordinators

Eight DSHS Regional Tobacco Coordinators, covering all DSHS Health Service Regions (HSRs), are part of an interdisciplinary team of health professionals who provide health education and direct health services to areas without a local health department. Regional Tobacco Coordinators are tobacco subject matter experts and provide education on ENDS to HSR staff, including nurses and community health workers, at local health departments. They also provide education to multiple community-based stakeholder organizations including school districts, School Health Advisory Councils (SHACs), worksites, youth organizations, healthcare organizations, community-based coalitions, and law enforcement. Regional coordinators have incorporated ENDS education and outreach into their work.

During fiscal year 2018, Regional Tobacco Coordinators conducted 33 presentations to over 700 stakeholders and community members on ENDS.

CATCH My Breath

Coordinated Approach to Child Health (CATCH) My Breath is a middle school ENDS prevention curriculum that equips students with the knowledge and skills needed to make informed decisions regarding ENDS use. The curriculum was developed by The University of Texas Health Science Center at Houston School of Public Health. After completing CATCH My Breath, 7 out of 8 students say they are less likely to use ENDS. For more information on CATCH My Breath, go to catchinfo.org/modules/e-cigarettes.

In 2016, DSHS-funded community coalitions recruited schools to participate in the pilot test for this curriculum. Coalitions and Regional Coordinators continue to use this curriculum if schools in their service area identify a need for ENDS education.

Local Policies and Environmental Strategies

DSHS contracts with the University of Houston to maintain the Texas Smoke-Free Ordinance Database website (shsordinances.uh.edu). This website tracks and details all known Texas municipal ordinances enacted to reduce or eliminate exposure to secondhand smoke. Local communities may create reports from the Database when reviewing local ordinances.

The University of Houston examines the five general settings that local ordinances may cover: municipal worksites, private worksites, restaurants, bars in restaurants,

and bars not in restaurants. Ordinances designating all five settings as smoke-free are categorized as strong or 100 percent smoke-free; those with three or more smoke-free settings are classified as moderate smoke-free; and no smoke-free settings or lack of an ordinance are classified as not smoke-free. The rating process also examines ordinances to see if their definitions of smoking include ENDS.

Currently, there are 45 cities in Texas that have a city ordinance prohibiting the use of ENDS in different venues.^{17,18} At the end of fiscal year 2018, the percent of the Texas municipal population living in communities with strong smoke-free policies increased to 54 percent, and the percent of the population living in areas with moderate smoke-free policies increased to 66 percent.¹⁸

The DSHS-funded community coalitions have educated their local communities about comprehensive local ordinances. Since 2016, 25 cities in coalition areas have passed ordinances, 22 of which include language regarding ENDS.

In May 2018, the American Nonsmokers' Rights Foundation's Clearing the Air Institute awarded states that have worked on smoke-free policies at the local level. Texas won first-place for both categories: most local laws passed in a calendar year and most ordinances passed with e-cigarettes included. This is the second year in a row that Texas has won the award for most local laws passed.

Texas Youth Prevention

DSHS funds the Texas School Safety Center at Texas State University to lead the Say What! (Students, Adults, and Youth Working Hard Against Tobacco) Movement. Say What! empowers youth to be leaders and make a difference in their communities and throughout Texas. The Say What! movement is working towards a tobacco-free generation by educating youth across the state about the harmful effects of tobacco. Developed in 2011, Say What! has several initiatives that have incorporated ENDS education and awareness.

Texas Youth Advisory Board – The Statewide Texas Youth Advisory Board (Teen Ambassadors) is made up of 15-25 high school students from across Texas. Teen Ambassadors provide guidance to the statewide youth movement (Say What!) and

¹⁷ American Nonsmokers' Rights Foundation. (2018). States and Municipalities with Laws Regulating Use of Electronic Cigarettes. Retrieved from: no-smoke.org/pdf/ecigslaws.pdf

¹⁸ University of Houston Law Center Health Law & Policy Institute. (2017). Texas Smoke-Free Ordinance Database. Retrieved from: shsordinances.uh.edu/

educate peers, adults, and stakeholders on the harmful effects of tobacco and ENDS use.

Tobacco Facts Mini-Grant Kits and Outreach - Free mini-grant kits are available to assist registered Say What! groups in their tobacco and ENDS prevention efforts. These projects-in-a-box include educational materials that connect tobacco and ENDS prevention messages with the overall statewide prevention messaging.

Outreach and Group Projects - All Say What! groups report completed projects throughout the year using the online reporting platform. From September 1, 2016 to August 31, 2018, 36 projects were conducted amongst 26 youth groups, which incorporated ENDS messaging. These projects reached a total of 22,741 youth and 2,918 adults. In the same period, Say What! groups reached a total of 9,586 individuals through their social media. Please refer to [Appendix C](#) for details.

Action Summits - Say What! Action Summits were conducted at 11 regional locations in 2017 and 2018 to empower and train youth to become leaders and create changes in the health and well-being of their communities. A total of 1,054 youth and 322 adults attended the 11 summits. Summit participants received environmental prevention training to address social, physical, economic, and cultural conditions that contribute to youth tobacco and ENDS use. [Appendix C, Table 8](#) outlines total participants per year.

Texas Tobacco-Free Prevention Conference - This annual summer conference focuses on advancing the work of community and school-based youth groups around tobacco and ENDS prevention. Educational workshops place an emphasis on educating participants about the emerging body of research on ENDS.

The 2017 Say What! Conference was held July 23-26, 2017 with 31 youth groups in attendance, and a total of 241 youth and 130 adult participants. The 2018 Conference was held July 29 through August 1, 2018 with 23 youth groups in attendance, and a total of 221 youth and 117 adult participants.

At the 2018 Conference, CATCH staff conducted a training session for 45 youth group sponsors to educate sponsors about the CATCH My Breath Curriculum and how to implement it in their schools or within their youth group. Participants completed pre- and post-tests, which indicated an increase in knowledge about key tobacco and ENDS facts presented at the conference. At the conclusion, the majority of participants showed an increase in confidence to conduct educational

and awareness activities in their hometowns and schools, and to advocate for overall tobacco/ENDS prevention.

School Signage and Educational Materials - In 2015, Say What! created and disseminated Tobacco-Free Schools kits and signage for campuses. Resources aid Texas school districts in creating a tobacco-free, ENDS-free environment and are available online for download on the Say What! website, txsaywhat.com/resources, and the DSHS Tobacco website, dshs.texas.gov/tobacco/smokefree/.

Peers Against Tobacco

Peers Against Tobacco (PAT) is a system-level, multi-component tobacco prevention program for colleges and universities in Texas. Also referred to as the College Initiative, the program is funded by DSHS and is coordinated by The University of Texas at Austin Tobacco Research and Evaluation Team (UT Austin).

PAT aims to reduce the use and initiation of all tobacco and ENDS use among college and university students ages 18-25 in Texas. The project works to achieve this by raising awareness about the potential dangers of ENDS, correcting misperceptions that some levels of tobacco use are safer than others, and improving upon current campus tobacco policies.

During the 2016-2017 school year, 20 schools (22 campuses; two schools have two participating campuses each) participated in PAT implementation. Of the 20 schools, six were new that year. During the 2017-2018 school year, 20 schools (22 campuses; two schools each have two participating campuses) participated in PAT implementation. Of the 20 schools, three were new that year.

The project incorporates the following components at participating campuses.

College Survey - A college survey is administered every year to participating schools to assess students' knowledge, attitudes, and behaviors related to traditional tobacco products and alternative tobacco products, including ENDS. The survey was sent to 20 colleges in 2016-2017, and 17 colleges in 2017-2018. See [Appendix D](#).

College Policy Database - The policy database, maintained by UT Austin (txcollegetobaccopolicy.org), lists the campus tobacco policies of all institutions of higher education in Texas and rates each policy based on level of comprehensiveness. Specifically, each school's policy is broken down into several smaller components, including whether or not the policies reference traditional

cigarettes, smokeless tobacco, ENDS, and advertising/sales was comprehensively addressed (i.e., prohibited on campus completely). Policies are also assessed on whether they prohibit ENDS in all indoor areas of any campus building, on all campus outdoor grounds, and in campus-owned vehicles.

Curriculum and Educational Outreach - The PAT curriculum, developed by the UT School of Public Health, is a web-based educational module for college students. The curriculum was designed to increase knowledge about short and long-term consequences of tobacco use (including new and emerging products like hookah and e-cigarettes, or ENDS); to correct misperceptions that most young-adults smoke or use alternative tobacco products; and to present the harms associated with casual or occasional tobacco use.

The curriculum is an optional program component, but participating colleges are encouraged to participate. In 2016-2017, 196 students from 10 schools completed the curriculum. In 2017-2018, 437 students completed it.

Social media messages were created to inform non-participating students that ENDS can be just as addictive and potentially harmful as traditional cigarettes. [Appendix D, Figure 5](#) provides an example of PAT social media outreach.

Environmental Scans - Colleges participating in PAT use the Standardized Tobacco Assessment for Retail Settings (STARS) survey, a data collection tool for community members to document tobacco environments within their communities. Students can use this tool to directly document and describe tobacco advertising near their campuses.

Scans are not a required component of PAT. [Appendix D, Table 10](#) provides total number of environmental scans by campus and year, most commonly advertised tobacco product near the school, and location of enforcement signs.

Future Goals and Plans

The DSHS Tobacco Prevention and Control Branch and its contractors will continue to address ENDS as part of its comprehensive tobacco control efforts. As more information on the effects of ENDS becomes available, DSHS will implement evidence-based interventions to address the needs and gaps regarding ENDS use. Specific plans include the following.

- DSHS will conduct focus groups with the Youth Advisory Board (Texas Teen Ambassadors), and Say What! groups to learn how youth perceive ENDS and how DSHS may improve the program.
- Peers Against Tobacco will develop a JUUL specific outreach campaign that will target college-aged youth and young adults.
- DSHS is updating the Worksite Toolkit to include information on ENDS that will be used by locally funded coalitions and regional tobacco coordinators.
- DSHS will continue to serve on the National Workgroup for Emerging Issues. This workgroup is sponsored by the CDC, is coordinated by the Tobacco Control Network, and meets quarterly to discuss current research, resources, and effective strategies to reduce the use of emerging tobacco products. The group is made up of state tobacco programs, national groups, and representatives from territories.

6. Conclusion

Research has yet to show the long-term health effects of ENDS use. However, due to increased use among Texas youth and the potential harms posed by nicotine and other ENDS ingredients, many national and local public health agencies have implemented policies and programs to prevent youth use and encourage cessation.

The U.S. Food and Drug Administration (FDA) regulates ENDS under the Tobacco Control Act. The FDA contracts with states, including Texas, to help enforce federal regulations. Between September 1, 2016 and August 31, 2018, a total of 11,357 inspections were completed resulting in 228 ENDS and e-liquids being sold to minors. The FDA will continue efforts to prevent youth use of and access to tobacco products, especially ENDS, and penalize underage retail sales.

The Texas Comptroller of Public Accounts Tobacco Enforcement Program is a part of state efforts to enforce tobacco regulations specific to Texas. The Comptroller's office also performs controlled underage buys, and conducts inspections to ensure retailers post state-mandated warning signs, are training employees on compliance, and do not advertise tobacco products outdoors within 1,000 feet of a church or school.

DSHS supports state and local efforts to educate youth, parents, and young adults about potential harmful health effects of ENDS use. This is accomplished through engaging with community coalitions and regional coordinators, education on local ordinances, coordinating the Texas Youth Prevention program, and Peers Against Tobacco on college campuses.

The DSHS Tobacco Prevention and Control Branch will continue to make progress to address ENDS as a part of its comprehensive tobacco control efforts.

List of Acronyms

Acronym	Full Name
BRFSS	Behavioral Risk Factor Surveillance System
CATCH	Coordinated Approach to Child Health
CDC	Centers for Disease Control and Prevention
DSHS	Department of State Health Services
ENDS	Electronic Nicotine Delivery Systems
FDA	Food and Drug Administration
HSR	Health Service Region
PAT	Peers Against Tobacco
SAMSHA	Substance Abuse Mental Health Services Administration
Say What!	Students, Adults, and Youth Working Hard Against Tobacco!
SHAC	Student Health Advisory Council
STARS	Standardized Tobacco Assessment for Retail Settings
UT	University of Texas
UT Austin	University of Texas at Austin
YTS	Youth Tobacco Survey

Appendix A. Youth Prevalence Rates

Table 1. Percentage of Youth, Grades 6 to 12, Who Report Ever and Past Month Use of Electronic Nicotine Delivery System (ENDS) Products, by Demographic Characteristics, Texas, 2018.

Demographics	Percent of Ever ENDS Use ^a	Percent of Past Month ENDS Use ^b
All Youth (Grades 6-12)	22.8	13.0
Sex		
Male	23.8	13.7
Female	21.8	12.3
Race/Ethnicity		
White	28.1	16.8
Hispanic	22.4	12.7
Black	12.0	4.6
Other	21.4	12.9
School Level		
Middle School	11.3	6.0
High School	32.5	18.9
Grade		
Grade 6	5.9	3.0
Grade 7	10.6	5.6
Grade 8	17.3	9.4
Grade 9	24.2	13.6
Grade 10	27.5	16.4
Grade 11	36.5	21.9
Grade 12	43.3	24.5

Data Source: Texas Youth Tobacco Survey (YTS), 2018, Texas A&M University, College Station, Texas.

^a Students reporting ever having used tried an electronic cigarette.

^b Students reporting use of an electronic cigarette in the past 30 days.

Table 2. Percentage Number and Percentage of Adults, 18 Years and Older, Who Report Ever and Current ENDS Use, by Demographics, Texas 2017.

Demographics	Ever ENDS Use ^a			Current ENDS Use ^b		
	Estimated No. of Adults	Percent	95% CI ^c	Estimated No. of Adults	Percent	95% CI ^c
All Adults	4,107,771	20.8	19.3 – 22.5	928,441	4.7	3.9 – 5.7
Sex						
Male	2,253,466	23.4	21.1 – 25.9	526,747	5.5	4.3 – 7.1
Female	1,849,099	18.3	16.3 – 20.6	399,855	4.0	3.0 – 5.2
Age Group						
18 to 29	1,524,369	34.5	30.4 – 38.8	373,089	8.5	6.2 – 11.5
30 to 44	1,401,912	25.5	22.3 – 29.0	272,498	5.0	3.5 – 7.1
45 to 64	964,047	15.6	13.3 – 18.1	251,914	4.1	3.0 – 5.5
65 and older	195,233	5.8	4.2 – 8.1	-	-	-
Race Ethnicity						
White	2,086,955	23.5	21.3 – 25.8	479,465	5.4	4.3 – 6.8
Black	459,110	20.6	15.6 – 26.7	-	-	-
Hispanic	1,273,359	18.5	16.0 – 21.3	261,223	3.8	2.6 – 5.5
Other/ Multiracial	226,676	17.3	11.5 – 25.2	-	-	-

Data Source: Texas Behavioral Risk Factor Surveillance Public Use Data File, 2017. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

^a Respondents who answered “yes” to the question, “Have you ever used or tried an e-cigarette, vape pen, or e-hookah?”

^b Ever ENDS users who answered “every day” or “some days” to the question “Do you currently use this/these products every day, some days, or not at all?”

^c CI: (Confidence Interval) Statistical significance is based upon evaluation of overlap among the 95% confidence intervals, which are defined as a range of values where there is a specified probability that the value of a parameter lies within it.

Table 3. Number and Percentage of Adults, 18 Years and Older, Who Report Ever and Current ENDS Use, by Demographics, Texas 2017.

Place of Residence	Ever ENDS Use ^a			Current ENDS Use ^b		
	Estimated No. of Adults	Percent	95% CI ^c	Estimated No. of Adults	Percent	95% CI ^c
All Adults	4,107,771	20.8	19.3 – 22.5	928,441	4.7	3.9 – 5.7
Health Service Region						
1	154,232	18.3	11.4 – 28.1	-	-	-
2/3	1,107,336	20.0	17.2 – 23.1	211,924	3.8	2.7 – 5.4
4/5N	326,966	29.0	22.1 – 37.0	148,795	13.2	7.7 – 21.6
6/5S	927,110	19.3	16.0 – 23.0	167,661	3.5	2.1 – 5.7
7	540,962	23.4	19.9 – 27.2	129,526	5.6	4.0 – 7.9
8	447,863	23.3	18.0 – 29.5	127,059	6.6	3.8 – 11.3
9/10	177,759	19.5	14.1 – 26.4	-	-	-
11	292,665	20.5	16.1 – 25.7	69,136	4.9	2.9 – 8.2

Data Source: Texas Behavioral Risk Factor Surveillance Public Use Data File, 2017. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

^a Respondents who answered “yes” to the question, “Have you ever used or tried an e-cigarette, vape pen, or e-hookah?”

^b Ever ENDS users who answered “every day” or “some days” to the question “Do you currently use this/these products every day, some days, or not at all?”

^c CI: (Confidence Interval) Statistical significance is based upon evaluation of overlap among the 95% confidence intervals, which are defined as a range of values where there is a specified probability that the value of a parameter lies within it.

Table 4. Number and Percentage of Adults, 18 Years and Older, Who Report Ever and Current ENDS Use, by Smoker Status, Texas 2017.

Smoker Status	Ever ENDS Use ^a			Current ENDS Use ^b		
	Estimated No. of Adults	Percent	95 % CI ^c	Estimated No. of Adults	Percent	95 % CI
All Adults	4,107,771	20.8	19.3 – 22.5	928,441	4.7	3.9 – 5.7
Smoker Status						
Current Smoker	1,911,182	62.0	57.0 – 66.8	518,976	16.9	13.5 – 21.1
Former Smoker	1,002,670	25.9	22.3 – 29.8	231,037	6.0	4.2 – 8.5
Never Smoker	1,181,224	9.3	8.0 – 10.9	168,241	1.3	0.8 – 2.2

Data Source: Texas Behavioral Risk Factor Surveillance Public Use Data File, 2017. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

^a Respondents who answered “yes” to the question, “Have you ever used or tried an e-cigarette, vape pen, or e-hookah?”

^b Ever ENDS users who answered “every day” or “some days” to the question “Do you currently use this/these products every day, some days, or not at all?”

^c CI: (Confidence Interval) Statistical significance is based upon evaluation of overlap among the 95% confidence intervals, which are defined as a range of values where there is a specified probability that the value of a parameter lies within it.

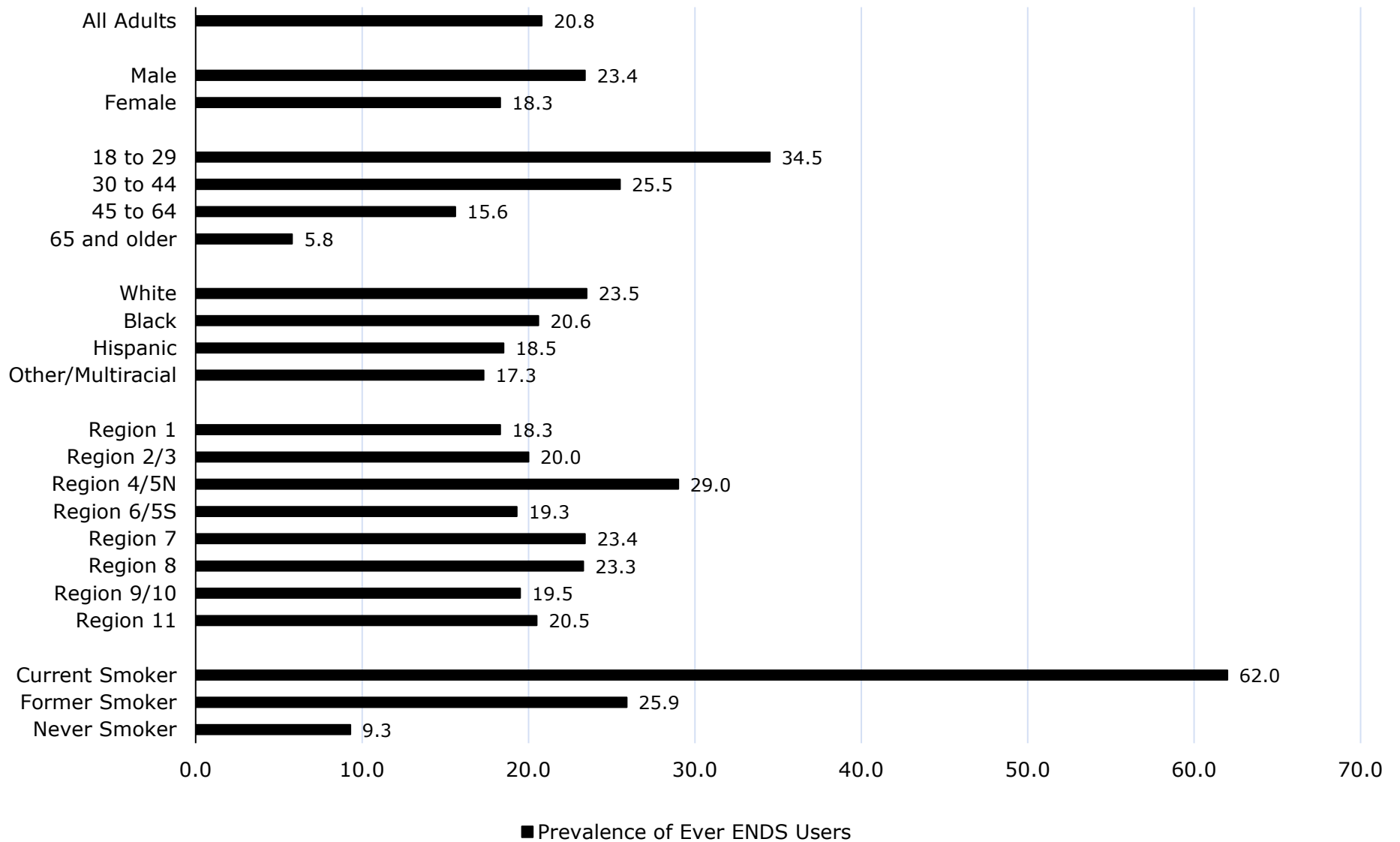
Table 5. Number and Percentage of Ever Users of ENDS Products, Adults 18 Years and Older, by Type of ENDS Device Used, Texas 2017.

Product Type	Estimated No. of Adults	%	95% CI ^a
E-Cigarettes	1,959,399	61.0	56.1 – 65.7
Vape Pen	1,656,743	51.6	46.6 – 56.5
E-Hookah	376,610	11.7	8.6 – 15.7
Other	86,486	2.7	1.6 – 4.6

Data source: Texas Behavioral Risk Factor Surveillance Public Use Data File, 2017. Texas Department of State Health Services, Center of Health Statistics, Austin, Texas.

^aCI: (Confidence Interval) Statistical significance is based upon evaluation of overlap among the 95% confidence intervals, which are defined as a range of values where there is a specified probability that the value of a parameter lies within it.

Graph 1. Percentage of Adults, 18 Years and Older, who Report Ever ENDS Use, by Demographics, Place of Residence, and Smoker Status, Texas 2017



Appendix B. Tobacco Prevention and Control Coalitions

Figure 1: Coalition Social Media Screenshot

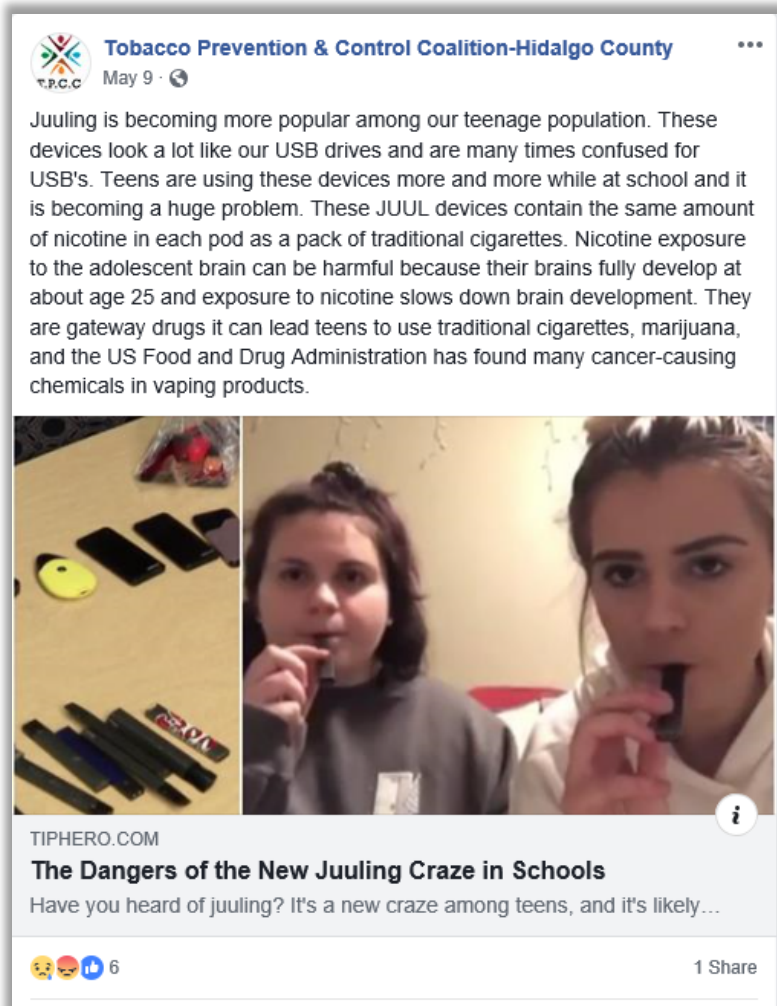


Figure 2: Coalition Print Media



Figure 3: Coalition Social Media Screenshot

 **The Coalition** August 19 at 9:00 AM · 🌐

Vaping: it's just a fancy word for smoking. Many kids think vaping and smoking are different things. Take time to explain the similarities and harmful effects such as nicotine in any form being a highly addictive drug, according to the National Institute on Drug Abuse.
www.drugfreetexas.org

=====

<http://texaslibrededrogas.org>

Vapear: es otra manera de llamar al acto de fumar. Muchos muchachos creen que vapear y fumar son dos cosas diferentes. Explique las similitudes y los efectos dañinos, como el hecho de que la nicotina en cualquier forma es una droga altamente adictiva, según el Instituto Nacional sobre el Abuso de Drogas.

[See Translation](#)



 **TEXAS**
Health and Human
Services

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Table 6: Coalition ENDS Outreach Impact

Activity	Fiscal Year 2017	Fiscal Year 2018
Goal 1: Prevention	September 1, 2016 – August 31, 2017	September 1, 2017 – August 31, 2018
Number of ENDS educational materials disseminated to the public	9,706	10,991
Number of in-person ENDS presentations conducted for youth	308	301
Number of youth attending ENDS presentations	17,933	10,598
Number of in-person ENDS presentations conducted for adults	244	225
Number of adults attending ENDS presentations	3,094	4,195
Number of new ENDS educational materials created	31	32
Number of unique outreach messages created for the public (i.e. social media, newsletters billboards, etc.)	658	312
Goal 2: Compliance	September 1, 2016 – August 31, 2017	September 1, 2017 – August 31, 2018
Number of tobacco-free/e-cigarette-free policy signs disseminated to high schools	570	529
Number of tobacco-free/e-cigarette-free policy signs disseminated to middle schools	205	46
Number of controlled buys conducted to test which establishments sell ENDS to minors	33	1
Goal #3: Increase Cessation	September 1, 2016 – August 31, 2017	September 1, 2017 – August 31, 2018
Number of healthcare consultations conducted that included information about ENDS	318	311
Number of worksite consultations conducted that included information about ENDS	261	277

Activity	Fiscal Year 2017	Fiscal Year 2018
Goal #4: Secondhand Smoke	September 1, 2016 – August 31, 2017	September 1, 2017 – August 31, 201
Number of communities educated about ENDS	30	16
Number of communities in coalition areas that adopted a comprehensive ordinance that includes ENDS	15	8
Number of Worksites that adopted a new policy to include ENDS	9	7
Number of worksites that changed their existing policy to include ENDS	3	4

Appendix C. Say What! Youth Movement

Table 7: Say What! ENDS Social Media Reach

Platform	Total Reach (Youth and Adults Combined)
Instagram	272
Facebook	1966
Twitter	15
YouTube	919
Snapchat	6414

Figure 4: Say What! Social Snapchat Filter



Table 8: Say What! Action Summit Metrics by Year

Description	September 1, 2016 – August 31, 2017	September 1, 2017 – August 31, 2018
Number of summits conducted	6	5
Number of youth attending the summits	511	543
Number of adults attending the summits	173	149
Total number of summit participants	682	692

Table 9: Texas Tobacco-Free Conference Metrics by Year

Conference Metric	2017 Conference (July 23-26, 2017)	2018 Conference (July 29-August 1, 2018)
Number of Youth Groups	31	23
Number of Youth Participants	241	221
Number of Adult Participants	130	117
Total number of Participants	371	338

Appendix D. Peers Against Tobacco

College Survey

- A college survey is administered every year to participating schools to assess students' knowledge, attitudes, and behaviors related to traditional tobacco products and alternative tobacco products, including ENDS. The survey was sent to 20 colleges in 2016-2017, and 17 colleges in 2017-2018. In academic year 2016-2017, a total of 11,415 complete responses from students ages 18-29 were received. Participants were predominately female (63.7 percent), white (58.1 percent), and 1st year undergraduates (24.5 percent).
- In academic year 2017-2018, a total of 12,168 complete responses from students ages 18-29 were received. Participants were predominately female (63 percent), white (61.4 percent), and 1st year undergraduates (24.4 percent).
- In 2017-2018, about 37.4 percent of students reported ever having used ENDS.
- For use in the last 30-days, in 2016-2017 the most prevalent products used by respondents were traditional cigarettes (21.7 percent), followed by ENDS (15.9 percent), and cigars (12.1 percent). In 2017-2018, ENDS were reported as the most used product at 13 percent followed by traditional cigarettes (10 percent), and cigars (6.3 percent).
- In 2016-2017, the majority of students indicated that 67.4 percent of their friends used ENDS in the past year. In 2017-2018, the majority of students indicated that 42.3 percent of their friends used ENDS in the past year, a decrease of 25.1 percent.

Table 10: Results from the 2017-2018 Peers Against Tobacco Campus Optional Tobacco Scans

School	Number of Completed Scans	Most Prevalent Tobacco Product	Enforcement Signs Location
Ranger College	3 Scans	Cigarettes	At every building
Texas Lutheran	8 Scans	Cigarettes	Limited Signage
UT Arlington	8 Scans	Cigarettes, ENDS	Moderate Signage
UT El Paso	13 Scans	Cigarettes, ENDS, Cigarillos	Limited Signage

Figure 5: Peers Against Tobacco (PAT) Social Media

