

Vaping and E-Cigarettes Within the Evolving Tobacco Quitline Landscape



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This article summarizes the vaping research literature as it pertains to tobacco quitlines and describes vaping assessment, treatment, and evaluation quitline practices. It also presents 2014–2018 registration data (vaping in the past 30 days, number of use days, use for quitting smoking, and intentions to quit vaping) from 24 public quitlines (23 states and District of Columbia) and 110,295 enrollees to employer-sponsored quitlines. Trends in vaping rates over time, by state, and by age group are described. Approximately 57,000 adult public quitline enrollees in the U.S. reported vaping at registration in 2018 (14.7% of enrollees). Most quitline participants who vape also smoke cigarettes and contact the quitline for smoking cessation support. Rates of reporting vaping and no combustible or smokeless tobacco use in the past 30 days are 0.5% of all public quitline participants (<3% of public quitline vaping product users). Data are not systematically available regarding the number of quitline participants who are seeking help quitting vaping and only vape (do not use combustible or smokeless tobacco). Few quitline participants (<1%) are youth aged <18 years, but more than a third (35%) report vaping. This paper outlines research and evaluation priorities to inform the future quitline treatment landscape with respect to vaping. The quitline community is positioned to increase the likelihood that vaping has a positive impact for adults who smoke through harm reduction or supporting cessation and has opportunities to expand impacts on youth and young adult vaping prevention and cessation.

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INTRODUCTION

Despite the presence of vaping products in the U.S. for more than a decade,¹ many questions remain about the impact vaping will have on public health,² particularly in light of increasing youth (aged <18 years) and young adult (aged 18–24 years) use. Vaping products may provide a public health benefit as a harm reduction, or potentially cessation, strategy for adults who smoke. Concerns about negative health impacts have also been raised if users of both combustible tobacco cigarettes and e-cigarettes are unsuccessful in quitting or staying quit from cigarettes or if they establish a separate long-term vaping addiction. Quitlines are a widely available resource for adults and youth who smoke and have great potential for addressing vaping, both for people who use combustible tobacco and for those who exclusively vape.

This article describes the current vaping landscape and how quitlines fit into this picture, including use patterns over time in a sample of public and employer-sponsored commercial quitlines. It also outlines priorities for future research and discussion for the quitline and tobacco control communities.

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This article is part of a supplement entitled The Role of Quitlines in Tobacco Cessation, which is sponsored by the U.S. Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services (HHS), with support from RTI International. 0749-3797/\$36.00

<https://doi.org/10.1016/j.amepre.2020.07.013>

What Are Vaping Products?

Vaping products, also known as e-cigarettes, ENDS, vapes, Mods, or by brand names such as JUUL, are battery-operated devices that heat a solution (usually containing nicotine, propylene glycol, vegetable glycerin, and flavorings) into an aerosol (commonly referred to as a vapor) that is inhaled. This article uses the terms *vaping product* and *e-cigarette* to mean any electronic nicotine vaping device. Vaping products have evolved since they first entered the market in 2007, from devices that looked like traditional cigarettes to vape pens to tank systems.^{1,3} More recently, reusable and disposable pod devices have overtaken the market, most notably JUUL, which was estimated to have 70% of the vaping market in 2018.⁴ Later generation pod devices deliver nicotine most effectively and at a similar level and speed as cigarettes.^{5,6}

Who Vapes?

Among adults in the U.S., an estimated 4.5% vape.⁷ The majority of those who vape in the U.S. are former or current smokers—only 15%–17% of those who vape have never smoked combustible cigarettes⁸—and report vaping to quit or cut down on combustible cigarette use or because vaping and secondhand vapor are perceived as less harmful.^{8–10}

Youth. Cigarette smoking rates among youth aged <18 years are at an all-time low in the U.S.: 5.8% in 2019, down from 15.8% in 2011.¹¹ E-cigarettes are now the most frequently used product measured by the U.S. National Youth Tobacco Survey. Past-30-day vaping among high school students has skyrocketed from 11.7% in 2017 to 27.5% in 2019,^{11–14} likely because of several factors, including youth-oriented social media campaigns, marketing flavors and packaging that resemble candy, and the rise of pod-style devices like JUUL.¹² Pod-style devices deliver nicotine in the form of nicotine salts, which lower the pH of the e-liquid and make inhaling higher nicotine doses less harsh and more palatable, particularly for youth and individuals who did not previously smoke.^{15,16} A recent ban on flavors for reusable pod devices like JUUL¹⁷ seems to have increased youth interest in less expensive, disposable devices such as Puff Bar, Posh, and Stig that are excluded from the ban and offer youth-friendly flavors and high levels of nicotine.^{18,19}

Does Vaping Help People Quit Smoking?

Vaping products are not approved by the U.S. Food and Drug Administration (FDA) or the U.S. Preventive Services Task Force as a smoking cessation aid.²⁰ Few randomized trials have addressed the question of whether e-cigarettes help people quit smoking. A 2016 Cochrane Review concluded that the level of evidence for vaping

as a cessation aid was “very low” owing to the small number (N=2) of RCTs, that nicotine vapes are more effective than non-nicotine vapes, and that no increased health risks were found for adults who smoked and vaped over a period of ≤ 2 years compared with those who only smoked.²¹ Since then, 3 RCTs have been completed.^{22–24} Hajek and colleagues²² performed the largest RCT of e-cigarettes compared with nicotine-replacement therapy (NRT) to date, finding that nearly twice as many participants quit smoking at 1 year in the vaping group (18.0%) as the NRT group (9.9%), which provided a participant’s choice of NRT, including combination NRT (i.e., using 2 forms of NRT together, which is the most effective way to use NRT).²⁰ Results are also available from a pragmatic 3-arm randomized trial in New Zealand comparing nicotine patch alone and in combination with a vape.²⁵ Participants receiving nicotine patch plus a nicotine-containing vape were more likely to quit than those using the patch alone or patch plus no-nicotine vape.²⁶ All completed RCTs have found nicotine-containing vapes to be at least as effective as NRT, and some found vaping was more effective.^{22–24,27,28}

Population-level studies have also found that vaping is the most likely factor explaining recent increases in smoking cessation in the U.S. and England; this type of population-level impact is important and was not found when FDA-approved quit medications entered the market.^{29,30} Finally, numerous observational studies have been published examining correlations between vaping and smoking cessation. However, as Pearson et al.³¹ have shown, analytic decisions and available data can change the conclusions of observational studies. Data are often inadequate to control for self-selection of use, and data on reasons for vaping, patterns of use, and type of device should be considered. Overinterpreting correlational findings from observational studies contributes to confusion on the critical question of whether vaping improves smoking cessation.

How Hard Is It to Quit Vaping?

Little is known about quitting vaping or withdrawal from vaping. One recent study found that individuals who use nicotine-containing tank systems displayed withdrawal symptoms, such as urges and cravings, that were similar to those reported by those who smoke combustible cigarettes.³² Only 54% of participants were able to sustain vaping abstinence for 6 days. Data from this single study would seem to indicate that nicotine dependence could be similar for individuals who vape. No randomized studies have evaluated cessation protocols for quitting vaping, but promising engagement and early outcomes have been published on a text messaging program for youth.³³

Is Vaping Safe?

Experts generally agree that vaping is less harmful than smoking cigarettes, particularly for short-term use, and completely switching to vaping will reduce harm to a user's health.^{34,35} Still, vaping is not completely safe.^{36–39} People who do not smoke, youth, and young adults should not vape.^{35,40}

In fall 2019, the FDA the U.S., Centers for Disease Control and Prevention (CDC), and state health authorities started investigating e-cigarette, or vaping, product use–associated lung injury (EVALI) following reports of hospitalizations and 60 deaths in the U.S. (as of January 14, 2020).⁴¹ CDC and FDA identified tetrahydrocannabinol (the psychoactive component of marijuana)-containing vaping products and products containing vitamin E acetate as the primary source of vaping product use–associated lung injury cases, particularly from unregulated or informal sources such as friends, family, or in-person or online dealers. The FDA and CDC advised that people should not buy vaping products outside of legal retailers, modify or add substances to vaping products, or use tetrahydrocannabinol-containing products. In addition, adults who have switched to nicotine vaping to stop smoking cigarettes should not return to smoking.^{41,42}

Tobacco Cessation Quitlines

What are quitlines? Tobacco quitlines are some of the largest smoking cessation treatment providers in the U.S., offering telephonic cessation coaching and often free NRT, text message programs, and web-based cessation support.⁴³

State-sponsored quitlines serve around 400,000 each year⁴⁴ (referred to as public quitlines throughout this paper). Additionally, many employers and health plans offer quitline services to their employees and beneficiaries (referred to as commercial quitlines).

Vaping among quitline callers. In 2012, 31% of quitline participants in 6 states reported having ever tried vaping, which made it clear that standardized surveillance was needed to better understand vaping product use.⁴⁵ Studies have assessed how vaping is correlated with tobacco quit outcomes in the quitline setting. For example, commercial quitline participants who vape for reasons other than quitting tobacco were least successful in quitting, compared with those who were vaping to quit and participants not vaping at the time of registration.⁴⁶ A 2018 analysis of 7-month follow-up data for 3 state quitlines found that those who vaped daily and those who had not used e-cigarettes in the past 30 days had similar quit outcomes. Those who vaped infrequently (1–5 days in the past 30 days) and moderately

(6–29 days) were less likely to have maintained abstinence at follow-up.⁴⁷ These studies align with other work concluding that frequency and reason for use are important factors in understanding the relationship between vaping and quit outcomes.^{48–50} In 2015, Vickerman and colleagues⁵¹ completed 40 qualitative interviews with quitline participants in Oklahoma who vaped. Those interviews revealed confusion and misinformation about vaping, NRT, and nicotine and revealed that participants had identified ways to vape that could support (e.g., using a nicotine-containing vaping device daily with an eventual plan for quitting vaping as well) or undermine (e.g., using a vaping device with no nicotine) their smoking cessation attempt.⁵¹

Measurement of vaping at quitline registration and outcome evaluation. Meaningful vaping assessment is more complex than for traditional tobacco types, given the varied product types, use patterns and reasons, nicotine delivery, and numerous brands.^{52,53} These vaping parameters interact to provide a full picture of a person's use. In 2015, the North American Quitline Consortium (NAQC) recommended standardized wording for intake and follow-up questions on vaping, including 1 question about past-30-day use and 4 optional questions (displayed in Table 1).⁵⁴ Consistent with recently updated research guidelines,⁵⁵ NAQC recommended that quitlines calculate a quit rate based on abstinence from combustible and smokeless tobacco (e-cigarette-only users would be considered quit) and a second quit rate based on abstinence from both tobacco and vaping.⁵⁴

Quitline practices around vaping. In 2014, NAQC published a report titled *Cessation Treatment and E-cigarettes: A Report on Current Literature and Quitline Practices*⁵⁶ based on interviews with all state quitline call centers. Call centers reported that the most common questions received related to the safety and effectiveness of vaping as a smoking cessation strategy and that the majority of users of both cigarettes and e-cigarettes reported vaping to help them quit or cut down on cigarettes. NAQC reported that all call centers noted the importance of caller-directed decision making about quit goals, but also that call centers encouraged participants to quit vaping. At the time of the 2014 report, call centers reported that quitline callers who were exclusively vaping and seeking help to quit vaping were rare (or absent). Call centers also noted participants had asked whether quitlines provide e-cigarettes and how much NRT should be used if participants are also vaping to quit.⁵⁶

In November 2019, NAQC provided a brief update on current quitline services for individuals who vape, which

Table 1. Current Vaping or E-Cigarette Use at Tobacco Quitline Enrollment Among Adults (Age ≥18 Years), by Quitline Type—Optum Data, July 2016 Through December 2018, 24 Public Quitlines and 110,295 Employer-Sponsored Quitline Enrollees

Variable	Public/state quitlines % (n/N)	Commercial employer quitlines % (n/N)
Reported vaping or using e-cigarettes in past 30 days at enrollment ^a	13.7 (84,670/619,329)	12.8 (7,109/55,550)
Average reported number of days vaped or used e-cigarettes in past 30 days ^{b,c} mean ± SD (N)	11.3 ± 10.9 (15,823)	14.0 ± 11.9 (1,502)
1–2 days	26.0 (4,116/15,823)	21.6 (324/1,502)
3–5 days	22.9 (3,616/15,823)	21.0 (315/1,502)
6–29 days	30.4 (4,816/15,823)	27.4 (412/1,502)
30 days	20.7 (3,275/15,823)	30.0 (451/1,502)
Reported vaping or using e-cigarettes to help quit smoking ^{b,d}	68.7 (10,874/15,819)	74.9 (1,107/1,478)
Reported that vaping product or e-cigarettes used contain nicotine ^{b,e}	84.9 (13,214/15,556)	85.8 (1,278/1,490)
Reported intention to quit vaping or using e-cigarettes in the next 30 days ^{b,f}	87.1 (12,783/14,675)	81.8 (1,048/1,282)

Note: Responses of *refused*, *don't know*, and *not collected* are excluded from analyses. N stands for group denominator.

^aReflects responses to enrollment question: *Have you used an e-cigarette or other electronic "vaping" product in the past 30 days?*

^bFollow-up questions asked only of those who reported vaping or using e-cigarettes in the past 30 days at enrollment. Follow-up questions were asked for approximately 1 month in June/July and December/January of each year to allow for seasonal surveillance with minimal participant and quitline burden.

^cEnrollment assessment question: *How many days did you use an e-cigarette or e-vaping product in the last 30 days?*

^dEnrollment assessment question: *Are you using e-cigarette/e-vaping products to quit smoking?*

^eEnrollment assessment question: *Do you use an e-cigarette/e-vaping product that contains nicotine?*

^fEnrollment assessment question: *Do you intend to completely quit using e-cigarettes/e-vaping products within the next 30 days?*

reported that quitlines continue to receive few calls from adults who exclusively vape.⁵⁷ Some service providers reported offering tailored materials, and all offered medications to eligible individuals who vape, while also noting challenges with providing NRT recommendations.⁵⁷ Although the authors do not have information about other service provider protocols, Optum's approach to vaping for the Quit for Life program is as follows. Given the lack of FDA approval for vaping as a quit strategy and questions on safety and effectiveness in the tobacco control community,²⁰ vaping is not promoted by Optum. Users of both tobacco cigarettes and e-cigarettes are strongly encouraged to switch from vaping to an FDA-approved quit aid, usually NRT. If, however, the participant is firm about their preference for vaping as a stop-smoking strategy, the Quit Coach will respect the participant's decision, provide behavioral coaching, and encourage them to speak with their healthcare provider about vaping. For those who vape and have quit using combustible tobacco, coaches advise switching from vaping to NRT, using a dosing algorithm. Quit Coaches receive updates about important vaping studies, media coverage, federal press releases, and regulation to support them in providing effective education and answering questions.

Additional data on vaping prevalence and use details among quitline callers inform the current status and opportunities for the role of quitlines in addressing

vaping. This paper describes vaping use and rates of use from 2014 to 2018 in a sample of 24 public quitlines (23 states and District of Columbia) and among 110,295 employer-sponsored commercial quitline enrollees.

METHODS

Sample

This paper reports descriptive data from participants who enrolled in public or commercial quitlines administered by Optum between January 1, 2014 and December 31, 2018. Participants were stratified by quitline contract type: public (24 participating states/districts) or commercial. The Western IRB reviewed this analysis and determined that it met requirements for exempt status under 45 CFR § 46.104(d)(4).

Quitline Services Offered

Adult program. Through its public Quit for Life program, Optum offers 3 program types: phone, web-only, and individual services. Each quitline can offer ≥1 of the 3 program types. The phone program offers one- or multiple-call individual counseling and may include additional services (i.e., web and text messaging). The web-only program is an online quit program. Both phone and web-only programs often include access to NRT. The individual services program offers a la carte services, including text messaging, NRT, print or digital Quit Guides, and coaching emails; participants are able to select their preferred service(s).

Commercial quitline participants in this analysis were tobacco users who received cessation services funded by their employer. All received phone program services, which includes text

messaging, web, and NRT. Many Quit for Life employer clients have an incentive based on an employee's tobacco use status (which may include those who only vape), as is common among employers who offer wellness programs⁵⁸; this incentive can be earned by participating in the Quit for Life program.

Youth program. All but 2 public quitlines included in this analysis offer specialized services to youth aged 13–17 years. Optum's Quit for Life Youth Program strongly encourages the caller to stop the use of all tobacco products, including vaping. Coaches use a youth-centric motivational intervention, tailoring support to a young caller's values and goals to help them move toward a commitment to being tobacco and nicotine free. NRT is not provided for youth. NRT has not been approved by the FDA for use by youth for quitting smoking.¹⁷

Measures

At registration, quitline participants were asked their age, state of residence, and whether they vape. From 2014 through June 2016, all participants were asked: *Do you currently use electronic cigarettes/e-cigarettes/vapor cigarettes?* In July 2016, this question was revised per NAQC recommendation to: *Have you used an e-cigarette or other electronic "vaping" product in the past 30 days?* All results, except the examination of use over time, were limited to participants who responded to the newer question wording. Participants who responded *yes* to the current vaping question were asked additional questions about their use. These additional questions were asked only in June/July and December/January each

year to allow for seasonal surveillance with minimal participant and quitline burden (wording presented in [Table 1](#)).

RESULTS

Adults

[Figure 1](#) shows rates of vaping among quitline participants from 2014 to 2018. There was a slightly higher than 3% increase in use rates from the first to second half of 2016, most likely attributable to the wording change from asking about *current use* to *past 30 days* use. Rates increased from 12.3% in 2016 to 14.7% in 2018 for public quitlines and from 10.8% in 2016 to 14.0% in 2018 for commercial quitlines.

[Table 1](#) presents vaping registration data from July 2016 through December 2018. A greater proportion of commercial participants reported that they were vaping to help quit smoking compared with public quitline participants (74.9% vs 68.7%). Most participants reported using nicotine vaping products (84.9% public, 85.8% commercial) and that they intended to quit vaping in the next 30 days (87.1% public, 81.8% commercial). Among those vaping, commercial participants also reported vaping more frequently than public quitline participants, on average (commercial: vaped 14.0 of past

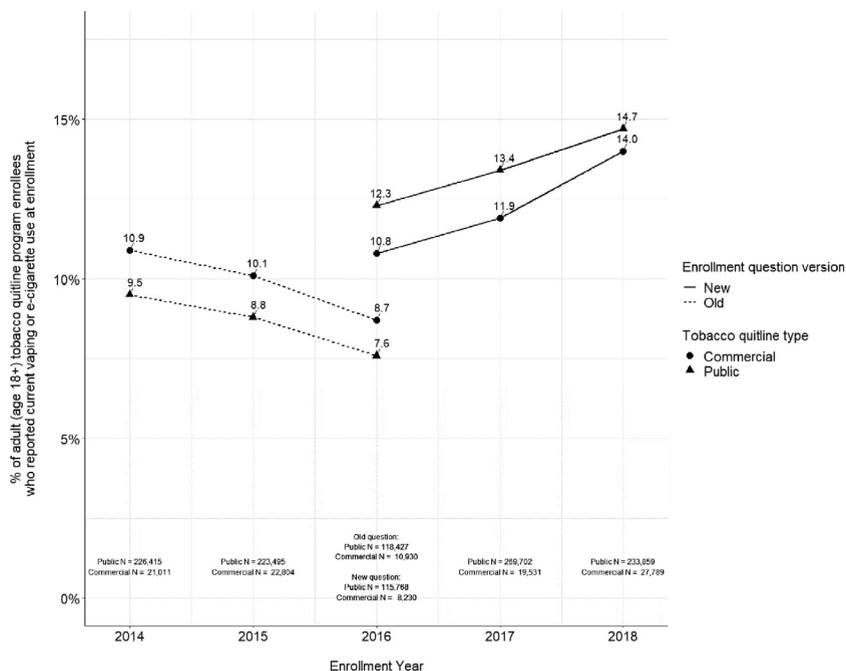


Figure 1. Percentage of adult (age ≥ 18 years) tobacco quitline enrollees who reported current vaping or e-cigarette use at enrollment, by quitline type and enrollment question version. Optum data, 2014–2018, 24 public quitlines and 110,295 employer-sponsored quitline enrollees.

Note: The question asked to assess vaping or e-cigarette use at enrollment was changed July 1, 2016. New enrollment question version reflects responses to: *Have you used an e-cigarette or other electronic "vaping" product in the past 30 days?* Old enrollment question version reflects responses to: *Do you currently use electronic cigarettes/e-cigarettes/vapor cigarettes?* N stands for group denominator.

30 days; public: vaped 11.3 of past 30 days). Around a quarter (26% for public and 21.6% for commercial) reported only vaping 1–2 days, and approximately half (48.9% for public and 42.6% for commercial) reported vaping ≤5 days in the last 30 days. Daily vapers (30 of the past 30 days) were 20.7% of public and 30.0% of commercial quitline enrollees who reported vaping.

Most quitline participants who reported vaping also used combustible or smokeless tobacco (97% of public quitline and 83% of commercial quitline e-cigarette users). It is unclear how many individuals had called the quitline for help with quitting vaping. No specific question was asked about whether participants wanted help quitting vaping. Approximately 3% of public and 17% of commercial participants who vaped (0.5% and 2.2% of all quitline participants, respectively) reported that they only use *other* tobacco types (i.e., do not use cigarettes, cigars, pipes, smokeless tobacco, or waterpipes). Some portion of this group likely represents exclusive vapers seeking help to quit vaping. There may be a larger

proportion of commercial quitline enrollees who only vape and do not smoke cigarettes owing to their incentive structure. Individuals who both smoked and vaped reported fewer vaping days out of 30, on average (mean=10.8, SD=10.6, n=15,287 for public; mean=11.8, SD=11.1, n=1,269 for commercial), compared with individuals who exclusively vaped (mean=26.2, SD=8.6, n=531 for public; mean=25.5, SD=9.0, n=233 for commercial). More than three quarters of exclusive vapers reported vaping 30 of 30 days (79.7% for public and 75.1% for commercial).

Figure 2 depicts how vaping rates in 2018 varied by public quitline. Rates ranged from 6% in Washington, DC to 25% in Utah. Overall, 13.0% of phone program, 19.3% of web-only, and 16.0% of individual services participants report current vaping.

Youth and Young Adults

Table 2 shows quitline intake data for youth (from 22 public quitlines), young adults (aged 18–24 years),

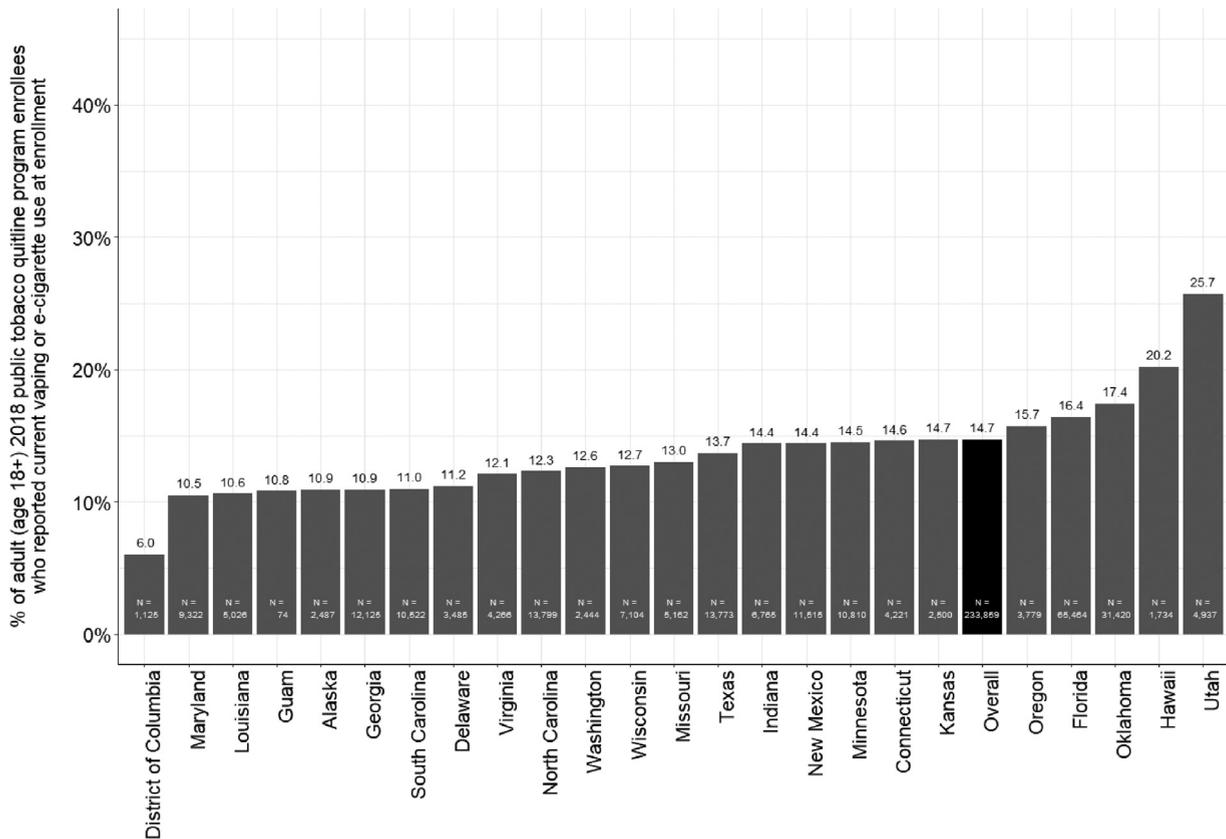


Figure 2. Percentage of adult (age ≥18 years) 2018 public tobacco quitline enrollees who reported current vaping or e-cigarette use at enrollment, by state or district quitline. Optum data, 2018, 24 public quitlines and 110,295 employer-sponsored quitline enrollees.

Note: Reflects responses to enrollment question: *Have you used an e-cigarette or other electronic “vaping” product in the past 30 days?* N stands for group denominator.

Table 2. Current Vaping or E-Cigarette Use at Tobacco Quitline Enrollment, by Quitline Type and Enrollee Age—Optum Data, July 2016 Through December 2018, 22 Public Quitlines and 110,295 Employer-Sponsored Quitline Enrollees

Variable	Public/state quitlines % (n/N)			Commercial employer quitlines % (n/N)		
	Youth (age <18 years)	Young adult (age 18–24 years)	Adult age (age ≥25 years)	Youth (age <18 years)	Young adult (age 18–24 years)	Adult age (age ≥25 years)
Reported vaping or using e-cigarettes in past 30 days at enrollment ^a	35.7 (282/790)	25.2 (7,910/31,382)	13.1 (76,760/ 587,947)	n/a	23.2 (316/1,364)	12.5 (6,793/ 54,186)
Average reported number of days vaped or used e-cigarettes in past 30 days ^{b,c} mean ± SD (N)	13.6 ± 12.2 (53)	11.1 ± 10.9 (1,456)	11.3 ± 10.9 (14,367)	n/a	15.6 ± 12.2 (88)	13.9 ± 11.9 (1,414)
1–2 days	28.3 (15/53)	29.4 (428/1,456)	25.7 (3,688/14,367)	n/a	19.3 (17/88)	21.7 (307/1,414)
3–5 days	15.1 (8/53)	20.6 (300/1,456)	23.1 (3,316/14,367)	n/a	19.3 (17/88)	21.1 (298/1,414)
6–29 days	28.3 (15/53)	30.2 (440/1,456)	30.5 (4,376/14,367)	n/a	26.1 (23/88)	27.5 (389/1,414)
30 days	28.3 (15/53)	19.8 (288/1,456)	20.8 (2,987/14,367)	n/a	35.2 (31/88)	29.7 (420/1,414)
Reported vaping or using e-cigarettes to help quit smoking ^{b,d}	39.3 (22/56)	56.7 (822/1,449)	70.0 (10,052/ 14,370)	n/a	71.3 (62/87)	75.1 (1,045/1,391)
Reported that vaping product or e-cigarettes used contain nicotine ^{b,e}	87.3 (48/55)	85.7 (1,263/1,473)	84.9 (11,951/ 14,083)	n/a	83.9 (73/87)	85.9 (1,205/1,403)
Reported intention to quit vaping or using e-cigarettes in the next 30 days ^{b,f}	82.1 (46/56)	85.6 (1,188/1,388)	87.3 (11,595/ 13,287)	n/a	88 (66/75)	81.4 (982/1,207)

Note: Responses of *refused*, *don't know*, and *not collected* are excluded from analyses. N stands for group denominator.

^aReflects responses to enrollment question: *Have you used an e-cigarette or other electronic "vaping" product in the past 30 days?*

^bFollow-up questions asked only of those who reported vaping or using e-cigarettes in the past 30 days at enrollment. Follow-up questions were asked for approximately 1 month in June/July and December/January of each year to allow for seasonal surveillance with minimal participant and quitline burden.

^cEnrollment assessment question: *How many days did you use an e-cigarette or e-vaping product in the last 30 days?*

^dEnrollment assessment question: *Are you using e-cigarette/e-vaping products to quit smoking?*

^eEnrollment assessment question: *Do you use an e-cigarette/e-vaping product that contains nicotine?*

^fEnrollment assessment question: *Do you intend to completely quit using e-cigarettes/e-vaping products within the next 30 days?*

n/a, not applicable.

and adults aged ≥25 years. Youth comprised a small minority of quitline participants (0.14%). Vaping rates declined with age for both public and commercial quitline participants. Few responses were available for youth aged <18 years ($n < 60$) for the additional vaping questions because those questions are only asked for surveillance purposes 2 months each year. Younger participants reported that they were vaping to help quit smoking at lower rates than older vaping product users (40.4% aged <18 years, 56.7% young adults, 70.0% adults aged ≥25 years). Across age groups, most participants who vaped reported that they used nicotine-containing vaping products and intended to quit vaping.

DISCUSSION

In 2018, approximately 1 in 7 (15%) adult quitline participants across 23 states and the District of Columbia reported vaping in the past 30 days at the time of registration. Less than 1% of quitline participants are aged <18 years, but more than a third (35%) report vaping. In general, these data show that rates of vaping are slowly increasing over time and vary by state of residence. State differences are likely influenced by statewide vaping prevalence and the state population reached by the quitline, and may be due in part to the program types offered by each state. Rates of vaping are higher for younger participants and for those who engage in nonphone program services

Important questions for future research:

- Does vaping help people quit smoking, particularly people who have failed to quit in the past after using FDA-approved cessation medications as directed?
- Does vaping promote or prevent relapse to smoking after a successful quit attempt?
- What are the most effective treatment paradigms that incorporate vaping (e.g., combining with another quit medication, instructions for use, behavioral support strategies, instructions for selecting the safest device)?
- Are there individual characteristics or factors that can predict the best quit plan recommendation (medications, FDA-approved nicotine replacement, vaping product, or a combination) to inform personalized treatment recommendations? What role do factors such as desiring a replacement for the hand to mouth habit of smoking,⁶⁶ and concerns about weight gain while quitting play?⁶⁷
- How do we provide brief, accurate, and persuasive education for individuals making decisions about their quit plan and whether to vape? How do we best do this in technology-delivered interventions?
- How hard is it to quit vaping and what are the most effective behavioral and medication protocols for helping people quit vaping?
- Are people calling tobacco quitlines for help quitting vaping? What are effective ways to increase reach to these individuals and where does this work fall in priorities for quitlines with budget constraints?
- What are the best methods for reaching and delivering interventions for youth and young adults who vape?
- How do e-cigarettes impact smoking-related health inequities for special populations, such as individuals with behavioral health conditions, and other groups disproportionately impacted by smoking, such as lower socioeconomic status individuals and racial minorities?⁶⁸
- What are the risks and opportunities of providing e-cigarettes through quitline programs as a harm reduction step (“a switching program”), or potentially in the future as a smoking cessation aid? How would this impact quitline reach, quit attempts made, and quitline budgets? With potential for higher abuse liability and interest from nonsmokers such as youth and young adults, how would quitlines ensure that e-cigarettes were only used by those they were intended for?

Figure 3. Proposed research priorities for vaping and e-cigarettes. FDA, U.S. Food and Drug Administration.

(web-only, individual services), who also tend to be younger,^{59,60} which may explain the higher vaping rates in these programs. Rates of vaping in quitline callers are generally comparable to estimates of vaping among smokers from national surveys (10%–20%).^{61,62} Vaping products are now the most commonly used quitting aid reported by individuals trying to quit smoking in the U.S. (used in 25% of quit attempts, compared with 19% NRT).⁶³ Given current use rates, it is pragmatic to examine how to best help these individuals now rather than continuing to wait

for a more definitive answer about whether vaping helps people quit smoking.

How Should Quitlines Modernize in the Changing Tobacco Product Landscape?

Quitlines primarily serve adults who smoke, the group with the greatest opportunity for benefit from vaping. Although FDA-approved cessation medications may double quit success, the most common outcome of a quit attempt is to continue smoking.⁶⁴ Data from existing RCTs, prospective studies providing products and

behavioral support, and epidemiological studies examining the impact of vaping on population-level smoking cessation show promising results for the role of vaping in smoking cessation.^{21–24,27–30,65} Similar to cessation medications, vaping will likely be most effective as a cessation tool in combination with behavioral support. For adults who vape, the lack of clarity on use recommendations may increase the variability of approaches and contribute to inconsistent findings in observational studies. There is potential harm if quitlines do not actively pursue ways to increase the likelihood of benefit of vaping for adult quitline enrollees.

Standard quitline practice is based on rigorous research, and quitlines have resolutely maintained a dedication to evidence-based practice. Following the initial 2013 ASCEND trial,²⁷ the next large RCT examining vaping as a cessation strategy was not published until 2019,²² and RCTs evaluating the utility of vaping in smoking cessation still are not occurring in the U.S.^{66,67} The limited number of evidence-establishing trials presents a challenge for a community built on evidence-based practice. Still, vaping technology will continue to outpace results from the traditional research model of 5-year RCTs. For example, most published studies predate the rise of JUUL and other emerging pod devices. This rapidly changing vaping product landscape limits the value of older studies after a relatively short time and, as noted in the recent Surgeon General's Report on Smoking Cessation, increases the difficulty in making generalizations about vaping as a cessation tool.²⁰ Quitlines need to be prepared to reassess their vaping protocols as data emerge^{24,68} and given the reality that participants are actively vaping as they attempt to quit smoking. The quitline community should identify opportunities to move understanding forward through pragmatic research, even while waiting for additional evidence to accumulate. Quitlines can invest in evaluating their approaches to vaping, pilot real-world programs, and collect data to inform intervention development. For example, how do quitlines provide brief, accurate, and persuasive education for people wanting to quit smoking who are making decisions about whether to vape? Nuanced messages are difficult to convey, particularly for low-touch interventions such as quitlines and in the context of the complex interplay of vaping policies, laws, media coverage, and hard-hitting education campaigns targeted at preventing youth use.

Quitlines also need to systematically collect data on how many participants are interested in help specifically to quit vaping. Given that many quitlines fund outcome evaluations, excellent opportunities also exist

to better understand vaping and intentions for continued vaping or quitting at the end of treatment. Strikingly limited data are available about how difficult it is to quit vaping and the best way to quit vaping. Hajek and colleagues²² reported promising findings with regard to vaping as a potential quit aid, but 80% of those randomized to receive e-cigarettes continued to vape at 1-year follow-up. However, it did not appear that study participants were given instructions on how long to vape and whether they should quit. Quitlines provide a unique opportunity to recruit individuals to better understand how and when to help people quit vaping. Vaping also crosscuts other important priorities for quitlines and in tobacco control, such as health disparities, relapse prevention, and technology-assisted intervention. [Figure 3](#) lists the authors' views on pressing research needs for the quitline community with regard to vaping, including those noted previously, and important answers needed by the tobacco control community more broadly. Finally, although quitlines currently serve a small number of youth, quitlines are in a unique position to deliver widescale intervention to the growing number of youth and young adults who vape.

CONCLUSIONS

Approximately 1 in 7 (15%) adult participants across 24 public tobacco quitlines reported vaping at quitline registration, typically in combination with smoking. Quitlines have an opportunity to increase the likelihood that vaping has a net public health benefit, both through helping those who smoke quit combustible tobacco by switching completely to vaping and through influencing how long vaping is used as a quitting or harm reduction tool. Quitline infrastructure also could be leveraged to address increasing vaping rates among youth and young adults.

ACKNOWLEDGMENTS

The authors would like to acknowledge the public and employee-sponsored quitline clients and participants included in this analysis, as well as the Quit Coaches who provide tobacco cessation support.

Any conclusions in this paper and the content of this publication are solely the responsibility of the authors and do not necessarily represent the views of Optum or the Optum Quit for Life Program. KV, KC, MR, CN, and RV declare employment at Optum, the provider of quitline services for the public and employer-sponsored quitline data included in this paper. Otherwise, the authors declare no conflicts of interests regarding the publication of this article. None of the authors have received funding from the e-cigarette, pharmaceutical, or tobacco industries.

SUPPLEMENT NOTE

This article is part of a supplement The Role of Quitlines in Tobacco Cessation, which is sponsored by the U.S. Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services (HHS), with support from RTI International under contract # 200-2014-61263.

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