



Letter

Engagement and 3-Month Outcomes From a Digital E-Cigarette Cessation Program in a Cohort of 27 000 Teens and Young Adults

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The 2018 National Youth Tobacco Survey showed e-cigarette use among middle and high schoolers increased 48% and 78%, respectively, in just 1 year.¹ This coincided with rapid increases in market share of JUUL, the e-cigarette product used most by young people.² More than 3.6 million youth currently use e-cigarettes, with 28% of high school e-cigarette users vaping on 20 days or more in the past month.¹ Exposure to nicotine in young people can affect learning, memory, and attention, and lead to increased impulsivity, mood disorders, and addiction to other drugs.³ Many young people begin using e-cigarettes because of their popularity among peers and their appealing flavors, not recognizing they contain nicotine and risk addiction and other adverse impacts.⁴

Truth Initiative is a nonprofit public health foundation dedicated to tobacco control in the United States. In fall 2018, we began seeing posts across social media sites (e.g., Twitter, Reddit) from young people asking for help quitting e-cigarettes. Given the increases in e-cigarette use, apparent desire for cessation support, and the lack of available resources, we identified an urgent need to develop an easily accessible, scalable program to help young people quit vaping. On January 18, 2019, we launched a first-of-its-kind, freely available quit vaping program.

The program is grounded in theory-driven and empirically validated tobacco cessation treatment strategies for young people,⁵ national cessation treatment guidelines,⁶ the Mayo Clinic 5-E Model of Wellness Coaching,⁷ and our qualitative research and social media observations of young e-cigarette users. To *engage* youth, we positioned the program as a supportive, nonjudgmental friend, with messages written in the first person or as quotes from other users. Quitting e-cigarettes can be isolating for young people, reinforcing that peers are quitting fosters connectedness and normativity. The program *explores* why someone is quitting (e.g., “Abigail says ‘Giving yourself a reason to quit is a good motivator.’ Reply why you’re thinking about quitting.”). To *envision* life after quitting, enrollees are instructed “Close your eyes. Envision what your life is like without JUUL. What’s better or different about it? What do you feel like? Reply and tell me.” The program recommends specific, concrete actions and encourages enrollees to *experiment* with

quitting strategies in small steps. To help young people *evolve* and create lasting change, the program supports sustained use and multiple quit attempts.

Young people enroll by texting “QUIT” to a dedicated phone number and responding to an initial age query. Terms of Service and Privacy Policy are provided via text message. Users receive one age-appropriate message per day tailored to their enrollment date or quit date, which can be set and reset via text message. Those not ready to quit receive 2 weeks of messages focused on building skills and confidence. Users who set a quit date receive messages for a week preceding it and 30 days afterward that include encouragement and support, skill- and self-efficacy building exercises, coping strategies, and information about the risks of vaping, benefits of quitting, and cutting down to quit. Keywords “CRAVE,” “STRESS,” or “SLIP” provide on-demand support. Users can unsubscribe anytime by texting “STOP.”⁸ The teen version of the program (ages 13–17) refers to e-cigarettes as JUUL/JUULing, whereas the young adult version (YA, ages 18–24) uses several terms (e.g., vaping, e-cigarette).

E-cigarette use and abstinence were assessed via text message at 14 and 90 days following an enrollee’s quit date or enrollment date. At 14 days, enrollees were asked, “Have you cut down how much you JUUL in the past 2 weeks? Respond w/letter: A=I still JUUL the same amount, B=I JUUL less, C=I don’t JUUL at all anymore.” At 90 days, enrollees were asked, “When was the last time you JUULed, even a puff of someone else’s? Respond w/ letter: A: in the past 7 days, B: 8–30 days ago, C: More than 30 days ago.” Program satisfaction was assessed at 14 days with the question, “This program was 30 days. Should it be a different length? Reply LONGER, SHORTER, or SAME if you think this length is good.”

To date, the program has been promoted entirely though earned media and organic social media. Its launch was announced on a major network morning broadcast show⁹ and has since been featured in over 500 news stories. The vast majority of young people that have enrolled to date joined within hours after the program was featured on Mashable’s Snapchat Discover channel on January 30, 2019.¹⁰ Since then, the program has seen 100–150

new enrollees each day. Mashable is a major tech-focused website that has 27 million followers across their social media channels. Snapchat is a free social media application where Discover Stories (sequences of photos/animations) are available to platform users for a limited time (decided by the sender, maximum of 24 hours) before disappearing. Snapchat is extremely popular among young people: in 2018, 69% of 13- to 17-year-olds and 78% of 18- to 24-year-olds used Snapchat, with the majority visiting the platform multiple times per day.^{11,12} Written and designed entirely by Mashable staff,¹⁰ the Story described the program as a low-key, anonymous way to get help quitting JUUL, and that users could engage how they wanted (e.g., set a quit date, or not). The Story noted multiple times that the program is freely available and featured the enrollment phone number as the sole call-to-action. It also featured quotes from an interview with Truth Initiative leadership emphasizing facts that may have motivated young people to take action (e.g., that JUULs always contain nicotine, as much nicotine as a pack of cigarettes).

Between January 18 and February 22, 2019 (first 5 weeks), 13 421 teens and 13 750 YA enrolled. The majority set a quit date (teens = 69%; YA = 74%); the most common quit date was the day of enrollment (44.7%). Interactive keywords were used by 45.5% of teens and 38.4% of YA. Response rates to follow-up assessment questions were 36.9% at 14 days (teen = 37.3%; YA = 36.4%) and 21.0% at 90 days (teen = 23.5%; YA = 18.8%). At 14 days, 60.8% of respondents indicated they had reduced (teen = 46.5%; YA = 46.5%) or stopped (teen = 12.3%; YA = 16.0%) using e-cigarettes altogether. Most respondents indicated a desire for additional support, responding that the program should be longer (74.6%). At 90 days, 7-day point prevalence abstinence (ppa) was 24.7% (teen = 23.8%, YA = 25.7%) and 30-day ppa was 15.5% (teen = 15.8%, YA = 15.0%). Given this was a national campaign, abstinence rates are reported descriptively rather than as population estimates from a sample.

The high volume of enrollment in a short period of time, high levels of engagement with the program, and e-cigarette reduction and cessation results demonstrate that young people are interested in quitting vaping and can be engaged in an easily accessible, anonymous digital platform promoted through social media. Somewhat to our surprise, response rates to assessment questions were comparable to those often seen in smoking cessation intervention studies in young people,⁵ despite no incentives or other prompts. We surmise that the friendly tone and use of first person throughout the program encouraged enrollees to respond to it as they would a friend. This hypothesis is supported by more than 7500 replies to one of the open-ended questions, with many users responding as though texting a friend even while acknowledging “I know I’m talking with a bot.” These results are based on observational data in a population motivated to quit vaping, with a modest response rate at 3 months. However, they signal that a low-barrier text message intervention to promote e-cigarette cessation is desired by and acceptable to young people. Evaluation is ongoing including plans for comparative effectiveness research as we aim to add to the scant evidence about how to help young people quit vaping.

Funding

No external funding.

Acknowledgments

The authors extend their sincere appreciation to Woodrow Wilson High School in Washington, DC, for participating in media efforts around the launch of the program.

Declaration of Interests

ALG, MAJ, and MSA are employed by Truth Initiative, a nonprofit public health foundation which sells enterprise digital tobacco cessation programs to support its mission-driven work.

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