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Smoking Cessation  
Leadership Center



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University of California  
San Francisco

# Reach, Effectiveness, and Treatment Engagement with Digital Cessation Interventions

Michael S. Amato, PhD

March 23, 2021

# Moderator

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Smoking Cessation Leadership Center  
University of California, San Francisco

A National Center of Excellence for Tobacco-  
Free Recovery

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- Visit [CABHWI.ucsf.edu](http://CABHWI.ucsf.edu) for more information



- CDC Tips Campaign 2021 – celebrating 10 years!
- SCLC will partner with the CDC to promote **1 800 QUIT NOW** through new ads as well as some former favorites
- Check out effectiveness stats in this AJPM article also in the Resources: Fact Sheets & Reports section of our website:  
[https://www.ajpmonline.org/article/S0749-3797\(20\)30468-2/fulltext](https://www.ajpmonline.org/article/S0749-3797(20)30468-2/fulltext)



# Today's Presenter

**Michael S. Amato, PhD**

Methodologist for the Innovations Center  
Truth Initiative

Research Investigator  
Schroeder Institute

Assistant Professor of Medicine (Adjunct)  
Mayo Clinic  
College of Medicine and Science





# Reach, Effectiveness, and Treatment Engagement with Digital Cessation Interventions

**Michael S. Amato, PhD**

Research Investigator & Methodologist, Innovations, Truth Initiative

Professor of Medicine (adjunct), Mayo Clinic College of Medicine and Science

# Disclosures

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Truth Initiative is a non-profit public health foundation which provides free services to the public and sells enterprise digital tobacco cessation programs to support its mission-driven work.

## **Grants/Research Support:**

National Institute on Drug Abuse (R01DA038139, Graham, PI)

National Cancer Institute (R01CA192954, Shuter/Stanton, MPI)

Center for the Study of Tobacco Products (FP00006477\_SA016, Do, PI)

# Learning Objectives

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- Strategies Truth Initiative uses to reach tobacco users with two distinct cessation interventions: BecomeAnEX and This Is Quitting
- Findings and generalizable insights learned from effectiveness studies of both interventions.
- The complex relationship of treatment engagement with cessation outcomes in the context of digital cessation programs



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Young Adult  
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**Innovations**  
Digital Tobacco  
Cessation



**ex** program  
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and Policy**

Truth Initiative  
Schroeder Institute

**Community  
and youth  
engagement**

# Population Impact

**Reach**  
(# participating)

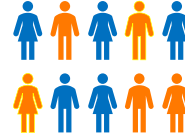
**Effectiveness**  
(quit rate)

**Impact**  
(# quitters)

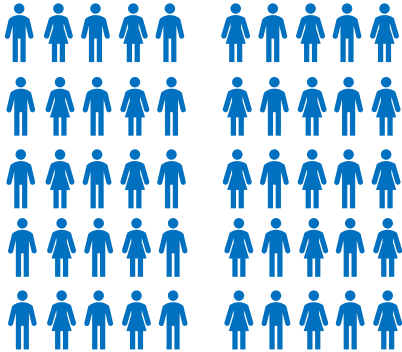


(10 smokers)

X



(5 quitters)



(50 smokers)

X



(5 quitters)

# Population Impact

**Reach**  
(# participating)

**Effectiveness**  
(quit rate)

**Impact**  
(# quitters)



(50 smokers)



(25 quitters)

ex<sup>®</sup>

program

by Truth Initiative<sup>®</sup>

truth



THIS IS  
QUITTING



# BecomeAnEX

The screenshot shows the homepage of the BecomeAnEX website. At the top left is the 'ex' logo. To the right are links for 'EX Community', 'Register Now' (in a red button), and 'Log In' with a search icon. Below the navigation are five menu items: 'Decide to Quit', 'Prepare to Quit', 'Recently Quit', 'Stay Quit', and 'Make a Change with EX'. The main banner features a photograph of a man and a young girl kissing. Text on the banner reads 'Imagine your life without tobacco. Looks great, right?' and includes a red button that says 'Get Started (it's Free!)'. A small logo in the top right of the banner states 'Developed in collaboration with MAYO CLINIC'. Below the banner is a section titled 'Join BecomeAnEX for Quick Access' with five icons and their descriptions: 1. A calendar icon for a 'customized quit plan that learns and grows with you.' 2. A text message icon for 'Text messages for support quitting smoking or vaping.' 3. A map icon for 'Smart, interactive guides and tools for you to navigate your tobacco-free journey.' 4. A lightbulb icon for 'Expert advice and tips from Mayo Clinic.' 5. A speech bubble icon for 'An active, supportive EX Community of real tobacco users who have been through it all.'

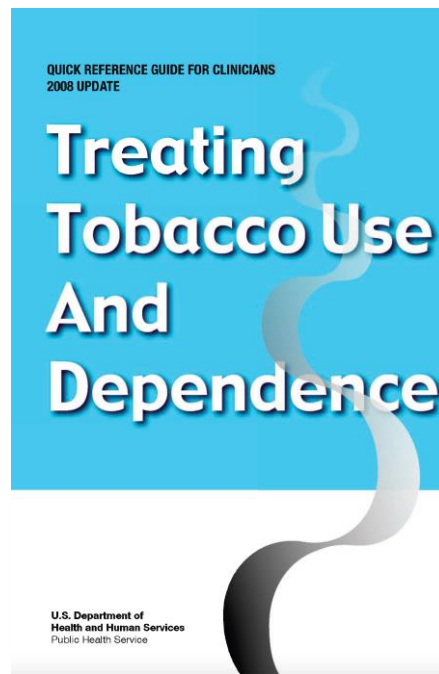
Developed in  
collaboration with  
Mayo Clinic

900,000+  
registered users  
since 2008

# Development of BecomeAnEX

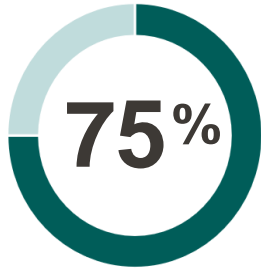
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- Multimodal digital intervention based on clinical practice guidelines
  - Skills training
  - Nicotine addiction
  - Social support
- Cognitive-behavioral approach to tobacco dependence + available evidence about web-based interventions
- Continuous ongoing development, based on our research

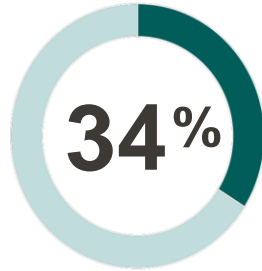


# Outcomes

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receive  
"high intensity"  
treatment



quit rate  
at 9 months



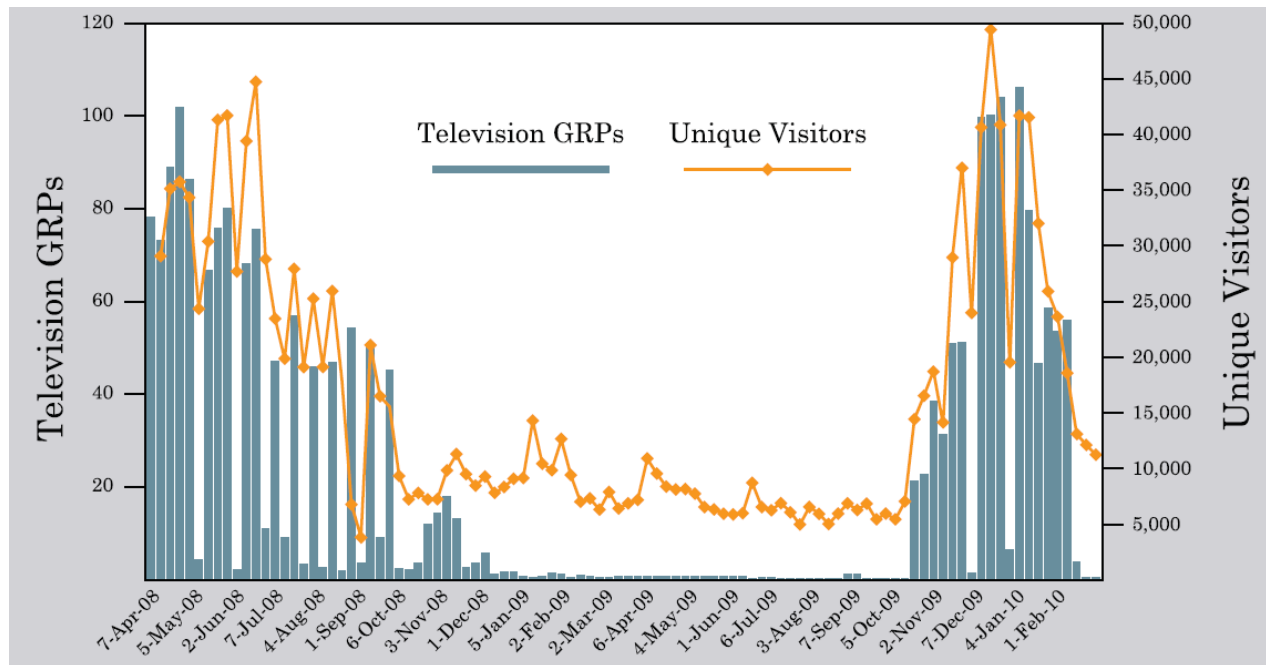
recommend  
to others



found  
helpful

# National media campaign 2008-2009

The initial 2-year EX Campaign resulted in 1.5M visitors to the website and 225,000+ registered users



# Components of BecomeAnEX

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**Personalized quit plan** with interactive exercises, educational videos, and emails



An **active online community** of current and former smokers



**Dynamic text messaging** tailored to the participant

# EX Program

- Launched in 2017
- Enterprise solution for providing cessation services
- Contract with large employers and health plans to allow additional cessation support
- HIPAA compliant

The screenshot shows the EX Program website homepage. At the top left is the 'ex' logo. To the right are links for 'EX Community', 'Register Now', and 'Log In'. Below the navigation are five menu items: 'Decide to Quit', 'Prepare to Quit', 'Recently Quit', 'Stay Quit', and 'Make a Change with EX'. The main banner features a photo of a man and a young girl kissing, with the text 'Imagine your life without tobacco. Looks great, right?' and a 'Get Started (It's Free)' button. A box on the right side of the banner states 'Developed in collaboration with MAYO CLINIC' with the Mayo Clinic logo. Below the banner is a section titled 'Join BecomeAnEX for Quick Access' with five icons and descriptions: 1. A calendar icon for 'A customized quit plan that learns and grows with you.' 2. A smartphone icon with 'New!' for 'Text messages for support quitting smoking or vaping.' 3. A location pin icon for 'Smart, interactive guides and tools for you to navigate your tobacco-free journey.' 4. A lightbulb icon for 'Expert advice and tips from Mayo Clinic.' 5. A speech bubble icon for 'An active, supportive EX Community of real tobacco users who have been through it all.'

# Components of EX Program

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**Personalized quit plan** with interactive exercises, educational videos, and emails



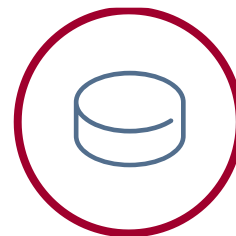
An **active online community** of current and former smokers



**Dynamic text messaging** tailored to the participant



**Live chat coaching** with tobacco treatment experts



**Nicotine patches, gum, or lozenges** delivered to participants' homes

# Components of EX Program

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**Personalized quit plan** with interactive exercises, educational videos, and emails



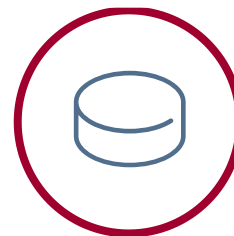
An **active online community** of current and former smokers



**Dynamic text messaging** tailored to the participant



**Live chat coaching** with tobacco treatment experts

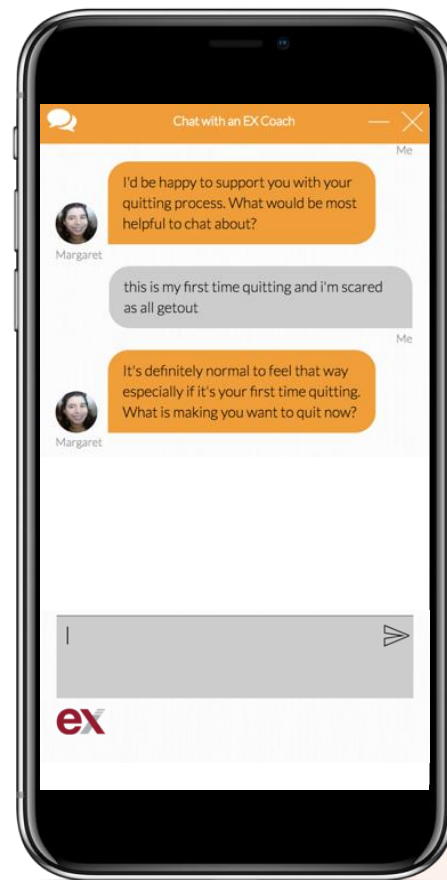


**Nicotine patches, gum, or lozenges** delivered to participants' homes



# Digital coaching

- Grounded in Motivational Interviewing & CBT
- Build confidence & motivation, manage stress
- Develop a quit plan, choose a quit date
- Understand impact on chronic conditions
- Select & use medication
- Develop skills to managing cravings
- “Supportive accountability”
- “Technology navigators”



# Coaching support during COVID-19

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“I’m stuck at home, and I’ve been having trouble keeping from smoking due to boredom.”

“Big day was supposed to be Saturday... A bit of upheaval with the coronavirus going around... It will be daunting but have to keep my eyes on the prize.”

“I want to live long enough to enjoy retirement, if the stock market recovers.”

“Very busy + slow computer is very stressful but trying not to let it get to me.”

# Live chat and behavior change techniques

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- Content analysis
- Randomly selected 100 chat transcripts
- Systematically coded for presence of Motivational Interviewing skills and Behavior Change Techniques

## Key findings

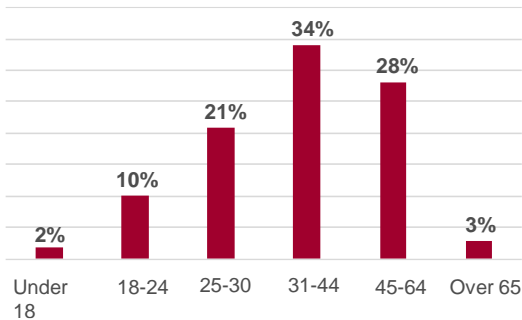
- Average duration = 22 minutes
- BCTs present in 100% of chats
- 86% of chats included at least one MI skill
- Mean BCTs per chat 7.25 (SD 2.5)

Michie S, Richardson M, Johnston M, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med*. 2013;46(1):81-95. doi:[10.1007/s12160-013-9486-6](https://doi.org/10.1007/s12160-013-9486-6)

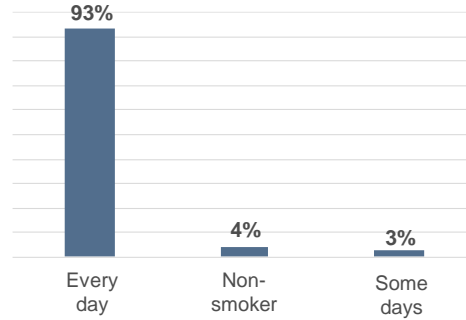
Burke et al. Delivery of smoking cessation treatment via live chat: An analysis of motivational interviewing skills and behavior change techniques. Under review.

# Broad reach across demographics

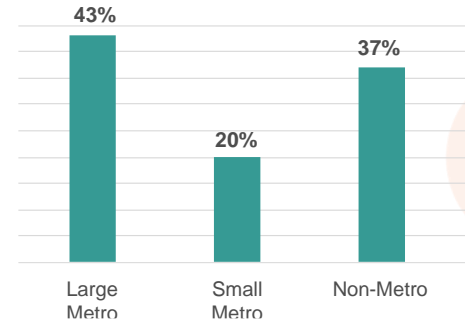
Age



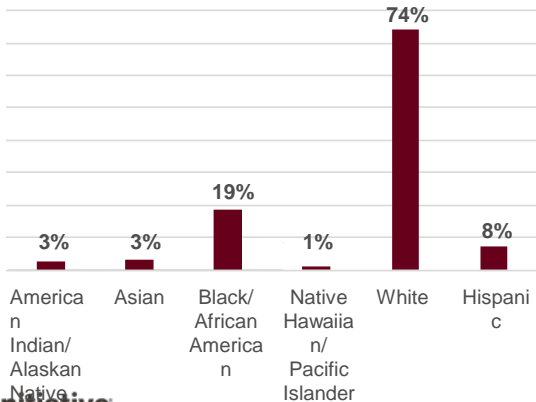
Tobacco Use



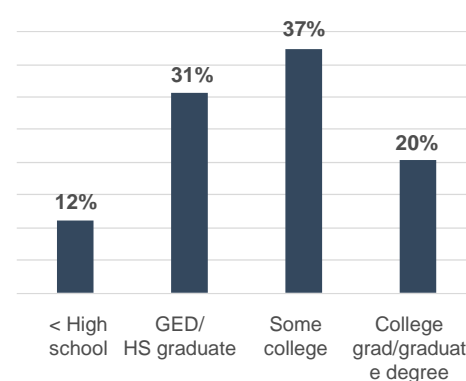
Urban/Rural



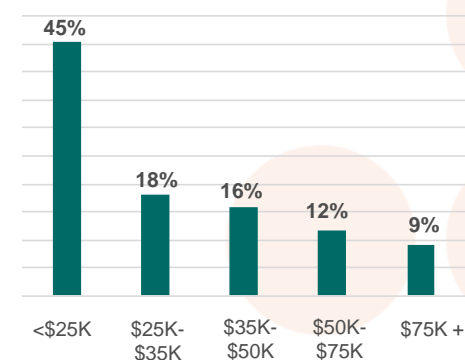
Race/Ethnicity



Education, highest grade completed



Annual Income



# Do rural smokers use digital programs?

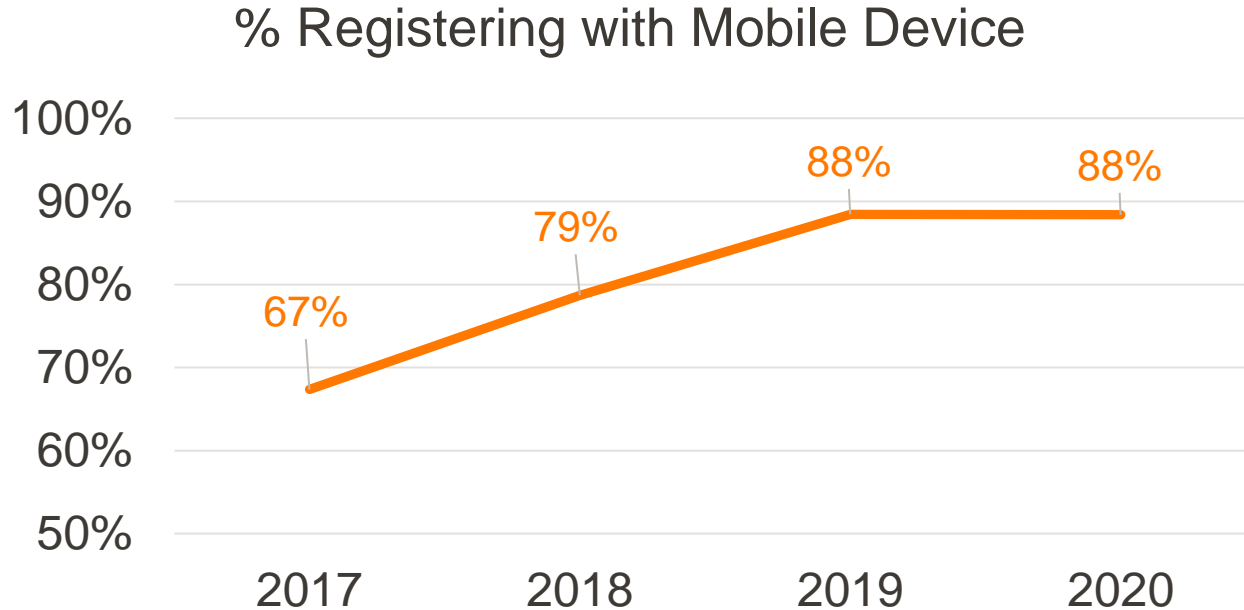
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## Distribution

Geographic Breakdown, 2017	U.S. smoking population	BecomeAnEX
Large Metropolitan Areas (Urban)	48%	43%
Small Metropolitan Areas (Suburban)	34%	36%
Nonmetro Areas (Rural)	18%	21%

# How do users access BecomeAnEX?

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# How many adults look for cessation support online?

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Health Information National Trends Survey (HINTS), 2005 and 2017

	2005	2017
% of US smokers that searched online for cessation information	16.5%	35.9%
Number of US smokers that searched online for cessation information	7,880,000	12,430,000

# Adherence Study on Engagement

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National Cancer Institute (R01 CA155489)

PI: Amanda L. Graham, PhD, Truth Initiative

## Randomized Controlled Trial (RCT)

- Tested two strategies for improving adherence to **treatment components**
  - Use of NRT
  - Use of BecomeAnEX community
- Primary outcome: 30-day smoking abstinence at 3-months



# Factor 1: Proactive social outreach

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- Proactive outreach from EX Community members (“welcome wagon”)
- Grounded in Social Network Theory

**Proactive outreach from  
EX Community**



# Factor 2: Free NRT

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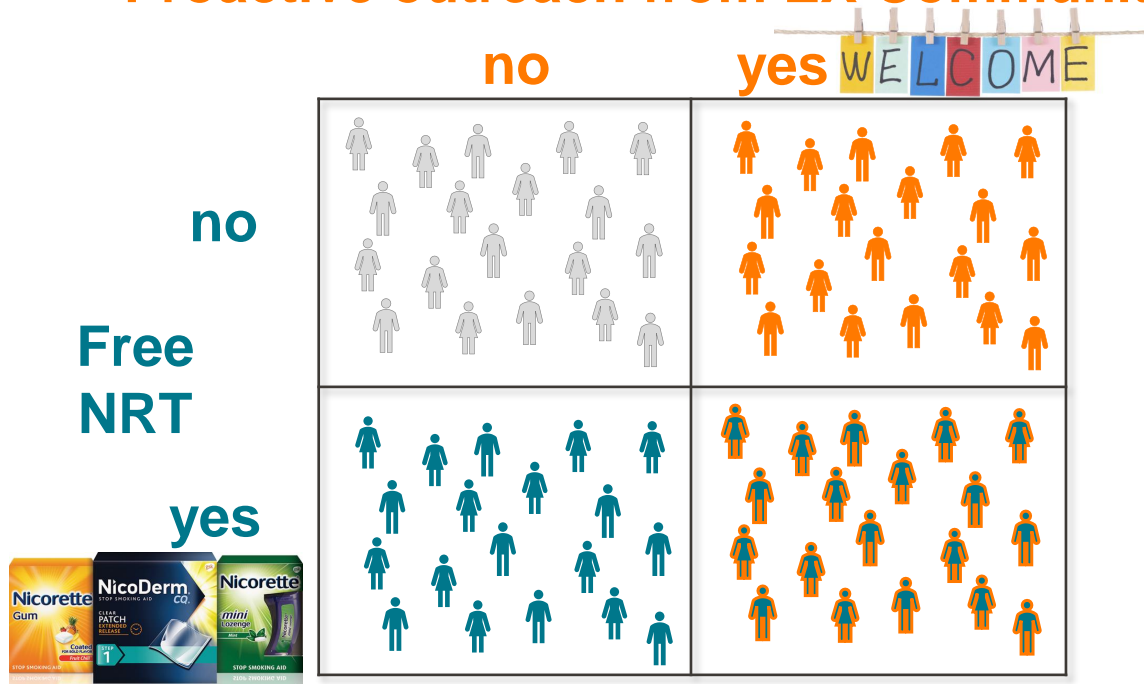
- 4 week supply of free nicotine patch, gum, lozenge
- **Rationale:** medication increases quit attempts, doubles quit success

## Free medication



# Study design: 2x2 Factorial

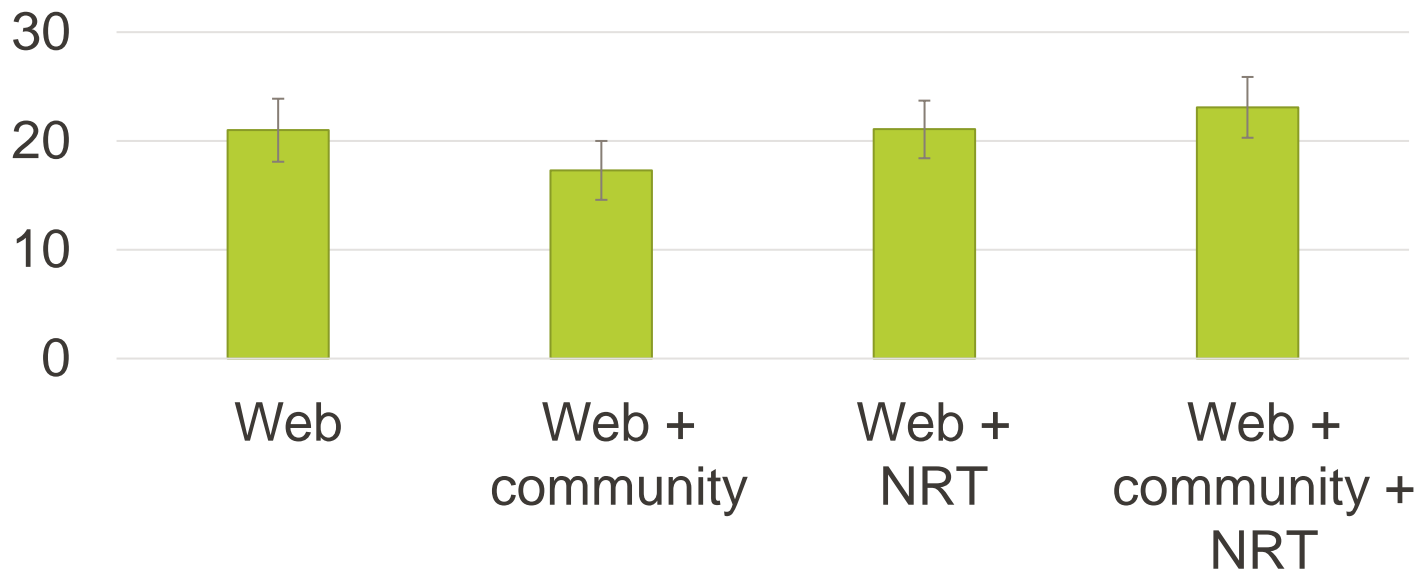
## Proactive outreach from EX Community



# No differences by treatment *assigned*

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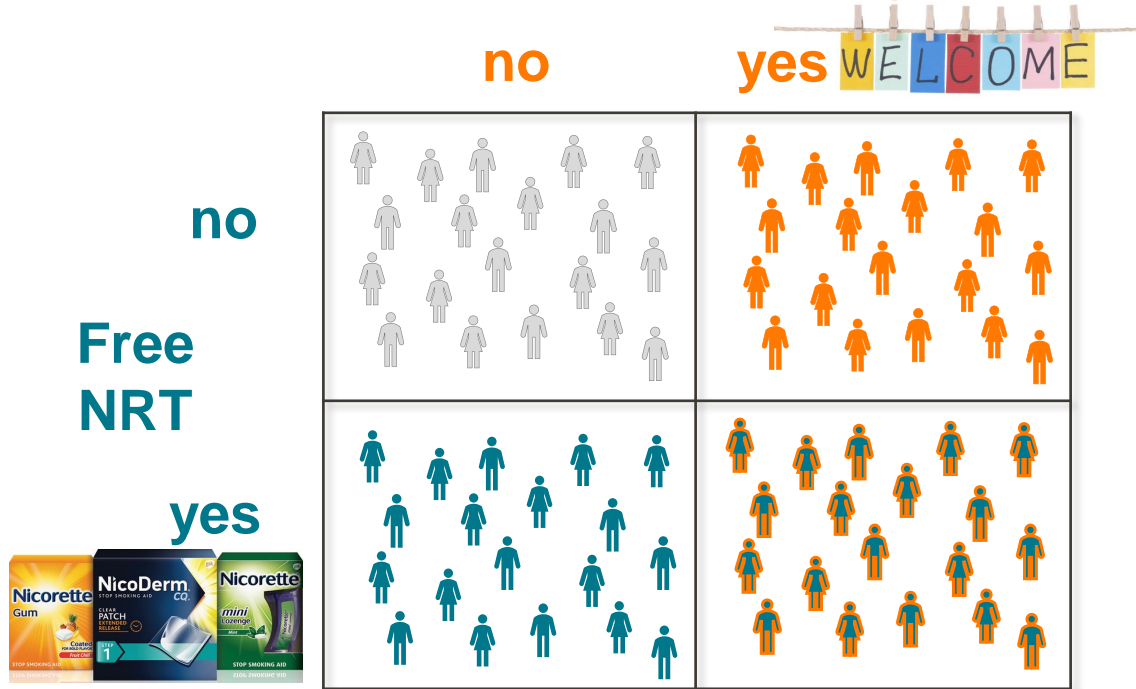
% abstinent at 3-months



Study arms to which participants were assigned

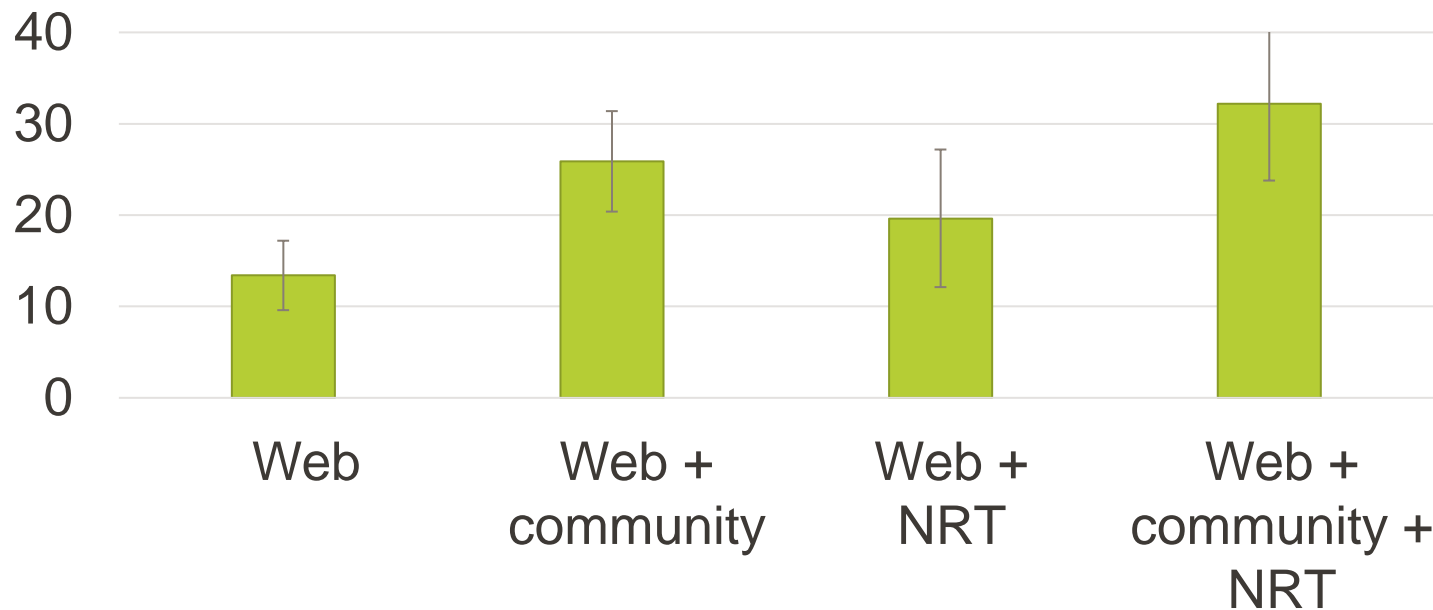
# Why didn't our study conditions work?

## Proactive outreach from EX Community



# Significant differences by treatment *used*

% abstinent at 3-months



Treatment components that participants **ACTUALLY USED**

# Conclusions about engagement

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- Participants did what they wanted
- Those who used all treatment components were most likely to be abstinent

## Implications:

- Provide users with options, they will choose what works for them
- Self-selection to treatment is both a challenge and a feature



**THIS IS  
QUITTING**



# E-cigarette epidemic among youth & YA

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1 in 5

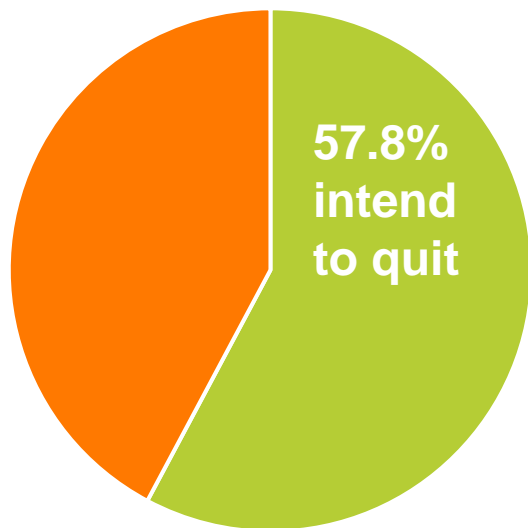


High school students vape in U.S. (19.6%)

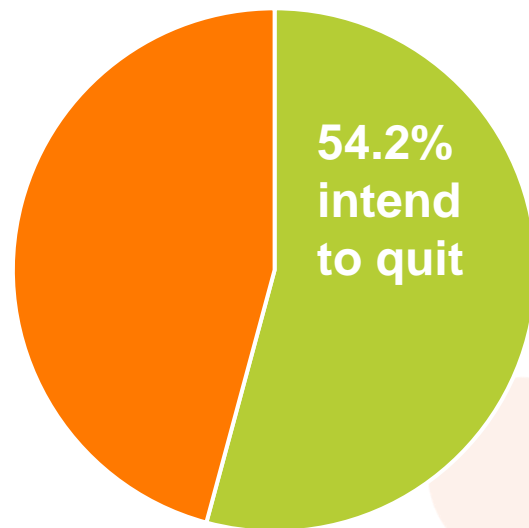
# Most young tobacco users want to quit

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**U.S. middle & high schoolers  
with past 30-day tobacco use**



**U.S. young adults with past  
30-day e-cigarette use**



# Recognizing the need

The screenshot shows the Reddit interface for the r/QuittingJUUL subreddit. At the top, the subreddit name and a search bar are visible. Below the header, there are three posts:

- Post 1:** "I made this sub after realizing the smarter option for me is to quit." Posted by u/lamb123 8 months ago. 83 upvotes, 22 comments.
- Post 2:** "It's possible (coming from a pod and 1/2 daily user)" by Lredd.it/knybsq... 18 upvotes, 4 comments.
- Post 3:** "Long time smoker, finally quitting" by u/thisguy3822 1.4 hours ago. 6 upvotes, 2 comments.

On the right side, the "COMMUNITY DETAILS" sidebar shows:

- Subreddit: r/QuittingJUUL
- Members: 1.1k
- Online: 8
- Description: "A subreddit for those who have decided to stop using the JUUL to discuss their experience, give advice, and share stories."
- Button: "JOINED"

**Garth Vader** (@garhvader0) Follow

i can't believe how hard it is to quit the juul. im not quitting but just thinking about it is giving me anxiety

9:52 AM - 5 Nov 2018

3 Likes

**Sasha Sloan** (@sadgirlisloan) Follow

i quit juul and i just wanted to let everyone know cause it was hard lol

6:50 PM - 5 Nov 2018

16 Retweets 394 Likes

**goblin king** (@detastekuboy) Follow

someone needs to get me to quit smoking bc, between my juul and regular cigs, i can feel the end of my life when i extend my arm out

4:11 PM - 26 Aug 2018

1 Retweet 36 Likes

# Overview of This is Quitting



## Theory-Based & Grounded in Best Practices

- Build self-efficacy
- Establish/reinforce social norms & social support
- Support observational learning, grow behavioral capability



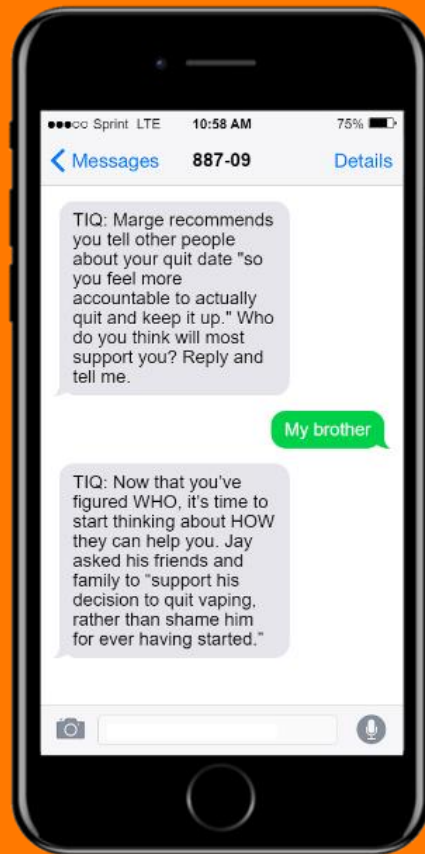
## Individually Tailored

- Age (13-17 vs. 18-24)
- Product use (e.g., JUUL, Suorin)
- Quit date



## Empathic and Supportive

- Fully automated, available 24/7
- Interactive (structured & open-ended)
- Messages from other users



# Sample Messages

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TIQ: Dalton says “Remember that stress can be dealt with in other ways! Try meditating or even writing down what the problem is and then figure out solutions.” You dealt with hard things before you started to vape, and you still can.

“Marge recommends you tell other people about your quit date "so you feel more accountable to actually quit and keep it up." Who do you think will most support you? Reply and tell me.

# User feedback

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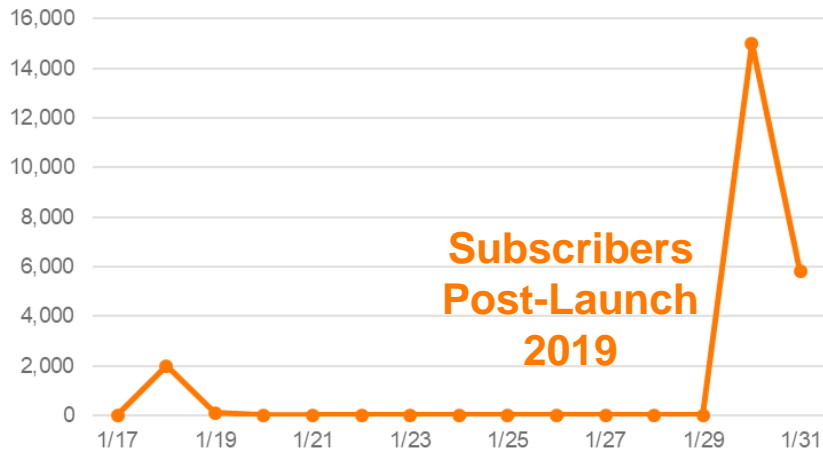
“Ik you can’t really respond to this cause you a computerized program but this helps a lot and I just flushed my JUUL down the toilet! One step closer. If the producer of this app sees this I want to thank you so much for your support.”

“Love you. Thanks so much for all of the help! I’m feeling confident already.”

“This is amazing. Never gotten this much support right off the bat.”

“I’m on the 2<sup>nd</sup> day of quitting and this absolutely sucks. Thank you robot, it’s nice to have someone to discuss the horrible realities of nicotine withdrawal with.”

# Program launch



## Letter

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

Amanda L. Graham PhD<sup>\*</sup>, Megan A. Jacobs MPH, Michael S. Amato PhD

Innovations Center, Truth Initiative, Washington, DC

Corresponding Author: Amanda Graham, PhD, Innovations Center at Truth Initiative, 900 G Street, NW, Washington, DC, 20001; Telephone: 202-454-5938; E-mail: [agraham@truthinitiative.org](mailto:agraham@truthinitiative.org)

The 2018 National Youth Tobacco Survey showed e-cigarette use among middle and high schoolers increased 48% and 78%, respectively, in just 1 year.<sup>1</sup> This coincided with rapid increases in market share of JUUL, the e-cigarette product used most by young people.<sup>2</sup> 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.<sup>1</sup> Exposure to nicotine in young people can affect learning, memory, and attention, and lead to increased impulsivity, mood disorders, and addiction to other drugs.<sup>3</sup> 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.<sup>4</sup>

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,<sup>5</sup> national cessation treatment guidelines,<sup>6</sup> the Mayo Clinic 5-E Model of Wellness Coaching,<sup>7</sup> 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.” 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 through earned media and organic social media. Its launch was announced on a major network morning broadcast show<sup>8</sup> 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.<sup>9</sup> Since then, the program has seen 100–150

# Uptake and engagement

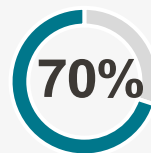
Jan 18, 2019 – Jan 14, 2021

Teens  
95,388

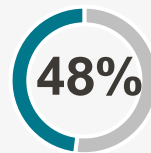


Young  
Adults  
146,209

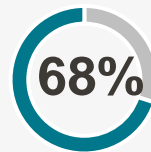
## Engagement



Set Quit Date



Use Extra Support  
Keywords



Complete Full Program





**THIS IS  
QUITTING**



the truth voice

IS

YOUTH-LED

APPROACHABLE

CLEVER

IS NOT

FINGER-WAGGING

ANGRY

CONDESCENDING

SILLY

# Tested on Humans





# Young people looking to quit



Posted by u/rdesimone19 1 year ago

Just smashed my Juul with a hammer. ~~Fuck~~ Juul, ~~fuck~~ nicotine. It's goddamn addictive and I have had enough. People please quit, I'm telling you this thing is bad news.



Lane Wohlrab @laner1222 · Sep 11

Tryna **quit** nicotine, but literally 120% of the people I know have a **juul**



9 @click\_nine · Mar 27

Day 4 trying to **quit Juul** and I want to headbutt a steak knife



ali @lilapplesauceoo · Jan 5

yooo do they have support groups for the young folk tryna **quit juul**? asking for a friend..



# Ready to Ditch JUUL

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[Link to video](#)



# Changes in vaping behavior

## ➤ Changes in e-cigarette use at 2 weeks

	Teens	YAs
<b>I still JUUL the same amount</b>	34.3%	31.4%
<b>I JUUL less</b>	45.4%	46.0%
<b>I don't JUUL at all anymore</b>	22.0%	23.1%

**33%**

7-day abstinence at 3 mo.

**20%**

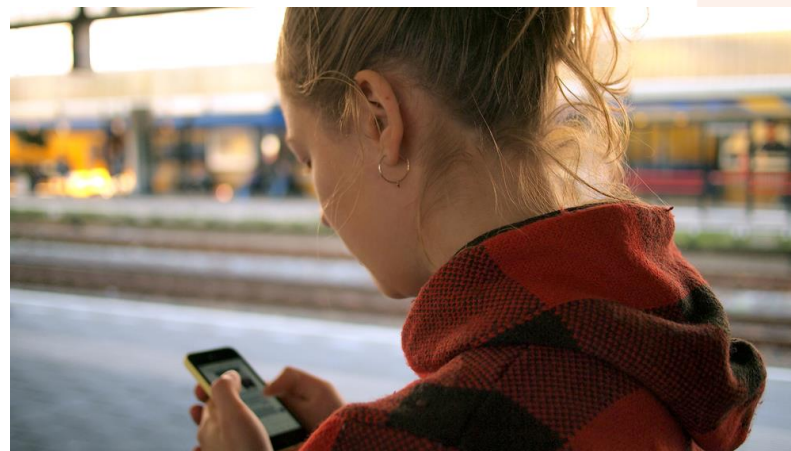
30-day abstinence at 3 mo.



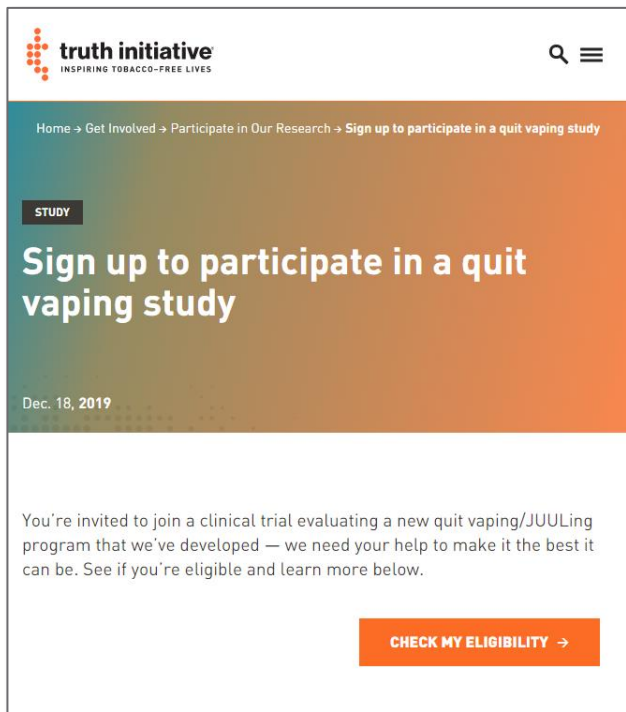
# First randomized trial of quit vaping program

---

- Supported by CVS Health Foundation grant
- Randomized ~ 2,600 young adults (18-24)
- Interventions (2-arm trial):
  - This is Quitting
  - Assessment-only control
- Primary outcome: 30-day point prevalence abstinence at 7-months post-randomization
- Data collection complete; manuscripts under review



# Study design and sampling approach



The screenshot shows the Truth Initiative website. At the top left is the logo with the text "truth initiative" and "INSPIRING TOBACCO-FREE LIVES". To the right is a search icon and a menu icon. Below the logo is a breadcrumb trail: "Home → Get Involved → Participate in Our Research → Sign up to participate in a quit vaping study". The main heading is "STUDY Sign up to participate in a quit vaping study" with a date "Dec. 18, 2019". The body text reads: "You're invited to join a clinical trial evaluating a new quit vaping/JUULing program that we've developed — we need your help to make it the best it can be. See if you're eligible and learn more below." At the bottom right is an orange button that says "CHECK MY ELIGIBILITY →".

- Trial conducted fully online
- “White labeled” intervention to measure intervention effects without influence of truth brand
- Eligibility criteria:
  - ✓ 18 to 24 years
  - ✓ Own a mobile phone w/ text message plan
  - ✓ Past 30-day e-cigarette use
  - ✓ Interested in quitting vaping in next 30 days
  - ✓ US resident

# Sample characteristics

---

## Demographic characteristics

- 49% male
- 17% racial/ethnic minority
- 19% sexual minority
- 35% barely/not meeting basic expenses

## Vaping behavior

- 93% vape daily or almost daily
- 82% vape within 30 minutes of waking
- 50 puffs/hits per day (median)
- 65% report 3+ attempts to quit vaping

## Other Products & Substances

- 33% report past 30-day smoking
- 60% report past 30-day marijuana use

# Sample characteristics – Nicotine Dependence

Hooked on Nicotine Checklist (HONC)	Yes
Have you ever tried to stop vaping but couldn't?	78%
Do you vape now b/c it's really hard to quit?	77%
Have you ever felt like you were addicted to vaping?	94%
Do you ever have strong cravings to vape?	93%
Have you ever felt like you really needed to vape?	92%
Is it hard to keep from vaping in places where you are not supposed to, like school or work?	73%

# Which dependence measure is best?

	7-day abstinence	Reduction in Vaping
	Classification AUC	Classification AUC
HONC	.54	.59
PROMIS-E	.56	.57
Time To First Vape	.56	.57
Daily-Vaping	.47	.50

- HONC, PROMIS-E, Time to First all performed similarly well
- Daily-vaping was no better than chance at predicting outcomes

# Vaping cessation outcomes

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Under ITT analyses of n=2,588 young adults, participants randomized to This is Quitting were significantly **more likely to be abstinent** at 7-months compared to participants randomized to control.

Similar magnitude of findings under complete case analysis.

# No moderator effects

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This is Quitting yielded **comparable abstinence outcomes** among young adult e-cigarette users across a range of demographic, tobacco use, and substance use and mental health characteristics

## Demographic characteristics

- Age
- Gender
- Race
- Ethnicity
- Sexual Minority
- Income
- Current student

## Tobacco use

- Vaping frequency
- Past year attempt to quit vaping
- Motivation to quit vaping
- Confidence to quit vaping
- Time to first vape (dependence)
- # closest friends that vape nicotine
- Live with e-cig (nicotine) user
- Live with tobacco user

## Other substance and mental health

- Past 30-day use marijuana/cannabis
- Past 30-day use cigarettes
- Past 30-day binge drinking
- Screen positive for depression (PHQ-2)
- Screen positive for anxiety (GAD-2)

# Observational Studies

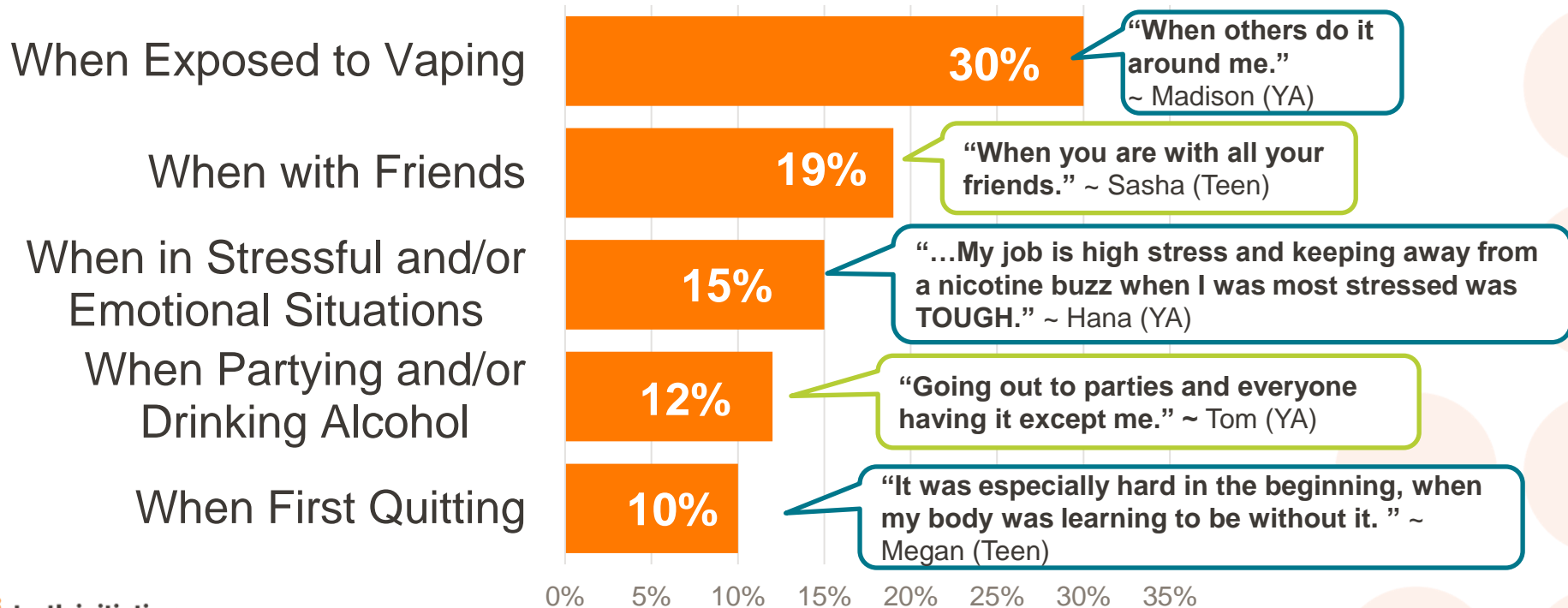
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- In addition to a cessation program, TIQ is a living laboratory
- Observational research **complements** randomized trials
- STRENGTHS:
  - Quickly answer timely questions
  - Large sample; inexpensive to conduct
- LIMITATIONS:
  - Generalizability – population is “treatment seeking vapers”
  - Generalizability – no incentives for responding, risk of responder bias



# Observational Data – Craving Situations

“When is/was it hardest to stay off your JUUL/e-cig?”



# Observational Data – Reasons for Quitting

---

Throughout the program we ask several open-ended questions

Abigail says “Giving yourself a reason to quit is a good motivator.”  
Reply why you’re thinking about quitting.

# Observational Data – Reasons for Quitting

Health

*I can't breath.  
My lungs are  
weak*

*I'm spending 20  
dollars a week  
for pods*

Financial Cost

*I've been addicted  
to nicotine for 2  
years ... and want  
to be done*

Freedom from Addiction

Abigail says "Giving yourself a reason to quit is a good motivator."  
Reply why you're thinking about quitting.

*I need to focus on  
my sports, being  
able to run as  
much as I used to*

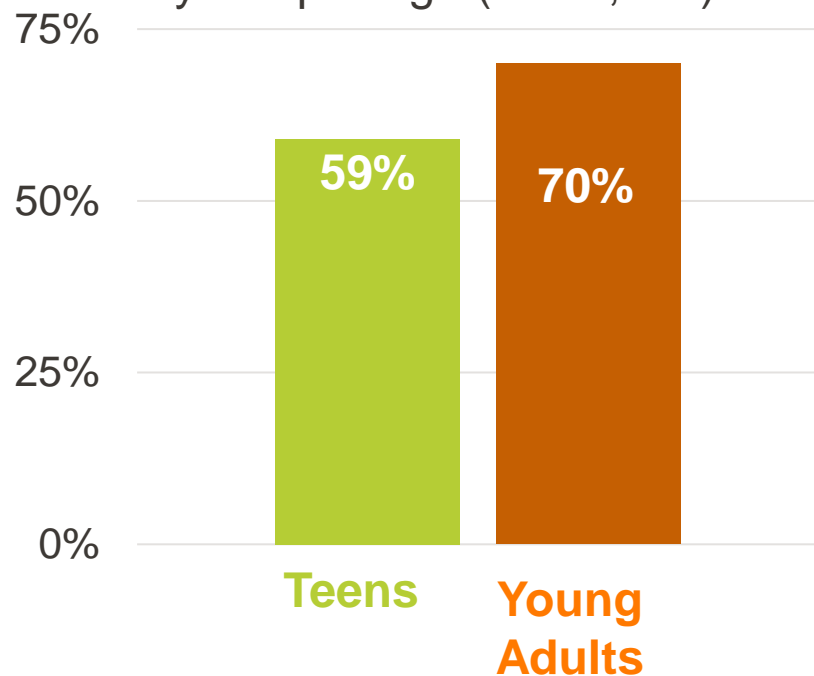
Athletic Performance

Academic Performance

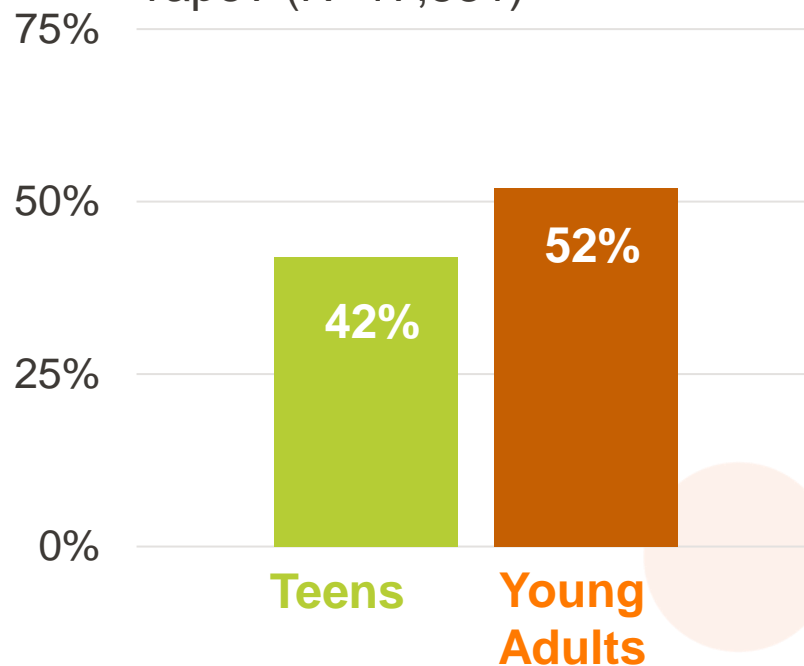
*i can feel the  
effects in school ...  
i have a hard time  
focusing and  
concentrating*

# Observational Data – Perceived Support

Have your friends supported your quitting? (N=26,287)



Does your family know you vape? (N=17,531)



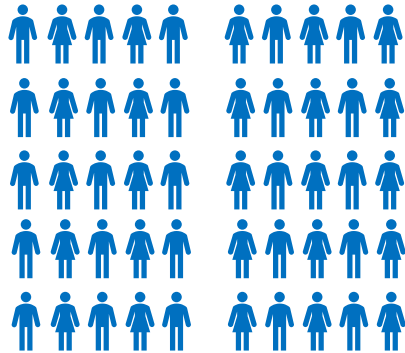
# Conclusions

# Population Impact

**Reach**  
(# participating)

**Effectiveness**  
(quit rate)

**Impact**  
(# quitters)



(50 smokers)

X



(25 quitters)

# Conclusions - Reach

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- Most tobacco users (adults, young adults, youth) want to quit
- Digital interventions are broadly acceptable across demographics
  - 1/3 of adult tobacco users access digital resources
  - Strong demand for This Is Quitting

# Conclusions - Effectiveness

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- Digital interventions are comparably effective to other modalities
- Observational studies are useful complements to randomized trials
  - Young vapers' reasons for quitting
  - Many young vapers quit without support from family
- Self-selection to engagement with specific intervention components is the norm





# Thank you for your time

[mamato@truthinitiative.org](mailto:mamato@truthinitiative.org)

**Michael S. Amato, PhD**

Methodologist, Truth Initiative

Assistant Professor of Medicine (Adjunct), Mayo Clinic College of Medicine & Science

# QVS study overview

- Supported by CVS Health Foundation grant
- ClinicalTrials.gov Identifier: NCT04251273
- 2-arm RCT:
  - This is Quitting
  - Assessment-only control
- Follow-ups at 1- and 7-months post-enrollment
- Primary outcome = 30-day ppa at 7mo
- Retention strategy:
  - Monthly assessment via SMS (\$5 incentive)
  - Email & SMS reminders, calls for non-responders
  - 1- and 7-mo follow-ups (\$20 + \$10 for completing within 24 hours)
  - Total possible compensation = \$95

## Protocol

### Effectiveness of a Quit Vaping Text Message Program in Promoting Abstinence Among Young Adult E-Cigarette Users: Protocol for a Randomized Controlled Trial

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## Abstract

**Background:** Millions of young adults currently vape electronic cigarettes (e-cigarettes), yet little research on vaping cessation interventions exists. Text messaging is a promising, scalable intervention strategy for delivering vaping cessation treatment.

**Objective:** This study evaluates the effectiveness of a text message quit vaping program (*This is Quitting*) in promoting abstinence from e-cigarettes among young adults; examines changes in self-efficacy, perceived social norms, and social support for quitting as hypothesized mediators of effectiveness; and examines if treatment effectiveness is moderated by gender, race, ethnicity, or sexual minority status.

**Methods:** Overall, 2600 young adult (aged 18-24 years) e-cigarette users in the United States will be recruited via web advertisements to participate in the study. Participants will be randomized to *This is Quitting* or an assessment-only control condition. The primary outcome measure is 30-day vaping abstinence at 7 months post enrollment.

**Results:** Study recruitment began on December 18, 2019, and is projected to be completed by spring 2020. The final 7-month follow-up is anticipated to be completed by fall/winter 2020. Because this is the first-ever evaluation of a quit vaping program, we were unable to draw on existing literature to determine the appropriate sample size. Therefore, we examined abstinence rates among an initial pilot sample of 269 participants (*This is Quitting*: n=148 and control: n=121) who completed the 1-month follow-up to determine the final sample size. The 1-month response rate was 79.2% (213/269), with no difference between arms. Using intention-to-treat analyses that counted nonresponders as still vaping, 30-day abstinence rates were 16.2% (24/148) among those randomized to *This is Quitting* and 8.3% (10/121) among those randomized to control. A treatment difference of 16% vs 8% is detectable with 80% power at 2-sided alpha=.05 with 260/group (520 total). To detect treatment differences of this magnitude in a 20% subsample (eg, Hispanic or sexual minority young adult e-cigarette users), we will enroll 1300/group (2600 total).

**Conclusions:** The scientific, clinical, and public health communities are desperate for cessation resources to address vaping among young people. This study is the first-ever comparative effectiveness trial of an intervention to help young people quit vaping. It focuses on evaluating the effectiveness of a theory-grounded, empirically informed text message intervention among young adults. The study is fully powered to examine potentially important subgroup differences among young people who are more vulnerable to e-cigarette use. Although potentially more challenging from a research ethics and pragmatic standpoint, evaluating quit vaping intervention approaches in teens is an important area for future research. Data from this trial will establish

# Q&A

- Submit questions via the **'Ask a Question' box**



# CME/CEU Statements

## **Accreditations:**

The University of California, San Francisco (UCSF) School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

UCSF designates this live activity for a maximum of *1.0 AMA PRA Category 1 Credit™*. Physicians should claim only the credit commensurate with the extent of their participation in the webinar activity.

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## Free 1-800 QUIT NOW cards

Take Control

**1-800-QUIT-NOW**

Call. It's free. It works.

1-800-784-8669

For details on your state services, go to: <http://map.naquitline.org>



✓ Refer your clients to cessation services



- **Free CME/CEUs** will be available for all eligible California providers, who joined this live activity thanks to the support of the California Tobacco Control Program (CTCP)
- For our California residents, SCLC offers regional trainings, online education opportunities, and technical assistance for behavioral health agencies, providers, and the clients they serve throughout the state of California.
- For technical assistance please contact (877) 509-3786 or [Jessica.Safier@ucsf.edu](mailto:Jessica.Safier@ucsf.edu).
- Visit [CABHWI.ucsf.edu](http://CABHWI.ucsf.edu) for more information

# Post Webinar Information

- You will receive the following in our post webinar email:
  - Webinar recording
  - PDF of the presentation slides
  - Instructions on how to claim FREE CME/CEUs
  - Information on certificates of attendance
  - Other resources as needed
- All of this information will be posted to our website!

# Save the Date!

SCLC's next live webinar, *"I COVID QUIT: Real people; Real Stories; New Campaign"*, is with Andy Burness, MBA, Les Pappas, MPA and Nicole Gyan, MA

- **Wednesday, March 31, 2021, 1-2:15 pm EDT**
- Registration is open on our website!





# Contact us for technical assistance

- Visit us online at [smokingcessationleadership.ucsf.edu](https://smokingcessationleadership.ucsf.edu)
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