



Learning Community Series | PRACTICE BRIEF |

Evolving Quitline Practices

Technology-Mediated Services, Youth Cessation and Vaping Cessation

ABOUT THE LEARNING COMMUNITY SERIES AND THIS PRACTICE BRIEF: NAQC has begun a Learning Community project to assess knowledge and current practice among quitlines on promising practices as well as to develop key questions that should be considered to move these practices from “promising practices” to “best practices”. This Brief describes the knowledge base, current practice among quitlines, and key questions on three important topics. We ask readers to review the Brief and provide your feedback, especially on the key questions, by **October 8th** to NAQC@naquitline.org. Later this year, NAQC will begin hosting Learning Community meetings with quitlines, stakeholders and external subject-matter experts to consider the key questions and recommend next steps. We anticipate publishing a Learning Community Report in late 2021.

Context

Quitlines have a long-established history of offering evidenced-based services that help tobacco users quit and are an essential component of comprehensive tobacco control programs. Smoking Cessation: A Report of the Surgeon General 2020 (Surgeon General’s Smoking Cessation Report 2020) reiterated the well-known finding that proactive quitline counseling, when provided alone or in combination with cessation medications, increases tobacco cessation.^{1,2}

State agencies and their quitline service providers must respond to the ever-changing landscape of tobacco use and tobacco disparities. Within the last decade, this has meant the expansion of cessation services to include digital options and addressing the rise of e-cigarettes and other nonconventional tobacco products. Despite the lack of a well-developed evidence-base in newer areas of tobacco cessation, quitlines have successfully responded to the call for expanding services to include technology-mediated services, youth cessation, and vaping cessation.

The North American Quitline Consortium (NAQC) 2016 issue paper, [Quitline Services: Current Practice and Evidence Base](#) discusses the need for quitlines to move towards multimodal service delivery – offering a diverse suite of options such as text messaging programs, web-based services, and mobile apps – to address that phone conversations are not the normal or preferred mode of communicating for a growing portion of the tobacco using population.³ This 2016 issue paper also points to the potential of automation (through technology) to engage many more users than phone counseling alone, urging quitlines to stay current, avoid eventual obsolescence,^{1,2} and meet their target audience on its preferred platforms. This call to action was also balanced with concern for evidence of the efficacy of these newer services. The Technology-Mediated Services section of this Learning Community brief discusses quitline providers’ current practice in employing technology to support the delivery of quitline services, as well as discussion of current evidence for these practices with reference to Surgeon General’s Smoking Cessation Report 2020 and other peer-reviewed publications.

Although research shows that youth who use tobacco products are interested in quitting, there is no conclusive evidence base on effective treatment for youth under the age of 18.^{4,5} Among adolescents, the use of combustible tobacco products has been decreasing since the 1990s, while the use of noncombustible tobacco products has been rising. Noncombustible tobacco products include electronic nicotine delivery systems (ENDS), also known as vapes, vaporizers, vape pens, and e-cigarettes. For consistency purposes, the terms e-cigarettes and vaping (referring to e-cigarette use) will be used in this report.

Exposure to nicotine during adolescence can harm the developing brain, which may affect brain function and cognition, attention, and mood. Therefore, minimizing nicotine exposure from any tobacco product in youth is important.⁶ The Youth Cessation Services section of this Learning Community Brief discusses quitline service providers' current practices in helping youth quit, drawing upon relevant literature as well.

Quitlines have needed to address e-cigarette questions and usage with both adults and youth since e-cigarettes first entered the tobacco landscape over fifteen years ago, although concerns over vaping exploded with the occurrence of EVALI (E-cigarette or Vaping Product Use-Associated Lung Injury), first recognized by CDC in August 2019. The Vaping Cessation section of this Learning Community Brief provides new information on youth and vaping, and updates information gathered on e-cigarette cessation with adults in 2014 and extensively reported upon in NAQC's [*Cessation Treatment and E-Cigarettes: A Report on Current Literature and Quitline Practices*](#).

Methods

NAQC used two approaches to gathering information for the Learning Community topics: (1) a literature review and (2) a practice review with state quitline service providers (service providers). NAQC staff developed guiding questions for the literature and practice reviews in each of the three topic areas and discussed these with NAQC's Advisory Council in June of 2020, incorporating their feedback.

The literature review provided current evidence in the three topic areas (technology-mediated services, youth cessation, and vaping cessation), and informed areas of exploration for practice reviews with service providers, as well as interpretation of information providers shared. The literature review included core documents on tobacco cessation published by the Surgeon General, the Centers for Disease Control (CDC) Office on Smoking and Health (OSH), and NAQC. Selected articles published in peer-reviewed journals that were not cited in the core documents were also reviewed. We include references to these documents and articles throughout the report.

The aim of the practice review with service providers was to learn from their expertise and experiences offering services in the three areas of interest to help inform the direction and scope of the Learning Community. All 13 service providers were invited to participate in the practice review (see acknowledgements) and each provided information through a questionnaire or interview or both. Crafting the questionnaire and interview guide was informed by conversations with NAQC's Advisory Council and the literature review. NAQC staff fielded the questionnaire using Survey Monkey and conducted Zoom interviews – usually after questionnaire completion – with service providers in July and August (2020). The majority of the information collected was qualitative and analyzed thematically. NAQC staff received 12 questionnaires (three providers completing a questionnaire did not participate in an interview) and conducted 8 interviews (one provider participated in an interview but did not complete a questionnaire). In this Brief, we occasionally provide counts of service providers to support narrative but do not name providers when describing practices.

The following Key Learnings and Implications and Next Steps sections of this Brief integrate information from the literature and practice reviews.

Key Learnings on Technology-Mediated Services

This section defines technology-mediated services considered for this Brief, discusses the use of these technologies during a participant’s journey engaging with a quitline, addresses facilitators and challenges for quitline participants in use of technology-mediated services and for quitline service providers in offering these services, and suggests key questions that should be considered by the Learning Community in the area of technology-mediated services.

Defining technology-mediated services

Telephone counseling, with or without cessation pharmacotherapy, is the established gold standard for delivering evidence-based quitline tobacco cessation services.^{7,8} Nevertheless, there is growing interest in and practice of using technologies such as text messaging and the Web to complement telephone-based services.^{9,10} These evolving and shifting technologies may have potential to extend the reach and increase the impact of quitlines by providing new avenues for motivation and support, especially for populations that may find these options more convenient and accessible, such as youth.^{11,12} Notably 81 percent of Americans own a smart phone, nearly three-quarters of U.S. adults own a desktop or laptop computer, and 90 percent of U.S. adults use the internet.¹³ These data suggest that technology-mediated services are accessible to a reasonable portion of the public, although there are barriers to using technology-mediated services for certain populations, which will be discussed later in this section. The technology-mediated services that were explored in our literature and practice reviews include text-messaging, automated emails, web-based self-help tools, web-based interactive counseling, web-based chat rooms, and mobile technology/cessation apps. Through our practice reviews, we quantified the number of service providers offering these technologies (see Table 1).

Table 1: Technology-mediated services offered by quitline providers (N=13)

<i>Offer the technology as of August 2020</i>	<i>To youth</i>	<i>To adults</i>	<i>Not offered</i>	<i>Not reported</i>
One-way text messaging	5	6	6	1
Interactive (two-way text messaging)	5	5	7	1
Automated e-mail messages	2	4	8	1
Web-based self-help tools	10	11	1	1
Web-based interactive counseling	5	4	7	1
Web-based chat rooms	2	2	9	2
Mobile cessation apps	1	1	10	2

Considering the importance of generating fax or electronic referrals from health care organizations and providers to engage quitline participants,¹⁴ we also explored technology used for this communication. Among the 12 service providers who provided information on technology-supported mechanisms for accepting referrals, 11 offered fax referrals, 10 offered e-mail or online file transmission, and 9 offered eReferrals (electronic health record). Growth in eReferral capacity is noted; in 2015 five of 11 service providers had this ability.¹⁵

Engaging with the Quitline

Referral to the quitline

One approach that health care providers may employ to engage their patients in tobacco cessation is to

refer them to a quitline for cessation coaching and this can be accomplished efficiently using an eReferral program that prompts the provider to screen for and intervene on tobacco use, and transfer patient information from the electronic health record (EHR) to the quitline.^{16,17} In the 2016 report, *Guide for Implementing eReferral Using Certified EHRs*, NAQC provides comprehensive recommendations and guidelines for quitlines in implementing eReferrals as an important way to accept referrals.¹⁸ Bi-directional capability is preferred whereby the referring provider transfers contact information on the tobacco user to the quitline to initiate enrollment in cessation services, and the quitline returns feedback reports to the provider. The process must be secure and HIPAA compliant.

Among service providers participating in the practice review reporting eReferral capability (n=9), most indicated bi-directional capability. Benefits of eReferral were acknowledged, including a notable increase in referral traffic and opportunities to broaden referral relationships such as with behavioral health care providers. Service providers are, however, addressing challenges: the cost of setting up and maintaining an EHR program and determining who pays for the initial investment; the variation in EHR vendors that health care providers use and the technology needed to ensure systems can communicate; the length of time it takes to plan and operationalize an eReferral program with a health care provider, including changes in workflow and staff training; information technology upkeep and trouble-shooting; and staying current on hardware and software. In the 2017 report, *Barriers and Challenges of Scaling-up eReferral*, NAQC provides suggested solutions for common barriers to implementing eReferral programs in the areas of compliance and security, integration and migration, EHR vendors, and sustainability.¹⁹

In addition to or instead of, service providers employ alternatives to eReferral, which can be bi-directional if elected by the health care provider. These include fax, secure online portals that a provider accesses with unique user credentials, and SFTP (Secure File Transfer Protocol).

Registration

Traditionally, tobacco users have registered telephonically with quitlines for tobacco cessation services. Leveraging technology by offering an online (web-based) registration option can engage more tobacco users in cessation services by offering a secure, quick and user-friendly mechanism for user' sign-up.^{20,21} Supportive data for this registration option include that nearly all teens have mobile access through a smartphone or tablet and 90 percent of U.S. adults use the internet.^{22,23} Of note, according to data from the FY2019 Annual Survey of Quitlines, conversion from entry through a web-enrollment page to registration was very similar to the conversion rate through telephone contact (26% versus 25%).²⁴

Although online registration was not extensively explored in the service provider practice reviews, mention was made that online registration is preferred by those less inclined to talk by phone (e.g., youth) and offers increased privacy, including when responding to demographic intake questions. Conversely, older adults appear less likely to register online although this pattern could shift as younger adults age-up. One service provider also discussed offering a text message registration option for cessation services employing a short code provided to the tobacco user.

Cessation Services

A suite of options

Promising practice for increased reach and impact of quitline cessation services includes pro-active and interactive multi-modal options linked with traditional evidence-based services (telephonic counseling and tobacco cessation pharmacotherapy) to provide greater choice to quitline participants through a menu of cessation service options selected according to what best aligns with individual needs and preferences.^{25,26} Employing this blended approach and acting as a hub for cessation services was

commonplace among service providers participating in the practice review in order to offer the quitline participant an individualized experience. As noted by one service providers, the goal is to offer a range of choices from one or two options to a comprehensive package in an effort to meet varied needs and preferences, to be flexible, and thus hopefully connect with more participants. Several service providers mentioned this blended approach can be especially helpful for reaching priority populations, such as youth, pregnant women, and those who identify as LGBT. Whereas it can be resource intensive to adjust content for different audiences according to their characteristics, one service provider discussed an approach by which about 80 percent of the content is the same regardless of the audience and the remainder is customized to meet the needs of a specific population.

With the exception of youth, service providers indicate that technology-mediated cessation options are generally offered in addition to rather than instead of telephone counseling and cessation pharmacotherapy. Examples of blended services include sending motivational text messages to the quitline participant between telephone counseling sessions, offering online courses and chat sessions with a coach, integrating online self-help materials or online counseling with telephone counseling, and issuing automated notifications that NRT has been shipped. The following discusses technology-mediated options for cessation services individually, including sufficiency of evidence on effectiveness as indicated in the Surgeon General's Smoking Cessation Report 2020.

Text messaging

Notably, 95% of U.S. teens have access to a smartphone and most U.S. adults own a cellphone of some kind (96%) with 81% owning a smartphone.²⁷ With this prevalence of access to mobile phones, incorporating text messaging services into cessation services has potential to increase reach. Text messaging as a behavior change intervention allows continued and immediate interactivity to increase reach and offers unique opportunities to modify message content and timing.²⁸ Text messaging has also been shown to increase smokers' confidence in their ability to quit and to abstain from smoking following the intervention.^{29,30} The Surgeon General's Smoking Cessation Report 2020 indicates that the evidence is sufficient to infer that short text message services (SMS) about cessation are independently effective in increasing smoking cessation, particularly if they are interactive or tailored to individual text responses.³¹

Among the service providers participating in the practice review indicating text messaging capacity (n=6), uses include: one-way text messaging to quitline participants as a reminder system for telephone counselling appointments; live interactive texting with a coach; and motivational text programs to step the participant through the quitting process and support their quit plan (e.g., pre-contemplation, quit countdown, triggers, coping mechanisms, NRT use, and relapse prevention). One service provider mentioned using text messages to encourage participants to complete the 7-month follow-up survey. There is a mix of automated versus coach prompted messaging. Remarks included that texting may provide quitline participants an added sense of privacy and security, which may help engage priority populations such as people who identify as LGBTQ and who have behavioral health conditions. Short message texting particularly appeals to youth, followed by young adults, but texting as an option for cessation services is becoming more mainstream across age groups.

Several service providers refer out to other text messaging cessation services, including Smokefree.gov free text messaging programs that provide 24/7 encouragement, advice, and tips for becoming smoke free and links to a coach for live chats, and the Truth Initiative (discussed under Youth).^{32,33} Text-messaging programs to support participants in their quit journey are in development or under consideration by service providers that presently do not have a texting option. Service providers

mentioned some challenges related to the lack of integration of quitline services with these external text messaging services in terms of following participants quit journey and knowing the level of services and impact of services on them.

Automated emails

There is no specific evidence on the use of automated emails as a component of quitline cessation services. Four service providers participating in the practice review employ automated emails, with uses that include issuing a welcome message, notification of NRT shipment, communicating motivational messages such as preparing to quit and staying quit, sending cessation material attachments, and encouraging re-engagement when services are discontinued by a participant. Service providers indicated automated emails are more likely to be favored by older adults compared to young adults and youth.

Web-based services

Prevalent access to both the Internet and high-speed service is supportive of offering web-based tobacco cessation services to increase reach. Nearly all teens have mobile access through a smartphone or tablet and 90% of U.S. adults use the Internet. Although adults ages 18 to 49 are the most likely adult Internet users, there is a steady increase in use by those ages 50 and over as well.³⁴ Nearly three-quarters of adults have access to broadband service at home. In addition, the Surgeon General's Report 2020 indicates the evidence is sufficient to infer that Web or Internet-based interventions increase smoking cessation and can be more effective when they contain behavior change techniques and interactive components.³⁵ The following discusses our learning from service providers on web-based services during the practice review.

Web-based self-help materials: In quitline practice, self-help materials refer to psychoeducational literature sent to tobacco users or their friends and family to guide the quitting process, used either alone or in conjunction with counseling or other services.³⁶ Although these materials are educational, there is little evidence that providing self-help materials to quitline participants improves quit outcomes.³⁷ Although websites with largely static content may have about the same impact on abstinence to printed materials,³⁸ websites maintained by service providers for state quitlines offer an array of self-help materials and tools for quitline participants. Examples include access to informational pamphlets and articles (online or downloadable), videos, action plans, calculators such as cost savings from cutting tobacco use, and sign-up for quit kits and NRT. Dynamic tools include discussion boards and action planning whereby the participant visits their on-line plan daily, is asked a question and obtains a related tip or motivational statement tied to their quit journey.

Web-based interactive counseling (coaching) and chat features: Web-based interactive counseling can take the form of messaging or one-on-one chat to allow the user real-time access to a trained cessation counselor. Service providers offering this type of counseling may utilize it as an adjunct to telephone counseling, such as during initial engagement or as an alternative to telephone counseling, which is particularly appealing to younger quitline participants. Service providers mentioned the need for secure portals and that counselors are usually selected and trained to handle either telephone counseling or web-based counseling as initial and ongoing training is different for each and switching back and forth from one mode of counseling to another is not operationally efficient. Chat rooms were mentioned as another option to bring together a group of quitline participants with a counselor. This form of engagement may be topic-based or a general question-answer format and can be designed to reach specific priority populations.

Online course: A few service providers are offering online courses for tobacco users and their families,

such as for parents of youth to learn methods for supporting their child in quitting smoking or using e-cigarettes.

Mobile apps

Mobile apps are software applications that can be downloaded to a smartphone or tablet from a distribution platform such as the Apple App Store or Google Play; once downloaded, they can be used without an internet connection, though some features may be fully functional only while online.³⁹ The Surgeon General's Smoking Cessation Report 2020 indicates the evidence is inadequate, however, to infer that smartphone apps for smoking cessation are independently effective in increasing smoking cessation.⁴⁰

Just one service provider participating in the practice review indicated offering mobile apps; these were developed for IOS and Android for smoking and vaping and involved tobacco users in the design. Reasons among service providers for not invested in mobile apps include the lack of evidence of their effectiveness, the need for multiple versions and continual updating, and uncertainty about the demographic likely to use an app. This service provider also suggests Alexa Skills to quitline participants to support their quit journey, which are apps developed and marketed by third parties to download and use with Amazon's Alexa to get supportive messages and tips on quitting smoking and vaping. Another service provider indicated they favored using mobile optimized web-based programs that are also browser agnostic because they are easier to manage and update.

Facilitators and Challenges

Quitline participant

Service providers participating in the practice review remarked that technology-mediated services contribute to increasing reach to populations that are less inclined or highly unlikely to use the telephone, importantly youth and young adults, but to other age groups as well given the prevalent access to and use of mobile phones, tablets, and computers.

Nevertheless, service providers also shared concerns that technology-mediated services might be less likely to reach priority populations for quitlines, i.e., those with lower income, lower educational attainment, and who are racial and ethnic minorities. There is emerging research literature that supports this concern for inequities.⁴¹ Service providers also mentioned that technology-mediated services might be less accessible in rural areas contrasted to urban and suburban. Pew Research Center data on cell phone ownership, internet use, and access to broadband services indicates that there are differences by consumer characteristics that support concerns that technology-mediated services might not equitably reach priority populations (see Table 2).⁴²

Other potential barriers raised by service providers for individuals accessing technology-mediated services included skill level in use, low level of literacy, speaking a language other than English or Spanish, and lack of technology-mediated information and support that is compliant with the Americans with Disabilities Act (ADA).

Service providers

While service providers are interested in and committed to exploring, developing, and implementing innovative, appealing, and user-friendly technology-mediated cessation services, several concerns were raised that present operational challenges:

- Technology hardware, software, and IT staff and/or contractor costs
- State funding and funder preferences

- Evaluating the cost of implementation and maintenance against effectiveness in terms of reach and impact, and measuring reach and impact in general and for different population groups
- Staff training and keeping skills current with continually evolving technology

Table 2: Adult ownership of a smartphone, internet use, and broadband access (2019)

<i>Characteristics</i>	<i>Own a Smartphone*</i>	<i>Use the Internet</i>	<i>Have Home Broadband</i>
Overall	81%	90%	73%
Age			
18-29	96%	100%	77%
30-49	92%	97%	77%
50-64	79%	88%	79%
65+	53%	73%	59%
Education			
Less than high school graduate	66%	71%	46%
High school graduate or less	72%	84%	59%
Some college	85%	95%	77%
College graduate	91%	98%	93%
Income groups			
Less than \$30,000	71%	82%	56%
\$30,000-\$49,000	78%	93%	72%
\$50,000-\$74,999	90%	97%	87%
\$75,000+	95%	98%	92%
Race-ethnicity			
White	82%	92%	79%
Black	80%	85%	66%
Hispanic	79%	86%	61%
Community			
Urban	83%	91%	75%
Suburban	83%	94%	79%
Rural	71%	85%	63%

Source: Pew Research Center, *Internet and Technology Fact Sheets*⁴³

*Ownership of any cellphone type was at least 90% across population groups.

Key Questions for Consideration by the Learning Community

Integrated findings from the service provider practice review and the literature review suggest the following considerations for the Learning Community in the area of technology-mediated services.

- Although multi-modal cessation approaches that include technology-mediated services have been shown to increase quit rates and consumer satisfaction,⁴⁴ continually evolving technology-mediated options outpace the ability to affirm evidence for increasing reach and impact and to evaluate user satisfaction.
 - What are efficient and effective approaches to stay current on evolving technologies and the ways in which people interact with and use these technologies?⁴⁵

- What are efficient and effective approaches to stay current on the evidence for these technologies in making a difference to reach and impact?
- How does the quitline community nimbly respond when the evidence suggests a technology is effective and may warrant adoption?
- Should the lack of integration of services within the quitline (for phone and technology-mediated services) as well as between the quitline and external vendors (i.e., texting vendors) be addressed?
- A growing proportion of quitline participants may only receive technology-mediated services, such as texting and web-based programs that now have an evidence base, and not receive telephone counseling and NRT (e.g., youth and young adults).
 - In what ways might calculation of key quitline metrics – such as treatment reach, quit rate, and spending per smoker/tobacco user – need to be adjusted?
 - What steps are needed to understand population differences in outreach, engagement, and impact that result from technology-mediated options?
- Technology-mediated cessation services may have both benefits and drawbacks for reaching and impacting quit success for priority populations.
 - How can digital options be better employed to improve reach and impact for population groups such as youth, individuals with behavioral health conditions, those who identify as LGBT, individuals who are a racial and/or ethnic minority, or have low income or educational attainment?
 - How can the interconnected nature of social categorizations be addressed when offering digital options? (e.g., a quitline participant may be a young, racial minority, with a behavioral health condition)?
- Promotion of quitlines increases tobacco users' awareness of cessation services and increases their likelihood of contacting the quitline by telephone or other modes.^{46,47}
 - How can the Web and social media be employed to promote quitlines?
 - How can e-referrals continue to boost provider referrals to quitlines and what approaches can be taken to improve conversion to receiving cessation services?
- Service providers and state quitlines hold a wealth of information and resources in the realm of technology-mediated cessations services.
 - What are opportunities for sharing resources?

Key Learnings on Youth Cessation Services

This section highlights what the literature yields about youth cessation, summarizes the current state of cessation services for youth among state quitlines, presents facilitators and challenges for moving forward, and suggests key questions that should be considered by the Learning Community in the area of youth cessation services. Due to the overlap between youth and e-cigarette use (vaping), information on vaping cessation for youth will be spread out over both this section and the next.

Patterns of youth tobacco use have been shifting. Although cigarette smoking has been declining, rates of e-cigarette use among youth have been rising for the past several years. However, recent 2020 data indicates that current e-cigarette use decreased among middle and high school students from 2019 to 2020. Even so, e-cigarettes were the most reported tobacco product used by youth, with 19.6% (3.02 million) of high school students and 4.7% (550,000) of middle school students reporting using them in the past 30 days.⁴⁸ And many youth that use e-cigarettes also smoke cigarettes and/or other tobacco products (dual usage/poly usage), putting them at even greater risk for addiction and tobacco related

diseases.^{49,50,51}

Youth who currently use tobacco are interested in quitting. In 2019, 57.8% of youth who currently use tobacco products reported that they were seriously thinking about quitting using tobacco products, and 57.5% reported they had stopped using all tobacco products for one day or more in the past year in an effort to quit.⁵² In comparison, in 2015, 68.0% of adult smokers said that they wanted to quit smoking⁵³ and in 2018, 55.1% of adult smokers reported making a quit attempt in the past year.⁵⁴

Despite young tobacco users' interest in quitting, there's a lack of clear data and understanding on what types of cessation services can best support youth in quitting and staying quit. The Surgeon General's Smoking Cessation Report 2020 found mixed evidence for the effectiveness of interventions targeting youth.⁵⁵ And a recent systemic review by the US Preventive Services Task Force found a lack of evidence on health care provider interventions to help young smokers quit.^{56,57}

Cessation medications are not approved by the FDA for use with children or adolescents, and NRT cannot be purchased over-the-counter by persons younger than 18 years of age. However, cessation medications can be prescribed for a youth by a supervising physician.

See [American Lung Association's Annotated Bibliography on Youth Tobacco Cessation Strategies](#) for a list of additional research in this area.⁵⁸

Quitline Practices around Youth Cessation

(Note: Additional information around vaping cessation with youth is also included in the following section.)

Services offered and requirements for approval and/or consent

Given the growing evidence base on effective treatment to help youth quit, it is beneficial to look at what's being done in practice and the experiences of quitline service providers.

Twelve out of thirteen services providers included in this review reported offering youth cessation services. Of those twelve providers, all provided phone counseling and three provided medication to youth, with one of those stating they also have combination NRT therapy available for youth (if prescribed by a physician). Six reported providing youth-focused educational materials. See *Table 1* for a summary of technology-based services offered as well.

One service provider serving multiple states mentioned that eligibility for services depends on states' minor consent laws. One third of service providers included in this review reported needing parental consent in at least one of the states they serviced. One-third also reported needing physician approval (mostly around medication) in one or more of the states they serviced. In addition, age restrictions may apply for signing up for texting programs through SMS and MMA (Mobile Marketing Association) standards that need to be considered with youth texting programs.

Similarities and differences from adult cessation counseling services

In practice, the majority of quitline service providers we spoke with generally do not develop completely unique protocols for each population (e.g. youth) or tobacco product (e.g. e-cigarettes). Without a definitive evidence base available, youth protocols are developed by extrapolating from evidence-based approaches used with adults, adapting them by incorporating motivation, triggers and other components that are relevant to youth. In general, the same number of counseling calls available to adults are available to youth as well (ranging from 3 – 12), although one service provider did report offering one additional call to youth.

To understand the development of youth cessation protocols, service providers were asked the theoretical constructs their youth services were based upon. Underlying non-age specific theoretical constructs were mentioned by at least a third of the respondents and included Motivational Interviewing, Cognitive-Behavior Theory and Social Learning / Social-Cognitive Theory. Other supporting theoretical constructs reported by at least two service providers included Prochaska and DiClemente's Five Stages of Change Theory and the Biopsychosocial Model.

Youth specific theories and frames applied during service development mentioned by one or more service providers included adolescent stages of development, peer influences, reframing quitting as the "adult thing to do" and additional flexibility with allowing coaches to move off protocol to discuss non-tobacco related topics of interest to youth. Conversations are facilitated in ways to support youth making a decision on their own.

Specific topics discussed with youth included motivation, planning and setting a quit date, along with conversations and skills-building around pressure from peers and refusal skills. Youth-specific motivations for use and quitting mentioned by a couple of providers included social issues and peer influences, a decline in sports/band performance, the role of big tobacco, and seeing tobacco as a social justice issue. Relapse was reported upon as being handled in a similar way as with adults, by spacing calls to be more frequent near quit dates, reviewing slips, and bolstering motivation and confidence. Practicing refusal skills to prevent relapse was one reported difference.

Youth phone counseling approaches described during this review generally aligned with an empirically validated smoking cessation protocol described in Tedeschi, Zhu, et al. (2005).⁵⁹ There is support for using the Motivational Interviewing and Cognitive Behavioral Therapy for smoking cessation with adolescents as well.⁶⁰

Facilitators and Challenges around Youth Cessation

Reach / Engagement

The majority of service providers included in the review identified reaching and engaging youth as a current challenge and as an area they recommend the Learning Community address. According to NAQC Annual Survey data FY2019, quitlines reported a combined annual total of 366 unique youth ages 12-17 registered for evidence-based services (phone counseling and/or cessation medications).⁶¹

Such small numbers make it difficult for service providers to accurately evaluate metrics of success (e.g. engagement, quit rates, and relapse rates). Although committed to serving youth, a few service providers mentioned that despite their interest, low reach to this population in the context of finite resources creates challenges to sustained prioritization of youth cessation services.

As mentioned in the Technology-Mediated Services section of this Brief, digital options are likely to appeal to youth and improve reach. Initial research conducted on the Truth Initiative's national youth focused e-cigarette cessation program (i.e., "This is Quitting") found high levels of enrollment with teens when the program first launched from January 18 – February 22, 2019 (13,321 within the first 5 weeks).⁶²

One service provider included in this practice review reported enrolling 1287 youth from 18 states in the year following the launch of a dedicated youth program for teens who want help quitting all forms of tobacco, including e-cigarettes. The program includes educational materials created through focus groups and designed specifically for teens. Teens have the option of calling a dedicated toll-free number, live text messaging, or visiting a website for real-time coaching.⁶³ This same service provider has future

plans to partner with Rescue Agency to adapt their youth vaping prevention media campaign, “Behind the Haze,” to promote cessation.⁶⁴

A few providers included in this review have in-house texting offerings for youth while others preferred to refer youth to existing free resources, such as the National Cancer Institute’s SmokefreeTXT for Teens, to avoid duplication. SmokefreeTXT for Teens offers teens ages 13-17 years old 6-8 weeks of free texting services providing encouragement, advice and tips for becoming smoke free.⁶⁵

Key Questions for Consideration by the Learning Community

The quitline service practice review and literature review suggest the following considerations for the Learning Community in the area of youth cessation.

- Although service providers have answered the call to provide cessation services to youth for both combustible and e-cigarettes, low reach and engagement is a shared challenge.
 - What are efficient, effective ways to reach more youth and engage them in quitline services through both the promotion of services and the expansion of service offerings?
 - Although technology-mediated services are promising avenues for improving adolescent’s access to youth cessation services, how can quitlines be sure that youth are utilizing them and that they are effective?
 - Do changes need to be made to current quitline metrics to capture youth’s engagement and outcomes using technology-mediated services, especially for youth that are not using phone counseling or medications?
 - Should and if so how can quitlines continue advocating for support for youth cessation services while utilization is so low and an evidence-base is lacking? Will these services continue to be viewed as relevant and of value?
- Evidence-based youth cessation protocols (for either combustible tobacco products or e-cigarettes) are limited and continued research is needed.
 - Are the youth protocols being used by service providers effective at helping youth quit both combustible forms of tobacco and e-cigarettes?
 - How can quitlines continue sharing information, resources, and tools in the area of youth cessation?
 - Is there mutual interest in small-scale collaborative research projects among select quitlines that can allow for larger sample sizes?
- At present, the US Food and Drug Administration (FDA) has not approved NRT for youth under 18 years old. There is only limited research on the effectiveness of NRT for youth and overall efficacy findings have been mixed.
 - Is there an opportunity to explore the off-label use of NRT and other cessation medication provided to youth with a doctor’s prescription in the smaller subset of quitlines that offer them?
 - Is obtaining parental consent and/or physician approval and prescription a barrier to youth obtaining NRT?
 - What is the perspective of the pediatric community on this issue?
- Multiple service providers mentioned that educating parents/guardians, school officials and providers around youth cessation is an important aspect of youth cessation services.
 - What is the impact of casting a broader net on youth cessation? Does it improve referrals, reach, engagement and outcomes?
- We know from the literature that youth are successful in quitting but relapse at higher rates and more quickly than adults.^{66,67}
 - What can quitlines do to optimize staying quit long term with youth?

Key Learnings on Vaping Cessation Service for Youth and Adults

This section updates information previously collected by NAQC on the current state of vaping cessation services among state quitlines, highlights relevant ways the literature may inform us about the practice and issues discussed, presents facilitators and challenges for moving forward, and suggests key questions that should be considered by the Learning Community in the area of vaping cessation services.

Background

Hitting the U.S. market in 2007, e-cigarettes are battery-operated devices that heat a liquid solution to a high enough temperature to produce an aerosol that is inhaled, delivering nicotine, flavoring and other chemicals. Most e-cigarettes contain nicotine although nicotine levels in e-cigarettes are highly variable and mislabeling is common.^{68,69}

E-cigarettes are sometimes promoted as a healthier alternative to conventional cigarettes. The Surgeon General's Smoking Cessation Report 2020 described e-cigarettes as a continually changing, heterogenous group of products used in a variety of ways and found that there is inadequate evidence to conclude that they increase cessation. The report concluded that evidence is suggestive, but not sufficient, to infer that the use of e-cigarettes containing nicotine is associated with increased smoking cessation compared with the use of e-cigarettes not containing nicotine. Likewise, evidence is suggestive, but not sufficient, to infer that more frequent use of e-cigarettes is associated with increased smoking cessation compared with less frequent use of e-cigarettes.^{70,71}

Long-term health effects of e-cigarette use are still unknown. Although e-cigarettes contain fewer harmful chemicals than smoke from combustible tobacco products, e-cigarette aerosol can contain cancer-causing chemicals and small particles that can reach the lungs. E-cigarettes may also be associated with heart attack, stroke, or coronary heart disease.⁷² Concerns around e-cigarette safety gained national media attention with the outbreak of EVALI (E-cigarette or Vaping Product Use-Associated Lung Injury), eventually linked to vitamin E acetate, in mid-2019.⁷³

In 2018, 14.9% of adults over the age of 18 had ever used an e-cigarette and 3.2% were current users. The percentage of adults who were current e-cigarette users decreased with age.⁷⁴ About half of adults who use e-cigarettes smoke cigarettes at the same time (known as dual usage).⁷⁵ Many are using e-cigarettes to quit combustible cigarettes or other tobacco products.

Dual usage of tobacco products has been increasing. Recent data indicated that 3.7% of adults, 11% of high school students and 2% of middle school students use two or more tobacco products, with the most common combination for both adults and adolescents being regular cigarettes and e-cigarettes. The second most common combination was cigarettes and cigars for adults and e-cigarettes and cigars for youth. Reasons for e-cigarette use among adults included using them as a form of harm reduction and to support quit smoking efforts. Another motivation for dual use was using smokeless tobacco and e-cigarettes in places where cigarette smoking is not allowed.⁷⁶

Quitline research from 2013 found that nearly one-third of adult callers to 6 state tobacco quitlines surveyed at a standard 7-month follow-up (i.e., 7 months after quitline enrollment) reported ever having tried e-cigarettes and 9% were using them at the time of the survey. Of those who had tried e-cigarettes, 62% were short-term users (less than 1 month). The most common reported reasons for using e-cigarettes was to reduce or quit traditional tobacco use.⁷⁷

Quitline Practices around Vaping Cessation

In 2014, NAQC published a comprehensive report on current literature and quitline practices related to cessation treatment and e-cigarettes in adults, [Cessation Treatment and E-Cigarettes: A Report on](#)

[Current Literature and Quitline Practices](#).⁷⁸ This review provides a Brief update on that report and expands it to include youth vaping cessation as well. Readers should refer to the 2014 report, as well as NAQC's 2019 [Fact Sheet: Overview of Quitline Services for Those Who Vape](#)⁷⁹ for additional background information on this topic area.^{80,81}

During this review, all thirteen service providers reported offering vaping cessation services. At least 3 service providers mentioned having dedicated vape lines. All offer counseling and most have e-cigarette tailored education materials. The offering of medications varied depending on the age of the e-cigarette user (youth versus adult) and type of use (mono or dual/poly usage). At least three quitline service providers offered NRT to mono vapers, whereas two mentioned that clients quitting the use of e-cigarettes only were not eligible for NRT.

Vaping cessation protocols

Service providers in general reported few differences between vaping cessation protocols and those used with other forms of tobacco. Callers are offered the same service options and evidence-based approaches whether they use tobacco or e-cigarettes. Vaping cessation practices are grounded in the same evidence-based theoretical models used with other forms of tobacco (e.g., Motivational Interviewing, Cognitive Behavioral Therapy, etc.), then tailored to include vaping specific information. As one service provider described it, e-cigarettes are treated as just another tobacco product.

Components unique to vaping protocols may include discussion on types of e-liquids including flavors, why the client vapes, plans for a client's device after quitting, patterns of use which are different from cigarette use (e.g. vaping all day long), how vaping impacts the body, and unique relapse prevention triggers. If a client vapes all day long, triggers are harder to identify.

Adult versus youth vaping cessation protocols

According to NAQC Annual Survey data from FY2019 on services offered for youth vaping by state, 84% (n=41) of state quitlines surveyed currently offer youth vaping and e-cigarettes services and another 10% (n=5) are planning to add them in the future.⁸²

Most service providers did not report many differences between adult and youth vaping cessation protocols beyond those already described in the Youth Cessation section. One service provider mentioned that their adult vaping protocol is similar to their youth vaping one in that the goals are the same and they encourage participants to switch to an FDA-approved medication (youth are referred to a physician for this). Topics discussed with youth are the same as for combustible use, including values, health, social influences, role of big tobacco, and tobacco/nicotine as a social justice issue.

Focus on youth vaping cessation extends beyond youth to parents and caregivers of youth as well. For example, one service provider offers a vaping specific website providing educational content for both youth and concerned adults and an online course with the availability of live chat and emails to support parents and concerned adults having conversations with youth around vaping.

In addition to phone counseling, delivery mechanisms for vaping cessation services are broadening to include online education, chat, video learning, and texting, particularly for youth and young adults. In the previous section, a dedicated youth program including vaping that involved live text messaging and visiting a website for real-time coaching was described. Another service provider mentioned plans to launch an interactive text program in early 2021.

Multiple service providers reported either partnering with or referring young vapers to the Truth Initiative's "This is Quitting" program, a free text message quit vaping program launched in January

2019.⁸³ Initial engagement and 3-month outcomes suggest that young e-cigarette users can be engaged through such digital platforms.⁸⁴ The program is seen as a helpful referral resource, although a few providers mentioned the lack of integration with their other services as a challenge.

Facilitators and Challenges around Vaping Cessation

Lack of standardized guidelines around determining NRT dosages

The most cited challenge around vaping cessation by quitline service providers is the lack of clear guidelines on how to determine the level of nicotine consumed by an e-cigarette user for the purpose of recommending an appropriate NRT dosage level.

Service providers reported varying ways of assessing nicotine dependence and coming up with NRT dosages. Methods reported included asking the same questions used with smokers to try to determine nicotine dependence (e.g., How soon after waking do they use their device in the morning? How often do they use it through the day? What kinds of symptoms are they having?), trying to calculate the amount of nicotine in the device the client is using and converting it to a number of cigarettes and then calculating NRT dosage based on guidance from the Mayo Clinic, and developing a vaping specific algorithm around dosing for NRT for both dual and mono usage. One service provider partnered with a local physician who specializes in tobacco cessation for training around this issue.

The issue of NRT dosing with e-cigarette use is further complicated by whether or not the client is using e-cigarettes alone or is using them with another form of tobacco (dual use). For example, one service provider detailed how the type and dosage level of NRT recommended would depend on whether the client: (1) only ever used e-cigarettes (in which case short action NRT with self-titration would be recommended); or (2) was using e-cigarettes in combination with another form of tobacco (in which case combination treatment with NRT might be recommended based on the client's pre-vaping cigarette per day count, adjusted for how long they had been using e-cigarettes as well).

In the case of youth usage of NRT, a physician's approval and prescription is required, and it is the physician who determines dosing recommendations.

Confusion of quitline clients

Several quitline service providers noted that conversations around NRT are further complicated by the fact that many e-cigarette users are not necessarily aware their devices contain nicotine or in what amount even though they report symptoms of nicotine dependence. Educating them around this issue often needs to occur first.

In 2018, research by the Truth Initiative found that among current youth and young adult JUUL users, 63% did not know that the product contains nicotine. They also found that youth reported signs of severe nicotine dependence, such as using an e-cigarette upon waking and at nights after waking with a craving.⁸⁵

Another common area for confusion for quitline participants resulted from mixed and sometimes inconsistent messaging around e-cigarettes from manufacturers, tobacco control professionals, and others. Service providers often need to educate participants around how and why e-cigarettes are not currently viewed as a successful cessation method while at the same time respecting how the client feels about the issue. A small qualitative study of adult quitline callers who were dual users of cigarettes and e-cigarettes similarly found that some participants had inaccurate beliefs about e-cigarettes, FDA-approved cessation medications, and nicotine and would benefit from additional education.⁸⁶

Consideration of Key Questions for the Learning Community

The quitline service practice review and literature review suggest the following considerations for the Learning Community in the area of vaping cessation.

- Effectiveness of vaping cessation services needs to be explored for youth and adults. Additional research is needed.
 - What are effective ways of providing vaping cessation services to adults? To youth?
 - How effective are the existing protocols that service providers already have in place?
 - What lessons can be learned from quitline service providers, NCI, Truth and others on text messaging programs? How can those findings be leveraged?
- There is a need for increased data and understanding around who is utilizing quitlines for vaping cessation services.
 - What are the demographics of quitline participants using vaping cessation services?
 - What are their motivations for quitting? Are they transitioning from a combustible?
 - How does this information impact promotion and types of services offered?
 - Do different subgroups (age, racial, ethnic, rural, urban) utilize the services differently?
 - How do current quitline metrics need to evolve to ensure this type of information is captured?
- There is little evidence base around the effective promotion of vaping cessation services.
 - What are effective ways of promoting vaping cessation services to both adults and youth?
 - What are opportunities for capturing and sharing of success stories around promotion?
 - Can evidence-based messages and promotion efforts aimed at vaping prevention be adapted for vaping cessation?
 - Should quitlines consider rebranding to broaden their appeal for vaping cessation?
- The absence of a standardized protocol for NRT dosing is a common challenge for mono and dual/poly users of e-cigarettes.
 - What are efficient ways to share current practices, resources, and research in this area?
 - Can a standardized protocol be developed?
 - Will FDA regulation help by standardizing the content level of nicotine in e-cigarettes?
- Evidence for e-cigarettes as a cessation tool is inconclusive, resulting in mixed messages and confusion.
 - What are ways to share the latest information and research in this area?
 - How can issues of harm reduction, short term use of e-cigarettes for cessation from other tobacco products, and long-term risk of vaping be reconciled in quitline practices?

Next Steps for NAQC's Learning Community Project

NAQC has planned a September 2020 webinar to share findings from this Brief with the quitline community and to gain their feedback on key questions that need to be considered. Later this year NAQC will begin convening Learning Community meetings to discuss the key questions and recommended next steps. A report to the quitline community will be prepared in late 2021.

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Learning Community Publication Series

This Brief marks the first in a planned series of publications developed through NAQC's Learning Community project. The Learning Community project focuses on evolving practices and emerging topics in the field of tobacco cessation quitlines. The Learning Community is a collaborative professional effort engaging quitline service providers, state health departments, researchers, subject-matter experts and community stakeholders in shared dialogue and development of recommendations that will advance quitline practice. Topics addressed by the Learning Community will be selected on an annual basis.

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