



NAQC Learning Community on Technology-Mediated Services: Expert Panel Summary

Expert Panel on Technology-Mediated Services

Bios are available in the [Pre-meeting Reading Materials](#)

- Lorien Abrams, ScD, MA
- Jonathan Bricker, PhD
- Yvonne Prutzman, PhD, MPH
- Amy Sanders, MA

Katie Mason on Technology Utilization Nationally and Quitlines

Refer to [slides](#) for more detail

HIGHLIGHTS

NAQC Annual Survey data on quitlines

- Increase in the uptake of offering interactive text messaging, automated emails, web-based self-help, web-based interactive counselling, web-based chat rooms.
- Decrease in availability of mobile cessation Apps over time (2018 – 2020)
- Direct calls are still the greatest source of entry into quitlines.
- Web based enrollment increased in 2020 when overall volume was down.
- 44 states reported having web-based enrollment in 2020.
- Direct calls are the biggest source of completed registrations, but web enrollment is notable.

[Pew Research Center data](#) on technology access (2019)

- Percent of population that owns a smartphone is very high overall, but we do see gaps by age, community location (rural, urban, suburban) and income.
- Percent of population that uses the internet differs by racial/ethnic, age, community location and income.
- Percent of the population with home broadband. Numbers overall decrease, and the gaps and discrepancies persist by racial/ethnic groups, age, community location and income.
- There are still plenty of people that do not have home broadband. So, when we think about technology offerings, it is important to consider who might be left behind.
- Smartphone dependency, meaning that people use their smartphone as their main internet access at home.
 - Blacks and Hispanics depend on their smartphones to access the internet more than whites as do younger groups, rural over suburban, and those in the lowest income category.

Lorien Abrams on Texting Capabilities

Refer to [slides](#) for more detail

Disclosure: Licensed two of the products which are used by Optum

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Introduction

- Addressed maximizing reach and efficacy with digital technologies primarily with text messaging.
- Focused on efficacy or how well texting works for treating smokers and reach, how texting can actually be used for outreach and getting smokers enrolled in smoking cessation services and then talked about combining efficacy and reach.
- Impact on helping people quit smoking is a function of efficacy and reach.
- Scalability is important. What ends up happening typically is that we have greater reach through approaches such as group counseling, phone counseling, quitlines, websites, brochures and mass media, but less efficacy. Mobile technology can allow us to increase efficacy while also increasing reach.

Efficacy

1. Best source is the [Cochrane Review](#) (most current is from 2019)
Across 14 studies, there is about a 50% increase in likelihood of quitting smoking if you are randomized to get one of these text messaging programs compared to minimal intervention such as a brochure or quick advice.

2. Text2Quit Study

Overview

- Developed in 2011.
- Licensed by Optum (previously dba Alere) in 2012.
- Technology was different 10 years ago.
- Automated program with no human support.
- Interactive, personalized text messages for quitting smoking. Personalization related to factors such as quit date and medication use.
- Messages are timed around a quit date, provide advice on quitting, medication messages, games to get you through your craving and relapse prevention messages.
- On demand keywords that provide additional motivation to address cravings.
- Two or three messages per day to get participants ready for quit then taper off.
- Asks participants to track cigarettes, track urges, take a smokefree pledge, do a readiness survey and quit status.

Findings

- Recruited participants on the internet and randomized participants to get Text2Quit or a brochure called Clearing the Air.
- Self-reported findings at one, three and six months found that Text2Quit group outperformed the control.
- Found large effects at four weeks and three months in Vietnam for the texting program compared to control.
- Have also found a positive effect when combining automated text messaging with texts from a live coach compared to receiving automated messages only.

- Program with pregnant smokers (in collaboration with an existing health program called Text4Baby). Worked well in the beginning when participants were pregnant. At six months, most of them had had their babies, effect wore off.
 - HIV positive smoking program, *Positively Smokefree* combined texting with an App. The text messages referred a person to an App with videos and multimedia and games. HIV reference material included in the password protected App. Text messages focused on quit smoking advice.
3. Current pilots and developments
- Group meeting format based on mindfulness work. Looking at what happens when text messaging added to a program compared to participation in normal group meetings.
 - Changing formats as new programs are developed to respond to how people are accessing text messages. Smartphones enable adding multimedia and graphics to support the messaging.
 - Web enabled texting, which is essentially a text message that links you to a browser on your smartphone and looks like a chatbot. Instead of having to text a reply, participants touch their screen to select their response for a more user friendly interface.
4. Identifying how texting programs work to help people quit
- Using texting as a referral system to other kinds of proven therapies like nicotine replacement therapy and quitline is common but it is helpful to understand the quitting pathway to determine what services to offer and their added benefit.
 - Self-efficacy is a significant mediator of effect accounting for 51.1% of the effect of Text2Quit on cessation at 6 months. The only variable with a complete mediational path.
 - Text messaging programs may be appropriate without other support.
 - Implications to explain how programs work, but also important for places where nicotine replacement therapy or quitlines aren't available.
 - Used propensity score matching to understand the impact of the adding Text2Quit to a comprehensive quitline service. In the context of a comprehensive quitline (multi-call phone counseling, NRT and web), the addition of texting made no difference on quit rates showing we can max out on program effects.

Reach – Text Outreach

1. Using texting to enroll people in services.
 - Create digital registries from Electronic Health Records (EHRs) which contain lists of smokers that belong to health systems and use those registries to get people enrolled in effective programs.

Summary: NYU pilot with Bellevue health system. Sent seven texts “out of the blue” to participants in the registry with information about a quit smoking service. About 10% replied that they wanted to be called by the quitline. About 5.8% of the full sample reported enrolling. Relatively cheap outreach approach.

- Piloting similar approach in the UK offering a free app sponsored by the National Health Service to a registry of smokers and problem drinkers pulled from the electronic health record.

Example: Compare what happens when you offer two different services (texting versus telephone counseling) to people visiting the GW emergency department for a variety of health issues. No matter what program was offered, about 60-63% opted into the program after receiving a text invite. Of the group that was offered the telephone counseling (quitline), about half enrolled, but all who were offered the texting program enrolled in the full-month texting program. This approach offers a possible model of how to engage participants in other quitline services (e.g., NRT, counseling, App) using text to reach out.

Jonathan Bricker on web-based interventions and web-enabled approaches

Refer to [slides](#) for more detail

No disclosures

Introduction

- Presenting a trajectory of work that the Health and Behavioral Innovations in Technology (HABIT) research group has done over the past nine years on smartphone applications for smoking cessation.
- Smartphone applications have high reach and to date have had low efficacy.
- Agree that reach and efficacy are what lead to public health impact.
- There are about 490 applications available in the marketplace.
- Latest Cochrane Review shows that the evidence is inadequate in terms of whether Apps are useful for quitting smoking when compared to minimal interventions with quit rates from 4 – 18%.

Acceptance and Commitment Therapy or ACT

- Teaching people how to be willing to live with their cravings to smoke, how to be aware of and be open to them through various simple strategies such as noticing those thoughts and getting distance from them.
- Focusing on participants' values, what really matters to them.
- Using values as motivators to quit smoking
- Combination of values and being willing to have cravings can help people quit and stay quit.
- This approach is fundamentally different, both conceptually and in technique, from the US Clinical Practice Guideline.

Technologies Development Process

- Learn from past trials that other people have published or the trials that we have done.
- Conduct surveys of commercial tobacco users to learn what they need, what would help them quit.
- Use information to develop new content to address participants' unique needs.
- Use an iterative process of focus groups to determine how receptive participants are to new concepts using very simple concepts to demonstrate how their needs could be met.
- This leads to prototype development (an alpha version) followed by a beta version of an App.
- We then iterate and optimize through usability testing and through diary studies where participants use the program for two weeks followed by nightly surveys and interviews to learn about their experiences, to get deep qualitative data, to learn about what is working and what's

not working for them for this technology, so that we can refine the App before we launch any kind of trial to test it.

SmartQuit App

- Initial funding from the Fred Hutchinson Cancer Center to test the first version of Acceptance and Commitment Therapy for smoking cessation.
- Recruited through social media throughout the United States.
- Certain features were the most popular, but not necessarily the most predictive of quitting smoking. There were other features that were very predictive of quitting smoking, but were not very popular.
- Learned how to make the predictive program features more popular, prominent, reinforcing, accessible, and visible to increase use.
- Followed by a technology transfer grant from the state of Washington to study the 2morrow App which is integrated with the quitline.
- Second SmartQuit trial found participants reduced their smoking but the quit rates were very similar in intervention and control groups. Learned that completing the program was very predictive of quitting smoking (4.45 times more likely to quit smoking) so focused on ways to help participants complete the program.

I Can Quit (previously known as SmartQuit)

- 5-year Grant Funded by NCI.
- Develop new features based on learnings from prior iterations.
- For example, showing progress indicators having tracking of smoking and urges passed to gamify.
- Use a digital coach as a peer for helping participants through the program.
- Reinforce people's progress by focusing on streaks and motivating statistics of how many minutes of life gained.
- Use badges to show heart health improvements and improved taste and smell.
- Gamified process of preparing to quit by offering levels to unlock based on utilization.
- Teaches how to notice cravings and how to be open and be willing to have them.
- Digital coach trains people in coping skills through storytelling.
- Post quit version is also gamified. Progress to next level after quit for seven days.
- Focuses on relapse prevention by developing a vision of a smokefree life.
- Results published in JAMA Internal Medicine and posted in the [Learning Communities Portal](#).

Summary of results. Study participants were from states with high prevalence, large population centers, younger, one-third minority race or ethnicity, one-fifth LGBTQ, 40 percent high school or less education. Half screened positive for depression. 30-day quit rate at 12 month follow up was 28% for I Can Quit versus 21% for control group (quit guide). Prolonged absence 14% versus 8%. And then cessation of all tobacco products, including e-cigarettes and vaping 24% versus 16%. All statistically significant. **These are the first results showing that a smartphone App is efficacious in a full-scale randomized trial.**

- Results for vulnerable subgroups of commercial tobacco users are promising. Analyzed household income, nicotine dependent individuals, African American smokers, Native American, heavy drinkers and seriously mentally ill.
- Potential public health impact would be very high due to potentially high reach (depending on dissemination).

Integrating an App within a Quitline

- Review of how the 2Morrow App works within a quitline context:
 - Chat with a quit coach
 - Order NRT. Provides NRT information and collects shipping information, delivered within three to five business days.

Yvonne Prutzman on Using Digital Technology to Help Smokers Quit: Smokefree.gov Initiative

Refer to [slides](#) for more detail

No disclosures

Introduction

- Real-world use case of how a multi-platform digital intervention can support and facilitate smoking cessation.
- Leveraged the different unique strengths of multiple technology platforms to meet the needs and preferences of different smokers.

Overview of SMOKEFREE.GOV

- Suite of digital resources started in 2003 as a single website.
- Now six different mobile optimized websites. One of them is our main smokefree.gov site. And then we have several population targeted sites.
- Seven population targeted text messaging programs
- Two smartphone Apps
- Several social media accounts to complement and amplify the digital resources

Smokefree.gov reach

- Trending upward over time following trends of technology use in general.
- In 2015, reached about 4 million people and now reaching 7 to 8 million people through all of our combined channels.
- People find smokefree.gov through:
 - organic search (i.e., entering “how to quit smoking”)
 - Partners drive to smokefree.gov (CDC tips campaign).
 - Paid media

Multi-platform strategy

How to leverage the different platforms to serve the needs and preferences of different types of smokers.

- Offer as many options as possible to appeal to the broadest range of users.
- Related goal is to serve up the right content to the right people at the right time.
- Provide consistent content across all platforms that we elevate which allows some of the key cessation support messages to be amplified over multiple platforms.
- Integrate and cross link the platforms together (different platforms or technologies can talk to each other.
 - Promote quitline telephone-based services within text programs.

Insights on Integration

How to integrate different platforms recognizing that there is a lot to learn.

- Web-based resources serves as the main repository of all content and connects people with other content that is relevant to them (e.g. digital tool like an App, text message program).
- Tools and tips prominently displayed at the top of the webpage for easy access.
- Content managed with Drupal (content management system), which allows flexibility and unlimited content.
- SmokefreeTXT program embeds links to other platforms within the program. Link to mobile Apps is popular with participants.
- Mobile Apps. Emphasized that popular features (e.g., on demand support features like craving and mood support, tracking and monitoring of cravings, and money saved) are not always the most predictive of success and more research is needed to determine which features contribute to success.

Case Examples

How a multi-platform intervention can provide some on-ramps to appeal to different types of smokers and also reduce barriers to entry.

- Build bridges between phone and text to keep participants engaged in treatment.
- Embed quitline links on smokefree.gov. Users who click on them from a mobile device automatically connect to the quitline. In 2020, there were almost 4,000 organic (i.e., resulted from no specific call to action) clicks on quitline phone numbers.
- Demonstrates that people will explore and perhaps connect with other services.
- Live chat connects people with a live cessation counselor. In 2018, there were over 20,000 live help chat sessions initiated through the pop-up demonstrating interest (note: many do drop off before actually chatting with a coach).
- Within the SmokefreeTXT program, people click on the live help chat link providing evidence that through a digital platform, we may be able to transition people through a warm handoff to a real person.

Reducing barriers to entry: People were dropping from the SmokefreeTXT web enrollment form (10 or 11 enrollment questions). About 80% would start the form and not finish, which was a lot of missed opportunity in terms of converting people to enroll. The team added a hybrid opt-in feature where participants just submit a phone number and click on the website and the rest of the enrollment was completed with SMS messages. Reduced the web enroll form to two pages. So far, seeing a big boost in enrollment rates with 20% of all SmokefreeTXT enrollments initiated through this hybrid opt-in. This is clearly a viable way to elevate conversions.

Building on-ramps within health systems

- E-referral tool for SmokefreeTXT that integrates with Epic. With consent, provider checks a referral box and SmokefreeTXT will reach out to a patient to invite them to the program.
- Keyword opt-in streams which allow use of a simple keyword assigned to the health system which can then be tracked through the health system.

Conclusions

- Digital interventions are flexible.
- Can be really cost-effective.
- Can lower the barriers to entry.
- Still a lot of questions about the right strategies to integrate them all together.
- Offering different complementary technology options expands the reach of cessation treatment and shows a lot of promise.

MODERATED DISCUSSION WITH PANELISTS

Introduction

There are a lot of promising approaches and very promising research presented by the panelists. The good thing about the Learning Community format is that this is just the kickoff for all the discussions that we're going to be able to have on these topics. The entire quitline community will be invited to engage in discussions through our forums and other means.

QUESTION: What short term applications (i.e., within the next two years) do you think quitlines could explore especially related to integration that would create bridges between the different technologies.

- Text as outreach has not really been embraced by quitlines, but it is very doable and actionable.
- Use text to offer quitline services such as phone counseling, NRT, a texting program given texts are the most used feature on a smartphone.
- A great modality for offering quitline services.
- Note: need to address the barrier that there is no easy way to refer participants to the quitline without filling out a fax enrollment form so for those trying to refer outside the healthcare system, it is clunky. Recommendation to streamline referral process using text.
- Streamlining and making it easy for people to access the services. Make enrollment easy with very low barriers to entry. Use text or simplified web forms for enrollment.

Insights from SmokefreeTXT: Almost 60% of people set their quit date for that day or the next day. Capitalize on the window of opportunity and get people into the quitting process with fewer steps. Think about how else to build services around them and where they are in their journey. Making it easy for them to initiate that quit attempt with some support is key.

- Offer choices to participants so they can select the technologies that work best for them, including telephone.
- I Can Quit.org is free to use.
- Use texts to extend the impact of services by reminding users that support is available even after program is “completed.”

- EHR texting approach.

Tips from Amy Sanders, ICFNext

- *Mobile-responsive design is important. If you are going to access a website from your smartphone you want to click on a link and have an easy reading experience.*
- *These are all different technologies with potential additive effects.*
- *Start with asking what content you want to send with what content mix. Determine how it should be structured and what engagements with certain pieces of content should look like. Then determine how best to deliver the content. Use technology as a hook to bring people into other services, like mobile Apps. I would think less about the technology and more about what are you trying to say, who you are trying to say it to, and giving participants choices of how to engage.*

QUESTION: Once we bring people into these technology-based programs, what do we know about keeping them engaged?

- In the App trials, engagement was the key to getting high cessation rates.
- Approaches to increase engagement for Apps or any technology:
 - gamification (for example, earning badges, or going through exercises, a series of exercises to get to the next level)
 - appealing visual design with simple navigation, easy to read, consider users' manual dexterity and visual acuity using user-centered design principles that make things engaging
 - push notifications delivered through the App generate response from participants
 - make the tools appealing through storytelling, testimonials, visual novels (i.e., learn a little bit about the concept offering multiple examples of the same concept)
 - In the process of analyzing the features that contributed to engagement.

Closing remarks

- Acknowledge the practical aspects of contracting and funding when trying to incorporate new technology-based approaches.
- Consider adding graphics and images to text programs to fit what people are used to seeing via text.
- Cost-effectiveness is going to come up in our discussions.
- Usability testing is important to make sure those who we are building the programs or approaches for are providing input.

Question and Answer Session

COMMENT AND QUESTION: The biggest challenge in Canada with a cessation App that we developed and researched with the University of Waterloo was engagement. So outside of a study environment without incentives, how do we get repeated usership, after the initial first uses of the App?

To continually get utilization or downloads of the App required consistent investment in promotion. And so with funding being inconsistent, do any of you have insights into how to address this challenge?

RESPONSE: The Washington Department of Health has been disseminating this App for the last six years. They have seen good utilization with minimal promotions. Word of mouth and some referrals have helped. Earned media has been successful. They only had a certain number of slots for downloads and filled them up quickly. Incentives work but are not always scalable.

Consider using Quit and Win contests to increase engagement with Apps and possibly text programs. This may give people the feeling that someone is looking at their data. Could integrate contests and challenges and prizes that people earn or enter as they progress through the program.

QUESTION: How can technology be used to provide NRT? Are there any examples?

RESPONSE: Refer to slides show how the 2morrow App disseminates NRT to a number of clients. Also consider using reminder text messages to help people improve medication adherence or to order NRT.

Learning Communities Web Portal Demonstration

Refer to [slides](#) for more detail

For information on how to join and navigate the portal, review the [Learning Communities Portal User Guide](#).

- END -