NCI’s Smokefree.gov Initiative: Using Digital Technology to Help Smokers Quit
Background
Tobacco Control

- Tobacco use remains the leading preventable cause of death in the U.S.\(^1\)
  - 40% of all cancer diagnoses\(^2\)
  - One out of three cancer deaths\(^1\)

- Population-based interventions to reduce tobacco use\(^3\)
  - High levels of tobacco taxes
  - Comprehensive smokefree policies
  - Complete bans on tobacco marketing
  - Prominent pictorial health warnings
  - Well-designed and implemented anti-tobacco mass media campaigns
  - Provision of population-wide tobacco cessation programs

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\(^1\) USDHHS. The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General. Atlanta, GA: USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014

\(^2\) CDC Vital Signs, November, 2016

Tobacco Cessation Interventions

- Evidence-based cessation treatments
  - Counseling
  - Pharmacotherapy

- Historically, cessation treatment has been delivered via
  - Self-help
  - Face-to-face counseling
  - Telephone quitlines
    - NCI’s Cancer Information Service (877-44U-QUIT)
    - 1-800-QUIT-NOW
Tobacco Cessation Interventions: Challenges

- Evidence-based cessation treatments are effective, but only a small percentage of smokers use them due to
  - Structural barriers
  - Lack of awareness
  - Lack of interest

- Capacity of traditional treatment modalities is limited
  - Cost
  - Staff/resources
Digital Technologies for Smoking Cessation

- Internet and mobile technologies can be leveraged to reach and engage smokers in assisted cessation efforts
  - Reduced structural barriers to treatment
  - Low cost
  - Scalable
  - Confidential/Anonymous
  - Treatment is available on-demand
  - Treatment can be highly tailored based on user data
Common Digital Health Platforms

- Mobile optimized websites
- Text message-based interventions
- Smartphone applications (mobile apps)
- Social media
Common Digital Health Platforms

- **Mobile optimized websites**
  - Sufficient evidence to support use\(^1\)

- **Text message-based interventions**
  - Sufficient evidence to support use\(^2\)

- **Smartphone applications (mobile apps)**

- **Social media**

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1. Taylor et al.; Cochrane Database Syst Rev. 2017
Opportunity for Broad Reach

- Widely available communication technologies
- 90% of adult Americans use the Internet\(^1\)
  - In 2017, one third of all smokers looked online for information about quitting smoking\(^2\)
- 95% of adult Americans own a cell phone\(^3\)
  - 77% have smartphones\(^3\)
- Potential to reach groups that are traditionally underserved
  - Rural
  - Low-SES
  - Young adults

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Smokefree.gov Initiative: Overview

- **Smokefree.gov** is a suite of web- and mobile-based smoking cessation resources that provide **evidence-based** information and support to smokers who want to quit
  - Resources include:
    - Mobile optimized websites
    - Text-based intervention programs
    - Smartphone apps
    - Social media platforms
- Managed by NCI’s Tobacco Control Research Branch
- Content follows US Clinical Practice Guidelines
  - Freely available to the public

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Smokefree.gov Initiative: Reach

- Smokefree.gov resources reach ~6 million people per year
  - Smokefree.gov website: 3,618,942 users in 2018
  - SmokefreeTXT: 42,069 subscribers in 2018
  - quitSTART & QuitGuide: 56,809 downloads in 2018
  - Social media platforms: 1,682,899 people reached in 2018

http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/clinicians/update/correctadd.htm
Federal Partners

- **FDA**
  - Every Try Counts – Repeat Quitters
  - The Real Cost – Teens
  - This Free Life – LGBT people

- **CDC**
  - Tips From Former Smokers
Smokefree.gov Web-based Resources
Smokefree.gov Web-based Resources
SmokefreeTXT

- Designed for people who are prepared to set a quit date and make a long-term quit attempt
- Provides tips, encouragement, and support to smokers who are trying to quit
- 6-8 week program
- 3-5 messages per day
- Fully automated
- On-demand support via keywords
- >200,000 subscriptions to date
Smokefree Mobile Applications

- Two apps for iPhone and android
  - QuitGuide – Launched Dec 2010
  - quitSTART – Launched Jan 2012
- Real-time resources
  - On-demand craving and mood support
  - Tracking & monitoring
  - Geolocation-based & time-based messaging
  - Distractions & challenges
- Both apps are meta-tagged to allow tracking of user behavior
- Total downloads: 205,014
Social Media

- Raises awareness of Smokefree resources
- Enables targeted outreach to hard to reach populations
- Provides access to a community of other smokers trying to quit
- Builds the Smokefree brand
Future Directions

- Program optimization
  - Data-driven optimizations based on user data
- Integration of SmokefreeTXT with Electronic Health Records
  - Closed Loop Electronic Referral
  - Digital “Toolkit”
- Mobile Apps
  - Ecological Momentary Assessment
  - Just In Time Interventions
- Chatbots and natural language processing
  - Creating a sophisticated, automated resource