Community Preventive Services Task Force

Reducing Tobacco Use and Secondhand Smoke Exposure: Mobile Phone-Based Cessation Interventions

Task Force Finding and Rationale Statement

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Task Force Finding and Rationale Statement

Intervention Definition

Mobile phone-based cessation interventions use interactive features to deliver evidence-based information, strategies, and behavioral support directly to tobacco users interested in quitting. Typically, participants receive text messages that support their quit attempt, and the message content changes over the course of the intervention. Content may be developed or adapted for specific populations and communities. Messages may be tailored for individuals based on computer algorithms that match messages to information provided by the participant. Programs may be automated, and they may include text responses provided on demand to participants encountering urges to smoke. Mobile phone-based interventions may be coordinated with additional interventions, such as Internet-based cessation services or provision of medications.

Task Force Finding (December 2011)

The Community Preventive Services Task Force recommends mobile phone-based interventions for tobacco cessation based on sufficient evidence of effectiveness in increasing tobacco use abstinence among people interested in quitting. Evidence was considered sufficient based on findings from six studies in which mobile phone-based interventions were implemented alone or in combination with Internet-based interventions.

Rationale

Basis of Finding

The Task Force finding is based on studies identified in a previous systematic review (Whittaker et al. 2009, search period through December 2008) combined with studies identified in an updated search for this review (search period December 2008 through August 2011). Primary evidence for the Task Force finding comes from six studies that evaluated the effectiveness of interventions using automated text messages for recruited participants willing to make a quit attempt. In three studies, mobile phone text messaging was the primary cessation support intervention. The median difference in cessation rates at 6 months was an improvement of 2.9 percentage points (range of values: +1.7 percentage points to +4.9 percentage points). In the other three studies, mobile phone messages were complemented by Internet-based components. The median difference in cessation rates at 6 months or longer was an improvement of 9 percentage points (range of values: -1.2 percentage points to +13.3 percentage points). Only one study included nicotine replacement therapy, which was provided to participants in both the intervention and comparison groups.

Applicability and Generalizability Issues

The included trials were conducted in Norway, New Zealand, and the United Kingdom. Although the included studies collected information on age, race/ethnicity, and socioeconomic status (SES), cessation outcomes were not stratified on these user characteristics. Applicability of the evidence on effectiveness in these studies to U.S. settings and populations (especially to populations with disparities in tobacco use and access to cessation services) is unclear and requires additional investigation. Recruitment rates for older tobacco users were low; thus, applicability of this evidence to older users is unclear.

Data Quality Issues

All six included studies were randomized controlled trials and assessed self-reported (four studies) or biochemically verified (two studies) cessation outcomes at 6- or 12-month follow-up. The median loss to follow-up rate was 10% (range of values: 5% to 27%).

Other Benefits and Harms

No substantial other benefits or harms were identified.

Economic Evidence

This updated review did not identify any published studies providing an assessment of the economic costs and benefits of mobile phone-based interventions for tobacco cessation.

Considerations for Implementation

Mobile phone-based interventions can be targeted to specific populations, automated to provide tailored content to individual users, and should be scalable to system resources and user demand. However, these interventions require on-going advertising and service promotion to ensure use. Although the emergence of smartphones will provide opportunities to coordinate additional cessation support around short text or video message-based interventions, most mobile cessation applications currently available to smartphone users do not provide, inform, or link to evidence-based treatments such as counseling, quitlines, and medications.

Barriers to the use of these interventions include concerns about the technologies (matching program, network, and user capabilities) and the protections required to ensure confidentiality of participant information.

Evidence Gaps

Because of limited information specific to the U.S., additional intervention implementation research assessing both effectiveness and economic efficiency in U.S. settings and populations is needed. Although the published studies provide some information on recruitment of study participants, an economic evaluation of a sustained effort to promote the service and to recruit tobacco-using participants is also needed. Future intervention research should involve health departments and organizations, health care systems, and quitline services to enable comparisons of use, effectiveness, and economic efficiency across these different implementation settings.

The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.

References

Whittaker R, Borland R, Bullen C, et al. Mobile phone-based interventions for smoking cessation. Cochrane Database of Systematic Reviews 2009, Issue 4, Art. No.: CD006611. DOI: 10.1002/14651858.CD006611. pub2.

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