

# Reducing Tobacco Use and Secondhand Smoke Exposure: Internet-Based Cessation Interventions (2011 Archived Review)

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## Summary of Systematic Review and CPSTF Finding

### Intervention Definition

Internet-based cessation interventions use websites to provide evidence-based information, strategies, and behavioral support to motivate and assist tobacco users interested in quitting. Content may be developed or adapted for specific populations and communities. Content also may be tailored for individuals based on computer algorithms that match services and advice to information provided by the user.

Websites may be interactive, with automated monitoring, feedback, and support features. Coaching, counseling and social support may be made available through e-mails, chat rooms, or bulletin boards.

Internet-based cessation interventions may be coordinated with additional interventions, such as quitlines or provision of medications.

### Summary of CPSTF Finding

The Community Preventive Services Task Force (CPSTF) finds insufficient evidence to determine whether internet-based interventions increase tobacco use cessation.

Studies included in the review reported inconsistent effects, and interpretation was complicated by differences in internet-based content, components, and interactions; frequent provision of evidence-based interventions to comparison groups; and moderate to high rates of loss to follow-up.

### About The Systematic Review

The CPSTF finding is based on evidence from a systematic review published in 2010 (Civljak et al., search period through June 2010) combined with more recent evidence (search period June 2010-August 2011).

The systematic review was conducted on behalf of the CPSTF by a team of specialists in systematic review methods, and in research, practice, and policy related to reducing tobacco use and secondhand smoke exposure.

### Summary of Results

The systematic review included 24 studies.

Thirteen of the included studies compared internet-based interventions with either usual care or non-Internet-based interventions.

- Results across studies were inconsistent.
- Studies that targeted adult tobacco users showed cessation increased by a median of 3.2 percentage points (7 studies).

Eleven of the included studies compared different types of internet-based interventions and found inconsistent results.

Ten of the included studies compared internet-based interventions that provided tailored and interactive content with non-tailored-internet or no-internet interventions.

- Results across studies were inconsistent.
- Studies reported cessation increased by a median of 2.1 percentage points.

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## Summary of Economic Evidence

An economic review included five studies. There were so many differences between the interventions, however, that results could not be combined.

## Applicability

Applicability of this intervention across different settings and populations was not assessed because the CPSTF did not have enough information to determine if the intervention works.

## Study Characteristics

- Studies were conducted in the United States, Norway, the United Kingdom, Germany, Switzerland, New Zealand, and the Netherlands.
- Three studies targeted adolescents and two studies targeted young adults.
- Included studies used trial designs with concurrent comparisons, but many of the comparisons and analyses were not directly relevant.
- Studies often provided one or more interventions to participants in the comparison group; seven studies provided evidence-based treatments such as cessation counseling or medications.
- The observed rates of loss to follow-up were high in many of the included studies (median 36.7%).

## Review References

Civiljak M, Sheikh A, Stead LF, et al. Internet-based interventions for smoking cessation. *Cochrane Database of Systematic Reviews* 2010, Issue 9, Art. No.: CD007078. DOI: 10.1002/14651858.CD007078. pub3.

## CPSTF Finding and Rationale Statement

### Intervention Definition

Internet-based cessation interventions use websites to provide evidence-based information, strategies, and behavioral support to motivate and assist tobacco users interested in quitting. Content may be developed or adapted for specific populations and communities. Content also may be tailored for individuals based on computer algorithms that match services and advice to information provided by the user. Websites may be interactive, with automated monitoring, feedback, and support features. Coaching, counseling and social support may be made available through e-mails, chat rooms, or bulletin boards. Internet-based cessation interventions may be coordinated with additional interventions, such as quitlines or provision of medications.

### CPSTF Finding (December 2011)

The Community Preventive Services Task Force finds insufficient evidence to determine the effectiveness of Internet-based interventions in increasing tobacco use cessation. Evidence was considered insufficient because the included studies observed inconsistent effects on tobacco cessation, and interpretation of the included studies was complicated by: (1) differences in Internet-based content, components, and interactions; (2) the frequent provision of evidence-based interventions to the comparison group; and (3) moderate to high rates of loss to follow-up.

### Rationale

#### Basis of Finding

The CPSTF finding is based on studies identified in a previous systematic review (Civljak et al. 2010, search period through June 2010) combined with studies identified in an updated search for this review (search period June 2010-August 2011). Primary evidence for the CPSTF finding comes from 24 studies that evaluated the effectiveness of Internet-based interventions, implemented alone or in combination with additional interventions designed to increase tobacco cessation.

As defined in the 2010 systematic review, the studies included in the present review were organized and considered for each comparison evaluated. Thirteen studies provided a comparison of an Internet-based intervention with usual care or a non-Internet-based intervention. Across the body of evidence, the effect estimates from these studies were inconsistent. A subset of seven of these studies targeted adult tobacco users and observed a median absolute percentage point change in tobacco cessation of 3.2 percentage points (Interquartile interval [IQI]: -1.7 percentage points to 12.5 percentage points). Eleven of the 24 studies provided comparisons of one Internet-based intervention with a different Internet-based intervention. Effect estimates from these studies were inconsistent, and the examined comparisons were of limited use to the CPSTF's assessment of effectiveness.

An additional analysis examined ten of the 24 studies that compared Internet-based interventions that provided tailored and interactive content with non-tailored-Internet or no-Internet interventions. Effect estimates from these studies were inconsistent, with a median absolute percentage point increase in tobacco cessation of 2.1 percentage points (IQI: 0.1 percentage points to 12.5 percentage points).

#### Applicability and Generalizability Issues

Because study findings were inconsistent, the evidence on applicability of Internet-based interventions is limited. The body of evidence included studies conducted in the United States, Norway, the United Kingdom, Germany, Switzerland,

New Zealand, and the Netherlands. Three studies targeting adolescents and two studies targeting young adults observed inconsistent and conflicting effect estimates for tobacco cessation. Although most studies provided demographic information on study participants, effect estimates were not examined on these characteristics; therefore, the effectiveness of Internet-based interventions for potentially important populations, such as tobacco users of low socioeconomic status (SES), cannot be determined from the included studies.

### **Data Quality Issues**

No substantial other benefits or harms were identified.

### **Economic Evidence**

Although five studies provided information about the costs and benefits of Internet-based interventions for tobacco cessation, conclusions were limited. The included studies examined different applications of these interventions, limiting comparability of results. Overall, the available information provides an incomplete assessment of the costs and benefits associated with Internet-based interventions, and additional research is needed.

### **Considerations for Implementation**

Internet-based interventions, if effective, have a number of conceptual advantages for cessation assistance. These include substantial reach and penetration within important target populations, ease and availability of user access to tailored information and support, consistency in treatment content, scalability to match program resources and consumer demand, and the potential for low per-user costs. Interventions developed in the public sector could be shared or cross-linked by tobacco control programs and organizations. These interventions do, however, require ongoing advertising, service promotion, and website enhancements to attract and maintain client demand. Barriers to the implementation and use of Internet-based interventions include concerns about technologies (matching program, network, and client capabilities) and the protections required to ensure confidentiality of participant information. Most Internet-based websites claiming to provide cessation resources do not provide, inform, or link to evidence-based treatments such as counseling, quitlines, and medications. Advertising, cross-promotion, and coordinated web-linkages will be important tools in directing tobacco users to evidence-based interventions on the Internet.

### **Evidence Gaps**

Although the evidence on effectiveness of Internet-based interventions for tobacco cessation remains unclear, the conceptual and suggested advantages of these interventions support continued implementation research.

Not surprisingly, the included studies, published between 2004 and 2011, do not evaluate interventions using the full and rapidly expanding range of capabilities for interactive web content and social support. As actual use of the Internet-based interventions in several of the included studies was low, future research should explore strategies to increase use and adherence. Intervention studies should measure use, effectiveness, and economic efficiency, and assess outcomes stratified by demographic characteristics of recruited tobacco users. Although the included studies provide some information on recruitment of study participants, economic evaluations of sustained efforts to promote these interventions, and to recruit and retain tobacco users, are also needed.

## Supporting Materials

### Evidence Gaps

Additional research and evaluation are needed to answer the following questions and fill existing gaps in the evidence base.

- How would the development and use of more recent technologies change outcomes?
- How can programs increase the number of users who enroll and use the intervention?
- What is the economic efficiency of Internet-based cessation interventions and the recruiting process involved?
- How do effectiveness rates vary by demographic characteristics?

### Included Studies

*The number of studies and publications do not always correspond (e.g., a publication may include several studies or one study may be explained in several publications).*

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## Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. CPSTF evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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