Computer-delivered interventions for health promotion and behavioural risk reduction: Evidence and implications for public health

**Review on which this evidence summary is based:**

**Review Focus**

<table>
<thead>
<tr>
<th>P</th>
<th>General population</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>Individual computer-delivered interventions (CDIs) (e.g. Internet, or CD-ROM)</td>
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<tr>
<td>C</td>
<td>No treatment/waitlist; brief intervention</td>
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<tr>
<td>O</td>
<td><strong>Primary Outcomes:</strong> psychological outcomes of health prevention such as attitudes, intentions, and social norms; behavioural outcomes including physical activity, alcohol and/or drug use, safe sexual behaviours (e.g. increased condom use), and (g) general health maintenance (e.g. adherence to medical advice); and the objective behavioural outcomes of (a) weight loss, (b) diabetes-related outcomes (e.g., blood pressure, glucose, lipids), and (c) weight gain/maintenance (for studies examining eating disorders)</td>
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</table>

**Review Quality Rating:** 8 (strong) Details on the methodological quality are available [here](#).

**Considerations for Public Health Practice**

<table>
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<tr>
<th>Conclusions from Health Evidence</th>
<th>General Implications</th>
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| Computer-delivered interventions (CDIs) demonstrated the greatest effect on improving knowledge, though the effect size was small [Effect Size (ES) 0.36]. CDIs also led to small effects in:  
  - improving attitude (ES 0.23), intention (ES 0.18), nutrition (ES 0.15), and general health maintenance (ES 0.18);  
  - reducing tobacco use (ES 0.33), substance use (ES 0.24), and binging/purging (ES 0.19); and,  
  - increasing safer sexual behaviours (ES 0.35).  
While this is a well-done review, the studies vary significantly on intervention delivery, what the intervention is being compared to, and participant characteristics. This makes it difficult to draw definitive conclusions about which CDIs are most effective and why. |  
- Public health programs should consider including computer-delivered interventions (CDIs) as they can lead to small improvements in health-related knowledge, and in some psychological and behavioural outcomes.  
- Based on this review, public health programs should not rely on CDIs to improve physical activity levels, weight loss, diabetes control, weight gain/maintenance, and health behaviours related to self-efficacy/social norms.  
When looking to invest resources in CDIs in public health programs, decision makers should consider that:  
- It is not known if intervention effects are sustained in the long term  
- CDIs seem to be effective only in certain population and less effective in others; and,  
- While the reported effects for some outcomes was statistically significant, the range of true effect (95% confidence interval) is very close to having no effect for some outcomes (i.e. reduction in tobacco/substance use). |

**Evidence and Implications**

<table>
<thead>
<tr>
<th>What's the evidence?</th>
<th>Implications for practice and policy</th>
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| **1. Knowledge (24 interventions)**  
  - Computer delivered interventions (CDIs) led a small but statistically significantly change in knowledge, though some studies demonstrated a moderate change [Effect Size (ES) 0.36, 95%CI 0.22 to 0.50]. | **1. Knowledge**  
  - Public health decision makers should consider using CDIs to improve knowledge about health behaviours.  
  - CDIs were more successful when interventions sampled |
The influence of behaviour on health is well recognized, and there is a need for widespread dissemination of interventions to promote health and prevent disease. Use of CDIs has increasingly become a method of choice for health promotion and health behaviour change. In fact, in 2007 19% of U.S. mobile phone owners used their phone to access the Internet. By May 2010, this had doubled to 38%. Moreover, Internet has grown from 72 million hosts in 2000 to over 730 million in 2010. Computer-delivered interventions are able to reach a large proportion of the population, as well as individuals in remote areas or those with physical limitations. Computers are also available 24-hours a day, therefore participants can access large amounts of information at a convenient time. Once developed, CDIs are also less costly than face-to-face interventions. Technology also permits personalization and tailoring of the content to an individual. Tailoring can increase the efficacy of the intervention as

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Legend: P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; ES – Effect Size; OR – Odds Ratio; RR – Relative Risk

**For definitions please see the healthevidence.org Glossary**

http://www.healthevidence.org/glossary.aspx
well as user satisfaction and completion of the program by allowing for a more engaging experience. For example, the use of multi-media or interactive tools can also be incorporated to engage the client, which may aid in fostering behaviour change. Exploring the effectiveness of CDIs can provide innovative, dynamic and cost-effective options and strategies for public health practitioners to improve health-related outcomes among their clients.


**Other quality reviews on this topic are available on** [www.healthevidence.org](http://www.healthevidence.org)

**Suggested citation**


This evidence summary was written to condense the work of the authors of the review referenced on page one. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

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*The production of this evidence summary was funded with support from the Public Health Agency of Canada. The views expressed herein do not necessary represent the views of the Public Health Agency of Canada.*