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Telehealth in substance abuse and addiction: Evidence and implications for public health

Review on which this evidence summary is based:
Ohinmaa, A., Chatterley, P., Nguyen, T., Jacobs, P. (2010). **Telehealth in substance abuse and addiction: Review of the literature on smoking, alcohol, drug abuse and gambling**. *Institute of Health Economics (Report.)*1-76.

Review Focus

P Individuals of any age with one or more substance abuse problems and gambling addictions; and people at risk of developing an addiction or substance use problem
I Interventions using telehealth technologies including telephone or mobile phone, internet, computer, CD Rom, or videoconferencing.
C No treatment, or existing non-telehealth alternative (usual care)
O *Primary Outcomes:* Reduction in substance use or addiction behaviour

Review Quality Rating: 5 (Moderate) *Details on the methodological quality are available here.*

Considerations for Public Health Practice

Conclusions from Health Evidence	General Implications
This moderate-quality review is based on primary studies (n=130) and reviews (n=15) consisting of both large and small randomized controlled trials (RCTs), of undetermined methodological quality. Findings suggest that a variety of telehealth applications show promise in supporting substance abuse and addiction care. Positive outcomes are observed for the following interventions: • Web-based smoking cessation • Pro-active telephone counseling for smoking cessation for light smokers interested in quitting • Computer interventions for drug addiction as an alternative to face-to-face care There is limited and mixed evidence of the effectiveness of: • computer or internet interventions for alcohol use and smoking targeting students; • computer-based interventions supporting smoking cessation in pregnant women; • telephone interventions for alcohol use following emergency department admission related to impaired driving;	In general, the findings of this review should be interpreted cautiously given the wide range of interventions and included populations, the limited number of primary studies for each intervention, and the limited assessment of the methodological quality of the primary studies. Based on this review, public health should support : • Smoking cessation websites aimed at the general public, ideally with interactive and personalization options • Telephone interventions for smoking cessation using pro-active counseling targeting light smokers already interested in quitting • Computer interventions to support drug addiction as an alternative to face-to-face care. • And should consider text message interventions for smoking cessation, but should also carefully evaluate impact Based on the limited number of studies currently

• telephone counseling for smoking cessation with minimal intervention. **Outcome data were not provided for all studies listed in the review. In our summary, only studies with reported outcomes have been summarized.*	available, public health may consider: • Adding and evaluating internet based treatment for smoking cessation to nicotine replacement therapy • Supporting internet based cognitive-behavioral therapy modules for gambling addiction • Targeting at-risk drinking in the emergency department with computer-generated personalized printed materials
Evidence and Implications	
What's the evidence?	**Implications for practice and policy**
1. Internet based Interventions (39 studies) **Alcohol use: (12 studies)*** • With student populations (8 studies), Internet applications showed mixed results in the short term and effectiveness is unclear at this time. • In working adults, web-based personalized normative feedback alone is as effective as adding 15 minutes of motivational interviewing by a counsellor to the web treatment. Both interventions were more effective than control. • Internet-based assessment with brief personalized feedback had positive outcomes at 3 and 6 months, but not maintained at 12 months. **Smoking cessation: (19 studies)** • With student populations (4 studies), Internet applications reduced smoking in the short term (3 months), however, <u>no impact</u> was observed at 6 months and 12 months (1 study). • In the general population, Internet applications combined with nicotine replacement therapy was more effective than nicotine replacement alone in supporting abstinence from smoking (3 studies). • Web-based programs with interactive and individualized therapy were more effective than generic applications in reducing smoking and smokeless tobacco. Significant results observed at 12 months in 2 studies. • Meta-analysis: 9 web-based smoking cessation interventions showed higher cessation rates than controls (RR 1.40, CI 1.13-1.72). **Gambling (1 study)**** • An internet-based CBT module showed favourable changes in pathological gambling, anxiety, depression and quality of life, up to 36 months (Effect Size 0.83) compared to wait list.**	**1. Internet based Interventions** **Alcohol Use:** • Based on mixed evidence of effectiveness and short-term positive outcomes**,** public health should not support internet-based interventions targeting reducing alcohol-related harm in the student population or internet-based assessment in adults. **Smoking cessation:** • Public health should support smoking cessation websites with interactive and personalization options. Ideally, website interventions should target the general population. • When possible public health should support the development of interactive personalized websites as opposed to websites without those characteristics. Public heath should support and evaluate the addition of internet based treatment for smoking cessation to other treatments such as nicotine replacement therapy. **Gambling addiction** • Public health *may wish to* support and evaluate internet-based CBT modules for gambling addiction based on limited evidence.

Review authors listed 13 studies in table 2, however outcomes are only reported on 12 studies. We have summarized studies for which review authors provide data.* * Review authors including gambling and illicit drugs in their publication's heading for this section; however, there is no mention of illicit drugs in the study objective or the outcomes, so it has been excluded from our summary*	
2. Computer based interventions (21 studies) **Alcohol (7 studies)*** • In Emergency Department clients admitted with an injury, computer generated personalized print material significantly decreased alcohol consumption and at-risk drinking compared to control in (35.7% decrease in intervention group vs. 20.5% in control group. (p=0.006)).(1 study). • CD-Rom modules completed by mother-daughter pairings decreased underage drinking behavior compared to control. (1study). • Review (17 RCT) of computer-based interventions including computer feedback reduced drinking in college students compared to control group. • Limited evidence from one study of low to moderate quality showed brief-motivational interviewing in person or via CD-Rom resulted in decreased drinking volume in at-risk college students.* • No impact of adding computer based intervention to other therapy (group or one-on-one therapist brief interventions) for adults with alcohol problems and depression. **Smoking cessation (9 studies)** • In students (5 studies), 2 studies showed improved cessation rates, 2 studies showed positive trends (statistics not provided), 1 study showed no impact. At this time impact is unclear. • A computer tailored intervention added to a primary care setting resulted in patients being more likely to be smoke-free than those in standard care (RR 1.77, CI not reported). • Review: effective interventions for the general populations include web and computer-based smoking cessation programs (RR 1.44 CI 1.27-1.64), web-based interventions (RR 1.40 CI 1.13-1.72) and computer interventions (RR 1.48 CI 1.25-1.76) for reducing smoking behavior at one year, however effectiveness for adolescents was not significant (RR 1.08; 95% CI, 0.59-1.98). • No impact for interactive computer programs in assisting pregnant women and their spouses to quit smoking, and for promoting smoking	**2. Computer based interventions** **Alcohol** • Based on limited evidence (1 study), public health *may wish to* support interventions targeting at-risk drinking in ED injury clients through computer generated personalized printed material. • Based on limited evidence of effectiveness (1 study), public health should support and evaluate computer-based interventions targeting college-drinking behaviors to reduce drinking. • Public health should not support adding computer-based interventions to other therapy for adults with alcohol addiction and depression. **Smoking cessation** • Public health should support internet and computer-based interventions supporting smoking cessation in the general public. Based on one study, primary care settings may be an appropriate setting for this intervention and may be cost-effective. • Public health should not support computer-based interventions to support smoking cessation in pregnant women or adolescents. • Given the evidence is mixed, computer-based smoking cessation interventions targeting *students* may not be an effective public health strategy. **Drug addictions** • Public health may consider computer interventions to support drug addiction as an alternative to face-to face care that offers similar outcomes. • Public health may consider computer interventions to improve *knowledge and attitudes* about drug use in student prevention programs, but it is unknown whether this strategy prevents actual drug use.

cessation in adolescents. **Drug addiction (5 studies)** • Computer applications showed less detected drug use in urine samples (2 studies), and had fewer reports of continued illicit drug use at 3 months (1 study), and opioid abstinence, but outcomes were similar to those for face-to-face alternatives (1 study). • Student prevention program showed increased knowledge, and attitude outcomes compared to control (1 study). *****We have summarized studies for which the authors provide data	
3. Telephone interventions (8 studies, and 6 reviews)* **Alcohol, Substance Use and Gambling (8 studies)** • Telephone care was effective as a step-down treatment for alcohol and cocaine dependence after initial stabilization (1 study). • Telephone follow-up as a form of aftercare following inpatient care for alcohol dependence, increased abstinence rates. • In primary care, telephone interventions resulted in reduced number of risky drinking days (30.6%) compared to control (8.3%) that received a healthy lifestyle pamphlet (1 study). • Brief motivational treatment plus workbook group had less self-reported severe gambling problems compared to workbook group alone at 12 months. (1 study) • No impact Telephone brief-intervention following emergency department admission for impaired driving. • **Smoking Cessation (6 systematic reviews included in summary)** • Help-line pro-active calls providing smoking cessation counselling had the highest quit rates (RR 1.37, 95% CI 1.25-1.50), were an effective adjunct to minimal interventions (such as self-help booklets), and were most effective in young, male and light-smoking participants. • Telephone counselling was effective in promoting quit rates compared to controls (OR 1.58, 95%CI 1.15-2.29), and compared to individual counseling (OR, 1.49; 95% CI 1.08-2.07), and group counseling (OR, 1.76; 95% CI 1.11-2.93). • Telephone interventions were effective in promoting smoking cessation for patients with CHD (OR 1.58, 95% CI 1.28 – 1.97). More intensive interventions showed better outcomes.	**3. Telephone interventions** **Alcohol, Substance Use and Gambling** • Based on limited evidence from one study public health may support telephone care as step-down treatment for drug and alcohol addiction or follow up after inpatient admission. • Given limited evidence (1 study), public health may consider telephone interventions in primary care settings. • Based on evidence of limited quality and quantity (1 study), public health should support and evaluate brief motivational treatment via telephone for gambling addiction. • Public health should not support telephone brief-intervention following emergency department admission for impaired driving. **Smoking Cessation** • Based on evidence in three studies, public health should support text messaging interventions for smoking cessation. • Based on review-level evidence, public health should support pro-active telephone counseling as a smoking cessation intervention. When possible, public health should target young males who are light-smokers already interested in quitting, and should ideally provide interventions with three or more contacts to increase the likelihood of quitting. • Public health should support telephone counselling as an alternative to individual counseling and group counseling for smoking help-line or quit-line users, with similar effectiveness at promoting quit rates based on review level evidence. • Public health should not support telehealth

• No impact: was demonstrated for minimal clinical intervention such as self-help books, brief advice, or pharmacotherapy alone* *We have summarized studies for which the authors provide data. 43 studies met inclusion criteria, but not all were included in the review or provided data. We have summarized those for which reviewers provided data.	smoking cessation interventions with minimal clinical intervention such as brief advice.
Legend: P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk ***For definitions please see the healthevidence.org glossary http://www.healthevidence.org/glossary.aspx*	

Why this issue is of interest to public health in Canada

Many Canadians are directly or indirectly affected by addiction.[1] Substance use problems can be complex combinations of chronic and acute conditions such as substance dependence and mental disorders.[2] Smoking is the most common addiction in Canada.[3] Other addictions include problem gambling[4] alcohol or illicit drugs.[5] A gambling addiction effects approximately 3-5% of Canadians.[4] In the 2011 Canadian Alcohol and Drug Monitoring Survey for individuals over 15 years of age, 9.1% reported using cannabis, 14.4% exceeded the guideline of alcohol use for chronic effects, 10.1% exceeded alcohol consumption guidelines for acute effects and 0.7% of the total population reported abusing psychoactive pharmaceuticals in the past year.[6] Measures of the social cost of substance use in Canada was an estimated $39.8 billion in 2002, or $1, 267 for every Canadian.[7] Across Canada, telehealth is a strategy used in the prevention, treatment and management of addictions. As of 2011, British Columbia, Saskatchewan, Manitoba, Ontario, New Brunswick and Yukon currently use telehealth technology in providing clinical and educational services for addictions[8]. Nova Scotia uses telehealth for educational services, and Newfoundland and Northwest Territories use telehealth in clinical services.[8] The use of telehealth technology to address health care issues is important to planning and implementing public health services in Canada.

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Other quality reviews on this topic are available on www.healthevidence.org

Suggested citation

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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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