

IN BRIEF A Summary of the Evidence

Drugs for Smoking Cessation

Key Messages

- CADTH conducted a major review of drugs for smoking cessation in 2010. This review showed that nicotine replacement therapy (NRT), bupropion, and varenicline are all effective aids in helping the general population of smokers to quit using tobacco. NRT and bupropion generally double the chance of quitting, and varenicline may increase the chance of quitting two- to three-fold.
- In contrast, a 2016 review found several studies showing no effect for NRT. However, these studies were generally small and conducted in specific groups of people; for example, adolescents, people using smokeless tobacco, or recent quitters attempting to prevent relapse. A large trial in the general population of smokers showed that NRT was effective for smoking cessation.
- Findings from the 2010 review are still considered relevant.

Context

Tobacco use is a major preventable cause of cancer, lung disease, and heart disease. Although tobacco smoking continues to decline in Canada, approximately 18% of Canadians smoke,¹ and one in three of these people want to quit within in the next 30 days.

Issue

Most people who try to quit unaided are unsuccessful in the long-term. Smoking is a complex addiction, with physical and psychological components. Interventions to help smokers quit may include drug therapy to manage withdrawal and cravings for nicotine (the addictive chemical component of tobacco) and/or behavioural therapy such as counselling or education. Evidence-based information on the efficacy, safety, and cost-effectiveness of drug therapy can help to inform decisions about pharmacologic-based strategies for smoking cessation.

Drugs

Nicotine replacement therapy (NRT) replaces the nicotine from tobacco use and helps relieve or prevent cravings. NRT is available without a prescription, in various forms such as patch, gum, lozenge, or inhaler.

Bupropion is a prescription antidepressant. The mechanism by which it helps patients stop smoking is unknown.

Varenicline is a prescription drug that affects nicotine receptors in the brain. It reduces the cravings for, and decreases the pleasurable effects of, cigarettes and other tobacco products.

Methods

In 2010, CADTH conducted a comprehensive health technology assessment (HTA) of drug therapies for smoking cessation.² This included a systematic review of the literature, meta-analysis, economic evaluation, budget impact assessment, and examination of health services impact.

Since 2010, several rapid evidence reviews have been requested on specific sub-topics. For these reports, a limited literature search was conducted of key resources, and full-text publications were evaluated if they met predetermined selection criteria.

Results

The HTA included 143 randomized controlled trials and 25 economic studies. All drug therapies reviewed were shown to be effective in the general population, as well as in smokers with heart disease or chronic obstructive pulmonary disease. Economic analysis showed that reimbursing smoking cessation therapies may be cost-effective compared to not doing so, and that cost can be a barrier to accessing these medications.

A 2016 rapid review looked at the comparative effectiveness of drug therapies, with the aim of locating any new evidence published since the HTA.³ Apart from four specific trials of NRT, the findings generally agreed with the more rigorous 2010 review.

Key findings from the other rapid reviews are, as follows:

- Low-quality evidence shows that electronic cigarettes (electronic nicotine delivery devices commonly called e-cigarettes) can reduce the desire to smoke tobacco.⁴
- No evidence could be found specific to newer NRT products such as mouth spray and mini lozenges.⁵
- There is limited evidence for NRT combination therapy (patch plus gum) and high-dose NRT patch (as compared with standard dose NRT patch).⁵
- NRT appears effective in the reduction of smoking for those who do not want to quit.⁵

- There is uncertainty regarding the safest treatment option for people with cardiovascular disease.⁶
- In pregnant women, NRT is as effective as cognitive behavioural therapy and does not seem to increase perinatal adverse outcomes. Guidelines generally recommend behavioural strategies for pregnant women, with drug therapies as second-line options. Non-drug therapies are discussed in more detail in this particular report on smoking cessation interventions for pregnant women and mothers of infants.⁷

6. Pharmacologic smoking cessation interventions for patients with cardiovascular conditions: a review of the safety and guidelines [Internet]. Ottawa: CADTH; 2012 May 16. [cited 2016 May 3]. (CADTH rapid response report: summary with critical appraisal). Available from: <https://www.cadth.ca/sites/default/files/pdf/htis/may-2012/RC0352%20Smoking%20Cessation%20Cardio%20Final.pdf>
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