The following is based on the Canadian Agency for Drugs and Technologies in Health (CADTH) report, *Pharmacologic-based Strategies for Smoking Cessation: Clinical and Cost-Effectiveness Analyses.*

Smoking is one of the major risk factors for cancer, respiratory disease, and cardiovascular disease. Smoking tobacco is a risk factor that can be changed — by quitting permanently. Unfortunately, quitting smoking is much easier said than done.

Approximately one in five Canadians aged 15 years and older smokes, and more than one in every three of these smokers intend to quit within the next 30 days. However, published data suggest that, in the long term, many will fail in their attempts to quit smoking without the help of **smoking cessation aids**. Given the high number of preventable deaths and evidence indicating that more than 30% of Canadian hospital beds are occupied by adults who are there as a consequence of their smoking habits, there is a need to consider **smoking cessation strategies.**

Because smoking is an important risk factor for a variety of serious health conditions, successfully **quitting can help to prevent illness and death**. And, fortunately, many smokers want to quit. How can we best help them to quit? Which of the smoking cessation aids works best? Which of these options offers the best value to Canadians and our health care system?

To address these questions, CADTH carefully reviewed the available research to help provide some answers. In particular, CADTH:

- Compared the **pharmacological agents** to determine which of these works best (**clinical effectiveness**) at six months and 12 months after attempting to quit smoking.
- Performed an **economic analysis** to determine which smoking cessation therapy was the most cost-effective for patients, drug plans, and the Canadian health care system.

Key Findings for Health Care Providers

- All pharmacotherapies examined were more effective than the placebo at six months and one year follow-up, so patient preference can drive the choice of drug therapy.
- If all pharmacotherapies are an option for your patient, consider that the use of nicotine replacement therapy (NRT) or bupropion generally doubles the odds of a smoker quitting successfully, and the use of varenicline can increase the odds of quitting by between twofold and threefold compared with not using any drug therapy.
- Bupropion or NRT are effective in helping smokers with cardiovascular disease or chronic obstructive pulmonary disease to quit smoking. Evidence on the long-term efficacy of pharmacotherapy in other specific populations, including adolescents, pregnant women, and those with other underlying diseases, remains limited.
- The combination of bupropion with NRT (or of combination of different NRT modalities) generally did not appear to impact long-term treatment success rates.
- Varenicline and bupropion are more cost-effective compared to NRT.

Smoking Cessation Drug Information

Varenicline (Champix): A nicotine receptor partial agonist with partial antagonist properties. Varenicline reduces cravings for nicotine and also reduces the pleasurable effects of using tobacco. (Its safety and efficacy has not been established for use during pregnancy or lactation, or for pediatric use. Use cautiously in elderly patients and in patients with significant renal impairment. Varenicline is indicated for use in conjunction with supportive counselling.):

- 0.5 mg orally, once daily (days one to three)
- 0.5 mg orally, twice daily (days four to seven)
- 1.0 mg orally, twice daily (day eight to the end of 12 weeks of treatment).

Estimated cost of therapy: $304 (12 weeks of therapy).

Bupropion (Zyban): An atypical antidepressant that inhibits the reuptake of norepinephrine and dopamine. (Caution should be exercised when prescribing bupropion in pregnant women, elderly patients, patients with a history of seizures, patients with hepatic and renal impairment, and those with eating disorders; it is also not indicated for anyone younger than 18 years of age.):

- 150 mg orally, once daily (days one to three)
- 150 mg orally, twice daily (until the end of 12 weeks of therapy).

Estimated cost of therapy: $196 (12 weeks of therapy).

NRT: Replaces nicotine previously derived from the use of tobacco products, administered in various forms. Maintains stimulation of nicotine receptors to minimize or eliminate craving and withdrawal symptoms. Brand name products are available in multiple forms: gum (Nicorette and Thrive), patch (Habitrol, Nicoderm, and Nicotrol), inhaler (Nicorette Inhaler), and lozenge (Nicorette and Thrive). (Caution should be exercised in prescribing NRT products to pregnant women or to patients with certain medical conditions.):

- patch (estimated cost of between $248 and $308 for 10 weeks of therapy)
- gum (estimated cost of between $193 and $227 for 12 weeks of therapy)
- inhaler (estimated cost of $687 for 12 weeks of therapy)
- lozenge (estimated cost of between $327 and $367 for 12 weeks of therapy).

Also consider the financial cost of **remaining a smoker**. For example, if your patient smokes a $10 pack of cigarettes a day, they will spend $840 during a 12-week period.

NOTE: Cost estimates were calculated by considering the full cost (drug cost, dispensing fee, mark-ups, and inventory allowance). The dispensing fee, wholesale mark-ups, inventory allowance, and co-payment were based on Alberta Health and Wellness fee schedules.

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