

# Pharmacotherapy for smoking

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## Clinical question

How effective are the treatments for smoking cessation and what are the potential concerns?

## Evidence

Cochrane reviews:

- Nicotine replacement therapy (NRT): 132 RCTs.<sup>1</sup>
  - Overall risk ratio (RR) and 95% confidence interval (CI) of abstinence: 1.58 (1.50 to 1.66); similar for gum, patch, inhaler, and lozenge.
  - Adverse events (AEs): local irritation related to product type; no evidence of increased myocardial infarction.
- Antidepressants: 49 bupropion and 9 nortriptyline RCTs.<sup>2</sup>
  - The RR (95% CI) for cessation over placebo at 6 to 12 months: bupropion 1.69 (1.53 to 1.85); nortriptyline 2.03 (1.48 to 2.78).
  - Bupropion AEs: primarily insomnia and dry mouth; 7% to 12% AE drop-out rate; rarely seizure (about 1/1000) and suicidal thoughts or behaviour (association unclear).
  - Nortriptyline AEs: primarily dry mouth, drowsiness, light-headedness, and constipation (less at lower doses); 4% to 12% drop-out rate from AEs.
- Varenicline: 9 RCTs.<sup>3</sup>
  - The RR (95% CI) for cessation at 6 to 12 months over placebo was 2.33 (1.95 to 2.80).
  - Varenicline AEs: primarily nausea, insomnia, and abnormal dreams; 10% AE drop-out rate<sup>4</sup>; neuropsychiatric AEs (eg, depression, agitation, suicidal thoughts or behaviour) are infrequent but require monitoring.<sup>5</sup>
  - Reported benefit of varenicline might be influenced by industry funding and lack of a pragmatic design.

Assuming 10% placebo cessation rates (mean across studies), approximate numbers needed to treat (at 6 to 12 months) are as follows: varenicline 8, nortriptyline 10, bupropion 10, and NRT 16.


## Context

- Smoking cessation is the most effective preventive maneuver for high-risk patients: an RCT<sup>6</sup> of aggressive intervention for 209 patients after critical care admission achieved a 2-year quit rate of 39% (9% for placebo) and mortality of 3% (vs 12%); number needed to treat was 11.
- Dosing:
  - Bupropion: 150 mg is equivalent to 300 mg.<sup>2,7</sup>
  - Varenicline: 0.5 mg twice daily is as effective (or almost as effective)<sup>8,9</sup> as 1 mg twice daily, but with fewer AEs.
  - Nortriptyline: start with 25 mg at bedtime and increase by 25 mg every 3 to 4 days, if the desire to smoke persists, to a maximum of 75 to 100 mg; encourage a quit date 10 days in (or so) and continue for 10 to 12 weeks.

## Bottom line

Nicotine replacement, bupropion, nortriptyline (off label), and varenicline are all effective in smoking cessation; AEs vary (and might relate to quitting smoking), but they are important and require monitoring.

## Implementation

Primary care providers can increase smoking cessation simply by advising patients to quit.<sup>10</sup> Although busy clinicians too often miss these opportunities,<sup>11</sup> reminder checklists or EMR prompts can increase the frequency of such interventions.<sup>12</sup> Smokers also benefit from help lines,<sup>13</sup> such as the Canadian Cancer Society program, which offers telephone and online support ([www.smokershelpline.ca](http://www.smokershelpline.ca)). 

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## Competing interests

Dr Els received funding from the makers of medication for smoking cessation up to a year ago. Currently, his work is funded by Alberta Cancer Legacy Fund.

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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