

## The missing link in tobacco control

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∞ See related research papers by Eisenberg and colleagues, page 135, and by Cunningham and Selby, page 145

Smoking is the single most preventable cause of death and disability. The World Health Organization estimates that, around the globe, 1.3 billion smokers purchase 10 million cigarettes every minute, and that every 8 seconds somebody dies from a tobacco-related disease. If current trends continue, smoking will kill 1 in 6 people worldwide.<sup>1</sup> The primary prevention of disease attributable to smoking requires effective treatment for the ultimate vector of this epidemic: tobacco dependence. Several pharmacotherapies have proven to be efficacious for the treatment of tobacco dependence. However, critical to the current and future success of tobacco control efforts is the dissemination of interventions from clinical trials to the broad population of tobacco users. Unfortunately, widespread dissemination of effective tobacco interventions remains elusive.

In this issue of *CMAJ*, Eisenberg and colleagues<sup>2</sup> report the results of their meta-analysis of pharmacotherapies for the treatment of tobacco dependence among cigarette smokers. Using relatively standard article search and selection methodology, the authors were appropriately rigorous in their criteria for article selection. They identified 69 well-designed randomized controlled trials that reported biochemically validated measures of abstinence at 6 months and 12 months. The use of biochemical validation provides additional assurance of self-reported smoking abstinence and enhances the validity of outcomes. Tracking patients for 6 to 12 months is standard in most smoking-cessation studies, which operate on the assumption that longer follow-up more closely correlates to lifelong smoking patterns. However, several studies have suggested that nontrivial relapse continues to occur beyond 1 year after the quit date.<sup>3</sup>

Using sophisticated techniques for meta-analysis, Eisenberg and colleagues observed that varenicline, bupropion and 4 types of nicotine replacement therapy (nasal spray, patch, gum and tablet) roughly doubled the odds of smoking abstinence compared with placebo. The nicotine inhaler also appeared to double the odds, but the results were not statistically significant. The ability to translate the inference of efficacy for the nicotine tablet is hindered because the authors combined data from 2 different preparations: the nicotine lozenge and the sublingual nicotine tablet. The tablet has different pharmacologic properties than the lozenge and is not approved for use in many countries.<sup>4</sup>

Since Eisenberg and colleagues conducted their systematic review of the literature, the 2008 update of the US Public Health Service Clinical Practice Guideline, "Treating Tobacco Use and Dependence," was released.<sup>5</sup> Despite some method-

### Key points

- Smoking is the most preventable cause of death and disability worldwide.
- Effective pharmacotherapies exist for the treatment of tobacco dependence.
- Tobacco control efforts need to focus on the dissemination of effective interventions.

ological differences, the guideline lends support to the authors' findings. It categorizes the 5 nicotine replacement therapies (patch, gum, inhaler, nasal spray and lozenge) and the 2 non-nicotine medications (i.e., bupropion and varenicline) reviewed by the authors as "first-line medications," which implies the highest level of efficacy with the fewest side effects.

Both the study by Eisenberg and colleagues and the US guideline nicely summarize the current efficacious pharmacotherapies available to treat tobacco dependence. Based on these analyses, we are confident that the recommended treatments will substantially increase rates of smoking abstinence when given to smokers who wish to quit. So why are we not doing a better job controlling the tobacco epidemic? The answer resides in our inability to disseminate effective interventions from the microcosm of the clinical research setting to the macrocosm of the population.

For countries that lack essential health care infrastructure, the challenges of treating tobacco dependence are substantial and clear. However, for industrialized nations with both the resources and infrastructure to substantially improve public health, barriers to widespread dissemination of effective treatments of tobacco dependence are insidious and multifaceted. Within the clinical setting, barriers include a primary emphasis on medically urgent issues, lack of time and support, inadequate training and low self-confidence among providers, and low rates of reimbursement for tobacco-treatment services.<sup>6</sup> At the population level, barriers include a lack of political will to restrict tobacco companies and to promote and disseminate the most effective tobacco control policies (e.g., smoke-free indoor air policies and higher tobacco taxes). In addition, local governments often divert funding intended for tobacco-treatment services to make up for budget shortfalls. However, many governments have invested political and fiscal capital to assist the expansion of "quitlines" — telephone counselling

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services for tobacco users. Tobacco quitlines have been shown to increase abstinence rates compared with minimal or no counselling, and to engage large numbers of smokers.<sup>5</sup> Tobacco quitlines frequently recommend or provide nicotine replacement therapy to callers. They also provide a potential platform for the dissemination of effective pharmacotherapies.

In another paper in this issue of *CMAJ*, Cunningham and Selby<sup>7</sup> address the issues of dissemination head-on by assessing the receptiveness of smokers to receiving nicotine replacement therapy. Through a Canadian population survey using random digit dialing, the authors contacted 825 daily smokers and asked whether they would be interested in receiving free nicotine replacement therapy and, if so, how they would use it. Most of the respondents expressed an interest. Among these smokers, virtually all indicated they would use it to “quit for good,” and more than 60% would begin use within 1 week of receiving it. Interestingly, 57.8% of the smokers who intended to reduce their smoking, and 42.4% of those who intended to maintain their smoking, said they would also be receptive to receiving nicotine replacement therapy. As the authors appropriately highlight, self-reports of intention do not predict behaviour. But this study opens the door to the development of programs to disseminate effective pharmacotherapies to a large number of smokers.

Because of a powerful multinational tobacco industry, the need to prevent death and disability from tobacco-related illnesses will not disappear. However, we have effective treat-

ments to assist smokers in their attempts to live free of tobacco. The success of our efforts hinges on our ability to place these products in the hands of people who will use them.

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