325 participants were recruited using random-digit dialing among known eligible participants, consistent with an established provincial health monitoring survey. Participants were contacted for follow-up beginning 1 month (February 1, 2017) after the implementation of the ban (January 1, 2017) through an online survey (206 recontacted [63.4%]). Those who were unavailable for follow-up did not differ by level of menthol smoking, age, sex, income, educational level, or smoking characteristics. Planned reaction to the ban, actual behavior at 1 month after the ban, and planned future reaction beyond 1 month after the ban were compared. Oral consent was obtained from all participants, and the analytic data set was deidentified. This study was approved by the research ethics board of the University of Toronto, Toronto, Ontario, Canada.

Results | A total of 325 participants participated in the study (181 [55.7%] male; 143 [44.0%] female; mean [SD] age, 47.1 [0.9] years). Before the ban, most menthol smokers (123 [59.7%]) said that they would switch to or only use nonmenthol cigarettes, but only 51 (28.2%) had done so at follow-up (Table). In contrast, a larger proportion (60 [29.1%]) attempted to quit compared with only 30 (14.5%) who said they would do so. Similarly, a larger proportion (60 [29.1%]) reported using other flavored tobacco or e-cigarette products (menthol was not banned in e-cigarette products) compared with their preban plans (12 [5.8%]).

After the ban, participants were less likely to anticipate using other flavored products. Of those who made a quit attempt, 16 (80.0%; 95% CI, 56.3%-92.5%) of those who primarily smoked menthol cigarettes at baseline suggested that the ban affected their decision to quit at least a little compared with 10 (25.6%; 95% CI, 14.1%-41.0%) of those who smoked menthol cigarettes only occasionally. Before the ban, 1 individual (0.3%) suggested trying to switch to marijuana and 4 (1.2%) suggested adding menthol to cigarettes separately using flavor cards, oils, or papers as substitutes for the lack of menthol, but none reported planning to use these substitutes in the future.

Discussion | This study is, to our knowledge, the first evaluation of the immediate association of a menthol cigarette ban with behavior change. Actual behaviors contrast sharply with planned behaviors. Although a substantial decrease in menthol cigarette use was observed, there was a considerable increase in use of flavored e-cigarettes and cigars. Furthermore, 29.1% of menthol smokers attempted to quit smoking shortly after ban implementation. Because previous studies have found an expected rate of 0.5 quit attempts and a 7.7% abstinence rate during a 6-month period in this population, this finding suggests that the ban substantially increased quit attempts. Few smokers used aftermarket additive flavorings, and there was no increase in the use of contraband tobacco. Limitations of this study include the unique demographics of menthol cigarette
smokers in Canada, where menthol cigarettes comprise 5% of cigarette sales, compared with 30% in the United States and use is not concentrated among black Canadians. The initial results suggest that removing menthol tobacco from the market is a feasible strategy that may influence cessation behavior, although differences between menthol users in Ontario, Canada, and other jurisdictions may affect the potential influence of a ban.

Michael Chaiton, PhD
Robert Schwartz, PhD
Joanna E. Cohen, PhD
Eric Soule, PhD
Thomas Eissenberg, PhD

Author Affiliations: Ontario Tobacco Research Unit, Toronto, Ontario, Canada (Chaiton, Schwartz, Cohen); Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada (Chaiton, Schwartz, Cohen); Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland (Cohen); Virginia Commonwealth University, Richmond (Soule, Eissenberg).

Accepted for Publication: December 21, 2017.

Corresponding Author: Michael Chaiton, PhD, Ontario Tobacco Research Unit, 155 College St, Toronto, Ontario, MST 3M7 Canada (michael.chaiton@utoronto.ca).

Published Online: March 5, 2018. doi:10.1001/jamanetworkmed.2017.8650

Author Contributions: Dr Chaiton had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: All authors.

Acquisition, analysis, or interpretation of data: Chaiton, Schwartz, Cohen, Eissenberg.

Drafting of the manuscript: Chaiton.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Chaiton.

Obtained funding: Chaiton, Schwartz, Eissenberg.

Administrative, technical, or material support: Schwartz, Cohen.

Supervision: Chaiton.

Conflict of Interest Disclosures: Dr Eissenberg reported serving as a paid consultant in litigation against the tobacco industry and is named on a patent application for a device that measures the puffing behavior of electronic cigarette users. No other disclosures were reported.

Funding/Sponsorship: This research was supported by award PS0DA036105 from the National Institute on Drug Abuse of the National Institutes of Health and the Center for Tobacco Products of the US Food and Drug Administration.
Menthol is a particularly important additive to cigarettes because, in addition to being a flavor, it is a local anesthetic that makes it easier to inhale tobacco smoke and modulates the effects of nicotine in a way that allows tobacco companies to tune nicotine and menthol delivery to maximize nicotine’s addictive effect. The 2009 Family Smoking Prevention and Tobacco Control Act, which gave the US Food and Drug Administration (FDA) authority to regulate tobacco products, included a provision that prohibited the use of characterizing flavors, including strawberry, grape, orange, clove, cinnamon, pineapple, vanilla, coconut, licorice, cocoa, chocolate, cherry, or coffee, but notably not menthol, in cigarettes. It is easy to understand why the tobacco industry fought so hard to successfully exclude menthol from the flavor ban. Menthol cigarettes are a starter product for youths, comprise 30% of cigarette sales, and are the dominant product smoked by African American individuals. Tobacco companies threatened to block the bill if menthol was prohibited.

The US Congress compromised by directing the FDA to have its new Tobacco Products Scientific Advisory Committee complete a report on “the impact of the use of menthol in cigarettes on the public health, including such use among African Americans, Hispanics, and other racial and ethnic minorities” within a year to inform future regulation. The Tobacco Products Scientific Advisory Committee completed the report within a year, concluding in July 2011 that “the removal of menthol products from the marketplace would be beneficial to the public’s health.”

Despite menthol cigarettes representing 5% of cigarette sales in Canada compared with 30% in the United States, the results of the study by Chaiton et al have 2 important implications for the United States and the rest of the world. First, as predicted, eliminating menthol is good for public health because it leads to an increase in quitting. Second, it is important that flavor bans be comprehensive, including all tobacco products (such as e-cigarettes) and all flavors. There are also likely to be additional public health benefits because elimination of menthol and flavors will make cigarettes and other tobacco products less attractive and less easy to smoke for youths.

In 2016, the FDA tried to limit the use of menthol and other flavors in e-cigarettes and other noncigarette tobacco products but was blocked by the Obama Administration. As of January 12, 2018, the FDA had not regulated menthol in cigarettes or any other tobacco product.

This failure at the federal level has spawned local action to stop the sales of menthol tobacco products. After community outreach by health advocates, town hall meetings, and work with clergy, aldermen, and women to argue that menthol products were being disproportionately marketed to black youths, in December 2013, the Chicago City Council passed the first menthol restrictions, forbidding the sale of menthol and all flavored products within 500 ft of Chicago public schools.

In June 2017, the city and county of San Francisco prohibited the sale of all flavored tobacco products, including menthol. This move was too much for the tobacco industry. Shortly after Mayor Ed Lee signed the new law in San Francisco, with $700 000 from tobacco giant RJ Reynolds, a group of self-proclaimed concerned citizens and local grocers announced that they were going to force a referendum on the new law to oppose government overreach and to protect freedom of choice. Their Let’s Be Real San Francisco collected enough signatures to force a popular vote on the ordinance on the June 2018 ballot.

Far from a group of concerned citizens, Let’s Be Real is led by a tobacco industry executive and attorneys from a law firm with longstanding ties to the industry. According to official filings, the principal officer of the committee is David Spross, not of San Francisco but of Winston-Salem, North Carolina. Spross is vice president of state government relations at tobacco company RJ Reynolds. Attorneys from the well-connected law firm Nielsen Merksamer (which represents RJ Reynolds and Altria) are serving as treasurer and assistant treasurer, respectively, of the campaign.

This situation is a replay of the industry’s 1983 referendum campaign to overturn San Francisco’s then-new law that limits smoking in the workplace and public places. (Nielsen Merksamer worked on that one, too.) Despite being outspent more than 10 to 1, health advocates successfully defended the ordinance, which subsequently encouraged states and communities around the world to create smoke-free environments.

What about the FDA? They are still thinking about what to do, which means that meaningful action on menthol and flavors is years away, if ever.

In the meantime, as with clean indoor air and tobacco tax policy, the action will occur at the local and state levels. On the basis of the 1983 experience, a win in San Francisco could substantially accelerate the movement to end the sale of menthol and flavored tobacco products, making the FDA increasingly irrelevant.

Stanton A. Glantz, PhD
Philip Gardiner, DrPH

Author Affiliations: Center for Tobacco Control Research and Education, Department of Medicine, Philip R. Lee Institute for Health Policy Studies, Helen Diller Family Comprehensive Cancer Center, University of California, San Francisco (Glantz); African American Tobacco Control Leadership Council, San Francisco, California (Gardiner).

Accepted for Publication: January 16, 2017.

Corresponding Author: Stanton A. Glantz, PhD, Center for Tobacco Control Research and Education, Department of Medicine, Philip R. Lee Institute for Health Policy Studies, Helen Diller Family Comprehensive Cancer Center, University of California San Francisco (Glantz), African American Tobacco Control Leadership Council, San Francisco, California (gardiner@medicine.ucsf.edu).

Published Online: March 5, 2018. doi:10.1001/jamainternmed.2018.0053

Conflict of Interest Disclosures: Dr Gardiner reported being cochair of the African American Tobacco Control Leadership Council, which works to end the sale of menthol tobacco products. No other disclosures were reported.

Funding/Sponsorship: This work was supported in part by grant P50 CA180890 from the National Cancer Institute and Foundation for Drug Administration Center for Tobacco Products and grant RO1DA043950 from the National Institute on Drug Abuse, National Institutes of Health (Dr Glantz).
Hypoglycemia in Hospice Patients With Type 2 Diabetes in a National Sample of Nursing Homes

Approximately one-quarter of the US population die in nursing homes,1 where end-of-life care is of variable quality.2 In particular, it is unknown whether patients with chronic illness, such as diabetes, continue to receive burdensome testing and treatment after transitioning to hospice care in nursing homes. Experts and the American Diabetes Association recommend relaxing glycemic control target levels for patients with diabetes and advanced disease and eventual discontinuation of medications as patients near death to avoid hypoglycemia.3,4 Hypoglycemia causes symptoms of weakness, diaphoresis, confusion, shakiness, and dizziness,5 and is a potentially preventable cause of suffering among hospice patients. Whether nursing home patients with type 2 diabetes on hospice are assessed for dysglycemia, receive insulin or oral hypoglycemic medications, or experience hypoglycemia and hyperglycemia has not previously been described.

Methods | We conducted a retrospective cohort study of patients older than 65 years with type 2 diabetes admitted to Veterans Affairs (VA) nursing homes between January 1, 2006, and June 30, 2015, using linked laboratory, pharmacy, and administrative data. We identified patients with type 2 diabetes by International Classification of Diseases, Ninth Revision (ICD-9) code or glycated hemoglobin values greater than 6.5%. We excluded patients with type 1 diabetes by ICD-9 code. For patients with multiple admissions during the study period, we chose the last admission. We used descriptive statistics to analyze demographic variables, comorbidities, and diabetes management (laboratory testing and drug administration), and stratified the cohort by whether patients received insulin while on hospice. We analyzed the cumulative incidence of hypoglycemia (glucose <70 mg/dL [to convert to mmol/L, multiply by 0.0555]), severe hypoglycemia (glucose <50 mg/dL), hyperglycemia (glucose >400 mg/dL), and the competing risk of death among all hospice patients and among patients treated with insulin vs patients not treated with insulin. This study was reviewed and approved by the University of California, San Francisco Committee on Human Research.

Results | The study cohort included 20 329 hospice patients (Table), 98% of whom were men (n = 19 991). Hospice patients had an 83% 100-day mortality rate (n = 16 791 deaths), and a median length of stay of 10 days. Eight percent of patients in the cohort received insulin (n = 1687). Among patients treated with insulin, mean baseline glycated hemoglobin levels were higher than patients not treated with insulin (7.4% vs 6.8%; P < .001), and the mortality rate at 100 days was lower (61% vs 85%; P < .001). Patients treated with insulin had more frequent glucose tests (mean 1.7 glucose tests/d vs 0.6 glucose tests/d among patients not treated with insulin; P < .001). The cumulative incidence of hypoglycemia (glucose <70 mg/dL) among all patients, accounting for the competing risk of death, was 12% at 180 days, and that of severe hypoglycemia (glucose <50 mg/dL) was 5% (Figure). Among patients treated with insulin, 38% experienced hypoglycemia and 18% experienced severe hypoglycemia at 180 days. The highest risk of hypoglycemia occurred in the first 20 days of admission. The cumulative incidence of hyperglycemia (glucose >400 mg/dL) at 180 days was 9% in all patients, higher in the group treated with insulin (35%).

Discussion | Despite guidelines that stress avoiding hypoglycemia in hospice patients with diabetes,4 we found that 1 in 9 nursing home patients with type 2 diabetes experienced hypoglycemia (glucose <70 mg/dL) while 1 in 20 experienced severe hypoglycemia (glucose <50 mg/dL) while on hospice. The risk of hypoglycemia was highest among patients treated with insulin, one-third of whom experienced hypoglycemia. Patients treated with insulin lived longer and experienced more hyperglycemia than patients not treated with insulin, which suggests that clinicians may be choosing to continue insulin for those hospice patients with a longer life expectancy and more severe diabetes at hospice admission. Nevertheless, hypoglycemia is not consistent with a goal of comfort, and these data demonstrate suboptimal avoidance of dysglycemia.