Policies to Reduce Smoking in Both the General Population and Among Groups Experiencing Health Disparities

Retail policies vary in the way they impact smoking initiation or cessation among African Americans, the LGBTQ population, or the general population in different communities based on income (high-income or low-income) and location (urban, suburban, or rural areas). As described below, significantly limiting where cigarettes can be sold can have a big impact on reducing smoking in the general population. Combining a policy that limits the sale of cigarettes to tobacco specialty shops with a policy that prevents tobacco retailers from opening or operating within a certain distance (e.g., 2000 feet) of other tobacco retailers may best strategy to protect the general population and also reduce health disparities in Minnesota.

Retail Store Location and Marketing of Menthol Tobacco Products Impacts Tobacco Use in Low-Income, African-American, and LGBTQ Populations

Although overall smoking rates have declined over the years, tobacco use continues to be the leading cause of preventable death and disease in the world.[1] The health impact of tobacco use affects various groups of people differently. Throughout the U.S., most smokers live below the poverty level, African Americans are more likely to die from smoking-related disease than white people, and LGBTQ adults smoke at higher rates than straight adults.[2]

In Minnesota, low-income adults are nearly three times as likely to smoke (24.4%) as their high-income peers (8.7%);[3] 21% of African-American adults smoke and are more likely than non-Latino whites to die of lung cancer and heart disease; and LGBTQ persons are nearly twice as likely to smoke (25.7%) as the general adult population (14.4%)

The differences in these rates are not coincidental — tobacco companies target these populations by placing more tobacco retail stores in minority and low-income neighborhoods, and by advertising more directly to people in these populations and offering them tobacco products at reduced prices.[4] In addition, the industry targets African-American and LGBTQ communities when peddling menthol — an additive that makes tobacco products less harsh — resulting in higher use of menthol products in these communities.[5] Strong scientific evidence continues to show that if menthol cigarettes were not available, fewer kids would start smoking and more adults would quit smoking.[6]

Many states and localities are considering new retail policies to counter the tobacco industry's use of retail stores to encourage kids to start smoking and to discourage adults from quitting.[7, 8] At least 380,000 stores in the U.S. sell tobacco products.[9, 10]

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Computer Simulations to Test Policy Combinations for Different Communities and Populations

The Tobacco Town Minnesota (TTMN) project is a collaboration between researchers at the Brookings Institution, the Public Health Law Center, and Washington University, funded by a research grant from ClearWay[SM] Minnesota (RC-2017-0010). The research team used actual demographic, economic, and tobacco use data from six different Minnesota communities to create six prototype town types and then conducted computer simulations to test the likely impact of cigarette sales restrictions in each community.

Four types of policies were tested alone and in combination with each other:

- Restricting the sale of menthol cigarettes;

- Limiting the types of stores in which cigarettes can be sold;

- Limiting how close tobacco retailers can be to each other; and

- Limiting how close tobacco retailers can be to landmarks, such as schools.

The researchers examined how these policies might impact smoking initiation or cessation among African Americans, the LGBTQ population, or the general population in high-income or low-income communities in urban, suburban, or rural areas of Minnesota.

How the Model Worked

The researchers created an artificial society of individuals in different town types within Minnesota. Using Minnesota and national data, the individuals had specific demographic traits, cigarette use, and purchase patterns, and traveled in different ways throughout their communities to tobacco retail stores. The density of retailers and cigarette prices in each virtual community were based on real-world data for the typical case (e.g., urban or suburban low-income neighborhoods) in Minnesota. The researchers then analyzed how policy changes affected cigarette purchasing decisions: Did individuals buy menthol cigarettes or regular cigarettes, and in what quantity? Did they stop buying cigarettes? Which retailers did they visit? Each individual's purchasing decisions were driven by direct (price of cigarettes) and indirect costs (time needed and distance traveled to buy cigarettes).

Tobacco retailers in Minnesota are most concentrated in areas where populations disparately impacted by menthol cigarette use (low-SES, African American, LGBTQ) live. Policies that reduced retailer density generally showed the most promise for advancing health equity while increasing indirect costs — and, thus, reducing use — among all populations. Combining density-focused policies with menthol-specific policies showed much promise for reducing tobacco use in the general population while simultaneously closing gaps in health disparities.

POTENTIAL CHANGE IN DISTANCE TRAVELED TO PURCHASE MENTHOL

Combining the restriction of menthol sales with a 2000-foot retailer-to-retailer buffer policy has more equity-increasing potential, in that all populations would likely travel over 2 miles on average to purchase menthol cigarettes.

Limiting Where Cigarettes Can Be Sold Likely Will Have the Strongest Impact on Smoking throughout Minnesota, and Combining this Policy with Menthol-Focused Restrictions Should Reduce Health Disparities

- Low-income communities have higher retailer densities as well as more African-American and LGBTQ residents than high-income communities.

- Some retail policies may reduce smoking more among higher-income persons than lower-income persons, due to factors that influence purchasing decisions.

- The single policy that may have the strongest impact on smoking prevalence throughout Minnesota is one that prohibits the sale of all cigarettes in all stores except tobacco-only stores.
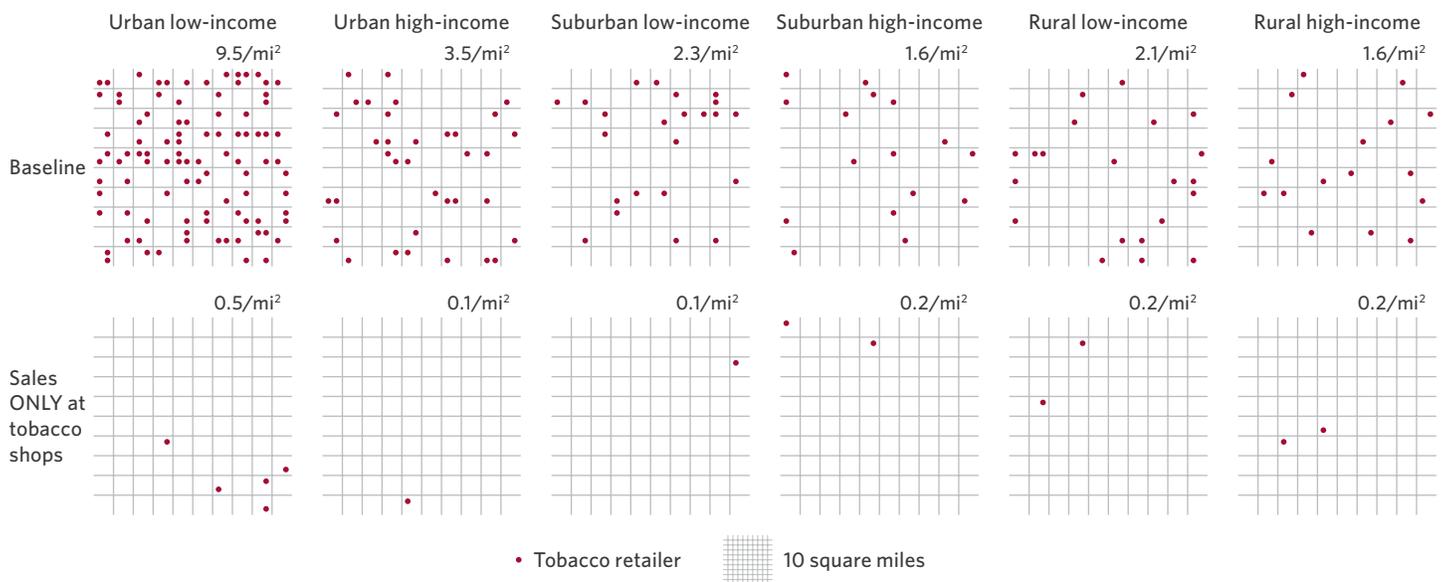
Typical retailer density before and after restricting sales to tobacco specialty shops and implementing retailer-to-retailer buffer of 2000 feet in 6 different community types. Urban low-income neighborhoods in Minnesota have much higher concentrations of retailers than all other communities. Though adding the buffer policy seems to have no additional impact, it can help sustain effects on tobacco access and use over time by preventing new tobacco retail locations.

- Depending on the needs of specific communities, pairing a policy that limits the sale of all cigarettes, or menthol cigarettes, to tobacco specialty shops with a policy that prevents tobacco retailers from opening or operating within a certain distance (e.g., 2000 feet) of other tobacco retailers would most likely reduce smoking prevalence among priority populations and throughout Minnesota. The addition of the retailer-to-retailer buffer can help increase the sustainability of impact, by forestalling retailer and industry reactions, such as opening new standalone specialty stores or creating *stores within a store* (e.g., enclosed areas in existing stores classified as tobacco shops).

This research shows that some tobacco control retail policies may be more effective than others in particular communities. When adopting new tobacco control policies, decision makers will need to look at which policies are already in place and which combination of policies are best for the needs of the specific community.

An interactive dashboard with more model details and results is available at https://tobaccotown.shinyapps.io/Minnesota.

Endnotes

1 World Health Organization, WHO Report on the Global Tobacco Epidemic (2017).

2 Centers for Disease Control & Prevention, Cigarette Smoking and Tobacco Use Among People of Low Socioeconomic Status (last accessed Dec. 15, 2018), https://www.cdc.gov/tobacco/disparities/low-ses/index.htm; Centers for Disease Control & Prevention, Lesbian, Gay, Bisexual, and Transgender Persons and Tobacco Use (last accessed Dec. 15, 2018), https://www.cdc.gov/tobacco/disparities/lgbt/index.htm.

3 Minnesota Dep't of Health, Tobacco Data. http://www.health.state.mn.us/divs/hpcd/tpc/docs/tobacco_data.pdf.

4 Centers for Disease Control & Prevention, Cigarette Smoking and Tobacco Use Among People of Low Socioeconomic Status (last accessed Dec. 15, 2018), https://www.cdc.gov/tobacco/disparities/low-ses/index.htm; Centers for Disease Control & Prevention, Lesbian, Gay, Bisexual, and Transgender Persons and Tobacco Use (last accessed March 7, 2018), https://www.cdc.gov/tobacco/disparities/lgbt/index.htm.

5 Jessica Rath et al., *Correlates of Current Menthol Cigarette and Flavored Other Tobacco Product Use Among U.S. Young Adults*, 62 Addictive Behaviors 35-41 (2016), http://www.sciencedirect.com/science/article/pii/S0306460316302040.

6 Andrea Villanti et al., *Menthol Cigarettes and the Public Health Standard: A Systematic Review*, 17 BMC Public Health 983 (2017), https://link.springer.com/article/10.1186/s12889-017-4987-z.

7 Center for Public Health Systems Science, *Point-of-Sale Report to the Nation: The Tobacco Retail and Policy Landscape*, Washington University in St. Louis and National Cancer Institute, State and Community Tobacco Control Research Initiative (2014).

8 U.S. Dep't of Health and Human Servs., Centers for Disease Control & Prevention, *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General* (2012).

9 Center for Public Health Systems Science, *Point-of-Sale Report to the Nation: The Tobacco Retail and Policy Landscape*, Washington University in St. Louis and National Cancer Institute, State and Community Tobacco Control Research Initiative (2014) (estimating 375,000 tobacco retailers in the U.S., not including retailers that only sell e-cigarettes).

10 U.S. Dep't of Health and Human Servs., Food and Drug Admin., *Deeming Tobacco Products to be Subject to the Food, Drug, and Cosmetic Act, as Amended by the Family Smoking Prevention and Tobacco Control Act: Final Regulatory Impact Analysis* (2016), https://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/EconomicAnalyses/UCM500254.pdf (estimating that between 5,000 and 10,000 U.S. retailers sold only e-cigarettes).