

compare favorably to nicotine-replacement therapies in terms of the likelihood of having returned to smoking 6 months after a cessation attempt.<sup>5</sup>

Given the near unanimity of the public health community in pressing for harm reduction for injection-drug users in the face of relentless political opposition, some harm-reduction advocates find it stunning that their allies in that struggle have embraced an abstinence-only position on smoking. These advocates claim that a strategy of reducing, though not eliminating, risk is a moral imperative, given the certainty of harm associated with continued tobacco smoking.

The debate's stakes are heightened by the current discussion of the tobacco endgame, which aims to eliminate smoking or reduce it to very low levels. Most endgame strategists have advanced prohibitionist policies, from complete bans on traditional cigarettes, to regulatory strategies that would reduce and eventually eliminate nicotine, to efforts to manipulate pH levels in tobacco to make inhaling unpleasant.

This debate compels us to address the fundamental issue posed

by Kenneth Warner in a recent issue of *Tobacco Control* devoted to endgame strategies: “What would constitute a final victory in tobacco control?” Warner’s question raises several others: Must victory entail complete abstinence from e-cigarettes as well as tobacco? To what levels must we reduce the prevalence of smoking? What lessons should be drawn from the histories of alcohol and narcotic-drug prohibition?

From the glowing tip to the smokelike vapor, e-cigarettes seek to mimic the personal experience and public performance of smoking. But ironically, the attraction of the device is predicated on the continued stigmatization of tobacco cigarettes. Although abstinence-only and strict denormalization strategies may be incompatible with e-cigarette use, the goal of eliminating smoking-related risks is not. We may not be able to rid the public sphere of “vaping,” but given the magnitude of tobacco-related deaths — some 6 million globally every year and 400,000 in the United States, disproportionately among people at the lower end of the socioeconomic spectrum — an unwillingness to consider e-cigarette use until all

risks or uncertainties are eliminated strays dangerously close to dogmatism. We believe that states should ban the sale of e-cigarettes to minors and the FDA should move swiftly to regulate them so that their potential harms are better understood — and so that they can contribute to the goal of harm reduction.

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## Tobacco 21 — An Idea Whose Time Has Come

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On November 19, 2013, New York City Mayor Michael Bloomberg signed into law the “Tobacco 21” bill, imposing the strictest age restriction on tobacco sales of any major U.S. city.<sup>1</sup> Beginning in May 2014, it will be illegal to sell tobacco products and electronic cigarettes to persons younger than 21 years of age. The law stops short of making possession of tobacco products by per-

sons under 21 a crime, placing the responsibility on retailers under penalty of civil fines.

Regulations issued by the Food and Drug Administration (FDA) set the national minimum tobacco-sales age at 18 but allow states and localities to enact laws setting a higher minimum age. In 2013, seven Massachusetts towns and one Hawaiian county adopted Tobacco 21 laws. Similar legisla-

tion has been introduced in a growing number of communities and at least three states: New Jersey, New York, and Utah. Further dissemination of Tobacco 21 laws represents a critical opportunity for public health law to reduce one of the most important health risks facing the U.S. population.

A generation ago, a similar strategy proved successful in curbing alcohol use by young

people and its social harms. The national minimum drinking age of 21, adopted universally by the states after Congress made it a condition of receiving federal highway funds in 1984, is credited with decreasing alcohol consumption, drunk driving, and motor vehicle accidents among young people.<sup>2</sup> These laws have withstood the test of time, against objections that find echoes in those raised to Tobacco 21 laws.

Chief among these objections are protests against “nanny state” interference with the decisions of young adults. If these people are old enough to vote and enlist in the military, it is argued, they are old enough to make decisions that affect their own health. There is also initial skepticism about the effectiveness of restrictions on access for young people, who may make purchases in surrounding jurisdictions with lower minimum ages or may buy tobacco or alcohol from friends. Finally, critics worry about the cost to small businesses.

Tobacco 21 laws are too new to have generated rigorous evidence concerning their effectiveness, but early data are provocative. Consider the case of Needham, Massachusetts, which in 2005 became the first town in the country to adopt such a law. Before fully implementing the measure, the town had a smoking rate among high school students of 12.9%, as compared with 14.9% in surrounding towns, according to the Youth Risk Behavior Surveillance System. By 2010, the youth smoking rate in Needham had fallen by nearly half, to 6.7%, while the rate in surrounding communities decreased to 12.4%. The percentage decline in Needham was nearly triple that of its neighbors — contradicting the

hypothesis that young people will simply shift their purchases to surrounding towns.

The most compelling case for Tobacco 21 laws comes not from experience, however, but from the epidemiology and science of smoking addiction. Eighty percent of adult smokers began smoking daily before 20 years of age,<sup>3</sup> and 90% of persons who purchase cigarettes for distribution to minors are under 21.<sup>4</sup> Increasing the minimum tobacco-sales age to 21 could virtually eliminate minors’ ability to buy from other local high school students, substantially raising barriers to access. It therefore addresses a major reason why — as critics hasten to point out — existing age restrictions have not successfully eliminated smoking among children.

There remains the prospect of shopping across jurisdictional lines, but minors are not a highly mobile population that can easily cross borders for regular purchases. Although those who are already addicted may be sufficiently motivated to do so, increasing the transaction costs associated with obtaining tobacco products may reduce daily consumption among regular users and discourage others from starting to smoke. Protecting younger adolescents is a key goal, but often overlooked is the fact that 31% of smokers progress to daily smoking in early adulthood.<sup>3</sup> For this group, the practical costs of increasing tobacco use shift from negligible to considerable under Tobacco 21 laws.

Erecting further barriers to tobacco use among adolescents is especially crucial in light of evolving neuroscientific evidence that the adolescent brain has a heightened susceptibility to the addictive qualities of nicotine.<sup>3</sup>

While people are still experimenting with tobacco use and before they’re aware of their own addiction, they go through a process in which they first want, then crave, then need nicotine. Once they reach the point of need, they are often unable to quit. Research suggests that adolescents can become dependent on nicotine very rapidly, at lower levels of consumption than adults; that they are undergoing alterations in the structure and function of the brain that make them more vulnerable to addiction to nicotine and other substances over the long term; and that they may be less responsive than adults to nicotine-replacement therapy.<sup>3</sup> Adolescents’ greater impulsivity and risk taking also leads them to discount the potential consequences of tobacco experimentation and use. These tendencies place young people at high risk for addiction, which is a strong counterpunch to objections related to paternalistic interference with free choice.

The burdens associated with any new regulation should be carefully considered, but Tobacco 21 laws would not impose major new compliance costs. FDA regulations already require tobacco retailers to check the identification of anyone seeking to purchase tobacco products who appears to be younger than 27. Convenience stores and other outlets that sell alcoholic beverages also already enforce the minimum purchase age of 21 for alcohol. Tobacco retailers and producers fear, with reason, that Tobacco 21 laws will mean lost sales revenue, but that has never been a strong argument for permitting the sale of a lethal product to young people. Finally, enforcement costs to the government

are offset to a degree by revenue generated through fines.

One barrier to successful implementation of Tobacco 21 laws is the prospect of incomplete compliance by retailers. Compliance with the 18-year minimum has been variable, and interventions to boost compliance have had mixed success.<sup>5</sup> Some retailers may prove even more reluctant to comply with Tobacco 21 laws, particularly in challenging economic times, because they further undercut already-reduced sales revenue and lack the perceived moral force of laws that more explicitly aim to protect children.

Studies show that the extent to which such access restrictions reduce the prevalence of smoking among young people depends on the vigor with which authorities enforce them.<sup>5</sup> Strong incentives for enforcement activities can be provided through mechanisms such as the Synar Amendment, which made a portion of federal block grants from the Substance Abuse and Mental Health Services Administration conditional on states' willingness to adopt poli-

cies to restrict tobacco sales to minors and demonstrate high levels of compliance with these laws.

A forthcoming FDA report to Congress on the public health impact of raising the minimum tobacco-sales age could soon place Tobacco 21 legislation on the federal agenda. In the interim, further state and local policy leadership can help to generate effectiveness data to determine whether the policy merits nationwide adoption and what implementation problems should be anticipated.

According to a recent Gallup poll, nearly 90% of U.S. adults who smoke report that if they had it to do over again, they would not have started. Helping today's adolescents avoid that regret requires a comprehensive strategy that includes strong supply-side interventions. We believe that Tobacco 21 laws are a logical next step.

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## Smoke, the Chief Killer — Strategies for Targeting Combustible Tobacco Use

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January 2014 marks the 50th anniversary of the landmark *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service* — an important moment to take stock of efforts to eliminate the harms of tobacco use. Smoking rates in the United States have decreased dramatically over the past 50 years. The prevalence of smoking among adults fell from

about 43% in 1965 to about 18% in 2012, meaningfully reducing rates of smoking-caused disease and death. These outcomes are a testament to the policy, legal, and clinical strategies begun 50 years ago that have reduced tobacco use and mitigated its harms.

The current landscape of tobacco use presents new challenges and opportunities. Nearly 50 million Americans continue to use

some form of tobacco, with much higher rates among the poor, the mentally ill, illicit-substance and alcohol abusers, Native Americans, and lesbian, gay, bisexual, and transgender persons. But research now quite clearly highlights the specific harms of combustible tobacco use (cigarette, pipe, and cigar smoking): given that up to 98% of tobacco-related deaths are attributable to combustible