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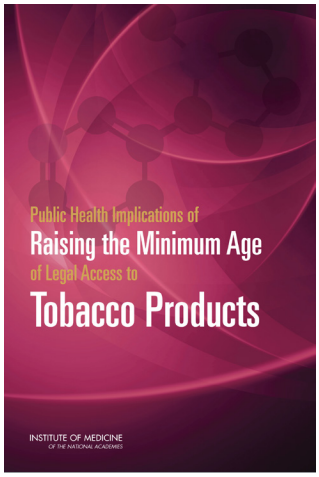
Public Health Implications of Raising the Minimum Age of Legal Access to Tobacco Products



Over the past 50 years, tobacco control in the United States has led to an estimated 8 million fewer premature deaths. However, tobacco use continues to significantly affect public health, and more than 40 million Americans still smoke.

In 2009, the Family Smoking Prevention and Tobacco Control Act granted the U.S. Food and Drug Administration (FDA) broad authorities over tobacco products, though it prohibited FDA from establishing a nationwide minimum age of legal access—an MLA for tobacco products—above 18 years of age. It also directed FDA to convene a panel of experts to conduct a study on the public health implications of raising the minimum age to purchase tobacco products. At FDA's request, the Institute of Medicine (IOM) convened a committee in 2013 for this purpose.

In the resulting report, *Public Health Implications of Raising the Minimum Age of Legal Access to Tobacco Products*, the committee of experts reviews existing literature on tobacco use initiation, developmental biology and psychology, and tobacco policy and predicts the likely public health outcomes of raising the MLA for tobacco products to 19 years, 21 years, and 25 years. The committee also uses mathematical modeling to quantify these predictions. Of note, the report contains only conclusions regarding raising the MLA; as requested by FDA, the committee does not offer recommendations as to whether the MLA should be raised.

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Lowering Initiation Rates

The initiation age of tobacco use is critical. Among adults who become daily smokers, approximately 90 percent report first use of cigarettes before reaching 19 years of age, and almost 100 percent report first use before age 26. As mentioned above, FDA cannot raise the MLA nationwide. However, states and localities can set a higher minimum age for their communities. Most states currently set the MLA at 18 years. Four states set it at 19 years, and several localities around the country have raised the minimum age to 21 years.

Based on its review of the literature, the committee concludes that overall, increasing the MLA for tobacco products will likely prevent or delay initiation of tobacco use by adolescents and young adults. The age group most impacted will be those age 15 to 17 years. The committee also concludes that the impact of raising the MLA to 21 will likely be substantially higher than raising it to 19. However, the added effect of raising the MLA from 21 to 25 will likely be considerably less.

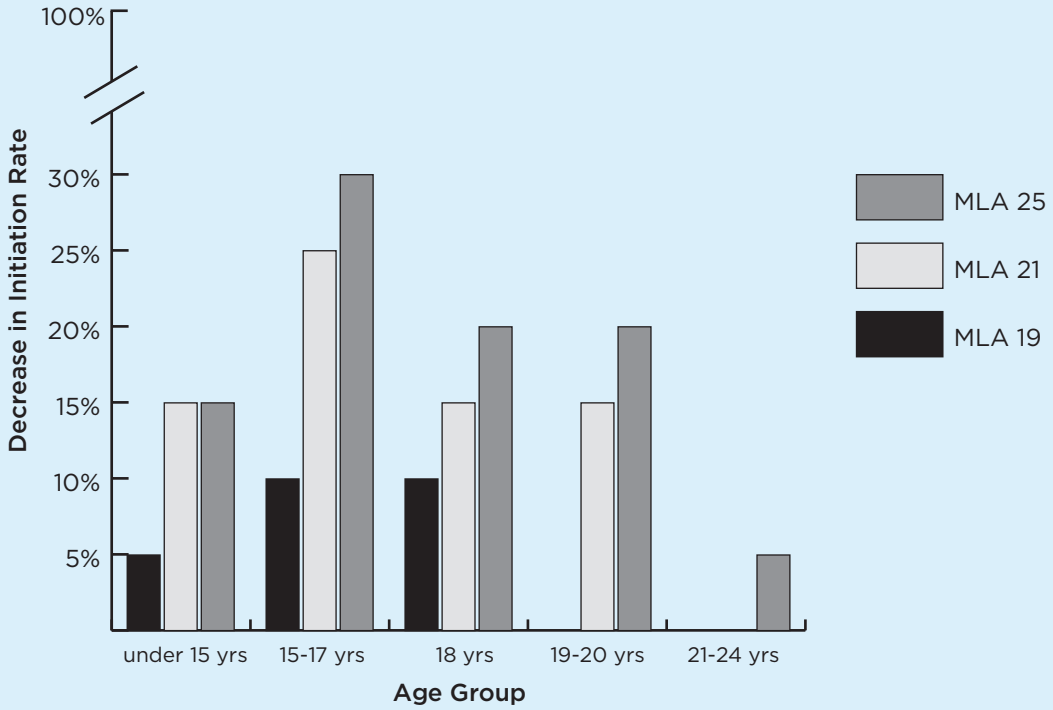
The parts of the brain most responsible for decision making, impulse control, sensation seeking, and susceptibility to peer pressure continue to develop and change through young adulthood, and adolescent brains are uniquely vulnerable to the effects of nicotine. In addition, the majority of underage users rely on social sources—like family and friends—to get tobacco.

Raising the MLA to 19 will therefore not have much of an effect on reducing the social sources of those in high school. Raising the MLA to 21 will mean that those who can legally obtain tobacco are less likely to be in the same social networks as high school students. In the same vein, increasing the MLA from 21 to 25 is not likely to achieve additional notable reductions in social sources for those under age 15.

Reducing Prevalence, Decreasing Disease

Delaying initiation rates will likely decrease the prevalence of tobacco users in the U.S. population. To quantify this decrease in both prevalence of tobacco users and in related health concerns

FIGURE: Committee Estimates Regarding Effects on Initiation Rates



NOTE: This figure was created using data from Table 7-2 in the report.

The parts of the brain most responsible for decision making, impulse control, sensation seeking, and susceptibility to peer pressure continue to develop and change through young adulthood, and adolescent brains are uniquely vulnerable to the effects of nicotine and nicotine addiction.

that could be a result of raising the MLA, the committee commissioned the use of two established and complementary tobacco simulation models, SimSmoke and the Cancer Intervention and Surveillance Modeling Network smoking population model (CISNET).

In using the models, the committee employed all available evidence and expert judgment to project outcomes. The committee also had to make assumptions with important implications. The models only address cigarette smoking, but the committee expects the MLA and relative effects on initiation to apply to all tobacco products. In addition, the models project the effects of raising the MLA on the United States as a whole and do not take into account existing variations in tobacco use—such as by race or socioeconomic status—initiation rates, and tobacco control activities. In addition, the rapidly changing landscape of tobacco products—for example, e-cigarettes—provides unknowns and could affect the future of tobacco product use in ways that the committee was unable to anticipate due to lack of evidence.

Based on the modeling and backed up by the literature review, the committee concludes that raising the minimum age of legal access to tobacco products in the United States, particularly to ages 21 and 25, will likely lead to a substantial reduction in smoking prevalence. If the MLA were raised now, the models projected that by the time today's teenagers were adults, there would be a 3 percent decrease in prevalence of tobacco use among those adults if the MLA were raised to 19, a 12 percent decrease if raised to 21, and a 16 percent decrease if raised to 25.

Given a decline in the initiation rates of tobacco use by adolescents and lower prevalence in the population, it follows that tobacco-related disease would also decrease in proportion to the reduction in tobacco use. It is generally known that smoking-related diseases like cancer and heart disease develop over decades, and therefore, it could take many years to lower rates of these diseases; however, there could be immediate decreases in other tobacco-related health effects.

The committee concludes that raising the MLA will likely immediately improve the health of adolescents and young adults by reducing the number of those with adverse physiological effects such as increased inflammation and impaired immune functioning caused by smoking, as these could potentially lead to negative health consequences, including increased hospitalizations and lessened capacity to heal wounds. Adverse maternal, fetal, and infant outcomes—including preterm births, low birth weight, and sudden infant death—will also probably decrease due to reduced tobacco exposure in mothers and infants. Raising the MLA will also lessen the population's exposure to secondhand smoke and its associated health effects, both now and in the future.

Over time, the committee concludes that raising the MLA will likely lead to substantial reductions in smoking-related mortality, though results from the models suggest that these results will not be observed for at least 30 years, assuming that the MLA increase occurs now. The CISNET model

projected that if the MLA were raised now to 21 nationwide, there would be approximately 223,000 fewer premature deaths, 50,000 fewer deaths from lung cancer, and 4.2 million fewer years of life lost for those born between 2000 and 2019.

Conclusion

The public health impact of raising the MLA for tobacco products depends on the degree to which local and state governments change their policies. These decisions will depend on each state's or locality's balance between personal interests and the privacy of young adults to make their own choices versus society's legitimate concerns about protecting public health.

The IOM committee makes conclusions about likely public health outcomes of raising the MLA for tobacco products. Overall, in the absence of transformative changes in the tobacco market, social norms and attitudes, or in the knowledge of patterns and causes of tobacco use, the committee is reasonably confident that raising the MLA will reduce tobacco use initiation, particularly among adolescents 15 to 17 years of age; improve the health of Americans across the lifespan; and save lives.

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