

Designed for Addiction

*How the Tobacco Industry Has
Made Cigarettes More Addictive,
More Attractive to Kids and
Even More Deadly*

Executive Summary



June 23, 2014



Bronchodilators

Added chemicals expand the lungs' airways, making it easier for tobacco smoke to pass into the lungs.

Flavorings

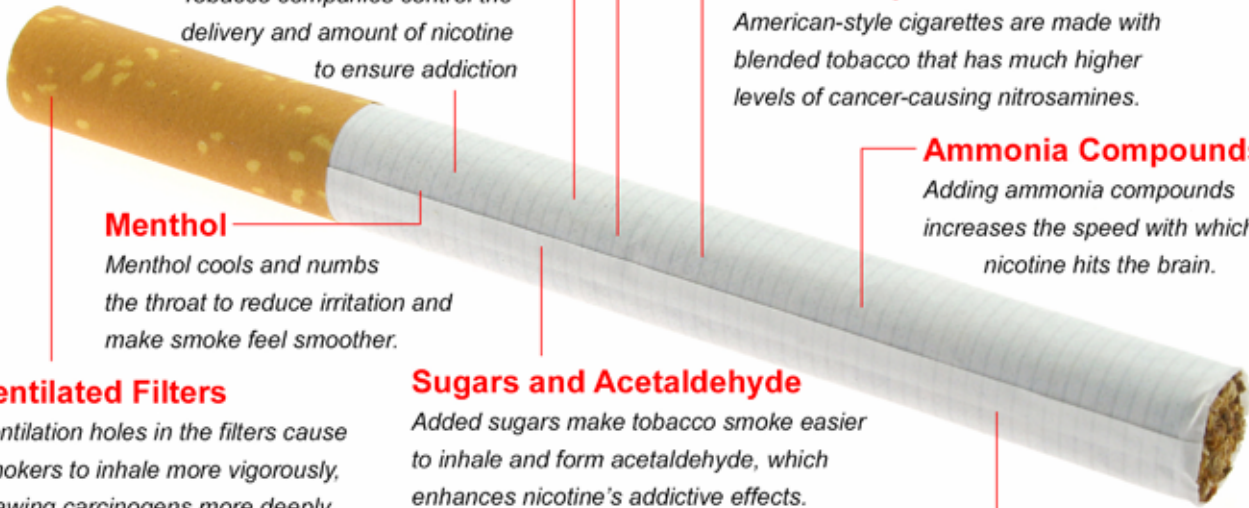
Added flavors like liquorice and chocolate mask the harshness of smoke and make products more appealing to new users, especially kids.

Increased Nicotine

Tobacco companies control the delivery and amount of nicotine to ensure addiction

Tobacco-specific Nitrosamines

American-style cigarettes are made with blended tobacco that has much higher levels of cancer-causing nitrosamines.



Menthol

Menthol cools and numbs the throat to reduce irritation and make smoke feel smoother.

Ammonia Compounds

Adding ammonia compounds increases the speed with which nicotine hits the brain.

Ventilated Filters

Ventilation holes in the filters cause smokers to inhale more vigorously, drawing carcinogens more deeply into the lungs.

Sugars and Acetaldehyde

Added sugars make tobacco smoke easier to inhale and form acetaldehyde, which enhances nicotine's addictive effects.

Levulinic Acid

Added organic acid salts reduce harshness of nicotine and make smoke smoother, less irritating.

Executive Summary

In the 50 years since the first Surgeon General's report on smoking and health alerted Americans to the deadly consequences of cigarette smoking, the United States has made enormous progress in reducing tobacco use. The adult smoking rate has been cut by more than half – from 42.4 percent in 1965 to 18.1 percent in 2012. After climbing to 36.4 percent in 1997, the high school smoking rate has been cut by 57 percent, to 15.7 percent in 2013. Annual per capita cigarette consumption has fallen by more than 70 percent since peaking in 1963.

Nevertheless, tobacco use remains the nation's number one cause of preventable, premature death. In fact, the new Surgeon General's report released in January 2014, *The Health Consequences of Smoking – 50 Years of Progress*, found that cigarette smoking takes an even greater toll on health, lives and dollars than has previously been reported. The report found that smoking currently kills 480,000 Americans each year, sickens millions more and costs the nation at least \$289 billion annually in health care bills and economic losses.¹

About 42 million adults and nearly 3 million children still smoke in the U.S. Approximately half of continuing smokers will die prematurely as a result of their addiction, losing at least a decade of life on average compared to nonsmokers.

Shockingly, the latest Surgeon General's report found that cigarettes today pose an even greater risk of disease than the cigarettes sold when the first Surgeon General's report was issued in 1964. The report concludes, "The evidence is sufficient to infer that the relative risk of dying from cigarette smoking has increased over the last 50 years in men and women in the United States."

Specifically, the report found that "today's cigarette smokers – both men and women – have a much higher risk for lung cancer and chronic obstructive pulmonary disease (COPD) than smokers in 1964, despite smoking fewer cigarettes." The report finds that "changes in the design and composition of cigarettes since the 1950s" are responsible for smokers' increased risk of developing lung cancer.²

This key conclusion of the Surgeon General helps to answer a critical question: Why does tobacco use remain such an enormous public health problem?

Prior reports have highlighted the role of tobacco marketing, especially in causing kids to start and continue using tobacco. The tobacco industry continues to spend huge sums – \$8.8 billion a year, or \$1 million every hour – to market its products, according to the latest data from the Federal Trade Commission.

What was not known until recently is the public health impact of design changes the tobacco industry has made to the cigarette itself.

The evidence is now clear: Over the past 50 years, tobacco manufacturers have designed and marketed ever more sophisticated products that are highly effective at creating and sustaining addiction to nicotine, more appealing to new youth smokers and more harmful. They took a deadly and addictive product and made it worse, putting smokers at even greater risk of addiction, disease and death.

This report describes key ways in which tobacco companies design and manipulate their products to attract new youth smokers, create and sustain addiction, mislead consumers to think that they are reducing their risk of disease and make it more difficult for users to quit. In addition, as the latest Surgeon General's report found, the design changes during the past 50 years have also made cigarettes even more dangerous.

This report is based on an extensive review of scientific studies and tobacco industry documents made public as a result of litigation against the industry. It also draws on the conclusions of Surgeon General's reports and the 2006 Final Opinion of U.S. District Court Judge Gladys Kessler, who in *U.S. v. Philip Morris, Inc.*, found the major cigarette

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– 2014 Surgeon General's Report

manufacturers had violated civil racketeering laws by deceiving the American people about the addictiveness and health risks of their products.³

This evidence makes clear that tobacco products – and cigarettes in particular – are highly engineered to expand the appeal of these products and facilitate the consumption of and addiction to nicotine, a highly addictive drug. Tobacco companies also know that almost all new smokers begin their addiction as children and that smoking is distasteful for new smokers, so they carefully design the product to appeal to this important market. The companies have spent huge sums to research the design of their products and ensure they achieve these goals, even if the impact of these changes also makes the product more dangerous.

INCREASING THE ADDICTIVENESS OF CIGARETTES

Independent evidence and the tobacco industry's own documents make clear that the tobacco companies have used design features and chemical additives in the manufacturing process in ways that increase the impact of nicotine, the addictive agent in tobacco products. Some of the ways the addictiveness of cigarettes has been increased include:

- **Increasing nicotine levels**
- **Adding ammonia or ammonia compounds**, which increase the speed at which nicotine is delivered to the brain
- **Adding sugars**, which increase the addictive effects of nicotine and make it easier to inhale tobacco smoke.

As Judge Kessler concluded in her final opinion, “Defendants have designed their cigarettes to precisely control nicotine delivery levels and provide doses of nicotine sufficient to create and sustain addiction.”⁴

Similarly, the 2010 Surgeon General's report, *How Tobacco Smoke Causes Disease – the Biology and Behavioral Basis for Smoking-Attributable Disease*, found that cigarettes are designed for addiction. The Surgeon General's Fact Sheet summarizing the key findings of the report stated:

“The design and contents of tobacco products make them more attractive and addictive than ever before. Cigarettes today deliver nicotine more quickly from the lungs to the heart and brain. While nicotine is the key chemical compound that causes and sustains the powerful addicting effects of cigarettes, other ingredients and design features make them even more attractive and more addictive.”⁵

MAXIMIZING THE APPEAL OF TOBACCO PRODUCTS TO YOUTH AND OTHER GROUPS

In addition to controlling the addictive properties of their products, tobacco companies also manipulate their products in ways that attract new smokers and increase the likelihood that they will become regular smokers. By altering the taste, smell and other sensory attributes of their products, tobacco manufacturers make it easier for new users – the vast majority

of whom are kids – to start and continue smoking. Since the nicotine can make tobacco smoke harsh and difficult to smoke, manufacturers use chemical additives to alter the taste and smoothness of tobacco use in ways that make tobacco products more appealing to the young, novice smoker.

Additives the industry uses to attract new tobacco users include:

- **Levulinic acid** reduces the harshness of nicotine and makes the smoke feel smoother and less irritating.
- **Flavorings, such as chocolate and liquorice**, boost the sweetness of tobacco, mask the harshness of the smoke and make tobacco products more appealing to young people.
- **Bronchodilators** expand the lungs' airways, making it easier for tobacco smoke to pass into the lungs.
- **Menthol** cools and numbs the throat to reduce throat irritation and makes the smoke feel smoother.

DESIGN CHANGES IN RECENT DECADES HAVE MADE CIGARETTES MORE LETHAL

As noted previously, the latest Surgeon General's report established that cigarette smokers today have a much higher risk of developing lung cancer and COPD than smokers in 1964, and it attributed the increased risk of lung cancer to the tobacco industry's changes in the design and composition of cigarettes. The report identified two specific changes as the most likely reason for the increased risk of developing lung cancer:

- **An increase in the levels of highly carcinogenic tobacco-specific nitrosamines (TSNAs) in U.S. cigarettes.** The new Surgeon General's report linked this increase to tobacco blends used in U.S. cigarettes compared to cigarettes sold in Australia and Canada, as well as the curing process now being used. As a result, exposure to tobacco-specific nitrosamines is much higher among U.S. smokers than among their counterparts in Australia and Canada.
- **The introduction of ventilation holes in cigarette filters that caused smokers to inhale more frequently and vigorously, thereby drawing carcinogens in the smoke more deeply into the lungs.** Tobacco companies developed ventilated filters to dilute the smoke and reduce machine-measured levels of tar and nicotine. They marketed such cigarettes as less hazardous despite knowing there was in fact no health benefit because smokers changed their smoking patterns to take in more nicotine. Now there is an emerging recognition that the very design changes that lowered machine-measured tar and nicotine ratings are likely a reason for the increased risk of smoking-related disease.

THE FDA MUST REGULATE HOW TOBACCO PRODUCTS ARE MADE

It is deeply disturbing that 50 years after the first Surgeon General's report found that smoking causes lung cancer and other serious diseases, cigarettes are even more dangerous and pose an even greater risk to health.

Until recently, no government agency had the power to require the tobacco industry to disclose what it was doing to its products or to do anything about it. That changed in 2009

when Congress enacted the Family Smoking Prevention and Tobacco Control Act (Tobacco Control Act), which granted the Food and Drug Administration (FDA) the authority to regulate the manufacturing, marketing and sale of tobacco products. Under this law, the FDA has the power to regulate the design and contents of tobacco products and to stop the tobacco industry's harmful practices that increase the number of people who die from tobacco use.

The Surgeon General's report makes clear that the FDA must act quickly, calling for "[e]ffective implementation of FDA's authority for tobacco product regulation in order to reduce tobacco product addictiveness and harmfulness." The report also notes, ***"above all, if the risk of lung cancer has increased with changes in the design and composition of cigarettes, then the potential exists to reverse that increase in risk through changes in design and composition."***⁶

On the 50th anniversary of the first Surgeon General's report on tobacco, it is time for a national commitment to finally end the tobacco epidemic. Smoking has killed 20 million Americans since the first Surgeon General's report on smoking and health. We cannot allow the tobacco industry to continue to make their cigarettes in ways that cause hundreds of thousands of Americans to die prematurely every year.

SOURCES

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² U.S. Department of Health and Human Services. The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General, 2014.

³ U.S. v. Philip Morris, USA, Inc., 449 F. Supp. 2d (D.D.C. 2006).

⁴ U.S. v. Philip Morris, USA, Inc., 449 F. Supp. 2d (D.D.C. 2006) at 309.

⁵ U.S. Department of Health and Human Services, A Report of the Surgeon General: How Tobacco Smoke Causes Disease – The Biology and Behavioral Basis for Smoking-Attributable Diseases, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010.

⁶ U.S. Department of Health and Human Services. The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General, 2014.