

**TOBACCO HARM
REDUCTION 101:
A GUIDEBOOK
FOR POLICYMAKERS
BY LINDSEY STROUD**



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INTRODUCTION

During the past half-century, tobacco cigarette smoking rates have been declining in America. In 1965, 42 percent of U.S. adults, approximately 52.2 million individuals, smoked tobacco cigarettes. Today, only about 15 percent of Americans smoke tobacco, about 34.3 million people.¹

Despite the decline in smoking rates, the costs associated with smoking tobacco remain high. The Centers for Disease Control and Prevention (CDC) estimates “more than 16 million Americans live with a smoking-related disease.”² Illnesses caused by combustible tobacco cigarettes, such as cancer and emphysema, cost the United States “more than \$300 billion each year,” including \$170 billion in direct medical care costs and \$156 billion in lost productivity.³

Although individuals should be free to make their own decisions about tobacco cigarettes, it’s undeniable that in America’s health care system, the costs are not borne only by individual smokers. In many cases, taxpayers end up footing the bill through a variety of government programs, especially Medicare and Medicaid. Thus, it’s reasonable for policymakers, health care professionals, and patient groups to desire a reduction in costly smoking-related illnesses.

For decades, policymakers and public health officials looking to reduce smoking rates have relied on strategies such as emphasizing the possibility of death related to tobacco use and implementing tobacco-related restrictions and taxes to motivate smokers to quit using cigarettes. However, there are much more effective ways to reduce tobacco use than relying on government mandates and “quit or die” appeals.

During the past 30 years, the tobacco harm reduction (THR) approach has successfully helped millions of smokers transition to less-harmful alternatives. THR includes effective nicotine delivery systems, such as smokeless tobacco, snus, electronic cigarettes (e-cigarettes), and vaping. E-cigarettes and vaping devices have emerged as especially powerful THR tools, helping nearly three million U.S. adults quit smoking from 2007 to 2015.

E-cigarettes and vaping devices were introduced in the United States in 2007, and since that time, their effectiveness and safety have been questioned by many policymakers and public policy organizations, despite ample evidence proving their efficacy and public health benefits. Rather than focusing on their potential for reducing smoking of health-harming combustible tobacco cigarettes, policymakers have erroneously equated e-cigarettes with combustible tobacco cigarettes, ignoring crucial differences.

This policy booklet aims to educate key stakeholders, including policymakers, about THR products, specifically e-cigarettes and vaping devices. It also addresses the many myths and false assertions regularly made about e-cigarettes, including myths about “popcorn lung,” formaldehyde, and youth vaping, helping lawmakers make well-informed decisions when considering proposed laws and regulations.

Today, only about 15 percent of Americans smoke tobacco, about 34.3 million people.

The CDC estimates “more than 16 million Americans live with a smoking-related disease.”

During the past 30 years, the THR approach has successfully helped millions of smokers transition to less-harmful alternatives.

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Understanding Nicotine



Policymakers, health care professionals, patient groups, and governments have targeted combustible tobacco cigarette smoking for decades because of its strong link to cancer and other illnesses. But to properly address the health problems related to tobacco cigarettes, it is crucial to cut through the widespread confusion concerning the specific causes of smoking-related illnesses.

Research overwhelmingly shows the smoke created by the burning of tobacco, rather than the nicotine, produces the harmful chemicals found in combustible cigarettes.

There are an estimated 600 ingredients in each tobacco cigarette, “and when burned, [they] create more than 7,000 chemicals.”

Nicotine does not cause cancer, nor does it contribute to the development of pulmonary disease or cardiovascular disease.

Accurate analyses of the harms of combustible tobacco cigarettes distinguish between the potential problems associated with tobacco, the smoke and chemicals released by tobacco when it is burned, and the nicotine in tobacco. This distinction is especially vital for today’s policymakers to understand, because although e-cigarettes and other THR tools often do contain nicotine, they do not contain most of the harmful ingredients linked to tobacco.

Research overwhelmingly shows the smoke created by the burning of tobacco, rather than the nicotine, produces the harmful chemicals found in combustible cigarettes.⁴ There are an estimated 600 ingredients in each tobacco cigarette, and “when burned, [they] create more than 7,000 chemicals.”⁵ As a result of these chemicals, cigarette smoking is directly linked to cardiovascular and respiratory diseases, numerous types of cancer, and increases in other health risks among the smoking population.⁶

Tobacco harm reduction products—including smokeless tobacco, snus, e-cigarettes, and vaping devices—that are already on the market in the United States effectively deliver nicotine without the risks associated with burning tobacco.

Although nicotine in tobacco is the main reason individuals get hooked on smoking tobacco cigarettes, the nicotine itself is not considered a highly hazardous drug. Nicotine does not cause cancer, nor does it contribute to the development of pulmonary disease or cardiovascular disease.⁷

Nicotine is considered a mild stimulant and/or relaxant. It has many of the same properties as caffeine, a highly addicting substance that’s safely consumed by tens of millions of Americans every single day in a wide variety of products. Both nicotine and caffeine enhance concentration and mental performance, produce a sense of well-being, and elevate mood. Both raise heart rates and blood pressure levels temporarily during use. Additionally, abstinence after regular use of both these substances can be difficult and even “unachievable for many users.”⁸

No Serious Harm from Nicotine

There is no significant scientific evidence connecting major health problems with the use of nicotine alone. However, because nicotine enters the body along with many harmful chemicals while smoking combustible cigarettes, many erroneously believe that it is the nicotine in cigarettes that causes hazardous health conditions such as cancer.

According to Raymond Niaura, Ph.D. ... existing evidence “indicates that nicotine itself, while not completely benign, carries substantially lower risks than smoking.”

Niaura noted “that even very high doses of medicinal nicotine had little effect on cardiovascular function.”

Swedish men, who have the highest rate of smokeless tobacco use in Europe and the lowest smoking rate, “also have the lowest rates of lung cancer and other smoking-related diseases in Europe.

According to Raymond Niaura, Ph.D., professor of social and behavioral sciences at New York University’s College of Global Public Health, existing evidence “indicates that nicotine itself, while not completely benign, carries substantially lower risks than smoking.”⁹ This conclusion is shared by the U.S. surgeon general and the U.K. Royal College of Physicians, which agrees “nicotine, while addictive, is not the primary cause of smoking-related diseases.”¹⁰

In a comprehensive study of nicotine health effects, Niaura noted “that even very high doses of medicinal nicotine had little effect on cardiovascular function.” Emphasizing “a continuum of harm among combustible and noncombustible, nicotine-containing products,” Niaura urged the use of alternative nicotine products, with “the goal of moving users away from the most addictive, appealing and toxic combustibles to less harmful alternatives — ideally FDA-approved [modified-risk tobacco products.]”¹¹

Lessons Learned from Smokeless Tobacco

Smokeless tobacco products have been consumed for several centuries. At one point, they were even the preferred method of tobacco consumption. According to Brad Rodu, Ph.D., a Heartland Institute senior fellow and the endowed chair in tobacco harm reduction research at the University of Louisville, smokeless tobacco remained “the most dominant form of tobacco used in the U.S. until early in the 20th century.”¹²

Today, the most popular forms of smokeless tobacco are moist snuff, chewing tobacco, and Swedish and American snus.

Smokeless tobacco poses much lower health risks than smoking, despite containing nicotine. A 2009 *Biomed Central* study analyzed “all the epidemiological evidence linking smokeless tobacco use and cancer.” Using data from 89 studies, the authors identified “the relative risk of cancer among smokeless tobacco users, compared with non-users of nicotine.”¹³ The study found “very little evidence” of smokeless tobacco producing elevated cancer risks. Another review of the epidemiologic studies, conducted in 2011, found snus and smokeless tobacco use to be “99% less hazardous than smoking.”¹⁴

The widespread use of snus in Sweden highlights the lack of harm associated with nicotine used apart from combustible tobacco cigarettes. If nicotine does cause cancer, “one would expect snus use to be associated with increased risk of lung cancer and many other cancers.”¹⁵ However, Swedish men, who have the highest rate of smokeless tobacco use in Europe and the lowest smoking rate, “also have the lowest rates of lung cancer and other smoking-related diseases in Europe.”¹⁵



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E-Cigarette Basics

Electronic cigarettes and vaping devices are effective, safe, and highly popular nicotine delivery devices. E-cigarettes create a vapor “generated by heating a solution containing water, nicotine, propylene glycol, vegetable glycerin and typically also some flavoring.”¹⁶

E-cigarettes were first introduced in the United States in 2007 by Ruyan, a Chinese manufacturer.¹⁷ Soon after their introduction, Ruyan and other brands began to offer the first generation of e-cigarettes, called “cig-alikes.” These devices provide users with an experience that simulates smoking traditional tobacco cigarettes. Cig-alikes are typically composed of three parts: a cartridge that contains an e-liquid, with or without nicotine; an atomizer to heat the e-liquid to vapor; and a battery.

In later years, manufacturers added second-generation tank systems to e-cigarette products, followed by larger third-generation personal vaporizers, which vape users commonly call “mods.”¹⁸ These devices can either be closed or open systems.

Closed systems, often referred to as “pod systems,” contain a disposable cartridge that is discarded after consumption. Open systems contain a tank users can refill with e-liquid. Both closed and open systems utilize the same three primary parts included in cig-alikes—a liquid, an atomizer with a

heating element, and a battery—as well as other electronic parts. Unlike cig-alikes, “mods” allow users to manage flavorings and the amount of vapor produced by controlling the temperature that heats the e-liquid.

Mods also permit consumers to control nicotine levels. Current nicotine levels in e-liquids range from zero to greater than 50 milligrams per milliliter (mL).¹⁹ Many users have reported reducing their nicotine concentration levels after using vaping devices for a prolonged period, indicating nicotine is not the only reason people choose to vape.



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Public Health Benefits of E-Cigarettes

Electronic cigarettes have been examined extensively over the past several years, and numerous public health organizations have found these products to be significantly less harmful than tobacco cigarettes, with some urging their use as replacement for combustible tobacco.²⁰



State Budget Solutions ... estimated if all Medicaid recipients who smoke tobacco cigarettes had switched to e-cigarettes by 2012, savings to Medicaid would have amounted to \$48 billion in 2012.

- In 2015, Public Health England found e-cigarettes to be “95 percent less harmful than cigarettes.”²¹
- In 2016, the Royal College of Physicians determined the “long-term health risks associated with smoking [e-cigarettes] ... are unlikely to exceed 5% of those associated with smoked tobacco products.”²²
- In 2018, the National Academies of Sciences, Engineering, and Medicine found “substantial evidence that completely switching from regular use of combustible tobacco cigarettes to e-cigarettes results in reduced short-term adverse health outcomes in several organ systems.”²³
- In June 2019, the American Cancer Society “found that e-cigarette use is likely to be significantly less harmful for adults than smoking regular cigarettes.”²⁴

Because e-cigarettes and vaping devices do not contain many of the harmful ingredients included in tobacco products, their widespread use as a replacement for tobacco would provide substantial public health benefits and reduce state and federal health care spending.

For example, Medicaid recipients smoke at twice the rate of privately insured persons, costing the program an estimated \$39.6 billion annually.²⁵ J. Scott Moody, chief executive officer and chief economist at State Budget Solutions, examined the effects of e-cigarettes on Medicaid spending in a 2015 *Policy Analysis*.²⁶ Moody estimated if all Medicaid recipients who smoke tobacco cigarettes had switched to e-cigarettes by 2012, savings to Medicaid would have amounted to \$48 billion in 2012.

In a 2017 *Policy Study* published by the R Street Institute, Associate Fellow Richard B. Belzer examined the potential financial impact to Medicaid costs in a scenario in which varying degrees of Medicaid recipients switch from using combustible tobacco cigarettes to electronic cigarettes or vaping devices.²⁷ Belzer used a sample size of “1% of smokers [within] demographic groups permanently” switching. Using this analysis, Belzer estimated Medicaid savings “will be [in 25 years] approximately \$2.8 billion per 1 percent of enrollees” who switch.²⁸



E-Cigarettes Among Military Members

One of the most notable public health achievements associated with e-cigarettes is that they have likely helped to reduce cigarette smoking rates among members of the U.S. military.

Cigarette smoking has for centuries been a feature of military life, and cigarettes remain a popular commodity on military bases. In fact, during World War II and at other times in U.S. history, the military supplied soldiers with tobacco cigarettes. No doubt the dangerous nature of military service has made cigarette smoking a welcomed comfort.

As a result of the pro-tobacco culture on military bases, military service members have historically smoked tobacco at rates higher than the general population. In 2011, 24.5 percent of service members reported cigarette use in the past 30 days, compared to 20.6 percent of civilians.²⁹

However, in recent decades, the military has attempted to limit smoking, in large part because the federal government spends a significant amount of money on tobacco-related health care problems. According to data from the U.S. Department of Defense, “tobacco use costs the military about \$1.6 billion annually.”³⁰

Research shows the military’s efforts are paying off, and e-cigarettes are likely a big part of the progress that has been made.

In 2018, the Rand Corporation, in a study titled *Health Related Behaviors Survey Substance Use Among U.S. Active-Duty*, found 35.7 percent of service members surveyed reported trying e-cigarettes.³¹ Further, 12.4 percent said they had used e-cigarettes within the past month, and 11.1 percent indicated they are everyday users of e-cigarettes.

Rand’s analysis also determined while there has been an increase in e-cigarette use, there has also been a decrease in tobacco smoking rates. Rand found in 2018 only “13.9 percent of service members were current cigarette smokers, and 7.4 percent smoked cigarettes daily”—significantly lower rates than those recorded in 2011.

Additionally, among the general population during the same period, 16.8 percent of Americans reported smoking tobacco cigarettes, and 12.9 percent said they are daily smokers, indicating military service members are now smoking combustible tobacco cigarettes at lower rates than the general public while consuming e-cigarettes at a higher rate.³²

Rather than limit THR products for the millions of adult smokers addicted to combustible cigarettes, policymakers should embrace and promote the use of e-cigarettes. These products have served as effective tobacco cessation devices that have been proven repeatedly to improve public health.

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E-Cigarette Economics

E-cigarettes began being sold in the United States in 2007. A study in the *American Journal of Preventative Medicine* found in 2013 sales of all e-cigarette products recorded by convenience stores and food, drug, and mass merchandisers totaled \$642 million, a 150 percent increase compared to 2012.³³ (The study did not include sales at tobacco and vape shops.)

By the end of 2015, the U.S. retail e-cigarette industry “was worth an estimated \$3.7 billion.” As of April 2019, there were more than 3,770 e-cigarette companies registered with the Food and Drug Administration.

It wasn't until 2012 that major tobacco companies, noting this growing market, began selling e-cigarettes. Lorillard Tobacco Co. purchased Blu eCigs for \$135 million in 2012.³⁴ In 2014, R.J. Reynolds and Altria introduced e-cigarette brands Vuse and MarkTen, respectively.³⁵ By the end of 2015, the U.S. retail e-cigarette industry “was worth an estimated \$3.7 billion.”³⁶ As of April 2019, there were more than 3,770 e-cigarette companies registered with the Food and Drug Administration (FDA) as tobacco establishments.³⁷

THR products have significantly benefitted state and local economies. One analysis found vape shops “generate annual non-online sales of more than \$300,000 per store” and average \$26,000 in monthly sales.³⁸

A study of vape shops in the San Francisco Bay area found they employ, on average, three workers per store, with shops ranging from two to eight employees.³⁹ And the industry is only expected to grow in the coming years. One market analysis by Prescient & Strategic Intelligence determined the global e-cigarette market is estimated to reach \$44.6 billion by 2023.⁴⁰



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Current E-Cigarette Regulations

Many opponents of e-cigarettes and vaping have made vague claims about these products being under-regulated or completely unregulated, but these assertions are often misleading or completely false.

Going back more than a decade, Governments have been regulating e-cigarette and vaping devices. In 2008, FDA tried to ban imports of e-cigarettes. FDA officials argued they were unapproved drug delivery devices. FDA then blocked a shipment of e-cigarettes by Sottera, Inc., the manufacturer of NJOY, an early cig-alike.

process called the “premarket tobacco application” (PMTA). Beginning on August 8, 2016, no new e-cigarette product, including flavors and nicotine products, can be sold in the United States without first receiving premarket tobacco application approval from FDA. This one requirement alone will have a devastating effect on the industry. FDA estimates each PMTA will cost \$330,000.⁴⁴

FDA also restricts sales of e-cigarettes to individuals aged 18 or older, and the agency has banned e-cigarette distribution in vending machines. FDA further requires child-resistant packaging for every e-cigarette product.

Other regulatory requirements include submitting to FDA ingredient listings, harmful and potentially harmful constituents, and substantial equivalency applications.

In addition to the regulations imposed by the federal government, many states regulate electronic cigarettes. Only one state, Michigan, has chosen not to define electronic cigarettes in its state laws. Sixteen states define these THR products as “tobacco products.”⁴⁵ (For details about the harms caused by e-cigarette taxes and regulations, see Section 7, titled “Negative Effects of E-Cigarette Taxes,” on page 14.

In April 2009, Sottera filed a lawsuit challenging the ban, and in December 2012, the U.S. Court of Appeals ruled “e-cigarettes could be regulated as tobacco products under the 2009 Family Smoking Prevention and Tobacco Control Act,” while dismissing FDA’s original attempt to regulate e-cigarettes as a drug delivery device, which would have banned them from U.S. markets.⁴¹

In 2016, FDA issued deeming regulations that extended the agency’s regulatory authority to include electronic cigarettes and other THR products.⁴² All companies “engaged in the preparation, manufacture, compounding, repackaging, relabeling or processing of finished tobacco products” now must register with FDA.⁴³

FDA’s regulations require e-cigarette manufacturers to comply with regulations governing tobacco, including completing a lengthy and expensive study

FDA DEEMING REGULATIONS:

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- Estimated costs of each PMTA = \$330,000
- Restricts sales of e-cigarettes aged 18 or older
- Bans e-cigarette distribution in vending machines
- Requires child-resistance packaging for every e-cigarette product



2007
E-cigarettes first introduced to U.S. market



2008
FDA tries to ban shipment of e-cigarettes



2009
Sottera files lawsuit challenging FDA ban



2012
U.S. Court of Appeals rules FDA could regulate e-cigarettes as a tobacco product



2015
Public Health England finds e-cigarettes to be 95% safer than combustible cigarettes



2016
Royal College of Physicians concludes e-cigarettes “unlikely to exceed 5% of the harms” posed by smoking



2016
FDA issues deeming regulations



2018
San Francisco becomes first state to ban flavored tobacco products, including menthol cigarettes and e-liquids

2023
Global e-cigarette market expected to reach \$44.6 billion

\$44.6B

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Current Taxes on E-Cigarette Products

Policymakers often use “sin” taxes on cigarettes, alcohol, and sugar products to deter their consumption. In many cases, these taxes are justified by their proponents because “sin” products are said to be associated with high health care costs that burden state governments.

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PER-MILLILITER TAXES

- Usually taxes only nicotine-containing e-liquids.
- Problems:
 - Open systems, “mods,” are disproportionately affected versus closed, pod systems.
 - Incentivizes avoidance of nicotine taxes by adding only nicotine to e-liquid solutions.

In recent years, it has become popular for lawmakers to call for such taxes on e-cigarettes and vaping products, even though, as it has already been shown, THR offers significant public health benefits. In many cases, states apply taxes to e-cigarettes and vaping products that have already been imposed on combustible tobacco products, despite the fact e-cigarettes do not contain tobacco.

To date, nine states and Washington, DC tax e-cigarette products, and three states are home to localities with local excise taxes on vaping devices. During the 2019 legislative session, many states introduced e-cigarette excise tax bills, and as of June 2019, seven states had passed taxes on e-cigarette and vaping products, to take effect from July 2019 to January 2020.

The two most commonly used tax schemes are wholesale taxes and per-milliliter taxes.

Wholesale Taxes

Unlike traditional excise taxes, which are usually taxed by volume, wholesale taxes are ad valorem taxes, which means the tax imposed is based on the price of the product. Alaska, California, Minnesota, and Washington, DC apply excise wholesale taxes on e-cigarettes, with rates varying from 40 percent to 95 percent of the wholesale price.

One of the biggest problems with relying on ad valorem taxes when applying levies to e-cigarettes is that some e-cigarettes can be used only once, while other devices can be reused multiple times. Thus, under this tax scheme, single-use vaping devices are subject to a greater tax burden than other devices, making it extremely difficult to apply taxes fairly.

Another issue with wholesale taxes on vaping products is they tend to apply to a device’s components, not just the final product, including those components that don’t contain substances the tax is supposedly meant to target, such as nicotine. For example, wholesale taxes often apply to batteries.

Further, even taxes on e-liquids are problematic, because some e-liquids don’t contain nicotine but are still subjected to government “sin” taxes meant to target nicotine. The Tax Foundation notes this would be comparable to imposing a “sin” tax on a tobacco pipe, rather than the tobacco itself.⁴⁶

Per-Milliliter Taxes

Delaware, Kansas, Louisiana, North Carolina, and West Virginia impose a per-mL tax on nicotine in vaping products, with taxes ranging from 5 cents per mL to 7.5 cents per mL. Some lawmakers might consider this type of taxation ideal, as it taxes only the nicotine-containing e-liquid used in vaping devices, but this taxing scheme does not provide parity among the different vaping devices, either.

For example, later-generation open-system “mods” are disproportionately affected by per-mL taxes because e-liquid is available in larger quantities compared to closed pod systems. A 5 cents per mL tax on a 120 mg bottle of e-liquid would amount to a total tax of \$6, but a pod system containing 0.5 mg of nicotine would only be subject to a tax amounting to 2.5 cents.

Additionally, per-milliliter taxes create incentives for users to avoid the nicotine tax by adding their own nicotine to e-liquid solutions. One company that sells a “concentrated nicotine additive” advertises its product by stating, “Don’t lose business because of outrageous nicotine taxes.”⁴⁷ Under some tax regimes, a vape shop can purchase e-liquids with zero nicotine and only pay a tax on a 1 mL packet of nicotine that can be used for any sized e-liquid bottle.

Because it’s extremely difficult to fairly and uniformly tax e-cigarettes and vaping devices, and because such taxes discourage people from using products that offer substantial public health benefits (see Section 7 below), taxes on these THR products should be avoided entirely.

WHOLESALE TAXES

- Usually taxed by volume.
- Ad valorem taxes, meaning the tax imposed is based on the price of the product.
- Alaska, California, Minnesota, and Washington, DC apply excise wholesale taxes
- Problems:
 - Single-use vaping devices are subjected to greater tax burden.
 - Trend to apply to all of a device’s components including, batteries.
 - Some e-liquids don’t contain nicotine but are still subject to a sin tax.

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Negative Effects of E-Cigarette Taxes

Taxes imposed on e-cigarettes and vaping devices have been extremely detrimental for states and local economies.

In 2016, Pennsylvania imposed a 40 percent wholesale floor tax on vaping products. By 2017, an estimated 120 vape shops, nearly one-third of all vape shops in Pennsylvania, had shut down, eliminating tax revenue for the state and reducing opportunities for smokers in Pennsylvania to access proven smoking cessation tools.

NEGATIVE EFFECTS OF E-CIGARETTE TAXES

- 2015: Washington State proposes 60 percent wholesale tax and Mt. Baker Vapor relocates to Arizona.
- 2016: Pennsylvania enacts 40 percent wholesale floor tax on vaping products.
- 2017: Estimated 120, or one-third, of Pennsylvania vape shops shut down.



UNRELIABLE REVENUE SOURCE

- Tobacco tax revenues are volatile, with cigarette tax increases resulting in long-term revenue shortfalls.
- 2001 to 2011: “revenue projections were met in only 29 of 101 cases where cigarette/tobacco taxes were increased.”
- A decline in cigarette consumption caused cigarette tax revenues “to drop by an average of about 1 percent across all states from 2008 to 2016.”ç

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REGRESSIVE EFFECTS

- Lower-income Americans are disproportionately affected by taxes on e-cigarettes and vaping devices.
- From 2010 to 2011, “smokers earning less than \$30,000 per year spent 14.2 percent of their household income on cigarettes, compared to 4.3 percent for smokers earning between \$30,000 and \$59,999 and 2 percent for smokers earning more than \$60,000.”

In Washington State, a 60 percent wholesale tax proposed in 2015, as well as existing burdensome state laws and taxes, encouraged many businesses to relocate. For example, Mt. Baker Vapor relocated from Washington State to Arizona because of proposed legislation that would have banned online sales and imposed “enormous taxes on the sale of vapor products.”⁴⁸

An Unreliable Revenue Source

Revenues from tobacco taxes tend to be volatile and extremely unreliable for states and local governments. Cigarette tax increases result in long-term revenue shortfalls. From 2001 to 2011, “revenue projections were met in only 29 of 101 cases where cigarette/tobacco taxes were increased,” according to the National Taxpayer Union Foundation.⁴⁹

Moreover, a decline in cigarette consumption caused cigarette tax revenues “to drop by an average of about 1 percent across all states from 2008 to 2016,” according to a report by Pew Charitable Trusts.⁵⁰

Because e-cigarette and vaping taxes are relatively new inventions, they have not existed long enough to study their long-term effects on state budgets. However, there’s no reason to believe these taxes will be more effective than cigarette taxes, which, as the evidence above shows, have been unreliable for decades.

Regressive Effects

Taxes on e-cigarettes and vaping devices should also be avoided because they are particularly harmful for lower-income Americans, who are disproportionately affected by taxes on tobacco and e-cigarettes because they spend a greater share of their income on tobacco and e-cigarette products.

For example, a *Cato Journal* article found from 2010 to 2011, “smokers earning less than \$30,000 per year spent 14.2 percent of their household income on cigarettes, compared to 4.3 percent for smokers earning between \$30,000 and \$59,999 and 2 percent for smokers earning more than \$60,000.”⁵¹

Reducing or eliminating taxes imposed on e-cigarettes and vaping devices would not only spare lower-income individuals from being forced to pay higher prices for smoking cessation tools, keeping more money in their pockets. It would also encourage them to embrace tobacco harm reduction tools like e-cigarettes, saving lives and improving public health.



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Tobacco Tax Dollars Wasted

Contrary to what many advocates of tobacco and e-cigarette taxes claim, levies imposed on tobacco products, e-cigarettes, and vaping devices, as well as moneys governments squeeze out of tobacco companies, are primarily meant to fill government coffers for purposes other than covering smoking-related public costs.

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The U.S. Centers for Disease Control and Prevention found in 2018 states used less than 3 percent of the “record \$27.5 billion from tobacco taxes and settlements” for purposes related to “prevention and cessation programs.”

For example, in the 1990s, states won lawsuits against tobacco companies to recoup state budget expenses for smoking-related health care costs, resulting in the creation of the “Master Settlement Agreement,” which requires tobacco companies to make annual payments to states in perpetuity. However, states only use a small proportion of these tobacco-related revenues for smoking cessation programs and defraying health care costs.

in 2018, the U.S. Centers for Disease Control and Prevention found in 2018 states used less than 3 percent of the “record \$27.5 billion from tobacco taxes and settlements” for purposes related to “prevention and cessation programs.”⁵²

Connecticut and West Virginia dedicated none of its tobacco-related revenues on prevention and cessation programs in 2018. Missouri spent just 1.8 percent of its tobacco moneys—\$48,500 of \$260.6 million—to help smokers quit using tobacco.

On average, states spent just 2.72 percent of tobacco-related funds on smoking prevention and cessation efforts in 2018. And according to the Campaign for Tobacco-Free Kids, states will use even less funding in 2019, about 2.4 percent, “on programs to prevent kids from smoking and help smokers quit.”⁵³

Instead of funding tobacco cessation and prevention programs, states are diverting tobacco moneys to projects completely unrelated to public health. For example, in 2000, one year after the creation of the Master Settlement Agreement, Illinois used its tobacco settlement revenue to “fund one-time property tax rebates,” with nearly \$350 million earmarked for tax relief. In the same year, the state allocated only \$29 million for smoking prevention and cessation programs.⁵⁴



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Youth Vaping and E-Cigarette Use

In late 2018, U.S. public health officials alleged there is a youth “vaping epidemic,” even though the evidence alluding to such an “epidemic” is questionable, at best.

YOUTH VAPING AND E-CIGARETTE USE

- Data in the *2018 National Youth Tobacco Survey* and the *2018 Monitoring the Future Survey* are unclear.
- The data do not distinguish between vaping twice in a single month of the year or those who vaped every day for several months.

Unfortunately, lawmakers quickly reacted to this unjustifiable fear. During states’ 2019 legislative sessions, more than 300 bills were introduced to regulate, tax, and even prohibit e-cigarettes and vaping devices.⁵⁵

The data supporting allegations of a youth vaping epidemic are questionable, and the use of taxes to deal with the alleged problem appear to be counterproductive.

Questionable Studies

The two studies that spurred many of these fears are the Centers for Disease Control and Prevention’s *2018 National Youth Tobacco Survey* and the National Institute on Drug Abuse’s *2018 Monitoring the Future Survey*. In both studies, the data presented are unclear and should not be used as a basis for making public policy decisions.^{56,57}

The authors of these studies claimed from 2017 to 2018 there was an increase in the percentage of youth who reported vaping more than one time per month. However, the data did not distinguish between a person who reported vaping twice in a single month of the year and those who might have vaped every single day for several months, making it difficult to draw accurate conclusions.⁵⁸

Before lawmakers pass youth e-cigarette and vaping legislation, more research is needed to determine more precisely how often young people are using these products and whether the use of THR by young people leads to tobacco use.

Ineffective Taxes

Many states have proposed taxing e-cigarettes to deter young people from using these devices, but recent tax increases have had scant effect on youth vaping.

For example, in 2016, Pennsylvania imposed a 40 percent wholesale tax on e-cigarette products, which had little impact on the number of youths who said they consume electronic cigarettes and vaping devices.



Despite the presence of higher taxes, in 2017, the *Pennsylvania Youth Survey* found e-cigarette use had *increased*; 16.3 percent of middle and high school students said they had used e-cigarettes in the past 30 days

According to the *2015 Pennsylvania Youth Survey* (PAYS), 15.5 percent of middle schoolers and high schoolers in Pennsylvania reported using e-cigarettes within the past 30 days. Among 10th and 12th graders, 20.4 percent and 27 percent, respectively, reported using a vaping device within a 30-day period prior to the survey. (It's worth noting these rates are considerably higher than the data provided by the national *Monitoring the Future Survey*, which shows among 10th and 12th graders, 14.4 percent and 16.2 percent, respectively, reported using e-cigarettes within 30 days of being surveyed.)

Despite the presence of higher taxes, in 2017, the *Pennsylvania Youth Survey* found e-cigarette use had *increased*; 16.3 percent of middle and high school students said they had used e-cigarettes in the past 30 days.⁵⁹ Notably, vaping rates also increased, to 21.9 percent and 29.3 percent for 10th and 12th graders, respectively.

Further, nicotine consumption among young vaping users increased during the same period. In 2015, PAYS found that of “past-year [youth] vape users,” 71.4 percent reported using only flavoring while “19.1 percent ... [said they] had used nicotine.” However, PAYS noted in 2017, 67.3 percent of e-cigarette users reported vaping using only flavoring, while 29.4 percent of the youth surveyed reported vaping with nicotine.

More data are necessary, but by all indications, it appears youth are not deterred by e-cigarette taxes.

Unintended Consequences

Although youth e-cigarette use does not appear to be affected by taxes, there is strong evidence showing some efforts by lawmakers to curb youth e-cigarette use have been correlated with increased combustible cigarette use among young people.

A study published by a researcher at Yale University in April 2015 examined the causal impact of access to e-cigarettes on teen smoking. Using state-level data on smoking rates and bans, as well as data from the *National Survey on Drug Use and Health* and the *National Youth Tobacco Survey*, the study found state bans on the sale of e-cigarettes are associated with a “statistically significant 1.0 percentage point increase in recent cigarette smoking rates among 12 to 17 year olds.”⁶⁰

The Yale also found the greater the access to e-cigarettes, the greater the drop in the state’s smoking rate. According to the study, a 1 percentage point increase in the proportion of the population who report using an e-cigarette at some point in their lives yields a 0.65–0.83 percentage point drop in smoking rates among teens aged 14 to 18.⁶¹

PAYS STATE DATA

GRADE	2015		2017	
	E-CIGARETTE (PAST 30-DAY USE)	MONITORING THE FUTURE	E-CIGARETTE (PAST 30-DAY USE)	MONITORING THE FUTURE
6th	2.6	-	2.3	-
8th	11.7	9.5	10.9	6.6
10th	20.4	14	21.9	13.1
12th	27	16.2	29.3	16.6
All	15.5	-	16.3	-

PAYS STATE DATA - SUBSTANCE

SUBSTANCE	2015	2017
Only flavoring (no nicotine)	71.4	67.3
Nicotine	19.1	29.4
Marijuana/Hash Oil	8.6	12.6
Another substance	1.3	1.3
Did not know	19.7%	16.0

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Debunking Common E-Cigarette Myths

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A 2019 study in *The New England Journal of Medicine* found e-cigarettes are twice as effective as nicotine replacement therapy in helping smokers quit.

A careful examination of the research conducted on e-cigarettes and vaping show FDA bureaucratic inertia, political grandstanding, and ignorance about the health consequences of using e-cigarettes have led to the creation of unnecessary, unjustifiable, and harmful limitations on their use.

Below are several of the most common myths about e-cigarettes and vaping, as well as important facts that policymakers should understand before considering taxes and regulations designed to reduce e-cigarette use.

Myth: E-Cigarettes and Vaping Don't Help Smokers Quit

E-cigarettes are a proven, effective tool smokers can use to help them quit consuming combustible tobacco.

In 2016, the United Kingdom's Royal College of Physicians (RCP), one of the world's oldest and most prestigious medical societies, responded to claims that e-cigarettes do not help smokers quit using tobacco products in a landmark report titled *Nicotine Without Smoke: Tobacco Harm Reduction*. RCP noted "the available evidence to date indicates that e-cigarettes are being used almost exclusively as safer alternatives to smoked tobacco, by confirmed smokers who are trying to reduce harm to themselves or

others from smoking, or to quit smoking completely."⁶²

In 2018, *The New York Times* estimated of the nearly 10 million American adult vapers, three million had previously consumed combustible tobacco.⁶³

Riccardo Polosa et al. found more than half of smokers who use e-cigarettes quit smoking or reduce cigarette consumption after six months.⁶⁴

Bullen et al. concluded e-cigarettes are just as effective as nicotine patches in helping smokers quit.⁶⁵

A 2019 study in *The New England Journal of Medicine* found e-cigarettes are twice as effective as nicotine replacement therapy (NRT) in helping smokers quit.⁶⁶ The authors noted of the 100

Public Health England (PHE), a leading health agency in the United Kingdom similar to the U.S. Food and Drug Administration, concluded in 2015 e-cigarettes (EC) are about 95 percent safer than smoked tobacco.

participants reporting abstinence during a 52-week follow up, 80 percent reported using e-cigarettes, while only 9 percent said they were using NRT products, such as nicotine-containing lozenges or gum.⁶⁷

Myth: E-cigarettes Are Just as Dangerous as Combustible Tobacco

Many erroneously believe e-cigarettes and vaping devices are as dangerous as combustible tobacco cigarettes.

Because e-cigarettes were first introduced in 2007, it is not yet possible to determine if there are any decades-long adverse health effects associated with regularly using e-cigarettes. However, as it has already been shown, existing research indicates e-cigarettes are significantly less harmful than combustible tobacco cigarettes.

Public Health England (PHE), a leading health agency in the United Kingdom similar to the U.S. Food and Drug Administration, concluded in 2015 e-cigarettes (EC) are about 95 percent safer than smoked tobacco. Further PHE found e-cigarettes help smokers quit using tobacco.⁶⁸

According to a 2015 report by PHE titled *E-cigarettes: An Evidence Update*, PHE's key findings include⁶⁹:

- “Encouraging smokers who cannot or do not want to stop smoking to switch to [e-cigarettes] could help reduce smoking related disease, death and health inequalities.”
- “There is no evidence that [e-cigarettes] are undermining the long-term decline in smoking among adults and youth, and may in fact be contributing to it. Despite some experimentation with [e-cigarettes] among never smokers, [e-cigarettes] are attracting very few people who have never smoked into regular EC use.”

- “When used as intended, EC pose no risk of nicotine poisoning to users, but e-liquids should be in ‘childproof’ packaging. The accuracy of nicotine content labelling currently raises no major concerns.”
- “There has been an overall shift towards the inaccurate perception of [e-cigarettes] being as harmful as cigarettes over the last year in contrast to the current expert estimate that using EC is around 95% safer than smoking.”
- “Whilst protecting non-smoking children and ensuring the products on the market are as safe and effective as possible are clearly important goals, new regulations currently planned should also maximise the public health opportunities of [e-cigarettes].”

In 2018, the National Academies of Sciences, Engineering, and Medicine released a report that found “substantial evidence that completely switching from regular use of combustible tobacco cigarettes to e-cigarettes results in reduced short-term adverse health outcomes in several organ systems.”⁷⁰

Also in 2018, the American Cancer Society noted “based on currently available evidence, using current generation e-cigarettes is less harmful than smoking.”⁷¹

The scientific evidence overwhelmingly shows opponents of e-cigarettes are wrong to equate e-cigarettes and combustible tobacco.

Myth: Formaldehyde in E-Cigarettes Poses Health Risks

Opponents of e-cigarettes often assert these products contain harmful levels of formaldehyde. They base this assertion on a *New England Journal of Medicine* article titled “Hidden Formaldehyde in E-Cigarette Aerosols.”⁷² However, there are strong reasons to believe formaldehyde does not pose a risk to e-cigarette users.

The experiment described in the *New England Journal of Medicine* article produced formaldehyde by overheating e-cigarettes, a

MYTH: FORMALDEHYDE IN E-CIGARETTES POSES HEALTH RISKS

- **Fact:** Overheating electronic cigarettes and vaping devices can create formaldehyde, but this only occurs under extreme conditions.
- **Fact:** Vapor containing formaldehyde tastes so bad that users do not inhale it.
- **Fact:** Combustible cigarettes contain higher levels of formaldehyde.

There have been no known cases of an e-cigarette user being diagnosed with popcorn lung as a result of his or her e-cigarette use.

MYTH: E-CIGARETTES CAUSE 'POPCORN LUNG'

- **Fact:** Diacetyl was found in flavored e-cigarettes and was used as an ingredient to create a “buttery” flavor
- **Fact:** Diacetyl has been found to cause popcorn lung in workers in microwave popcorn factories.
- **Fact:** Researchers linking popcorn lung to e-cigarette use relied on aggressive vaping procedures that created “higher-than-normal temperatures, combustion, and smoke.”
- **Fact:** Cigarette smokers are exposed to 750 times more diacetyl when using tobacco cigarettes.

process called “dry puffing.” Although this process can result in harmful levels of formaldehyde, the resulting vapor tastes so bad that users do not inhale it. Thus, the formaldehyde produced under these conditions is not “hidden” at all and not dangerous, because it is contained in vapor that users find intolerable.

This finding was verified by a careful examination of the *New England Journal* report.⁷³ In that study, researchers replicated the overheating technique and compared its results to heating at “lower, normal vaping power.” Under “normal vaping power” conditions, the researchers found levels of formaldehyde were minimal—“only 20 micrograms,” which is about two-thirds the amount of formaldehyde in combustible tobacco cigarettes.⁷⁴

In a separate study, the Centers for Disease Control and Prevention sampled air quality in a vape shop in which users had vaped. CDC tested formaldehyde levels in the shop and found they were “well below” various health agencies’ recommended levels of exposure, including the Occupational Safety and Health Administration’s personal exposure limit and action level.⁷⁵

Although e-cigarettes can contain formaldehyde, when used properly, vaping devices produce significantly lower levels of the substance than those reported in the *New England Journal of Medicine* study and lower than the levels of formaldehyde found in traditional combustible cigarettes.

Myth: E-Cigarettes Cause ‘Popcorn Lung’

Another false claim made by opponents of e-cigarettes is that using these THR products causes the health condition bronchiolitis obliterans, commonly called “popcorn lung.”

In 2015, a study was published in the journal *Environmental Health Perspectives* that found e-cigarettes contain chemicals linked to popcorn lung, such as diacetyl, acetyl propionyl, and acetoin.⁷⁶ These chemical agents are used to provide the “buttery” flavors in e-cigarettes. Of the 51 flavored e-cigarettes tested in the study, flavoring chemicals linked

to popcorn lung were found in 47 samples. Diacetyl was determined to be present in 39 samples.

The researchers associated their findings with similar exposures experienced by workers in microwave popcorn factories. These workers have been determined to be susceptible to popcorn lung by established medical research.⁷⁷

The 2015 *Environmental Health Perspectives* study alarmed public health officials and the media, many of whom claimed e-cigarettes can cause popcorn lung, despite substantial flaws in the research. For example, to analyze the chemicals, the researchers in the *Environmental Health Perspectives* study “used an aggressive procedure that vaped the samples dry.”⁷⁸ The “puffs” analyzed lasted eight seconds, considerably longer than normal “puffing.” This longer period likely produced “higher-than-normal temperatures, combustion, and smoke.”⁷⁹

Further, the authors of the *Environmental Health Perspectives* study failed to mention in their report cigarette smoke contains the same chemical agents causing concerns about potential links between popcorn lung and e-cigarettes. In fact, combustible cigarette smokers are exposed to 750 times more diacetyl in tobacco cigarettes.⁸⁰ And yet, to date, there has been no association between smoking tobacco cigarettes and popcorn lung.

Perhaps most importantly, there have been no known cases of an e-cigarette user being diagnosed with popcorn lung as a result of his or her e-cigarette use. In 2017, researchers published a three-and-half-year observational study that found no indications e-liquids cause popcorn lung in users. According to the study’s authors, “no features consistent with early signs of bronchiolitis obliterans were described in any of the [e-cigarette users observed].”⁸¹

It’s also important to note that to ensure the safety of their products, many vaping e-liquid manufacturers have since 2015 chosen to not include the ingredients associated with popcorn lung in their e-liquids.

MYTH: E-CIGARETTES CAUSE SEIZURES

- **Fact:** FDA warned “Some E-cigarettes Users Are Having Seizures, Most Reports Involving Youth and Young Adults.”
- **Fact:** Report relied on information from FDA’s Safety Reporting Portal.
- **Fact:** There are more than 10 million American adult vapers and yet there were only “35 reported cases of seizures mentioning the use of e-cigarettes” from 2010 to 2019.

MYTH: E-CIGARETTE FLAVORINGS ARE MEANT TO SEDUCE YOUTH

- **Fact:** In a 2015 online poll, 72 percent of 27,434 American adults “credited tasty flavors with helping them give up tobacco.”
- **Fact:** 2019 survey of nearly 70,000 American adult vapers “found flavors play a vital role in the use of electronic cigarettes and vaping devices.”
 - 83.2 percent reported vaping fruit flavors.
 - 72.3 percent reported vaping dessert flavors.
- **Fact:** Presence of flavorings in e-cigarettes significantly helps smokers quit using traditional tobacco products.
- **Fact:** There is no “evidence that suggests children are drawn to tobacco products specifically because of flavor.”

Myth: E-Cigarettes Cause Seizures

In April 2019, the U.S. Food and Drug Administration’s Center for Tobacco Products (CTP) issued a “Special Announcement” that warned, “Some E-cigarette Users Are Having Seizures, Most Reports Involving Youth and Young Adults.” CTP is an FDA subdivision created to oversee “the implementation of the Family Smoking Prevention and Tobacco Control Act.”⁸²

The announcement relies on information collected from FDA’s Safety Reporting Portal. This is an FDA database in which the general public can report adverse effects from consumer products. Although CTP’s announcement was technically true, it was also misleading and taken out of context by many opponents of e-cigarettes. As CTP itself noted, despite there being more than 10 million American adult vapers, CTP found only “35 reported cases of seizures mentioning the use of e-cigarettes” from 2010 to 2019, and CTP did not find a causal link between e-cigarettes and those reported seizures.

Myth: E-Cigarette Flavorings Are Meant to Seduce Youth

E-cigarette and vaping opponents often falsely argue product flavorings, which have been shown to greatly enhance users’ experiences, are meant to encourage underaged youth to use these products.

In January 2014, a *Tobacco Control* study found there was a total of 466 e-liquid brands that distributed 7,764 unique e-liquid flavors.⁸³ A search of FDA’s product registration database yields thousands of results for registered e-liquids, including flavors such as “coffee,” “mango,” and “strawberry.”⁸⁴

Flavors are an essential component of e-cigarettes’ commercial success and their effectiveness in helping smokers quit combustible tobacco. A 2013 internet study by Konstantinos Farsalinos et al. concluded flavors in e-cigarettes “appear to contribute to both perceived pleasure and the effort to reduce cigarette consumption or quit smoking.”⁸⁵

Similarly, a 2015 online poll conducted by the Consumer Advocates for Smoke-Free

Alternatives Association found among the 27,343 Americans aged 18 or older that were surveyed, 72 percent “credited tasty flavors [in e-cigarette products] with helping them give up tobacco.”⁸⁶ Of the respondents who indicated they were still smoking combustible tobacco products, “53% [said] interesting flavors are helping move them toward quitting.”

A 2018 survey of nearly 70,000 American adult vapers “found flavors play a vital role in the use of electronic cigarettes and vaping devices,” with 83.2 percent and 72.3 percent of survey respondents reporting use of vaping fruit and dessert flavors, respectively, “at least some of the time.”^{87,88}

Additionally, research by Dr. Edward Anselm, a senior fellow for the R Street Institute and senior fellow and medical director of Health Republic Insurance of New Jersey, concludes the presence of flavorings in e-cigarettes significantly helps smokers quit using traditional tobacco cigarettes.⁸⁹ Anselm also notes concerns over “flavoring as a tool to recruit children are overblown,” in large part because there is no “evidence that suggests children are drawn to tobacco products specifically because of flavor.”

Despite the overwhelming evidence showing adults prefer flavorings, more than 180 localities in the United States have enacted restrictions on the sale of flavored tobacco products, including menthol cigarettes, electronic cigarettes, and vaping devices.⁹⁰ Not only are these regulations overreaching and unnecessary, they could discourage the 34 million current U.S. adult smokers from trying THR products, which could help save their lives.

Myth: E-Cigarette Manufacturers Target Youth

E-cigarette opponents allege tobacco companies are unethically enticing young people to use e-cigarettes and vaping devices. Some e-cigarette opponents say tobacco companies hope that if children use e-cigarettes at a young age, they will eventually consume combustible tobacco.

Moreover many industry groups discourage underage use of e-cigarettes and vaping devices.

MYTH: E-CIGARETTE MANUFACTURERS TARGET YOUTH

- Industry groups actively discourage underage use of e-cigarettes and vaping devices.
- “Age to Vape Signage”
- Trade organizations forbid members to market and sell to youth.
- Companies have invested millions in programs to prevent youth access.

For example, the Smoke-Free Alternatives Trade Association provides “Age to Vape” signage for vape shops. These signs clearly indicate vape shops’ commitment to enforcing local laws. Further, the signs are also meant “to show that [the] industry supports sensible age restrictions.”⁹¹ More than 1,300 companies participated in the program in 2015.⁹²

The Consumer Advocates for Smoke Free Alternatives Association “supports laws that prohibit underaged sales and urges strict enforcement of laws”⁹³ that ban access to e-cigarettes for young people.

Associations representing vaping manufacturers also support banning sales and marketing to minors. The American E-Liquid Manufacturing Standards Association (AEMSA) “advocates electronic cigarette products for adult use only.”⁹⁴ AEMSA also supports a “ban on sales to minors.”

The Vapor Technology Association requires members to “refrain from knowingly marketing Vapor Products to Minors, which is strictly prohibited.”⁹⁵

Additionally, many tobacco companies that are now selling e-cigarettes are working directly to prevent youth access to THR products. The R.J. Reynolds Vapor Company is the manufacturer of Vuse, a brand of e-cigarettes. In a 2016 interview, Reynolds American, Inc., the parent company

of R.J. Reynolds Vapor Company, noted the company does not advertise to minors. R.J. Reynolds’ advertising of Vuse “is in line with [its] commitment to reducing youth exposure to tobacco-related products and messaging.”⁹⁶

Altria is another company that sells tobacco and THR products. Over the past 20 years, Altria has funded programs aimed at reducing underage tobacco use, including its “Talk. They’ll Listen” campaign, which airs on television, radio, and in print; its Parent Resource Center; and by implementing an underage tobacco sales prevention policy.⁹⁷ Additionally, in 2013, Altria invested more than \$21 million in its Success 360° program, which is designed to help “organizations better deliver effective programs to middle school kids by promoting health development and avoiding risky behaviors like tobacco use.”⁹⁸

In 2018, JUUL, a major manufacturer of electronic vaping devices, announced it “will invest \$30 million over three years in strategies” designed to prevent youth access to its e-cigarettes.⁹⁹

Although policymakers should be concerned about the use of tobacco and THR products by underage Americans, regulations implemented to accomplish this goal should be narrowly tailored to address that problem and should not discourage use of THR products among adults.



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Conclusion

If lawmakers take advantage of the vital opportunity presented by e-cigarettes and vaping products, millions of additional American lives and billions of tax dollars could be saved over the next few decades.

Millions of Americans have used e-cigarettes and vaping devices to help them quit smoking combustible cigarettes. Combustible cigarettes are considerably more harmful than e-cigarettes, because e-cigarettes do not contain many of the chemicals included in combustible tobacco products.

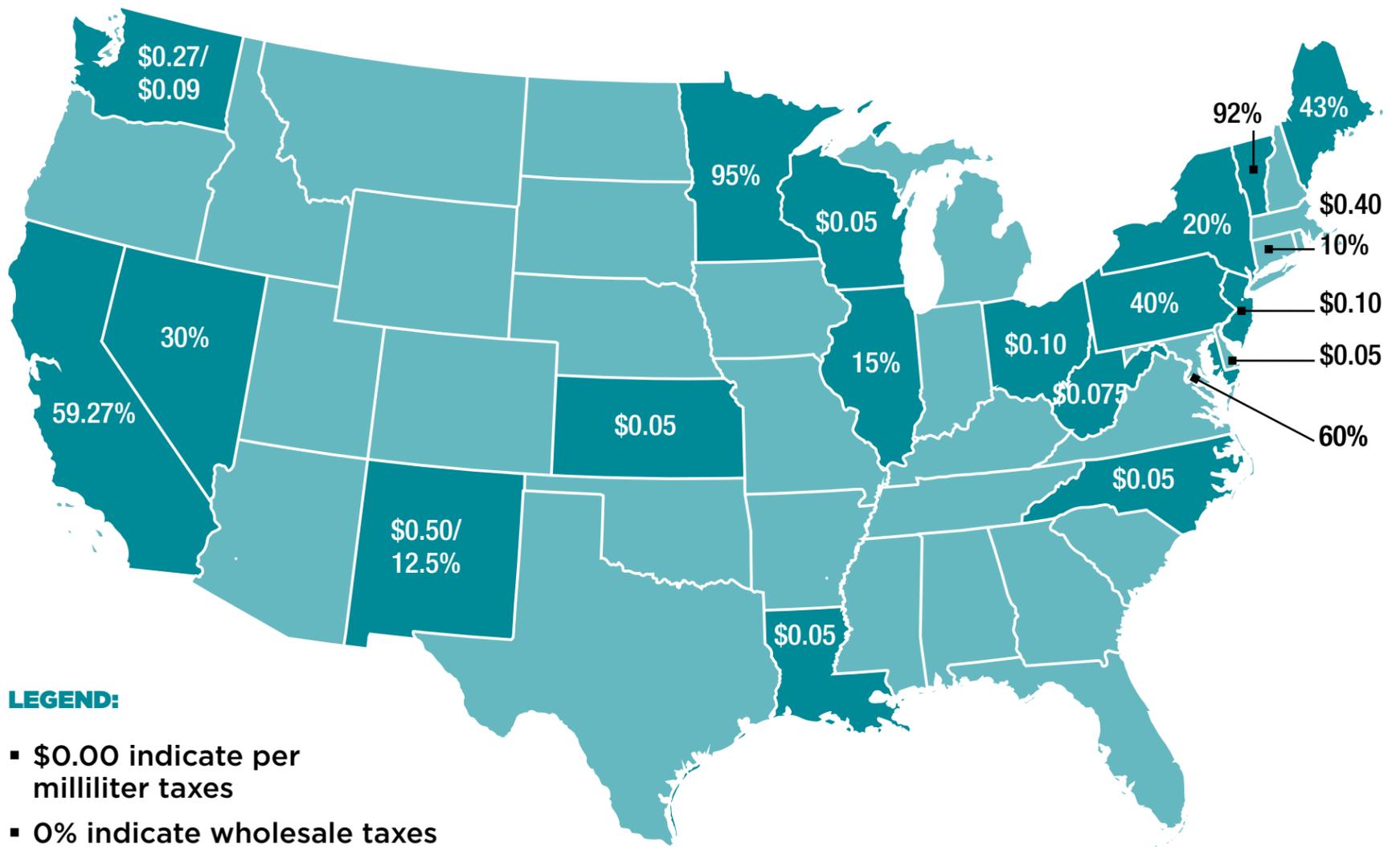
THR products provide economic advantages, which are far too great for policymakers to undermine their efficacy as smoking cessation tool. Their public health benefits are far too important for them to be unnecessarily subjected to numerous burdensome regulations and draconian taxes.

Given the well-documented scientific evidence, lawmakers should promote the use of e-cigarettes and vaping products. Further, they should reject the many myths surrounding THR tools that have developed over the past decade as a result of misinformation campaigns.

If lawmakers take advantage of the vital opportunity presented by e-cigarettes and vaping products, millions of additional American lives and billions of tax dollars could be saved over the next few decades.



Below are the current (or soon to be) taxes on vaping products per state and Washington DC.



LEGEND:

- \$0.00 indicate per milliliter taxes
- 0% indicate wholesale taxes

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STATE	PERCENTAGE AND OR DOLLAR AMOUNT OF TAX
California	59.27% of wholesale
Connecticut	\$0.40 per milliliter pre-filled devices 10% of wholesale other e-cigarette products (effective October 1, 2019)
Delaware	\$0.05 per milliliter
Washington, DC	60% of wholesale
Illinois	15% of wholesale
Kansas	\$0.05 per milliliter
Louisiana	\$0.05 per milliliter
Maine	43% of wholesale effective Jan. 2, 2020 (on Governor's desk)
Minnesota	95% of wholesale
Nevada	30% of wholesale
New Jersey	\$0.10 per milliliter
New Mexico	\$0.50 per cartridge; 12.5% on liquid nicotine
New York	20% of wholesale (effective December 1, 2019)
North Carolina	\$0.05 per milliliter
Ohio	\$0.10 per milliliter (effective October 1, 2019)
Pennsylvania	40% of wholesale
Vermont	92% of wholesale
West Virginia	\$0.075 per milliliter
Washington	\$0.27 per milliliter per cartridges \$0.09 per milliliter on e-liquid (effective October 1, 2019)
Wisconsin	\$0.05 per milliliter (effective October 1, 2019)

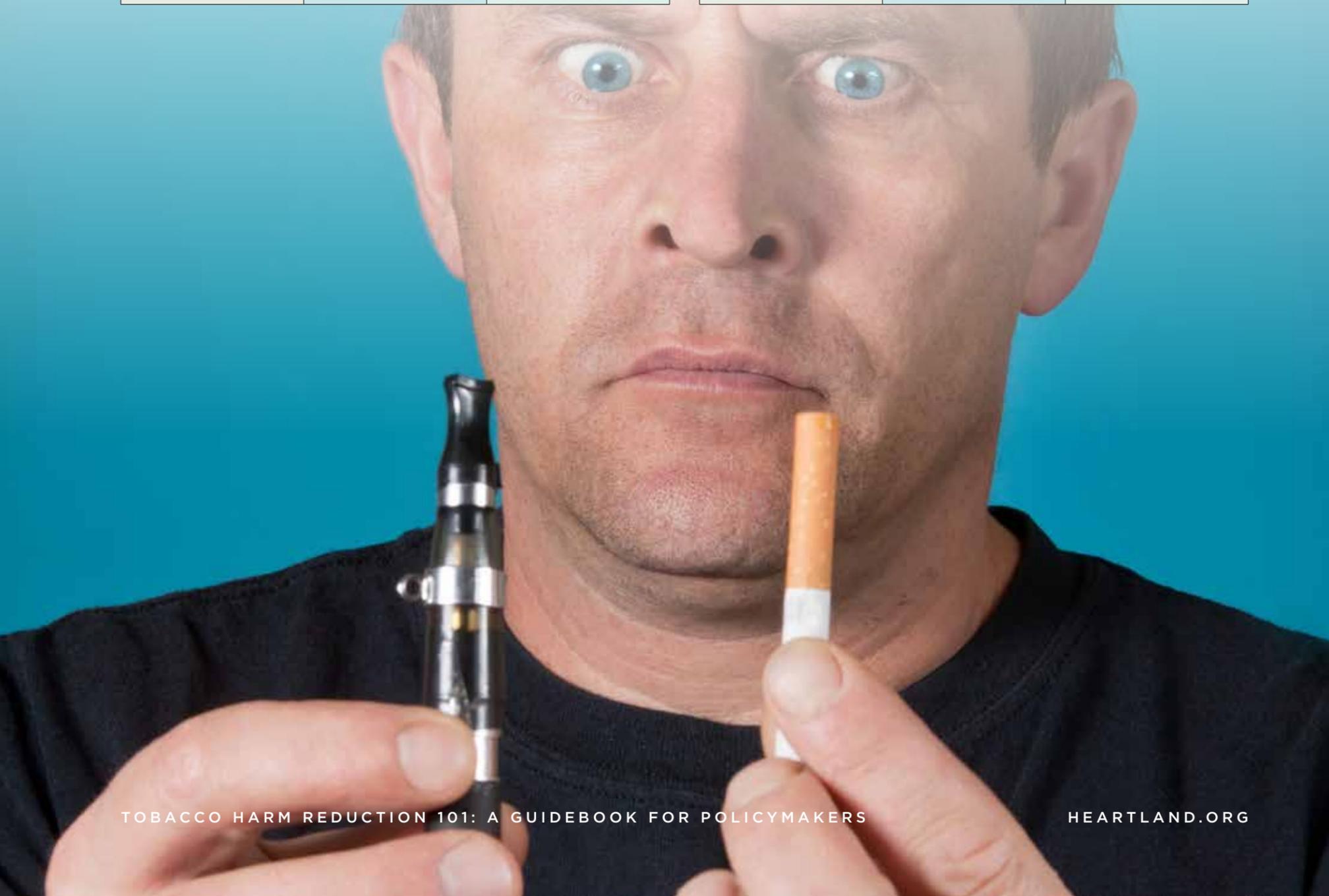
Tobacco Moneys

STATE	2018 (Millions)			2019 (Millions)		
	TOBACCO MONEYS	SMOKING AND PREVENTION	PERCENTAGE SPENT ON PREVENTION	TOBACCO MONEYS	SMOKING AND PREVENTION	PERCENTAGE SPENT ON PREVENTION
Alabama	309.90	1.30	0.42%	300.20	2.10	0.70%
Alaska	86.80	9.50	10.94%	83.20	9.10	10.94%
Arizona	437.50	17.80	4.07%	429.50	17.30	4.03%
Arkansas	282.00	8.90	3.16%	282.70	12.00	4.24%
California	2,600.00	327.80	12.61%	2,800.00	250.40	8.94%
Colorado	292.60	24.20	8.27%	286.30	23.60	8.24%
Connecticut	516.30	6.40	1.24%	500.80	-	0.00%
Delaware	158.30	6.40	4.04%	154.70	6.30	4.07%
Florida	1,600.00	68.60	4.29%	1,500.00	70.40	4.69%
Georgia	385.60	0.93	0.24%	393.30	0.75	0.19%
Hawaii	163.90	6.60	4.03%	160.30	4.50	2.81%
Idaho	75.60	2.70	3.57%	76.70	3.60	4.69%
Illinois	1,100.00	7.30	0.66%	1,100.00	9.10	0.83%
Indiana	568.00	7.50	1.32%	556.90	7.50	1.35%
Iowa	280.90	4.10	1.46%	274.20	4.00	1.46%
Kansas	197.40	0.847	0.43%	190.00	0.847	0.45%
Kentucky	371.00	2.60	0.70%	507.30	3.80	0.75%
Louisiana	477.40	5.80	1.21%	459.60	5.40	1.17%
Maine	196.80	5.30	2.69%	188.50	4.80	2.55%
Maryland	538.30	10.60	1.97%	525.00	10.50	2.00%
Massachusetts	884.00	3.70	0.42%	864.50	4.20	0.49%
Michigan	1,200.00	1.60	0.13%	1,200.00	1.60	0.13%
Minnesota	739.40	20.60	2.79%	703.60	17.30	2.46%
Mississippi	254.80	8.40	3.30%	248.40	8.40	3.38%
Missouri	260.60	0.485	0.19%	258.90	0.485	0.19%
Montana	115.80	5.20	4.49%	108.50	5.00	4.61%
Nebraska	103.50	2.60	2.51%	104.00	2.60	2.50%
Nevada	245.20	1.00	0.41%	230.40	1.00	0.43%
New Hampshire	261.30	0.14	0.05%	254.90	0.14	0.05%
Nw Jersey	941.90	0.50	0.05%	919.60	7.20	0.78%
New Mexico	131.80	5.70	4.32%	131.50	5.70	4.33%
New York	2,100.00	39.30	1.87%	2,000.00	39.80	1.99%
North Carolina	450.50	2.10	0.47%	450.40	2.80	0.62%
North Dakota	54.40	5.30	9.74%	53.60	5.80	10.82%
Ohio	1,300.00	12.50	0.96%	1,300.00	13.00	1.00%
Oklahoma	389.50	19.00	4.88%	525.60	21.30	4.05%
Oregon	353.10	8.20	2.32%	338.80	10.00	2.95%
Pennsylvania	1,800.00	15.80	0.88%	1,700.00	15.50	0.91%
Rhode Island	195.50	0.375	0.19%	195.00	0.391	0.20%
South Carolina	243.80	5.00	2.05%	238.20	5.00	2.10%
South Dakota	87.60	4.50	5.14%	86.90	4.50	5.18%
Tennessee	428.70	6.20	1.45%	422.00	-	0.00%
Texas	1,900.00	4.50	0.24%	1,900.00	4.20	0.22%
Utah	144.60	7.20	4.98%	141.90	7.00	4.93%
Vermont	106.10	3.60	3.39%	99.80	3.80	3.81%
Virginia	314.10	8.50	2.71%	304.40	10.80	3.55%
Wahsington	563.00	1.40	0.25%	552.60	1.50	0.27%
West Virginia	332.00	-	0.00%	238.00	-	0.00%
Wisconsin	791.10	5.30	0.67%	757.80	5.30	0.70%
Wyoming	41.10	3.70	9.00%	40.20	3.00	7.46%

Tobacco Harm Reduction State Definitions

State	E-Cigarette Defined in State Law	E-Cigarettes defined as a "Tobacco Product"
Alabama	Yes	No
Alaska	Yes	No
Arizona	Yes	No
Arkansas	Yes	No
California	Yes	Yes
Colorado	Yes	Yes
Connecticut	Yes	No
Delaware	Yes	Yes
Florida	Yes	No
Georgia	Yes	No
Hawaii	Yes	Yes
Idaho	Yes	No
Illinois	Yes	No
Indiana	Yes	Yes
Iowa	Yes	No
Kansas	Yes	No
Kentucky	Yes	No
Louisiana	Yes	No
Maine	Yes	Yes
Maryland	Yes	No
Massachusetts	Yes	Yes
Michigan	No	Yes
Minnesota	Yes	Yes
Mississippi	Yes	No
Missouri	Yes	No

State	E-Cigarette Defined in State Law	E-Cigarettes defined as a "Tobacco Product"
Montana	Yes	No
Nebraska	Yes	No
Nevada	Yes	No
New Hampshire	Yes	No
Nw Jersey	Yes	Yes
New Mexico	Yes	No
New York	Yes	No
North Carolina	Yes	Yes
North Dakota	Yes	No
Ohio	Yes	No
Oklahoma	Yes	No
Oregon	Yes	No
Pennsylvania	Yes	Yes
Rhode Island	Yes	No
South Carolina	Yes	No
South Dakota	Yes	Yes
Tennessee	Yes	No
Texas	Yes	No
Utah	Yes	Yes
Vermont	Yes	No
Virginia	Yes	No
Washington	Yes	No
West Virginia	Yes	Yes
Wisconsin	Yes	No
Wyoming	Yes	Yes



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About the Author

LINDSEY STROUD is a state government relations manager at The Heartland Institute.

Stroud's extensive work on tobacco and vaping policy includes co-authoring *Vaping, E-Cigarettes, and Public Policy Toward Alternatives to Smoking* and conducting numerous analyses on tobacco harm reduction. Stroud has hosted events in state capitols across the country addressing legislation that restricts adult access to vaping and e-cigarette products, and she has testified before multiple legislative committees. Lindsey's work has appeared in outlets across the United States, as well as in various international media outlets.



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Stroud is also the host of The Heartland Institute's *Voices of Vapers*, a podcast in which Stroud interviews numerous tobacco and tobacco harm reduction policy experts and advocates.

Prior to working for Heartland, Stroud worked as a legislative assistant to a Minnesota state senator and as a session staffer for a Virginia state delegate. In 2012, she interned for a U.S. congressman in Virginia.

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