Washington State
Liquor and Cannabis Board

Research Brief

The Modern Tobacco Market: The Emergence of Nicotine-Only Products and Relative Risks of Smoking, Vaping, and Oral Products

June 2025

LCB Research Program

The Research Program at the Washington State Liquor and Cannabis Board (LCB) is a non-partisan, transparent resource focused on public health and safety outcomes related to the products, policy, and regulation of alcohol, cannabis, tobacco, and vapor products.

Purpose

During the 2024 Washington State Prevention Summit, representatives from LCB polled conference attendees to identify topics for future research briefs. Differences between smoking and vaping tobacco was the topic that received the most votes. In the following months, the 2025 Legislative Session brought forward several bills related emerging products of concern that are becoming popular within the tobacco market. These bills increased interest from several parties of interest (e.g., youth, local coalitions, state agencies, public health interests) about similarities and differences in product types and their relative safety profiles. This brief is based on a review of existing evidence including scientific literature, government reports, regulations and policies, and other credible information sources.

This document does not represent an official position of LCB.

Contact

For more information about the Research Program and its work, please visit: lcb.wa.gov/research_program.

For specific questions about this brief, please email the Research Program at: lcbresearch@lcb.wa.gov.

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Origins

Tobacco comes from the leaves of the plant genus *Nicotiana* (a 'genus' describes groups of different species that are related from a common ancestor) (**Figure 1**).[1] It is indigenous to North and South America and its historical use stems from religious ceremonies practiced by indigenous communities. This type of practice is still in use by people today, such as Tribal communities who use tobacco to promote physical, spiritual, emotional, and social connection.[1-3] Tobacco used in this manner is often called *'traditional'* or *'religious'* use. In contrast, *'commercial'* use refers to tobacco being produced, marketed, sold, and used outside of these purposes.[2-3] Commercial tobacco primarily uses the species *Nicotiana tabacum,* but there are more than 70 other species that are used in traditional manners.[1]

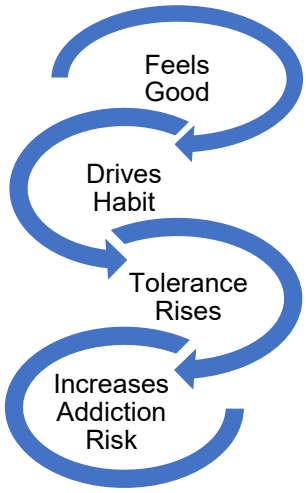
Figure 1. Commercial tobacco plant.

Note: Photo from Kishore (2014).[1]

Nicotine

Nicotine is the primary compound in tobacco that produces the most noticeable effects after it is ingested into the body.[4] Nicotine is a stimulant that increases pleasure, concentration, and reaction time, while reducing stress and anxiety. These positive effects are short-lived, which drives people to continue using nicotine. Repeated use eventually builds tolerance to the pleasurable effects, which then can encourage people to increase their use to achieve what was initially felt during the first few pleasurable experiences. Withdrawal symptoms (e.g., irritability, cravings) begin during periods of abstinence that can be eased through nicotine use, further escalating patterns of use. This pathway leads to heightened risk for addiction (**Figure 2**).[5] Nicotine is associated with many additional health risks including increased heart rate and blood pressure, nausea, dizziness, irritability, moodiness, etc.[4]

Figure 2. Common pathway of addiction development.



Health Effects and Carcinogens

Importantly, nicotine is one of many chemical compounds found in tobacco.[6] Nicotine drives the psychologically addictive properties (described above). Other chemicals are the primary link between tobacco and cancer, heart disease, stroke, and other diseases.[7] About 37 carcinogens have been identified in unburned tobacco and 80 have been identified in burned tobacco.[8]

These carcinogens have been the primary driver of the global disease burden worldwide.[9] For example, lung cancer is the leading cause of cancer-related death among both men and women in the United States (U.S.).[10] It is estimated that 90% of lung cancers are caused by smoking cigarettes.[10]

Nicotine vs. Tobacco

Recent market innovation has provided a wide variety of tobacco and nicotine options for consumers. Due to this rapid product expansion, there has been limited, ambiguous research and inconsistent terms, some which have conflated products with one another, creating difficulty in analyzing a single product type or chemical. This in turn has made assessing the relative harms between different products confusing. The editor for the scientific journal *Nicotine & Tobacco Research* recently published an article that describes the importance of precise scientific methods and clear terminology to develop a better understanding of various products to help inform policy decisions.[11]

One of the most important distinguishing factors is if a product contains tobacco or if a product contains *only* nicotine. Again, nicotine alone is addictive and is not without harm. However, it does not have the same carcinogenic properties found in other tobacco-containing products.[7] Nicotine-only products are lower in risk relative to their tobacco counterparts.[6-8]

Popular Methods and Products

The most popular methods of using tobacco- and nicotine-containing products include smoking, vaping, and oral use.

Smoking tobacco is the most often used method of consuming nicotine and related chemicals. Smoking is the result of combusting a product and inhaling it into the lungs (e.g., cigarettes, cigars).[12] Combustion is a chemical reaction that involves breaking chemical bonds and creating new chemical compounds and byproducts. Inhaling smoke of any kind increases health risks because the chemical reactions from combustion are dangerous for human consumption.[13] As a result, smoking is considered the highest-risk method of tobacco use.

Vaping involves inhaling vapor (rather than smoke) into the lungs. Vaping changes the physical state of the substance rather than the overall chemical identity. Because vaping does not induce a chemical reaction like combustion does, the overall number of chemicals introduced into the body is lower than smoking.[14] To this end, vaping appears to decrease—but does not eliminate—overall health risks.[15] One important caveat is that vaping devices may contain other harmful chemicals, however, these can vary widely and are not fully understood.[16]

Oral methods commonly use pouches placed between the lip and gum which then deliver nicotine and other chemicals into the bloodstream.[17-18] This method is sometimes referred to as ‘smokeless’, although it is also technically ‘vapeless’ as nothing is being inhaled into the lungs. Both smokeless nicotine and smokeless tobacco pouches do not use combustion. However, smokeless nicotine pouches do not contain tobacco, and therefore are considered safer.[17] Most recently, the Food and Drug Administration (FDA) authorized the marketing of 20 ZYN

nicotine pouch products to indicate that, after scientific evaluation, there are "substantially lower amounts of harmful constituents than cigarettes and most smokeless tobacco products" and "the authorized products pose lower risk of cancer and other serious health conditions."[34]

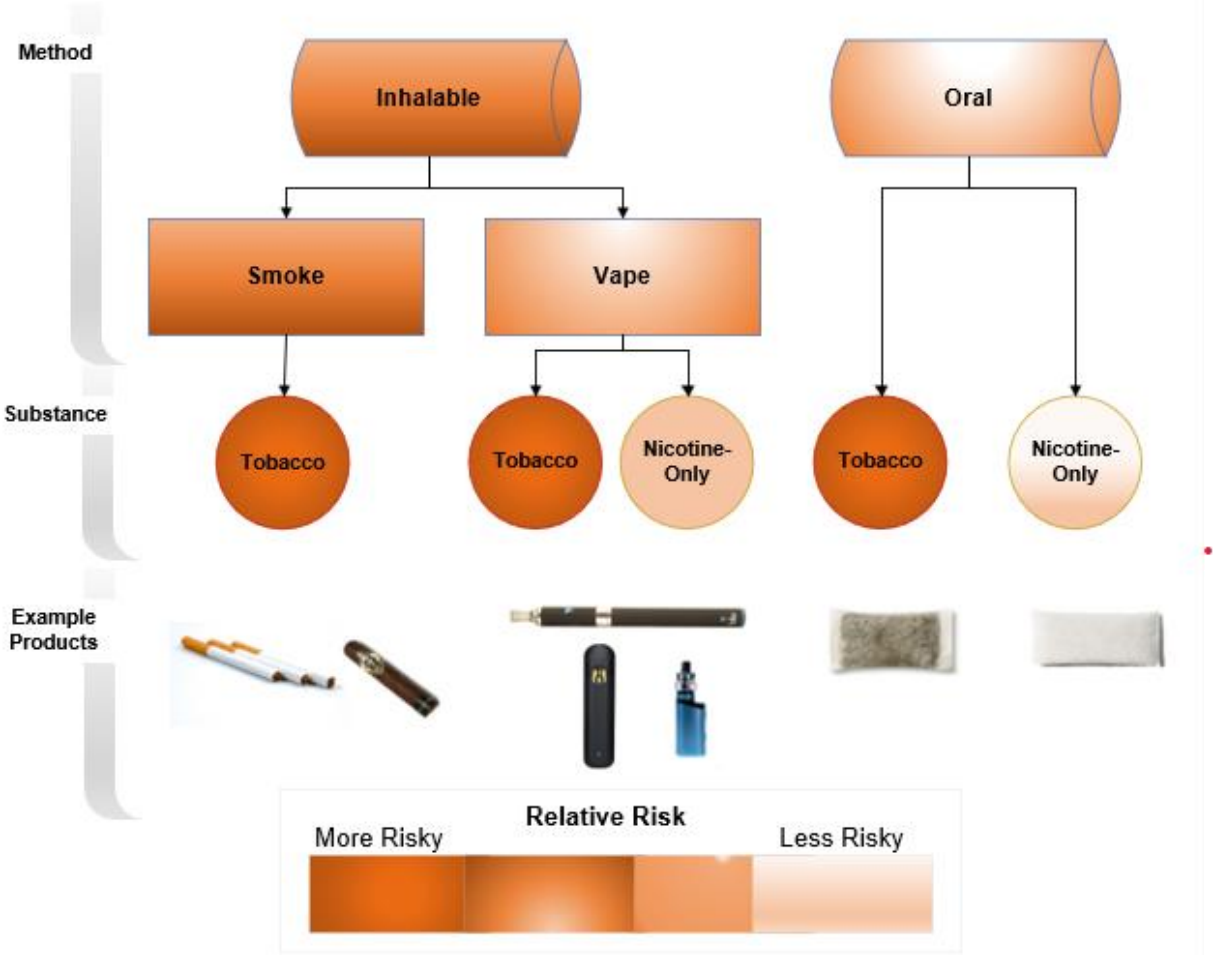
Caution

Relative risk profiles based on method used and substance type are illustrated in **Figure 3.** *All classes of tobacco and nicotine products have some level of risk. It is considered healthiest and safest to not use any products containing nicotine and/or tobacco.*

Federal and State Regulations

The Family Smoking Prevention and Tobacco Control Act was signed into law in 2009 and gives the Food and Drug Administration (FDA) authority to regulate the manufacture, distribution, and marketing of tobacco products.[19] Due to product innovation that has led to significant increases in products containing nicotine derived from synthetic sources, Congress passed a law in 2022 clarifying FDA's authority to regulate products containing nicotine from any source, including synthetic nicotine.[20]

Figure 3. Relative risk profiles of tobacco and nicotine products.



In Washington State, tobacco products and sales are overseen by several agencies as described below.

The Department of Revenue is responsible for educating businesses and consumers about their tax obligations and administers and collects taxes for all tobacco products.

The Department of Health focuses on preventing harm, protecting youth from initiating use, helping people who currently use to quit, and eliminating tobacco-related disparities.

The LCB enforces taxation, regulations, and laws with product retailers, wholesalers, and distributers. LCB also investigates and addresses illegal sales, and focuses on youth access prevention.

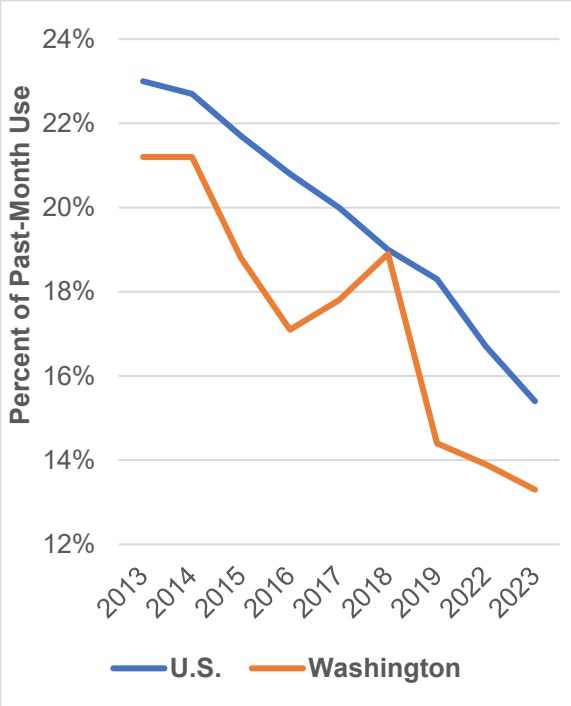
During the 2025 Washington State legislative session, the definition of tobacco was broadened to include all nicotine sources, even those created synthetically.[21]

Prevalence

Smoking tobacco in products such as cigarettes has historically been the most popular method of use.[22] However, the prevalence of cigarette use has declined in the past decade. The decline is due to many factors including: the emergence of other products in the market, public health campaigns about the harms of tobacco use, anti-smoking laws, tax hikes, and changes in the legal smoking age (**Figure 4**).

In Washington State, cigarette use among adults age 18 years and older in the past month has decreased from 21% in 2013 to 13% in 2023 (**Figure 4**).[22] Past-month cigarette use among Washington State 10th graders decreased from 13% in 2010 to 2% in 2023 according to the Healthy Youth Survey (HYS).[23]

Figure 4. Past-month cigarette use among U.S. and Washington adults 18 years and older.[22]



When examining alternative forms of tobacco and/or nicotine use, longitudinal (long-term) data is not yet available as it is with cigarettes.

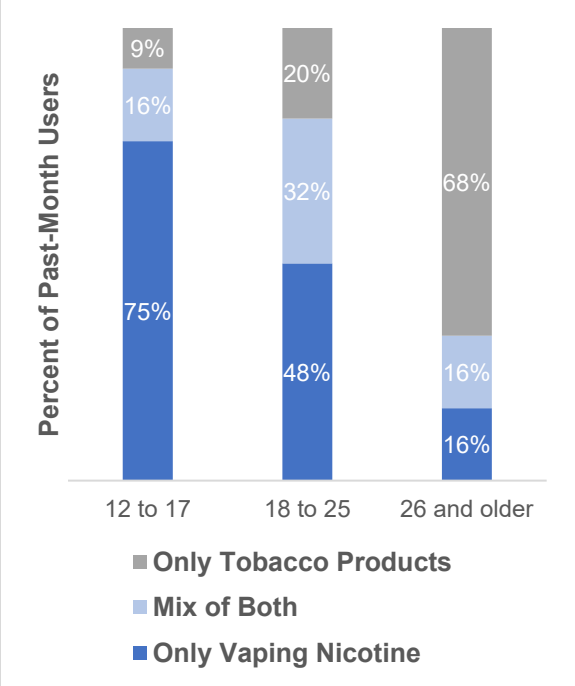
Nicotine Vaping

In Washington, the prevalence of adults age 18 years and older who vaped nicotine in the past month was about 9% in 2023.[22] In 2023, about 5% of 10th graders reported past-month use of vapes with nicotine in it.[22] About 3% reported past-month use of smokeless nicotine.[23]

Misconceptions of Use

Younger generations account for the largest decline in cigarette use across time (**Figure 5**).[24] Older generations have been the least likely to transition away from cigarettes and either stop using all together or move to a nicotine-only product. There are several potential reasons for this. First, older adults are more likely to have misperceptions about the actual harms of tobacco products altogether.[35] Second, older adults also have misconceptions that nicotine-only products are just as harmful as tobacco products, which may lead them to not switch to less risky products.[33]

Figure 5. Product use by generation in the U.S. in 2023.[24]



Note: Smokeless nicotine products were not well-defined in this data collection.

Public Health Impacts of Nicotine-Only Products: Depends on the Angle

New market innovations for nicotine-only products have left some people concerned and others optimistic. Both sides have evidence to support their viewpoints.

Potential public health **concerns** for nicotine-only products related to *harm reduction* include:

- There is limited research on long-term effects and risks with long-term nicotine-only product use.[26]
- Nicotine is an addictive substance and is not without its own risks (e.g., cardiovascular effects).[25]
- Some people who smoke do not stop smoking and instead use both tobacco and nicotine-only products.[27]
- Some nicotine-only products are not FDA-approved cessation aids.[28]

Potential public health **benefits** for nicotine-only products related to *harm reduction* include:

- There is short-term evidence that exposure to carcinogens is lower when using nicotine-only products than it is from tobacco products.[15]
- For people who currently smoke, nicotine-only products are safer than tobacco products.[15]
- Studies show that nicotine-only products reduce withdrawal symptoms for people trying to quit tobacco use.[29]
- Second-hand exposure to nicotine and toxins is reduced (but not eliminated) relative to smoked tobacco.[36-37]
- Even though they are not currently FDA approved cessation aids, there are potential opportunities if further research finds reduced harm.[29] Current FDA approved cessation

aids (e.g., patches, lozenges, gums) aren't as effective because of their slower absorption rate into the body.

Potential public health **concerns** for nicotine-only products and their *appeal to people under legal age* include:

- Rates of nicotine-only product use have increased across time among those younger than 21 years old.[22-24]
- Nicotine-only products are often marketed in ways that appeal to young people.[30-31]
- Nicotine-only products may renormalize nicotine use among young people.
- Nicotine harms developing brains and has long-term consequences.[25]

Potential public health **benefits** for nicotine-only products related to their *appeal to people under legal age* include:

- Rates of tobacco use have decreased across time among those younger than 21 years old.[22-24]

Summary

Tobacco has been used for centuries, and its use continues to evolve in modern times. The most recent evolution, in the form of nicotine-only products, appears to be less risky than traditional tobacco products. However, these products still have addiction potential and are not without risk.

Suggested Citation

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