The Vape Debate: Health, risks, and reality

Implications for life insurers in Asia Pacific

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Key Takeaways

Vaping is an emerging risk: Vaping has rapidly evolved into a significant emerging risk with potential long-term implications for mortality and morbidity trends.

Regulatory landscape: Regulations across Asia Pacific vary widely – from comprehensive bans to restricted access. While adult vaping prevalence remains relatively low in most markets, youth uptake is rising sharply, driven by flavored products, social media influence, and the perception of lower harm. Vaping may also act as a gateway to smoking, increasing lifetime health risks.

Health implications: Although marketed as safer than smoking, health impacts remain uncertain. Documented short-term effects include respiratory irritation, airway inflammation, and cases of vaping-related lung injury (EVALI). Long-term effects are largely unknown due to insufficient evidence. Nicotine addiction persists, and aerosol exposure introduces additional toxicological risks.

Smoking cessation debate: Evidence on vaping as a cessation tool is mixed and highly contested. Smokers switching to vaping often engage in dual use, which continues to pose significant health risks.

Implications for life insurance: The industry should proactively address vaping trends through strategies for underwriting enhancements, data analytics, experience monitoring, actuarial modeling, and disclosure requirements.

1. Introduction

Combustible cigarette smoking is the leading preventable cause of mortality and morbidity worldwide. An array of traditional tobacco products and newer alternative tobacco/nicotine-containing products exists that is associated with a spectrum of risks; however, the longer-term health impacts of newer products remain unclear and pose uncertain or unknown risks. Tobacco/nicotine-delivery products create dependence, a major barrier to stopping their use. In addition, combustible products create chemical-containing smoke associated with most of the other related health risks. Currently available products include a range of delivery mechanisms and are usually categorized as follows:

- **Combustible tobacco products** – includes cigarettes, cigars, pipes, and hookah/water pipes, which are generally associated with higher risk.
- **Non-combustible tobacco products** – includes products containing tobacco that is either non-combusted or smokeless (e.g., heat-not-burn tobacco products, snus, snuff, chewing tobacco, and dissolvable tobacco), as well as newer alternative nicotine delivery products, such as electronic cigarettes (e-cigarettes), patches, nasal sprays, and oral nicotine pouches.

Vaping refers to the act of inhaling an aerosol (rather than smoke) created by an e-cigarette or vape. This article presents vaping as an emerging life insurance risk and explores updated underwriting, medical, and pricing considerations – specifically of the newer, alternative e-cigarettes — with a focus on the Asia Pacific region.

The paper provides a comprehensive overview of current evidence on health impacts, highlighting the uncertainty surrounding long-term outcomes, and addresses the growing prevalence of vaping among youth and its potential role as a gateway to smoking. It also reviews evolving regulatory frameworks and public health policies across key markets, assessing their effectiveness and enforcement challenges. Finally, it outlines strategic considerations for insurers with a view to developing sustainable pricing and re-rating pathways in an environment of significant uncertainty.

2. Overview of electronic nicotine delivery systems

E-cigarettes, or vaping devices, entered the Chinese market in 2003 and the US and European markets in 2006. Initially marketed as a safer alternative to traditional cigarette smoking, their usage has surged, especially among youth and non-smokers. Their market entry as consumer products rather than medical products has impeded public health and regulatory efforts to control access and use, although this aspect is evolving. The US Food and Drug Administration (FDA), for example, regulates e-cigarettes solely as consumer products.

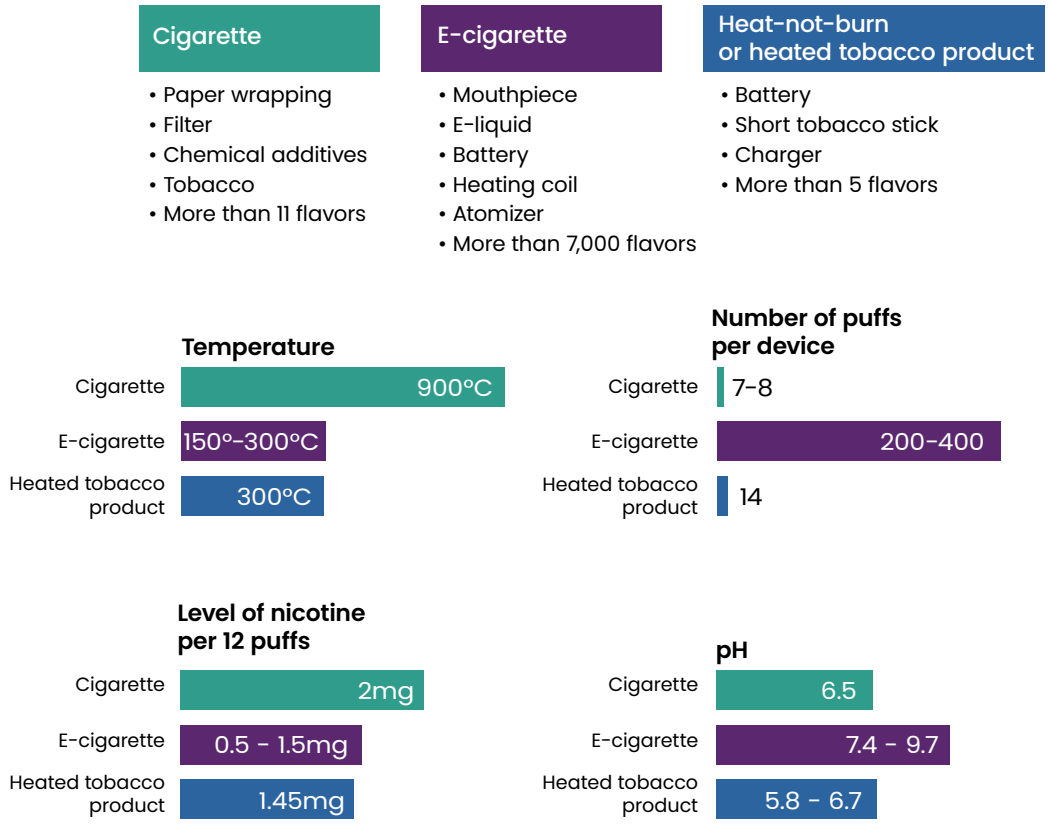
E-cigarettes are battery-powered devices that heat a liquid (often called e-liquid or vape juice) to create an aerosol that users inhale. The liquid typically contains nicotine, flavorings, and other chemicals. Propylene (or sometimes ethylene) glycol (PG) or glycerol, or vegetable glycerin (VG) are the main components of most e-liquids, with more than 7,000 flavors available. The ratio of PG and VG in the e-liquid can change based on whether flavor (higher levels of PG) or cloud/smoke (higher levels of VG) is preferred. The nicotine content ranges from none to 36 mg/mL, although it can be higher. Vaping devices can also be used to aerosolize psychoactive tetrahydrocannabinol (THC) or non-psychoactive cannabinoid (CBD) oils. Synthetic cannabinoids, sold under common names like K2 and Spice, are also smoked. Combustion of tobacco (as in traditional cigarette smoking) does not occur.

The primary types of e-cigarettes include:[1]

- **Cigalikes** – First-generation products that resemble traditional cigarettes and are disposable (i.e., neither rechargeable nor refillable).
- **Vape pens** – Second-generation products that are larger than cigalikes and have rechargeable batteries and refillable tanks or cartridges, allowing the user to alter the e-liquid component.
- **Mods or tanks** – More advanced "personalized" third- and fourth-generation devices with customizable features, larger batteries, and refillable tanks. "Hacking" is a concerning practice in which modifications are made to such devices beyond the manufacturer's intent.
- **Pod-mod systems** – Compact devices that use disposable or refillable pods. These devices are particularly popular among youth, as they are often flavored and their discrete, small size avoids detection. At the same time, they can deliver high concentrations of nicotine salts (nicotine combined with an acid that lowers the pH), allowing for less irritation to the throat. A common brand name is JUUL.
- Newer disposable devices, not unlike first-generation products, are also popular among younger users. Inexpensive and available in a variety of flavors, they are marketed specifically to this target demographic.

The following charts, adapted from a recent paper on nicotine addiction,[2] highlights some of the differences between nicotine delivery devices. Many factors can modify the concentrations of nicotine delivered, including inhalation depth, volume and intensity of puffing, aerosol particle size, and nicotine concentration. The pH can impact nicotine absorption – the more acidic, the lower the absorption.

Figure 1: Nicotine delivery device comparison



3. Regulations and prevalence

A. Vaping regulations

Vaping regulations vary significantly across the globe. Below are highlights from select Asia Pacific markets, reflecting differing national priorities, public health strategies, and economic and social factors.[3] [4]

Australia

Since July 2024, all vaping products – whether containing nicotine or not – can be sold only in pharmacies for the purpose of helping people quit smoking or manage nicotine dependence. Before purchasing, customers must consult with a pharmacist about options for managing smoking and/or nicotine dependence.[5]

Mainland China, Hong Kong, and Taiwan

E-cigarettes are permitted in **Mainland China**, but their sale and use are strictly regulated. Online sales and advertising are prohibited, and flavored e-cigarettes are banned.[6]

Hong Kong enforces strict vaping regulations and is moving toward an outright ban. Currently, it is illegal to import, manufacture, sell, distribute, or promote any e-cigarettes, heated tobacco products, or related devices (collectively referred to as alternative smoking products, or ASPs). By April 2026, it will also be illegal to possess or use ASPs in public places, with a fixed penalty of HK$3,000.[7]

Taiwan has imposed a full ban on the sale, advertising, manufacture, supply, and public use of e-cigarettes. Travelers are prohibited from bringing e-cigarettes into the market.[8]

Japan

Regulations distinguish between nicotine and non-nicotine products. Nicotine-containing e-cigarettes are classified as medicinal products and are not approved for sale, while non-nicotine vapes remain widely available.[9]

South Korea

Vaping is legal for adults. Nicotine-containing vapes are classified as tobacco products and are subject to health warnings on packaging, advertising restrictions, heavy taxes, and retail licensing requirements. Non-nicotine vapes are treated as general consumer products.[10]

Southeast Asia

Singapore enforces one of the world's strictest vaping regimes. Since 2014, the sale and importation of vapes and e-cigarettes have been banned.[11] In 2018, the prohibition was extended to include purchase, use, and possession, creating a comprehensive ban.[12] In September 2025, even tougher penalties and enforcement measures that treat vaping as a drug-related issue went into effect.[13]

Malaysia is in the process of implementing a phased nationwide ban on the sale and use of e-cigarettes and vape products, with full enforcement of a total ban targeted for mid-2026.[14]

In **Thailand**, vaping is illegal under current laws, which prohibit the importation, sale, distribution, possession, and use of e-cigarettes and related products. To address black-market activity and enhance consumer safety, proposed reforms – such as licensed sales under strict conditions – are under discussion but have not yet been implemented.[15] [16]

In **Indonesia**, e-cigarettes – whether nicotine-containing or nicotine-free – are regulated as tobacco products. The regulatory framework includes provisions on age restrictions, sale and distribution, packaging and health warnings, product standards, advertising, and taxation, as well as a prohibition on public use.[17] [18] [19] [20]

Vietnam has enacted a comprehensive ban on the production, import, sale, storage, transportation, and use of vaping products. Tourists who bring vapes into the country may be fined for possession or use.[21] [22] [23]

India

The law imposes a comprehensive ban on the production, manufacture, import, export, sale, and distribution of vaping products. However, there appears to be some ambiguity, as the personal use or possession of e-cigarettes is not explicitly criminalized.[24] [25] [26]

Table 1: Summary of regulation highlights

Market	Status	Key regulation highlights
Australia	Restricted	Only sold in pharmacies for smoking cessation; pharmacist consultation required
Mainland China	Restricted	Flavored e-cigarettes banned; online sales and advertising prohibited
Hong Kong	Comprehensive ban	Ban on import, sale, promotion; possession/use in public banned by April 2026
Taiwan	Comprehensive ban	Full ban on sale, advertising, manufacture, supply, and public use; import prohibited
Japan	Restricted	Nicotine vapes classified as medicinal (not approved); non-nicotine widely available
South Korea	Restricted	Nicotine vapes treated as tobacco (taxes, warnings); non-nicotine as consumer products
Singapore	Comprehensive ban	Comprehensive ban on sale, import, use, possession; tougher penalties from September 2025
Malaysia	Ban in progress	Phased nationwide ban on sale and use; full enforcement by mid-2026
Thailand	Comprehensive ban; reform under discussion	Comprehensive ban currently in place; proposed reform allowing licensed sales under discussion
Indonesia	Restricted	All vaping products, whether containing nicotine, regulated as tobacco products
Vietnam	Comprehensive ban	Full ban on production, import, sale, storage, transportation, and use of vaping products
India	Comprehensive ban	Comprehensive ban in place, although legality of personal use or possession could be ambiguous

B. Vaping prevalence

Vaping prevalence rates in select Asia Pacific markets are summarized in Table 2. Compared to smoking prevalence, which ranges from 10% to 25% of adults in many countries, vaping prevalence is typically below 10%, generally ranging from 1% to 8%. This lower uptake can be attributed to regulatory restrictions, entrenched cultural and behavioral norms favoring smoking, and the higher costs and limited accessibility of vaping devices and liquids.

Even in countries where adult vaping prevalence is low or vaping is banned, youth vaping remains a significant concern across nearly all markets. Rising trends among younger demographics are driven by several factors:

- Strong appeal of flavored products
- Social media influence and peer pressure normalizing vaping
- Perceptions of reduced harm compared to traditional smoking
- Easy access through online platforms and informal markets, even in jurisdictions with bans

Evidence indicates that youth who vape are more likely to initiate traditional cigarette smoking later in life. It is therefore critical for governments and public health bodies to closely monitor these developments and implement effective measures to counter this trend.

Table 2: Vaping prevalence rates

Market	Current vaping prevalence (adults)	Notes
Australia[27]	~8.2% (2024) among people aged 14+; peaked at 9.1% in 2023	Significant rise since 2019; highest among 18-24-year-olds (about 20% currently vape)
Mainland China[30]	~0.7% of adults (2022)	Ever-use ~3.1%; prevalence much higher among youth in some surveys
Hong Kong[28 29]	No precise recent % reported; older data (2019) showed ~4.8% current use among young adults	Vaping remains popular despite 2022 sales ban; full public ban planned for 2026
Taiwan[33]	No official adult prevalence published; youth use rising (6.3% among senior high students in 2023)	Nationwide ban on e-cigarettes since 2023; enforcement ongoing
Japan[31]	~1.9% of adults (2017)	Nicotine e-cigarettes are banned; most use is non-nicotine or heat-not-burn products
South Korea[32]	~3.3% of adults (2023); men 5.3%, women 1.3%	Estimated 1.6 million current vapers
Singapore[34]	No reliable prevalence data (vaping is illegal); enforcement cases rising sharply	>9,600 people caught vaping in first 9 months of 2024; youth cases doubled

Malaysia[35 36]	~5.8% of adults (2023); men 10.5%, women 0.8%	Huge increase from 0.8% in 2011; youth prevalence ~8.6% (15-24 age group)
Thailand[37]	~1.5% of adults (2024); men 3%, women 0.2%	Significant increase from 0.14% in 2021, indicating widespread black-market activity; youth usage 12.2% in 2024 (15-29 age group)
Indonesia[38 39 40]	~1% of adults (2023); men 2%, women 0.1%	Vaping prevalence remains low among adults, but youth uptake has risen sharply to 13.3% in urban areas (15-24 age group)
Vietnam[41 42 43]	~0.2% of adults (2024); men 0.4%, women 0.1%	Adult vaping is negligible, but youth uptake has grown rapidly to 7% in 2022 (15-24 age group)
India[44 45 46 47]	~0% of adults (2024)	Youth use is still limited but rising, with over 60% susceptible to e-cigarettes

Key observations:

- Australia and Malaysia have the highest adult vaping prevalence among these regions.
- Mainland China and India's rates remain very low overall, although youth experimentation or susceptibility is notable.
- Hong Kong, Taiwan, and Singapore have strict bans, but illicit use persists.
- South Korea shows moderate prevalence, with strong gender differences.
- Youth vaping is a major concern in all countries, even those with bans.

4. Medical considerations

A. Effects on health

The long-term health consequences of chronic e-cigarette exposure remain unknown.[48] However, the toxic compounds released have the potential to alter cellular mechanisms and lead to DNA strand breaks, cell death, alteration of vascular smooth muscle cells, and inflammation, potentially triggering chronic systemic conditions, including diabetes mellitus, hypertension, cardiorespiratory disease, chronic kidney disease, and potentially cancer risk – although strong evidence for some of these longer-term outcomes is currently insufficient or unavailable. Broadly, exposure to nicotine and the aerosol vapor produced are associated with adverse health effects.

Nicotine exposure, much of which is still derived from tobacco plants, can vary across different e-cigarette products and user techniques. One study suggested the nicotine content in e-liquids can differ by as much as 200% from their labels.[49]

Nicotine is a highly addictive substance, and substantial evidence suggests that nicotine e-cigarette use by non-smokers leads to dependence on e-cigarettes. Apart from nicotine dependence, most evidence of the impacts of chronic non-cigarette nicotine use is from studies on alternative nicotine replacement products, which suggest no long-term cardiopulmonary or cancer risk. Causal links are challenging to establish because both acute events and risk of disease persist beyond the time of smoking cessation in those who have previously smoked. However, risk of adverse outcomes does appear to be less overall with the switch to nicotine replacement methods alone.

Aerosol exposure is a concern given the contact with potentially toxic components for which the overall safety, health consequences, and carcinogenic potential of chronic inhalation are largely unknown. Worryingly, e-liquids are constantly changing, making impact assessments challenging, with a review of e-liquids showing between one and 47 different chemicals per sample.[50]

A body-system approach to the potential harms may be a useful way to represent what current evidence suggests:

(i) Respiratory system

The respiratory system is an obvious target for adverse effects. Short-term impacts, such as airway inflammation and bronchial hyperresponsiveness, resemble those of tobacco smoking, and biomarkers of small airway injury suggest damage to the bronchial epithelium.[51] Pulmonary function abnormalities may be present as a result. Both acute and chronic cough have been reported.

Despite products being available for some time, e-cigarette or vaping product use-associated lung injury (EVALI) was only recently described when the Centers for Disease Control and Prevention (CDC) reported an increase in lung injury cases, one-third of which required intubation and ventilation, and associated deaths. In most cases, THC had been inhaled within three months of symptom onset, and many of those diagnosed had also inhaled nicotine. Illegally obtained cartridges, particularly those contaminated with vitamin E acetate, appear to be most strongly associated with EVALI, including an associated mortality risk.

E-cigarette use has also been associated with the development of acute eosinophilic pneumonia. Longer-term use may be a risk factor for chronic obstructive pulmonary disease (COPD) development, but evidence remains insufficient to confirm this.

On the other hand, there is sufficient evidence to suggest a reduction in respiratory exacerbations and disease progression in adult smokers who switch to exclusive or dual use of e-cigarettes.

(ii) Cancer

Cancer risk is currently unknown and will likely take more time to emerge. Identifying cancer's link with cigarette smoking took decades, but we now know smoking to be a fundamental mortality and morbidity contributor.

Beyond potential lung cancer risk concerns, case reports have suggested certain head and neck, breast, and bladder cancers may be associated with e-cigarette use. Available evidence does not, however, suggest an increase in pre-cancer, subclinical, or invasive cancer risk. That said, emerging research indicates that e-cigarettes contain definite and probable carcinogens and cause cancer-associated gene deregulations similar to those caused by combustible tobacco.[52]

(iii) Cardiovascular system

There is no compelling evidence available to quantify the systemic impact of vaping on the risk of clinical cardiovascular disease (e.g., myocardial infarction, stroke, or cardiovascular mortality).

Evidence for risks of subclinical atherosclerosis-related outcomes (e.g., carotid intima media thickness and coronary artery calcification) are also unavailable.

Few e-cigarette studies have been conducted to identify other cardiovascular outcomes in non-smokers (increased blood pressure, heart rate, autonomic control and arterial stiffness, reduced endothelial function, hand microcirculation and cardiac function/geometry, cardiac device interference). However, for these outcomes in smokers, there is moderate evidence that nicotine e-cigarettes acutely increase heart rate, systolic blood pressure, diastolic blood pressure, and arterial stiffness. There is limited evidence that they increase endothelial dysfunction, and some emerging evidence that long-term nicotine e-cigarette use, after completely switching from cigarette smoking, reduces blood pressure.

While available evidence to suggest an increased risk of clinical cardiovascular disease outcomes and subclinical atherosclerosis-related outcomes is limited, it is increasing. One study indicates that, in addition to the risks associated with cardiovascular outcomes, increased platelet activation and aggregation can occur. It showed daily e-cigarette use is independently associated with increased odds of having an acute myocardial infarction (OR=1.79, 95% CI=1.20, 2.66, p=0.004). In the same study, former or "some (odd) day" e-cigarette use was not significantly associated with having had a myocardial infarction.[53] Nicotine-containing e-cigarettes cause catecholamine release, resulting in increased heart rate, cardiac contractility, and elevated systolic and diastolic blood pressure, as well as potentially leading to arterial stiffness and vascular remodeling over the longer term.

Recent research indicates a link between e-cigarette use and an increased risk of heart failure. The study showed that individuals who had at any time used e-cigarettes were 19% more likely to develop heart failure (significant for heart failure with preserved ejection fraction (HFpEF) but not for heart failure with reduced ejection fraction (HFrEF)). This association remained consistent regardless of age, sex, or smoking status.[54]

(iv) Neurological system, mental health, and sleep

There is conclusive evidence connecting the use of nicotine e-cigarettes with seizures but limited evidence of other clinical neurological outcomes.

Studies suggest the associated oxidative stress caused by e-cigarettes, of particular concern in adolescents whose brains are still developing, has been shown to affect mood (including depression and suicidality), anxiety levels, learning, cognition, attention, impulse control, dependence, and addiction, despite many young adults reportedly initiating use to relieve anxiety or enhance mood.[55] [56] Young non-smokers who use e-cigarettes are three times more likely than non-users to become smokers.

While reports have emerged of sleep quality and quantity being affected by nicotine-containing e-cigarettes, triggering an increase in reported daytime sleepiness, robust evidence is lacking.

(v) Developmental and reproductive health

Nicotine is known to cross the placenta, potentially impacting the development of the fetus. However, evidence to date remains insufficient regarding pregnancy and fetal outcomes, such as low birthweight, pre-term birth, Apgar score, and small-for-gestational-age birth, for either exclusive nicotine e-cigarette or dual users.

As a related consideration, a recent cohort study of 5.2 million births in Australia, New Zealand, Norway, and Sweden investigated the impact of smoking cessation medication – nicotine replacement therapy (NRT), such as gum, lozenges, transdermal patches, or varenicline and bupropion – during the first trimester on the risk of major congenital malformations compared to women who smoked. Researchers found no increased risk following exposure for NRT or varenicline, while the risk could not be estimated robustly for bupropion. Considering the significant harms of smoking, this study suggests the prenatal use of NRT and varenicline for smoking cessation is a potential risk-mitigation therapeutic option during the first trimester. NRTs in this study did not, however, include e-cigarette use.[57]

(vi) Other health impacts

There is little evidence for adverse endocrine (including diabetes and pre-diabetes) and hematological systems outcomes. Contact dermatitis seems to be the only reported allergy-related outcome.

Conclusive evidence links e-cigarette use with immediate inhalation toxicity, including seizures. Poisoning by ingestion is possible, more commonly reported in children younger than five, and can be fatal. While there is limited follow-up data on any longer-term consequences of poisoning, hospitalization is generally uncommon. Milder cases are, however, probably underreported overall, and establishing any longer-term outcomes of acute poisoning will remain challenging.

Device explosion has been noted, typically with second-degree burn injuries reported, but a combination of second- and third-degree burns has also occurred, with one-third of impacted users requiring skin grafting. Negative environmental effects have been confirmed, including the generation of indoor airborne particulate matter, waste, and fires.[58] [59]

B. Role in smoking cessation

From a clinical management perspective, while some evidence supports the use of e-cigarettes to aid smoking cessation, they may not be considered first line because of uncertainty regarding health outcomes from long-term use. Instead, medications with more established safety and efficacy, such as varenicline and bupropion, are usually recommended first line.

E-cigarettes have been considered when standard behavioral therapies and pharmacotherapies have failed, or when individuals may not have been ready to "quit" completely. In such cases, a complete transition from combustible tobacco (cigarettes usually) to e-cigarettes is recommended, as they relieve nicotine craving and withdrawal symptoms while still allowing for the behavioral ritual of smoking. Dual use, however, is a significant concern, and studies suggest a significant proportion of overall users are dual users. Dual use is more probable in those younger than 45, likely making complete cessation more difficult, and is associated with higher rates of nicotine dependence and greater likelihood of exposure to toxins.[60]

Meta-analyses suggest both efficacy and short-term safety of e-cigarettes for smoking cessation, but long-term safety is not clear. Generalizability of study outcomes across different product types also limits the ability to analyze the effect, but studies suggest that for smoking cessation, nicotine-containing e-cigarettes are more effective than those not containing nicotine, with a quit rate relative risk of 1.46.[61]

Evidence also supports e-cigarettes as more effective than behavioral support/counselling alone, and certainly more effective when combined with behavioral support/counselling. E-cigarettes have been found to be more effective than other forms of nicotine replacement therapy, such as nicotine patches and gum, and comparable to medication such as varenicline, but only in short-term studies.[62]

Theoretically, if smoking combustible tobacco in the form of cigarettes is completely replaced using e-cigarettes, tobacco-attributable mortality and morbidity outcomes would be reduced, offset by any potential long-term health consequences of ongoing e-cigarettes use.

Dual use is of more concern because even if cigarette use is reduced, smoking-related disease is not linear for many chronic diseases and related conditions, such that even small amounts of exposure are associated with risk and can still cause disease.[63]

To date, evidence supports only varenicline as a clinical intervention to stop e-cigarette use.

C. Public health concerns

A major public health concern of e-cigarette use relates to the rise in vaping among youth and non-smokers.

Key concerns include:

- **Addiction** – The high nicotine content in many e-liquids can lead to addiction among youth and non-smokers.
- **Gateway effect** – Some research suggests that vaping may serve as a gateway to traditional combustible cigarette smoking, particularly among adolescents.
- **Exposure to toxins** – Harmful chemical exposure is associated with adverse health effects.
- **Social and behavioral impacts** – The normalization of vaping could lead to increased acceptance of nicotine use in society.

While delayed in implementation, the UK government planned to offer one million smokers a free vaping starter kit alongside behavioral support to aid quitting. The program's goal is for the UK to be smoke-free by 2030, meaning a reduction in adult smoking prevalence to 5% or less.[64] No similar public health initiatives exist across Asia Pacific.

Further public health initiatives relate to closing knowledge gaps, including highlighting the importance of raising awareness and rectifying misconceptions of e-cigarette use. Surveys show that two-thirds of individuals currently using e-cigarettes consider them to be less harmful than combustible cigarettes, suggesting that individuals who use them may have lower awareness of health risks.[65] An interesting cross-sectional study looked at the association between e-cigarette use and lung cancer screening uptake.[66] Perhaps unsurprisingly, e-cigarette use was independently associated with lower use of lung cancer screening, particularly among individuals who had quit smoking combustible cigarettes, suggesting that efforts to target at-risk individuals is essential to improve adherence to lung cancer screening recommendations.

5. Implications for life insurance

A. Responding to vaping trends

Vaping is increasingly a concern for the life insurance industry, and for good reason. As the popularity of vaping has surged dramatically, the highest prevalence is among individuals aged 16-24,[67] a demographic that introduces long-term uncertainty for insurers because the full health impact of vaping may not be clear for decades.

Although vaping is often marketed as a safer alternative to smoking, it is not without risks. As highlighted in Section 4, vape liquids contain nicotine and chemicals linked to cardiovascular issues, respiratory problems (including lung irritation and asthma), and severe cases of EVALI (vaping-related lung injury). Furthermore, nicotine addiction can lead to sustained exposure to harmful substances.[68] [69] Globally, there have been documented fatalities and thousands of hospitalizations due to vaping-related lung injuries.[70]

B. Underwriting considerations

From an underwriting perspective, most life insurers currently treat vaping the same as smoking, applying smoker rates because of nicotine content and unknown long-term risks. While non-nicotine-containing devices are available, accommodating either a history of smoking or potential for future smoking uptake makes it challenging to consider these scenarios at the risk assessment stage.

The lack of long-term data to date requires insurers to adopt a prudent but pragmatic stance to pricing and risk assessment.

Emerging risk factors further compound these challenges. Behavioral patterns indicate vaping can lead to higher nicotine intake than cigarettes, as users often vape continuously without realizing their dosage. Youth exposure is another concern, as early nicotine use is linked to mental health issues and addiction, which may affect future morbidity and mortality.

Given that vaping has gained popularity in many markets and is perceived by some as a smoking cession aid, the life insurance industry may need to consider refining its approach.

Current underwriting practice typically does not differentiate among types of nicotine delivery device usage. As a result, it may be beneficial to understand the reason why the applicant is using e-cigarettes, which may include:

- As a step toward quitting tobacco or nicotine products for improved health and lifestyle changes
- For pleasure or social purposes
- In combination with tobacco or nicotine products

Equally important is determining the applicant's smoking status prior to using e-cigarettes and vaping, such as a never-smoker versus former tobacco/nicotine-smoker.

To gain deeper insights into vaping habits and behaviors and use these findings to refine future underwriting rule engines and question design, the industry could consider revising the current smoking questionnaires. At present, most questionnaires include a single question that combines smoking and vaping, such as:

"Do you currently smoke or have you smoked in the last 12 months? NB: Smoking includes the use of e-cigarettes or nicotine products."

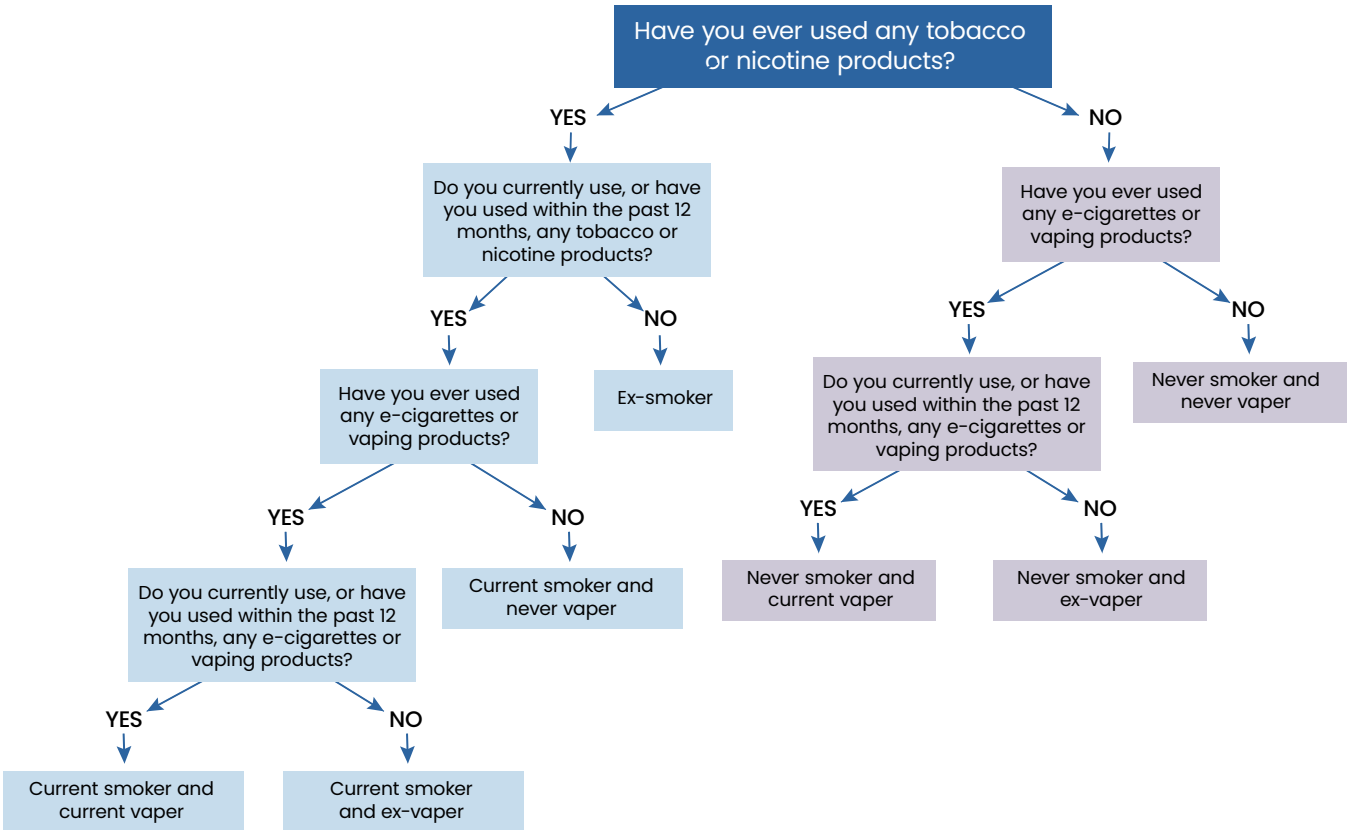
Or

"Have you smoked tobacco, e-cigarettes (vaping), or any other substance in the last 12 months, or have you used any nicotine-replacement product within the last 3 months?"

Breaking down this single question into smaller, more focused drill-down questions creates opportunities for more robust data analytics. Figure 2 illustrates an example of suggested questions.

While enhancing smoking questionnaires can be beneficial, it is also important to recognize that cotinine testing has limitations with differentiating active smokers, passive smokers, and individuals using nicotine replacement therapies – including vaping products. (Learn more: Nicotine and the Cotinine Test: The cost of consumption | RGA.)

Figure 2: Suggested questions



C. Actuarial considerations

Life insurance actuaries should account for vaping trends in actuarial assumptions and mortality models.

Because vaping prevalence has become significant in several markets – especially among younger cohorts – and its long-term health impacts remain uncertain, actuaries should start explicitly analyzing vaping rather than implicitly bundling it with traditional smoking.

To date, research on the impact of vaping on morbidity and mortality remains limited. Beyond the potential harms discussed in Section 4, the recent quantification findings may hold particular relevance for the pricing and valuation assumptions for life and critical illness insurance products:

- **Heart failure** – Individuals who have ever used e-cigarettes are 19% more likely to experience heart failure compared to those who have never used them.[54] Daily e-cigarette use is independently associated with increased odds of myocardial infarction (odds ratio [OR]=1.79; 95% confidence interval [CI]=1.20–2.66), similar to daily conventional cigarette smoking (OR=2.72; 95% CI=2.29–3.24).[53]
- **Mortality** – Dual use of cigarettes and e-cigarettes is associated with an elevated mortality risk (hazard ratio [HR]=2.44; 95% CI=1.90–3.13). Switching from cigarettes to e-cigarettes may reduce mortality risk (HR=0.64; 95% CI=0.41-0.99).[71]

However, it is important to note that most existing studies have significant limitations, including small sample sizes, insufficient longitudinal exposure data, and relatively short follow-up periods. Consequently, these findings should be applied with caution.

Until credible results on the long-term health impacts become available, a prudent stance that treats nicotine-based vaping as equivalent to smoker risk seems appropriate, but this should be regarded as provisional and subject to regular review. Particular attention should be paid to dual-use behavior.

To enhance data analytics, application and underwriting processes should capture detailed information, such as vaping frequency, duration of use, nicotine concentration, product type (e.g., disposable vs. refillable), and whether usage is part of a structured cessation plan. Actuaries at life insurers should collaborate with reinsurers, medical directors, and industry associations to share early signals from claims, medical exams, and post-issue surveillance. Over time, this richer dataset will help isolate the mortality and morbidity patterns associated with vaping and distinguish cessation-related short-term use from chronic, high-dose exposure.

Continuous monitoring of regulation and public health guidance is critical. Vaping policy is fluid across markets, and changes in retail availability, taxation, and product standards can quickly influence usage patterns and claim profiles. Actuaries should stay abreast of these developments and assess how they may impact vaping prevalence and behavior. Additionally, vaping can still be prevalent in markets where it is banned, as devices are often smuggled in or bought via underground channels.[72 73 74]

Given the uncertainties surrounding vaping, scenario analysis is essential. Actuaries should model scenarios that capture a range of plausible health outcomes for vaping – from being significantly less harmful than smoking to introducing new cardiovascular or pulmonary risks. The scenarios should also consider changes in vaping prevalence and the impact of non-disclosure. The resulting insights should enable management to understand how best-estimate liabilities, risk margins, capital requirements, and profitability metrics could shift under alternative scenarios.

Finally, actuaries should work closely with other departments, particularly underwriting and distribution, to provide clear guidance on disclosure expectations and testing protocols. Transparent explanations to policyholders, particularly around how vaping affects premiums, can improve disclosures and reduce adverse selection.

Taken together, these steps enable the company to manage uncertainty, adapt quickly as evidence matures, and protect portfolio performance while treating customers consistently and fairly.

6. Conclusion

While e-cigarettes offer a potentially less harmful alternative to conventional combustible cigarette (or other combustible product) smoking, they are not without significant health risks. Furthermore, the long-term evidence of the potential materiality of these risks is still lacking. However, the adverse effects on various body systems, potential for addiction, and increased use among youth and non-smokers highlight the critical need for continued research and public health interventions. It is essential to weigh the benefits of smoking cessation against the broader health concerns to create informed policies and practices that protect all individuals.

Vaping presents a complex and evolving risk landscape for the life insurance industry, demanding a proactive and adaptive response from insurers. To accurately assess risk, more granular underwriting questions and robust data collection are essential for distinguishing exclusive vapers, dual users, and former smokers. Actuarial models should incorporate scenario analysis to capture a range of plausible health outcomes and prevalence trends, while clear disclosure requirements can help manage pricing risk. Ultimately, insurers must remain vigilant, foster collaboration across industry and regulatory bodies, and continuously refine strategies as evidence evolves – ensuring sustainable portfolio performance and fair treatment of policyholders.

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