



CG Analysts

All-cause mortality of nicotine use in
the life settlement industry -
an overview

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March, 2024

Introduction

In the dynamic landscape of the life settlement industry, the evaluation of mortality risk stands as a cornerstone in determining the value and viability of investment portfolios. Among the myriad of factors influencing mortality, tobacco and other forms of nicotine use are of paramount consideration, with implications reaching far beyond the confines of specific health-related issues. This article seeks to provide some useful insight on the subject and unravel the impact this addictive habit has on all-cause mortality within the life settlement sector.

Where did it all begin?

Tobacco has a rich and contentious history in America, dating back to pre-Columbian times when indigenous people cultivated and used it for ceremonial, medicinal, and social purposes. Following European contact, tobacco became a key crop in the colonial economy, with Virginia emerging as a leading tobacco-producing region by the early 17th century. The botanical and historical aspects of tobacco cultivation in North America, reveal notably that *Nicotiana tabacum* emerged as the favoured species. The accidental discovery of bright leaf tobacco in 1839 further revolutionized the industry. The growth of tobacco plantations fuelled the demand for labour, driving the expansion of the transatlantic slave trade.

Over time, and despite initial opposition, tobacco consumption evolved from snuff and pipe smoking to the widespread popularity of cigarettes. North Carolina emerged as a significant tobacco-growing region, supported by research institutions like NC State University. Various types of tobacco were cultivated across different regions for diverse purposes, underscoring the crop's cultural and economic significance throughout history.

Tobacco became a significant export commodity, driving economic growth in the colonies and shaping the social and political landscape. However, tobacco cultivation also had devastating ecological consequences, leading to soil depletion and deforestation. Tobacco's popularity continued to grow, with the invention of the cigarette rolling machine in the late 19th century revolutionizing tobacco consumption and leading to the rise of mass-produced cigarettes. Despite growing awareness of its health risks in the 20th century, tobacco remains deeply ingrained in American culture and continues to be a prominent industry, albeit one increasingly regulated and scrutinized for its public health impacts.^{1, 2}

Different forms of tobacco use

In the United States, tobacco use manifests in various forms, each with its distinct methods of consumption and associated cultural connotations. Traditional cigarettes remain the most prevalent form of tobacco use, despite a significant decline in smoking rates over the past few decades due to increasing awareness of their health risks, including lung cancer, heart disease, and chronic respiratory conditions. Meanwhile, cigars and pipe tobacco hold a niche yet enduring presence, often associated with leisure and a sense of tradition among their users. Smokeless tobacco products, such as chewing tobacco and snuff, cater to another segment of users, offering a different experience but not without their own health risks, including oral cancers and gum disease.

¹ [History of Tobacco in the World — Tobacco Timeline \(tobaccofreelife.org\)](https://tobaccofreelife.org/history-of-tobacco-in-the-world/)

² [Tobacco History](#)

The panorama of tobacco use in the U.S. has evolved with the advent of modern alternatives that appeal to a broad spectrum of users, from long-time smokers looking for less harmful options to younger generations drawn to novel experiences. Electronic cigarettes, or vaping, have surged in popularity, touted as a less hazardous alternative to smoking though not without controversies concerning their long-term health impacts and appeal to minors. Heat-not-burn tobacco products represent another innovation, heating tobacco leaves without combustion to supposedly reduce exposure to harmful chemicals found in smoke. These modern approaches reflect a shift towards harm reduction in tobacco use, yet they also pose new challenges in understanding and regulating these products to safeguard public health.³

E cigarettes/Vapes

The use of e-cigarettes, commonly referred to as vaping, has emerged as a prominent trend in the landscape of tobacco and nicotine use in the United States, particularly among younger demographics. Originally marketed as a safer alternative to traditional cigarette smoking, e-cigarettes have gained a foothold for their perceived lower health risks and absence of tobacco smoke. These devices work by heating a liquid that usually contains nicotine, flavourings, and other chemicals to create an aerosol, which the user inhales. The variety of flavours and the innovative technology behind vaping devices have appealed to a broad audience, making it a popular choice not only for individuals seeking to quit smoking but also for new users, including teenagers and young adults.

Despite their popularity, e-cigarettes have stirred a considerable public health debate. Proponents argue that vaping offers a critical harm reduction tool for smokers unable to quit through other means, potentially reducing the exposure to the carcinogens and toxic substances associated with combustible tobacco products. However, concerns have been raised about the long-term health effects of vaping, as studies begin to uncover potential risks associated with inhaling aerosolized chemicals. Moreover, the rise of vaping among youth has sparked fears of a new generation becoming addicted to nicotine, with implications for public health that could counteract the progress made in reducing smoking rates. Regulatory bodies, including the Food and Drug Administration (FDA), have been grappling with these issues, implementing measures to curb underage vaping while assessing the role of e-cigarettes in tobacco harm reduction strategies.⁴

Tobacco related mortality in the US

Notable data highlights the significant impact of smoking on mortality in the United States, revealing that both male and female smokers face a mortality rate approximately three times higher than non-smokers. Smoking-related diseases, including cancer, respiratory issues, and vascular disease, are the primary causes of excess mortality among smokers.

Cigarette smoking is a leading factor in U.S. deaths, accounting for one in every five annually and causing over 480,000 deaths, including those from second-hand smoke. Men and women are affected differently, with 278,544 deaths annually among men and 201,773 deaths among women. The difference in numbers is due to several factors, including a greater overall number of men smoking than women and men generally starting to smoke at younger ages than women⁵. Smoking results in premature death, reducing the life expectancy of smokers by at least 10 years compared to

³ Wikipedia

⁴ [Electronic Cigarettes \(cdc.gov\)](https://www.cdc.gov/e-cigarettes/)

⁵ [U.S. Department of Health and Human Services](https://www.hhs.gov/about/agencies/20a/101/index.html)

nonsmokers. Quitting before the age of 40 decreases the risk of dying from smoking-related diseases by about 90%.

Second-hand smoke exposure is a notable concern, contributing to an estimated 41,000 deaths each year among U.S. adults, including 7,333 deaths from lung cancer and 33,951 deaths from heart disease.

Gender-specific risks further underscore the severe consequences of smoking. Men who smoke face increased risks of death from **bronchitis, emphysema, and various cancers**, with a nearly **fourfold increase** in the risk of dying from **coronary heart disease** in middle age. Similarly, women who smoke experience elevated risks, including more than a **12-fold increase** in the risk of death from **bronchitis, emphysema, and lung cancer**. Notably, between 1960 and 1990, deaths from lung cancer among women increased by over 500%, leading to lung cancer surpassing breast cancer as the leading cause of cancer death among U.S. women in 1987. The projected death toll for women from lung cancer between 2010 and 2014 is almost 282,000, emphasizing the urgent need for effective smoking cessation strategies and public health interventions. Smoking also increases the risk of dying from coronary heart disease among middle-aged women by almost five times.

The table below outlines the estimated number of smokers aged 35 years and older who die each year from smoking-related diseases.⁶

Disease	Male	Female	Total
Lung cancer and other cancers	100,300	63,400	163,700
Cardiovascular disease and metabolic diseases	95,600	65,000	160,600
Respiratory diseases	254,100	183,300	437,400
Perinatal conditions	336	284	620
Second-hand smoke	23,526	17,758	41,284

Socio demographics

The impact of cigarette smoking on overall mortality is well-established, but age-specific mortality estimates for various U.S. sociodemographic groups are lacking. Despite a decline in smoking, disparities persist, influenced by factors such as age, gender, race/ethnicity, socioeconomic status (SES) and region. A study addressed these gaps and explored the variation in smoking-related mortality risks including all-cause mortality relative risks (RRs) for current and long-term quitters, compared with never smokers.

The analysis conducted in 2021-2022 suggests that:

- **Race/Ethnicity and Education:** All-cause mortality RRs were generally highest for non-Hispanic White individuals among current smokers or recent quitters, followed by non-Hispanic Black individuals, and lowest for Hispanic individuals. RRs varied significantly by educational attainment, with higher-education groups showing greater RRs associated with smoking than lower-education groups.

⁶ [Centres for Disease Control and Prevention tobacco related mortality](#)

- **Long-Term Quitters:** RRs by years since quitting among long-term quitters did not exhibit clear differences across race/ethnicity and education groups. Age-specific RR patterns showed substantial variability across racial/ethnic and education groups, as well as by gender.

Age-specific all-cause mortality rates linked to smoking vary considerably across sociodemographic factors. Higher RR estimates for current smoking among high-education groups are influenced by lower underlying mortality rates for never smokers in these groups. These estimates can be valuable in modelling analyses to evaluate the impact of tobacco control interventions on reducing smoking-related health disparities across different sociodemographic groups.⁷

Mortality in relation to smoking cessation

Smoking cessation, or quitting smoking, has been shown to significantly reduce mortality risk at different ages in the USA. Below is a breakdown of mortality data related to smoking cessation:

1. Immediate Benefits:

- Quitting smoking at any age provides immediate health benefits.
- According to the Center for Disease Control and Prevention (CDC), within minutes to hours of quitting, heart rate and blood pressure decrease and carbon monoxide levels in the blood return to normal.
- The risk of heart attack begins to decrease within 24 hours of quitting smoking.

2. Long-Term Benefits:

The long-term benefits of smoking cessation in terms of mortality reduction are substantial.

- A landmark study published in the New England Journal of Medicine found that individuals who quit smoking by age 40 reduced their risk of smoking-related death by about 90% compared to those who continued smoking.
- Even quitting smoking later in life provides significant mortality benefits. The same study found that quitting by age 50 reduced the risk of smoking-related death by 50%, compared to those who continued smoking.
- Another study published in the same journal concluded that quitting smoking by age 30 adds about 10 years to life expectancy, while quitting by age 60 adds about 3 years.⁸

3. Age-Specific Data:

While precise age-specific mortality data related to smoking cessation may vary, the general trend is consistent across studies:

- Quitting smoking at younger ages is associated with greater mortality benefits compared to quitting at older ages.
- However, quitting at any age provides substantial health benefits and reduces the risk of premature death.

⁷ [Mortality relative risks by smoking, race/ethnicity, and education](#)

⁸ [21st-Century Hazards of Smoking and Benefits of Cessation in the United States | New England Journal of Medicine \(nejm.org\)](#)

- Studies have shown that even individuals who quit smoking in their 60s and 70s experience mortality benefits, including reduced risk of cardiovascular disease and certain cancers.

4. Population-Level Impact:

- Smoking cessation programs and policies have the potential to have a significant impact on public health and mortality rates.
- The CDC estimates that if every smoker in the United States quit smoking, approximately 480,000 premature deaths could be prevented each year.
- Efforts to promote smoking cessation, such as tobacco control policies, smoking cessation counselling, and access to cessation medications, are critical components of public health strategies aimed at reducing smoking-related mortality.

In summary, smoking cessation at any age is associated with substantial mortality benefits, with greater benefits observed when quitting occurs at younger ages. Quitting smoking remains one of the most effective ways to improve overall health and reduce the risk of premature death.⁹

The economic burden

Smoking costs the US economy over \$600 billion in direct health care costs and lost productivity every year. In addition to this, second hand smoke costs the economy \$7 billion per year due to premature death.¹⁰

Facts about quitting smoking

Nicotine addiction from cigarettes is challenging to overcome, as it involves both physical dependency and social habits. In 2017, there were 55.2 million adults who had quit smoking, yet among the 34.3 million current smokers, nearly half tried to quit for at least one day in the previous year. Success in quitting often requires multiple attempts, with increased chances when using counselling or FDA-approved medications, including over-the-counter nicotine replacements and prescription non-nicotine pills. Counselling services, including telephone quit lines also significantly aid in the quitting process.¹¹

When is a smoker not a smoker?

Underwriters are often faced with the scenario of an insured who enjoys the occasional cigarette or the “odd cigar” and although these insureds will generally have a better life expectancy (LE) than a “full-time” smoker, they cannot be deemed to be true non-smokers. How should these “occasional” smokers be viewed from an underwriting point of view?

Similarly, how do we treat someone that has a 40-pack year history but stopped 5 years ago and has no current lung conditions?

Most life expectancy underwriters in the life settlement industry agree that in most instances, it will not be accurate enough to simply apply smoker or nonsmoker rates and it may be more appropriate to offer a combination of the two. This can be done by applying debits to the agreed non-smoker rates.

⁹ CDC | WHO | NIH

¹⁰ [Tobacco Facts | State of Tobacco Control | American Lung Association](#)

¹¹ [WHO – Tobacco Facts](#)

So, if for example we have an occasional or social smoker it may be pertinent to use nonsmoker rates but to apply additional debits to factor in the increased risk associated with the occasional smoking.

This process can also be used for an ex-smoker with a long history of smoking who has stopped fairly recently. The actual size of the debit will depend on the total pack years, when the insured stopped smoking and if there are any co – related illnesses.

Life expectancy underwriters all have different thresholds for what constitutes a smoker, ex-smoker or occasional smoker and how they treat them. Although the approach may differ slightly, there is a common thread linking them all and the overall underwriting philosophy is similar.

In general, someone who confirms they smoke a single cigar on special occasions only, for example on the birth of a child, and has no lung disease to suggest they actually smoke more, would be deemed to be a non-smoker and underwritten accordingly.

As for vaping and e cigarettes, it's still early days and opinions differ. Should we be treating someone using non-nicotine vapes the same as a nicotine vape user? Should all users simply be classified as a smoker? It would seem that the jury is still out on this, and time will tell.

We know that the differences between smoker rates and non-smoker rates can have a big impact on the final LE calculation and so it's vital to apply the correct adjustments. Unfortunately, there are no hard and fast underwriting rules for this, and the underwriter will need to make a judgement call based on all the evidence to hand.

Underwriting implications

In the life settlement industry, underwriting is a critical process that assesses the life expectancy of the policyholder. Tobacco use is one of the key factors considered during this assessment. Here are some specific implications of tobacco use for underwriting in the life settlement industry:

1.Shorter Life Expectancy: Tobacco use is associated with various health risks such as cancer, heart disease, and respiratory problems. As a result, tobacco users generally have shorter life expectancies compared to non-users. In the context of life settlements, policies held by tobacco users may be perceived as riskier investments due to the higher likelihood of premature death.

2.Higher Premiums: Insurers charge higher premiums for policies held by tobacco users to account for the increased mortality risk. When these policies are evaluated for life settlements, the higher premiums may impact the attractiveness of the investment. Investors will need to factor in the ongoing premium payments when determining the potential returns from the life settlement transaction.

3.Complex Underwriting Assessments: Assessing the life expectancy of tobacco users can be more complex than for non-users due to the additional health risks associated with smoking. Underwriters will need to consider factors such as the duration and intensity of tobacco use, the presence of related health conditions, and the individual's overall health status.

5. Non-Disclosure: There can sometimes be disparity over the insured's smoker status. Some medical reports may suggest that the use of cigarettes ceased a few years ago while another report may suggest the insured has cut down but is still having the occasional cigarette, socially. In these instances, a judgement call has to be made, based on all evidence to hand. It is imperative to cross check with the insureds original disclosure at the time the policy was purchased in order to avoid any potential claim repudiation on death.

Overall, tobacco use introduces unique challenges and considerations in the underwriting process for the life settlement industry. While policies held by tobacco users may present investment opportunities due to potentially shorter life expectancies, they also require careful assessment and pricing adjustments to account for the associated risks.

A global view

The latest World Health Organization (WHO) tobacco trends report reveals that globally, there are approximately 1.25 billion adult tobacco users, with trends indicating a continued decline in tobacco use rates. In 2022, about 1 in 5 adults worldwide consume tobacco, compared to 1 in 3 in 2000.

The WHO report highlights successful tobacco control efforts in 150 countries, with notable reductions in tobacco use seen in Brazil and the Netherlands following the implementation of MPOWER tobacco control measures. Despite progress, Dr Ruediger Krech, Director of WHO Department of Health Promotion, emphasizes the relentless pursuit of profits by the tobacco industry at the expense of lives and urges continued vigilance against industry interference.

Regionally, the WHO South-East Asian Region has the highest tobacco use prevalence at 26.5%, followed closely by the European Region at 25.3%. However, projections indicate that by 2030, the WHO European Region will have the highest tobacco use rates globally. Concerningly, tobacco use among women in the European region remains disproportionately high and is decreasing at a slower rate than in other regions.

While the world is expected to achieve a 25% relative reduction in tobacco use by 2025, it will fall short of the voluntary global goal of a 30% reduction from the 2010 baseline. Only 56 countries are projected to meet this goal, with six countries experiencing rising tobacco use¹².

In Conclusion

The data analysed by Gallup indicates a significant decline in cigarette smoking incidence in the United States over several decades. From a high of 45% in the mid-1950s, the current incidence has reached a new low of 11% among American adults. Additionally, approximately 3 in 10 nonsmokers report having previously smoked.

This decline in cigarette smoking is attributed to various factors, including increased public awareness of the negative health effects associated with smoking and ongoing government efforts at all levels to reduce tobacco use. While smoking remains legal, there are widespread restrictions on smoking in public places, offices, modes of transportation, and even in private settings across the country. Warning messages on cigarette packs also highlight the harmful effects of smoking, further contributing to the decline in its use.

The trend suggests that smoking cigarettes is becoming increasingly rare, and this downward trajectory is expected to continue in the coming years. This highlights a broader societal recognition of the dangers of smoking and concerted efforts to discourage its use.¹³

This is reflected in the life settlements industry where we see very few current smokers, whereas the numbers of previous smokers are high.

¹² [Tobacco use declines despite tobacco industry efforts to jeopardize progress \(who.int\)](https://www.who.int/news-room/fact-sheets/tobacco-use)

¹³ [Americans and the Future of Cigarettes, Marijuana, Alcohol \(gallup.com\)](https://www.gallup.com/press/2018/01/americans-and-the-future-of-cigarettes-marijuana-alcohol.aspx)