MARSH & McLENNAN
INSIGHTS

INSURER PERSPECTIVES ON SMOKING RISKS

Foreword

There are more than a billion smokers in the world today, and a billion people could die of tobacco-related causes this century. Reducing tobacco use and implementing tobacco control is a theme running throughout the United Nations Sustainable Development Goals, particularly related to efforts to reduce the burden of noncommunicable disease.

Life and health insurers worldwide are exposed to the mortality and morbidity effects of smoking, and the general practice is to apply tobacco surcharges to premiums. The industry also has a part to play in influencing and enabling people to quit smoking – many insurers raise awareness of smoking risks and provide access to smoking cessation incentives and interventions.

Insurers have not radically changed their approach to quantifying and managing smoking risks in decades. But the context is changing:

(a) Tobacco risks are becoming more complex, with evolving products, regulations and patterns of use; and

(b) New technologies and solutions are emerging to improve risk assessment and smoking cessation.

It is time for a re-think of today's practices, as there may be missed opportunities to improve health and quality of life for those who are insured and open a door for smokers who were previously uninsured.

This report, based on a global survey and interviews with insurers, reinsurers and other relevant stakeholders such as data analytics firms and digital health startups, reviews current insurer practices relating to smoking risks, identifies challenges, and suggests potential solutions for the industry to consider. The report is for everyone in the industry— in underwriting, pricing, product development and business leadership roles—and we hope it will inspire ideas and action to improve public health and profitability at the same time.

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Highlights

Smoking remains a major public health challenge

>1 BN smokers worldwide (20% of the global population aged 15 years or older)

Prevalence of smoking has decreased, but absolute numbers remain high

1 in 10

Deaths worldwide attributable to tobacco use

Smoking-related deaths and disease burden are increasing

Smoked tobacco	**~1.1** BN Users	
Smokeless tobacco	**~367** MM Users	
Alternative nicotine and tobacco delivery systems	**~35** MM Users	

Smoking risks are becoming more complex as novel products emerge and patterns of use change

Smoking risks affect life and health insurers worldwide

Insurers
- Are exposed to smoking risks of policyholders
- May be leaving money on the table

Insured smokers
- **Smokers form a significant proportion of life and health policyholders**
- **Most insurers apply tobacco surcharges to premiums**

Uninsured smokers
- **Smokers are disproportionately less likely to have insurance than non-smokers**

Insurers stand to gain by better quantifying and reducing smoking risks

Improve profitability
- Reduce premium leakage
- Lower claims
- Increase customer engagement

Grow new market segments
- Grow the pie by targeting relatively "good risks" amongst uninsured smokers with new risk classes / products

Deliver shared value
- Help policyholders live longer and enjoy better quality of life
- Benefit society through better public health, productivity gains and lower healthcare costs

Insurers can achieve financial and social impact by improving upon current practices

	Risk assessment		Risk reduction
Current practices	**Detection** Self-declaration by insurance applicants	**Quantification** Differentiation of risk classes and pricing by smoking status	**Cessation** Access to and funding for smoking cessation interventions
Challenges faced	**Unreliable identification and verification** 20-50% of smokers fail to declare smoking status correctly	**Limited sophistication of risk classification** Insurers use 2-3 risk classes, but risk profiles are complex and change over time	**Limited data and tracking of cessation programs** Insurers rarely track uptake, success, and relapse rates of interventions
Possible solutions	**Consistent, cost-effective detection of smoking status** • Reduce disclosure gaps • Better predict potential smokers • Adopt better biomarkers when possible	**Refined risk classes and dynamic underwriting** • Refine pricing • Personalize risk assessment to achieve tailored risk pools of one • Dynamic underwriting to shape and respond to changes in risk over time	**Evidence-based incentives and interventions** • Measure, track and improve uptake and effectiveness • Apply nudges and incentives to influence behavior change

Contents

The context
The global challenge of smoking

Smoking is the leading preventable cause of death

Smoking remains widespread more than 50 years after the publication of conclusive evidence that it is lethal.[1,2] More than 1 billion people globally (1 in 5 people aged ≥ 15 years) use tobacco in some form, most commonly smoked tobacco.[3,4] Smoking is more prevalent among men and in developing countries. (see Fact sheets: Tobacco prevalence and burden for more information). The proportion of smokers in the global population has declined over the past few decades, but the number of smokers remains high because of population growth.[5]

Tobacco kills up to half of its users. Estimates put the current death toll at more than six million users every year[6] (1 in 10 deaths[7] – more than HIV/AIDS, malaria and tuberculosis combined), rising to eight million by 2030. Among those who die of tobacco-related causes, nearly 80 percent are in low-income and middle-income countries, and 75 percent are men. Second-hand smoke exposure causes over 880,000 deaths, disproportionately affecting women and poorer people.[8]
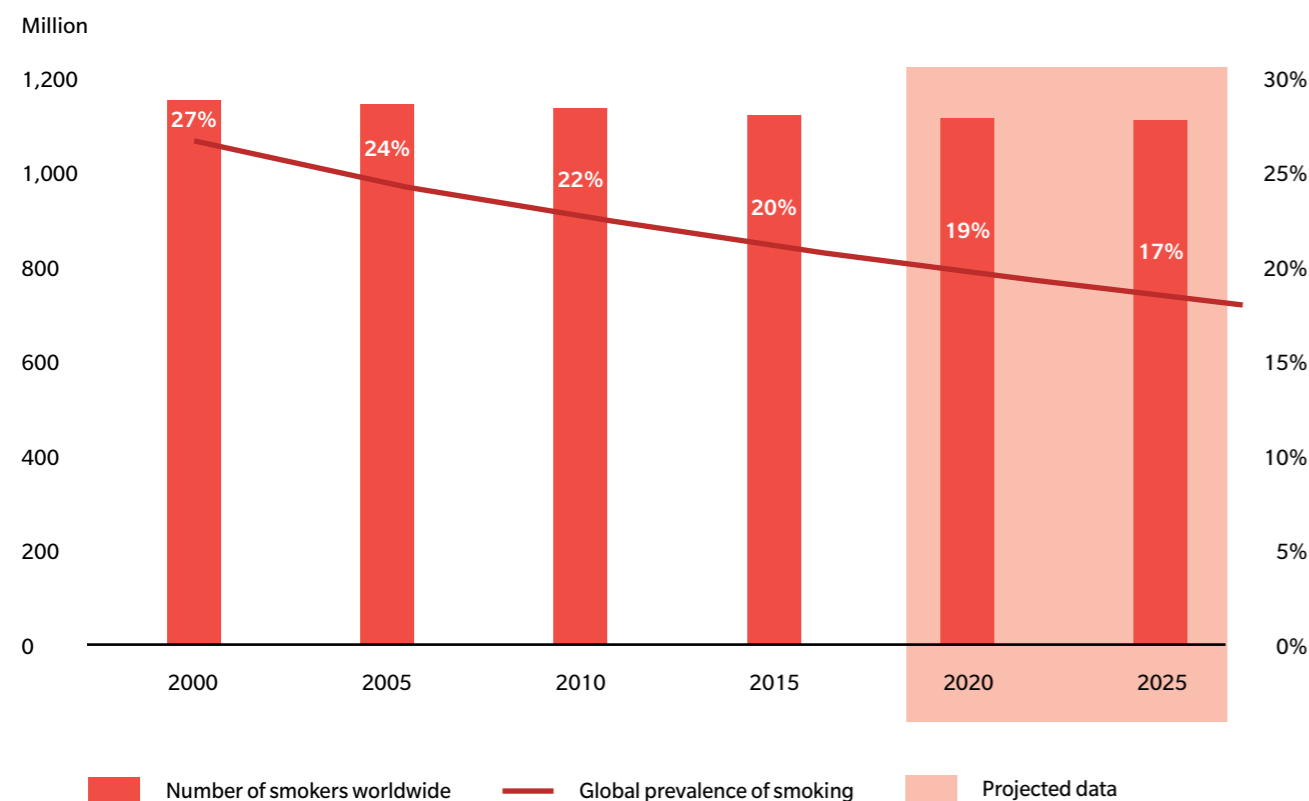
Smoking harms most organs in the human body at any age, through exposure to thousands of toxic chemicals.[9] It is the second leading risk factor for attributable disease burden worldwide, accounting for 148.6 million disability-adjusted life years (DALYs) in 2015.[10] As populations grow and age, deaths and disease burden attributable to smoking are increasing. Besides health harms, smoking is also responsible for nearly $2 trillion in economic consequences[11] (in 2016 purchasing power parity terms) in the form of lost income and healthcare expenses.

> **"As insurers we spend a great deal of time thinking about what risks we can prevent or mitigate … we are seeing a sharp rise in non-communicable diseases, like cancer, heart disease and chronic respiratory illnesses. The greatest threats are diseases caused by our own habits and behaviors – diseases that are highly preventable. In many cases, the primary risk factor for these diseases is smoking. And smoking is a growing concern in the developing world: while it is declining in Europe and North America, smoking is now being actively exported to Asia and Africa."**
>
> —Thomas Buberl, CEO of AXA[12]
>
> AXA says no to tobacco (May 2016)

Exhibit 1: Number and proportion of smokers aged ≥ 15 years, 2000–2025

Million

Legend:
- Number of smokers worldwide
- Global prevalence of smoking
- Projected data

Bar/line values: 27% (2000), 24% (2005), 22% (2010), 20% (2015), 19% (2020), 17% (2025)

Smoking risks affect insurers worldwide

Life and health insurers worldwide are exposed to the mortality and morbidity effects of tobacco use through employees as well as customers, the latter being the focus of this report. Tobacco risks and regulations affect underwriting, pricing, claims and reserves in all countries.

Smokers account for a significant proportion of policyholders, and number disproportionately among the uninsured. Industry sources indicate that smokers make up 10-15 percent of their life and health books of business; this is likely to be an under-estimate because many people do not disclose their smoking status correctly. At the same time, smokers remain more likely to forgo insurance: for example, 37 percent of uninsured people in the US are smokers, compared to 17 percent of the overall population.[13] Uninsured smokers are likely to present a spectrum of risks, including some relatively "good risks" – for example, those who are motivated to quit tobacco use. The industry may hence be leaving money on the table in terms of missed revenues and growth opportunities for smoker segments that are insurable but currently priced out of the market.

Following widespread recognition of the impact of smoking on mortality and morbidity, life insurers introduced tobacco rates—premium surcharges for tobacco use—in the late 1980s, and these are now common in many countries for life and health products. The industry, however, has not made radical changes to its underlying approach for decades, even as the tobacco product landscape has evolved and patterns of use have become more complex. As new solutions emerge to improve risk assessment and smoking cessation (as described in the next two chapters), it is time to re-think current insurer practices relating to smoking risks.
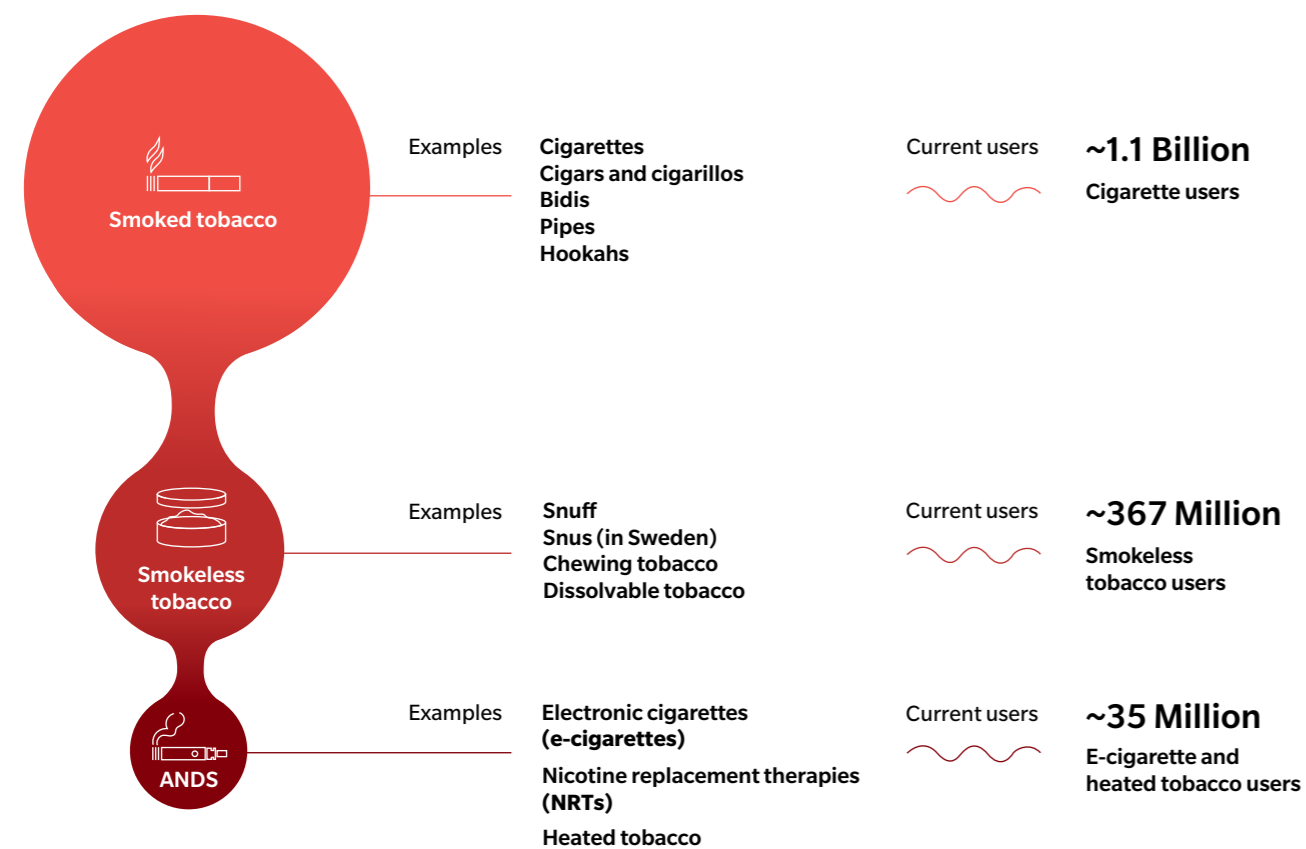
By improving how they assess and influence smoking risks, insurers can have a tremendous impact on public health. There are also financial and commercial reasons to do better. Insurers stand to benefit from improving their price-risk ratio, and from shared value opportunities to increase policyholders' life expectancy and quality of life. Insurers might also be able to grow new market segments from currently uninsured smokers, for example, by refining risk classes and creating attractive premium tiers for people who are relatively good risks.

Smoking risks are becoming more complex

Tobacco and nicotine products can be classified broadly into three categories: smoked tobacco, smokeless tobacco, and alternative nicotine and tobacco delivery systems (ANDS). Within and across categories, these products differ in terms of how they deliver nicotine, which chemicals and toxins they contain and emit, and the relative harm they cause to users and bystanders.

Exhibit 2: Types of tobacco and nicotine products[14, 15]

Smoked tobacco

Examples
**Cigarettes
Cigars and cigarillos
Bidis
Pipes
Hookahs**

Current users
~1.1 Billion
Cigarette users

Smokeless tobacco

Examples
**Snuff
Snus (in Sweden)
Chewing tobacco
Dissolvable tobacco**

Current users
~367 Million
Smokeless tobacco users

ANDS

Examples
**Electronic cigarettes (e-cigarettes)

Nicotine replacement therapies (NRTs)

Heated tobacco**

Current users
~35 Million
E-cigarette and heated tobacco users

Note No estimates were found for the number of NRT users. There were an estimated 35 million users of e-cigarette and heated tobacco products in 2016.

Source World Health Organization, Global report on trends in prevalence of tobacco smoking 2000-2025, second edition (2018); Euromonitor International, Global tobacco: Key findings Part II (2017)

Smoked tobacco remains the most dominant type of tobacco product used, with 5.7 trillion cigarettes smoked in 2016.[16] Smokeless tobacco products are popular in South Asia and some Nordic countries. Among ANDS, NRTs—such as nicotine gum, patches, nasal spray, inhalers and lozenges—are medically approved for smoking cessation and increase the chances of stopping smoking by 50-60 percent.[17] E-cigarettes and heated tobacco products are relatively new and becoming popular, in some countries such as the US, UK, France and Belgium (prevalence of current e-cigarette use estimated at 4-6 percent in countries), and Japan (prevalence of past 30- day use estimated at 3.5 percent for the most frequently used heated tobacco product).[18]

Regulations on tobacco products vary across countries and continue to evolve, (see Fact sheets: Tobacco regulations for more information), reflecting differences in political will and priorities, tobacco industry pressure, and resistance from smokers to behavior change. Newer products—e-cigarettes and heated tobacco—have divided opinion among public health experts and policymakers across the world, with responses ranging from supportive to dismissive in different countries.

The patterns of ANDS use vary, with implications for users' risk profiles from an insurer's perspective. Some people use ANDS for short periods of time as part of successful attempts to quit tobacco and nicotine products entirely. Some current smokers switch from smoked or smokeless tobacco to long-term use of ANDS, and some consume both types of products (concurrent or dual use) such as in attempts to cut down on cigarettes. Prevalence studies show some former smokers resuming tobacco or nicotine use with e-cigarettes and heated tobacco (0.1-11 percent across countries[19]). There is also some uptake by never smokers across adults and young people, at varying levels in different countries.

Nicotine is as addictive as heroin and cocaine[20] and most smokers fail in their attempts to stop smoking. Quit rates range from 12-23 percent[21] after one year across approximately 90 cessation drugs, devices and services. More than 50 percent of people relapse within a year[22], and the relapse risk remains high at 10 percent after 30 years of abstinence.[23]

At the population level, ANDS have the potential to reduce health harms from tobacco use if they (a) become a permanent way out of smoking for current smokers; (b) do not become a way into tobacco or nicotine use for never-smokers and former smokers, and (c) do not turn out to be harmful in the long run. In terms of implications for individual risk profiles, early indications are that ANDS may be less harmful for current smokers if they replace smoked tobacco.[24] Dual users may not gain as much, because compared to regular smoking, light and intermittent smoking pose comparable cardiovascular disease risk and substantial cancer risks.[25] The evidence so far indicates that e-cigarettes may expose users to fewer known toxic chemicals than smoked tobacco, though exposures in terms of composition and levels may vary widely across individual products in this category.

It is too early for conclusive evidence on the long-term morbidity and mortality impacts of newer ANDS products[26], and there is mixed evidence of their effectiveness as quitting aids[27] (see Exhibit 3 on some open questions).

E-cigarettes and heated tobacco have divided opinion among public health experts

"[E-cigarettes] are around 95 percent safer than smoked tobacco and they can help smokers to quit."

—Public Health England,
E-cigarettes: an evidence update (2015)[28]

"While some of these products [including e-cigarettes and heated tobacco products] have lower emissions than conventional cigarettes, they are not risk-free, and the long-term impact on health and mortality is as yet unknown. There is insufficient independent evidence to support the use of these products as a population-level tobacco cessation intervention to help people quit conventional tobacco use."

—World Health Organization,
WHO report on the global tobacco epidemic (2019)[29]

Exhibit 3: Conclusive research is needed on the relative risks and harms of alternative nicotine and tobacco delivery devices[30,31,32]

What are the relative health risks of ANDS?
The available evidence indicates the following harm continuum: abstinence < e-cigarettes and nicotine replacement therapies < heated tobacco products < smoked tobacco. The only safe option is to quit completely, or better still, never to use any tobacco or nicotine product at all. For current smokers, replacing cigarettes completely with e-cigarettes is likely to reduce their exposure to known toxins and reduce short-term adverse health outcomes; further research is needed on relative risks of heated tobacco products. Biomarker evidence indicates no short-term harm reduction with dual use. It is too early to conclude on long-term impacts of newer products, and health risks and harms need to be monitored over time for users and bystanders.

What are the relative levels of efficacy of ANDS as aids to stop smoking?
Current evidence is mixed: out of 14 systematic reviews of e-cigarettes for smoking cessation and/or reduction, one review found a negative effect, four reviews found an inconclusive effect, two reviews found a positive effect, and all reviews concluded that further randomized controlled trials are needed.[33] A recent randomized control trial in the UK (published in 2019) of e-cigarettes versus NRT concluded that "e-cigarettes were more effective for smoking cessation than NRT when both products were accompanied by behavioral support", but noted that e-cigarette users were far more likely to keep using the products one year on (80 percent versus only 9 percent for NRT).[34] Other trials are underway to assess the effectiveness of ANDS products for smoking cessation or reduction. Further research is also needed on the relapse risks and trajectories relative to other smoking cessation aids, for current smokers who switch to these products, dual users, and ex-smokers who take up ANDS.

What are the patterns of use of various products, and by whom?
ANDS could reduce smoking-related harms in the scenario of a complete switch by current smokers to potentially less harmful products, along with no use by former smokers and people who have never smoked. Patterns of use for e-cigarettes or heated tobacco products are not conclusive, but there are indications of substantial dual use supplementing (instead of replacing) cigarettes, uptake by ex-smokers, and varying levels of use by never-smokers (including young people) in some countries. There are concerns that young people who use e-cigarettes may be more likely to use smoked tobacco or other addictive substances. More research is needed to understand and monitor the trends and trajectories of use among adults and young people.

What are the relative levels of addictiveness?
The addictive potential of various e-cigarette and heated tobacco products are likely to be different, depending on their nicotine levels and delivery mechanisms. Increase in addictive potential could make products (such as e-cigarettes) more attractive and effective as substitutes for smokers and at the same time, increase the risk of addiction among new users. More research is required to compare the addictive potential of various products, and effects on usage patterns and health.

Source Marsh & McLennan Insights analysis, summarized from the following evidence reviews:
McNeill A, Brose LS, Calder R, Bauld L & Robson D (2018). Evidence review of e-cigarettes and heated tobacco products 2018. A report commissioned by Public Health England. London: Public Health England
National Academies of Sciences, Engineering, and Medicine 2018.
Public Health Consequences of E-Cigarettes. Washington, DC: The National Academies Press. https://doi.org/10.17226/24952.
Scollo, MM and Winstanley, MH. Tobacco in Australia: Facts and issues. Melbourne: Cancer Council Victoria; 2018.
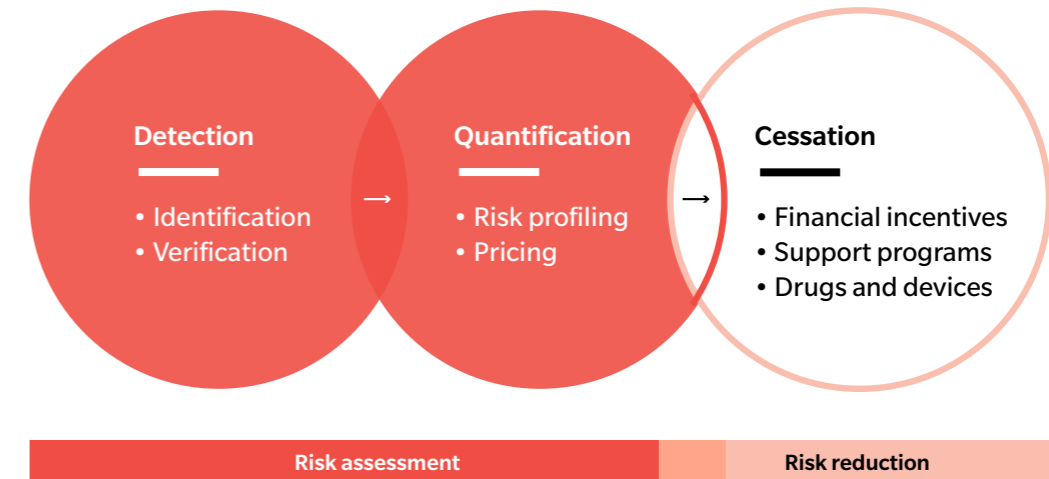Available from www.TobaccoInAustralia.org.au, accessed on 11 July 2019

The case for change
Current insurer practices and challenges

How is the insurance industry addressing smoking risks? Drawing on input from life and health insurers and reinsurers worldwide, this section outlines current practices and challenges spanning three levers: detection of smoking status, quantification of smoking risks, and risk reduction through smoking cessation.

Exhibit 4: Current insurance practices relating to smoking risks

Detection
- Identification
- Verification

→

Quantification
- Risk profiling
- Pricing

→

Cessation
- Financial incentives
- Support programs
- Drugs and devices

Risk assessment | Risk reduction

Summary of research methodology

This report draws on a global survey, in-depth interviews, and secondary research conducted by Oliver Wyman and Marsh & McLennan Insights from April till July 2019.
- Online survey of leading insurers and reinsurers across 22 countries and regions. There were 56 responses (response rate of about 20 percent), of which 36 were sufficiently complete for analysis. Most insurers in the survey provide life or health cover to 500,000+ people, and smokers typically account for 11-20 percent of the population covered
- In-depth phone interviews with 10 insurers, reinsurers, and solution/service providers, covering US, UK and Asian markets
- Review of publicly available papers, reports, websites and databases on tobacco prevalence, impacts and regulations

For more details on the methodology, please see Methodology.

All published sources are listed in References.

Detecting smoking status

Most insurers and reinsurers define smoking status based on industry standards or historical practices. The typical definitions are as follows:

• Non-smokers are those who have never used any tobacco or nicotine products;

• Current smokers are those who have used any tobacco or nicotine product in the last 6-12 months;

• Former smokers are those who have used any tobacco or nicotine product(s) in the past, but not in the last 6-12 months.

To identify smokers, insurers typically rely on self-declaration by applicants of their history and frequency of tobacco use. "Smoker amnesia" is a significant concern for the industry, as smokers may misinterpret industry definitions (for

example, of occasional use as smoking) or have a financial incentive (substantially lower premiums) to declare wrongly. Survey participants estimate that up to 20 percent of tobacco users fail to declare their smoking status correctly; anecdotal estimates from industry experts go as high as 50 percent.

Though there is broad consensus on the need to verify the smoking status of self-declared non-smokers, insurers test only a sub-set of applicants: generally, those who are older, with high sums assured and significant medical history. As competitive pressures move insurers to implement accelerated underwriting—to speed up decisions, improve customer experience, and cut costs—they are likely to waive testing more often for applicants whose age and health history do not raise concerns.

Insurers usually order a urine test for cotinine to verify an individual's non-smoking status. This test is not fully reliable, because it may deliver false negatives (that is, wrongly conclude that a smoker is a non-smoker) if the person is able to skip smoking for a few days: one industry expert estimated false negatives at 50 percent. Testing is further complicated by how people vary in terms of how quickly their bodies metabolize nicotine; there are also differences by ethnicity and health status (for example, pregnancy).[35]

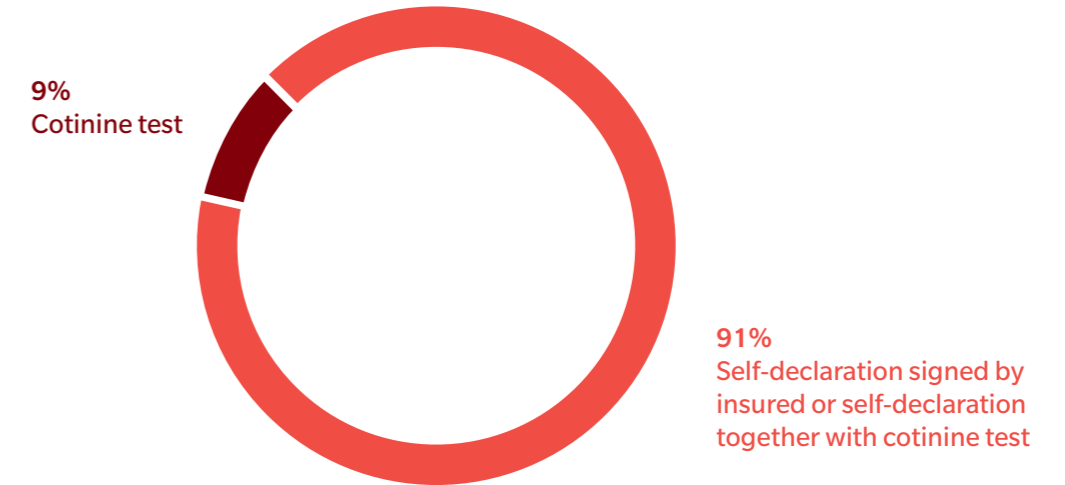**Insurer definitions may differ from lay perceptions of smoking status in two ways**

• **By frequency:** insurers count regular, occasional or even a single instance of tobacco use as smoking

• **By type of product:** typically, insurers consider the use of any product that results in a positive nicotine test—including cigarettes, smokeless tobacco, ANDS—as smoking

Exhibit 5: Current methods of identifying smokers

Question
What methods of identifying smokers are used? (Select all that apply)
% of respondents

9%
Cotinine test

91%
Self-declaration signed by insured or self-declaration together with cotinine test

"Customers often lie about their smoking status therefore we rely on an objective test result."

—Life insurer (US)

"Increasingly applicants are getting the lab test waived for lower sums assured and if they have a relatively good risk profile."

—Reinsurer (US)

Cotinine testing

The typical verification approach for tobacco use or exposure is a laboratory test for cotinine in urine, blood, saliva or hair. Cotinine is a primary metabolite of nicotine, specific and sensitive for tobacco use, and relatively stable (half-life of 7-40 hours compared to 1-4 hours for nicotine). Non-invasive sampling and moderate cost of analysis have made the urine test the most common. Cotinine in urine has an in vivo half-life of about 20 hours (ranging from 13-27 hours) and is typically detectable up to one week after the use of tobacco; the levels range below 10 nanograms per milliliter (ng/mL) for non-smokers, 11-30 ng/mL for light smokers or those exposed to second-hand smoke, and higher for heavy smokers.[36] Cotinine in hair can be detected for up to 3 months, but this test is more expensive. Cotinine tests cannot distinguish between the use of different types of tobacco or nicotine products.

Key challenge for insurers

Flawed detection of smokers — incorrect identification and unreliable verification—lead to inaccurate underwriting and pricing of smoking risks, resulting in sub-optimal outcomes for all stakeholders involved. Insurers see premiums leakage and lower profitability, and customers risk policies voided for non-disclosure of a material fact, or claims reduced by tobacco loads applied retroactively. Both stakeholders miss opportunities to support smoking cessation and thus fail to achieve better health outcomes.

Quantifying smoking risks

Insurers treat smokers differently in underwriting and pricing, more commonly for individual life and health products than for group products. Health insurers in some markets may take a more sh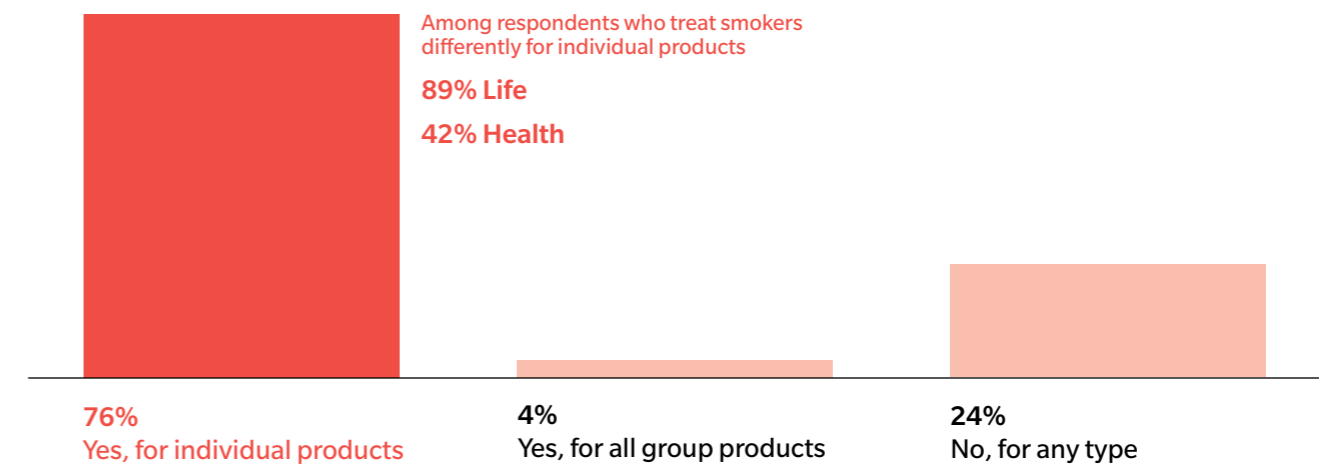ort-term view, with yearly renewal and pricing decisions based on medical and claim histories, and with the same benefits and exclusions as for non-smokers. Insurers cite prevalent industry practice and regulations as the main reasons for current practices.

Exhibit 6: Current practices of pricing smoking risks

Question
Does your organization treat smokers differently in terms of pricing? (Select all that apply)
% of respondents

Among respondents who treat smokers differently for individual products
89% Life
42% Health

76%
Yes, for individual products

4%
Yes, for all group products

24%
No, for any type

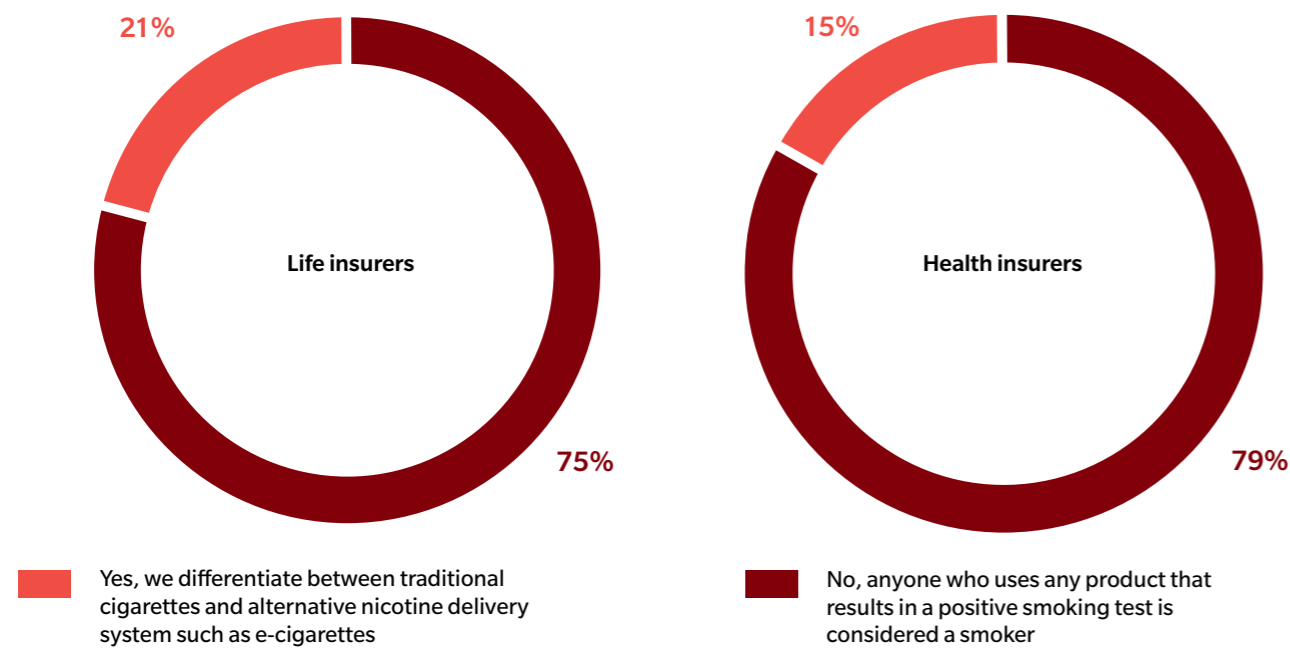**Source** Global insurance survey on smoking cessation practices (Marsh & McLennan Companies, 2019)

When there is differential evaluation of smoking risks, most life insurers use a binary risk classification: non-smokers versus smokers. There are some variations by consumption thresholds (for example, further loads on top of smoker rates for heavy smokers) and product type (smokeless tobacco users in Asia and e-cigarette users in Asia and the UK are sometimes assigned to different risk classes when compared to cigarette users).

Exhibit 7: Differentiating risk by product type

Question

Does your organization differentiate between tobacco intake methods?

(% of respondents)

Life insurers: 21%, 75%

Health insurers: 15%, 79%

- Yes, we differentiate between traditional cigarettes and alternative nicotine delivery system such as e-cigarettes
- No, anyone who uses any product that results in a positive smoking test is considered a smoker

"There is no medical evidence to show that e-cigarettes are less harmful in terms of mortality risk."
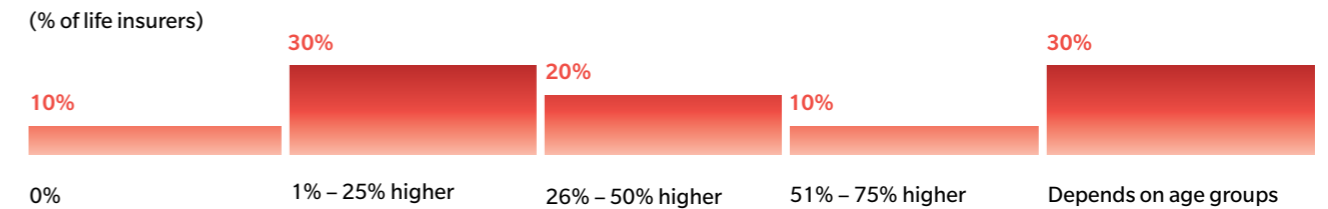
—Reinsurer (US)

"There are discussions that we may price e-cigarette users differently from tobacco users, but we are unsure because the long-term impact of vaping to mortality is still unknown."

—Reinsurer (US)

Exhibit 8: Current practice in tobacco loads

Question

How different in aggregate are the rates between smokers vs non-smokers?
(% = Smoker Rating / Non-smoker Rating)

(% of life insurers)

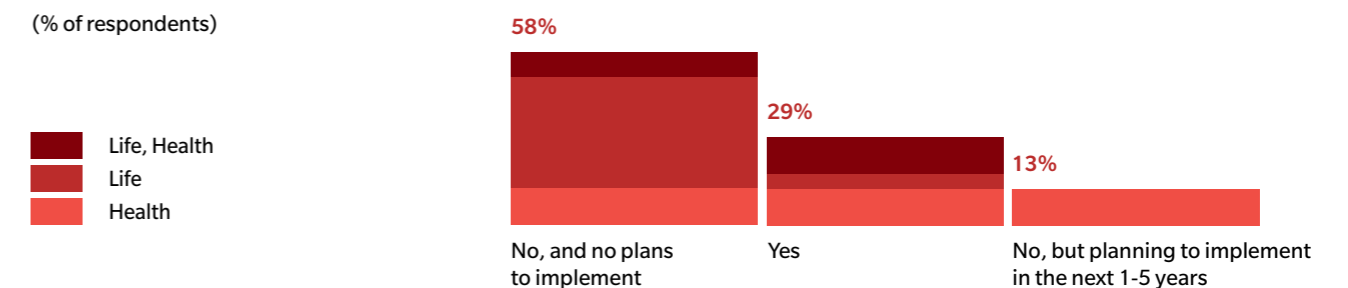| 0%	1% – 25% higher	26% – 50% higher	51% – 75% higher	Depends on age groups
10%	30%	20%	10%	30%

Life insurers who price smokers differently charge up to four times higher than non-smoker premiums depending on age and other factors, with additional loads for very high consumption levels. The loads vary across countries and carriers, but generally not by frequency of use or product type. Most survey participants believe current loads are enough to cover smoking risks, without needing to rely on pooling across the overall insured population. Large insurers, mostly life insurers, typically set tobacco loads based on their analysis of external research, while smaller insurers draw on guidance from reinsurers.

Exhibit 9: Current practice and plans for applying innovative underwriting methods

Question

Does your organization practice or apply continuous underwriting?

(% of respondents)

- Life, Health
- Life
- Health

No, and no plans to implement	Yes	No, but planning to implement in the next 1-5 years
58%	29%	13%

"No methodology and technology of application"

—Health insurer (Russia)

Most insurers continue to use a static approach to underwriting and pricing risks. More than half of the survey participants have no plans to apply continuous underwriting to respond to how customers' risks may change over time.

Key challenge for insurers

Limited sophistication of risk classifications may constrain insurers as new tobacco and nicotine products penetrate markets and consumption patterns become more complex. When underwriting smokers, the industry continues to use 2-3 risk classes based on historically dominant tobacco products, without refining by consumption level or product type. For cigarettes, this approach aligns with the evidence of health harms: light and intermittent smoking pose comparable health risks to regular smoking, due to a non-linear relationship between exposure and harm. For example, smoking 1-4 cigarettes a day increases the risk of heart disease almost as much as smoking a pack a day[37]; other hazards include higher risk of cancers, respiratory and eye diseases, slower recovery from injuries, and addiction to nicotine.[38]

However, the risk profiles for ANDS users could be different. If conclusive evidence emerges of relatively lower health risks, insurers will need to develop more refined risk profiles to improve the accuracy and competitiveness of their risk assessment and pricing. However, even if the product landscape, regulatory changes and consumption shifts make simpler approaches seem outdated, more sophisticated risk assessment will be difficult given the complexities, caveats and uncertainties regarding newer products:

- It is too early for conclusive evidence of the effects of these products on quit rates, disease burden and deaths;

- The relative risks of individual products will vary, given differences in composition, quality, exposure and effects across this heterogeneous and evolving category of products;

- The relative risk of dual use is unclear, including its long-term effects on mortality and morbidity;

- It is difficult to validate usage (cigarettes only, ANDS only, or dual use) by testing, as the widely used cotinine test cannot distinguish between product types.

Reducing smoking risks

Most insurers take a passive approach to reducing smoking-related risks, with limited efforts to help people stop smoking, and hardly any initiatives to prevent people from taking up tobacco or nicotine use. Insurers typically define smoking cessation as abstinence from tobacco and nicotine products for at least a year. Most insurers have yet to form an opinion on whether switching to ANDS is a step towards cessation.
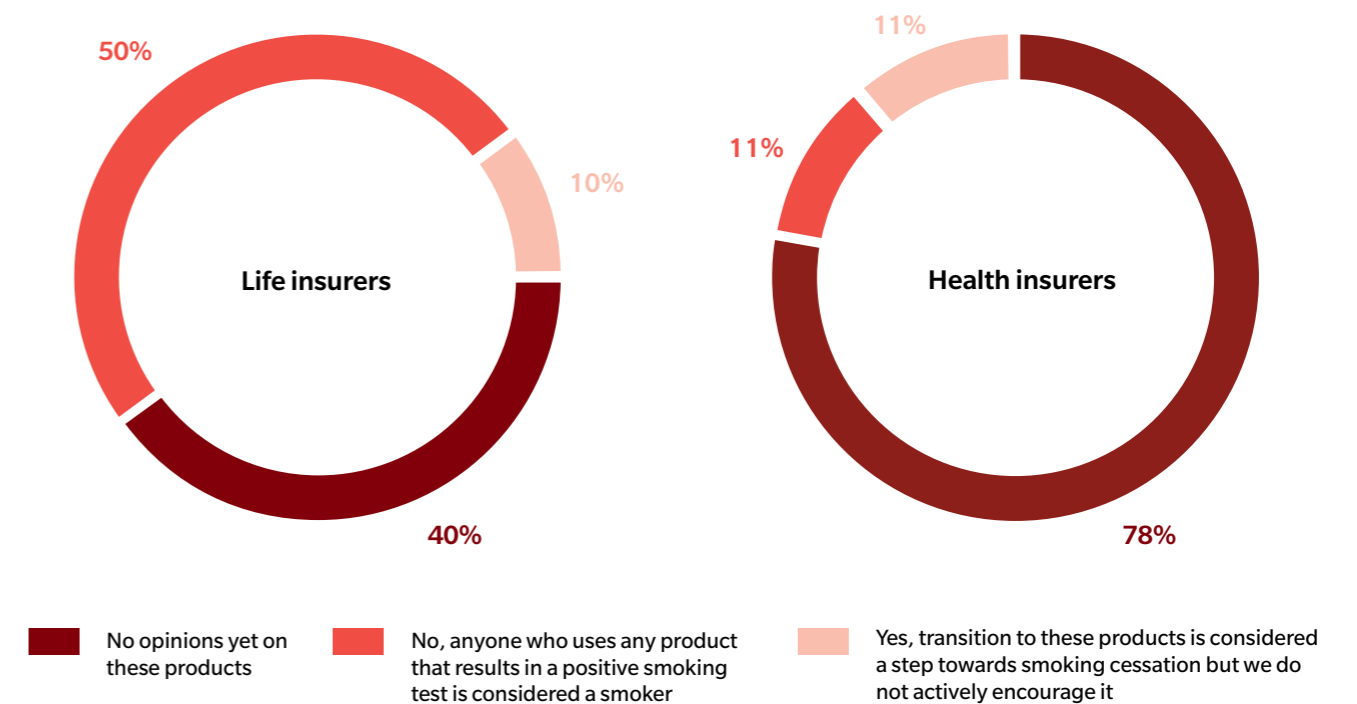
Exhibit 10: Insurer perceptions of switching to novel products

Question
How does your organization currently view transitions to electronic nicotine delivery systems as a step towards smoking cessation?
Note: These may include e-cigarettes, vaping, and other similar products. (Select all that apply)

(% of respondents)

Life insurers: 50%, 10%, 40%
Health insurers: 11%, 11%, 78%

- No opinions yet on these products
- No, anyone who uses any product that results in a positive smoking test is considered a smoker
- Yes, transition to these products is considered a step towards smoking cessation but we do not actively encourage it

Source Global insurance survey on smoking cessation practices (Marsh & McLennan Companies, 2019)

"Our definition was previously no tobacco use for 1 year, but recently this was reduced to no tobacco use for 6 months to align with competitor trends."
—Life insurer (South Africa)

Only half of the survey participants offer programs or incentives to help or encourage smokers to quit. Among interventions offered, premium disc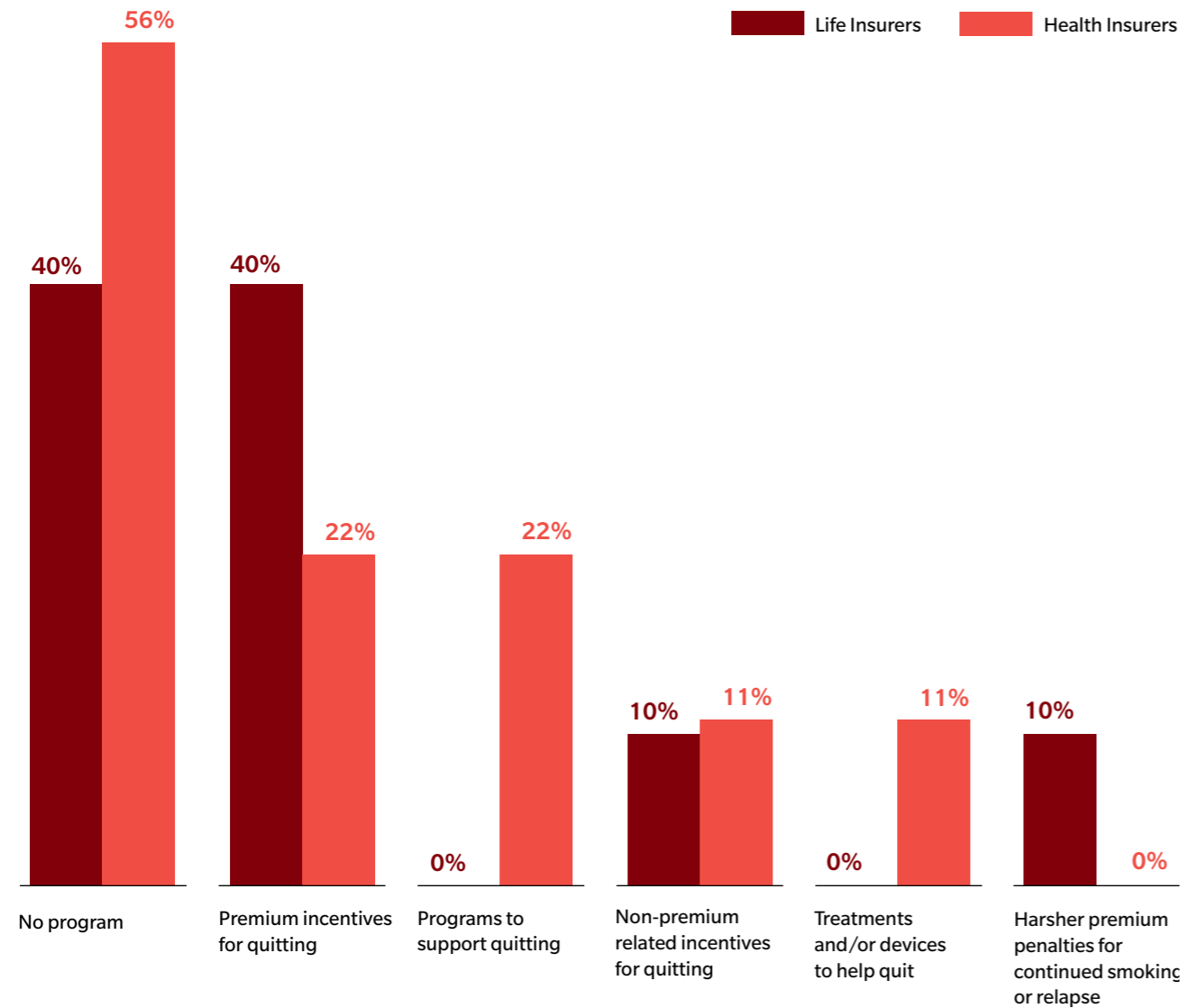ounts and support programs are the most common. The interventions offered do not always align with what insurers perceive as effective, or with the evidence available. Most insurers follow industry standards to determine which interventions to offer.
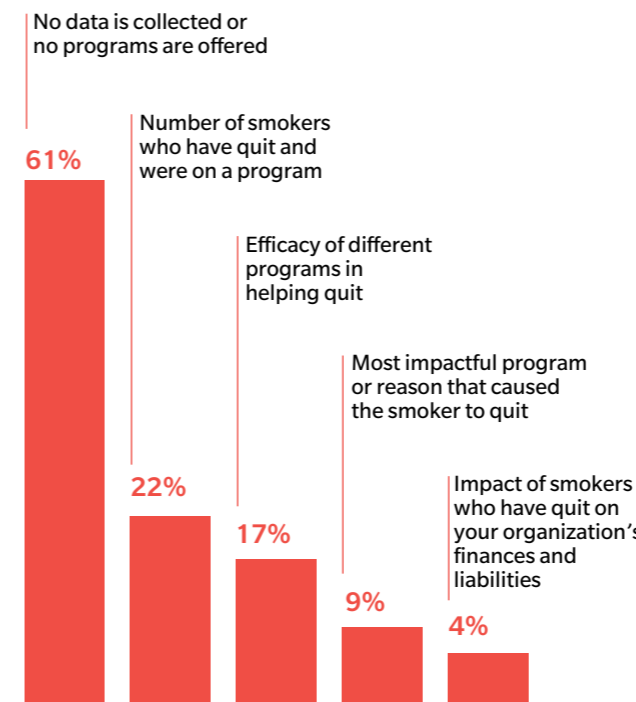
Insurers rarely track uptake and outcomes of cessation interventions, and rarely monitor smokers afterwards. They have limited data on success rates, relapse rates, or cost-effectiveness.

Exhibit 11: Current practices in smoking cessation programs

Question
What programs do you offer to assist with smoking cessation? (Select all that apply)

(% of respondents)

Life Insurers | Health Insurers

Category	Life Insurers	Health Insurers
No program	40%	56%
Premium incentives for quitting	40%	22%
Programs to support quitting	0%	22%
Non-premium related incentives for quitting	10%	11%
Treatments and/or devices to help quit	0%	11%
Harsher premium penalties for continued smoking or relapse	10%	0%

Source Global insurance survey on smoking cessation practices (Marsh & McLennan Companies, 2019)

Exhibit 12: Current practice in collecting data on success rates

Question
What data is collected to determine success rates and spending of smoking cessation programs? (Select all that apply)

% of respondents

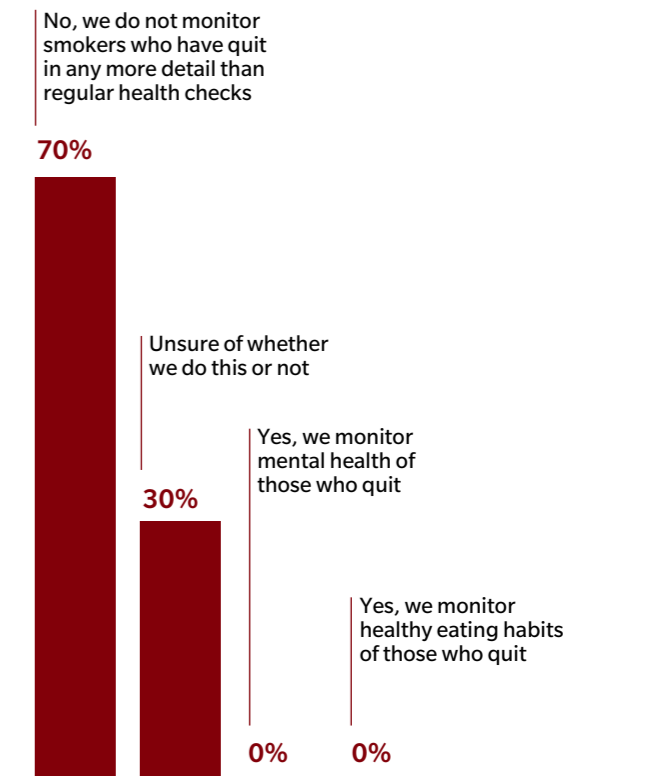| Category	%
No data is collected or no programs are offered	61%
Number of smokers who have quit and were on a program	22%
Efficacy of different programs in helping quit	17%
Most impactful program or reason that caused the smoker to quit	9%
Impact of smokers who have quit on your organization's finances and liabilities	4%

Source Global insurance survey on smoking cessation practices (Marsh & McLennan Companies, 2019)

Exhibit 13: Current practice in monitoring relapse

Question
Does organization continue to monitor smokers who have quit?

% of respondents

Category	%
No, we do not monitor smokers who have quit in any more detail than regular health checks	70%
Unsure of whether we do this or not	30%
Yes, we monitor mental health of those who quit	0%
Yes, we monitor healthy eating habits of those who quit	0%

"About 60 percent of our customers start smoking again after some time."
—Life, Health insurer (Switzerland)

Although insurers are aware that it is possible for anyone to start smoking at any age, preventing people from taking up smoking does not seem to be a priority. Only 4 percent of the survey participants test non-smokers after issuing policies, and more than half have no plans to use predictive analytics to identify people who might start smoking or relapse after quitting. The industry's passive approach to prevention may be because most smokers begin when young, before they are likely to apply for life or health cover for themselves.

Exhibit 14: Current practice in applying innovative underwriting methods

Question
Does your organization practice or apply predictive analytics for underwriting?

(% of respondents)

■ No plan to implement   ■ No, but planning to implement in 1-5 years   ■ Yes

Predictive analytics to identify future smokers
7%
31%
62%

Predictive analytics to identify relapse
15%
19%
66%

Source Global insurance survey on smoking cessation practices (Marsh & McLennan Companies, 2019)

"The likelihood of non-smokers at life insurance purchasing age to commence smoking at a later date is considered very small."

—Life insurer (South Africa)

Key challenge for insurers

Insurers are collecting very little usable data on the uptake, success and relapse rates of the cessation interventions being offered – and what is not measured is not being improved. Also, insurers' perceptions and practices on smoking cessation are not always in line with the established or evolving evidence: for example, on the effectiveness of various cessation interventions. Survey participants continue to rely on premium incentives, while systematic reviews from independent researchers suggest that instant and tangible rewards—such as cash—are the most effective incentives.

The way forward
Innovations at the frontier

To recap, insurers face challenges with detection, quantification and reduction of smoking risks (See Exhibit 15). Emerging technologies, products and processes can help insurers address these barriers. In this section, we present a few examples of innovative solutions for insurers to consider and monitor over time. Some of these solutions are easy to implement, some solutions will require investment in capabilities or partnerships, and some solutions are more complex but have the potential to transform the way insurers quantify and manage smoking risks. The solutions also vary in terms of likely relevance for life and health insurers.

Exhibit 15: Challenges and potential solutions

Risk quantification and reduction	Challenges	Potential solutions	Relevance
Detection	Disclosure fraud may be widespread	Reliable and cost-effective detection of smoking status	Life and health insurers
Quantification	Risk profiles are becoming more complex	Refined risk classes, dynamic underwriting	Life insurers
Cessation	Low quit rates and high relapse rates	Evidence-based incentives and interventions	Life and health insurers

Source Marsh & McLennan Insights analysis

Managing disclosure fraud

There are three ways for insurers to improve detection of smokers: reduce disclosure gaps, better predict the smoking status of applicants, and adopt more reliable tests for verification.

Reducing disclosure gaps

Applicants may disclose smoking status wrongly in many scenarios: they may be unaware of industry definitions (for example, if an occasional smoker), they may want to avoid feelings of shame or stigma, or they may lie to reduce premiums. By understanding applicants' motives and influences, and by applying behavioral science principles, insurers can design intelligent questions to elicit better disclosure.

Research shows that people's answers depend on how questions are phased and set in context (the framing effect). Also, when people become aware that their behavior is being observed or assessed, they become motivated to do better (the sentinel effect).
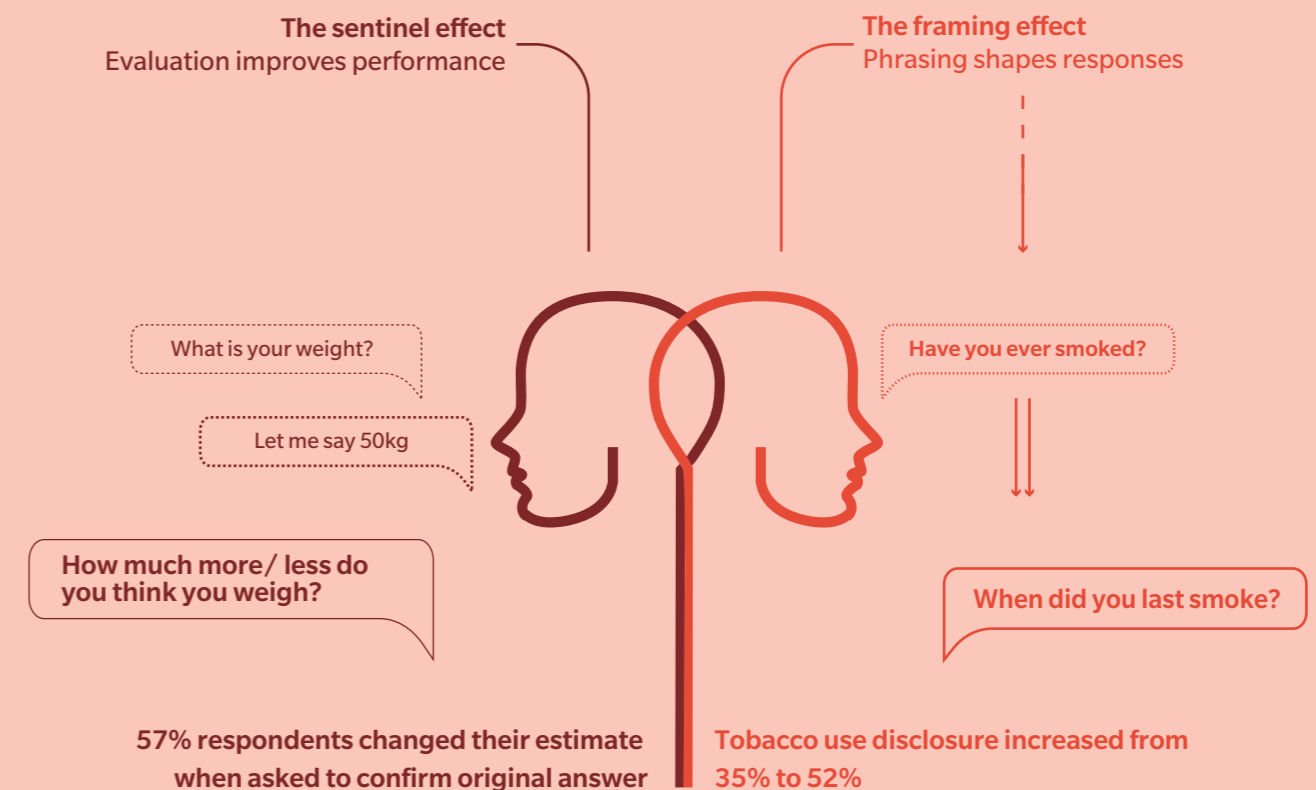
Case study 1
Intelligent questions that elicit accurate responses

Experiments by the Reinsurance Group of America (RGA) indicate that insurers can increase accurate disclosures by making it easy for applicants to be truthful and accurate, and making it harder to lie.[39]

For example, tobacco use disclosure went up from 35 percent to 52 percent when researchers replaced a typical question ("Have you ever smoked?") with a non-binary one ("When did you last smoke?"). This let applicants feel more comfortable about their behavior and answer honestly, instead of answering in a way that feels socially acceptable.

In a separate test, about 57 percent of respondents changed their weight estimate when asked to confirm their original input – using a confirmation question phrased carefully to make applicants feel comfortable with adjusting their responses, and motivated to improve their performance ("People may not weigh themselves regularly, so it is not always easy to provide an accurate figure. How much more/less do you think you weigh?").

Exhibit 16: Designing better questions

The sentinel effect
Evaluation improves performance

The framing effect
Phrasing shapes responses

What is your weight?

Let me say 50kg

Have you ever smoked?

How much more/ less do you think you weigh?

When did you last smoke?

57% respondents changed their estimate when asked to confirm original answer

Tobacco use disclosure increased from 35% to 52%

Source RGA, Marsh & McLennan Insights analysis

Predicting smoking status

The insurance industry verifies the smoking status of only a sub-set of applicants who declare themselves as non-smokers. Most insurers decide which applicants to test using conventional data such as age, gender and socioeconomic status – 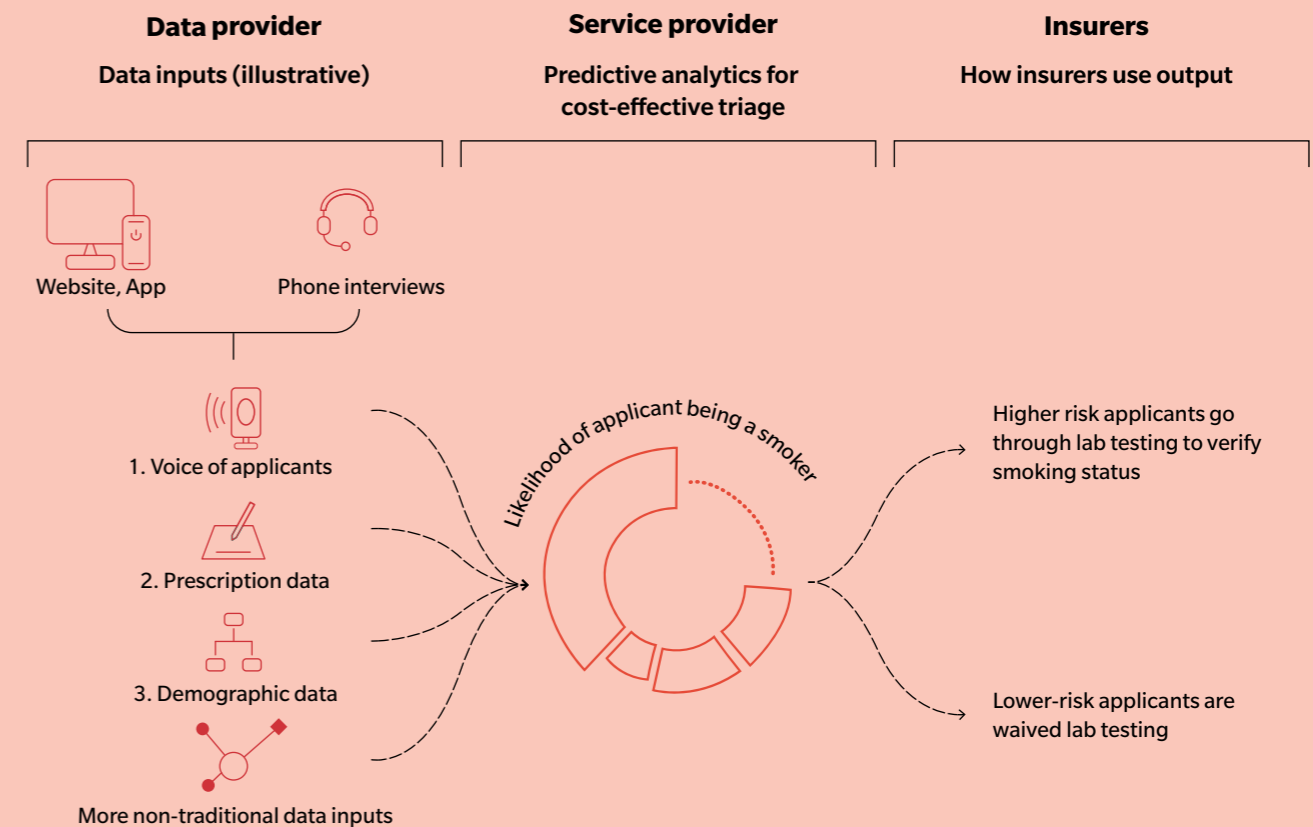and they are not very satisfied with the results of current prediction models for smoking status. One way to make verification more effective is to improve risk triage: 1 out of 5 insurers in our survey are planning to implement technology to validate smoker self-declaration. Insurers can broaden data sets and apply predictive analytics to identify appropriate candidates for laboratory testing.

Case study 2
Tobacco use propensity model

Verisk, a data analytics provider for insurance and other industries, is testing a model to predict the likelihood of tobacco use. The model uses up to six types of data sourced from the insurance application and third-party sources, including conventional components such as demographic and socioeconomic data, as well as voice from tele-interviews. The approach is built on insight from phonatory studies that have concluded that cigarette smoking modifies the voice: smokers have lower fundamental frequency values than the non-smokers in spontaneous speech and when reading out loud.[40]

The Verisk model checks whether applicants are likely to be tobacco users and aims to help insurers identify applicants for confirmatory testing. Further testing and refinement of the model is ongoing, to investigate broad applicability and potential confounding factors (for example, age, gender, different accents, and common cold for the voice component), and to distinguish between current and former smokers.

Exhibit 17: Tobacco use propensity model

Data provider	Service provider	Insurers
Data inputs (illustrative)	Predictive analytics for cost-effective triage	How insurers use output

Website, App   Phone interviews

1. Voice of applicants

2. Prescription data

3. Demographic data

More non-traditional data inputs

Likelihood of applicant being a smoker

Higher risk applicants go through lab testing to verify smoking status

Lower-risk applicants are waived lab testing

Adopting better biomarkers

The cotinine test to validate an individual's smoking status has significant limitations: it can miss tobacco use (particularly if test takers have not smoked for a day or two), and insurers are increasingly waiving testing to speed up and lower costs of underwriting. There is a need for a more consistent, reliable and low-cost test that is easy to administer. There is also a gap to be filled between evolving product types, patterns of use, and innovation in biomarkers that can discern use of different products and their potential harms. Insurers must keep tabs on or perhaps even invest in research to develop, refine, and recommend biomarkers with the greatest utility – ones that are non-invasive and easy to evaluate, can detect tobacco use status and product types, and can distinguish product use from confounding exposures (for example, environmental or dietary exposure).

Case study 3
The state of biomarker research

A recent literature review of the science on biomarkers of tobacco use (both cigarettes and other tobacco/nicotine products)[41] found no specific biomarkers that are consistently effective at discerning between consumption levels and/or between product types. The most commonly tested biomarkers are tobacco alkaloids (such as cotinine). Amines and volatile organic compounds show promise in discerning between types of tobacco product used.

Exhibit 18: Summary of biomarker literature for nicotine delivery products other than or in addition to combustible cigarettes[i]

Biomarker family	Ability to discern nicotine product use status	Ability to discern between nicotine products	Ability to discern between nicotine products
1 Tobacco alkaloids			Urine, blood/serum/plasma, saliva
2 Amines			Primarily in urine samples
3 Carbon monoxide			Exhaled breath and blood
4 Elements[ii]			Urine and blood samples
5 PAH[iii]			Almost exclusively in urine sample
6 TSNA[iv]			Urine, blood/serum/plasma, saliva
7 VOC[v]			Primarily in urine, limited datasets in either blood or urine

Could discern   Could not discern or unclear

Notes:
i Pie charts demonstrate the distribution of the results for the ability to discern both use status and product type, organized by biomarker group
ii Heavy metals and essential metals
iii Polycyclic Aromatic Hydrocarbons
iv Tobacco-Specific Nitrosamines
v Volatile Organic Compounds

Source ToxStrategies, Marsh & McLennan Insights analysis

Responding to complex and changing risk profiles

As the tobacco product landscape and usage patterns change, policyholders' risk profiles may become more complex over time. Insurers can respond with more sophisticated risk assessment: more refined smoker rates, personalized risk assessment, and dynamic underwriting and pricing.

Refining risk classes

Particularly for life insurance with its exposure to long-tail risks, the standard approach—binary treatment of smoking in underwriting and pricing—may need a re-think. Smoking risks are becoming more complex with changing product landscape and permutations of users, such as never smokers, former smokers, current cigarette smokers, NRT/e-cigarette/heated tobacco users, dual users, and so on. Individual products in new categories also vary in terms of characteristics and effects, so users may present different risks even within one tobacco product category.

While a more sophisticated approach is warranted, it remains tough to refine smoking risks and rates given the lack of long-term data on the health impact and quit rates of newer products (which may vary widely even within a category), or of a reliable test to discern between different product types. The industry should monitor credible evidence as it emerges over time on the relative risks of products and patterns of use. Insurers should also learn from early attempts by new entrants that are implementing tiered pricing.

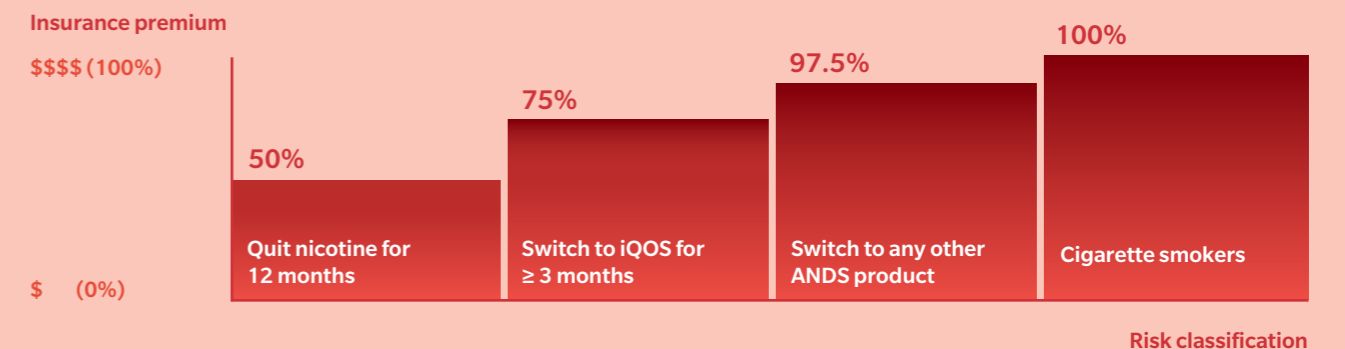**Case study 4**
Differential pricing by tobacco product type

Reviti, a life insurance company owned by Philip Morris International, offers premium discounts to UK policyholders who quit tobacco and nicotine products for at least a year (50 percent discount), or switch to Philip Morris' heated tobacco product iQOS for three months (25 percent), or to e-cigarettes from competing tobacco or vaping companies (2.5 percent).[42] The tiered premiums present an example of risk profiles and pricing that vary by different types of products used. The premium discount for iQOS—along with a marketing campaign launched at the same time as Reviti—may be designed to attract more people to buy the Philip Morris product.

Exhibit 19: Example of refined pricing by tobacco product type

Traditional binary pricing — example

Insurance premium

$$$$ (100%)

Never smokers or abstinent for >12 months
Quit nicotine for 12 months

Users of any tobacco / nicotine product

Applies for all Cigarette smokers, E-cigarette users, Heated tobacco users, and so on

$ (0%)

Risk classification

Refined pricing — example (Reviti)

Insurance premium

$$$$ (100%)

50%
Quit nicotine for 12 months

75%
Switch to iQOS for ≥ 3 months

97.5%
Switch to any other ANDS product

100%
Cigarette smokers

$ (0%)

Risk classification

Source Marsh & McLennan Insights analysis

Personalizing risk assessment

Large volumes of real-time data and analytics capabilities have the potential to transform insurance into precisely tailored risk pools of one. Analysis of behavioral and environmental data can help insurers assess individual risk more accurately and provide a personalized price. Insurers can also use insights to adjust premiums as an incenti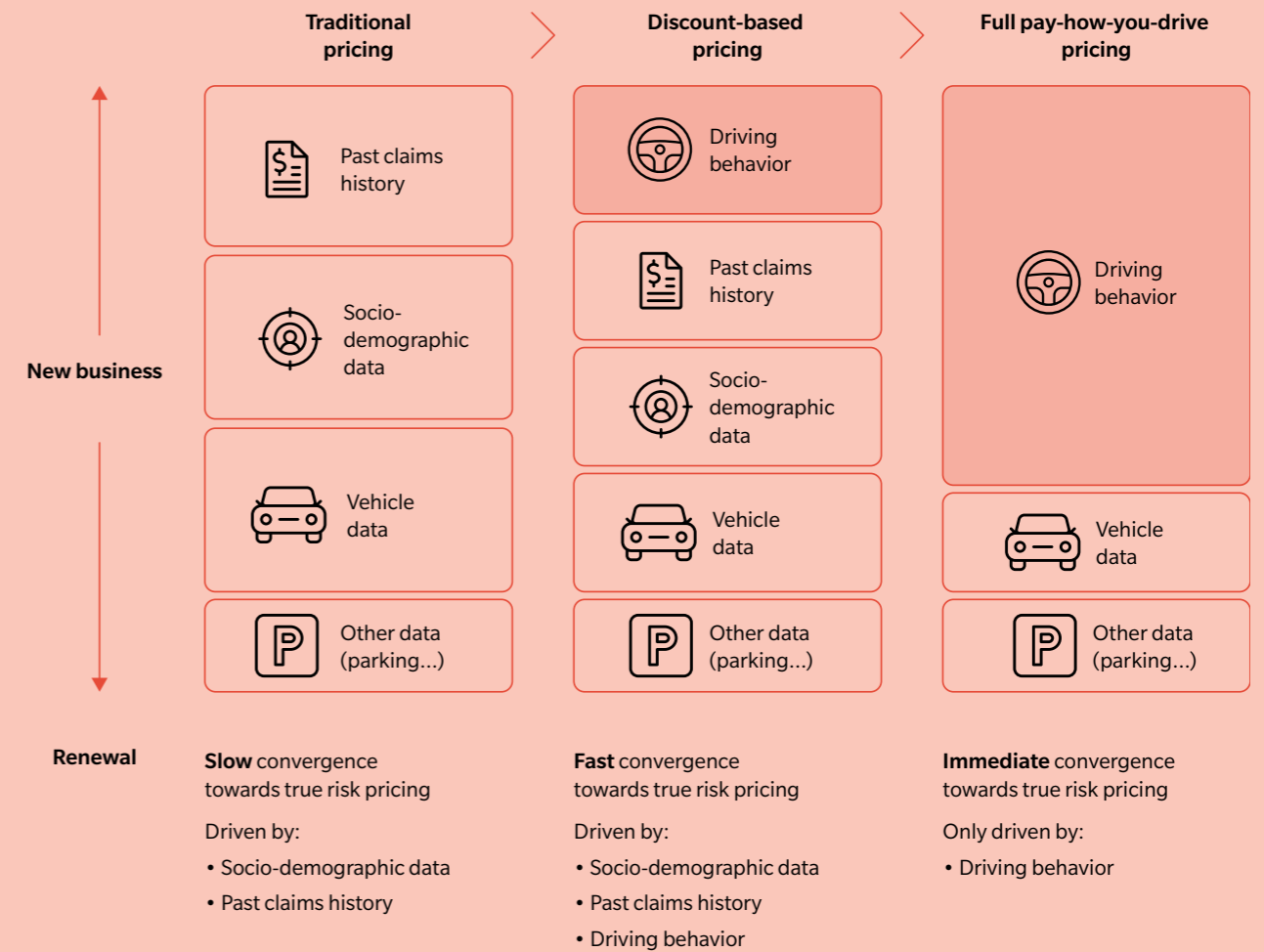ve to shape customer engagement and behavior. However, there remain challenges to personalization: insurers will need to collect, analyze, and secure large volumes of relevant data at useful intervals; there may also be ethical and regulatory concerns about potential threats to privacy and fairness – for example, higher-risk individuals or those unwilling to share large amounts of personal data may be unable to access or afford coverage.

Case study 5
Telematics for customized risk assessment

Telematics is enabling customized auto/motor insurance premiums by tracking the way people drive, and then using analytics to predict and shape behavior. For example, insurers used to set premiums based on a combination of proxy factors such as age, gender, and occupation, resulting in younger drivers as a group paying higher premiums than older drivers. New usage-based pricing is based on driving data instead, such that safe young drivers pay lower premiums than reckless old drivers. Similarly, it may be possible for life and health insurers to customize smoking rates based on behavioral data, for example, consumption levels and frequency tracked by smart e-cigarettes, smart breath analyzers and mobile apps.[43]

Exhibit 20: Usage of behavioral data in premium calculation

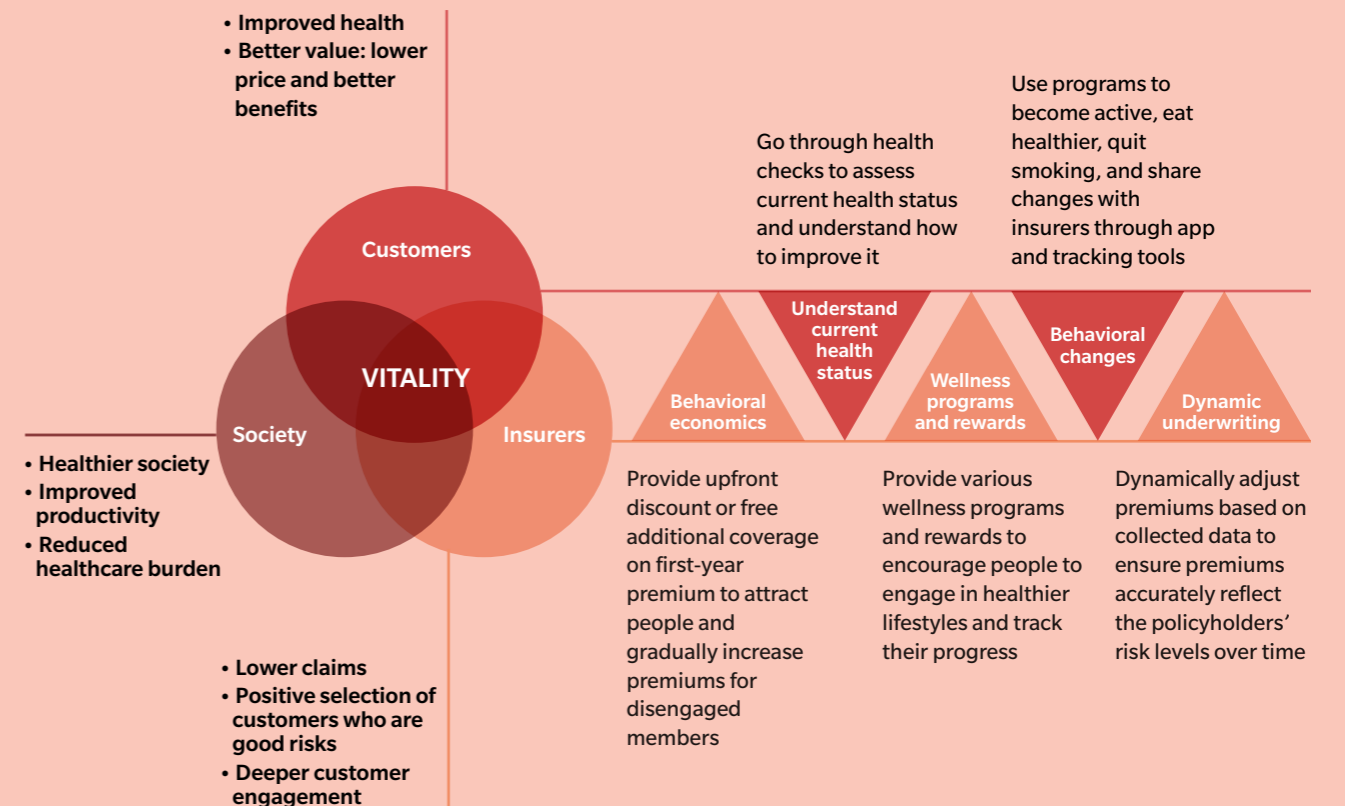|	Traditional pricing	Discount-based pricing	Full pay-how-you-drive pricing
New business	Past claims history / Socio-demographic data / Vehicle data / Other data (parking…)	Driving behavior / Past claims history / Socio-demographic data / Vehicle data / Other data (parking…)	Driving behavior / Vehicle data / Other data (parking…)
Renewal	**Slow** convergence towards true risk pricing — Driven by: • Socio-demographic data • Past claims history	**Fast** convergence towards true risk pricing — Driven by: • Socio-demographic data • Past claims history • Driving behavior	**Immediate** convergence towards true risk pricing — Only driven by: • Driving behavior

Dynamic underwriting

The traditional approach to underwriting—static and upfront—fails to adjust to how people's risk profiles change over time. Continuous or dynamic underwriting is a solution to this challenge, offering insurers a lever to reflect and potentially shape improvements in customers' health, and increase engagement with them between the start of a policy and the claims stage. Quitting smoking could be incorporated into dynamic underwriting models to improve risk assessments over time, and to support smokers to quit.

Case study 6
Dynamic pricing

Vitality, the health and life insurance program of South African financial services group Discovery, uses dynamic pricing and other incentives to attract, motivate and nudge customers who wish to stay healthy. Vitality uses lifestyle and personal data collected from wearable devices and regular health checks, to assess evolving risk on an ongoing basis and change premiums. The company's shared value concept aims to deliver benefits to customers (who get support and incentives to stay healthy and pay lower premiums), society (which sees reduced disease burden and costs), and insurers (which can pay out fewer claims and realize higher returns on policies). Vitality's partnerships (for example, Manulife in Canada, Ping An Health in China, John Hancock in the United States, and AIA in Asia Pacific) indicate growing interest in dynamic underwriting in various markets.

Exhibit 21: Dynamic pricing for shared value

- **Improved health**
- **Better value: lower price and better benefits**

Go through health checks to assess current health status and understand how to improve it

Use programs to become active, eat healthier, quit smoking, and share changes with insurers through app and tracking tools

Customers

VITALITY

Society   **Insurers**

Understand current health status

Behavioral economics

Wellness programs and rewards

Behavioral changes

Dynamic underwriting

- **Healthier society**
- **Improved productivity**
- **Reduced healthcare burden**

- **Lower claims**
- **Positive selection of customers who are good risks**
- **Deeper customer engagement**

Provide upfront discount or free additional coverage on first-year premium to attract people and gradually increase premiums for disengaged members

Provide various wellness programs and rewards to encourage people to engage in healthier lifestyles and track their progress

Dynamically adjust premiums based on collected data to ensure premiums accurately reflect the policyholders' risk levels over time

Source Vitality, Marsh & McLennan Insights analysis

Effective interventions to improve quit rates

While many insurers provide customers with access to smoking cessation programs and incentives, very few are tracking uptake, success and relapse rates. What gets measured, gets improved. There is an urgent need for a more data-driven approach by insurers to smoking cessation interventions, aligned with evidence on effectiveness and knowledge of what drives behavioral change.

What works: Evidence of effectiveness

A systematic review[44] of randomized controlled trials and controlled studies of smoking cessation incentives concluded that financial incentives such as cash and vouchers seem to boost six-month quit rates while they are in place. Substantial cash incentives ($750-$800 in the US) boost medium-term quit rates by two to three times. Fewer people take part in deposit-refund trials but those who contribute their own money may achieve higher quit rates than participants motivated by rewards.

A recent trial[45] of e-cigarettes, financial incentives and drugs for smoking cessation in the US found that a combination of financial incentives and free cessation aids (NRT, drugs or e-cigarettes if standard therapies failed) led to an almost five-fold higher sustained abstinence rate over six months. The trial also showed that redeemable deposits produced slightly higher success rate, better engagement, and lower costs, implying that loss aversion may be a more effective approach than framing as a reward.

Driving behavior change

Behavioral economics principles can help build on the evidence of what works in terms of helping people quit smoking. Drawing on insights from psychology, neuroscience and economics, behavioral economics explores the limits of human rationality and the ways in which our decisions are not always optimal, such as a tendency to take mental shortcuts and be swayed by context.

One finding is that people prefer immediate gains to later rewards (hyperbolic discounting or present bias). For example, a patient may not be motivated to take her medication daily if she does not experience any immediate benefit. Other relevant findings: people dislike losing something more than they enjoy acquiring it (loss aversion), and people tend to value things more when they feel they own them (the endowment effect).

Insurers are already applying behavioral economics principles to reduce smoking-related risks. For example, Manulife draws on the endowment effect to incentivize smokers to quit. They offer non-smoker premiums to smokers for the first three years, and customers lose the low premiums (and premiums go up substantially) unless they quit smoking within that time.

Exhibit 22: The behavioral economics concepts driving better patient adherence and outcomes

1 Patients are enrolled > 2 Daily incentive to take medications > 3 AI identification of adherence > **Patients achieve better adherence, lower readmission**

Behavioral economics principles:

Present bias
People's behaviors are driven by immediate results. Wellth helps people overcome present bias by providing them with instant benefits like vouchers

Endowment effect
People value something that they already own. Wellth frontloads the rewards to maximize the program enrolment rate

Loss aversion
People tend to prefer avoiding losses to acquiring equivalent gains. Wellth frames incentives as things that patients receive upfront and will risk losing if they fail to adhere to their treatment plans

Source Wellth, Marsh & McLennan Insights analysis

Conclusion

Smoking continues to be widespread, and presents risks to life and health insurers and their policyholders. The industry tries to estimate and address these risks through a range of processes such as detecting smokers at the application stage, underwriting and pricing smokers differently, and attempting to reduce the risk by helping policyholders quit smoking.

Current practices are far from perfect. Insurers believe that disclosure fraud may be widespread; their risk classifications and pricing remain binary while risk profiles are becoming more complex; and they are doing very little to measure and improve smoking cessation efforts. These challenges result in lost revenue from premium leakage and price-excluded good risks among smokers, lower profits thanks to higher claims paid and reserves set aside, and missed opportunities to improve health and quality of life for millions of people.

Solutions exist for some of these challenges. For example, with clever questions and incentives, insurers can nudge people towards better disclosure, smoking cessation, or switching to potentially less harmful products as a step towards quitting tobacco and nicotine. Advanced analytics and dynamic underwriting can help insurers assess risks more accurately and adjust premiums over time, as people's behavior, health status and risks change. Measuring uptake, success and relapse rates of smoking cessation programs can help insurers understand which measures work and then improve upon them.

More research is needed to address other issues such as better biomarkers for reliable and more refined verification of an individual's smoking status, and conclusive evidence of the relative risks and long-term impact of newer products. Insurers should monitor the science as it evolves, address only regulated and quality-controlled products, and scrutinize innovative solutions as they emerge from incumbents and new entrants.

Fact sheets

Tobacco prevalence and burden

Tobacco use is more prevalent in developing countries with large and growing populations…

Around 80% of all smokers live in low- and middle-income countries. The number of smokers is growing in some developing countries with large and growing populations.

Exhibit 23: WHO estimate of age-standardized tobacco smoking prevalence, aged 15 years and older, 2015
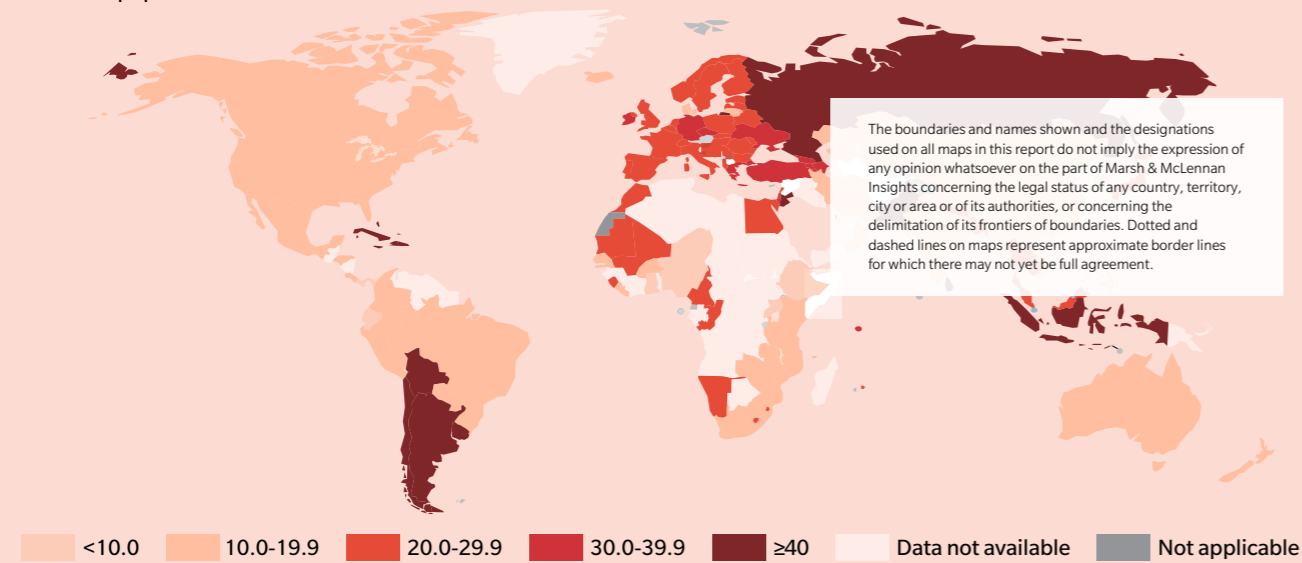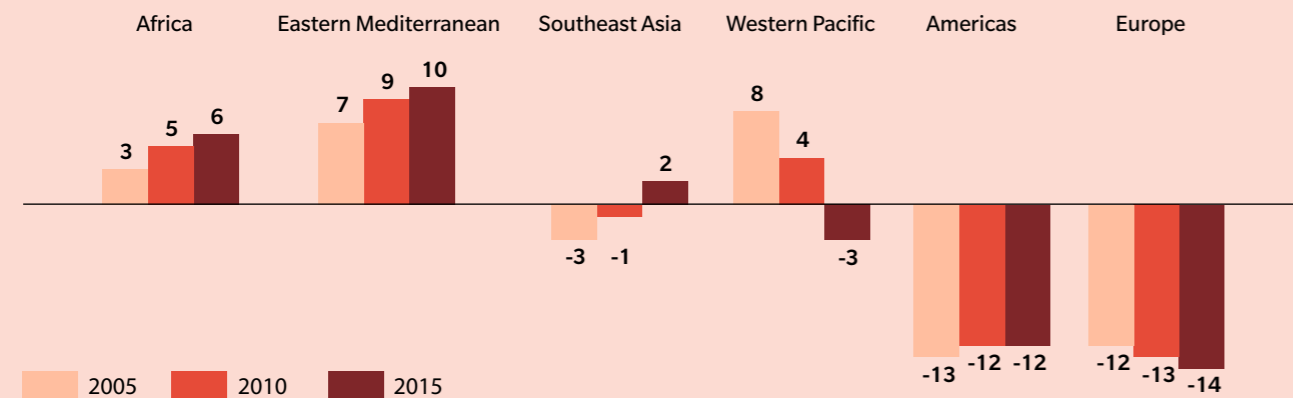
Per 100 K population

The boundaries and names shown and the designations used on all maps in this report do not imply the expression of any opinion whatsoever on the part of Marsh & McLennan Insights concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers of boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

| <10.0 | 10.0-19.9 | 20.0-29.9 | 30.0-39.9 | ≥40 | Data not available | Not applicable |

Exhibit 24: Changes in the total number of tobacco smokers per region over the previous five years, aged >=15 years

Millions

Legend: 2005, 2010, 2015

Africa: 3, 5, 6
Eastern Mediterranean: 7, 9, 10
Southeast Asia: -3, -1, 2
Western Pacific: 8, 4, -3
Americas: -13, -12, -12
Europe: -12, -13, -14

… and among men, though girls are catching up in some parts of the world

Though fewer women smoke globally, prevalence data show similar daily use among boys and girls aged 13-15 years in Europe and the Americas. Most smokers start young (aged 13-24 years) and then continue to smoke as adults.

Exhibit 25: Number of cigarette smokers among children aged 13-15 years

Millions

Legend: Girls, Boys

The average estimates were constructed from surveys conducted in countries in the period 2007–2017 and applied to each country's United Nations estimated population in 2014. All values are rounded to one decimal place; therefore, the total for both sexes may not equal the sum of values for boys and girls.

Africa: 1.3, 3.2
Americas: 2.2, 2.4
Eastern Mediterranean: 0.3, 1.3
Europe: 1.3, 1.4
Southeast Asia: 1.2, 5.0
Western Pacific: 0.8, 3.6

6 in 20
Men smoke daily, 35% of the global population

1 in 20
Women smoke daily, 6% of the global population

Tobacco use results in health harms at any age

Adults
Smoking is the leading risk factor for cancers and chronic respiratory diseases, and among the top 10 risk factors for cardiovascular diseases
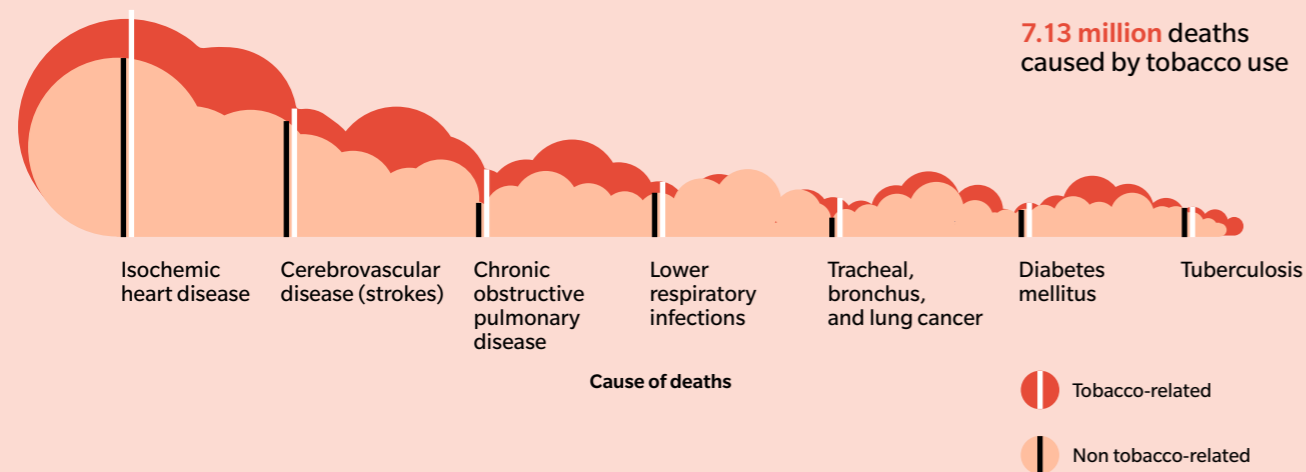
Children
Exposure to tobacco or nicotine in childhood and adolescence increases long-term risks of addiction, mental illness and cognitive impairment

Pregnancy
Smoking in pregnancy can cause sudden death, congenital disorders or impaired development of babies

Smoking contributes to most of the leading causes of death in the world

Exhibit 26: Deaths related to tobacco[46]

7.13 million deaths caused by tobacco use

Isochemic heart disease | Cerebrovascular disease (strokes) | Chronic obstructive pulmonary disease | Lower respiratory infections | Tracheal, bronchus, and lung cancer | Diabetes mellitus | Tuberculosis

Cause of deaths

● Tobacco-related
● Non tobacco-related

Source The Tobacco Atlas, sixth edition

Tobacco regulations

Tobacco regulations are widespread but vary

Tobacco-related regulations broadly aim to reduce (a) demand and consumption; (b) production, distribution, availability and supply; and (c) harmful effects on individuals and populations

The first global health treaty—the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), effective since 2005—tasks countries with implementing a set of measures to publicize health risks (for example, through warning labels on tobacco products), ban advertising, ban smoking indoors and in public places, support cessation programs, and raise taxes on tobacco products. Regulations and enforcement vary widely across the countries that have ratified the treaty voluntarily as of June 2019 (see Exhibit 27). Tobacco control regulations also vary at city levels in some countries.

Exhibit 27: Tobacco-related regulations and change in smoking prevalence[47,48]

Proportion of countries that have implemented complete WHO tobacco control measures

38%	**Monitor tobacco use and prevention policies[1]**
32%	**Protect people from tobacco use**
12%	**Offer help to quit tobacco use**
47%	**Warn about the dangers of tobacco**
25%	**Enforce bans on tobacco advertising**
19%	**Raise taxes on tobacco**

Change in tobacco control policies and smoking prevalence in 195 countries

Change of smoking prevalence rate (2005-2015, Age 15+)

Number of tobacco control policies implemented at the highest level between 2007 and 2014

Notes:

1 The percentage represents the proportion of countries that have recent, representative and periodic data for both adults and youth

Source WHO Report on the global tobacco epidemic, 2019. Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO, The Tobacco Atlas, sixth edition (2018), Gravely S, Giovino GA, Craig L, Commar A, D'Espaignet ET, Schotte K, et al. Implementation of key demand-reduction measures of the WHO Framework Convention on Tobacco Control and change in smoking prevalence in 126 countries: an association study. Lancet Public Health 2017; 2: e166–74

Regulations span the tobacco lifecycle

Exhibit 28: Examples of regulations across the tobacco lifecycle[49,50,51,52, 53,54]

Growing

Manufacturing

In March 2018, the United States FDA proposed rules to limit the amount of nicotine and flavoring agents in cigarettes, to make them less or non-addictive. The agency is also exploring a product standard for e-cigarettes, including restrictions on flavored nicotine products.

Packaging and labeling

Australia was the first country in the world to introduce plain packaging laws in 2012, followed by more than a dozen other countries including Canada, where stringent new regulations standardize the size, shape, format, and appearance of packaging. By 2020, all tobacco products must be sold in drab brown packs, be devoid of colors, graphics and logos, and feature large and graphic health warnings.

Marketing

In Europe and the UK, regulations prohibit consumer advertisements for nicotine-containing e-cigarettes that are not licensed as medicines, in television, radio, press, online, as well as promotional content on an advertiser's own website or social media.

Since 2012, the Philippines has used sin taxes raised from tobacco and alcohol to finance the expansion of universal healthcare coverage, health promotion and livelihood support for tobacco farmers. Smoking prevalence has declined significantly, with over a million smokers estimated to have quit by 2015.

Tax policies

Point-of-purchase

Product use

Since 2013, Russia has banned smoking in all indoor workplaces, indoor public places, and public transport. Smokers are fined for smoking within a distance of 15 meters in front of entrances of subway stations and airports.

Disposal

○ Production
● Display
● Purchase
● Use

Source United States Food & Drug Administration, The Tobacco Atlas, Canada Gazette

Tobacco harm reduction

Smoking rates have come down in countries that have implemented these measures. For example, the proportion of Turkish men who smoke fell 11 percent in eight years. However, nicotine in tobacco products is addictive "in the same sense as are" heroin and cocaine[55], and quitting is difficult for most smokers. Quit rates range from 12-23 percent[56] after one year across approximately 90 cessation solutions (drugs, devices and services) currently available. The risk of relapse is relatively high at more than 50 percent of individuals within the first year after a quit attempt, as high as 10 percent even after 30 years of abstinence.[57]

For smokers who are unable or unwilling to quit, some public health experts have proposed a harm reduction approach. This aims to curb the consequences of a substance or activity without necessarily eliminating or reducing consumption. Tobacco harm reduction proponents argue that smokers' health and life expectancy can be improved by cutting down or switching to potentially less toxic sources of nicotine, such as ANDS.

However, the harm reduction approach has split opinion among public health experts, with many concerned that it may undermine tobacco control measures by diverting attention from the only truly safe option of complete cessation, enabling users to sustain smoking through partial substitution (that is, dual use), making smoking behavior or nicotine addiction socially acceptable again, thus reducing motivation to quit, increasing the risk of uptake by never or former smokers, and risking uncertain long-term effects on health.

There is no consensus on the most appropriate and effective ways to regulate market access, marketing and use of novel products.

"People smoke for nicotine but they die from the tar."

—Michael Russell,
Harm reduction pioneer and the developer of nicotine gum (1976)[58]

"We've come so far in tackling smoking with proven methods that have years of research behind them on their long-term benefits and side effects… Could we now start regressing with e-cigarettes, and renormalize addiction?"

—Belinda Borelli, Director,
Center for Behavioral Science Research at Boston University[59]

"Overall, any population-level effects [of e-cigarettes] may include some groups incurring harm (for example, young people who start smoking), and some incurring benefits (for example, smokers who quit)."

—Elizabeth Greenhalgh and Michelle Scollo in Tobacco in Australia:
Facts and Issues (2018)[60]

Overview of global market access policies of e-cigarettes

As of 2018, most countries (108) did not have laws specific to e-cigarettes, and at least 36 countries banned them. 53 countries allowed their use or sale, with regulations varying between treating them as tobacco products, consumer products or medicinal products.

UK

The UK government has permitted public health campaigns to promote the use of ANDS for smoking cessation. Public Health England's evidence review concluded that ANDS are significantly less harmful than cigarettes.

Japan

E-cigarettes and e-liquids with nicotine are not allowed to be marketed in Japan without a pharmaceutical licence. However, imports for personal use are allowed.

Singapore

All new tobacco and nicotine products are banned since 2015, including e-cigarettes.

Brazil

E-cigarettes are strictly banned in Brazil. If e-cigarettes are presented as smoking cessation devices, toxicology reports and scientific proof of the health and environmental effects are required.

Australia

Australia has a strict regulatory environment for e-cigarettes with a complex mix of federal and state laws. The possession and use of nicotine for e-cigarettes is effectively banned under federal poisons regulation.

E-cigarettes banned

E-cigarettes containing nicotine banned

Market authorizartion required

Sales permitted and regulated

Unclear or no explicit policy

Methodology

This report is based on research conducted from April till July 2019, to answer two main questions:

- How do insurers quantify and price the risk of smokers versus non-smokers?
- What is the prevalence and uptake of smoking cessation programs offered by health and life insurers?

We gathered data and insights relevant to these questions through a survey and interviews with industry participants, along with desk research.

Survey

We conducted an online survey of major life and health insurers and re-insurers in 22 countries and regions. We sent a survey link to 281 potential respondents identified with help from our sister companies Marsh and Mercer. The sample spanned actuarial, underwriting, product development and business development roles at country (both developed and emerging markets), regional and global levels.

The survey explored respondents' perspectives on the current and future state of the smoker population within their books of business, their treatment of smoking risks in underwriting and pricing, and their practices relating to provision and funding of smoking cessation. Most questions were in single- or multiple-choice format, with space provided for open-ended comments. Most questions did not require a response. Most respondents chose to remain anonymous.

There were 56 responses in total (a response rate of 19.9 percent), of which 36 were used for analysis. These responses had viable input (not left blank or marked not applicable) on more than a quarter of the questions.

The charts on the next page summarize characteristics of the sample.

Interviews

We conducted in-depth interviews with 10 experts who represented a range of stakeholders including insurers, reinsurers, actuarial societies and solution/service providers, covering US, UK and Asian markets. Some interviewees wore multiple hats (for example, actuarial society and re-insurance), and many shared a range of perspectives from current and past experience.

The interviews overlapped with the closing phase of the survey. We used a dynamic approach to validate and delve deeper into issues and ideas that emerged from the survey and previous interviews. Semi-structured discussions were tailored to the interviewees' areas of expertise and interest, while collectively covering a broad range of topics. No interview was recorded, summarized transcripts were created from notes made during interviews, and transcripts were kept confidential and available only to the report writers.

Actuarial societies
UK

Reinsurers
North America, UK, Asia and global

Insurers
UK, Asia

Service providers
US

Stakeholder composition of survey respondents
% of valid responses

- **11%** Reinsurance company
- **11%** Insurance related group society
- **78%** Insurance
- **Stakeholders**

Business line composition of survey respondents
% of valid responses

- **42%** Life
- **36%** Health
- **22%** Life and health
- **Business lines**

Regional composition of survey respondents (in WHO regional groupings)
% of all responses

- Europe **34%**
- Western Pacific **20%**
- Americas **14%**
- Africa **9%**
- Southeast Asia **7%**
- Others **16%**

Functions composition of survey responses
% of viable responses

- Underwriting **42%**
- Business Development **36%**
- Actuarial **14%**
- Strategy **8%**
- Operations **3%**
- Others **28%**

Population of life book of survey responses
% of valid responses

- **14%** No estimate available
- **5%** 50-100K covered lives
- **23%** 100-500K covered lives
- **58%** 500K+ covered lives
- **Life book population**

Population of health book of survey responses
% of valid responses

- **24%** No estimate available
- **10%** 50-100K covered lives
- **29%** 100-500K covered lives
- **37%** 500K+ covered lives
- **Health book population**

Acknowledgements

Secondary research

We drew on publicly available papers, reports, websites and databases for reliable, independent information on tobacco prevalence, impacts, and regulations. Wherever possible, we relied on independent, reputable sources such as independent evidence reviews, peer-reviewed journals, and multilateral organizations.

Analysis

We synthesized information from various sources to answer the core research questions, identify challenges and suggest solutions for consideration by the industry. We analyzed survey responses and conducted qualitative reviews of interview responses to develop conclusions iteratively. We also tested findings along the way, through in-depth interviews with industry stakeholders and additional discussions with internal experts across Marsh & McLennan Companies.

Team

This project was designed and executed by a team comprising consultants and researchers at Oliver Wyman and Marsh & McLennan Insights. The report was reviewed by experts at Marsh & McLennan Companies in smoking cessation, global health, healthcare, insurance and reinsurance domains.

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Disclosure

Among the authors, Dr Jeremy Lim and Matt Zafra have consulted for tobacco and/or ANDS companies or organizations, pharmaceutical companies involved in smoking cessation using NRT, and healthcare providers designing cessation programs. The other authors have no competing interests to declare. Tobacco manufacturers count among past and current clients of MMC operating companies, and some MMC reviewers may have consulted for tobacco, ANDS or related organizations. The team did not gather information on competing interests of survey and interview participants.

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Marsh & McLennan Insights uses the unique expertise of our firm and its networks to identify breakthrough perspectives and solutions to society's most complex challenges. Our work draws on the resources of Marsh, Guy Carpenter, Mercer and Oliver Wyman – and independent researchers. We collaborate with industry, government, non-governmental organizations, and academia around the world to explore new approaches to problems that require shared solutions across economies and organizations. Marsh & McLennan Insights plays a critical role in delivering the MMC Advantage – Marsh & McLennan's unique approach to harnessing the collective strength of our businesses to help clients address their greatest risk, strategy and people challenges.

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