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ISSUE BRIEF

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Risk Classification in Voluntary Life Insurance

As scientists decode the human genetic structure, the links between serious medical conditions and specific genes are becoming better understood. This new information can pose a challenge to life insurers, who must make financial decisions based on their policyholders' risk of mortality. At the same time, consumers are concerned that life insurers may deny coverage because of genetic status. The American Academy of Actuaries, through its Task Force on Genetic Testing, is committed to finding solutions that provide for continued consumer access while maintaining insurer solvency. The task force has examined the role of risk classification in life underwriting and offers this report for the information of elected officials, regulators, and the general public.

Introduction

Life insurance is a long-term promise. To fulfill their obligations to pay future claims, life insurers must remain financially healthy over a long period of time. The financial health of an insurer depends on its ability to remain competitive in the market and to contin-

ue to take on new policies. Insurers maintain future solvency through wise investment, cost-efficient administration, and premium rates that correspond to the risk levels associated with their policyholders.

Insurers price their premiums to provide insurance to the public at the lowest possible price. However, insurers also must ensure adequate income to cover each claim presented and accumulate sufficient funds to remain financially sound. Companies that deviate from these principles place their policyholders in jeopardy. Before premium rates can be determined, an insurer must project the likelihood and probable timing of claims by its policyholders.

To make these projections, insurers rely on actuaries, who use principles of probability and statistics, expertise in finance and economics, and mathematical reasoning to determine appropriate risk classifications, premiums, and reserves to be set aside to pay claims. These elements comprise the backbone of a financially sound insurance organization.

The American Academy of Actuaries is the public policy organization for the United States actuarial profession, providing unbiased actuarial information to elected officials, regulators, and the news media. The Academy Task Force on Genetic Testing educates legislators and regulators about actuarial aspects of genetic testing and its use by life and health insurers.

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Underwriting

The process of selecting and classifying insurable risks is *underwriting*. Life insurance underwriting is performed to ensure that all elements of the insurance policy—specific terms, conditions, and premiums—are consistent with the risk to be insured. The

insurer seeks to maximize premium income by accepting as many applicants as possible at premium rates that correspond to the risks presented. Each applicant brings a distinct set of risk characteristics to the common pool. No single individual will adversely affect the other members of the pool, provided that each contributes an amount commensurate with his or her probability of death.

Operating on the principle of denying coverage to as few applicants as possible, underwriters determine which individual risks can be accepted. This decision is termed *risk selection*, and it is the first step in underwriting. The second step is to place the accepted applicants into groups with roughly equivalent levels of risk. This process is termed *risk classification*.

In helping underwriters to classify risks, actuaries weigh various characteristics that show a clear relationship to cost. For example, insurance data may show that an individual with a specific type of diabetes costs more to insure than an individual without the condition. Such data often come from mortality studies developed by actuaries. Of course, the actuary is not restricted to use of insurance company data. Relevant information from clinical experience, expert opinion on medical advances, and data from other reliable sources also are considered. Experts such as physicians and clinical researchers also participate in determining risk classifications.

Actuaries who determine risk classifications follow the principles of their profession's standards of practice. The standards state that risk classification systems should reflect accurately the cost of a given risk characteristic; be applied objectively and consistently; and be cost-effective and responsive to change. These principles ensure that insurance premiums are comparable for individuals with similar risk status and that classifications are modified to reflect advances in diagnosis and treatment. For instance, coronary conditions and high blood pressure usually can be underwritten far more liberally today than fifteen years ago. It is important to note that insurers do not assert a cause-and-effect relationship for the defined risk characteristics of a specific individual, but rather that these risk characteristics have a collective material effect on overall insurer costs.

Adverse Selection in the Individual Market

Individual voluntary insurance differs from group insurance in several ways. Individual insurance premiums usually are paid for by the person insured,

while employers typically pay at least part of the premium under group policies. Individual applicants possess far more discretion and control than participants in group insurance plans. Usually, individual insurance coverage is contractually required to continue as long as premiums are paid, while group insurance often expires upon termination of employment or group membership.

Individual applicants may choose the timing and amount of their insurance purchase, as well as benefits and types of plans. This discretionary power permits applicants to make decisions that favor themselves at the expense of the insurer, a phenomenon known as *antiselection* or *adverse selection*. For this reason, information about each applicant must be collected for individual policies, whereas group underwriting largely relies on information about the group as a whole. Thus, the underwriting process for individual voluntary insurance differs from group underwriting.

What exactly is "adverse selection"? In brief, it is the financial advantage that applicants gain by making decisions based on risk characteristics known or suspected by them but unknown to the insurer. People who apply for individual, voluntary insurance are not a randomly selected group. It is possible that the decision to buy insurance is motivated by a particular health concern known to the applicant but not to the insurer. This lack of equal knowledge makes adverse selection possible. If applicants are able to make financial decisions on this basis, the cost of insurance for all policyholders may rise—which, in effect, is a subsidization of certain policyholders by others. Ultimately, the insurer's financial solvency could be threatened. Of course, adverse selection is not necessarily an intentional deception on the part of the consumer. It can also occur if the insurer fails to inquire about a health condition or is prohibited from doing so.

To ensure that an applicant's premium cost is commensurate with level of risk and to limit the chance of adverse selection, insurers ask detailed questions of applicants for individual coverage. Characteristics considered include age, sex, medical history, and current physical condition. Smoking is a particularly important behavioral risk factor. Based on data about the effect of these factors on the rate of death, companies establish ranges of mortality expectations. An applicant whose expected mortality falls within the most favorable range can be insured as *standard*.

In recent years, that range has been subdivided by some companies into preferred and standard classes. Before late middle age, the vast majority of people can expect a long lifetime, and hence fall into the

standard or preferred classification. According to the American Council of Life Insurance *Fact Book*, 91 percent of all life insurance applicants are accepted at standard or preferred rates. The remaining applicants show greater risk of mortality outside the most favorable range. Insurers may opt to charge these applicants a higher rate, add restrictions to their policies, or deny coverage completely. Only about 4 percent of all applicants are turned down for coverage.

Why is risk classification so important in individual voluntary insurance, given that 91 percent of applicants are standard or preferred risks? The answer is that, in the absence of risk classification, a complex interaction of factors would occur to make insurance less affordable.

If no underwriting were allowed and each person in the U.S. simultaneously applied for the same amount of coverage, the premium needed from each person would be 90 percent higher than current premiums for standard applicants. This comes from spreading the additional mortality cost of otherwise substandard or declined individuals over the entire population. However, at those prices it is unlikely that buying patterns would remain the same. High-risk individuals would tend to buy more than the average amount, and individuals with low risk would tend not to buy at all because the higher price would no longer seem commensurate with their risk. The resulting influx of high-risk individuals would lead to spiraling premiums that would discourage low-risk participation even further. Thus the surcharge could double or triple, and premium costs theoretically could approach the amount of the benefit to be paid.

The Current Roster of Risk Factors

Over the years, insurers have become better able to pinpoint factors that correlate with the relative mortality rates of their policyholders. For many years, age was the sole nonmedical factor considered in underwriting. The connection between age and risk is obvious: with increasing age comes a higher annual rate of mortality and a corresponding decrease in life expectancy. Over time, the sex of an individual and smoking behavior came to be added as classifying factors, as data revealed definitive links between those characteristics and subsequent claims.

Each insurer must decide which combination of risk factors to include in determining costs and practices. After applicants are classified according to the basic criteria of age, sex, and smoking behavior, insurers must classify those applicants whose

expected mortality exceeds their established range for standard or preferred risks. It should be noted that many individuals with medical conditions found to have minimal impact on mortality, such as mildly abnormal blood pressure, are included in the standard group. Insurers wish to accept as many applicants as possible, at the lowest possible premium rates.

Medical condition is the most significant factor considered by insurers in classifying risk. Medical factors are particularly important when evaluating the applications of older individuals, who are more likely to be in poor health. The underwriter must consolidate all medical conditions—which may vary in severity, symptoms, and treatment—into a single measure of expected extra mortality. This measure, which permits each applicant to be allocated an overall level of risk, is usually based on a numerical rating system. Many factors come into play in determining mortality risk. Individuals whose characteristics place them in the standard-risk category according to age provide the benchmark by which the mortality of the substandard class is measured. The benchmark group is assigned a rate of 100 percent of expected mortality. Various risk factors that differ from the benchmark standard are then assigned specific numerical values in relation to the standard group.

To illustrate this process, consider an applicant whose level of hypertension has been found to correlate with mortality that is 1.5 times that of the standard risk group. This condition assigns a debit of 50 percent to the applicant, whose rating becomes 150 percent. But because the applicant comes from long-lived parents and grandparents, family history is worth a credit of 10 percent. As a result, the overall rating is 140 percent. Using this method, a typical insurer might offer coverage to applicants rated between 75 percent and 500 percent—with ratings between 75 percent and 125 percent considered standard and those between 125 percent and 500 percent subdivided into several substandard classifications. Typically, individuals whose rating was greater than 500 percent would be denied coverage as uninsurable. However, such individuals—who usually have multiple impairments or conditions with effects difficult to quantify—may be able to obtain coverage through an insurer that specializes in high-risk policies.

These figures, of course, will vary from insurer to insurer. To determine the risk factors, insurers will request an applicant's medical history and may require an examination that includes measurement

of height, weight, blood pressure, and pulse; laboratory tests of blood and urine; and in some cases an electrocardiogram and chest X-ray. This information helps insurers properly estimate the applicant's expected mortality.

In addition to medical condition, other risk factors also are taken into consideration, including:

Occupation. Examples of high-risk occupations include lumbering, deep-sea fishing, off-shore drilling, demolition, and asbestos processing.

Dangerous Sports. Sports such as formula motor racing, skydiving, hang-gliding, scuba-diving, and mountain climbing are associated with higher-than-standard mortality.

Foreign Travel. If the applicant resides or travels frequently in developing nations with a high level of disease, unsanitary conditions or political unrest, a higher premium may be required.

Drugs and Alcohol. A history of drug or alcohol abuse may place individuals in a high-risk category or render them uninsurable.

Financial Need. Apparent lack of need for the applied-for amount of insurance may signal a speculative purchase, which may indicate that the applicant is aware of critical risk characteristics unknown to the insurer.

Why Underwriting Is Important

Actuaries consider underwriting and risk classification vitally important for insurers and consumers alike. For the insurer, screening and classification of

risks protects solvency by allowing premiums to be set at a level commensurate with those risks. For consumers, underwriting protects the insurer's ability to deliver payment when needed. Policyholders count on fulfillment of the insurance promise to protect the standard of living of their beneficiaries. To offer this protection at a price that attracts the greatest number of consumers, life insurers must be financially healthy and able to market coverage to new applicants whose risk characteristics have been accurately reported. Substandard risks who conceal or are not required to reveal information when applying for coverage at standard rates are in effect subsidized by the rest of the insurance-buying public.

Over the years, advances in technology and research have introduced new risk factors, such as smoking behavior, into the underwriting process. As research into the human genetic structure continues to reveal links between specific genes and serious medical conditions, life insurers face a dilemma regarding the use of genetic testing results. At present, the complexity and expense of genetic tests make premature the widespread use of genetic testing in underwriting. But as more people gain information about their health status through genetic tests, life insurers could find adverse selection an increasingly costly problem.

Underwriting for genetic risks will continue to be a matter of concern to both the insurance industry and general public. In many states, the ultimate decision may rest with regulators and elected officials. As the debate continues, the actuarial profession—through the impartial auspices of the American Academy of Actuaries—will continue to assist public understanding of this complex issue.