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## Risk Classification in Individually Purchased Voluntary Medical Expense Insurance

*Risk classification helps maintain the financial soundness of voluntary individual medical expense insurance, which millions of Americans depend on to pay for their health care needs. This paper was prepared by the Academy Task Force on Genetic Testing in Health Insurance to help policy-makers and the public better understand the risk classification process. Among the key points examined in this paper:*

- *To avoid insolvency, insurers must charge adequate premiums to pay policyholder claims.*
- *Risk classification groups together individuals with similar levels of risk and expected medical costs, and permits insurers to charge an adequate premium.*
- *If individuals purchase insurance on the basis of adverse health information that is unknown to the insurer, biased selection results. Biased selection means that healthier people subsidize the less healthy, which may drive healthier people from the insurance system and lead to insolvency.*
- *Advances in technology and research continually reveal new information that helps insurers better classify risks. Banning the use of such information could lead to higher costs and reduced access to individual insurance.*



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**R**isk selection and risk classification, commonly known as “underwriting,” play an important role in most private insurance systems, but are often poorly understood outside the insurance industry. Consumers are particularly concerned that health insurers may deny them medical expense insurance, or even cancel an existing policy, if they become seriously ill. Policy-makers are concerned about the availability and cost of medical expense insurance, as well as the growing number of Americans who lack such insurance.

Information on a specific individual’s health or medical condition is not used to determine eligibility for most employer-sponsored and government-sponsored medical expense programs. However, such information is often used in the voluntary, individual medical expense insurance market where each person must decide whether or not to purchase coverage based on the relationship of the premium they must pay to their expectations for future medical expenses.

While roughly nine out of 10 non-elderly Americans with private health care coverage receive it through an employer-sponsored group health plan, millions of privately insured Americans rely on the individual medical expense insurance market.<sup>1</sup> An understanding of the individual medical expense insurance market is critical to the development and evaluation of alternative approaches to improving access to and the affordability of medical expense coverage (“health care coverage”).

In addition, there is an increasing public concern that personal health information, such as the results of genetic testing, may not be used “fairly” by health insurers. To evaluate the basis for this concern, and to understand the potential impact that legislation designed to address this concern might have on the individual medical expense insurance market, it is important to first understand how and why such information from applicants for individual medical expense insurance currently is being used. This paper is intended to help elected officials, regulators and the general public better understand the role that risk classification plays in the voluntary individual medical expense insurance market.

## **Introduction**

An individual health insurance contract represents a significant promise, one that can extend for years or in some cases even decades. To fulfill its promise to pay future claims, a health insurer must remain financially viable. An insurer’s financial viability depends on administrative efficiency, sound invest-

ment strategy, continued marketplace competitiveness and premiums that correspond to the claims that can be expected from the insurer’s policyholders.

When purchasing insurance, consumers weigh the price they must pay against the value they expect to receive. Individuals generally will not pay significantly more in premiums than they expect to receive back in benefits. Most healthy individuals are willing to pay a premium somewhat higher than the benefits they would receive given their usual health care expenditures, in order to have the peace of mind provided by protection against unanticipated injury or illness. However, there is a limit to the additional premium any given consumer is willing to pay for this peace of mind. If premiums for a health insurance policy rise above this threshold then healthy individuals will not purchase the coverage. If no insurer offers coverage at a premium below this threshold, healthy individuals will drop out of the insurance marketplace.

In order to remain competitive and attract new policyholders, insurers must strive to offer insurance to the public at the lowest possible price. However, insurers also must ensure that the premiums charged are adequate to enable them to pay claims as they come due, and to allow them to accumulate sufficient funds to remain financially sound. Excessive premiums damage an insurer’s competitiveness, while inadequate premiums place its policyholders in jeopardy by undermining the insurer’s ability to meet its obligations. Establishing premiums that are neither too low nor too high requires the ability to reliably project the level of future claims.

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 premiums to charge. Of course, the claims that an insurer may expect to face ultimately depend on the risk characteristics of the individuals who are covered.<sup>2</sup> Thus, actuaries must determine the appropriate premiums to be charged for various sets of risk characteristics. Risk selection and risk classification are used to ensure that each individual purchaser is charged a premium commensurate with the relative value that particular purchaser may expect to receive from the insurance coverage provided.

## **Types of Insurance Systems**

There are three primary types of insurance systems: (1) social insurance, (2) group insurance, and

(3) individual insurance. In most social insurance programs, such as Social Security, everyone eligible for coverage is required to participate, and no one is allowed to choose their own benefit level. The risk profile of the participants in such mandatory social insurance systems (the overall distribution of risk characteristics among the participating individuals) is typically more predictable and stable than that of a private insurer, because the covered population consists of everyone in a given, well-defined class of eligible individuals. Because participation in a governmentally sponsored monopoly is mandatory, competitiveness is not an issue and premiums or contributions are set based on considerations of social equity and program solvency.

With group insurance, such as an employer health plan, the decision to purchase coverage, and what type and level of benefits will be provided, is typically made by a plan sponsor. In most cases, such as the majority of employer-sponsored health plans, coverage is either automatic for members of the group or offered on a subsidized basis that encourages most members to participate.<sup>3</sup> Determining the risk profile of likely program participants essentially becomes a matter of evaluating the risk profile of the eligible group, rather than evaluating specific individuals. The major risk characteristics evaluated by group medical expense insurers typically include group size, the industry or occupations involved, the demographics of the group, the benefits provided and prior claim levels for the group as a whole.

With individual insurance markets, each individual decides whether to purchase insurance, when to purchase insurance and what type and level of benefits to purchase.<sup>4</sup> Which individuals will actually buy coverage from a particular insurer depends on the premiums and benefits offered, as well as those of competing insurers. An insurer's flexibility in establishing premium rate levels is restricted by the laws regulating the market.<sup>5</sup> In the case of medical expense insurance, many states give insurers flexibility in establishing individual market premiums, and most states give insurers a great deal of flexibility in accepting or rejecting each application for coverage. In this environment, appropriately evaluating and classifying the risk presented by each individual applying for coverage is key to predicting likely claim levels and establishing actuarially sound premiums.

### **Risk Selection and Risk Classification**

For each application it receives, an individual health insurer must make two decisions. First, it must

decide whether or not to accept the application and issue a policy (*risk selection*). Second, if the application is accepted, it must be appropriately categorized to ensure that the policy provisions and premiums are consistent with the level of risk involved (*risk classification*). The process of selecting and classifying insurable risks is known as *underwriting*.

Risk classification is the process of grouping together individual applicants for medical expense insurance who have similar risk characteristics and share a similar level of expected medical costs. Provided that each purchaser contributes to the insurance system an amount commensurate with his or her expected medical costs, no single individual's decision to purchase coverage will adversely affect other purchasers. If some purchasers are to pay less than that amount, then others must subsidize their costs by paying more, or an external subsidy must be provided to the system. Economic considerations make it important for insurers to accept as many applicants as possible at premium rates that correspond to the risks presented, in order to maximize market share, premium income and profitability.

It has often been suggested that insurance is based on the concept of *pooling* and the sharing of risk. The term "pool" is typically used to describe either a group of policyholders whose premium and claim statistics are aggregated for purposes of developing premium rates, or all of the participants in a single insurance program or system. In one sense, the participants in a single insurance program are "sharing" their risk. A better way of describing most insurance systems is that participants transfer their risk to the insurance program, and that the insurance program manages its aggregate risk through diversification across a wide array of participants. Whichever description is preferred, if participants with different levels of risk (i.e., different levels of expected claim costs) pay the same premiums into the system, an implicit subsidy is created. Characterizing a voluntary insurance system as a "pool" does nothing to change this dynamic.

Actuaries who develop risk classification systems are guided by the principles of their profession's standards of practice. Actuarial Standard of Practice Number 12, *Concerning Risk Classification*, states that risk classification systems should reflect accurately the expected cost of a given risk characteristic; should be applied objectively and consistently; and should be administratively practical, cost-effective and responsive to change. Following these principles ensures that the premiums for two individuals with a

similar risk status are comparable. This is known as *financial equity*. These principles also require that classifications be modified to reflect advances in diagnosis and treatment. It is important to note that actuaries do not assert a cause-and-effect relationship between each risk characteristic and a specific individual's health care costs, but rather that collectively the risk characteristics used have a material effect on the aggregate claim costs of a group of similarly situated policyholders. This standard of practice also explicitly recognizes that there may be legal constraints on the risk characteristics that may be considered in a particular risk classification system, and imposes on the actuary a professional obligation to comply with any such constraints.

Risk selection and risk classification based on the health or medical condition of specific individuals (*medical underwriting*) are of little concern when coverage is mandatory, or when each decision to purchase health insurance covers large, diverse groups of people automatically or on a subsidized basis that strongly encourages participation by both healthy and unhealthy individuals (e.g., most employer-sponsored health plans, which are typically heavily subsidized by the employer). This is why there is no medical underwriting of specific individuals in most government insurance programs and employer-sponsored health plans.<sup>6</sup> Medical underwriting is primarily used in voluntary individual insurance markets, where each person must decide whether or not to participate in the system based on the perceived value of coverage to them, i.e., the relationship of the premium they must pay to their perception of their risk of loss.

### Self Selection in the Individual Market

People tend to make economic decisions that are in their own best financial interest. As a result, people who apply for voluntary, individual health insurance are not a randomly selected group. Because applicants for individual health insurance choose the timing of their insurance purchase, as well as the benefits and type of plan selected, they have the opportunity to make decisions that favor themselves at the expense of the insurance program.<sup>7</sup> When viewed from the standpoint of the insurance program, this phenomenon is known as *biased selection*, *antiselection* or *adverse selection*, and occurs when applicants can expect to gain financially by making purchase decisions based on risk characteristics that are known or suspected by them but unknown to, or not considered by, the insurer or administrator of the

program.

If the insurer is unaware of, or prohibited from using, a risk characteristic that is associated with high medical costs, that characteristic cannot be reflected in the premium charged, and applicants with that particular characteristic will on average contribute less to the insurance program than they as a group receive from it (in effect, one group of policyholders is subsidized by the other policyholders). In that case, coverage will be particularly attractive to individuals with that risk characteristic, and more and more of these individuals with relatively high expected medical costs can be expected to purchase coverage at the favorable premium rate. As this occurs, premiums will rise for all policyholders, some of whom may find that the value received for their premium no longer justifies continued coverage.<sup>8</sup> This may lead to biased selection at policy renewal if healthy individuals are more likely than unhealthy ones to discontinue coverage by allowing their policies to lapse.

Biased selection can occur if an insurer does not find out about a health condition or other risk characteristic at the time of purchase of coverage. Biased selection results in program participants with higher than average health care costs, and thus a higher average premium level is required. The process of biased selection may reach a point of equilibrium with claim costs and premiums that are stable, though higher than would otherwise be required (in some cases much higher), or in extreme cases premiums can continue to spiral upwards as more individuals leave the system in response to rising premiums.

It is important to note that the opportunity for biased selection arises from an imbalance in the information available to the consumer and the insurer. A problem is created when information available to the applicant is not also made available to the insurer. If biased selection, and the resulting implicit subsidies, are to be avoided in a voluntary system it is important that a level playing field be maintained between the buyer and the seller, which requires that health information be shared equally between the two. To ensure that an applicant's premium cost is commensurate with the applicant's level of expected claims and to limit the chance of biased selection, insurers ask detailed questions of applicants for individual health insurance coverage.

### Setting Initial Premiums

Estimating the premiums necessary for a voluntary individual insurance product is integrally related to

risk selection and risk classification. Approximately 70 – 80 percent of applicants for individual health insurance policies are considered *standard risk* (i.e., they represent average, healthy individuals). Many people with minor medical conditions will be included in this group. The claim level for the standard risk group is used as the benchmark for pricing. Each insurer decides which risk characteristics to use for risk selection and risk classification. Of course, for individual health insurance, medical history and current medical condition are typically among the most important ones.<sup>9</sup>

In the typical underwriting process for individual medical expense insurance, the underwriter is expected to consider all of an applicant's medical conditions (which may vary in severity, symptoms, and treatment) in order to estimate the likely level of future health care costs. Many factors come into play in determining likely future health care costs. Individuals whose characteristics place them in the standard-risk category according to age provide the benchmark by which health care costs are measured.

The benchmark group may be thought of as establishing a base rate of 100 percent. For instance, an applicant might have a particular heart condition that increases costs by 50 percent on average. That same applicant also might have healthy lifestyle or other factors, such as regular exercise, a healthy diet or a history of not smoking, that would be expected to reduce future costs by 10 percent. In that case the applicant's expected health care costs would be 140 percent of those for a "standard risk" individual, and they would typically be offered a policy with a higher, "substandard" premium rate. Individuals with extremely high expected medical costs may be considered uninsurable. Predicting future medical expenses for such very high-cost individuals is particularly difficult, because of the small number of individuals with any particular condition, the difficulty in quantifying the impact of many serious medical conditions and the potential for interactions between multiple medical impairments.

## **Other Mechanisms for Covering High-Cost Individuals**

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While poor health may prevent some individuals from participating in the voluntary, individual medical expense insurance market in many states, other sources of coverage may be available. Most recent efforts to restructure or reform the individual medical expense insurance market have focused on guar-

anteeing access to coverage for those who would otherwise be considered medically uninsurable.<sup>10</sup> The Health Insurance Portability and Accountability Act of 1996 (HIPAA) guarantees access to coverage to certain individuals who lose group medical expense coverage. The law gave states a variety of options to provide access to insurance coverage for these individuals.

Currently, 13 states have a guaranteed-issue requirement in the individual medical expense insurance market, requiring insurers to issue some form of coverage to all applicants regardless of health status (specifics, such as the type of policy that must be issued and the rules for establishing premiums, vary by state), and 20 states limit the extent to which insurers can vary premium rates between individuals or the risk characteristics they may consider. High-risk health insurance pools have been created in 27 states to ensure access to individuals who would otherwise be medically uninsurable. In other states Blue Cross and Blue Shield plans guarantee access during annual open enrollment periods. At this time, six states have no mechanism in place to guarantee access to uninsurable individuals who are not eligible for HIPAA mandated coverage.

## **Underwriting at Renewal Generally Prohibited**

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The underwriting process, including risk selection, risk classification and determination of an initial premium, is performed only once, when the insurance policy is initially sold. Contract provisions and state insurance laws restrict a health insurer's ability to raise premiums once the policy is in force. Typically, the insurer can only raise premiums if the increase is applied uniformly to a "class" of policyholders, usually defined as all policies of a particular type sold in a given state. This is a very important protection, because it means that the premium for a particular policyholder will never be increased as a result of that particular person becoming ill.

Of course, premiums may still rise significantly if average costs rise for the class as a whole. This becomes a particular concern if rising premiums cause healthier individuals to leave the pool, resulting in a class whose remaining policyholders are relatively unhealthy, and thus high cost. Generally there also are restrictions on the insurer's ability to cancel a policy. HIPAA prohibits the cancellation of a medical expense policy based on the health of the policyholder.

## The Current Roster of Risk Characteristics

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While some consumers may keep an individual medical expense policy in force for years or even decades, particularly those who develop medical conditions that would make qualifying for another policy difficult, most policies are in force for only a few years. As a result, the underwriting of medical expense policies focuses on medical care costs likely during the first few years after a policy is sold. Disability income and long-term care policies, in contrast, are typically viewed by buyers as permanent insurance. As a result, the underwriting of those products considers the long-term health of applicants.

Each insurer must decide which combination of risk characteristics to use in evaluating applications and establishing premium rates. After applicants are classified according to such basic criteria as age, sex and smoking behavior, insurers must classify those applicants whose expected claim costs exceed their established range for standard risks. It should be noted that many individuals with medical conditions found to have minimal impact on near term health care needs, such as mildly abnormal blood pressure, may be included in the standard group. Insurers wish to accept as many applicants as possible, at the lowest possible premium rates.

Medical history and the current physical condition of an applicant are the most significant factors considered by individual medical expense insurers in classifying risk. They are the basic indicators of the likely need for future medical care. Medical factors are particularly important when evaluating the applications of older individuals, who are more likely to be in poor health. Insurers evaluate a risk primarily by estimating the probable influence of current impairments and previous medical histories on future claims.

In general, when considering medical information the insurer evaluates the applicant's recent medical expenses, any current medical conditions that need, or will shortly need, medical treatment, and any physical condition, such as a high cholesterol level, that increases the likelihood of future illness. Some conditions, such as diabetes, have implications for both current and future medical expenses. It is particularly important for the insurer to distinguish between conditions that have a tendency to recur, such as peptic ulcers, and acute disorders that do not recur once properly treated, such as bone fractures or appendicitis. For current conditions and those conditions that are likely to recur the insurer must eval-

uate: the current treatment costs; the likelihood of a recurrence; the likely future costs of recurrence; the effect on the applicant's general health; and the normal progression of the condition.

Family history has not proven to be a good predictor of short-term medical costs. As a result, unlike underwriting for life, disability income and long-term care insurance, family history typically is not used in evaluating applicants for individual medical expense insurance.

In addition to medical history and current physical condition, other risk characteristics also may be taken into consideration, including:

*Occupation.* Examples of high-risk occupations include lumbering, deep-sea fishing, off-shore drilling, demolition and asbestos processing. In general, occupation is a less important factor for medical expense insurance than for certain other types of insurance, such as life insurance or disability income insurance.

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

*Foreign Travel.* If the applicant resides in or travels frequently to 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.

## Summary

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Risk selection and risk classification taken together form the empirical process of grouping together individuals with similar risk levels into categories and using those categories to estimate the expected claim costs under an individual health insurance policy. From this process, premiums are calculated for each category of applicant that are commensurate with the expected claim costs of those applicants. The more precisely applicants are categorized (consistent with objectivity, administrative practicality and cost-effectiveness), the more precise and financially equitable will be the premium costs for each participant in the insurance program.

Financial equity is important in voluntary individual insurance systems, because each person

decides whether or not to participate in the system based on their own economic circumstances. Any subsidy tends to bias enrollment by encouraging greater participation among those benefitting from the subsidy, and in the case of an internal subsidy, discouraging participation among those implicitly providing the subsidy. This results in higher average claim costs, and thus higher average premiums for the system as a whole, and in extreme cases may result in premiums that continue to spiral upwards.

Actuaries consider risk selection and risk classification important for consumers and health insurers alike. For consumers, they protect the solvency of the insurance program, making it possible for the insurer to fulfill the promise to pay claims as they come due. They also help stabilize and hold down premiums by avoiding the effects of biased selection. For the insurer, risk selection and risk classification protect financial viability by allowing premiums to be set at a level commensurate with the risks insured. This financial viability is necessary to ensure ongoing operations and the continuing ability to develop and market new products.

Insurance is an efficient mechanism for dealing with the financial impact of unanticipated illness or injury. But when individuals who are already in poor health are brought into the insurance system at standard rates they are in effect subsidized by the rest of the insurance-buying public. Biased selection against a voluntary insurance market can be a problem even if most individuals ultimately purchase coverage, if they delay their purchase until they anticipate significant medical expenses. In that case relatively few active participants in the market will be healthy, and average costs will be high even though most individuals ultimately participate.

Over the years, advances in technology and research have introduced new risk characteristics, such as smoking behavior, into the underwriting process. As medical science continues to provide greater insight into the causes of disease, health insurers and society will both have to deal with the implications of new technologies for the insurance system. In many cases, new technology will be too complex and expensive to routinely incorporate into the underwriting process. But as technologies become more affordable and more widely available, knowledge of newly identified risk characteristics will become more common among potential purchasers of individual health insurance. If prohibited from inquiring about or using information on risk characteristics that are associated with significantly increased short term health care needs, health insur-

ers could find biased selection an increasingly costly problem.

The risk characteristics used in underwriting voluntary individual medical expense insurance will continue to be a matter of concern to both the insurance industry and general public. Balancing the twin needs of access and affordability in a voluntary insurance market will provide legislators and regulators with an ongoing challenge.

## Notes

1. Paul Fronstin, *Sources of Health Insurance and Characteristics of the Uninsured: Analysis of the March 1997 Current Population Survey*, EBRI Issue Brief Number 192, Employee Benefit Research Institute, December 1997.

2. Other factors, such as the level of benefits provided, claim management practices and the legal environment, also have a significant effect on claim costs.

3. Some employers sponsor "voluntary" benefits where participation is optional and the participating employee pays the entire premium through a payroll deduction. Voluntary benefits are usually not considered part of the regular employee benefit program, but offer a way to enhance the benefit program with little cost to the employer. Medical expense coverage is not typically offered on this basis. Voluntary benefits are in many respects more closely related to individual insurance than to other forms of group insurance.

4. There are individual insurance markets, such as automobile liability insurance, in which the purchase of coverage is mandatory (although enforcement of the mandate is often a problem).

5. Other considerations, such as competitive pressures and administrative efficiency, also influence an insurer's premium rating system.

6. Late applicants, individuals who initially decline to participate in an employer-sponsored program then later seek to join, make a purchase decision very similar to that of an individual market purchaser, and are often underwritten if their decision is not prompted by the loss of other coverage or by a major life event such as a birth or marriage. While the Medicare program does not underwrite late

applicants, the same concern is recognized through a higher premium.

7. For medical expense insurance this would include deductible levels, whether out patient prescription drugs are covered and the choice between fee-for-service coverage and various forms of network based managed care.

8. For a recent empirical investigation of the effect of guaranteed issue requirements and rating restrictions on the cost of medical expense coverage and the size of the uninsured population, see

Marsteller, et al, *Variations in the Uninsured: State and County Level Analyses*, The Urban Institute, June 11, 1998.

9. Other factors, such as benefit levels and local price levels for medical services, also have a significant effect on premiums.

10. For a more complete discussion of the actuarial issues surrounding guaranteed access, see *Providing Universal Access in a Voluntary Market*, American Academy of Actuaries, February 1996.



The American Academy of Actuaries is the public policy organization for actuaries practicing in all specialties within the United States. A major purpose of the Academy is to act as the public information organization for the profession. The Academy is nonpartisan and assists the public policy process through the presentation of clear and objective actuarial analysis. The Academy regularly prepares testimony for Congress, provides information to federal elected officials, comments on proposed federal regulations and works closely with state officials on issues related to insurance. The Academy also develops and upholds actuarial standards of conduct, qualification and practice, and the Code of Professional Conduct for all actuaries practicing in the United States.

The Academy Task Force on Genetic Testing in Health Insurance provides legislators and regulators

with the actuarial aspects of genetic testing, its use by health insurers and related actuarial issues important to an understanding of the potential impact of genetic technology on the private health insurance system.

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