The 411 on Insurance

The Basics

You want to protect yourself, your loved ones and the things you own. How do you do that?

You (the insured) buy an insurance policy from an insurer to protect against things that can threaten your financial health or your family's financial future. These things can range from damage to your home or car, to injury, illness or even premature death.

You pay a fee (called a premium) monthly, quarterly or annually. If something happens—you become ill or are involved in an auto accident for example—your insurance company will cover a portion or sometimes even all of the expenses you incur as a result of what happened to you.

How can an insurance company afford to pay for your financial loss?

Insurance is based on the principle of shared risk, or risk pooling. The money from your premium is put together with the premiums of many other people. That large pool of money is used to pay for losses suffered by individual members of the group.

How do insurance companies figure out how much to charge you or someone else?

Insurance companies have to know how to measure the risks. They have to estimate how many accidents, illnesses, or deaths there will be within a certain group of policyholders. This is where math techniques, such as probability and statistics, come in handy.

Insurers use these mathematical disciplines to determine risk and set rates.

Probability:

The chance of something happening or not happening within a certain number of occurrences. For instance, your odds of becoming a pro athlete are around 22,000 to 1, while your chances of having your identity stolen are 200 to 1.

Law of large numbers also called the law of averages:

The larger the group or number of events analyzed, the more accurately events can be predicted mathematically.

By collecting data on large numbers of people, insurers are able to predict with a good degree of precision the probability of loss for particular groups—for example, teenage boys, middle-aged adults, or senior citizens.

So, if you have a car and auto insurance, you probably realize that rates for teens are higher (sometimes a lot higher) than those of other demographic groups. That's because, statistically speaking, you're more likely to have an accident than someone with more driving experience. Maybe that sounds unfair. But insurers don't do that because they think teens may have more accidents— they know it. It's the same thing with smokers. Smokers pay more for life and disability insurance because insurers know they have higher rates of cancer and heart disease than non-smokers.

Insurers know this because they have been collecting data on millions and millions of people for many decades. The more information they collect and analyze, the clearer the picture becomes.

> Math Principles in Action:

Flip a coin six times. It should come up heads half the time and tails half the time, but it doesn't always. Do this activity with five other people. Have each flip a coin six times, and record the number of heads and tails. Now, add all your heads and all your tails and compare. The results should move closer to 50-50 as more people participate, demonstrating how the law of large numbers works.

Using this principle on a much more sophisticated level, the insurance company can set appropriate premium rates. When you apply for an insurance policy, the insurance agent will typically ask a series of questions to make sure you are put into the correct group, or risk classification, and charged a fair premium.

Key Players

Here are some of the insurance professionals who are involved in helping you protect your life, health and property.

Actuary

Has advanced math training (probability and statistics). He or she calculates the risks based on loss percentages and determines insurance rates and premiums.

Underwriter

Employee of an insurance company who evaluates risk and assigns premium amounts. Age, gender and health are key factors they use to determine risk.

Insurance Agent

A representative of an insurance company who sells insurance contracts (policies) and provides customer service. He or she must be licensed by the state in which a policy is sold.