

*King Saud University*  
*College of Business Administration*  
*Department of Health Administration*  
**Executive Master in Health Administration**

***EHHA 506 – Health Insurance Administration***  
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# UNDERWRITING AND RATE MAKING

## Learning objectives

- **Understand** how premium for health insurance plans rates are set.
- **Understand** the difference between various types of risk adjustment.
- **Be able to discuss** the affect of **managed care on premium rate setting**
- **Understand** the process of **premium computation**

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **You know more about your likely use of health services than does your typical insurance company. As a result, you have an incentive to use this information to your best advantage.**
- **In particular, if you have some health problem—say, heart disease—you might try to find an insurance plan that is designed for healthier people.**
- **If you were successful, you would pay a premium that was less than your expected claims experience.**

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **The insurer, on the other hand, would probably lose money on you.**
- **As you might imagine, insurers worry a good deal about this.**
- **Adverse selection in health insurance exists when you know more about your likely use of health services than does the insurer.**
- **Insurers deal with the problem by trying to design risk classes that group similar risks together.**

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **They then charge premiums that reflect this differential risk.**
- **The same information that goes into defining risk classes can be used to identify potential marketing opportunities for insurers.**
- **If one insurer can identify an employer group that has lower claims experience, for example, it might be able to quote a premium that will attract the group away from another insurer.**

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **Adverse selection** is a potentially fatal problem for insurers. If they combine dissimilar risks in the same pool, those with lower **expected utilization** will see **premiums** that are too high.
- **These individuals or groups** will tend to decline coverage or will be attracted by other insurers with policies designed for low risks.

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **To make matters worse**, high utilizers will see premiums that are too low.
- **They will be attracted to the plan**, raising average claims well above the plan's expectations and generating losses for the insurer.
- **Insurers deal with adverse selection through the underwriting and rate-making process.**
- **They seek to identify the determinants of claims experience and use this knowledge to put individuals and groups into risk pools that reflect their expected utilization.**

# UNDERWRITING AND RATE MAKING

## Adverse Selection

- **The nature and extent of this underwriting process depends in large part on the rating techniques employed.**
- **Community rating**, in which everyone is in the same risk pool, requires little formal underwriting.
- **Similarly, retrospective experience rating** requires little underwriting; each employer group constitutes its own risk class.



# UNDERWRITING AND RATE MAKING

## **“HMO Effect” vs. Favorable Selection**

- **Much of the empirical research on adverse selection in healthcare was done in the 1980s, as employers began to offer HMOs and other managed care plans.**
- **The issue arose because of substantial differences in the utilization experience of those enrolled in HMOs and those in conventional insurance plans.**

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **“HMO effect.”** It might be the result of a number of strategies.
- **For example, HMOs** could substitute ambulatory services for inpatient services at a much more aggressive rate than do conventional insurers.
- **HMOs** could employ effective utilization management techniques that are designed to limit hospital use to only those most likely to benefit for it.

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **HMOs** may only affiliate with physicians who are very conservative in their use of hospital services and/or they may provide financial incentives to physicians that lead the physicians to admit fewer patients.
- **HMOs** may provide preventive services that identify harmful conditions at an early stage and reduce hospitalizations.

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **Alternatively, HMOs** may do nothing at all to lower the hospital utilization experience of its members.
- **Instead**, they may attract members who are low utilizers to begin with (“favorable selection”).
- **They could accomplish this in many ways.** HMOs could target their enrollment efforts at younger and/or healthier groups by, for example, marketing to schoolteachers rather than construction workers on the theory that schoolteachers, on average, are less likely to take risks in their daily lives.

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **HMOs** might contract with physician groups and hospitals that are located in suburbs populated by young, upwardly mobile professionals, believing that such proximity will disproportionately attract the residents.
- **HMOs** could offer excellent maternity and well-baby care in the hopes of attracting otherwise healthy young families into their plans.

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **Similarly**, they could offer abundant preventive services, expecting that those who value such services prefer to keep themselves healthy and out of the hospital.
- **HMOs** might offer a tie-in sale with their health insurance plan—for example, enroll in the **HMO** and receive a substantial discount at a local gym.
- Indeed, recently, some **HMOs** have begun giving “**health credits**” to members who undertake healthy activities.

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **While these could be efforts to keep people out of the hospital, they could also be efforts to attract people with healthy lifestyles.**
- **Perhaps those who are less prone to exercise will see these offers as wastes and not join the plan.**
- **HMOs may choose their panel of providers such that there are an abundance of primary care physicians but very few specialists.**

# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **The theory may be that** an individual with chronic health problems probably has an ongoing relationship with a specialist, and if that specialist is not in the HMO’s panel of providers, the consumer is less likely to join.
- **Obviously**, the foregoing discussion of using prior utilization as an indicator of favorable selection rests on a presumption of some persistence of behavior.



# UNDERWRITING AND RATE MAKING

## “HMO Effect” vs. Favorable Selection

- **In the absence of changes in incentives, two factors are likely to influence the persistence of healthcare usage.**
- **The first has to do with the chronic versus random nature of personal health status.**
- **If a person’s illnesses or injuries are largely random, that would suggest that particularly high or low utilization in any one year is an unusual event and that the individual would quickly revert to the average level of utilization.**

# UNDERWRITING AND RATE MAKING

## **“HMO Effect” vs. Favorable Selection**

- **If the conditions are chronic, it suggests that utilization will continue at an elevated level for some time.**
- **The second factor is behavioral. For a given health condition and set of prices, one individual may seek care, and another may not.**
- **The former will be a persistent higher utilizer; the latter will be a persistent lower utilizer.**

# UNDERWRITING AND RATE MAKING

## Favorable Selection or Selection Bias

- **Selection bias** occurs if those who enroll in **HMO's** are either more or less likely to use health services after adjusting for factors used to set rates (e.g., age, sex, and health status).
- **If after adjusting for factors** used to set rates healthier people join an **HMO**, then the **HMO** enjoys favorable selection.

# UNDERWRITING AND RATE MAKING

## **Favorable Selection or Selection Bias**

- **If after adjusting for factors used to set rates sicker people join an HMO, then the HMO experiences adverse selection.**
- **Within each group of enrollees charged the same rate, HMO's and traditional insurers desire enrollees who use fewer services.**

# UNDERWRITING AND RATE MAKING

## Favorable Selection or Selection Bias

- There are reasons why high users of medical services within each category might want to join an **HMO** (e.g., **HMO's** generally provide more comprehensive benefit packages) and some reasons why they might prefer to seek care in the **fee-for-service system** (e.g., high users of medical services often have close contact with physicians that they may be reluctant to give up).

# UNDERWRITING AND RATE MAKING

## Favorable Selection or Selection Bias

- **Efforts to increase HMO enrollment** assume that HMO's achieve at least some of their cost savings as a result of increased efficiency and not solely because they treat a healthier population.
- **If the latter were true**, then increased HMO enrollment would not lower health care costs.

# UNDERWRITING AND RATE MAKING

## Favorable Selection or Selection Bias

- **It is important to distinguish between** discussions of adverse selection in conventional insurance markets and biased selection in HMO markets.
- **Adverse selection in conventional markets results from** commodities exchanged, where the buyer and seller possess different information about the characteristics of a commodity.
- **For example,** adverse selection in the health insurance market exists if better risks are attracted to less comprehensive insurance plans and the insurers cannot distinguish risk levels.

# UNDERWRITING AND RATE MAKING

## Favorable Selection or Selection Bias

- **Biased selection in HMO's** can come from either insurer selection or consumer choice.
- **If healthier people** within each rate category join an **HMO**, biased (favorable) selection into **HMO's** would exist.
- **In this situation**, it is not clear whether or not inefficiencies exist because of favorable selection. **People choose health plans based on the attractiveness of the health plan (i.e., utility).**



# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **All we do is create a number of risk pools or risk classes. Each one has an expected loss that is meaningfully different from the others. Each has a very small dispersion of possible outcomes, and each has a large number of covered lives!**
- **We might start by establishing differences based on gender and age on the theory that older people have higher claims experience, perhaps due to the prevalence of chronic conditions.**

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **Women have higher claims experience in their younger years, based on childbearing, but have lower experience later.**
- **We might want to establish different risk classes based on occupation or industry.**
- **Those who choose more-dangerous occupations may also engage in more-risky activities outside the job setting.**

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **We could also create different risk pools based on geography, given different disease patterns across areas.**
- **Moreover, providers may charge different prices based on local market forces, and regulatory constraints may influence the nature of coverage that is offered across regions.**
- **Finally, we may wish to establish different risk pools based on health status.**

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **The problem for insurers is that**, while the differences in expected claims across these groups may be meaningful, there is also dispersion around each of the expected claims estimates.
- **In addition**, some potential risk classes may be too small to provide much assurance that the expected claims and dispersion measures are reliable.

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **In addition to establishing reliable risk pools**, insurers have to be concerned with the cost of acquiring data on potential members of the health plan.
- **Such data are used to place an applicant** in the proper risk class. In the nongroup market, it may be simple to use a driver's license to establish age, gender, and place of residence.
- **Obtaining information on health status** or family medical history, however, may be much more problematic.

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- Insurers could insist that the applicant go to his or her physician and have a physical and medical history completed.
- **Alternatively**, they might request that the applicant make an appointment with the health plan's physician.
- **Both of these are very expensive means of collecting data.** In the former case, the consumer incurs the cost of the doctor visit, raising the full price of the coverage. In the latter case, the insurer incurs the cost, again raising the cost of the coverage.

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **Alternatively**, insurers can simply ask applicants to identify any health problems—for example, “Do you smoke?” “Do you have heart disease?”
- **The problem is that applicants have an obvious incentive** to portray themselves as being in perfect health.
- **One-way insurers can deal with this** is to ask those questions but reserve the right to deny coverage if it is subsequently discovered that the applicant has lied.

# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **Thus, the insurer would take the application, but if the subscriber subsequently submits a claim related to chronic obstructive pulmonary disease (COPD), the insurer will investigate, and if it discovers that the applicant was a smoker, it would deny payment of the claim based on a fraudulent application.**



# UNDERWRITING AND RATE MAKING

## Nature of Underwriting

- **In general**, we expect insurers to collect data for underwriting only to the extent that the information is relevant to meaningful differences in **expected claims experience** and sufficiently inexpensive to collect so that the collection costs are less than the savings from knowing the information.

# UNDERWRITING AND RATE MAKING

## Approaches to Rating

- **There are essentially three approaches to determining the rate or premium to charge an individual or group: community rating, manual rating, and experience rating.**
- **The industry and public policy uses of these terms, however, are not standardized.**

# UNDERWRITING AND RATE MAKING

## Approaches to Rating

- **For example**, there are “adjusted community rating” or “community rating by class,” both of which are closer to manual rating than community rating.
- **Local governments may often mandate** that an insurer must “**community rate**” and then define that to permit differences by age, gender, and location, but not health status.
- **This, too, is closer to manual rating than community rating.**

# UNDERWRITING AND RATE MAKING

## Community Rating

- **Community rating** is eminently straightforward. All individuals and/or all groups are put in a single risk pool.
- **This is the approach** to rate making that proponents of **universal health insurance** plans sometimes advocate.
- **The rate-setting framework is simple.**

# UNDERWRITING AND RATE MAKING

## Community Rating

- **Insurers compute the actual claims experience per covered life for the recent past and project that value forward to account for general inflation and anticipated changes in real medical care costs and patterns of utilization.**
- **They then add the costs of running the plan, a normal profit, and a contribution to reserves in case the utilization experience is worse than anticipated.**
- **The actual premium will also reflect the nature of competition in the local health insurance market.**

# UNDERWRITING AND RATE MAKING

## Manual Rating

- **Manual rating reflects** the traditional role of underwriting in the insurance industry.
- **Insurers seek to identify characteristics** of individuals or groups that are associated with higher or lower claims experience.
- **In the individual market**, such factors as age, gender, location, occupation, and health status may be used.

# UNDERWRITING AND RATE MAKING

## Manual Rating

- **In the group market**, the mix of employees and dependents with those characteristics may be used, as well as **firm-specific factors**, such as industry.
- The term *manual rating* is derived from the practice of insurers in pre-computer days of constructing rate manuals that contained pages for specific risk characteristics.

# UNDERWRITING AND RATE MAKING

## Manual Rating

- **Manual rating is used extensively in the individual nongroup market and to some extent in the small-group market.**
- **You can go to the Insurance websites and provide your zip code, age, gender, and whether or not you smoke, and get a preliminary rate quote for several policies with varying degrees of coverage.**



# UNDERWRITING AND RATE MAKING

## Experience Rating

- **Experience rating bases the premium on the prior or current claims of a group.**
- **There are two generic forms: prospective and retrospective experience rating.**
- **Prospective experience rating occurs when insurers examine the past claims experience of a group and develop a premium on that basis.**

# UNDERWRITING AND RATE MAKING

## Experience Rating

- **Retrospective experience** rating is a much simpler approach than prospective experience rating and is more commonly used with larger firms.
- **Essentially, the insurer has the firm** open a checking account from which the insurer writes checks to pay the claims of the firm's employees and their dependents as those claims arrive.
- **In addition**, the insurer charges the firm a fee to administer the plan and adjudicate the claims.

# UNDERWRITING AND RATE MAKING

## UNDERWRITING AND RATE MAKING

- **A premium**, in the context of insurance, refers to the amount the **policyholder** must pay to be insured.
- **Depending on the policy**, it must be paid every month, every quarter, bi-annually, or annually. It may also be paid in one single lump sum payment.
- **In essence, the premium is the cost of being insured**, or the amount paid so the insurer covers the risks stipulated in the contract.

# UNDERWRITING AND RATE MAKING

## UNDERWRITING AND RATE MAKING

- **Health insurance policies are categorized under several classifications like individual health insurance, group health insurance and family floater health insurance.**
- **The purposes that these policies serve is evident from their names itself. For instance, individual health insurance policies offer **Mediclaim benefits** to the individual who is the policyholder, while group insurance is **tailor-made** to enable employers to extend health insurance benefits to their employees.**

# UNDERWRITING AND RATE MAKING

## UNDERWRITING AND RATE MAKING

- **On the other hand**, a family floater plan is customized to protect an entire family from emergency medical situations and diseases.
- **Evidently**, the salient features and benefits offered by these health insurance plans are usually similar and often overlap.
- **As a result**, insurance companies have to design them very carefully, weighing each term and condition on policies minutely and ease out the possible risks.
- **After analyzing these factors**, insurance companies decide the reasons and parameters on which it can accept and reject coverage applications.
- **These precautions enable them to avoid any scope of losses.**

# UNDERWRITING AND RATE MAKING

## UNDERWRITING AND RATE MAKING

- **Premiums are computed by actuaries** who are experts in determining the likelihood of a person filing claim on the basis of several factors that depend on the exact type of insurance and the coverage provided.
- **For instance**, this may include **age, health status, and family medical history** for health insurance products.

# UNDERWRITING AND RATE MAKING

## UNDERWRITING AND RATE MAKING

- **Once the policyholder starts paying the premium, the insurance company becomes liable for claims and benefits.**
- **This is because premiums are regarded as part of the income of an insurance company.**
- **Premiums that are unpaid consecutively multiple times may constitute valid grounds for the **cancelation or termination** of the insurance contract in favor of the insurance company.**

# UNDERWRITING AND RATE MAKING

## Premium Computations

- **The amount you pay in premiums can be affected by a number of factors.** Even if two individuals are enrolled in the same health plan, they may still pay different premiums rates. Your health and lifestyle can be factored into the amount you pay for health insurance.
- **When calculating premiums,** insurers begin with the “pure premium” or “actuarially fair premium” and adjust it for the costs of risk bearing and administrative cost of running the insurance plan.



# UNDERWRITING AND RATE MAKING

## Premium Computations

- The “**pure premium**” or “**actuarially fair premium**” is simply the **expected claims** experience, or the **expected benefits** an insured person might get during time period of the policy.
- The costs of risk bearing and administrative cost of running the insurance plan is called a **loading fee or a loading percentage**.

$$\text{Gross premium} = (1 + \text{Loading Fee}) \times \text{Expected Benefits}$$

# UNDERWRITING AND RATE MAKING

## Premium Computations

- **The loading fee or percentage is the markup the insurer applies to cover its objective risk, profit, and costs of marketing, adjudicating and processing claims, coordinating benefits, and providing access to its network.**
- **The size of the loading percentage varies between group and nongroup markets.**

# UNDERWRITING AND RATE MAKING

## Premium Computations

- **Obviously, the size of the loading percentage is going to depend not only on the actual marginal costs of running the insurance plan but also on the nature of the competition the insurer faces.**
- **Loading as a concept, thus, comes into play when an insurance company is dealing with a high-risk candidate, and “is resorted to by insurance companies in cases where the risk to the individual is higher than in ordinary circumstances.**

# UNDERWRITING AND RATE MAKING

## Premium Computations

- **This can be due to medical history, a dangerous job, or a hazardous pastime.**
- **The health insurance loading fee represents the portion of the premium above the expected amount of medical care expenditures paid by the insurance company.**
- **The size of the loading fees and how they vary by employer group size have important implications for health policy.**

# UNDERWRITING AND RATE MAKING

**Premium eligibility for a health insurance plan is determined by several factors:**

- **Number** of individuals the health cover is for
- **Age** of the individual(s)
- **Tenure** of the health policy
- **Type of coverage**, sum insured and rider(s) opted for
- **Hereditary** medical conditions
- **Presence** of pre-existing illnesses
- **Gender** – women are eligible for lower premiums than men
- **Field of work** or profession
- **Marital status**
- **Location of residence**

# UNDERWRITING AND RATE MAKING

## Premium Computations

- **Factors Affecting Health Insurance Premium:**  
**Marketing Expenditures:** A substantial capital is allocated for effective marketing initiatives.
- **This amount generally comprises** of the premiums collected from policyholders.
- **This is required for formulating insurance policies,** company operations and then executing marketing strategies like advertisement, brochures, etc.

# UNDERWRITING AND RATE MAKING

## Adjusted Community Restrictions

- **Premiums** based on health history or preexisting health conditions of insured individuals are not allowed in many countries.
- **However**, some countries may allow the use of a modified or adjusted community rating by class, which can consider the following factors:
  - **Age**
  - **Family Size**
  - **Geographic Area**
  - **Tobacco Use**

# UNDERWRITING AND RATE MAKING

## In conclusion

- **Underwriting is the process of identifying the characteristics of individuals or groups that reflect differences in expected claims, using that information to establish insurance pools with common risk, and matching new applicants to the appropriate risk.**
- **Underwriting focuses on objective risk and depends on the expected loss, the dispersion of possible losses, and the number of covered lives.**



# UNDERWRITING AND RATE MAKING

## In conclusion

- **Community rating** essentially puts all members of the community in a single risk pool.
- **Manual rating** establishes rates based on characteristics of the individual or group. Adjusted community rating and community rating by class are examples of manual rating approaches that HMOs use.
- **Experience rating** bases the premium on the prior or current claims experience of a group. With prospective experience rating, the insurer continues to bear the underwriting risk. With retrospective experience rating, the group itself bears some or all of the risk.

# UNDERWRITING AND RATE MAKING

## In conclusion

- **Self-insured groups are conceptually** no different than retrospectively experience-rated groups but have the advantage of not being subject to state insurance laws due to ERISA preemption.
- **If an insurer combines dissimilar risk groups** or if it is forced to do so by state or federal law, the effect is to raise the premium on the low-risk group and lower the premium on the high-risk group.
- **Those facing now higher prices are likely to** disproportionately drop out of the plan, and those facing now lower prices are likely to join.



*THANK*

*you*