INTRODUCTION

The beginning of Life insurance medicine can be traced back to the 13th century. In India writings of Manu (Manusmriti), Yagnavalkya (Dharmsashastra) and Kautilya (Arthashastra) talk in terms of pooling of resources that could be redistributed in the times of calamities such as fire, floods, famine or any other catastrophe.

Presently in India there are both private and government companies which carry out the business of insurance.

The foundation of life insurance is the recognition of the value of a human life and the possibility of indemnification for the loss of the value.

The aim of insurance is to cover financial consequences (economic loss) of Death (life insurance) and also those of serious illness (critical illness), work related disability (Total permanent disability), medical and hospital treatment (Health insurance).

The assessment of an applicant for an insurance policy is done by the process of underwriting. Underwriting is the process of choosing who and what the insurance company decides to insure in an equitable way based on sound principles of risk assessment. Medical underwriting is the term which refers to the use of medical information in evaluation of the applicant to decide either to offer or deny cover (insurance) and if the case is substandard, decide in which risk category the applicant falls. Risk factors include build, blood pressure, DM, smoking, family history, lipids, occupation, hobbies and other significant medical impairments.

The underwriter carries out the process of risk selection, risk assessment and risk classification based on certain norms decided by the co-operative effort of the actuaries, medical directors and underwriters of that company. The object of this risk classification is that each person must pay a premium in proportion to the risk (brought into the group by the applicant) in order to maintain equity among all policy holders.

Risk appraisal is done by estimating Mortality risk, based on experience tables prepared by actuaries and calculated by the following equation:

\[
\text{Mortality ratio in } \% = \frac{\text{Observed deaths} / 1000}{\text{Expected deaths} / 1000} \times 100
\]

Normal or standard mortality is determined as 100%. Individuals who have a health impairment which is likely to affect life expectancy are compared to experience tables to assess for degree of extra mortality.

This extra mortality is quantified as a Rating (extra amount of premium proportionate to the amount of excess mortality risk involved). If the mortality risk is found to be substantially high, the risk may be postponed (in case the risk is of a kind where it can reduce with passage of time and treatment e.g. high BP), or even declined (where risk is very high and will remain static or increase in the future).
This is important as no amount of extra premium would be sufficient to take care of the very high extra mortality.

To be consistent in evaluation of the risk presented by medical factors, insurers and reinsurers use evidence based ratings derived from:

• Clinical studies in medical literature done on that impairment or disease, these studies generally compared the relative mortality experience of impaired people to that of healthy people and have revealed mortality patterns by age, sex and other factors.

• Current medical opinion on prognosis depending on the treatment given /available.

• Insurance company’s mortality experience

The rating or Extra mortality EMR is calculated by various methods e.g. Numerical rating. This process will differ depending on which product the applicant is being assessed for i.e. either for Life plan, Critical illness plan, for health insurance or for disability cover.

INSURANCE MEDICINE

It is the application of science and art of medicine to assessment of life and health insurance risk. It is in the area of risk assessment that medical experts have a role to play.

Physician’s role in insurance:

1. As a Clinician:
   • Examining applicants for life and health insurance.
   • Providing inputs about a particular applicant’s medical history when requested for by the insurance company (after obtaining the necessary permissions). This may be at the application stage or at the time of claims.

2. As a Medical consultant with an insurance company:
   • Providing help in underwriting of complex medical cases by evaluating medical evidence available, asking for more information or investigations if necessary and assessing the possible extra mortality /morbidity expected.
   • Reviewing appropriateness of medical claims.
   • Giving inputs in new product design.
   • Carrying out training of underwriters/Claims assessors in medical topics.
   • Helping in setting up underwriting standards and be involved in Evidence based research.
   • Full time consultants act as liaison between clinicians and the insurance companies and also carry out multiple administrative roles.

To carry out these activities it is necessary for the physician to have basic knowledge of non-medical topics like general principles of insurance, statistical fundamentals for mortality and morbidity analysis, legal significance of product conditions etc.

Clinical experience is essential as there is need for comprehensive knowledge of clinical conditions, effectiveness of current therapies and awareness about new developments in the field of medicine.

INSURANCE MEDICINE IS DIFFERENT FROM CLINICAL MEDICINE.

Time horizon

The clinician focuses on an individual patient with an aim to come to a diagnosis and has the liberty to ask the patient to follow up; he can decide on the significance of an abnormal finding on clinical examination or investigation by asking the patient to follow up. So the time horizon for making a decision is now or in the near future.

In insurance medicine, the focus is on risk profiling and it is a onetime decision based on available evidence at the time of application for insurance in the form of medical examination, investigations done and the past and present health status details available. The time horizon here is 10, 20 yrs or even longer.

So conclusions drawn about a set of medical findings will be different as time horizons are different.

E.g. An applicant with a history of Coronary artery disease would in insurance medicine be assessed on the basis of:

• How much myocardium is already lost and is the heart able to maintain adequate cardiac output?

• How much myocardium is at immediate risk or what is the “Present ischemic burden “and what is likelihood of progression of CAD in the future?

Coronary angiography has traditionally been accepted as the gold standard for measuring the severity of coronary artery disease. A stenosis of >70% (or >60%) is considered a hemodynamically significant stenosis because it can cause a reduction in blood flow and possible angina.

However most investigations routinely done may not help in determining how a particular plaque will behave and a plaque causing < 30% stenosis in for e.g. mid LAD if asymptomatic would warrant only medical management. This plaque if unstable can rupture and needs to be considered while rating in insurance medicine.

• Presence of electrical instability in the form of arrhythmias or risk factors pre-disposing to CAD either poorly controlled or non modifiable would also be red flags in insurance medicine. This is especially true as" If noth-
ing changes from what led to disease onset in the first place - there is no reason to expect that things will not proceed in the same way.”

The clinician can counsel the patient, cajole him to take appropriate medications and make lifestyle changes over a period of time. However assessment of extra mortality is a onetime decision and so all the above factors as assessed at the time of application will play a role in the final rating.

**Survival and mortality ratios**

Another major difference to be noted is that the clinicians evaluating clinical studies look at survival rates whereas the insurer is looking at mortality rates, thus both have a diametrically opposite view point of the same set of numbers. This can be seen while assessing conditions like congenital heart disease.

A mortality rate of 1-2% in 5-10 yrs in young children would be considered a good result for certain congenital heart lesions, but calculated mortality ratio would be higher as there are very few deaths in the normal population for these ages.

e.g. In a clinical study of 1000 patients with some impairment are observed over 1 year,

990 actually survive when 996 were expected to survive according to given standard mortality table

Clinical view: Survival ratio in % = 990/996 = 99.2% ...... Excellent results

Insurance view: Mortality ratio in % = 10/4 x 100 = 250% ...... Substandard results.

**Need for better communication**

There is a need for increased interaction between the clinician and the insurers whether it is while examining an applicant for insurance purpose, or helping out a patient for claiming his insurance benefit related to death, critical illness (e.g. Cancer, MI) or health related expenses (hospitalization, surgeries, procedures etc). With a basic knowledge of insurance medicine the clinician can ensure an equitable decision for his patient.

Health insurance is a field which is growing by leaps and bounds. The Government has a relatively smaller role to play in managed health care due to lack of resources and almost all Indians need private treatment. Health care boom may however be dented by poor medical certification, variable billing and non-standardization of hospital services. There is also significant non disclosure of pre-existing medical diseases during application stage. The above factors with lack of reliable actuarial data from present health schemes have resulted in premiums of health insurance skyrocketing.

The lack of communication and inadequate knowledge of each other’s problems has resulted in a chasm between the medical fraternity and the insurance companies. Better understanding of the fundamentals of insurance medicine would be a step towards bridging this gap. The physician can thus play a stellar role in shaping of an effective health care system.

**REFERENCES**

1. IRDA site: irda.gov.in
5. Core Body of Knowledge for medical directors: A AIM website: aaimedicine.org