

NUMERICAL RATING METHOD

The Numerical Rating Method is a systematic procedure for assessing the value of risk, which is based on two practical rules, described earlier viz., the “hypothesis of unchanging extra mortality” and “addition of specific rates of extra mortality for various impairments/factors.”

For this purpose a sub-standard life may be described as on, which presents a special hazard in respect of one or more of the following factors of insurability.

- 1. Family medical history**
- 2. Personal medical history**
- 3. Present condition of health and habits including build**
- 4. Occupation**

In addition to the above, the assurance plan and amount of insurance also have a bearing on the value of the risk, in view of the possibility of adverse selection. Further, the place of residence, race and nationality of the life to be assured play a role in selection of risk. The question of moral hazard has also to be given due weightage.

Under the numerical rating procedure the value of any special hazard in respect of each of the above factors is measured in terms of an appropriate extra mortality ratings and the extra mortality rating for various factor are then combined to arrive at the value of the risk as an extra mortality.

The extra mortality ratings for various common impairments are obtained on the basis of the results of large-scale Medical Actuarial investigations, which have been carried out in Europe and United States of America. The statistics have to be interpreted and adopted for the use of insurance underwriters after taking into account the condition in which the investigation was made and allied medical and demographical statistics and clinical experience of medical practitioners dealing with insurance, etc. The extra mortality ratings so modified are incorporated in comprehensive handbooks prepared by each large re-insurer, which are known as the Rating manuals. These rating manuals have to be updated frequently in the light of most recent statistics and progress in medicine and surgery and of each company’s individual experience.

The next stage is to translate the extra mortality into an extra premium necessary to compensate there of. For this purpose regularly scaled extra mortality classes are used. The classes, defined by the range of extra mortality, are as follows:

Class	Extra Mortality	Class	Extra Mortality
I	20 to 35%	VI	175 to 225%
II	40 to 60%	VII	230 to 275%
III	65 to 85%	VIII	280 to 350%
IV	90 to 120%	IX	355 to 450%
V	125 to 170%	X	455 to 500%

Generally, the extra mortality rating is rounded off to the nearest 5% point and overall extra mortality rating of less than 20% is ignored. After determining the extra mortality class the extra premiums required for that particular mortality class can be read from the Tables of Extra Premiums Prepared for each plan of assurance.

2. ADVANTAGES OF THE METHOD

The main advantage of the method lies in the manner in which it enables us the use to be made directly of the results of the various Medico-Actuarial investigations and reduced the operation of the subjective factor in the underwriting of risk to a minimum. In its turn, by helping the assurers to evolve a uniform underwriting procedure and classify the risk in identical groups, it facilitates the work of building up of new statistics. The basic ratings are continuously reviewed in the light of up-to-date trends in insurance medicine.

The method ensures that no factor is overlooked. It makes possible uniform assessment either by several underwriters or by the same underwriter at different times. Difficult and doubtful cases can be analyzed more carefully and with greater confidence. It enables business to be handled with a greater speed. In reviewing a case we may easily see how the decision was arrived at.

It is important to realize that contrary to the criticism that has been leveled against it, the numerical rating method is far from being mechanical in its application. The individual judgement, knowledge, experience of the medical officer and the actuary has considerable scope at the stage when the statistical data are interpreted to build up the rating manual. In many cases the rating manual gives only a range of debits (e.g. 25-50%) against certain impairments, and the actual rating depends on the underwriter's judgements regarding the several of impairment and other correlated aspects of the risk. Ratings have often to be modified by taking into account the interaction of various aspects of the risk, and in particular, the probable influence on the risk of the occupation, habits, mode of living, socio-economic status, moral hazard etc., Due weightage may also have to be given to factors like the conscientiousness and the competence of the medical examiner and the agent. The numerical ratings arrived at can be only be regarded as a guide, and the selection of risk depends to a considerable extent on the individual judgement and skill of the underwriter.

3. LIMITATIONS

The numerical rating method will not be extended to assess the occupational hazard and the extra risk resulting from certain standard impairments such as the following:

1. Defects and deformities such as amputated arms and legs, partial or total blindness and deafness, mutism, undescended testes, cleft palate, clubfoot etc.
2. Standard impairments such as hydrocele, bleeding piles, caesarean section etc.

The total extra to be charged for a given case will be obtained by adding together the extra premium (wherever applicable) for the health/ physical impairment to which the numerical

rating method has been applied with extra premiums for occupation and/ or other standard impairments if any.

4. ILLUSTRATED EXAMPLE

A. Underwriting data

Date of proposal: 3.5.2002, Plan 14-20, Sum proposed: Rs one lac
 Age: 30 years (by Std Age Proof), Occupation: Business,
 Build: Height 167 cms, Actual weight: 85 kgs, Standard weight 58.3 kgs,
 Chest 98-103 cms, Abdomen 106 cms

Personal condition:

- i. B.P. 130/80 mm/hg
- ii. Power of glass in left eye – (-) 8,
Ophthalmic Questionnaire does not reveal any other adverse feature
- iii. No other adverse feature

Personal History:

Operated for Piles in 1998 – now completely cured.

Family History

Relation	Living		Dead		
	Age	Health	Age	Cause	Year
Father			55	Heart attack	1995
Mother	60	Good			
Brother			36	Renal disease	2000
Sister	34	Good			
Wife	27	Good			

B. ANALYSIS

Overweight $(85-58.3)/58.3 = 46\%$
 Excess of abdomen over expanded chest (3 cm)
 Credit for short-term Endowment

Ratings

+50
 +20
 -10

Personal condition:

Power of glasses in left eye – (-) 8

Rs. 2% 0

Personal History:

History of operation for piles is to be ignored.

Family History:

1. Rating for Longevity:
 Father's death to be ignored as it is at age higher than maturity age

Brother's very early death due to renal disease – debit +5

2. Rating for heredity Disease

Two deaths before age 60 from Cardio – vascular,
Renal disease (Father, Brother) +20

B. Assessment :

	Factor – Particulars	Mortality Ratings
1.	Build – Over weight – 46 %	+ 50
2.	Excess Abdomen 3 cm	+ 20
3.	Personal History (Piles)	0
4.	Family History – Deficient longevity	+ 5
5.	- Cardiovascular renal disease	+ 20
	Plan credit for overweight	- 10
	Total extra mortality rating	+ 85
	Extra Mortality Class	Class III
	Extra Premium per thousand SA	Rs. 1.20%0
	Standard Extra left eye vision – 8	Rs. 2.0 % 0
	Age proof extra	0
	Health Extra	N.A.
	Total Extra Premium	Rs. 3.20 %0