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New Actuarial Concepts

Health Expectancy: A Different Look at the Future

by James C. Brooks, Jr.

A new actuarial concept has emerged on the scene in the practice of personal actuaries. It is known as “health expectancy” and is an actuarial determination of the healthy portion of an individual’s future lifetime. This article will examine some of the underlying reasons for this new development, some alternative approaches to developing this measurement and some of the powerful potential uses of this new tool.

Imagine you are in your 40s or 50s. What would change in your planning if you knew you had a significant probability of living to an advanced age—even beyond age 90? Suppose you also had an idea of what portion of your remaining lifetime would be healthy years. You might consider at least some of the following:

- How to change some habits or alter your lifestyle in order to have even more years of good health
- Whether or not full retirement makes sense or if a second career would be more fulfilling
- How to ensure your financial health with this longer time horizon
- What activities, travel, hobbies, etc. are the most important as you consider making your future life one of significance in terms of your values

Recognizing the significant improvements in mortality reflected in the first new industry mortality tables in over 20 years, health expectancy has been developed to help individuals have a starting point for considering these important questions.

Measuring Health Expectancy

Health expectancy really separates the traditional life expectancy measure into “years healthy” and “years sick.” Therefore, it is critical that the underlying mortality table be as reflective of current mortality levels as possible. Often, mortality tables constructed for company use in valuation, or even pricing of products, have margins for conservatism added, or are artificially sloped at older ages due to a paucity of data. While this is certainly understandable, personal actuaries attempting to measure health expectancy must carefully consider the impact on the underlying real mortality, as overstating the mortality rates at older ages can lead to dramatic understatement of health expectancy. Finally, it is critical to have separate mortality rates by sex and smoker/non-smoker.

Another unique aspect of health expectancy is that it is meant to be specific to a particular individual. Now, we have not traditionally thought of life expectancy in that way and we do not really mean that it is possible to get a good probabilistic measure for one person. We do, however, take account of the person’s known medical condition in measuring health expectancy. So, some underwriting of the individual is done to determine the proper “rating class” for the person. At a minimum, the individual is asked for a list of known ailments, described in his or her own words. At the other extreme, and depending on the use to be made of the measure, medical records may be reviewed (with proper releases, etc). So, health expectancy is still, in reality, a measure of the average future healthy lifetime of a homogeneous group of persons,

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all similar to the individual in question. As an aside, it is the opinion of the author that failure to do this type of “underwriting” is a major flaw of many of the life expectancy calculators that are out on the Internet. (The other is the use of outdated mortality tables.)

The next important consideration in developing an approach to health expectancy is to define what is meant by “healthy.” Some possibilities include:

- Not suffering from any of a defined list of critical illnesses such as the list often insured against in critical illness policies.
- Able to obtain life insurance at standard rates.
- Not totally and permanently disabled as defined, for example, by eligibility for Social Security disability benefits.
- Not in need of assisted living or skilled nursing care as defined in most of today’s LTC insurance policies.

The choice will depend on the availability and credibility of the statistical data available.

The actuarial firm of Bragg Associates in Atlanta, Georgia, has pioneered the initial development of health expectancy. Their version of the measure separates the life expectancy into three pieces—years

healthy, years needing assisted living and years needing skilled nursing care. The chart below shows the result for an actual case of a female non-smoker, age 78, with Type 2 diabetes.

FEMALE 78 NS

Years healthy	6.9
Years in need of assisted living	2.8
Years in need of skilled nursing care	2.9
Life Expectancy—to age	91
% of people who are healthy at that age	49.6

Note: Periods shown are not necessarily sequential; they can be spread over the entire life expectancy. No projection of future mortality or morbidity improvements is made.

Source: Bragg Associates, Atlanta, Georgia

With the proper underlying morbidity statistics, it is a straightforward exercise to construct a model for health expectancy that will produce incidence rates and recovery rates in addition to prevalence rates by age.

Some Useful Applications

The potential application of health expectancy in personal financial planning is substantial. Health expectancy presents new realities about an individual’s future. It provides “actionable intelligence.” It should be helpful in addressing the need for LTC insurance, use of medical savings accounts and/or other methods of funding the “sick” periods. It also gives useful information for planning asset strategies and activity strategies for the healthy period. Finally, since individual circumstances do change (as do general mortality levels) over time, health expectancy can be reassessed for an individual as part of the regular reviews that occur in any such planning process.

Employers should find it useful in planning for post-retiree health care costs. Health care professionals will find it a useful tool in dealing with managed-care challenges. In addition, health expectancy has the potential to be a major boost to the design of new financial services products that better fit the realities presented and to the sale of those products whether that be in the worksite, to seniors, to members of affinity groups or to prospects of individual distributors.

Outside the financial services industry, one can imagine significant applications in the legal profession (for divorce cases, structured settlements, etc.),



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the pharmaceutical industry (for planning and distribution of prescription medicines for the “sick” periods) and for assisted living facilities, nursing homes and continuing care retirement communities (CCRC’s) for modeling and projection of average stays, etc.

Conclusion

Mickey Mantle, the famous baseball star, once remarked, “If I knew I was going to live that long, I would have taken better care of myself.” Health

expectancy helps remove that uncertainty and to draw attention to the opportunities and options for living well for decades to come. Choices made today will bring even greater rewards for personal satisfaction and financial security. Clearly, health expectancy is an actuarial measurement and is within the purview of our expertise. It is a perfect example of how the actuary of the future will need to think and act to maintain his or her value in a changing world. 🗑️

Where’s the change?

Update from Strategic Planning

By Mike Kaster

What does it take to change a profession? Recently the SOA’s Strategic Planning Committee (SPC) has been exploring this question in depth. One thing is certain—change never comes easy, especially for a profession filled with individuals who are, for the most part, risk averters. To make a change in your own personal career is difficult enough as it is. I have made several changes in my own career. None of them were easy to make, but in the end each one helped me take another step forward.

This is similar to where we find our profession. Our traditional roles and our traditional industries are not growing as they have in the past. The life industry continues to experience consolidation, resulting in fewer and fewer actuarial roles. The health industry is facing considerable cost pressures, which has left actuaries searching for new ways to add value to the system’s stakeholders. The pension field is in its own crisis, with the future of the defined-benefit plan in serious question. Not only are traditional opportunities within these markets declining, roles in risk management and investments within traditional firms are being infiltrated by other professionals, including those obtaining credentials from the Global Association of Risk Professionals (GARP) and the Professional Risk Management International Association (PRMIA). In short, we, as a profession, can no longer rely exclusively on traditional roles and markets for employment opportunities. This has been the conclusion of the SPC.

So, if our profession and the skills we bring to the table are to remain vibrant, it is essential that

we explore new arenas for possible application of the actuarial skill set. The leadership of the SOA has determined that we should support growth of the profession into new industries and fields. This will help us to continue to remain vibrant and relevant, and for our skills to be desired. Our credentials have value where they are known; our task is to get other fields and industries to discover this value and seek our credentials.

For many years now, the profession has debated the merits of expansion into “wider fields”— those areas perceived to be new ground for actuaries. A special section of the SOA was formed several years ago with the express purpose of helping

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