The Math of LongevityQuest®

*A Creative Way to Translate Health Complexity
into an Understandable and Useful Tool*

By Timothy Pfeifer, FSA, MAAA

*LongevityQuest has developed a creative and understandable way for consumers to benchmark their current health against that of the general population. This tool involves the use of rigorous longevity and mortality data that has been calibrated to actual experience of both insured lives (those who have undergone a health evaluation for life insurance) and the general population. LongevityQuest customers consent to a rigorous records search for prescription and diagnostic testing information and receive a report that includes a patented ranking system, based upon estimated life expectancy probabilities (**myLQRank**). This routine compares the customer's calculated probabilities with the life expectancy probabilities of others the same age and gender. This method represents a unique balance between scientific precision and general understandability.*

LongevityQuest's process incorporates proprietary methods, including input from MIT and **Exam*One,*®** one of the leading reference labs in the world in relating lab results, prescription information and diagnosis records to expected future mortality. Upon assessing prescription and diagnostic testing information and relating them to an extremely large database of health and mortality experience, LongevityQuest translates the assessment by reflecting an adjustment of a mortality table developed by the Society of Actuaries*.

*The Society of Actuaries (SOA) was formed in 1949 and traces its roots to 1889, built upon European foundations dating back to the probability theory in the mid-seventeenth century. The SOA is one of the largest professional actuarial organizations in the world dedicated to serving 24,000 actuarial members and the public in the United States, Canada and worldwide. Aligned with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations, and the public (visit www.soa.org for more information).

The SOA mortality table used by LongevityQuest is well-accepted and the most recent mortality table used to estimate the future mortality experience of individuals going through current risk evaluation. Thus, it is an appropriate basis for calibrating anticipated future mortality experience. As the SOA periodically updates its mortality tables, Longevity Quest will reflect these updates.

LongevityQuest then develops a future life expectancy for the customer by using sound actuarial calculations at the current customer age and assuming future mortality rates based upon the adjusted actuarial table. I reviewed the calculation of the future life expectancy performed by LongevityQuest and found it to be accurate and in keeping with sound actuarial calculations.

Several different population mortality tables were considered, but the focus for the general population comparative is the mortality experience represented by the U.S. Life Tables produced by the Centers for Disease Control and Prevention (National Center for Health Statistics).

Despite the lack of a smoker/non-smoker differentiation in these CDC rates, they represent the single best source of general population United States mortality experience today. LongevityQuest uses the CDC's future life expectancy to derive a total life expectancy for the general population, by adding the future life expectancy to the current age, which is an appropriate approach. As the CDC periodically updates its mortality tables, LongevityQuest will reflect these updates.

The final step in the process is to develop the patented ***myLQRank,*®** (U.S. Pat. No. 10,580,077) which is the percentile ranking for the customer's total life expectancy, as compared to the general population (50th percentile, or median mortality risk) and two benchmarks from LongevityQuest's modeling method—the Scientific Best (99th percentile, or lowest mortality risk) and Bottom 1% (1st percentile, or highest mortality risk). The approach used by LongevityQuest provides a simple and reasonable way to understand a relative position.

Your LQ Rank: 57th Percentile (Compared to Females Age 36)

Your Longevity Goal: To outlive **90%** of your peers
Current Standing: You are expected to live longer than **57%** of your peers based on available data.
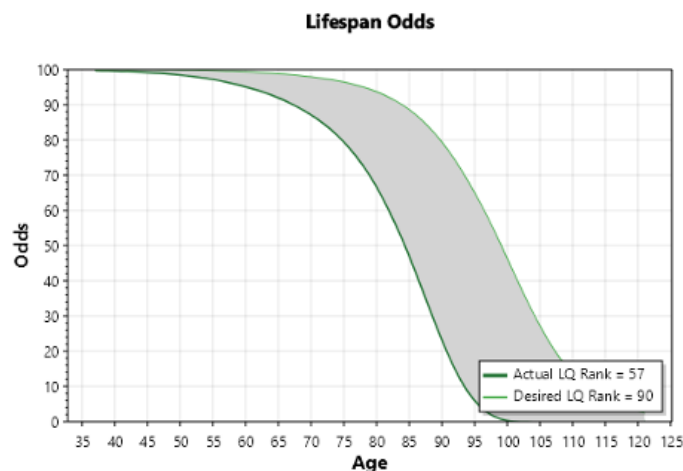
Estimated Longevity Impact Potential: If key actions are taken, you could add up to **~15.1** years to your average lifespan.

SUMMARY

The study of mortality patterns is a sophisticated and complicated science. LongevityQuest has engineered a creative way to translate this complexity into an understandable and useful tool. This creativity is the foundation for LongevityQuest's patent protection with the U.S. Patent and Trademark Office.

The techniques used by LongevityQuest to derive *my*LQ*Rank* are clear, reasonable, and appropriate. Such measures can help LongevityQuest customers better understand their relative health and longevity status.

ABOUT THE AUTHOR

Timothy Pfeifer, *founder of Pfeifer Advisory, has been active in the financial services industry for over 40 years. He has been a consultant to life insurance companies, banks, marketing organizations, regulators, mutual fund companies, and settlement companies since 1986. From 1986 to 1991, he worked at the Chicago office of Tillinghast, a Towers Perrin Company, an internationally known consulting firm, where he became the firm's practice leader in retirement products. In 1991, Mr. Pfeifer was recruited to the Chicago office of Milliman, Inc., the nation's largest actuarial firm, to start a new practice/profit center in the area of life insurance and annuities product and market development. The practice's client base included virtually every major life insurance company in the United States, and most of the major mutual fund families. In 2008, Mr. Pfeifer formed Pfeifer Advisory LLC, whose mission is assisting financial services companies in engagements related to retirement product and life insurance design, market strategy, and innovation. Pfeifer Advisory consults with the majority of the nation's largest life insurers and many asset managers in these business areas. A highly regarded actuary, Mr. Pfeifer is a fellow of the Society of Actuaries and served as a member of the SOA Board of Governors from 1998 to 2001. He is also a member of the American Academy of Actuaries and is a sought-after speaker and author. He can be reached by visiting* **www.pfeiferadvisory.com**

About LongevityQuest®

LongevityQuest encourages and empowers people to pursue a long, good life. LongevityQuest's innovative *my*LQ*Analysis*® reports provide individuals with a patented ranking against others and comprehensive analysis of risk factors that may be subtracting from or adding to your longevity – all from the convenience and confidentiality of home.

For more information, visit our website at mylongevityquest.com or contact us at info@mylongevityquest.com