

THE ORIGIN AND MORTALITY SIGNIFICANCE OF DEBITS AND CREDITS IN THE MEDICAL IMPAIRMENT MANUAL - PART 1



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The job of an underwriter is risk selection: to separate an individual applicant from a broad pool with the same or similar impairments. This is accomplished using debits and, if appropriate, credits. For example, we underwrite chest pain by its probability of being atherosclerotic and a mortality risk by assessing either no debits or following the manual suggestion according to characteristics of the chest pain.

I must emphasize the MIM offers only suggested debits for an impairment. It is not a document written in stone. Each assessed rating must be applicable to the applicant's specific clinical information. Variation from the manual is acceptable, and in fact encouraged, providing one explains the reason for their deviation in the underwriting assessment. Junior underwriters should use the MIM as a training guide and a template for decision making. Senior underwriters and medical directors should have little or no need for the MIM, having obtained the experience to analyze and rate impairments.

All too often an underwriter, even medical director, would say to me, "The manual said this is the rating." The manual is nonverbal; it is only a written suggestion. Final debiting and crediting are the creative responsibility of the underwriter.

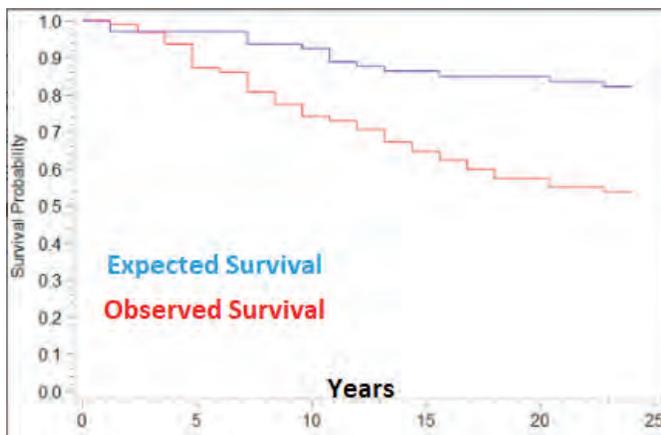
Another factor to consider is the MIM is always out of date. New advances and treatments and their effect on life expectancy are continually being published. The manual must be a living document reflecting the current medical trends. Updates and underwriter training on new advances are critical for your company to be competitive in the current marketplace.

What are debits and what is their origin? Creation of debits and credits begins with the person responsible

Executive Summary *The Medical Impairment Manual (MIM) gives guidance on suggested debits and credits for various medical impairments. In discussions with underwriters and medical directors, it is surprising how few understand the origin and mortality significance of debits and credits and their relationship to life expectancy and premiums. This article, the first of a two-part series, will discuss how debits and credits are derived, numerically what they represent and their relationship to life expectancy. The second part will discuss how the applicant's premium, if the final rating is substandard due to assessed debits, is calculated.*

for the MIM. This individual must be current with the medical literature, researching germane articles presenting population mortality outcomes for different impairments. All too often, creators of the MIM suggest ratings based on limited case experience or bias, which is a disservice to the company, underwriters and applicants. "I saw this or that and the applicant had a premature death" is not evidence based on the law of large numbers. The latter is predicated on looking at the published mortality experience of a large group, all with the same or similar impairment. Certainly, a few individuals in a large, impaired group will have an unfavorable mortality outcome, but the entire group will have an experience which can be objectively quantified and underwritten profitably.

Medical articles in journals present, in graphic form, expected and observed survival curves for various impairments and treatments.



The expected survival curve is smooth and gradual, since large populations die at a steady and predictable rate. The observed survival curve is usually irregular, since deaths can vary by observation periods. By measuring the difference between the expected and observed survival curve trajectories at various time intervals, the survival ratio (observed survival divided by expected survival) can be mathematically calculated.

In life insurance mortality methodology, we conventionally use mortality, not survival. Mortality is the opposite or reciprocal of survival; a 30% survival is

the same as a 70% mortality. As a base line, normal, expected mortality is 100%; everyone eventually dies.

Examining the survival curve shown, at the end of the 25-year observation period, observed survival was about 55% and expected survival about 85%. Conversely, observed mortality would be 45% and expected mortality 15%. Dividing observed by expected mortality (45 divided by 15), the mortality ratio would be 300%. As noted earlier, since everyone in the study is expected to die, we need to subtract 100%. Thus, the excess mortality of the impairment would be 200%.

As a generalization, each 1% increase in the mortality ratio above 100% is equal to one debit. Therefore, the debits for the impairment would be +200, an evidence-based rating.

As with the determination of debits, credits can be calculated by comparing the difference in survival curves between treated and untreated patients. Another estimate of credits can be ascertained from the medical literature that shows the change in likelihood of disease being present based on the favorable change from pre-test to post-test probability after a diagnostic test is normal. Examples of these changes are illustrated in my previous article in *ON THE RISK*.

About the Author

John R. Iacovino, MD, is Medical Director for Life Insurance Consulting Services, LLC. He is Medical Director for Sagacor and Farmers Life Insurance Companies, a consultant for FOXO Technologies, and Senior Physician at Fasano Associates, Underwriting Central in Washington, DC. Previous positions include Vice President/Chief Medical Director of Underwriting at the New York Life Insurance Company and Medical Director at General Reassurance. Prior to entering the life insurance industry Dr. Iacovino was in private practice specializing in Pulmonary Diseases and Hospital-Based Critical Care Medicine. Insurance activities include Past President of the American Academy of Insurance Medicine and a member of the Executive, Mortality and Morbidity and Membership Committees. He was a member of the American Council of Life Insurance Risk Classification Committee and the Medical Information Bureau (MIB) Board of Directors and Manual Revision Committee. The American Academy of Insurance Medicine awarded him the W. John Elder Award for his contributions to the *Journal of Insurance Medicine*, and the Distinguished Physician Award for contributions to the life insurance industry. He is board-certified in Internal Medicine, Pulmonary Diseases and a Diplomate of the Board of Insurance Medicine. Fellowships include the American College of Physicians and the American College of Chest Physicians. Publishing includes over 40 articles relating to mortality aspects of insurance medicine. He has spoken at national and international insurance medicine and underwriting meetings.