

This Week's Citation Classic

Cutler S J & Ederer F. Maximum utilization of the life table method in analyzing survival. *J. Chronic Dis.* 8:699-712, 1958
[Biometry Branch of the National Cancer Institute, Bethesda, MD]

The authors present the rationale and computational details of the life-table method. They describe the advantages of the method in terms of statistical reliability, i.e., the Standard Error of the survival rate, and an estimate of Effective Sample Size. [The *SCJ*[®] indicates that this paper has been cited over 530 times since 1961.]

Sidney J. Cutler

Division of Biostatistics and Epidemiology
Gerogetown University School of Medicine
Washington, DC 20007

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"My co-author, Fred Ederer, and I are gratified to learn that our 1958 paper is frequently cited and are delighted to describe the circumstances of its conception—at 5 a.m. in a hotel room in Cleveland, Ohio. We were involved in the development of a national program of cancer case reporting and evaluation of the results of therapy, sponsored by the National Cancer Institute. In describing patient survival, we utilized the actuarial or life-table method, which makes possible the use of all survival information accumulated up to the closing date of a study.

"In 1959 Fred and I were sharing a hotel room at a scientific meeting. I awoke early one morning with a question on my mind: 'Why is it advantageous to utilize all information at hand; how can the

advantage be demonstrated?' The fact that it was 5 a.m. did not stop me from calling out, 'Fred, are you sleeping? I have a question.'

"Our paper was not a methodological breakthrough. The application of the life-table method to the description of patient survival had been used for a good many years, and had been described by Pearl in 1923¹ and Greenwood in 1926.² Several papers describing and applying the method had been published during the 1950s. It is therefore interesting to conjecture on the reasons for the popularity of our paper. Perhaps it is because we set out to convince ourselves that the life-table method would in fact help extract the maximum amount of information from the data being collected in the newly organized cancer-reporting system. In convincing ourselves, we apparently convinced others.

"The national cancer-reporting system resulted in the publication of a steady stream of papers utilizing the life-table method for describing patient survival. My associates and I published a number of methodological extensions of the life-table procedure. A number of alternative approaches were proposed by others. These varied publications served to bring readers' attention to the basic paper that was published in 1958. In addition, the paper has been used as a teaching tool in schools of medicine and public health. The paper may be cited frequently because many workers in the field learned the methodology through our paper "

REFERENCES

1. Pearl R. *Introduction to medical biometry and statistics*. Philadelphia and London: W.B. Saunders Company, 1923, 379p.
2. Greenwood M. The "errors of sampling" of the survivorship tables. *Reports on public health and medical subjects*, No. 33, Appendix 1. London: H.M. Stationery Office, 1926.