



SOCIETY OF ACTUARIES

Article from:

Health Watch

January 2015 – Issue 77

Abstracts of Health Articles from the *North American Actuarial Journal*

By Ian Duncan

Many health actuaries are unaware of health-related articles published in the *North American Actuarial Journal* (NAAJ). Most issues contain at least one article of interest to health actuaries. Below (and in future issues of *Health Watch*) we will publish the abstracts of relevant articles. Electronic copies of the NAAJ can be found at <https://www.soa.org/news-and-publications/publications/journals/naaj/naaj-detail.aspx>.

In the future, if articles of health interest appear in overseas journals (for example *British Actuarial Journal*; *Annals of Actuarial Science*, *ASTIN Bulletin* or the *Scandinavian Actuarial Journal*), we will publish abstracts of these articles as well.

In the forthcoming issue of the NAAJ we publish a paper on health care reform and efficiency. The author uses an economic analysis technique, Data Envelopment Analysis (DEA). DEA is a nonparametric method in operations research and economics for the estimation of production frontiers. It is used to empirically measure productive efficiency of decision-making units (or DMUs). The method is used to benchmark the performance of manufacturing and service operations. DEA is a method that assumes that if a firm can produce a certain level of output utilizing specific input levels, another firm of equal scale should be capable of doing the same. Whether this technical, economist's definition of efficiency can aid health actuaries struggling with this problem in the course of their daily work, readers will have to decide. At the least it may spark further debate between health economists and health actuaries on a topic of significant public policy importance.

Health Care Reform, Efficiency of Health Insurers, and Optimal Health Insurance Markets

NAAJ—Volume 18, Issue 4

Charles C. Yang

Abstract

This research examines the efficiency of U.S.

health insurers. It shows that more insurers are less efficient than in the previous sample year; however, the results suggest that the federal health care reform has no significant effect on the overall efficiency of all insurers as a whole, which is very low but does not change much over time. This research explores how to improve the efficiency of the health insurance market by proposing state, regional and national efficiency-based, goal-oriented market models and an efficiency duplicating system, and it discusses important implications to the health care compacts, the health insurance exchanges or marketplaces, and the national multistate programs. It also analyzes further moves for efficiency enhancement with regard to payment methods and the health care delivery system. One interesting finding is that the Medicaid program is very efficient because it provides support to the offering of Medicaid coverage and further expansion, which enhances the health welfare of society with fewer resource inputs from the perspective of efficiency. This research should provide important insights for state and federal governments, policymakers, regulators, the health insurance industry and consumers.

In addition to the article, there is an editorial on the subject: "Measuring Healthcare Efficiency" by Ian Duncan and Ted Frech of the University of California at Santa Barbara. ■



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