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Managing the Problem of Healthcare Payment Fraud: An Editorial

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INTRODUCTION

Management Science/operations research is now everywhere one looks from the production of most automotive parts to the check-out lines at most supermarkets and similar places. We refer to this as automation; however this phenomenon is the product of advances in computer technologies that drive this mechanization of seemingly simple but technological advanced tasks to streamline production, inspection and similar methodologies. The growth of these technologies in the future will accelerate by breakthroughs in artificial intelligence (AI) which will continue the mechanization of tasks and increase the quality of output and continuously change outcomes in a positive manner. To incorporate AI into heath care procedures is not simple but it includes the methodology of statistical/mathematical sciences as it applies the data-driven methodologies. Now, we focus on one such plan that involves the analytics associated with a volume of invoices, computer developed data bases and crime know as fraudulent activities involving payments for services. This is of particular importance because of great growth in third party payers of services performed.

The detection of fraudulent activities requires that those involved in third party payer services associated with healthcare plans (either government or private) requires considerate medical knowledge not necessarily part of the background of those who worked in the payment industry. Systems for processing claims today are usually implemented to automatically incorporate the auditing and review of healthcare claims. These 4 systems are designed for identify areas that need special attention such as data with errors and/or incomplete input, duplication of any kind and treatments or services not covered by the health insurance contract. The use of modern management science methods to detect these errors and in some case fraudulent activities is the subject of many studies in the past [1,2]. These studies lead to the desire to expand the control of quality in payment services with the use of "Big Data" by computerized the system include the methods of statistical quality control (SQC) and statistical process control (SPC).

The data analytical problem

Previously, "Big Data" solutions included fraud detection by utilizing the methods of multivariate data analysis to look for items that did not conform to the majority of items classified according to the multivariate method utilized to separate outliers from the usual claims. Although these methods can claim much success in the determination of the claims that may exist because of fraud, the items selected may be after additional audit activities may still not be fraudulent. This causes much distress to both the auditor, third party payer and especially the client who submitted the claim. Such activities should be diminished because they promote stress on the client who may eventually no longer participate in the current health insurance program. Healthcare clients are the customers of the insurance program and like others will support programs when they no longer have difficulties with the customer care process.

At this point, both the perceived quality and actual quality of the program must be enhanced. The manner in which program managers can increase the quality and retain client customers is to establish a program utilize the methods developed in other industries to improve product quality (in this case a service) and retain the goodwill of the customer base. Without going into great details of the differences between SQC methods and multivariate data analysis, we propose the combination of the two analyses referred to as "multivariate quality control" (MQC) may be the best solution to analyzing the "Big Data" problem in detecting fraud and other erroneous claims for coverage under health insurance plans. The problems associated with SQC are reported in [3-13]. Last, Mestik, Mastrangelo and Forrest, 2002 in a comparative study of univariate and multivariate

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quality control methods concluded that the multi variety methods were superior to the univariate methods.

The great growth in information technology enables managers to reduce the computational complexity for on-line processes. Monitoring results of MQC by automatic procedures produce a new focus on quality management. This new focus is on fitting the new environment. These methods include those of machine learning which is a form of AI which will enable many of the routine service performed in auditing and detection procedures and which will enable a faster and higher quality of process and perhaps increase retention of client customers who are dissatisfied with the current service third party payer [14].

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