

Informing the Doctors Who Manage Care: A SAS[®]-based Physician Profiling and Incentive Report System

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ABSTRACT

If you've ever earned a paycheck from a large U.S. company, you have probably participated in a performance review. You may have received feedback about how well you were meeting objectives or how your performance compared to employees in similar positions. Your boss may have suggested areas for improvement. Maybe you even received a pay raise.

Doctors in private practice usually do not participate in this type of program. However at RCIPA, an organization of health care providers that manages care for 500,000 HMO subscribers, physicians decided that they could benefit from a performance reporting system. Teams of Internists, Pediatricians and Family Practitioners designed a system that provides information and incentives for 800 primary care physicians to improve their practices.

The RCIPA Physician Profiling and Incentive System uses the SAS system to transform raw data from diverse sources into comparative statistics that provide insights about physician performance. Through an iterative process, physicians suggest ways to improve the quality of the data and analysis, which leads to better information that they can use to make positive changes in patient care.

INTRODUCTION

The Rochester Community Individual Practice Association, RCIPA, is an organization of over 2,000 physicians and allied healthcare professionals. RCIPA members provide a complete range of medical care for about 500,000 HMO subscribers. In the managed care setting, the primary care provider has the responsibility to either treat the patients or refer them to the appropriate professional. Consequently, the performance of these primary care providers is considered to be the central element in the success or failure of the HMO.

In view of this, the three primary care groups

(internists, pediatricians, and family practitioners) developed a system of measures to gauge the performance of the primary care provider. These measures were incorporated into a report that was mailed to the physician panel on a regular basis. The primary care groups set aside a pool of money to be used as an incentive to encourage appropriate care.

CHALLENGES

The RCIPA Physician Profiling and Incentive System was designed by the primary physicians in conjunction with the technical staff at RCIPA. This design needed to address several concerns:

- Each primary care group wanted their own set of customized measures. However, the technical staff preferred a modular design in order to provide adequate support.
- The measures chosen had to be medically relevant and accessible from the available data.
- The relative 'sickness' of the providers' patient population needed to be accounted for.
- To generate these reports, the staff needed to manipulate large data sets created from the claims of the HMO members.
- The claims data was of inconsistent quality that required cleaning and filtering. The data needed to be cross-checked from multiple sources.
- The system needed to be as fair as possible. Special consideration had to be given to small practices and physicians with multiple areas of specialization.
- Since the reports deal with medical claims, the claims data needed to be kept confidential. In the data passed to RCIPA by the HMO, the subscribers are only referred to by a scrambled identification code. Yet physicians who want to improve their medical performance want to know the names of the patients who are not receiving adequate care.

THE DATA

Medical claims data supplied by the insurer are the primary input to the incentive report system. This is supplemented with medical record reviews and pharmacy data. All of our data processing is done on networked PC computers with Pentium Pro processors running Windows NT Workstation.

The claims data is received on a monthly basis in text form and is processed and saved as a SAS data set. The claims data set is then stored on a central file server as part of a multi-year claims data warehouse. A complete description of this process can be found in the 1998 SUGI Proceeding (Murphy 1998). The medical record reviews are done every two years by the insurer and are transmitted in spreadsheet form. RCIPA's Pharmacy Benefits Manager (PBM) provided prescription data.

DESIGN

After a great deal of effort by the primary care physician workgroups, the construction of the report was finalized. To maintain uniformity across the various specialties, the report was designed into a number of sections, with each section having its own page. It was then assembled into the following pages:

1. Summary, which listed all of the scores from the subsequent pages and gave a composite score.
2. Quality Measures, which included such things as screenings and immunizations.
3. Resource Utilization, which measured the effort exerted in preventive, direct, and indirect care.
4. Appropriate Care, which stressed preferred modes of treatment when many choices existed.
5. Drug, which focused on the provider's prescribing patterns.

In the Quality Measures, Appropriate Care, and Drug sections, each primary care provider workgroup chose two to three measures to focus on. The items chosen differed from one primary care group to another. In fact, the pediatricians chose not to even have a Drug section. However, the form of all of these sections remained the same. The rate for each measure was given for the individual provider and for the provider's specialty in both written and graphical form. Along with this information, a target rate that was chosen by the workgroup was also displayed. Point scores were given for the provider's performance based on criteria established by the

appropriate primary care workgroup.

The Resource Utilization section was the most complicated to assemble. It measured the providers' performance in terms of both cost and z-scores in five areas of operation:

- 1) Preventive exams, screenings, and immunizations;
- 2) Other direct care offered by the provider;
- 3) Radiological services performed;
- 4) Lab services ordered by the provider; and
- 5) Other Indirect Costs such as referrals.

As with the other measures, the provider's cost is compared to his or her specialty both in written and graphical form. Point scores are assigned based on the provider's z-score. However, the calculation of these z-scores is not based on a simple average of the provider's expenses. This would neglect the effect of patient age and sickness on the provider's resource utilization. Consequently, we resort to a technique called casemix adjusting.

CASEMIX

In order to compare the resources used by different providers, it is important to take into account the health of the patient population. This process is called case mix adjustment. If a provider cares for an older and sicker population, the provider would be expected to use more resources in delivering medical care than a provider with a young, healthy population. Consequently, instead of comparing the performance of a provider with specialty averages, the sickness of his or her patients is rated and the provider is then compared with an average provider who has a similar group of patients.

To categorize the sickness of patients, the patients are grouped according to diagnosis, severity, and co-morbidity. The exact way a patient is put into a health category is proprietary. RCIPA uses a leading commercial model developed by HealthChex called Peer-A-Med®. This product is written entirely in the SAS system and consists of literally thousands of conditional statements which group the patients according to the diagnosis and procedures listed in the claims database. The product has a SAS/AF® front end and is menu driven. After the patients are categorized, PROC SUMMARY's are employed to obtain the average cost of treating a patient in each category. The number of patients in each category for a given

provider is used along with these category average costs to construct a weighted-average cost per patient. This is the peer-adjusted average to which the provider's actual costs are compared and upon which the z-score is determined.

For pediatrics, a modification of the above approach is used. One of the RCIPA pediatrics providers, James Tobin, M.D., M. S. (Stat), developed a model in which the groupings from the Peer-A-Med® model are reassembled into new smaller groups and the z-score is modified. The Tobin model was created to address problems with age categorization and practice size. As with the pure Peer-A-Med® model, a z-score is used to rate the performance of the provider.

IMPLEMENTATION

As the physicians writing the specifications became more familiar with the available data, they wanted to add, delete and change their specifications. The technical staff who wrote the supporting programs agreed that a modular approach, with standardized data set names, variable names and data flows, would simplify the development and ongoing maintenance of the system.

Each performance measure has its own program module to select the necessary claims, enrollment, and other data from the data warehouse, calculate the measure and save the results to a SAS data set. Then another step merges all the measures for a specialty by physician, calculates comparative statistics such as percentiles and z-scores, and adds descriptive data such as the physicians' addresses. An additional step is run annually to calculate each physician's share of the incentive pool, which is weighted according to practice size and performance throughout the year.

In our organization, several programmers are working on the same data sets simultaneously. These data sets contain the health care information for over a half a million individuals and can be quite large. In order to prevent the data sets from becoming even larger, simple codes are used to identify the physician or other health service provider, the patients' diagnoses, and the medical procedures undergone. However, in the generation of various reports, more descriptive information is needed about these parameters. This supplemental information is contained in separate data sets.

To make this information available, a format library is created from these data sets which maps the codes to the pertinent information. In order to maintain consistency, the library is kept in a central location on our network and is accessible to all users. Furthermore, certain repetitive chores that are done by all the programmers are maintained in a central macro library. The construction of such a library takes careful planning but can save an enormous amount of disk space and programmer effort. Errors are also minimized and updating the data is easy when the library information is centralized.

REVIEW

The physicians and technical staff were eager to distribute the first reports as soon as the programs were run and the first year's reports were ready. However, we took the time to perform a review. Staff prepared special audit reports with patient names for a small number of physician offices in each primary care group. The offices pulled their patient records and manually matched them against the audit reports. Although this step was time-consuming, it provided many valuable lessons.

The pilot study pointed out the limitations of using insurance claims data to evaluate clinical performance.

1. Claims data may not capture all medical services. For example, a patient can receive a free immunization or screening test at a "health fair" or through a research study. The patient would be considered non-compliant because no claim for the service was filed.

2. Imprecise diagnosis coding was a particular problem because diagnosis is a key factor in determining whether a patient needs special care and in adjusting for the severity of physicians' case mix. The primary care workgroups educated their peers about the need to specify accurate and complete diagnosis codes on insurance claims. Staff also worked with the claims processor to capture multiple diagnosis codes per service.

Relying on other organizations for much of our data also created challenges. Our Pharmacy Benefits Manager (PBM) provided prescription data that was summarized by physician specialty. We found that the PBM's summary statistics were inaccurate because they were based on an outdated physician listing. To avoid this problem,

staff requested detail-level records and calculated their own summary statistics.

In our pilot session, we requested medical record review data from the insurer at the start of the reporting process. In the time it took to generate reports, many reviews were appealed and revised. In subsequent reporting sessions, we retrieved the data just before it was needed so the reports would reflect the most current data.

The physician teams recognized and made allowances for the limitations of the data in two additional ways:

- 1) They allowed room for error when setting performance targets.
- 2) They set aside a grievance pool – a portion of incentive money held in reserve in case a physician showed that his or her score was based on inaccurate data.

PHYSICIAN RESPONSE

Feedback from physicians, received through phone calls, letters and survey responses, ranged from appreciation to irritation. Many doctors questioned the data and the methodologies. In general, they were more receptive to measures that gave specific information about problems and opportunities in their practices. For example, doctors said they were very interested in receiving lists of patients who had not received recommended preventive care. They were more skeptical about the measures that were based on complicated formulas and statistical methods.

CONCLUSION

RCIPA's physician leaders still debate whether the system is accurate and comprehensive enough. There is agreement that linking incentive payments to performance reports has increased physicians' awareness of RCIPA's quality programs and objectives. We will be watching to see how the system affects physician performance over the long term.

Implementing the profiling and incentive report system as a set of modular, standardized programs that make use of centralized macro and format libraries has enabled a few programmers to provide effective ongoing support to physicians in an environment of continual change.

REFERENCES

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