

## The Validity and Usage of Resource Utilization Data Among a Group of Primary Care Physicians

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### **Abstract**

The use of individual resource utilization scores to compare primary care physicians (PCPs) has become more commonplace as managed care organizations (MCOs) increase their penetration into the US health-care market. This study looks at the validity and usage of these scores among a group of PCPs within a multispecialty clinic that is part of an integrated managed care network. Personal interviews were conducted with PCPs; and reviews were done of the practice site paper charts, the computerized visit record system of the clinic and affiliated hospital, and the MCO-supplied resource utilization data on the 25 patients of each PCP on whom the most healthcare dollars were spent in 1995. As of October 1996, few PCPs had done more than a cursory review of their resource utilization data. None had identified the patients who use the most resources or developed any methods to proactively manage those patients with a history of high utilization. The clinic's communication systems alerted the PCPs less than 50% of the time when patients for whom they were responsible had high utilization of services. Patients appeared to be assigned to the incorrect PCP more than 20% of the time. All players in this managed care network—PCPs, clinic administration, and the MCO—must work together to improve the current system before resource utilization data are considered valid and are incorporated more fully into clinical practice.

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As managed care organizations (MCOs) increase their penetration into US health markets, more primary care physicians (PCPs) are being called on to be gatekeepers for an assigned panel of

patients.<sup>1</sup> Initially, the gatekeeper PCP only managed access to care (ie, referral to specialists) but now is expected to truly manage the overall care of the patient.<sup>2</sup> Successful care management has become synonymous with achieving a good health outcome for the patient while keeping resource usage (dollars spent) by the managed care plan to a minimum.

Many MCOs have developed mechanisms to evaluate how well (or poorly) the PCP functions as a care manager.<sup>3</sup> Through physician performance profiles, MCOs attempt to quantify the PCP's skill in minimizing unnecessary resource utilization and achieving good patient health outcomes, while maintaining patient satisfaction.<sup>4</sup>

Often included within this performance profile is an individual PCP's overall resource utilization score along with specific data on his or her use of specific health services (eg, laboratory tests ordered, patients hospitalized). This score is traditionally computed by comparing the individual PCP to his or her regional peers after adjusting for the age and sex demographics of the assigned panel.<sup>5</sup> In more advanced systems, the percentage of sicker patients (case mix) is also considered in an effort to more equitably compare PCPs.<sup>6,7</sup>

Many MCOs have assigned financial incentives and disincentives to individual PCPs attaining a certain level of resource utilization.<sup>8</sup> Continued employment (staff model health maintenance organizations) or future contracts (independent practice association and preferred provider organization models) may also depend on the individual utilization score.<sup>9</sup>

Since 1994 Ochsner Health Plans has provided individualized resource utilization data at least annually to the PCPs at the clinic of one of the authors (W.R.B.). Because administrators at the multispecialty clinic had decided in the fall of 1996 to begin including resource utilization scores as a factor in determining the 1997 overall physician compensation, there was a renewed interest among the PCPs

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to assess the validity of the data supplied. Physicians also voiced concern that the internal communication systems the clinic had in place may not be adequate to monitor the high resource-utilizing encounters of the patients assigned to them. In addition, PCPs asked for concrete suggestions on how to use the MCO data to improve future resource utilization.

In an effort to respond to the PCPs' concerns, a study was developed. A representative sample of the clinic's PCPs and their highest resource-utilizing (most dollars spent) patients was selected and studied. The sample reflected the practice diversity (ie, geographic, medical specialty, and percentage of managed care patients) present at the clinic.

Objectives of this study included (1) assessing the validity of the resource utilization data supplied by the MCO; (2) determining the physicians' knowledge, attitudes, and skills regarding the MCO-supplied resource utilization data as of October 1996; (3) assessing both the formal and informal institutional communication systems that inform physicians about the resource use behavior of their high-utilizing patients; and (4) determining whether physicians currently have a plan in place to proactively manage patients with a history of chronic high utilization of healthcare resources.

The objectives were accomplished by personally interviewing the PCPs and reviewing the MCO-supplied resource utilization data on the 25 patients of each PCP who spent the most healthcare dollars in 1995. Both the practice site paper chart and the integrated computerized visit and charge record system of the clinic and affiliated hospital were reviewed for each of the identified patients.

... METHODS ...

Ten PCPs were selected (five in internal medicine and five in family practice) at four practice sites (the main clinic, two clinics within 10 miles of main clinic, and one more than 25 miles away; see Table 1). PCPs had to have been employed by the multispecialty clinic since January 1994 and to have followed at least 700 patients (8,000 months of covered lives) from the study's MCO during the 1995 study period. The average study MCO panel size was 12,912 months of covered lives.

PCPs were selected in an effort to represent a range of various levels of managed care as a percentage of total practice (average = 85%; range = 40%–95%), as well as various 1995 overall resource utilization scores (average = 1.03; range = 0.82–1.25), with 1.0 defined as the average institution-wide score.

With data supplied by the study MCO's physician performance profile contractor (Data Medica, Minneapolis, MN), the resource utilization parameters of the 25 patients of each PCP who spent the most healthcare dollars in 1995 were reviewed (n = 250). Catastrophic cases, defined as costing more than \$20,000, were excluded from the analysis. The practice site charts of the 250 patients were reviewed to assess the number of visits with the MCO-designated responsible PCP or other on-site PCP colleagues during the calendar year 1995. Diagnoses generated during the year and evidence of follow-up after emergency room visits and hospitalization were ascertained. Documentation of discharge summaries, operative notes of surgical procedures requiring admission, and emergency room visit notes were also assessed.

The integrated computerized visit and charge record system of the multispecialty clinic and affiliated hospital was queried for each of the 250 patients. Data on longitudinal visits (both primary care and specialist), admissions (inpatient and outpatient) to the hospital, surgical procedures requiring admission (including same-day surgery), and emergency room visits were compiled. Once compiled, the data from three record systems were cross-checked to determine the accuracy of the MCO resource usage data. These systems were (1) the MCO-supplied resource usage data, (2) the practice site paper chart, and (3) the institutional integrated computer system. The integrated computerized visit and charge records were taken as the gold standard for determining actual resource-utilizing behavior of the study patients.

**Table 1.** Representative PCP/Sample by Location

PCPs and Patient Charts	Location			
	Site 1 (MC)	Site 2 <10 miles from MC	Site 3 <10 miles from MC	Site 4 >25 miles from MC
No. of PCPs by specialty	3 IM	2FP 1 IM	1 FP 1 IM	2 FP
No. of charts	75	75	50	50

PCP = primary care physician; MC = main clinic; IM = internal medicine; FP = family practice

The PCPs were interviewed in person by one of the authors (W.R.B.), and information was tabulated in a structured format. The resource utilization data of individual PCPs for 1995 were ascertained. PCPs' attitudes about the use of resource utilization scoring and their skills in using the data as of 1996 were also assessed. Also done was a survey of both formal and informal clinic communication mechanisms used by PCPs to monitor the healthcare utilization of patients assigned to them.

Outcome variables were determined either by discussions with the PCPs in which they identified the information they felt was most important to track (eg, visits with PCP, admissions, emergency room visits) or by selecting variables that were markers of the patient behaviors with the highest cost (eg, surgical procedures requiring admission) according to the MCO cost data. Below is a complete list of the outcome variables analyzed:

- Percentage of high-utilizing patients seen at least once in 1995
- Percentage of PCPs notified of inpatient admission within 24 hours
- Percentage of discharge summaries on hospitalized patients available in the practice site paper chart
- Percentage of patients having follow-up with PCP after hospitalization
- Percentage of surgical procedures requiring admission for which summaries are available in the practice site paper chart
- Percentage of patients who had medical clearance requested of the PCP before surgery, and
- Percentage of emergency room visit summaries available in the practice site chart.

Validity of the resource utilization data was determined by evaluating the two characteristics of the data that PCPs had the most concerns about: accuracy and equitability.

*Accuracy* was defined as the percentage of MCO records that had at least one of the following: missing data field; misclassified resource utilization data (eg, surgical expense with no evidence of patient having surgery); or inclusion of only out-of-network charges that could not be verified by the PCP. *Equitability* was defined as the percentage of patients included in the analysis for whom the MCO-assigned PCP actually was the responsible PCP. Patients receiving only specialty or out-of-network care were considered to have a misassigned PCP (ie, they were assigned incorrectly). No effort was made to determine whether the misassignment of the PCP was a consequence of efforts of

the MCO, the multispecialty clinic administration, or the individual PCP.

... RESULTS ...

Resource utilization data are provided in Table 2. Although a majority of the 10 PCPs received and reviewed resource utilization data, only 2 planned to use these data to monitor future use of healthcare resources. Use of formal communication mechanisms by the PCPs is shown in Table 3. The only informal system identified

**Table 2.** Use of Resource Utilization Data by 10 PCPs

Behavior	No. of PCPs Doing Behavior
Acknowledged receiving utilization data	10
Reviewed data to some extent	7
Looked only at overall score	5
Evaluated specific resource usage data categories	2
Planned to use data in some way to monitor resource usage in future	2
Reviewed patient listing to identify highest-utilizing patients	0

PCP = primary care physician.

**Table 3.** Use of Formal Communication Systems by 10 PCPs

Behavior	No. of PCPs Doing Behavior
Received and reviewed hospital discharge and ER visit summaries and filed in site's paper chart	10
Received and reviewed hospital-generated lists of patients assigned to them who were admitted to the hospital or visited the ER	10
Requested chart be pulled on patients identified on hospital-generated list	5
Requested summaries not available in chart at time of chart pull	5
Requested summaries only at time of follow-up visit	5
Had organized method to ensure follow-up with PCP after ER visit or hospitalization	2

PCP = primary care physician; ER = emergency room.

was that 8 of 10 PCPs noted that they received calls from either resident or staff physicians on inpatient services when some of their patients were admitted to the hospital. Only 2 of 10 felt these phone calls were made for all patients insured by the study MCO.

### Survey of Resource-Utilizing Behavior of the Study Patients

The average age of the study patients was 44.5 years; the ratio of women to men was 1.5 to 1. The patients had an average of 10.2 months of covered life at the MCO during 1995. An average of \$12,302 dollars was spent by high utilizers, and the percentage of the total panel allocation spent by the 250 high utilizers was 20.2%.

Of the 250 patients, 157 (63%) were seen by the PCP with a median of two visits. An additional 38 were seen at the PCP's practice site. Overall, 78% were seen either by the PCP or one of his or her primary care colleagues.

*Hospitalization Data.* Hospitalization of 127 of the 250 patients (51%) generated 147 admissions. The PCP was notified within 24 hours for 27 (18%) of these 147 admissions. Hospitalization was documented in 30 of the 127 patients' practice site paper charts (24%). Eleven patients (9%) had a follow-up visit with the PCP within 2 weeks of discharge.

Of the 250 patients, 172 (69%) had a total of 177 surgical procedures requiring admission. A total of 50 of the 177 procedures (28%) were documented in the practice site paper chart. Eleven (6%) had documentation of medical clearance by the PCP.

*Emergency Department Visits.* Of the 250 patients, 91 (36%) generated 108 emergency department visits, 47 of which (44%) were documented in the practice site paper chart.

### Validity of Resource Utilization Data

Table 4 lists types of coding errors and the number of records that contain these errors. The percentage of errors in the records of these 250 patients was 6%.

Twenty-two percent (55/250) of the patients who were assigned to a PCP who was in theory responsible for managing their care had all care provided in 1995 either by specialists within the clinic or totally out of network. Conversations with Data Medica personnel confirmed no weighting was done in the overall utilization scoring analysis to account for this point-of-service activity.

### ... DISCUSSION ...

Although this was a limited study of a small representative sample of PCPs at one multispecialty clinic, several important issues were identified. If replicated in larger studies with various managed care models, these issues should be of great interest to both physicians and administrators responsible for overseeing resource utilization by managed care patients.

Despite the consistent provision since 1994 of resource utilization data to the clinic's PCPs, few PCPs as of October 1996 had given the data more than a cursory evaluation. It was not until physician compensation was to be linked to resource utilization scores that most of the PCPs felt the need to review and use this data. None of the physicians in the study had examined the patient rosters provided by the MCO and identified their highest-utilizing patients. None of them could verbalize a plan they had to proactively manage these patients who remained on their panels.

In the majority of high resource-utilizing encounters, the PCP responsible for the patient's care was not informed via the formal communication mechanisms the clinic administration had set up. Informal communication mechanisms appeared sporadic and not likely to significantly improve the extent of communication documented by review of the practice site's paper chart.

The validity of the resource utilization score provided by the MCO does not appear to be significantly impaired by lack of accuracy (the concern most noted by PCPs). However, this validity is affected by the process by which PCPs are designated as responsible for individual patients' care. In fact, the clinic and MCO appear to be operating under a mixed managed care and point-of-service model, but they are evaluating the PCPs as though all patients' care was managed only by PCPs.

Besides the small size of the study, other limitations have been identified. Among these are the preponder-

**Table 4.** Validity of Resource Utilization Data

Coding Error	No. of Records With Error
Missing data field	7/250
Misclassification of specific resource usage category	4/250
Only out-of-network charges available for review	4/250
<b>Total Errors</b>	<b>15/250 (6%)</b>

ance of patients in the high-utilizing cohort who had surgical procedures and uncertainty as to whether the behaviors of the highest-utilizing patients and the mechanisms in place to track them are similar to those of other patients within the managed care panel. Furthermore, utilization data are dependent on charge data supplied to the MCO by the clinic and can be affected by improper coding and a lag in reporting charges. Because of the reporting lag, physician interviews described attitudes and behaviors over a year after the assigned patients' resource usage occurred. No mechanism existed at the time of the study to confirm the accuracy of MCO-reported individual patient out-of-network charges.

Based on this study, several suggestions were offered to the individual physicians, clinic administrators, and MCO personnel on ways to work together to improve the validity of resource utilization data and increase the incorporation of these data into the clinical practice of more physicians. Some of the suggestions are listed below.

Physicians responsible for managed care patients must familiarize themselves with resource utilization data, examine their specific usage data, and formulate a plan to minimize unnecessary overutilization. It is essential that physicians become aware of the highest-utilizing patients on their panel and develop methods to proactively manage their care.

Clinic administration must improve formal communication mechanisms to ensure that PCPs receive timely information about high-utilizing clinic encounters involving patients for whom they are responsible. Clinic policies that affect adherence to PCP managed care versus point-of-service plans should be reviewed on a regular basis to determine the impact they have on the validity of resource utilization scoring. When using resource utilization scores to compare and compensate PCPs, the clinic administration must ensure that the scores are derived from care of patients for whom the PCP is actually responsible. Conversely, a weighting system can be devised to equitably compare those PCPs within the clinic if significant point-of-service activity is expected.

The MCO needs to realize that most PCPs (even those with good resource utilization scores) are not using the current physician profiles provided by the

MCO in any comprehensive and useful way. As the technology of physician profiling advances, MCOs should be sure to include PCPs in the design of future programs. Including PCPs will increase the likelihood that the PCPs will incorporate these data into their clinical practices.

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