Physician Profiling in Managed Care

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Dr. Smith joined the Family Medical Associates 2 years ago, after completing residency training. The majority of patients treated by this group of family practitioners are members of any of several large managed care plans in the area. Recently, one of the senior physicians asked Dr. Smith to look into a report received from the Excellent Health Plan. "They call it a *profile*, or *report card*," he said. "They've sent us one or two of these before, but this is the first time the profile shows that the pattern of services received by members in our panel is different than expected. I don't know if the numbers are meaningful, but we need to decide what to do."

Dr. Smith quickly compiled a list of questions:

- What makes this report a profile, and where does the plan get the data?

- Is it possible that our observed service patterns are in fact fully justified given the kinds of patients we treat?

- If this profile is a valid indicator of our performance, how can we improve the results? What other measures can we use to demonstrate the quality and effectiveness of our care?

- What is the health plan trying to accomplish with this exercise? If our group expects to be influential in this relationship, what changes should we anticipate for the future?

Dr. Smith's investigation of physician profiling in managed care was well on its way.

What is Physician Profiling?

A key component of managed care organizations' (MCOs) attempts to integrate the financing and delivery of health care services is a contracted group or network of physicians who agree to provide specified services to a defined popula-

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tion of managed care members in exchange for predetermined fees or salaries [1]. Although the very notion of managed care implies a degree of centralized management, recognizing the physician's role as the main decision maker in the delivery of care remains a fundamental principle of organizational success. However, a lack of consensus among physicians regarding care of similarly ill patients and significant variation in physician practice patterns are widely noted [2,3]. Accordingly, the physician is a natural focus for accumulation of performance-related information, subsequent review, and quality improvement initiatives. Further, through its major investment in information systems and accumulation of diversified data sources, the MCO is in a unique position to serve as the locus of such activity. This focus on improving the care provided by physicians is the simple genesis of physician profiling.

In a physician profile, data are presented as summary statistics that reflect physician performance, typically in the form of rates and averages pertaining to the care rendered to a specified population at risk. When the physician functions as a contracted primary care physician (PCP) with respect to overall management of care for a defined population of plan members, as in the case of Dr. Smith's Family Medical Associates, the profile reflects the care received by the entire member panel, not just by patients actually seen by the PCP. The MCO holds the PCP accountable for the entire package of care, even if a member never visits that PCP's office. However, if the physician is contracted without a designated panel of members or as a referral specialist, the calculated rates typically are based only on patients actually seen.

Where Does the Plan Get the Data?

Assuming appropriate safeguards of patient confidentiality, everything known to the delivery system concerning the condition of patients and the services rendered to them ideally should be available to the MCO for use in physician profiling. Much of this information, however, is housed within the relatively inaccessible confines of the medical record, and abstracting sufficient numbers of patient records to compile credible summary statistics on all physicians in a network would be exorbitantly costly.

In the absence of clinical indicators from the medical record, the profiling activity largely uses administrative data, which include computerized files of claims, encounters, and other operational information. Surveys of the membership may also be used.

Claims Files

Claims files usually are the starting point for compiling counts of services rendered by or otherwise attributable to the subject physician or group. Standard practices for paying claims require the input of common diagnostic codes (ie, International Classification of Diseases [ICD] codes) and procedural codes (ie, Physicians' Current Procedural Terminology [CPT] codes), which then become the natural bases for categorizing patients and services [4,5]. For example, diabetes mellitus may be identified by ICD codes having "250" as the first three digits. A fourth digit is available for coding various complications, and a fifth digit identifies adult-onset and juvenile conditions. The tracking of retinal examinations for these patients may focus on the CPT codes for ophthalmology, such as "92225," which stands for "ophthalmoscopy, extended, with retinal drawing . . . ." The validity of the resulting performance measurements depends on the accuracy of this coding.

Standard nonclinical elements available to complete a core set of data are physician and member identifier codes and records of date of service, allowable charge(s), and amount paid. Pharmacy claims are an increasingly important source of profiling information because they allow the health plan to measure preventive care and long-term management of chronic diseases (eg, use of angiotensin-converting enzyme inhibitors in members with congestive heart failure). Pharmacy claims typically are found in separate files with their own unique sets of data elements.

Encounter Files

Encounter files contain records of services that are incorporated into capitation, salary, or other global payment arrangements, as opposed to services paid as individual claims. Although the data elements typically mirror those of the claims file, in the absence of a direct link to reimbursement, providers may have little incentive to furnish complete and accurate data. The full capture of encounter records thus requires a determined and ongoing effort by the MCO. Some plans have recently begun to record capitated laboratory services in a separate encounter file that may include actual test results. Laboratory results add to the plans' ability to measure outcomes, such as determining the adequacy of glucose control in diabetic patients through measurements of glycosylated hemoglobin levels.

Member Surveys

In addition to being the obvious source for compiling data on member attitudes and satisfaction, the member survey may be used to document care received; in some cases (eg, health habit counseling), data are more accurate than information derived from other sources, including the medical record [6]. Surveys are conducted through broad-based mailings or telephone campaigns to elicit general attitudes (eg, members' opinions about their PCPs) and through solicitations that follow specific medical procedures. However, the relatively high costs of administering surveys and the possible biases imposed by low response rates may limit their utility.

Factors that Impact Profiling

Profiling data are affected by various factors, including the reporting unit and sample size, case-mix adjustment, the frequency of measurement, and the style of data presentation.

Reporting Unit and Sample Size

Although measuring performance would seem to target individual decision makers, the actual reporting unit of the physician profile varies according to the structure of underlying payment arrangements. For example, for groups capitated as a unit, such as Family Medical Associates, the performance measures usually are compiled for the practice as a whole. A raised aggregation level has the practical advantage of recognizing that the management and care of an individual patient often cannot be apportioned neatly to a single physician within the group. In addition, statistics calculated at the office level are then based on a greater volume of members or patients (ie, an increased sample size) and thus are more reliable indicators of true practice behavior.

Case-Mix Adjustment

The presentation of comparative data is a distinctive feature of a physician profile. However, differing characteristics of the membership panels or patients treated may call into question the validity of the resulting comparisons. Some groups may claim that utilization differences occur because their patients are "sicker" than those of other groups. Because higher utilization is expected for sicker patients, plans have built a variety of case-mix and risk-adjustment techniques into their profiling systems [7].

Table. A Hypothetical Example of Case-Mix Adjustment

Member Age (yr)	No. of Asthmatics in Panel	No. (%) Receiving Inhaled Steroid	
		Actual	Expected*
0–5	10	2 (20%)	1 (10%)
6–14	50	25 (50%)	25 (50%)
15–44	20	2 (10%)	8 (40%)
45–64	10	0 (0%)	3 (30%)
Total	90	29 (32%)	37 ——

*Rate defined by average for all family practitioners in the plan.

Dr. Smith learned that the unfavorable rating of the group's performance was determined by calculations using a common case-mix adjustment technique called *indirect standardization*, in which expected rates are defined by averages for all family practitioners in the plan. This method of analysis presumes, for example, that if the Family Medical Associates' panel of members diagnosed as asthmatic, with their particular age distribution, were enrolled with family practitioners typical of the overall network, the number of these members characterized by the plan's preferred treatment pattern of receiving an inhaled steroid at least once during the reported year would total 37 (**Table**). Only 29 of the Family Medical Associates' asthmatics had been observed as receiving an inhaled steroid, however, thus falling short of the expected number by over 20%. The reported deficiency was attributable entirely to the teenage and older patient groups. Dr. Smith noted the need for additional information on this pattern of utilization.

Given the complexities of member selection, disease severity, and patient behavior, no adjustment technique works perfectly. Having a sufficient volume of cases or members to reasonably invoke the law of large numbers and even out possible variations helps to bolster the credibility of the results. Further, rather than focusing entirely on cost and overutilization of services, it is important to use a number of measures that investigate quality, including underutilization of services (eg, the provision of appropriate preventive services), which are less disputable on account of case-mix considerations [8].

Repeated Measurements

Physician profiling in managed care should not be a one-time event. To be of value in monitoring change over time, performance measurements should be repeated and reported at regular intervals. A reasonable period of time must have elapsed before meaningful change can be measured. Typical reporting frequencies range from every 3 months for high-volume PCPs to every 18 months for low-volume specialists.

Clear Path to Action

Ideally, the profiling organization selects and presents its performance measurements in a way that provides a clear path to actions that can be taken by the subject office to improve areas of unsatisfactory performance. Data that are broken down according to diagnosis, procedural grouping, and/or individual service provider allow for a finer analysis of the source of any problem. Even if a plan offers only a brief report card, it should be prepared to provide more detailed data sets as needed or requested. Further, measures of underutilization, if reported on a timely basis, can be accompanied by a list of patients not receiving targeted services (eg, children who are not meeting a standard schedule for immunizations). Such reporting encourages review and feedback by the subject office to assess whether the data are consistent with the office's own records.

Dr. Smith was determined to follow up on the patterns of asthma medication reported by the Excellent Health Plan and requested more detailed information, focusing on the teenage and older patient groups. The plan representative furnished a complete listing of the asthmatics in those groups. Dr. Smith checked the office's patient charts and verified that almost all members listed had been treated for asthma at some time in the past, but that many had not been seen in the office during the previous 12 months. The charts for several of these patients did, however, contain notes on recent visits to hospital emergency departments (EDs). Dr. Smith also saw that although inhaled steroids had been prescribed somewhat more frequently than counted by the plan, the charts contained no indication of whether the medication had been received, much less of the effect of the medication.

Dr. Smith's findings were discussed at Family Medical's monthly group meeting. "Look, I'm sure not all these patients require inhaled steroids, but some probably do. Furthermore, this ED utilization indicates that we shouldn't be satisfied seeing these patients only every couple of years," offered the senior physician who had initiated Dr. Smith's investigation. "Sure, sometimes it's difficult with

patients who don't comply, but maybe we can do a little more to target the adults having asthmatic problems and get them back in here for follow-up." After further discussion regarding appropriate indicators for medication and return visits, the group agreed to the suggestion and to look for an impact in their next scheduled profile.

What Types of Performance Measures Can Be Compiled?

Performance measures can be based on factors of cost-efficiency, resource utilization, quality and outcomes data, and member satisfaction.

Cost Measures

Physician profiling in managed care appears to have gotten its start in the form of simple cost-based measures calculated as adjuncts to risk-sharing arrangements between the MCO and the physician or practice [9]. However, although such profiling is a common-sense reflection of economic partnership, it furnishes no insight into the cost-effectiveness of high quality care and hence little guidance in determining how to improve long-term performance.

Resource Utilization

Broad measures of resource utilization, such as inpatient days per member, as reported to support cost-based profiling, do little to counter criticism that the prevailing incentive structure is inattentive to concerns for quality of care. Other measures of resource utilization, however, can provide insight into desirable quality attributes, such as immunizations per member for a pediatrics panel or specialist referrals for members with complex cardiac disease. Utilization measures also can give an indication of the outcome of preventive, population-based care. For example, the number of asthma-related ED visits provides an indication of the effectiveness of asthma management and preventive care.

Quality and Outcomes Measures

Measures that directly address quality of care have gained a prominent place in physician profiling over the last several years. Many of these measures are required for external reporting of total plan performance. Building improved performance at the physician level is crucial for a plan to improve its total scores and to compete effectively in its marketplace.

An increasingly important measurement tool is the Health Plan Employer Data and Information Set (HEDIS®), the reporting format sponsored by the National Committee for Quality Assurance, a managed care accreditation organization [10]. Among the key areas of HEDIS reporting are immunization rates and mammography rates among appropriate groupings of a PCP's membership panel and the provision of recommended services for members diagnosed with particular, often chronic, conditions. *(See sidebar on page 18 detailing how one health plan uses quality and outcomes measures to profile the care its PCPs provide for chronic illnesses.)*

Functional patient outcomes, often regarded as the ultimate indicators of health care quality, constitute a potentially important class of measures for physician profiling. Measuring the outcome itself (eg, patient mobility following hip replacement) requires special data gathering (eg, mail surveys or telephone follow-up after certain procedures or hospitalizations). One useful, pragmatic approach to monitoring health outcomes is to profile on the basis of utilization events—notably hospitalizations and ED visits—that reflect an adverse outcome for a particular condition. For example, calculating rates of avoidable hospital conditions (eg, diabetes mellitus, asthma, pneumonia) can highlight a physician's effectiveness in patient management through ambulatory care [11].

Member and Patient Satisfaction

Measures of member and patient satisfaction have become increasingly popular for profiling purposes, partly because of their contribution to externally reported total health plan scores. Given the importance of the physician-patient relationship in membership retention and a health plan's ultimate success, MCOs are eager to obtain this information and to develop commensurate incentives for their contracted physicians. Because of the complexities inherent in the attitudes and expectations that generate patient satisfaction, peer rankings of physicians typically warrant a sophisticated set of adjustments. Sicker patients, for example, who exert greater demands on the system, may express lower satisfaction, as may members given relatively little initial opportunity to choose their health plan [12].

What Can Physician Profiling Accomplish?

As MCOs and participating physicians become more conversant with the possible structures of physician profiling, the sharing of data and performance information can lead to the development of consensual standards of care and to increased adherence to accepted clinical practice guidelines. Certainly, physician groups themselves have recognized the appeal of profiling and

One Health Plan's Approach to Profiling Quality of Care

U.S. Quality Algorithms®, Inc. (USQA®), the performance measurement affiliate of Aetna U.S. Healthcare, the nation's largest managed care organization, focuses its profiles of primary care physician (PCP) performance largely on the quality of treatment of chronic illnesses. These conditions are selected according to their relatively high prevalence and because PCPs can make a major impact on improving health through appropriate patient management. In addition, for each of the three conditions currently reported—asthma, diabetes mellitus, and cardiac disease—Aetna U.S. Healthcare has established a formal disease management program.

USQA has developed a comprehensive set of measures to support its chronic illness PCP profiles. For example, the asthma report for family practitioners (**Figure**) documents the prevalence of the condition among various patient age-groups, describes prescribing and other treatment patterns, and ranks the subject office against peer offices according to measures of access, process, outcome, and member satisfaction. A list of each office's asthmatic members and whether they received inhaled anti-inflammatory medication routinely accompanies each profile as a supplement to one of the process measures.

The PCP asthma performance report developed by USQA has several distinctive features.

Subject Population
The subject population of members with asthma is taken from USQA's broader, comprehensive Health Profile Database, which currently identifies members with 68 different diseases [1]. Patients are selected on the basis of disease-specific criteria using merged sets of claims and encounters. For inclusion on the asthma performance report, a PCP panel member must have met the selection criteria on at least 2 separate occasions no earlier than 6 months prior to the start of the reporting period.

Comparison of Results
Comparing results from the individual PCP office to company-wide averages is made possible by case-mix adjustment for the effects of office type and patient age, gender, plan and business classification, and illness severity. The data headed "Aetna U.S. Healthcare Average" reflect the case-mix adjusted expected rate, assuming that all member asthmatics are distributed to the identified case-mix categories in proportion to the distribution of the membership panel of the subject office.

Severity of Illness
The severity of illness categorization included in the case-mix adjustment is itself the result of a risk-stratification model created and tested from administrative databases to identify the more severely ill asthmatics and to predict members who could benefit the most from enhanced case management efforts [2].

Peer Ranking
Each individual office performance score that is based on a minimum case volume is ranked (from 1 to 4) against the case-mix adjusted scores of other offices, with the bottom 10% of performers designated as *outliers* and the top 10% designated as *best practices*. Additionally, PCP offices that meet specified volume criteria are eligible to have their results averaged into an overall quality score, which then becomes a factor for calculating an incentive bonus payment [3].

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feedback in their own administrative practices under financial risk contracts [13].

Unfortunately, the accomplishments of physician profiling in managed care have thus far received relatively little rigorous investigation. Although a 1996 meta-analysis of 12 randomized trials involving profiling found only 3 based in an ambulatory-dominant managed care environment, overall a statistically significant impact on the use of clinical procedures was documented [14]. In addition, a survey of PCPs in group practices contracting with MCOs found a relationship between the frequency of profiling and observed patterns of primary care management [15].

PCP Asthma Performance Report
Anytown Family Practice

Practice Type:	Family Practice	Overall Quality Score:	3.1
Service Area:	Anyarea	Mean of Overall Scores:	2.7
Office ID:	9999	Range of Overall Scores:	1.6–3.8
		Time Period:	10/1/97–9/30/98

Members identified with asthma effective throughout time period: 101

	Office	Aetna U.S. Healthcare Average*	Rank
Prevalence			
1. Estimated overall prevalence of asthma	3.6%	2.9%	—
2. Percentage of asthmatics with moderate to severe asthma	6.9%	10.0%	—
3. Estimated prevalence of asthma, age 0–19	6.8%	5.1%	—
4. Estimated prevalence of asthma, age 20+	3.0%	2.0%	—
Treatment patterns			
5. Asthmatics receiving one or more courses of oral steroids	32.9%	34.2%	—
6. Asthmatics receiving leukotriene receptor antagonists (LRAs)	15.7%	13.8%	—
7. Asthmatics receiving the influenza vaccine	33.7%	20.2%	—
Access measures			
8. Asthmatics seeing the PCP at least once	96.0%	91.7%	3
9. Average number of PCP visits per asthmatic	7.8	6.7	3
Process measures			
10. Asthmatics receiving inhaled corticosteroids, anti-inflammatory medications, and/or LRAs	51.7%	51.8%	2
11. Percentage of all inhaled medications for asthmatics that are short-acting ß agonists	58.5%	67.9%	3
12. Asthmatics who had an asthma-related emergency room visit and received inhaled anti-inflammatory medications	33.3%	62.5%	1
13. Members with complex asthma seeing a specialist	48.0%	38.6%	3
Outcome measures			
14. Emergency room visits for an asthma-related condition, age 0–19	0.0	3.3	4
15. Emergency room visits for an asthma-related condition, age 20+	8.0	9.8	3
16. Total admissions (acute) for an asthma-related condition, age 0–19	0.0	1.0	4
17. Total admissions (acute) for an asthma-related condition, age 20+	6.0	6.6	3
18. Inpatient days (acute) for an asthma-related condition, age 0–19	0.0	3.4	4
19. Inpatient days (acute) for an asthma-related condition, age 20+	28.0	29.2	3
Satisfaction measures†			
20. Overall satisfaction with medical care at members' PCP office	100.0%	96.2%	4
21. Member satisfaction with ability to make appointments for illnesses	100.0%	93.6%	4
22. Member satisfaction with response to an emergency call within 30 minutes	95.0%	92.3%	3

*Aetna U.S. Healthcare Average adjusted for age, gender, plan type, office type, line of business, and disease severity level.

†Percent of members who responded with "Good," "Very Good," or "Excellent."

Source: U.S. Quality Algorithms®, Inc. © 1999 Aetna U.S. Healthcare®, Inc.

The Future

Technological improvements unquestionably will drive the future of physician profiling in managed care. As the use of the computerized medical record expands, clinical data will supplement administrative data as sources of information. The newly available data elements will allow case-mix manipulation to be even more precise in adjusting results to the severity of disease among a physician's patients. As richer clinical information becomes available, a vast potential for new measures will arise. In addition, the ease of electronic data transfer will advance the integration of data from disparate sites—pharmacy, laboratory, hospital, and office—into comprehensive profiles of care. Finally, aided by the Internet, feedback of results to participating physicians and selectively to interested members will occur ever more expeditiously. Dr. Smith, along with other new physicians entering office-based practices, soon may be adding the population-based profile to the patient-based medical record as an indispensable resource for making decisions about patient care.

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