

The Response of Physician Groups to P4P Incentives

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Commercial health plans are introducing pay-for-performance (P4P) incentives into physician contracts at an accelerating pace.¹⁻³ These incentives tie a portion of a physician's reimbursement to measures of clinical quality or other measures such as the use of diagnostic imaging or the use of preferred medications. Proponents expect that these incentives will motivate providers to address documented problems with the quality of care and unexplained variations in the delivery of care.⁴⁻⁶ The US Congress is considering inclusion of P4P incentives in Medicare's traditional fee-for-service payment system, and several Medicare demonstration projects already include such incentives.⁷⁻⁹

Despite this enthusiasm, most previous evaluations of P4P incentive programs have shown little, if any, improvement in performance on quality measures.¹⁰⁻¹⁸ An exception is a recent study¹⁹ that found that hospitals engaged in a P4P program achieved modestly greater improvement in quality. Potential explanations for these generally negative prior results include the small magnitude of incentives from a single insurance plan,^{12,20,21} resistance or indifference among physicians,²² or a lag time between the start of quality improvement initiatives and actual improvements in quality.^{10,11,21} As this payment approach evolves, it is important to understand how providers view P4P incentives and whether they believe the incentives motivate quality improvement.

Massachusetts is one of the few states where health plans have widely implemented performance incentives,²³⁻²⁵ as well as one of the only states to have publicly available reports on quality for all physician groups. As such, the experience of the state's physician groups in this setting may offer valuable insights on how physician groups respond to P4P incentives in a setting with public reporting on quality. We conducted a survey of physician group leaders to characterize the scope and financial magnitude of current P4P incentives and of leaders' views of these incentives as a mechanism to improve quality, as well as to test the hypothesis that there is an association between P4P incentives and the use of quality improvement initiatives.

METHODS

Sample of Physician Groups

Massachusetts Health Quality Partners, a nonprofit collaborative of physicians, health plans, consumers, and government agencies, maintains a roster of physician groups (based on aggregated data from 5 major Massachusetts health plans) to enable public reporting on the clinical quality of

Objectives: Despite substantial enthusiasm among insurers and federal policy makers for pay-for-performance incentives, little is known about the current scope of these incentives or their influence on the delivery of care. To assess the scope and magnitude of pay-for-performance (P4P) incentives among physician groups and to examine whether such incentives are associated with quality improvement initiatives.

Study Design: Structured telephone survey of leaders of physician groups delivering primary care in Massachusetts.

Assessed Methods: Prevalence of P4P incentives among physician groups tied to specific measures of quality or utilization and prevalence of physician group quality improvement initiatives.

Results: Most group leaders (89%) reported P4P incentives in at least 1 commercial health plan contract. Incentives were tied to performance on Health Employer Data and Information Set (HEDIS) quality measures (89% of all groups), utilization measures (66%), use of information technology (52%), and patient satisfaction (37%). Among the groups with P4P and knowledge of all revenue streams, the incentives accounted for 2.2% (range, 0.3%-8.8%) of revenue. P4P incentives tied to HEDIS quality measures were positively associated with groups' quality improvement initiatives (odds ratio, 1.6; $P = .02$). Thirty-six percent of group leaders with P4P incentives reported that they were very important or moderately important to the group's financial success.

Conclusions: P4P incentives are now common among physician groups in Massachusetts, and these incentives most commonly reward higher clinical quality or lower utilization of care. Although the scope and magnitude of incentives are still modest for many groups, we found an association between P4P incentives and the use of quality improvement initiatives.

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physician groups. The roster includes all groups with 3 or more physicians who provided outpatient primary care during the prior year. The 2005 roster listed 134 physician groups that included 86% of 5804 primary care physicians in the state.

We made an initial contact with each of the groups on the Massachusetts Health Quality Partners roster to identify a leader eligible for the survey and to assess the independence of the group with respect to management. Some groups considered independent according to the Massachusetts Health Quality Partners roster were in fact closely related and were merged. For example, 17 entities on the Massachusetts Health Quality Partners roster, although geographically separated, had neither a local medical director nor a local financial manager and instead comprised a single large group. After accounting for these arrangements, our sample consisted of 104 autonomous physician groups. Four groups no longer in operation during 2005 were excluded, producing the final study sample of 100 groups. In our analyses, we account for the fact that some of these 100 groups affiliate with one another solely for contracting with commercial health plans, forming physician networks.

Interview Guide

We developed a structured interview guide addressing the following 5 areas: (1) the prevalence, scope, and magnitude of P4P incentives in the group's health plan contracts, (2) the group's use of quality improvement initiatives, (3) the leader's assessment of the financial importance and effect of P4P incentives on the group, (4) the leader's general views on P4P, and (5) characteristics of the group.

The interview guide included a question about whether the physician group had P4P incentives in its 2004 commercial health plan contracts. The question explicitly named the following 4 categories of measures tied to P4P incentives: (1) Health Employer Data and Information Set (HEDIS) measures (eg, mammography), (2) patient survey measures (eg, satisfaction), (3) utilization measures (eg, the use of formulary medications), and (4) the use of information technology (eg, the use of electronic medical records and the use of electronic prescribing). The guide included questions about the percentage of commercial health plan revenue tied to these measures. Respondents were instructed to consider all types of P4P incentives, including bonuses and withholds, in their estimates.

We selected 8 commonly used HEDIS measures of primary care quality that might be the subject of a P4P incentive. These included measures of preventive care (percentage of eligible patients who received mammography, percentage that received *Chlamydia* screening, and percentage that received appropriate well-child visits) and measures of chronic disease

management (percentage of persons with diabetes mellitus receiving appropriate glycosylated hemoglobin testing, percentage of persons with moderate-to-severe asthma prescribed a controller medication, percentage of patients screened for hyperlipidemia after an acute cardiac event, percentage of patients who had their low-density lipoprotein cholesterol level appropriately controlled after an acute cardiac event, and percentage of patients with hypertension with blood pressure less than 140/90 mm Hg).

We defined 10 categories of quality improvement initiatives ([Appendix](#) available online at www.ajmc.com). For each HEDIS measure, all respondents were asked an open-ended question to elicit whether initiatives were in place to improve the group's performance on that measure. For each reported initiative, the interviewer probed for additional information to enable classification into 1 of 10 categories of initiatives. Initiatives were counted only if they involved concrete actions. For example, "the group's physicians discuss improving performance at regular meetings" was not counted, but "an ongoing program to collect and analyze performance data and give the results to physicians" was counted. Initiatives in the planning stage were excluded.

The interview guide also included questions about other group characteristics that might be associated with quality improvement initiatives such as the fraction of the group's physicians that were employees of the group (or in a partnership agreement).^{26,27} The survey included a question about operating margin (profit vs loss), but many group leaders were unable to answer this question. In many groups, revenue is simply passed on to the member physicians, and there is no overall group operating margin. We refined the interview guide based on feedback from local physician leaders who were not part of our sample.

Interview Guide Administration

Initial telephone calls yielded the contact information of the leader most likely to have detailed knowledge of the topics of the interview. This person was a medical director (75% of groups), a nonphysician executive (19%), or an office manager (6%). One of us (AM) used the interview guide to conduct a 30- to 60-minute telephone interview with each leader. A trained project assistant listened to each interview and recorded detailed notes. All interviews were conducted between May and September 2005.

Statistical Analysis

For each of 8 HEDIS quality measures, we calculated separately the percentage of groups reporting P4P incentives

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tied to a measure and the percentage reporting quality improvement initiatives targeting a measure. To test the association between P4P incentives and quality improvement initiatives, we specified a single logistic regression that encompassed the 8 HEDIS measures in our study. The unit of analysis was a quality measure within a group. Each physician group could contribute up to 8 observations. The dependent variable was whether or not the respondent reported a quality improvement initiative targeting the given measure. The independent variable was whether or not the respondent reported a P4P incentive tied to the given measure.

To address the within-group correlation among the quality improvement initiatives, we used a generalized linear mixed model assuming an unstructured covariance matrix.²⁸ To address the varying frequency of quality improvement initiatives across the different measures (eg, mammography initiatives were more common than hypertension initiatives), the model included a unique intercept for each measure. The model included the following other factors that might influence the group's likelihood of undertaking quality improvement initiatives: the number of primary care physicians (above vs below the median of 39 physicians), the proportion of physicians employed by the group (majority vs less than majority), affiliation with a physician network, whether the majority of the group's physicians were specialists, whether the majority of the group's physicians used an electronic medical record, and whether greater than 25% of the group's commercial health plan revenue was in the form of capitation.

In analyses of the HEDIS measures, we excluded a group if the measure was irrelevant (eg, pediatric groups were excluded from analyses involving the mammography measure). Generalized linear mixed-model results were estimated using Proc Glimmix in SAS version 9.2 software (SAS Institute, Inc, Cary, NC). Items lacking a response were excluded from the analyses.

■ **Table 1.** Characteristics of 79 Massachusetts Physician Groups

| Characteristic | % of Groups |
|--|-------------|
| Primary care populations served | |
| Both adult and pediatric | 77 |
| Adult only | 11 |
| Pediatric only | 11 |
| Mix of primary care and specialty physicians | |
| All or mostly primary care physicians | 47 |
| Equal mix of primary care and specialty physicians | 27 |
| Mostly specialty physicians | 27 |
| No. of primary care providers | |
| ≤10 | 13 |
| 11-25 | 28 |
| 26-100 | 42 |
| >100 | 18 |
| Number of physicians employed by the group (or in partnership arrangements) | |
| 0 | 39 |
| 1-25 | 10 |
| 26-50 | 4 |
| 51-75 | 5 |
| 76-100 | 42 |
| Affiliated with a physician network | 53 |
| Majority of physicians in group use an electronic medical record | 15 |
| >25% Of group's commercial health plan revenue in the form of capitation | 13 |

RESULTS

We completed interviews with leaders of 79 of 100 physician groups (Table 1). Among participating physician groups, 77% provided both adult and pediatric primary care, 47% were composed of all or mostly primary care physicians, and 53% were affiliated with a physician network. In 15% of groups, the majority of physicians used an electronic medical record.

Prevalence and Focus of P4P Incentives

During 2004, 89% of the groups had a P4P incentive in at least 1 commercial health plan contract (Table 2). HEDIS measures were the most frequently reported target of the P4P incentives, with the same 89% of groups reporting 1 or more incentives tied to HEDIS measures. In the other categories, 66% of groups reported incentives tied to utilization measures, 52% reported incentives tied to the use of information tech-

■ **Table 2.** Prevalence of Pay-for-Performance Incentives and Quality Improvement Initiatives Across Measures of Physician Group Performance

| Measure | % of Groups | |
|--|---|--|
| | Report P4P Incentive Tied to This Measure | Report Quality Improvement Initiative Targeting This Measure |
| Any Health Employer Data and Information Set quality measure | 89 | 72 |
| Glycosylated hemoglobin measurement* | 86 | 61 |
| Mammography screening* | 76 | 61 |
| Asthma controller medication use | 68 | 58 |
| Adequacy of well-child visits [†] | 61 | 38 |
| <i>Chlamydia</i> screening | 60 | 33 |
| Hyperlipidemia screening* | 41 | 31 |
| Low-density lipoprotein cholesterol level control* | 27 | 16 |
| Hypertension control* | 7 | 12 |
| Utilization measures[‡] | 66 | — |
| Use of electronic medical record or other clinical information technology[‡] | 52 | — |
| Patient satisfaction survey measures[‡] | 37 | — |

*Excludes groups that do not care for adult patients.
[†]Excludes groups that do not care for pediatric patients.
[‡]Quality improvement initiatives not reported.

nology, and 37% reported incentives tied to the group's performance on patient satisfaction surveys. Only 1 group reported an incentive tied to a measure outside of these 4 categories. Among the groups with P4P incentives, 54% of leaders were able to track revenue from noncommercial health plan sources such as Medicare or Medicaid. For this subset of groups, the mean percentage of total revenue tied to P4P incentives was 2.2% (range, 0.3%-8.8%). Among all the groups with P4P incentives, 81% had received at least half of their incentives in the previous year, and 42% had received at least three quarters of their incentives.

Association Between P4P Incentives and Quality Improvement Initiatives

Among all groups, 72% reported at least 1 ongoing quality improvement initiative focused on a HEDIS measure (Table 2). The percentage of groups reporting initiatives targeting a measure ranged from 12% (initiatives to improve hypertension control) to 61% (initiatives to increase glycosylated hemoglobin measurement). The most common type of quality improvement initiative was the development of an internal registry and feedback system for physicians about their performance on a given measure. Adjusting for other group characteristics, we found

an independent positive association between P4P incentives tied to a HEDIS measure and quality improvement initiatives targeting that measure (odds ratio [OR], 1.6; $P = .02$) (Table 3). Other group characteristics independently associated with quality improvement initiatives included having a majority of physicians employed by the group (OR, 3.9; $P = .002$), affiliation with a physician network of physician groups (OR, 2.4; $P = .03$), and having more than the median number of physicians in the group (OR, 2.6; $P = .03$).

Reported Impact of P4P Incentives on the Group

Among the groups reporting P4P incentives, 36% of leaders reported that the incentives were moderately or very important to the group's overall financial performance, and 56% reported that the incentives had a moderate or significant impact on the group. Compared with those with less than 1% of overall revenue tied to incentives, group leaders with more than 3% were more likely to report that the incentives were financially important (56% vs 11%, $P = .01$ for test of trend) and that incentives had an impact on the group (89% vs 37%, $P = .02$ for test of trend).

Leaders' Views of P4P Incentives

Overall, 77% of physician group leaders expressed support for the notion of paying physician groups based on their performance on HEDIS measures, and 79% reported that P4P incentives would lead to quality improvement during the next 3 years. Ninety-one percent reported that the ideal percentage of revenue tied to P4P incentives should be 5% or more. Only 12% reported that their group's physicians perceive poor quality of care as a major issue in healthcare.

DISCUSSION

P4P incentives are increasingly viewed as a cornerstone of efforts to improve quality, despite limited evidence of their effectiveness.²⁹ Few prior studies²² have assessed the

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views of physician group leaders about P4P incentive programs, and, to our knowledge, ours is the first study to examine the relationship between P4P incentives and quality improvement initiatives. In 2005 in Massachusetts, where 89% of physician groups faced at least 1 P4P incentive in their commercial health plan contracts, incentive programs accounted for approximately 2% of total revenue, and we found that P4P incentives were associated with a higher likelihood that a group had quality improvement initiatives targeting measures tied to incentives.

Our results shed light on the open question of whether current P4P incentives are large enough to motivate quality improvement.³⁰ Only one third of the group leaders viewed incentives of the magnitude observed in our study as important to their group's overall financial status, suggesting that larger incentives may be necessary to engage more groups. Most physician group leaders reported that incentives of 5% or more would be necessary to increase the emphasis on quality improvement. Nevertheless, the magnitude of incentives is only one of many factors influencing the decision to undertake quality improvement. Other factors include the perceived clinical importance of the quality measure, the costs and effectiveness of an available quality improvement initiative, the group's operating margin, the fraction of revenue from the payer with the incentive, and the structure of the group. Structure may be especially important. A large physician group that employs its physicians and makes central use of the incentive dollars may make different decisions than a smaller group that divides and distributes incentive dollars to independent individual practitioners. These factors might explain why the Medicare hospital P4P demonstration project is the only P4P program that has demonstrated improvement.¹⁹ Hospitals may be better able than outpatient practices to garner the resources for quality improvement. Also, hospitals face one dominant payer, Medicare, while outpatient practices face many different payers with potentially different incentives.

P4P incentives are frequently described as a mechanism to improve clinical quality,^{21,29} but they can also be applied to

■ **Table 3.** Adjusted Odds That a Physician Group Has a Quality Improvement Initiative Targeting a Given Health Employer Data and Information Set (HEDIS) Measure*

| Variable | Odds Ratio (95% Confidence Interval) | P |
|---|--|------|
| P4P incentive tied to the HEDIS measure | 1.6 (1.1–2.5) | .02 |
| Group employs majority of its physicians | 3.9 (1.7–8.8) | .002 |
| Physician group is affiliated with a physician network | 2.4 (1.1-5.3) | .03 |
| More physicians than the median-sized group, >39 primary care physicians | 2.6 (1.1-6.2) | .03 |
| >25% Of group's commercial health plan revenue in the form of capitation | 1.5 (0.5-4.5) | .42 |
| Majority of physicians use an electronic medical record | 1.5 (0.5-4.1) | .45 |
| Majority of group's physicians are specialists | 0.8 (0.4-1.8) | .61 |
| P4P incentive tied to any utilization measures | 0.6 (0.2-1.3) | .18 |

*Generalized linear mixed model includes a unique intercept for each HEDIS measure in addition to the variables in the table.
P4P indicates pay for performance.

reign in the escalating cost of care.³¹ We found that P4P incentives are applied for both purposes. A majority of the physician groups reported incentives tied to both clinical quality measures and utilization measures targeting reduction of expensive care such as emergency department visits. Anecdotally, some leaders expressed concern that health plans' inclusion of utilization measures revealed the primary goal of P4P programs to be monetary savings rather than quality improvement. The 2 goals could work at cross purposes. Given limited capacity for change, groups might choose to focus on utilization reduction initiatives rather than on quality improvement. Of note, the multivariate model suggests a negative (but not statistically significant) association between P4P incentives on utilization and the likelihood of reporting a quality improvement initiative (OR, 0.6; 95% confidence interval, 0.2-1.3).

Our findings highlight the importance of physician group organizational characteristics in understanding how incentive programs and quality improvement can be optimized. Like others, we found that larger groups were more likely to undertake quality improvement initiatives,³² as were groups that employ a majority of their physicians and those affiliated with a network of physician groups. These findings support the contention that the integration of primary care physicians into larger groups may enable them to undertake more quality improvement activities.³³

The views of physician group leaders and practicing physicians may not be aligned. The majority of leaders in our study

Take-away Points

Despite widespread implementation of pay-for-performance (P4P) incentives, little is known about physician groups' response to P4P incentives and whether they foster quality improvement.

- A majority of physician group leaders viewed P4P incentives favorably.
- Only one third of leaders reportedly thought that their current P4P incentives were financially important. To increase the emphasis on quality improvement, 91% of respondents believed that incentives of 5% or more would be necessary.
- P4P incentives were associated with a higher likelihood that a group had quality improvement initiatives targeting measures with incentives.

reported that the group's physicians do not view quality as a major problem in healthcare. This result is consistent with prior research suggesting that practicing clinicians remain skeptical of the national quality of care agenda outlined by the Institute of Medicine.^{22,34,35} In the face of resistance by practicing clinicians, physician group leaders may look to P4P incentives as a way to engage practicing physicians in efforts to improve quality.

Some commentators worry that P4P incentives may have adverse consequences such as motivating physicians to avoid clinically complex or noncompliant patients or diverting physicians' attention away from important but unmeasured medical services.²⁰ In the United Kingdom, there is evidence that some family physicians responded to a national P4P program by inappropriately excluding patients from the measures.³⁶ In our interviews, which included a probe about adverse and unintended consequences, physician group leaders did not note these concerns. However, if P4P incentives become more financially important, evidence of adverse consequences may surface.

Our study has some limitations. First, the study design does not allow us to assert that P4P incentives "caused" physician groups to undertake quality improvement initiatives. That a majority of leaders reported that P4P incentives have had an effect on their group is compelling, but it is plausible that physician groups with existing quality improvement initiatives negotiated to obtain P4P incentives relevant to those initiatives. Second, we assessed the group's use of quality improvement initiatives, not the performance of groups, and quality improvement activities may not always improve the quality of care.³⁷ Third, although Massachusetts physician groups are similar in size to groups across the United States,³⁸ our results may not generalize to states with fewer incentive programs or where other configurations of health plans and physician groups predominate.

P4P incentives are an increasingly popular innovation. Private insurers commonly include these incentives in con-

tracts with physicians, and the federal government is poised to implement P4P incentives in the Medicare program. There is little doubt that P4P will play an increasing role in physician payment. Massachusetts physician groups have been at the forefront of this movement. Our results suggest that physician group leaders are open to an expansion of these incentive programs and that incentives may stimulate quality improvement initiatives. Whether these initiatives will yield improvements is unclear. However, if they do, then P4P incentive programs could be an important step toward a higher-quality healthcare system.

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