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Engaging Physicians in Change: Results of a Safety Net Quality Improvement Program to Reduce Overuse

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Abstract

Identifying, understanding, and addressing clinical variation is a useful tool to promote appropriate care while helping control health care costs. Although accurate, relevant, and useful data are important in the process, successfully engaging physicians to change behavior is often the most significant challenge. Using a commercially available variation analysis process, a California Medicaid managed care plan identified significant network practice pattern variation. A team of panel practitioners then developed a strategy to reduce overuse of 5 identified behaviors. The intervention was evaluated using a pre–post comparison of the panel’s use of the 5 behaviors. During the preintervention period, narcotics, muscle relaxants, magnetic resonance imaging (MRI), and spinal injections increased between 8% and 18% per month. Postintervention, the trends reversed. The differences were statistically significant ($P < .0001$) for muscle relaxant use, narcotic use, overall MRI use, and spinal injections. Peer comparison data and respectful feedback was associated with significant change in patterns of overuse.

Keywords

clinical variation; physician engagement; practice patterns; cost reduction; physician behavior

Although there is little debate that increases in health care costs are not sustainable¹ and that there is significant overuse in the system,^{2–4} the methods to address these increased cost trends and the identification and elimination of unnecessary services has proved more difficult to achieve. Work by Wennberg⁵ and, subsequently, Fisher^{6,7} demonstrates remarkable variation in practice behaviors between regions and communities. Their work identified provider supply and training as two of the more important contributors to this

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variation. At the same time, the Institute of Medicine has focused attention on the need to improve health care quality and safety.⁸⁻¹⁰ One aspect of that attention was casting quality improvement in the context of reducing overuse, underuse, and misuse of health care resources.⁹

Although identification of regional variation is valuable and provider supply is becoming an important component of health policy planning, more work is needed at the practitioner level to identify the approaches found successful at motivating providers to actively address and reduce overuse, misuse, and underuse of services. During this decade, a number of interventions (ie, pay for performance, public reporting, network tiering) have been tried but have met with limited success.¹¹⁻¹³

Greene and colleagues¹⁴ have argued that focusing on global assessments is responsible for at least some of the limited success achieved by these measurement programs. Instead, they advocate the identification of actionable measures of overuse followed by a focused intervention to change practitioner behavior and reduce the identified overuse, misuse, or underuse.¹⁵ This article describes the methods and results of a quality improvement project using the framework of identifying actionable areas of overuse from claims data and then crafting an intervention to decrease overuse in one of the identified actionable areas: the management of acute and chronic back pain.

In 2006, the California HealthCare Foundation (CHCF) approached a number of Medicaid health plans to recruit volunteers interested in improving the efficiency and quality of care, specifically by using data-driven approaches to identify and address actionable opportunities to reduce overuse and/or misuse.

Methods

Context

Partnership HealthPlan of California (PHC) is one of 26 Medicaid-managed care plans in northern California. The plan serves approximately 100 000 Medicaid recipients in Napa, Solano, and Yolo counties and administers Medicare benefits to 4000 members who are dually eligible for both Medicare and Medicaid. PHC began operations in Solano County in 1994, expanded to Napa County in 1998, and to Yolo County in 2001. In 2007, PHC contracted with approximately 111 primary care practices sites with 500 primary care practitioners and more than 500 specialists. PHC maintains an active commitment to quality improvement, having received numerous awards from the California Department of Health Services for benchmark results in their Healthcare Effectiveness Data and Information Set scores and member satisfaction surveys. In addition, the plan has participated in a number of chronic disease patient care improvement projects sponsored by the Center for Health Care Strategies and CHCF. In 2006, PHC was selected as 1 of 4 Medicaid plans to participate in a CHCF project to improve practice cost-effectiveness. CHCF contracted with Ingenix, a data management company, to group claims data into episode treatment groups (ETGs), and with Focused Medical Analytics (FMA), a data analytic consulting group, to find ETGs in which there might be opportunities to improve patterns of care by reducing overuse or misuse of services. As part of that project, PHC began working with Ingenix and FMA to identify and reduce areas of overuse of health care services. This article describes the results of that effort with PHC.

Selecting the Focus

To determine overuse opportunities, claims data with dates of service provided between August 1, 2004, and July 31, 2006, were sent to Ingenix to be grouped into episodes of care using the Symmetry grouper, which sorted claims into diagnostic groupings (ETGs) using

Symmetry's clinical logic. The Symmetry program logic then assigned each claim to 1 of 5 cost categories: evaluation/management, facility, surgical, pharmacy, and ancillary. The grouped data were then forwarded to FMA for more detailed analysis. FMA analyzed the grouped claims data to answer the question, "What are lower cost and higher cost physicians doing differently from each other?" Using FMA's proprietary software, this question was then answered for a number of specialty-specific, high-cost, high-volume ETGs. With identification of the specific services responsible for differences in cost, FMA and PHC staff assembled a group of practitioner experts and used the best available evidence to determine behaviors that were judged to be overused or underused. Because this project focused on overuse, the conversations focused on ETGs for which significant variation in high-cost practitioners was believed to represent overuse. Following this process, FMA generated a list of 15 potential practice behaviors on which to focus. Working together, PHC and FMA decided to focus attention on acute and chronic back pain (ETGs 721.08, 722.08, 746.08, 749.08, 751.08, 752.08, and 165) because (1) the condition is common and generates significant expense, (2) the condition is clinically important because of patient pain and suffering, (3) the FMA data showed wide variation in practice patterns among primary care practices and specialists, and (4) selected chart reviews revealed variation from evidence-based practice guidelines.

Engaging Physicians

Once consensus was reached, PHC, with FMA's assistance, developed a physician outreach program to engage physicians in a conversation about the reasons for the variation between practices and/or practitioners. Instead of focusing on cost reduction per se, the focus was on understanding the reasons for variation in practice behaviors, reducing unnecessary variation, and eliminating overuse, thus, placing cost reduction in the larger context of quality improvement.^{14,15}

In 2007, the American College of Physicians (ACP) published a clinical practice guideline on the management of back pain that contained very specific evidence-based recommendations.¹⁶ After reviewing the guidelines, PHC convened an expert group from their local practitioner panel to review available guidelines and reach consensus on where overuse or underuse of services occurred in the management of acute and chronic back pain. The expert group comprised a pain management specialist, 2 anesthesiologists, 2 psychologists, 2 physiatrists, a neurologist, a family practitioner, a physical therapist, and an orthopedist. The group met twice, adopted the ACP guidelines, and endorsed 5 areas thought to be overused. Included in the guidelines was the recommendation to limit magnetic resonance imaging (MRI) of the spine during the first 4 to 6 weeks of symptoms in the absence of a prescribed set of "red flags." The identified areas of overuse were the following:

- long-term muscle relaxant therapy;
- long-term opioid therapy;
- spinal injections, primarily epidural and facet injections;
- total MRIs of the back performed during an episode of care; and
- lumbar spine MRIs performed within 4 to 6 weeks after onset of a back pain episode in the absence of red flags

The messages the expert panel recommended that the plan promote to the primary care practices included the following:

- the risk of long-term muscle relaxant therapy outweighs the benefit;

- the overall benefit of opioid therapy is limited for the management of back pain; and
- there is limited evidence for the long-term effectiveness of spinal injections (epidural steroid and facet injections)

In the absence of red flags, an MRI should not be performed until at least 4 to 6 weeks after the onset of a back pain episode.

Based on the evidence reviewed, the expert panel recommended the initiation of a preauthorization program for spinal injections, using InterQual criteria. It should be noted that as the sole payer for Medicaid in the 3-county area, the plan had been preauthorizing diagnostic imaging services such as MRI and computed tomography scans for back pain for 5 years prior to initiating the project. Given the expert panel's recommendations, PHC and FMA staff created physician-specific reports that were shared with panel members. FMA case mix adjusted the data so that issues of patient selection bias were minimized. The reports reinforced the expert panel recommendations. A sample report may be requested from the author.

To reinforce the recommendations and encourage behavior change where appropriate, PHC staff initiated a series of outreach visits to primary care practice sites to highlight variation in performance of the 4 behaviors in episodes of chronic or acute back pain. During the visits, the plan medical director and pharmacy director engaged primary care physicians in a respectful, nonjudgmental discussion of recommended best practices and offered advice on how to achieve the goals of the program. In the course of the discussion, the ACP guidelines were presented along with plan-constructed variation charts (a sample chart is available from the author on request). After receiving feedback from a number of practitioners suggesting that the plan develop prior authorization criteria for chronic muscle relaxant therapy, the criteria were created and a preauthorization program for chronic muscle relaxant use in managing back pain was implemented beginning on April 1, 2008. Because the program was created as a quality improvement project, the intervention was continuously refined and expanded during the course of the 1-year postintervention period. The remainder of the panel received information through panel newsletters and minutes of physician meetings.

Control Group

The PHC practitioner panel served as its own historical control. October 2007 served as the formal beginning of the intervention with physician outreach visits, although practitioners were involved in formulating the guidelines beginning in August 2007.

Measurement

To cleanly separate and compare the panel's back pain care preintervention and postintervention, FMA defined episodes in the following manner: the preintervention ETGs were defined as those ending between October 1, 2006, and September 30, 2007, and the postintervention ETGs were defined as those beginning between November 1, 2007, and October 31, 2008.

This method prevented services from overlapping and, therefore, confounding the intervention period, creating more explicit preintervention and postintervention care processes. After the analytic process was completed, the measures selected for analysis included the following: (1) the 14-day supply of muscle relaxants paid for per 100 episodes, (2) the number of back MRIs per 100 episodes of back pain, (3) the number of back MRIs performed within the first 42 days of an episode per 100 episodes, (4) the number of spinal

injections per 100 episodes, and (5) the days' supply of narcotics purchased per 100 episodes. Specifications of each measure are available from the author on request.

Statistical Analysis

Analyses examined whether the time trend in each measure changed after the intervention. In other words, if the rate of injections was increasing each month at 10% before the intervention, did it flatten out or decrease after the intervention? Statistical models used Poisson regression with deviance-scaled standard errors. The dependent variable in each model was the count of each outcome, with the offset term being the number of episodes per month. This allowed us to analyze, for instance, the rate of spinal injections per 100 episodes that occurred each month. Independent variables included a separate time term for the month before and the month after the intervention. The coefficient of the preintervention term represents the rate of increase for that outcome per month before the intervention. The coefficient for the postintervention term represents the rate of increase/decrease in the outcome after the intervention. Technically, these coefficients are termed "rate ratios": a rate ratio more than 1 is interpretable as the percentage increase in a given outcome per month during the preintervention or postintervention period (ie, 1.15 = 15% increase), whereas a rate ratio less than 1 is the percentage decrease (ie, 0.90 = 10% decrease). The hypothesis that time trends differed preintervention as compared with postintervention was evaluated via Wald tests comparing preintervention and postintervention terms. The general strategy of evaluating such trends before and after an intervention is a form of "regression discontinuity" design, in that some discontinuity is expected in the trend line if the intervention has an effect.¹⁷

Sensitivity analyses replaced outlying values (August, for injections and narcotics; October, for muscle relaxants and MRIs) with values from the previous month. This represented a conservative approach, in that upwardly trending rates were assumed to stop completely at the month in question. The purpose of this was to examine whether findings were robust once potential outliers had been brought into the range of the rest of the data.

Results

Over the 6-month period of November 2007 through April 2008, the plan medical director and pharmacy director visited 34 high-volume practice sites and met with 45 primary care practitioners and 116 practice-related staff.

Table 1 shows the rate ratio, or the percentage increase (decrease) per month, for each measure during the preintervention and postintervention period. During the preintervention period, narcotics, muscle relaxants, MRIs, and spinal injections increased significantly at a rate of between 8% and 18% per month. After the intervention, the trends reversed. For the following trends, the difference was statistically significant ($P < .0001$) for muscle relaxant use, narcotic use, overall MRI use, and spinal injections (between 3% and 14% decrease per month). MRI use during the first 42 days of the episodes flattened out after the intervention but the difference in trends was not statistically significant. In Figure 1, we present a more graphic representation of the trends over time.

The sensitivity analysis replacing outlying rates revealed virtually identical findings for all outcomes except MRI, which was at low utilization levels prior to the start of the project. This means that the striking increases in utilization occurring in August 2007 did not influence the statistical significance of the pre-post differences.

An attempt was also made to determine if the increases seen in early 2007 were the result of staffing changes in the panel or other special cause variation in available services, plan

design, or policy changes. We were unable to identify other influences on ordering patterns beyond those described.

Discussion

The purpose of this project was to determine if the use of services thought to offer little medical benefit (overuse) could be reduced by an intervention that blended the delivery of accurate, peer-comparison data with a respectful relationship-centered feedback process. Based on the results from applying this quality improvement intervention to the evaluation and management of acute and chronic back pain, the answer appears to be yes. Using historical controls, significant changes were seen in the prescribing of narcotic analgesics and muscle relaxants and in the use of spinal injections after the introduction of an intervention anchored in local vetting of evidence-based measures and respectful, content-focused practice visits. The results are all the more valuable because the work was carried out by a safety net health plan whose focus is on working primarily with more vulnerable populations. This approach will need to be tested in other communities and with other payer mixes. However, our experience did not suggest that there were unique characteristics of either the physicians caring for the Medicaid patients or the patients themselves to indicate that the approach would not be successful in either the commercial or Medicare patient populations.

As with many quality improvement projects, the intervention evolved over the course of the project through continuous improvement cycles; however, the core elements were the creation of an accurate, searchable database, an interest in and methodology to identify behaviors felt by practitioners to be actionable, and a process to engage practitioners in changing behavior that was designed to be collaborative and respectful. Because collaboration and respect were such integral parts of the model, considerable planning time was devoted to creating strategies to increase collaboration, practice the techniques, and create methods to evaluate the success of the intervention. The core of the practitioner engagement component was a practice visit, during which the PHC medical director shared the results of the local expert panel's findings and recommendations, peer comparison data, and the recommended behavior changes suggested by the panel and plan. The PHC medical director, satisfied with the outcomes of the meetings, began sharing the approach with colleagues.¹⁸ The authors believe that a critical success factor affecting the willingness and decision to change involved the construct of the meetings. Discussions were organized to be factual, respectful, and nonjudgmental; this allowed the practitioners to consider the proposed recommendations and select practice changes that permitted an improvement in patient care. Of note, the behavior changes were accomplished without the plan offering practitioners an additional financial incentive over and above the existing risk pool arrangements, in which savings on medical services such as pharmacy and imaging procedures were shared equally between the practice site and the health plan. Although preauthorization could be a confounding variable, preauthorization for imaging studies was in place for 5 years prior to the project. There did not seem to be meaningful differences between the interventions for which preauthorization was new and those for which preauthorization had been in existence before. Preauthorization for spinal injections was added as part of the project. The preauthorization processes were thought to be helpful but not sufficient for the success of the project. Discussions with primary care practitioners were thought to be more important than the preauthorization process in achieving the outcomes.

The health plan expended modest resources to accomplish the interventions. The resources included primarily the time for the medical director to do outreach to the primary care practice sites and for additional utilization management staff. The cost savings to the health plan from reduced utilization of services were significantly greater than the cost of the

interventions. These savings are achievable and realistic for other medical groups and health plans.

As health plans increasingly attempt to influence physician behaviors based on evidence and data, approaches that foster collaboration and develop strategies that respect each stakeholder's goals become more important. Again, the results are all the more important because there were no added financial incentives involved for the practitioners, suggesting that focusing on appropriateness of care with actionable information and valid peer comparisons is a powerful incentive for change.¹⁹

The health plan learned several important lessons from this work. First, primary care practitioners seemed willing to change their prescribing and ordering patterns when provided with evidenced-based clinical guidelines combined with information about their practice site performance relative to those guidelines. Although the primary care practitioners who managed the patients did not perform the spinal injection, their selection of a specialist to whom to refer is influenced by the procedures and approaches the specialist endorses. Providing information about alternative treatment approaches and available resources to primary care practitioners seemed to help them in directing patients to specialists interested in providing a multidisciplinary, comprehensive, conservative approach to chronic pain. With regard to effecting change in prescribing patterns, communicating recommendations in a clear, nonjudgmental fashion seems to reduce resistance to the adoption of changes in prescribing patterns. Overall, the outreach educational visits to primary care practitioners have been successfully complemented by the addition of a prior authorization process to the change process.

Plans or medical groups interested in using a similar process should be alert to a number of consequences of this approach. The workload requirements to implement prior authorization criteria were significant on both the medical and pharmacy side. In addition, with recommendations to limit the use of selected services, a modest increase in complaints and appeals to the plan should be anticipated. Finally, although beyond the scope of this project, it is considered valuable to track other areas of utilization that might increase in response to the decreases in treatments seen in this study.

There are several limitations to this study. First, this project was designed as a quality improvement project with a focus on making the information that is understood to be the standard of care actionable. As such, it was designed using historical controls rather than a randomized trial. Although there is evidence that the intervention was successful in changing practice behavior, a randomized trial would be needed to demonstrate causation.

Additionally, the results of the project are limited by the characteristics of the population and provider network in which the work was performed. Specifically, the plan primarily covers a Medicaid population of about 100 000 patients in a 3-county area in northern California who are served by a limited primary care and specialty network. The generalizability of the intervention requires replication in other geographic regions and with other socioeconomic groups.

Finally, the project was limited by the focus on reducing the utilization of overused services. The project did not collect information on the patient's experience of care or quality of life. To more fully evaluate the intervention, collection of experience-of-care data and clinical outcomes data is needed.

Conclusions

This study demonstrated that a safety net health plan can successfully implement a program targeting overuse of medical services when the program uses accurate data, identifies and promotes actionable behavior change, engages physicians early in the process, and offers peer comparison in a respectful fashion. Specifically, PHC designed and implemented a program to reduce overuse of services that resulted in a significant decrease in the chronic use of muscle relaxants and narcotics, and episode use of MRIs and spinal injections; all were determined by a local expert panel to have no evidence supporting their use. Implementation of evidenced-based criteria and physician education delivered in a context of respect and collaboration proved to be an effective strategy in the treatment of acute and chronic back pain.

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Figure 1.
Time trends in outcomes preintervention and postintervention

Table 1Time Trend in Outcomes Preintervention and Postintervention^a

	Preintervention Trend: Rate Increase Per Month	95% CI	Postintervention Trend: Rate Decrease Per Month	95% CI	P for Difference Between Preintervention and Postintervention
Injections	1.18	1.11, 1.26	0.86	0.82, 0.91	<.0001
Narcotics prescriptions	1.09	1.06, 1.11	0.97	0.001	<.0001
Muscle relaxant prescriptions	1.08	1.05, 1.10	0.94	0.92, 0.95	<.0001
Magnetic resonance imaging (MRI)	1.09	1.06, 1.12	0.98	0.96, 1.00	<.0001
MRI first 42 days	1.03	0.99, 1.07	0.99	0.96, 1.03	.3321

Abbreviations: CI, confidence interval.

^aRate ratio = Percentage increase in procedure count/100 Episodes each month. Time trends are rate ratios from Poisson regression, representing the increasing rate of each outcome per month preintervention and the decreasing rate of each outcome per month postintervention. Ratios of 1 signify that an outcome was perfectly stable month to month, ratios higher than 1 are interpretable as the percentage increase in the rate each month, and ratios less than 1 are the percentage decrease in the rate each month. For instance, injections before the intervention were increasing at 18% per month (rate ratio = 1.18), whereas after the intervention, they decreased at 14% per month ($1 - 0.86 = 0.14$).