

Outcomes-based Pharmacist Reimbursement: Reimbursing Pharmacists for Cognitive Services

(Part 1 of a 2-part series)

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ABSTRACT

OBJECTIVES: (1) Describe the structure of an outcomes-based method of pharmacist reimbursement for cognitive services, (2) outline the structure of an intervention program, (3) explain a mechanism to increase the provision of pharmacists' cognitive services, and (4) summarize findings from the first year of operations of this outcomes-based pharmacist reimbursement program (OBPR).

METHODS: A cross-sectional descriptive study was completed using the claims submitted by pharmacists to summarize findings from the first year of operations of this OBPR. The program involves collaboration between pharmacy benefit managers (PBMs) and community pharmacists to improve medication use. Pharmacists were reimbursed for (1) converting therapeutic regimens to generic drugs or preferred formulary medications when a prescriber contact is required; (2) conducting patient education and follow-up after initiation of new medications, changes in drug therapy, or following an over-the-counter (OTC) consultation; and (3) resolving drug-therapy problems. An efficient, no-cost billing system was created. Pharmacies participating in this program are located in cities throughout Iowa, ranging in population from a few hundred to more than 100,000. The main outcome measures were descriptive statistics of prescriptions, intervention claims, and pharmacist participation in the program. Frequency distributions and descriptive statistics were used to summarize the first year of claims. Comparisons of averages were completed with *t* tests. Chi-square tests were used to compare frequency distributions.

RESULTS: Data analysis for the first year of operation, July 1, 2000, through June 30, 2001, showed that 11,326 enrollees obtained 124,768 prescriptions. The majority of individuals ($n=8335$, 74%) received some intervention service. The majority (90%) of intervention services were patient education and follow-up on new prescriptions or changes in prescriptions. More than 200 individuals had drug-related problems. There was variability in the level of service per pharmacy as the median number of intervention services was 30, while the mean was 113 ± 188 , among those providing any interventions.

CONCLUSION: This unique system of outcomes-based pharmacist reimbursement permits community pharmacists to document and bill for cognitive services. It has demonstrated that PBMs and community pharmacists can work together to improve drug therapy, and it may reduce health care costs.

KEYWORDS: Pharmacists, community; Reimbursement models; Pharmacy benefit management company

J Managed Care Pharm. 2002(8)5:383-93

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From 1995 to 2000, increases in spending on prescription drugs were 2 to 5 times larger than increases in spending on hospital care and physician services. The increased spending on medications resulted from increased utilization, changes in mix of drug types used, and manufacturer price inflation.^{1,2} Yet, evidence suggests that even as medication use grew, it was not always appropriate.³⁻⁹ For example, between 14% and 23% of elderly patients receive a medication they should not be prescribed.^{3,4} Up to 40% of patients do not take their medications as prescribed.⁵ Chrischilles, Segar, and Wallace reported that 10% (95% CI, 8.97 to 11.09) of respondents reported one or more adverse drug reactions among 3,179 community-dwelling persons 65 years of age and older in 2 Iowa counties.⁶ In the Harvard Medical Practice study, 6% of all patients and 12% of patients 65 and older experienced drug complications.⁷ Medication-related problems also lead to at least 5% of hospital admissions among the elderly.^{8,9} The costs to the health care system attributable to drug-related morbidity and mortality are as much as \$76 billion, although an exact amount is not known.^{10,11}

In the medication use process, pharmacists have traditionally been paid to dispense medications and ensure that they are accurately distributed to patients. With clear evidence that medication use needs to be improved, some pharmacists are performing "cognitive services" to varying degrees. Cognitive services are the clinically oriented activities intended to improve medication prescribing and use. For example, a pharmacist may identify a drug-drug interaction between a prescription and a nonprescription medication or a pharmacist may identify that a patient is receiving 2 similar medications from 2 different physicians. In these instances, pharmacists intervene with either the patient or prescriber to resolve the issue. The rationale for pharmacists performing these activities is that they are in a position to identify and resolve problems with medications as they are dispensing them. In fact, pharmacists can also identify more drug-therapy problems when they collect a comprehensive medication history in addition to dispensing medications.^{12,13}

Dispensing fees have declined over the past decade, and many pharmacists find that committing significant time to cognitive services without reimbursement is not financially viable. Yet, studies have shown that when pharmacists are reimbursed for cognitive services, they do identify more drug-therapy problems.¹⁴ One way to generate revenue from cognitive services is to directly charge patients for these services, but this approach does not seem to have been widely implemented by pharmacists. Alternatively, pharmacists have sought to have insurers pay for these services. Obtaining third-party payer coverage of

pharmacists' cognitive services as a covered benefit may be positive because it will mean pharmacists are recognized providers of care, and this status will create revenue to help pay for services. However, this process also increases third-party processing costs, third-party oversight and, some degree of third-party control over rate setting, which may not all be positive.¹⁵

The optimum mechanism to reimburse pharmacists for cognitive services is not clear. Two general approaches to reimbursing pharmacists for cognitive services are fee-for-service and capitation. In a fee-for-service model, pharmacists are compensated when covered services are provided. The payment system for community pharmacists in the province of Quebec is an example of such an approach. Pharmacists are paid \$15.45 (Canadian) for written letters to physicians to modify prescribed treatment following identification of one of 8 defined drug-related problems, e.g., interaction between prescription and nonprescription drug or a patient having 8 or more active medications.¹⁶

Christensen et al. described a 2-tier reimbursement scheme where pharmacists received \$4 per intervention under 6 minutes and \$6 per intervention requiring more than 6 minutes. This was another fee-for-service approach, recognizing that 2 levels of resources or time may be used. A problem-intervention-result claim was submitted when pharmacists identified actual or potential drug-related problems. In this study, pharmacists documented 1.59 cognitive services per 100 prescriptions, and the types of problems identified and activities performed differed between treatment and control pharmacies.^{14,17}

Another type of fee-for-service model uses a resource-based relative value scale (RBRVS) to determine pharmacist compensation. With an RBRVS, services are ranked according to relative costs, and a reimbursement scheme is adopted based upon these costs. In Minnesota, Strand and colleagues employed an RBRVS method with 5 levels of reimbursement. These levels were dependent upon varying combinations of the number of active medications, medical conditions, and drug-therapy problems identified. These combinations resulted in levels of intervention requiring up to 5, 10, 20, 30, and ≥ 45 minutes, with reimbursement ranging from \$7.45 to \$55.89. In 1994, the average payment to pharmacies in the Minnesota pharmaceutical care project was \$12.14 per service.¹⁸

In capitation, pharmacists are paid a fee per patient, irrespective of what services are provided to patients. Two models currently in use to pay community pharmacists for cognitive services could be considered a hybrid between capitation and fee-for-service reimbursement mechanisms. Similar to capitation, a maximum reimbursement rate per person per year is established. Similar to fee-for-service, pharmacists are paid a flat fee for visits, but up to a maximum number per year. The exact services that occur within each visit are patient-dependent and are not explicitly defined by the reimbursement system. For example, the Centers for Medicare and Medicaid Services (CMS) allows Mississippi to pay pharmacists—not pharma-

cies—a flat fee of \$20 per intervention for managing 4 chronic conditions, including diabetes, asthma, hyperlipidemia, and anticoagulation. Each patient must be referred to a pharmacist by a physician, and the state will pay for no more than 12 interventions per patient per year.¹⁹ In the Iowa Medicaid program, pharmacists are paid up to \$315 per person for pharmaceutical case management services. A one-time initial visit of \$75 per lifetime is allowed. Then, up to 4 follow-ups per problem per patient per year (\$40/follow-up) and up to 2 new problems (\$40/problem) can be billed per patient per year. The impact of this program is currently undergoing evaluation.^{20,21}

Pharmacy benefit managers (PBMs) have been reluctant to pay pharmacists for cognitive services.²² With rising prescription drug costs, a goal of many PBMs is to help employers or other payers contain or reduce the rate of increase of prescription drug utilization and costs. On the surface, paying pharmacists for more services may not seem to be a rational approach. Numerous strategies have been used by PBMs to reduce prescription benefit costs, including reducing dispensing fees paid to pharmacies. Varying copays to patients is another strategy that has been used to increase use of formulary or preferred medications²³ or simply to increase the average cost-share for patients. Prospective drug utilization review systems also help target some drug-related problems and have been used to reduce problems in prescribing.²⁴

In addition to these strategies, we contend that community pharmacists have been underutilized by PBMs in managing drug therapy. A proprietary, outcomes-based pharmacist reimbursement (OBPR) program was devised by 2 of the authors (Kumbera and Halterman) as an approach that differs from traditional pharmacy benefit programs. In this program, participating pharmacists are compensated based on their ability to deliver a defined set of cognitive services to physicians and patients, rather than solely on the volume of medications sold.

OBPR is essentially a fee-for-service model based on estimated economic outcomes and intermediate outcomes of improved drug therapy. First, clients or purchasers of benefits for their employees pay a capitated rate per enrollee. The total payment per client for one year is guaranteed not to exceed the estimated savings derived from pharmacists' care for the client's covered members. Second, pharmacist providers are reimbursed for intermediate outcomes, namely improvements in drug-therapy and medication adherence.

The objectives of this article are to (1) describe the structure of an outcomes-based method of pharmacist reimbursement for cognitive services, (2) outline the structure of an intervention program, (3) explain a mechanism to increase the provision of pharmacists' cognitive services, and (4) summarize findings from the first year of operations of this OBPR. A second article will be forthcoming in the *Journal of Managed Care Pharmacy* to compare health care costs among individuals with the proprietary OBPR program to individuals without it.

Practice Innovation

Structure of Outcomes-based Pharmacist Reimbursement (OBPR)

This proprietary program is a health care service purchased by employers and health plans not only to assist covered members to utilize generic and preferred drugs but also to manage the clinical outcomes of drug therapy. The program provides coverage for specific interventions made by pharmacists with covered members and their physicians, which may improve the quality of care and reduce health care costs. Pharmacy providers are compensated for covered interventions from a payer-funded “risk pool.” Funding of the risk pool is subject to performance guarantees that must be met in order to retain full funding of the pool.

OBPR, as conceived by this proprietary agent, is a tool and not a stand-alone PBM. Rather, the proprietary agent partners with PBMs who administer the drug benefit for payers, while the OBPR company coordinates an enhanced set of cognitive services or interventions provided by community pharmacists to covered drug plan members. Specifically, the OBPR company and the PBM must collaborate in 4 key areas, including patient eligibility, patient identification, formulary management, and claims sharing.

Patient eligibility is the first area of collaboration. The PBM supplies an eligibility file to the OBPR company once a month. This allows the client/employer or payer to provide eligibility information to only one vendor, i.e., the PBM, rather than updating 2 vendors, i.e., the PBM and the OBPR company, with additions, terminations/deletions, and changes in their enrollment file that occur each month.

Patient identification is the second area where the OBPR company and PBMs must work together. In this area, the PBM sends online messages in the National Council for Prescription Drug Programs “Message Plus” field stating “OBPR Encounter Elig 515-237-0001” on all adjudicated prescription claims. This message notifies the pharmacist that the patient is eligible for OBPR interventions, if appropriate for this member.

The third area of collaboration is in **formulary management**. The formularies are established by partner PBMs that may be used by the employer or payer. Through the OBPR program, pharmacists help to increase the number of members who receive formulary medications.

The final area of coordination involves **claims sharing**. The PBM provides prescription claims files for the covered members enrolled in the OBPR program. This information is merged by the OBPR company with the intervention data to form a performance score, which is used along with incentives to increase pharmacy performance, as outlined in a subsequent section.

Each client of the OBPR company is billed a monthly program fee based on the number of total covered lives enrolled, and approved pharmacy providers are compensated from the collected program fees. A performance guarantee is offered to clients based on the need for the pharmacists’ performance to

yield interventions that generate savings or estimated cost avoidances (ECAs). At the end of each contract year, all of the pharmacists’ interventions are aggregated. The estimated savings generated by the interventions must exceed what the client has paid in program fees, or any shortfalls are refunded to the client.

To help ensure program integrity, an outside quality assurance entity reviews monthly the pharmacist intervention claims. Clinical pharmacists verify that, based on what the pharmacists have documented, their corresponding estimates of avoided costs are “reasonable and foreseeable.” If the documentation does not support the savings estimated, claims are rejected. This review process provides clients with an assurance that the OBPR company does not take the pharmacists’ estimated economic savings at face value. The review process provides a check-and-balance system to the cost avoidances reported back to the client.

Two barriers have been overcome to create an effective system to engage pharmacists. First, a simple and user-friendly claims submission process was established (currently collecting more than 1,100 interventions each month.) Second, a Web-based data collection system was created to allow provider access to submit claims at no charge. Pharmacists document interventions on a paper claim (Figure 1—form at end of article) and enter these claims into the proprietary OBPR secure Web site, where they are reviewed and adjudicated. The claims can be submitted by either the pharmacist or pharmacy staff, at their convenience.

Pharmacist Interventions in OBPR

OBPR offers PBMs and other payers an opportunity to more effectively use pharmacists in the current health care system to improve medication use. Specifically, improvements in medication use are made by providing a set of cognitive services or interventions. These interventions include (1) converting therapies to preferred formulary or generic medications for improved cost savings, (2) conducting patient education and follow-up after initiating new medications or changes in drug therapy to reduce adverse effects and improve patient adherence, and (3) resolving drug-therapy problems to optimize patient outcomes. Each covered intervention follows a *reason-action-result* format where the Indication for Services is the *reason*, Professional Services Provided is the *action*, and the Outcome of Services is the *result*. (See sample claim form in Figure 1.)

Interventions may arise for 5 billable services, including (1) formulary management, (2) new drug therapy, (3) change in drug therapy, (4) over-the-counter (OTC) consultation, and (5) detection of drug-therapy problem. For example, in **formulary management**, pharmacists receive a prescription order for drug A, which is not on the covered member’s formulary. As mentioned previously, pharmacists adhere to the PBM’s formulary or preferred drug list. The pharmacists will contact prescribers with recommended formulary/preferred alternatives

and dosing schedules. Prescribers may then change the prescription order to a formulary agent. If the change is made, this process is documented and the pharmacist submits a reimbursable claim.

For **new drug therapy**, pharmacists receive an order for drug B, where drug B is a new order for the patient. In this instance, pharmacists perform OBPR-defined patient education, then schedule and complete a one-time follow-up service. At follow-up, pharmacists assess compliance, check for adverse effects, verify progress toward the desired therapeutic outcome, and answer any questions that may arise about the new medication. This process is documented, a claim is submitted, and pharmacists are reimbursed for this service. A similar claim can be submitted for patient education and follow-up services for changes in drug therapy and OTC therapy recommendations.

For **detection of drug-therapy problems**, this reason is billable when it occurs with a change of the drug order, alteration of compliance, or alteration of administration technique. For example, when refilling an order for drug D, the pharmacist detects an adverse drug reaction such as a drug-induced cough or rash. The pharmacist contacts the prescriber with a description of the adverse drug reaction and an alternative drug and dosage recommendation, and the prescriber changes the order, either per pharmacist recommendation or otherwise. This process is documented, a claim is submitted, and the pharmacist is reimbursed for this activity. Using this approach, pharmacists can identify 10 different types of drug-therapy problems, including suboptimal drug prescribed, insufficient dose/duration, excessive dose/duration, drug interaction, untreated indication, unnecessary drug therapy, adherence-overuse, adherence-underuse, administration/technique, and adverse drug reactions. If the pharmacist contacts the physician but the intervention does not result in a change of therapy, the intervention is not a reimbursable claim. Note that medication adherence is a specific drug-therapy problem that pharmacists can identify and work with patients to resolve. When pharmacists submit a claim for adherence, they have to explain how they improved medication adherence in a free-text format in the note section of the claim.

Each claim submitted must also indicate an action and outcome. These outcomes may be initiation of lower-cost drug, therapeutic success, therapeutic failure, drug-therapy problem resolved, or "other." A patient-refusal field is also used when a patient refuses a covered service. This includes instances where a pharmacist provides patient education on a new drug therapy but cannot reach the patient for a follow-up call. A physician refusal can also be documented if a recommendation is denied, but the claim is not payable. Documenting a refusal will, however, impact the performance scores, as described in the next section.

Under the current proprietary OBPR program, participating pharmacies are paid for 3 types of services. They receive \$15 for formulary management changes when the action required

involves a physician. They also receive \$15 for resolving a medication error when contacting a physician. A payment of \$10 is made for intervening with patients to improve an adherence problem because the physician may not need to be involved in this process. They receive \$7 for completing an education and follow-up call on new and changed medications and OTC consultations.

Information on the submitted claims includes a patient identification number; frequency of therapy; date of service; reason for intervention; medication(s) involved; prescriber identification number; action taken by the pharmacist, including communication with physician (if any); outcome of action and written notes to justify the pharmacist's action; and rationale of how the intervention may have potentially avoided other unnecessary costs. An additional field on the claim form that pharmacists must complete is the estimated cost avoidance. This idea is based upon the cost-of-illness model for drug-related morbidity and mortality developed by Johnson and Bootman.²¹ The pharmacist provider is required to indicate the ECA for each intervention by using professional judgment. ECA levels include

- improved quality of care,
- drug product costs,
- additional physician visit,
- additional prescription order,
- emergency room visit,
- hospital admission, and
- life-threatening illness/situation.

For quality assurance, pharmacists must document in a free-text format in the note section of the claim their rationale for the ECA selected.

Each claim becomes part of a central database for all intervention claims. Utilizing the central database, the proprietary OBPR company regularly provides feedback to its pharmacy providers about their performance, using a Performance Report Card. This report summarizes drug therapy reporting activity for each pharmacy and is sent to them quarterly.

Enhancing Pharmacy Performance

A major selling point of the proprietary OBPR to payers is that the pharmacy providers are "at risk" for achievement of guaranteed performance levels. Being "at risk" means that *all* pharmacies providing services to covered patients are collectively responsible for achieving performance guarantees. If one pharmacy does not provide and document services, the other pharmacies in the network must make up the difference. Should enough pharmacies fail to perform, the program would then fail to achieve performance guarantees and a refund would be due to the payer. Also, there are financial consequences to pharmacy providers if their performance rating falls within a specific range.

Each quarter, the proprietary OBPR company generates a Pharmacy Provider Performance Report (Figure 2—form at end of article) for each pharmacy active in the program or filling a minimum of 50 prescriptions over the previous 4 quarters. The

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report includes a performance score for each pharmacy. Based on this score, pharmacies are rated and categorized into one of 3 performance “zones”:

- Pharmacies earning an Excellent or Standard rating are categorized as “**Green Zone**” pharmacies.
- Pharmacies earning a Substandard rating are categorized as “**Yellow Zone**” pharmacies. Performance improvement is recommended to prevent slippage that may result in a future lower rating.
- Pharmacies earning a Poor rating are categorized as “**Red Zone**” pharmacies. These pharmacies are subject to the requirements of the “Red Zone Withhold.” Continual poor performance by these pharmacies may result in termination from participation in the company’s proprietary OBPR program.

Performance scores without penalties for poor performance were distributed to pharmacies in January 2001. Effective April 2001, “Red Zone” pharmacies were subject to a \$1 dispensing fee withhold. Withheld fees are used to fund quality improvement activities such as additional training programs, site visits, data analysis, enhancements to the claim system, and other services. At the end of each quarter, performance is reassessed for addition or removal from the Red Zone Withhold.

TABLE 1 Patient Characteristics

Characteristics	With OBPR Interventions	Without OBPR Interventions	Test Statistic, P value
Number	8335	2991	
Age	33.3±19.1	39.7±18.7	t=15.7, P<0.001
Sex (female%)	57%	63%	c2=34.1, P<0.001
Medications	4.27±3.92	5.45±5.43	t=12.6, P<0.001
Rx claims	9.83±13.11	14.32±18.21	t=14.4, P<0.001
Care claims	1.15±1.91	-	
Drug-therapy problems	0.034±0.225	-	

Methods

A cross-sectional descriptive analysis was completed using the claims submitted by pharmacists to summarize findings from the first year of operations of this OBPR. Ethical approval was obtained for these analyses from the University of Iowa Institutional Review Board. The proprietary OBPR is based in central Iowa, and participating pharmacies are located throughout Iowa. In the 3-year period of operations, the OBPR company recruited a diverse set of community pharmacies, including

FIGURE 3 Distribution of Drug-related Problems Identified by Community Pharmacists

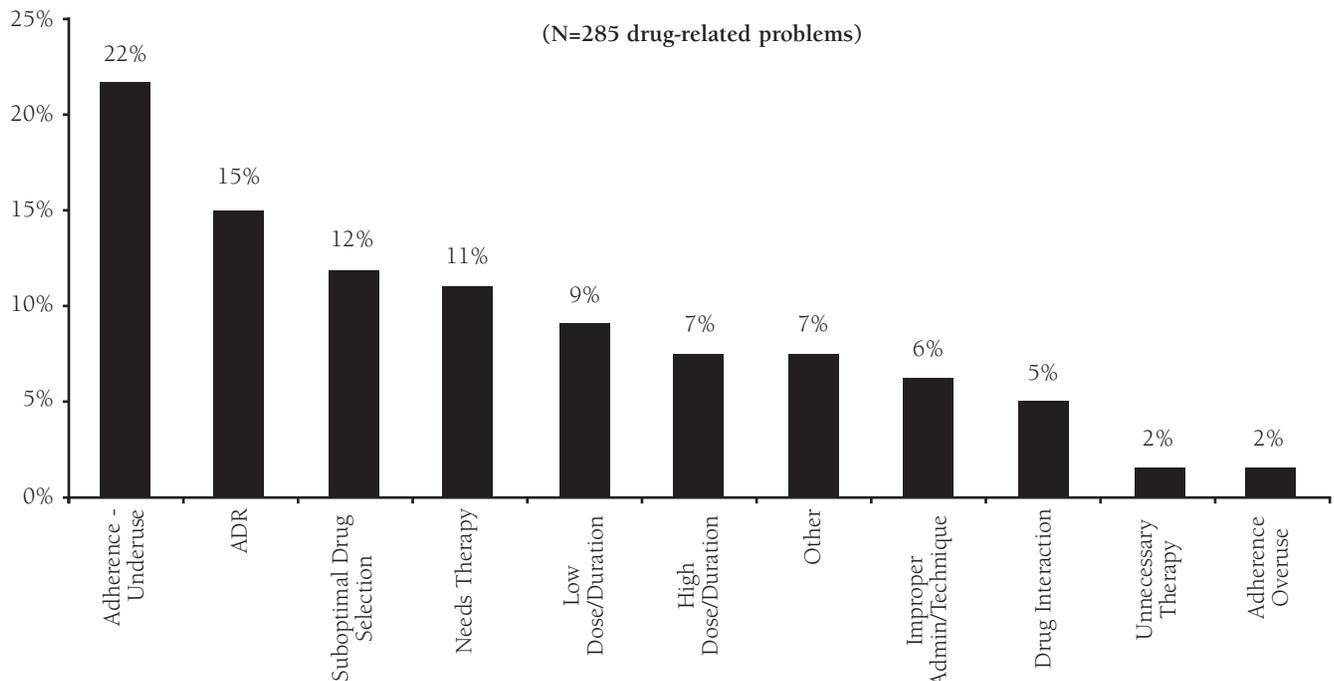
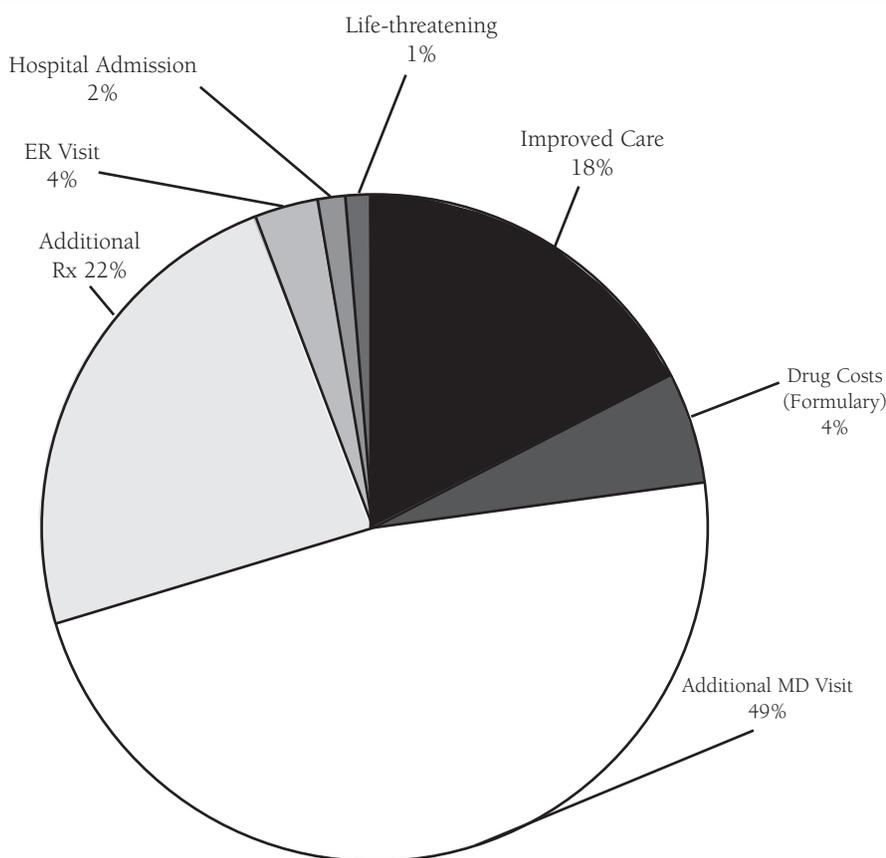


FIGURE 4 Distribution of Pharmacist-rated Estimated Cost Avoidance (n=269 ratings*)



*Estimated Cost Avoidance ratings do not equal 285 due to linked claims.

independent pharmacies and retail chains. The pharmacies are located in cities throughout Iowa, ranging in population from a few hundred to well over 100,000. To participate, pharmacists must complete a 2-hour ACPE-accredited orientation program on how to document and bill for the interventions.

Claims were analyzed for the first full year of operation, from July 1, 2000, to June 30, 2001. Prescription claims, intervention claims, and patient eligibility files were linked using a unique, anonymous identifier. The distribution of types of intervention claims was calculated as well as the distribution of drug-therapy problems. The distribution of ECAs for the drug therapy problems was examined. Individuals with drug-related problems were characterized by age, gender, number of prescriptions, and number of claims. The number of intervention claims per pharmacy was calculated. Finally, the ratio of ECA to fees obtained from clients was defined as the return-on-investment (ROI) and was used to examine the effect of performance scores and the \$1 withhold.

Frequency distributions and descriptive statistics were used to

summarize the first year of claims. Comparisons of averages were completed with *t* tests. Chi-square tests were used to compare frequency distributions. An alpha of 0.05 was used.

Results

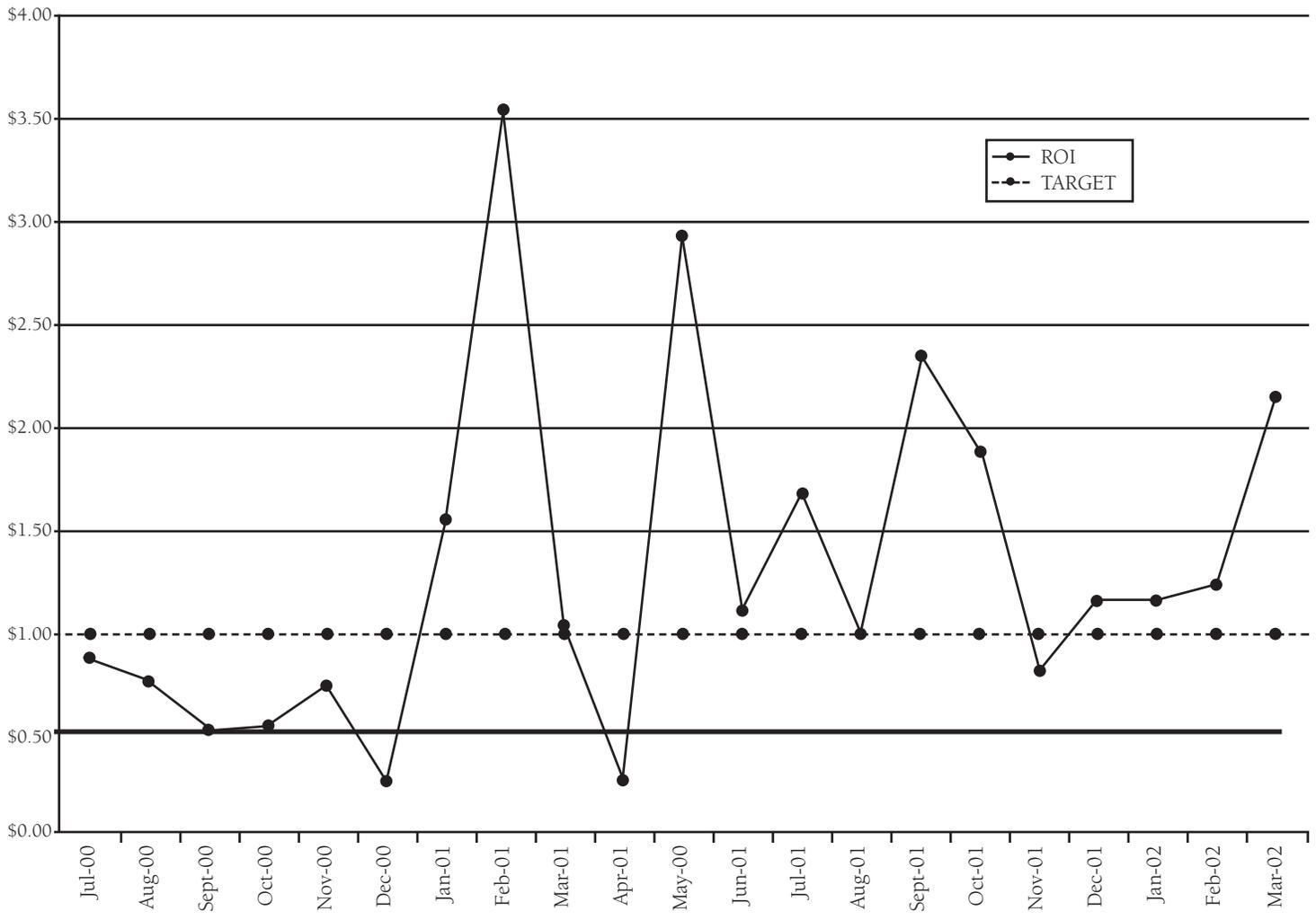
Data analysis for the first year of operation showed that 11,326 enrollees obtained 124,768 prescriptions.²⁵ On average, individuals were aged 35±19 years and 54% were female. Individuals received an average of 4.6±4.4 unique medications and 11.0±14.8 prescription claims during the year. The majority of individuals (74%, n=8,335) received an OBPR intervention. Individuals receiving OBPR interventions were somewhat younger and had slightly fewer medications than individuals who did not receive any OBPR intervention (Table 1).

There were 9,549 interventions for 8,335 individuals documented over the 12-month period, averaging 795.7 interventions per month. Pharmacists consulted physicians to make 584 changes to preferred formulary medications. The vast majority (90%) of interventions were patient education and follow-up on new prescriptions or changes in prescriptions that resulted in positive outcomes with no subsequent changes to drug therapy. However, almost 7% (n=590) of these follow-ups were therapeutic failures, where the condition was unresolved or worse.

Pharmacists' intervention claims provided a way to determine the prevalence of drug-related problems (DRPs) among a community-dwelling population with medications (3.4 DRPs per 100 individuals). Patients with DRPs (n=222) compared with patients without DRPs (n=8113) tended to be older (43±20 versus 33±19, *t*=-7.84, *P*<0.001), have twice the number of medications (8.6±6 versus 4.1±4, *t*=17.14, *P*<0.001), and have triple the number of prescription claims (24.1±23.5 versus 9.4±12.5, *t*=-16.7, *P*<0.001). The distribution of DRPs identified by pharmacists providing OBPR interventions is shown in Figure 3. Excluding OBPR interventions related to patient education and follow-up, 869 interventions for 124,768 prescriptions indicated an intervention rate of 0.69 per 100 prescriptions.

For the 285 DRPs identified, pharmacists' ECA ratings suggested that they avoided an additional physician visit or additional prescription order in most instances (Figure 4). An avoid-

FIGURE 5 The Return-on-Investment Before and After the \$1 Withhold Initiation in April 2001



ed emergency room visit was reported for 11 DRPs (3.9%), including needs therapy, suboptimal drug selection, adverse drug reaction, excessive dose, and underuse.²⁶

Intervention services during the first year of the proprietary OBPR were provided by approximately 90 pharmacies. There was variability in the level of service per pharmacy as the median number of intervention services was 30, while the mean was 113±188, among those providing any interventions. There were high-performing and low-performing pharmacies during the one-year period.²⁷

The introduction of the performance scores in January 2001 appeared to affect performance when distributed to pharmacies. When the \$1 reduction in dispensing fees was implemented in April 2001, pharmacies' responses were even more positive (Figure 5). This figure shows that the ROI remained above tar-

get, except for one month, following the implementation of the \$1 withhold in April 2001.

Discussion

This proprietary OBPR is a fee-for-service method of paying pharmacists for estimated economic outcomes and drug-therapy outcomes that are derived from cognitive services. These outcomes are limited to estimated economic outcomes in terms of estimated costs avoided and intermediate outcomes, i.e., improvements in drug therapy and medication adherence. Health status and patient satisfaction, 2 important health outcomes of interest, have not been measured. Using estimated costs avoided is a novel approach to providing a guarantee to purchasers of this service. This approach is predicated upon valid ECA derived by pharmacists. An external quality assur-

ance organization reviews the estimates and provides some assurance of cost avoidance to the purchasers. Having the ECA validated by a group unrelated to the proprietary OBPR company may be useful, particularly for critics of this approach.²⁶

Improvements in drug therapy as well as medication adherence are the other outcomes that form the foundation of OBPR. This proprietary OBPR program assumes that any changes in drug therapy reported by the pharmacists are actual improvements approved by physicians and patients or else they would not occur. The medication changes are not actually examined by an outside expert panel to rate their level of clinical importance as a means to ensure that all changes are improvements. In terms of ensuring that pharmacists are actually improving medication adherence and not submitting fraudulent claims, pharmacists have to provide a detailed free-text summary of the actions and outcomes in the note section of the claim. Again, these are reviewed by an outside quality assurance organization prior to reimbursing the pharmacies.

The proprietary OBPR program differs from 2 models recently used to reimburse pharmacists for cognitive services.^{14,18} This OBPR does not account for the amount of time or complexity required to resolve DRPs. The reimbursement rate may seem high for relatively straightforward DRPs such as therapeutic duplication with 2 ACE inhibitors. Yet, reimbursement is probably low for DRPs such as determining that a patient's pain is not controlled at follow-up after a new prescription for a narcotic. This DRP could be due to low dose or suboptimal drug selection. Collecting the correct information to make an appropriate recommendation in this instance may take more time than the \$15 in reimbursement affords. OBPR assumes that across all DRPs, a fair reimbursement rate can be identified. Having more evidence about the distribution of drug-therapy problems that occur in the community and their importance may provide important information in setting this fair reimbursement rate.

The proprietary OBPR appears easy for pharmacists to use, as they submitted an average of almost 800 claims per month during the first year of operation. It lacks the complexity of RBRVS, if a pharmacist's time proficiency is not consistent with the designated complexity of the patient's regimen, medical conditions, and DRPs identified. In comparison to Iowa's Pharmaceutical Case Management program, there is no reimbursement for a lengthy patient interview to obtain relevant health information that may be useful in identifying additional and more complex drug-therapy problems.^{20,21} Thus, it seems that many of the drug-therapy problems resolved in this proprietary OBPR are likely to be identified in the dispensing process.

Rupp et al. reported an intervention rate of 1.9 percent of new prescriptions in their observational study of community pharmacies, where no reimbursement for cognitive services was available.²⁸ If half of all prescriptions filled by the proprietary OBPR pharmacies were considered new prescriptions, then the intervention rate was 1.1% on new prescriptions, only somewhat lower than previously reported. Christensen et al. reported 1.59 cognitive services

per 100 prescriptions in a Medicaid population.¹⁴ The intervention rate in the first year of OBPR may be lower than rates reported by Christensen et al. because OBPR is provided to a working, insured population that may be healthier than the Medicaid population in Christensen et al.'s study. It also seems there may be opportunity for pharmacists to increase their provision of OBPR interventions, although the actual rate of drug-therapy problems in the community is not known.

The vast majority of OBPR interventions were for patient education and follow-up. This finding is positive in that community pharmacists are completing follow-up telephone calls to ensure the new or changed drug therapies are not causing adverse effects and that patients are indeed having resolution of their medical conditions. At follow-up, some failures were identified. Given the balance between the types of interventions, the proprietary OBPR company might benefit from additional innovative incentives that focus on the specific types of drug-therapy problem resolution.

The ECA ratings suggest that the resolution of drug-therapy problems prevents an additional physician visit in 49% of cases. In 22% of the remaining cases, an additional prescription was avoided. In the Johnson and Bootman conceptual model, experts estimated that ~24% and ~45% percent of drug-therapy problems resulted in an additional physician visit and additional prescription, respectively.¹⁰

Changing pharmacist practice behavior is difficult, and maintaining practice change is often more difficult. The proprietary OBPR has used important incentives, e.g., performance measurement and dispensing fee withhold, to achieve some performance targets to date. This is an important component of the proprietary OBPR, as variability in the provision of cognitive services existed in the first year of the proprietary OBPR. Whether the \$1 withhold fee is sufficient to improve the performance of most or all pharmacists versus a smaller number of pharmacists is not clear at this time.

Limitations

The proprietary OBPR has limitations. Internet access is required to submit claims, and the claims submission process is not linked to the dispensing software. Thus, submitting proprietary OBPR claims is not directly integrated into the dispensing process. This lack of integration probably contributes to variability in claims across pharmacies as well as the rate of claims submitted. Also, pharmacy performance is generally low when few customers in a pharmacy have the proprietary OBPR as a covered benefit. These limitations are not unique, however, to this proprietary OBPR. Finally, actual economic outcomes attributable to OBPR have not been assessed to date.

From a research perspective, the design and analyses used here were descriptive. Some inference about the impact of the \$1 prescription fee withhold was made. Caution, however, should be used as formal time-series analysis was precluded by a low number of data points, i.e., only 12 months of data. Future research is needed to examine the impact of pharmacists' interventions reim-

bursed in an OBPR program on health care costs. Validation of the pharmacists' ECAs would be beneficial as well as more detailed analyses of the effect of performance incentives. Also, studies examining patients' responses to OBPR would be insightful.

Conclusions

Costs for prescription medications continue to grow. At the same time, identification of DRPs associated with the use of prescription drugs is also rising—creating the apparent opportunity to avoid some health care resource utilization. Various pharmacist reimbursement models have been studied and collectively suggest that pharmacists are an underutilized health care resource in the marketplace. The proprietary OBPR method discussed in this article presents an innovative reimbursement model based on ECAs and drug-therapy improvements. This demonstration model has shown that PBMs and community pharmacists can work together to improve care and resolve drug-related problems. More than 74% of covered members received an OBPR service and more than 200 individuals had DRPs resolved. Importantly, the proprietary OBPR company used incentives to enhance pharmacists' provision of cognitive services. By implementing a unique strategy of utilizing community pharmacists more effectively, PBMs and community pharmacies have progressed toward the ultimate goal of improving drug therapy outcomes while potentially reducing total health care costs.

DISCLOSURES

No outside funding supported this study. Author Karen B. Farris served as principal author of the study. Study concept and design and drafting of the manuscript were contributed primarily by Farris and author Patty Kumbera. OBPR was developed by Kumbera and author Tom Halterman. Analysis and interpretation of data and statistical expertise were contributed primarily by Farris and author Gang Fang. Critical revision of the manuscript was primarily the work of Farris, Halterman, Kumbera, and Fang. Administrative, technical, and/or material support was provided by Kumbera.

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Figure 1. Sample Claim Form



PATIENT INFORMATION												
Last Name				First Name				Gender	Date of Birth		ID Number	
								<input type="checkbox"/> M <input type="checkbox"/> F				

PRESCRIPTION INFORMATION										
Final Rx Date	Final Rx Number	N R	Metric Qty	Days Supply	Final Rx National Drug Code			Final Rx Prescriber ID	Frequency of Therapy	
					Labeler	Product	Pkg			
									<input type="checkbox"/> Acute	
Initial Rx Date	Initial Rx Number	N R	Metric Qty	Days Supply	Initial Rx National Drug Code			Initial Rx Prescriber ID	Frequency of Therapy	
					Labeler	Product	Pkg			
									<input type="checkbox"/> Intermittent	
									<input type="checkbox"/> Chronic	

ENCOUNTER DOCUMENTATION			Date of Encounter				Claim Number	
I. Indication For Service (Reason)			II. Professional Service (Action)				III. Outcome Of Service (Result)	
Formulary Management	105		Prescriber Consultation	205		Initiation of Lower Cost Drug	305	
						Prescriber Refusal	375	
Formulary Management	105		Patient Consultation	215		Patient Refusal	380	
New Prescription Therapy	110		Patient Education/Follow-up	210		Therapeutic Success (Resolved/Stable)	310	
Change in Prescription Therapy	115		Patient Education: <input type="checkbox"/> Name of Drug <input type="checkbox"/> Therapeutic Class <input type="checkbox"/> Directions for Use <input type="checkbox"/> Side Effects/Warnings <input type="checkbox"/> Storage Requirements <input type="checkbox"/> Missed Dose Actions <input type="checkbox"/> Written Material <input type="checkbox"/> Other _____			Therapeutic Failure (Unresolved/Worse)	320	
OTC Therapy	117						Patient Refusal	380
Drug Therapy Problem Detected:			Patient Follow-up: ___/___/___ ___:___ a.m./p.m. at () - <input type="checkbox"/> Check for Adverse Reactions <input type="checkbox"/> Check Compliance <input type="checkbox"/> Check Progress/Outcome <input type="checkbox"/> Patient Question & Answer			Drug Therapy Problem Resolved:		
Indications						Indications		
Needs Therapy	120					Initiated New Therapy	330	
Unnecessary Therapy	125					Discontinued Therapy	335	
Efficacy						Efficacy		
Suboptimal Drug Selection	130					Changed Drug	340	
Insufficient Dose/Duration	135					Increased Dose/Duration	345	
Safety						Safety		
Adverse Drug Reaction	140					Altered Regimen/Changed Drug	350	
Drug Interaction	145					Decreased Dose/Duration	355	
Excessive Dose/Duration	150					Prescriber Refusal	375	
Compliance						Compliance		
Overuse	155		Prescriber Consultation	205		Altered Compliance	360	
Underuse	160		Patient Compliance Consultation	215		Altered Admin/Technique	365	
Administration/Technique	165					Patient Refusal	380	
Other	170					Other	370	
Special Project	190		Special Project	290		Special Project	390	

IV. Estimated Cost Avoidance					
<input type="checkbox"/> Level 1 Improved Quality of Care	<input type="checkbox"/> Level 4 Additional Prescription Order	<input type="checkbox"/> Level 7 Life Threatening			
<input type="checkbox"/> Level 2 Drug Product Costs	<input type="checkbox"/> Level 5 Emergency Room Visit	<input type="checkbox"/> Prescriber/Patient Refusal			
<input type="checkbox"/> Level 3 Additional Physician Visit	<input type="checkbox"/> Level 6 Hospital Admission	<input type="checkbox"/> See Previous Claim #			

V. Encounter Notes And Estimated Cost Avoidance Rationale

BILLING INFORMATION					
Provider Information				Outcomes Encounter Service Fees	
Pharmacist Last Name		Pharmacist First Name		Pharmacist ID Number	
Name of Pharmacy				NCPDP/NABP	
Address		City		State	
Encounter Charge				\$	
Tax				\$	
Paid by Third Party				\$	
Balance Due				\$	
I hereby authorize release of information to health care providers, institutions and/or payor that may pertain to my illness and/or treatment received. I certify that the information I have reported is correct, and I have received the professional services rendered.					
<input checked="" type="checkbox"/>					

Figure 2. Outcomes Performance Report Card



**Pharmacy Provider Performance Report
For the Period 10/01/2000 – 9/30/2001**

Name of Pharmacy:	Pharmacy F	NCPDC/NABP:	9999999
Address:	505 5 th Avenue	Phone:	(515)123-4567
City, State, Zip:	Des Moines, IA 50000	Fax:	(515)123-6789
Contact Person:	John Smith	E-mail:	info@getoutcomes.com

(Please note any corrections to the above information)

ENCOUNTER STATISTICS

Description	Amount	Percent	Score
Total Prescriptions Filled (Outcomes Program Only)	1000		
Total Encounter Claims submitted	315		
Total Estimated Cost Avoidance (ECA)	\$6200.00		
Formulary Encounters	40	4.00%	80
Patient Education & Follow-up Encounters	250	25.00%	83
Indications, Safety, and Efficacy Encounters	20	2.00%	80
Compliance Encounters	5	0.50%	20
ECA per Prescription Filled	\$6.20		73
Patient or Prescriber Refusal Encounters	0	0.00%	

Score	Rating	Performance Zone	Composite Performance Score: (This Period)	75.0
75 or Greater	Excellent	"Green"		
50 to 75	Standard	"Green"		
25 to 50	Sub-Standard	"Yellow"	Composite Score (Last Period):	24.66
25 or Less	Poor	"Red"	Change in Composite Score:	50.34

- | YES | NO | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Do you need to order more Encounter Claim Forms? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have any pharmacists needing to attend an Encounter Orientation session? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have any support personnel (technicians, students, managers, etc.) needing to attend an Encounter Orientation session? |
| <input type="checkbox"/> | <input type="checkbox"/> | Would you like a site visit from an Outcomes Representative? |
| <input type="checkbox"/> | <input type="checkbox"/> | Have you been receiving the Outcomes newsletter "The Encounter" via fax? |
| <input type="checkbox"/> | <input type="checkbox"/> | Would you prefer to receive this via email? If yes, email: _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | Outcomes is owned and operated by Iowa pharmacists. Are you interested in investment opportunities? |

COMMENTS: _____

