The PRICE Clinic for Low-Income Elderly: A Managed Care Model for Implementing Pharmacist-Directed Services

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ABSTRACT

OBJECTIVES: The Medicare Modernization Act of 2003 calls for medication therapy management programs (MTMPs) to control anticipated growth in drug use and expenditures. In 2006, prescription drug plan sponsors, including health plans, pharmacy benefit managers, and other entities, will be required to offer MTMP services performed by pharmacists or other health professionals. The Pharmacist Review to Increase Cost Effectiveness (PRICE) Clinic in San Francisco, California, is a pharmacist-directed, multidisciplinary model that is adaptable to providing MTMP services in a managed care setting. The PRICE Clinic serves a 3-fold mission: (1) to help low-income elderly patients decrease out-of-pocket (OOP) drug expenses; (2) to ensure that patients receive clinically appropriate, cost-effective drug regimens; and (3) to improve access to needed medications. The objectives of this study were to characterize and document the number and type of PRICE clinic interventions; measure changes in generic drug use; document savings in OOP drug costs; and measure patient access to drugs that had been, or would have been, discontinued because of cost.

METHODS: A nonrandomized retrospective PRICE Clinic database review was conducted for the 520 patients seen in the PRICE Clinic in calendar year 2002. Study participants were low-income elderly with multiple chronic diseases, multiple medications, and high drug costs. For each patient, researchers documented the number and type of interventions performed by pharmacists and the drug class involved in each intervention. Changes in generic drug use and OOP costs were assessed by a prospective and retrospective analysis of selected outcome variables and a comparison of results with comparable patient populations in large state and national databases. Self-report was used to examine whether patients had discontinued medications because of cost, and the PRICE Clinic database analysis examined whether interventions enabled patients to resume previously discontinued medications.

RESULTS: The PRICE clinic conducted 1,267 interventions among the 520 study patients in 2002, an average of 2.5 interventions per patient. The most common drug classes involved in interventions were lipid-lowering drugs, angiotensin-converting enzyme inhibitors, and asthma and allergy drugs. Generic drug use increased from 51% before PRICE clinic interventions to 66% afterward, a relative increase of 30%. Three interventions included: (1) a higher dose of the indicated drug; (2) substitution with an equivalent dose of a less expensive drug; and (3) discontinuation of a drug previously taken by the patient. The average outcome was cost saving. A total of 219 patients (42%) reported that they had or would have discontinued drugs because of cost. 108 (50%) of these patients were able to continue or resume the drug as a result of PRICE Clinic interventions. The most common interventions were pharmaceutical industry-sponsored patient assistance programs, generic substitution, and therapeutic interchange.

CONCLUSION: Results from this pilot study indicate the benefits of providing pharmacist-directed services to the population targeted by MTMP services, which encompasses Medicare beneficiaries with multiple chronic diseases, multiple drugs, and high drug costs. By providing pharmacist consultation at the point of care to ensure appropriate drug use, decrease OOP expenditures, and improve access to needed drugs, the PRICE Clinic is a possible model for further development in the implementation of MTMP services.

KEYWORDS: Medicare Modernization Act, Medication therapy management, Pharmaceutical care, Cost-effective prescribing, Pharmacist-directed clinic

The elderly are particularly burdened by rising pharmaceutical costs, which grew to $162 billion in 2002, an overall increase of 15%. Older patients suffer from high rates of chronic disease, and ongoing drug therapy is often essential. Thus, most elderly people must adhere to multiple drug regimens. A study of adults older than 60 years found that these individuals take an average of 5 prescription medications per day, 3 times as many as the general population. Drug expenditures reflect this high use, as elderly patients incurred, on average, $2,322 in drug costs in 2003, of which $909 was paid out of pocket (OOP). Drug spending shows no signs of slowing, and in 2006, Medicare beneficiaries are expected to incur an average of $3,100 in annual drug expenditures, of which $1,454 (46%) will be paid OOP. Because nearly a quarter of Medicare recipients live on less than $600 per month, increasing drug expenditures impose a particularly heavy burden on low-income elderly people. In a survey of 10,416 elderly patients, 22% of respondents stated that they skipped prescription doses or did not buy the medications they needed because the cost was too high. Another study found that two thirds of 660 chronically ill, older adults cut back on their prescription drugs because of difficulty paying for them, but they did not tell their doctors before they did so; furthermore, 35% never told their doctors.

The Medicare Modernization Act of 2003 is intended to help elderly patients afford the rising costs of drugs. The legislation, which will cost an estimated $729 billion over 10 years, will offer a drug benefit package and subsidize the participation of health maintenance organizations (HMOs) and other private entities in the Medicare market. The government
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will pay HMOs and other managed care organizations an additional $10 billion between 2007 and 2013 to encourage private plans to participate in Medicare Part C, formerly Medicare + Choice and now renamed Medicare Advantage (MA). The Medicare drug benefit is expected to reduce OOP drug costs for most Medicare beneficiaries despite an increase in the total number of prescriptions that are expected to be dispensed to elderly patients. Thus, the Medicare program and elderly patients will share the costs for a larger volume of prescription drugs.

To manage anticipated growth in drug use and expenditures and to improve the quality of drug prescribing and patient compliance, the Medicare Modernization Act calls for pharmacists or other health care professionals to ensure safe, appropriate, and cost-effective medication use. This provision, entitled Medication Therapy Management Programs (MTMPs), requires that stand-alone prescription drug plan (PDP) sponsors and Medicare Advantage prescription drug plan (MA-PDP) sponsors establish drug utilization review measures.

MA-PDP sponsors are the private entities that will provide drug benefits integrated with broader health care coverage. The measures these entities will implement include a cost-effective review program that encourages use of medically appropriate alternatives (including increased use of generic drugs), a quality assurance system to reduce medication errors and adverse drug reactions, and a medication therapy program to improve compliance and medication use, particularly for patients taking multiple prescriptions. The legislation provides a significant opportunity for pharmacists since the PDP sponsors must "develop the MTMP in cooperation with licensed and practicing pharmacists and physicians." Further, the PDP sponsor must "describe how they will set fees to pharmacists or other providers of MTM services for Part D drugs and explain how the fee or payment structure takes into account the resources used and time required for those providing MTM services." Pharmacists are uniquely positioned to provide MTM services. With their training in pharmacokinetics and pharmacodynamics, pharmacists can make appropriate medication substitutions and identify drug-drug and drug-disease interactions to help ensure medication safety and appropriateness. Given their comprehensive knowledge of medications, insurance options, and pharmacy benefit design and eligibility, pharmacists are able to select and obtain the most cost-effective drugs for individual patients.

A pharmacist-directed program with adaptability for the provision of MTMP services has been operational since 2001 at MedClinic Medical Group, a 120-specialty provider group in Sacramento, California, serving 20,000 Medicare patients annually. About half of these patients belong to MA HMO plans with a pharmacy benefit. In 2001, the largest MA health plan eliminated brand-name drug coverage, and by 2002, the

![PRICE Clinic Flow Chart](image-url)
remaining MA health plans contracted with MedClinic had generic-only drug benefits, while the largest MA competitor, a staff model HMO, retained its brand-name drug benefit. These changes in the HMO plans were the driving force for the imitation of an expanded pharmacy service within MedClinic in 2001 to help retain HMO patients.

The Pharmacist Review to Increase Cost Effectiveness (PRICE) Clinic uses pharmacists, physicians, staff, and volunteers to help elderly patients decrease OOP drug expenses while ensuring that patients receive clinically appropriate drug therapy. Services are provided at the point of care. Patients access the clinic, free of charge, through self-referral or referral from their primary care provider or specialist. Patients are scheduled for 30-minute clinic visits with the pharmacist in the same location as their primary care provider. The PRICE Clinic operates at the 2 MedClinic primary care locations in the Sacramento area. This is convenient for patients and facilitates pharmacists’ access to medical records and primary care providers for consultations and medication changes. The PRICE Clinic’s administrative structure and operational services embody the multidisciplinary MTMP model called for in the Medicare Modernization Act.

**Description of PRICE Clinic Program**

The centerpiece of the PRICE Clinic initiative is the use of pharmaceutical care interventions that combine drug utilization review with patient and physician education. Clinic staff also compile a variety of clinical and economic reference materials to help pharmacists match interventions to each patient’s needs. Unlike many health care delivery systems, the PRICE Clinic makes use of a full spectrum of resources and mechanisms available to focus on the use of cost-effective, clinically appropriate medications (Figure 1).

Clinic visits begin with a patient interview in which the following information is collected: demographic information, current medication regimen, health insurance status, prescription drug benefit information, income, and local and/or mail-order pharmacy information. Patient medications are classified as brand-name, generic, or over the counter/herbal. A pharmacist first evaluates the appropriateness of the medication regimen, scanning for adverse drug reactions, drug interactions, and duplications and/or omitted therapy. The pharmacist then considers all medically appropriate cost-cutting interventions, which include maximizing use of generic drugs, tablet-splitting (a practice that saves patients money by prescribing double-dosage tablets sold at the same price as the required dosage), therapeutic interchange (in which lower-cost therapeutically similar drugs of comparable efficacy and safety are interchanged [substituted] for nonpreferred drugs), and use of mail-order pharmacies.

Whenever possible, the patients are enrolled into relevant programs such as patient assistance programs (PAPs), which are sponsored by drug companies that provide prescription medicines at no or minimal charge to eligible patients who do not have prescription drug coverage or who are underinsured through either private or/and government health plans. At the PRICE Clinic, new medication regimens are implemented after consulting with, and obtaining approval from, the patient’s primary care physician. All interventions are then documented in the patient’s medical record and subsequently in a PRICE Clinic database. At the conclusion of the visit, patients are given written and verbal consultations regarding their medication regimens, resources available, and PRICE Clinic contact information.

To meet the demand for PRICE Clinic services without additional staffing, MedClinic trained 2 elderly volunteers, 7 pharmacy students, and 2 pharmacy residents. The volunteers, who each work 2 hours per week, are responsible for renewing PAPs for PRICE Clinic patients. Volunteers also conduct outreach by making telephone calls to patients every 3 months to ensure that, once enrolled in PAPs, they continue to receive their medications. Pharmacy students supervised by pharmacists in 6-week managed care clerkship rotations contribute by assisting in all PRICE Clinic duties. Residents are trained to perform the full array of interventions, thus increasing the number of elderly patients served.

Because the PRICE Clinic employs a collaborative, team-based model that includes volunteers, administrative support, and pharmacy students and residents to run administrative and clinical operations, the clinic does not rely solely on pharmacists. On average, 14 hours per week (0.35 full-time equivalents) of pharmacist time were required in 2002. This came from reassigning existing staff to the PRICE Clinic. An additional 15 hours per week (0.38 full-time equivalents) of administrative support is required, plus the contributions made by volunteers. MedClinic funds these operations directly, without separate external funding.

A review of the peer-reviewed literature revealed a need for studies that evaluate the provision of integrated MTMP services for low-income elderly patients with multiple diseases. Although there are several existing programs designed to ensure cost-effective, appropriate medication use, they differ from the PRICE Clinic in important ways. First, they are not affiliated with health plans or physician groups. Second, existing programs do not serve patients at the office of the primary care provider or specialist. Third, some of these programs rely exclusively on donations to fund operations. PharmAssist in North Carolina and MedBank of Maryland, for example, are local nonprofit organizations that review drug regimens and subsidize elderly patients’ drug costs using funds contributed by donors. In contrast, NeedyMed lowers drug costs by using existing PAPs but does not provide broader drug regimen review. Only PharmAssist relies on pharmacists to assist patients with their medications. Outcomes of these programs have not been published in the peer-reviewed literature.

One program of outcomes-based pharmacist reimbursement...
that has been published in the peer-review literature is a fee-for-service model that offers pharmacy benefit managers and other payers an opportunity to use community pharmacies to improve medication use through a series of interventions, including (1) converting therapies to preferred formulary or generic medications, (2) conducting patient education and follow-up after initiation of new medications or changes to reduce adverse effects and improve adherence, and (3) resolving drug therapy problems to optimize patient outcomes. This program, however, did not target low-income elderly patients with multiple diseases.

The PRICE Clinic provides thorough medication review for appropriateness of drug regimens, and the objectives of this study expanded the focus to include the financial impact of the clinic. The objectives of this research were to (1) characterize and document the number and type of PRICE Clinic interventions, (2) measure change in generic drug use, (3) document savings in OOP drug costs, and (4) measure patient access to drugs that had been or would have been discontinued because of cost.

Methods

A retrospective PRICE Clinic database review was conducted for the 520 patients seen in the PRICE Clinic in 2002. Study participants were Medicare-eligible, low-income elderly persons with multiple chronic diseases, multiple medications, and high drug costs. For each patient, researchers documented the number and type of interventions performed by pharmacists and the drug class involved in each intervention. A preanalysis and postanalysis assessed changes in generic drug use. The Pennsylvania Pharmaceutical Assistance Contract for the Elderly (PACE) program, a large, statewide pharmaceutical assistance program, was used as a comparison group to compare trends in generic drug use during the study period. A preanalysis and postanalysis of selected outcome variables evaluated changes in OOP costs. The Medical Expenditure Panel Survey (MEPS), a national household survey of health service use and expenditures, was used as a comparison group to compare trends in OOP costs during the study period. Self-report was used to examine whether patients had discontinued medications because of cost, and the PRICE Clinic database was analyzed to determine whether interventions enabled patients to resume discontinued medications or maintain medications that would have been discontinued prematurely. This study received exempt status from the Institutional Review Board at Catholic Healthcare West and the Committee on Human Research at the University of California at San Francisco.

Generic Drug Use

Generic drug use was calculated as the ratio of the number of generic prescriptions divided by the total number of prescriptions for all patients before the PRICE Clinic visit and after the PRICE Clinic visit.

OOP Drug Expenditures

Patients baseline OOP costs were determined at the first patient visit. Several methods were used to obtain these data. The primary data source, used for 75% of patients, was pharmacy receipts provided by patients. When receipts were unavailable, researchers called the patient’s pharmacy to determine OOP payments. OOP costs for generic drugs were based on standard copayment levels set by the MA-HMO in Sacramento County if the patient was an MA member (96% of the patients). If the patient was not an MA member, pharmacists used receipts provided by the patients or called the patient’s pharmacy to determine the amount of OOP payments.

Restarting Discontinued Drugs

Patients’ ability to continue medications that had been or would have been discontinued because of cost was assessed through a
combination of self-report and review of patient records. Before PRICE Clinic visits, patients responded to an intake questionnaire that asked, "Have you stopped the past six months, or do you plan to stop in the next three months, any of your medications due to cost?" For patients who answered in the affirmative, pharmacists conducted a retrospective review of PRICE Clinic records to determine if interventions enabled the patients to continue the medications. It was then determined if access to the drug was possible through PAP enrollment, generic substitution, mail order, or other interventions.

**Results**

**Characteristics of Study Participants**

Of the 520 patients seen by the PRICE Clinic in 2002, 32% were male (n=168) and 68% were female (n=354). The average age was 78 years (SD 10.0). Study participants had an average monthly income of $1,172 (SD $568) (130% of the federal poverty level [FPL]). Almost half the patients (48%, n=247) had incomes below 150% FPL. Patients took an average of 6 medications to treat 4 chronic conditions and paid, on average, $185 per month (SD $110), or $2,220 per year OOP for these drugs. A total of 446 patients (86%) had MA generic-only drug coverage (Table 1).

**Numbers and Types of Interventions**

The PRICE Clinic conducted an average of 2.5 interventions per patient for a total of 1,247 interventions, all of which were accepted by the 441 primary care physicians and specialists whose patients visited the clinic in 2002. The most common interventions were enrollment in pharmaceutical industry-sponsored PAPs (661 interventions that affected 336 patients, 69%); generic substitution (23% of patients), and therapeutic interchange (17% of patients) (Table 2). The most common drug classes involved in interventions were lipid-lowering drugs (44% of patients), angiotensin-converting enzyme inhibitors (17%), and asthma and allergy drugs (15%) (Table 3).

**Generic Drug Use**

The average ratio of generic drug use to total prescriptions for PRICE Clinic patients increased from 51% of all prescriptions at the time of their first visit to 56% following clinic interventions. During the study period, a total of 122 patients (23%) increased their use of generic drugs.

**OOP Drug Expenditures**

Before PRICE Clinic interventions, OOP drug expenditures averaged $185 per patient per month. After implementation of PRICE Clinic interventions, the average OOP expense was reduced to $60 per patient per month, a 68% decrease, representing an average of $1,300 per member per year in OOP savings (Figure 2).

**Restarting Discontinued Drugs**

A total of 219 patients (41%) reported that they had discontinued—or would soon discontinue—a prescribed drug because of cost. Among these patients, 186 (87%) were able to continue indicated drugs after PRICE Clinic interventions: 138 (69%) obtained the needed drug through a PAP, 19 (9%) through generic substitution, 18 (8%) through

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**Tables**

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Interventions Most Frequently Provided to PRICE Clinic Patients</th>
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</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>No. of Patients (%)</td>
</tr>
<tr>
<td>Parent assistance programs</td>
<td>530 (85)</td>
</tr>
<tr>
<td>Generic substitution</td>
<td>122 (23)</td>
</tr>
<tr>
<td>Therapeutic interchange</td>
<td>80 (17)</td>
</tr>
<tr>
<td>Mail-order services</td>
<td>78 (15)</td>
</tr>
<tr>
<td>Manufacturer coupons</td>
<td>50 (9)</td>
</tr>
<tr>
<td>Table splitting</td>
<td>56 (7)</td>
</tr>
<tr>
<td>Use of existing health plan benefits</td>
<td>23 (4)</td>
</tr>
<tr>
<td>Discontinuation of medication</td>
<td>27 (4)</td>
</tr>
<tr>
<td>Application to Medicaid</td>
<td>17 (3)</td>
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</tbody>
</table>

* Some patients received more than one intervention.

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**Table 3**

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Drug Classes Most Frequently Involved in PRICE Clinic Interventions</th>
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</thead>
<tbody>
<tr>
<td>Drug Class</td>
<td>No. of Patients Using Drug Class</td>
</tr>
<tr>
<td>Lipid-lowering drugs</td>
<td>227 (44)</td>
</tr>
<tr>
<td>Angiotensin-converting enzyme inhibitors</td>
<td>87 (17)</td>
</tr>
<tr>
<td>All drugs</td>
<td>84 (16)</td>
</tr>
<tr>
<td>Asthma and allergy drugs (oral and inhaled)</td>
<td>77 (15)</td>
</tr>
<tr>
<td>Antihistamines (oral and inhaled)</td>
<td>53 (10)</td>
</tr>
<tr>
<td>Nonsteroidal anti-inflammatory drugs</td>
<td>55 (11)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>34 (6)</td>
</tr>
<tr>
<td>Diabetes drugs</td>
<td>54 (10)</td>
</tr>
<tr>
<td>Statins</td>
<td>52 (10)</td>
</tr>
<tr>
<td>Nonsteroidal anti-inflammatory drugs</td>
<td>55 (10)</td>
</tr>
<tr>
<td>Antihypertensive drugs</td>
<td>45 (9)</td>
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</tbody>
</table>

* Refers to interventions where a patient’s entire regimen was shifted to mail-order programs. This category includes interventions that fell in other categories.

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therapeutic interchange, 7 (3%) through mail-order services, and + (2%) from using their existing pharmacy benefit.

Discussion
Increased Use of Generic Drugs
At baseline, PRICE Clinic patients had an average 51% generic drug use ratio. After the intervention, they had an average 56% generic drug use ratio, which represents a 5% absolute increase (P<0.001), or a relative increase of 9.8%. Among a very large population of low-income elderly patients enrolled in the Pennsylvania PACE program, the generic-use ratio increased from 41% to 45% in 2002, an absolute increase of 2% or a relative increase of 4.9%. Therefore, compared with this benchmark, the PRICE Clinic generic utilization ratio was an absolute 10 points higher and relative 20% higher at baseline and higher by 30% after intervention. Pharmacist-directed interventions at the PRICE Clinic were associated with an increase in utilization of generic drugs that was larger than a benchmark comparison despite growing from a much larger baseline generic utilization ratio.

Higher baseline generic use in 2002 may be attributable to the PRICE Clinic’s first year of operation in 2001 and the effect of the MA drug benefit design predominant in the area at the time. Generic substitutions were the most common PRICE Clinic intervention in 2001. PRICE Clinic pharmacists discussed each generic substitution with the patients’ primary care provider or specialist, and these consultations appear to have increased generic drug use; in the second year (2002) of clinic operation, patients referred to the clinic already had generic substitutions prescribed by their primary care providers. Although the lack of a control group does not rule out alternative explanations, the results of this pilot study suggest that pharmacist review of patient regimens was associated with increased use of generic drugs as a proportion of total drug use.

OOP Costs and PAPs
Although PAPs are cumbersome to administer due to variations in paperwork, qualification requirements, and drug procurement mechanisms, these programs are often the only available method for achieving cost reduction for medications without generic equivalents. In 2002, the PRICE Clinic developed a comprehensive system to streamline the use of PAPs and to make best use of pharmacist expertise in the process. Specifically, procedures were established to simplify PAP renewal and reenrollment, ensuring continuity of care and continuous access to needed drugs. Administrative support was added to update PAP paperwork and to provide coordination among the programs, providers, and patients. Administrative support enabled pharmacists to optimize efficiency in the use of their time in patient care.

Our findings suggest that increased PAP use improved OOP savings over the previous year’s interventions. In 2001, patients reduced OOP drug costs by $93 per patient per month through PRICE Clinic interventions, a 52% decrease. In 2002, the average OOP expense was reduced by $125 per patient per month, a 68% decrease. PRICE Clinic pharmacists attribute much of the increase in OOP savings to the implementation of PAPs, which were not used until the last 6 months of 2001.

Pharmaceutical care interventions and PAP enrollment appeared to achieve cost savings over the OOP drug expenditures incurred by a similar cohort, namely patients enrolled in the Medical Expenditure Panel Survey (MEPS). MEPS is a nationally representative survey of data on American health service use, costs, and payment. Analysis of a subset of MEPS patients in 2002, Medicare beneficiaries with 4 or more chronic diseases (coronary heart disease, diabetes, hypertension, and arthritis), revealed that these patients incurred an average of $179 per month ($2,148 annually) in OOP drug expenditures. These patients had incomes between 125% and 200% of the FPL in 2002, and MEPS estimates that 125,762 patients nationally fit this profile. Patients visiting the PRICE clinic in 2002 had similar income levels and disease profiles, yet they experienced reduced monthly OOP drug costs of $62 per patient per month, 65% less than the MEPS comparison.

Therapeutic Interchange
The third most common cost-saving intervention for PRICE Clinic patients was therapeutic interchange, representing 8% of all interventions provided to 17% of the 520 patients in 2002 (Table 3). The most common drug class involved was lipid-lowering drugs (Table 3). A recent large-scale therapeutic interchange program in Kaiser Permanente demonstrated safe and effective conversion from a brand-name statin to a generic statin in 33,318 primary and secondary prevention patients with hypercholesterolemia. The results of the Kaiser therapeutic interchange (lovastatin replaced simvastatin) are particularly important for persons with generic-only coverage or those who

![Figure 2: Reduction in Patients’ Monthly Out-of-Pocket Drug Costs After PRICE Clinic Interventions](image-url)
lack drug coverage. Another study of the impact of a clinical pharmacist in a primary care medical group documented a 9.3% decrease in average cost per statin prescription over a 1-year period, while national averages for costs per statin prescription were increasing.30 Therapeutic interchange has been a successful cost-reduction strategy used by pharmacists in a wide variety of settings, including medical groups, similar to the study site used in this research.

Restarting Discontinued Drugs

Our data suggest PRICE Clinic interventions enabled patients to continue needed treatments, a favorable intermediate clinical and service outcome for the affected patients. A recent study found that there is a national need for interventions that improve patient compliance with drug regimens. In a survey of 5,796 Medicare beneficiaries in 8 states, 22% of respondents stated that they skipped prescription doses or did not buy the medications they needed because the cost was too high. Among PRICE Clinic patients, 41% self-reported that they had or would soon discontinue drugs because of cost. Of the 215 patients who had discontinued or would discontinue drugs because of cost, 87% stated that the PRICE Clinic enabled them to restart or continue needed medications. This higher rate of filled prescriptions suggests that compliance might have been improved through PRICE Clinic interventions.

Current and Future Changes in PRICE Clinic

One strength of the PRICE Clinic is its ability to evolve in response to emerging patient needs. In 2004, clinic pharmacists began educating patients about the newly available Medicare-sponsored drug discount cards. Under this new program, pharmacists help patients select the most appropriate discount card and, when appropriate, help them apply for and obtain the $600 transitional assistance benefit, based on their income level.

With the passage of the Medicare drug benefit and its inclusion of MTMP services, the PRICE Clinic is again retooling. Although the PRICE Clinic has documented OOP cost savings for Medicare patients likely to be eligible for MTMP services, it does not meet the definition of an MTMP service. The MTMP services definition, as defined by 11 national pharmacy organizations in July 2004, set forth 9 services designed to optimize therapeutic outcomes through improved medication use and reduce the risk of adverse events, including adverse drug interactions for targeted beneficiaries.31 (Table 4). Seven of these 9 services appear in the Centers for Medicare and Medicaid Services proposed rule. It is the goal of the PRICE Clinic to adapt current cost-based interventions and to include interventions that pertain to the aforementioned 9 services to qualify the PRICE Clinic as an MTMP service.

Further, the PRICE Clinic is going to need to adapt its use of PAP programs because 61% of 2003 PRICE Clinic patients using PAPs may no longer qualify for these subsidies under Medicare Part D and those at <150% of FPL. However, patients may still qualify for PAPs (between 150% and 200% of FPL) once they reach $2,250 in drug costs. Under the MMA, patients have no drug coverage between $2,250 and $5,100. Currently, PAPs are available for eligible, insured patients who reach a benefit maximum and incur 100% of the drug costs. Compounding the difficulties, PAP eligibility may change at any time, as a result, patient options may change regularly.

Another likely change under the Medicare Modernization Act is that many PRICE Clinic patients who currently have a generic-only benefit with their MA plans are expected to obtain a much broader benefit with brand-name drug coverage in 2006. Because of this enhanced coverage, it will be more important than ever for the clinic to promote generic substitution and therapeutic interchange for patients. Patients who use the maximum number of generics and other cost-effective drugs will likely reach the $2,250 limit more slowly and incur less OOP expenses. Further, these patients will also be less costly to the MA-PDP but the current strong financial incentive for many clinic patients to use generic drugs will be less obvious under the Medicare Part D drug plans in 2006.

By monitoring public and private programs to improve drug access for low-income elderly, the PRICE Clinic has developed expertise in creating new protocols to serve changing patient needs. As an established liaison between drug companies, payers, providers, and patients, the clinic assists elderly patients in the uncertain environment created by both PAPs and the Medicare drug benefit.

Table 4
Medication Therapy Management Services—As Defined by 11 National Pharmacy Organizations in July 2004*

<table>
<thead>
<tr>
<th>Service Description</th>
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<tbody>
<tr>
<td>a. Performing or obtaining necessary assessments of the patients health status</td>
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<tr>
<td>b. Formulating a medication treatment plan</td>
</tr>
<tr>
<td>c. Selecting, initiating, modifying, or administering medication therapy</td>
</tr>
<tr>
<td>d. Monitoring and evaluating the patients response to therapy, including safety and effectiveness</td>
</tr>
<tr>
<td>e. Performing a comprehensive medication review to identify, resolve, and prevent medication-related problems, including adverse drug events</td>
</tr>
<tr>
<td>f. Documenting the care delivered and communicating essential information to the patient’s other primary care providers</td>
</tr>
<tr>
<td>g. Providing verbal education and training designed to enhance patients understanding and appropriate use of the or her medications</td>
</tr>
<tr>
<td>h. Providing information, support services, and resources designed to enhance patient adherence to his or her therapeutic regimen</td>
</tr>
<tr>
<td>i. Coordinating and integrating medication therapy management services within the broader health care management services being provided to the patient</td>
</tr>
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</table>

Continued Support for PRICE Clinic

The PRICE Clinic has maintained a viable long-term program because it serves medical group, health plan, and patient interests. Mediclinic, the sponsoring medical group, has seen improved prescribing patterns, measured by average cost per prescription and prescription cost per member per month (data not presented), increased generic use across all plans, and decreased patent drug costs since the inception of the PRICE Clinic. Further, the clinic has been a successful member retention strategy for Mediclinic, as clinic patients were retained within the medical group at a higher rate than those who did not attend the clinic. The PRICE Clinic retained 91% of all senior MA plan members seen in 2002 as compared with a 78% overall retention rate for Mediclinic MA plan members in that year. Because this translates into a significant revenue stream, Mediclinic has determined that the benefits derived from the PRICE Clinic, in the form of improved prescribing patterns and increased member retention, justify the estimated $30,000 operating cost of the program.

Limitations

There are several limitations of this study. Results from this pilot study should be interpreted with caution since there was no direct control group. For example, the generic-only drug benefit design predominant among patients seen at the PRICE Clinic contributed to the relatively high 51% average generic utilization in the preintervention period and may have contributed to the 5-point absolute increase and 10% relative increase in generic utilization that was observed during the intervention period. However, it could also be argued that a 5-point increase in generic utilization, from 51% to 60%, is more difficult to achieve than a 5-point percentage increase in generic utilization when the ratio is an absolute 10 percentage points less, +1%, in the FACES program (the comparison group) in 2001. A comparison group, rather than a control group, was also used for evaluation of the effect of the PRICE Clinic on OOP costs. Second, self-report was used to measure 2 variables: income level and whether patients discontinued or planned to discontinue medications because of cost. Nonetheless, studies have concluded that self-report can be a valid and reliable method to obtain patient information and measure drug compliance. 16,17,18 Despite these limitations, this is the first systematic study of an intervention of this nature, and results from this preliminary study have implications for the implementation of MTM services mandated under the new Medicare Part D pharmacy benefit.

Conclusion

The Medicare Modernization Act requires drug plan sponsors to implement new programs to ensure appropriate, cost-effective prescribing and improve access to needed medications. The results of this study suggest that a collaborative, team-centered clinic offering pharmacist-directed services has the potential to achieve these objectives and to serve as a replicable model that can be integrated into managed care settings to improve clinical, service, and cost outcomes.

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DISCLOSURES

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