

Choices in Prescription-drug Benefit Programs: Mail versus Community Pharmacy Services

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ALTHOUGH PRESCRIPTION DRUG PROGRAMS AMOUNT to only about 10 percent of an employer's health care benefits package (National Pharmaceutical Council 1987), rapidly escalating drug costs have resulted in increased interest in mechanisms to control these expenses. After two decades in which the annual rate of increase in prescription drug costs remained very modest and often significantly below increases in other segments of health care, the trend has abruptly changed in the last decade (Eli Lilly and Company 1989; Schlegel 1988). From 1980 to 1986 the cost of prescription drugs rose 80 percent, or 2.5 times faster than the overall rise in consumer prices (U.S. General Accounting Office 1987). It is not unexpected that utilization rates would also rise because the proportion of persons with third-party prescription coverage has increased from approximately 30 percent to over 50 percent in the past decade (Market Facts 1983).

The proportion of individuals with a prescription drug benefit is likely to continue to increase, albeit at a slower rate than if the Medicare catastrophic-coverage prescription drug benefit had been implemented for the elderly. The activities surrounding the passage and subsequent repeal of that act, however, have increased awareness of the

cost of medications on the part of both the federal government and the elderly themselves. In addition, several states have implemented drug benefit programs for the poor and elderly. Repeal of catastrophic coverage may stimulate more of these state-based initiatives.

Of the various programs developed to control pharmaceutical costs, plans that allow consumers to obtain medications through the mail have recently become popular. Although mail pharmacy services (MPS) are not new, historically they have existed primarily for delivery of medication to rural or remote areas. Only in the past several years have they been frequently included as an option in benefit programs of private employers.

While drug cost control has been the primary factor supporting the growth of MPS, the quality of pharmaceutical services should also be considered. Unfortunately, there is a lack of objective, detailed data to provide the basis for an adequate understanding of both of these issues. While further research is needed, health benefits managers must nevertheless currently make decisions about prescription drug programs. It is the goal of this article to provide a more complete assessment of the MPS phenomenon based upon available information. The specific objectives are to describe first the MPS industry and then discuss cost and quality issues as they apply to MPS and in comparison to more traditional drug reimbursement programs. Finally, the future direction of prescription drug programs is discussed.

Description of the MPS Industry

Market for Mail Pharmacy Services

The MPS market can be divided into three sectors which together account for approximately 90 million prescriptions a year. The first consists of eligible veterans using the Veterans Administration program, which dispenses approximately 30 million prescriptions per year by mail (Enright 1987; Codling 1987; Konnor 1989).

A second group consists of individuals with no drug benefit program. The largest concentration of this group are members of the American Association of Retired Persons (AARP) who purchase

prescriptions from AARP's Retired Persons Services (RPS). RPS is a nonprofit organization which began in 1959 and dispenses about 8 million prescriptions annually (Chi 1987). Approximately 10 percent of AARP members utilize this service (Enright 1987; Ross 1987).

A third sector of the MPS market is composed of corporate employers and government. This is the sector where most of the recent growth has occurred and where future growth is most likely (Chi 1986; Shannon 1985). It is serviced primarily by for-profit providers, which account for 42 percent of MPS sales (FIND/SVP, Inc. 1989). The largest organization serving this market is Medco Containment Services, which dispenses approximately 15 million prescriptions annually and represents 62 percent of the for-profit sector (Medco Containment Services 1987; *F-D-C Report* 1989; FIND/SVP, Inc. 1989).

Other major companies providing pharmaceuticals by mail include America's Pharmacy; ArcVentures, Inc. (a subsidiary of Rush-Presbyterian-St. Luke's Medical Center); Baxter Prescription Services, Inc. (a division of Baxter Healthcare Corporation); Express Pharmacy Services (a division of J.C. Penney); FlexRx Pharmacy Services, Inc. (a subsidiary of Giant Eagle); and Pharmacy Management Services Inc. (Konnor 1989).

MPS sales have grown rapidly from less than \$100 million in 1981 to an estimated \$1.5 billion in 1989 and are expected to grow to as much as \$5 billion by 1993. The current MPS market share is about 6 percent of the \$34 billion United States outpatient prescription drug market and is expected to increase to 10 percent by 1991 and to 15 percent a short time later (Codling 1987; Konnor 1989). Estimates of actual use of MPS range from 1 to 9 percent of beneficiaries (Drury 1983; Glaser 1984; *Dickinson's PSAO* 1989; Navarro 1989), which is consistent with the extent of use of the AARP MPS program.

The MPS market is generally limited to chronic or maintenance medications since delays inherent in mailing prescriptions preclude extensive MPS use for patients with acute medication needs. MPS are particularly attractive to sponsors of programs for the elderly, as this population has high use of chronic medications. The emphasis on chronic therapy, which composes about 70 percent of the prescription drug market (*Drug Topics* 1986), allows MPS to fill prescriptions for a large supply of medications with two types of plans predominating: 180-days supply and the more common 90-days supply.

Reasons for Popularity and Growth of MPS Benefits

The primary reason for the popularity and growth of MPS with employers is claims by these providers of drug-program cost savings of from 5 to 50 percent when compared to traditional drug-reimbursement plans with no sacrifice in quality (FIND/SVP, Inc. 1989; Enright 1987; Glaser 1986a, 1986b). A second claim that makes MPS appealing is administrative convenience. MPS firms state that they provide a centralized billing and utilization-review system, which they maintain minimizes employers' administrative costs. This is perceived as particularly helpful for employers who have a geographically dispersed employee population that would ordinarily have to deal with many retail prescription outlets. Of increasing value is the detailed information about drug use and costs that can be provided by a MPS firm. This information can be invaluable to the employer in its efforts to monitor the use of the drug benefits program by its employees (Enright 1987; Jendlin 1987).

A third reason for the attractiveness of MPS is that it is perceived as an opportunity to provide increased drug benefits to employees without significantly raising health care costs. This opportunity is particularly important to employers pressured by employees to enhance the fringe benefits in their compensation package (Matish 1987).

There are also a number of factors attributed to the consumer which make MPS attractive to them. The two principal reasons for which private-pay customers choose MPS appear to be price and convenience. Others include increased privacy, availability of medication information leaflets, and a perception of better quality of service (Tootelian 1987; Chi 1987; McHugh 1987).

Cost of Pharmaceutical Services. Two major questions about MPS programs are whether the savings they provide are as great as claimed and whether similar rates of savings can be achieved by programs that use the community pharmacy. Although the cost components of a prescription drug program can be described in a fairly straightforward manner, the analysis of different programs is complex because of the lack of both specific data and precise standards for comparison and the large size of the potential drug database.

In analyzing costs it is helpful to examine first those components that directly contribute to the cost of an individual prescription and then consider other factors which have an impact on overall program costs.

Direct Prescription Costs

Direct costs in a third-party program include three components: The *ingredient cost* is the cost of the drug product. The *dispensing fee* covers the pharmacy's nondrug product costs, such as rent, personnel, and supplies as well as profit. The *administrative fee* represents the costs of running a third-party program and is usually associated with a fiscal intermediary that handles only drug programs (e.g., PCS, Inc. and PAID Prescriptions) or one providing comprehensive health benefits (e.g., Blue Shield, Blue Cross, Prudential).

Ingredient costs are affected by three major factors: use of generic products for multisource pharmaceuticals, the price the pharmacy pays for the medication, and the number of units of medication dispensed per prescription.

Significant savings can be achieved when the pharmacist dispenses a generic product containing the same drug entity as the brand-name product. This practice of drug product selection (DPS) is limited to products no longer under patent. Although there is wide variation in the reported rates of DPS, a trend toward increasing use of generic products is clearly evident. Nine reports show rates ranging from 10 to over 25 percent (Boston Consulting Group 1987; McDonough and Neff 1988; *Chain Drug Review* 1988b). MPS generally claim to use generic products whenever feasible and are reported to use them for approximately 24 percent of the prescriptions dispensed. Direct comparison of MPS and community pharmacy DPS rates is difficult since MPS generally dispense only maintenance medications, which may have a higher rate of generic use than acute medications (Boston Consulting Group 1987). Recent improprieties by some generic drug manufacturers and FDA staff members have raised concerns about the equivalence of certain generic products. While this concern may cause some short-term reluctance to use these products, the long-term trend toward increased generic use is likely to continue.

Determining what prices pharmacies actually pay for the product is difficult. Although the average wholesale price (AWP) is an industry-wide benchmark, it is generally acknowledged that few pharmacies pay AWP. The difference between published AWP and what a pharmacy actually pays depends on a number of variables including competition among suppliers in a given market area, quantity or volume discounts, and promotional and/or cash discounts. Cash discounts, ordinarily in

the range of 1 to 2 percent, are earned only if invoices are paid on or before the cash discount date. In the retail pharmacy environment where net profit before taxes averages only 3.0 percent (Eli Lilly and Company 1989), this cash discount is important and one that is lost if cash flow is insufficient to permit timely payment. Pharmacists contend that use of AWP for reimbursement is justified because dispensing fees typically are not rising fast enough to cover nondrug product costs and that, in today's cost-control environment, they are frequently being reduced.

A reasonable estimate of the upper limit of what pharmacies do pay is the rate at which they are reimbursed by third-party programs and, in the case of MPS, the prices these firms quote in their proposals to plan sponsors. Both types of pharmacies may actually pay somewhat less than these amounts, but it is unlikely they pay more. While some third-party programs still reimburse pharmacies at AWP, this practice is becoming less common. One frequently used option is to reimburse brand-name products at the pharmacy's actual acquisition cost (AAC) and generic products at a rate not to exceed the maximum allowable cost (MAC), a price screen determined by the payer in advance. Another approach growing in popularity is to reimburse at AWP minus some percent, e.g., AWP minus 10 percent. AWP's for brand-name products are routinely published and can be easily identified although no such standard exists for generic product AWP's.

Based upon these reimbursement schedules, the authors' review of MPS proposals to third-party payers, and the economics of volume purchasing, it appears that MPS may be able to purchase medications at prices lower than those available to most individual community pharmacies. For example, the more aggressive Medicaid drug programs reimburse pharmacies in the range of AWP minus 10 percent to AWP minus 12 percent for brand-name products (National Pharmaceutical Council 1989) with some private insurers having even higher reductions. Proposals from MPS offer reductions from AWP that are often in this range or higher. Although the "AWP minus" approach is not frequently used by Medicaid for generic products, MAC price screens utilized are often similar to or even more restrictive than AWP's created from published prices of available generic products. Again, MPS' proposals also tend to quote even lower prices.

The number of units of medication dispensed per prescription is generally greater in MPS because the original prescribed amount plus

one or more refills are generally dispensed together, assuming refills are allowed. Because dispensing and administrative fees occur only once per dispensing regardless of the prescription size, the dispensing of more units of medication lowers the per-prescription cost. The two most common MPS' plans average about 70 and 160 days of therapy. The PAID Prescriptions program, as an example of a traditional community pharmacy plan, averages 24 days for maintenance drugs (Barberi, Sydlaska, and Wilson 1987; Sieben 1986, 1987).

Dispensing fee reimbursement tends to vary tremendously in community pharmacy-based programs. For example, the 1989 Medicaid dispensing fee averaged \$3.61 nationwide with a range between states of \$2.00 to \$5.26 (National Pharmaceutical Council 1989). Private insurance programs also vary widely. For example, the several plans currently administered or under consideration by one Blue Cross/Blue Shield organization have dispensing fees ranging from \$2.30 to \$4.25 within the same state. In general, there is little sound economic basis for determining dispensing fees. Attempts to require that those fees be based on the calculated cost of dispensing a prescription have generally failed either because third parties have not conducted the dispensing fee surveys or pharmacists do not have accurate and complete data upon which to provide that information.

MPS' dispensing fees also vary significantly. Proposals have even been known to offer pricing options which include no dispensing fee at all. In such cases it is obvious that neither MPS' dispensing fee nor ingredient cost figures reflect the cost component they are conceptually designed to represent—i.e., nondrug product and drug product costs, respectively. In any example, however, a low figure for one component could be offset by a higher figure for the other.

One outcome of such practices is misleading statements such as “a mail-order supplier charges its corporate health-plan clients only 50 cents to fill a prescription and process a claim” (Califano 1988). Based upon packaging and mailing costs, without even considering personnel and other expenses, such a claim cannot be true. If the fee does not cover all operating costs, ingredients costs must be inflated to recover those costs and produce a profit.

Administrative fees reported for non-MPS claims processors like PAID Prescriptions and PCS, Inc. that only process medication claims average approximately \$0.65 per prescription (Boston Consulting Group 1987), although firm data are difficult to obtain and vary on

the volume of claims processed. Because MPS both dispense medications and administer the program, they generally do not have a separate administrative fee. Rather, program operation charges are included in the dispensing fee.

Other Program Cost Factors

In addition to direct prescription costs, a variety of other factors must be taken into account in determining total drug program costs. These factors may or may not differ between mail and community pharmacy-based programs.

Patient population characteristics such as age and gender distribution, health status, industry type, and geographic location, are factors over which little control is possible and which are independent of whether the medication is provided by MPS or community pharmacies. Nevertheless, their effects must be considered in program design and in comparing different drug plans, as they can have a major influence on the cost of the program.

The elderly, for example, are 2.5 times more likely to be taking three medications on a regular basis than are middle-aged persons (American Association of Retired Persons 1984). Because the elderly take more pharmaceuticals and because those medications are more likely to be for chronic diseases, the MPS' industry sees this type of patient as a target for their programs.

Drug plan characteristics that can have significant effects on cost tend to be different in MPS and community pharmacy-based programs. The larger day's supply of MPS' plans results in lower fees on a per-day-of-therapy basis. With MPS' plans limited to maintenance medications there is an additional overall administrative cost to the program because comprehensive programs need to include a community pharmacy component to provide acute medications. Those community pharmacies are unlikely to be able to dispense the acute medications as economically as they could if they provided both the maintenance and acute medication components of the program. Because they have only approximately one-third of the available prescription volume when maintenance medications are removed, community pharmacies lose the advantages of a higher volume of activity. One likely outcome of such forced inefficiency is the shifting of costs to self-pay customers whose prescriptions are not subject to the cost controls imposed by third-party

programs. Thus, savings created through MPS' programs will to some degree reappear as increased costs to another segment of the medication-using population.

Another plan characteristic is the cost-sharing component found in most third-party drug plans, typically as a copay feature. To encourage MPS' use, employers often offer a lower copay requirement for MPS than community pharmacy-based plans. This results in a greater portion of program costs being paid by the employer or other plan sponsor. In addition, the presence of copay requirements has been associated with somewhat lower medication utilization in selected populations (Leibowitz, Manning, and Newhouse 1985; Nelson, Reeder, and Dickson 1984; Soumerai, Avorn, Ross-Degnan, and Gortmaker 1987). While the extent to which a lower copay requirement would induce utilization for patients using MPS is not clear, it is believed that effect would be modest.

Drug delivery system problems such as dispensing errors, pharmacy and customer fraud, and medication waste have potentially important effects on cost. Although MPS and community pharmacy programs both claim to be superior in these areas (Boston Consulting Group 1987; Morgenson 1987), the magnitude of these factors is not well quantified for either as claims are based upon anecdotal data (Christensen 1989). Thus, comparison of these effects between the two settings is difficult.

Two areas where some comparative data exist are medication wastage when a patient quits taking a medication or dies and terminated recipients who leave a program with a large supply of medications remaining. These problems appear to be higher in MPS although the data do not all agree. Results of two related studies showed increased utilization of up to 9 or 10 percent in MPS' plans, which the author attributes primarily to waste and terminated recipients (Sieben 1986, 1987). Although increases were seen in several MPS' plan types, they were greatest in plans that dispensed a 180-day medication supply. This finding is consistent with the hypothesis that wastage is primarily a function of the days' supply of medication provided. Two interview surveys of MPS and community pharmacy users supported these studies (PCS, Inc. 1987). Another study, however, found insignificant changes in utilization (Barberi, Sydlaska and Wilson 1987). Unfortunately, these studies are not directly comparable because of population and methodological differences. In addition, they generally do not directly

compare community pharmacy with MPS' programs. Rather they compare community pharmacy with MPS plus community pharmacy programs, thus diluting any effect caused specifically by the MPS component.

Relative Effects of Cost Factors

The relative importance of the various cost components are perhaps best illustrated by a specific example. An analysis was conducted based upon a previously developed model (Boston Consulting Group 1987) using ingredient costs from that model (average per-prescription brand and generic costs of \$15.18 and \$4.11, respectively) and fees comparable to those of a typical drug program (dispensing and administrative fees of \$3.50 and \$.75, respectively). The results are shown in table 1. While using different parameter levels would change the specific result values, the results remain qualitatively similar over various examples.

Because ingredient cost is the major portion of prescription cost,

TABLE 1
Relative Effects of Prescription Cost Factors^a

Plan	Changes in reimbursement				Cost per prescription (\$)			Cost per day over plan 1 (\$)	% Savings
	Percentage generics used	Percentage discount from AWP	Days' supply dispensed	Percentage of fee paid	Ingredient ^b	Fee ^c	Total		
1	None	None	24	100%	15.18	4.25	19.43	0.81	---
	(Ingredient cost changes)								
2	25%	None	24	100	12.41	4.25	16.66	0.69	14.2%
3	None	10%	24	100	13.66	4.25	17.91	0.75	7.8
4	None	None	72	100	45.54	4.25	49.79	0.69	14.6
5	25	10	72	100	33.51	4.25	37.76	0.52	35.2
	(Dispensing and administrative fee change)								
6	None	None	24	75	15.18	3.19	18.37	0.77	5.5
	(Combined ingredient and fee changes)								
7	25	10	72	75	33.51	3.19	36.70	0.51	37.0

^a Methodology from Boston Consulting Group (1987).

^b Based upon average AWP's of \$15.18 and \$4.11 for prescriptions filled with brand and generic products, respectively, from Boston Consulting Group (1987).

^c Composed of a \$3.50 dispensing and \$.75 administrative fee.

changes in the factors affecting it have the greatest impact. In the example, a 25 percent generic use rate reduced per-day-of-therapy cost by about 14 percent (plan 2) compared to all brand use (plan 1). A moderate price discount from AWP yields a reduction of about 8 percent (plan 3). While increasing the days' supply of medication threefold increases the total prescription cost substantially (plan 4), the cost per day of therapy is reduced by nearly 15 percent over the original parameter levels of plan 1. This latter cost reduction is achieved by spreading dispensing and administrative fees over a longer period of time. When the changes in all three areas are included, a total reduction in ingredient costs of approximately 35 percent is achieved (plan 5).

Changes in the dispensing or administrative fees have much more modest effects because they represent the smaller part of direct prescription costs. In the above example, a 25 percent decrease (or increase) in the total fee amount (plan 6) changes the per-day costs, compared with plan 1, by 5.5 percent. When added to the combined ingredient cost changes of plan 5, less than 2 percent additional cost savings are achieved (plan 7).

The effects of other factors, such as the disease the patient has, plan and delivery-system characteristics, on program costs are not as easily quantifiable. Nevertheless, in comparing MPS and community pharmacy based programs, it is important to compare as much data on these factors as is practical. Some factors, such as age, will have effects that are quite obvious; others, like fraud, are less obvious. Some factors, such as days' supply dispensed and medication waste, may have opposing effects. Finally, some factors, such as cost-sharing provisions, can have significant effects not on total costs but on the distribution of those costs between plan sponsors and recipients.

Potential for Cost Savings

The savings potential of MPS is obviously limited by the extent of its use. Because approximately 65 to 75 percent of all medications dispensed are for chronic therapy, any savings found by the use of MPS rather than community pharmacies has to be reduced by approximately one-third to adjust for the fact that the acute medications will need to be dispensed from those community pharmacies. Furthermore, except in those uncommon instances where MPS' use is mandated, only a minority elect the option, perhaps currently in the range of 5 to 10 per-

cent (Barberi, Sydlaska, and Wilson 1987; Sieben 1987). Even if market penetration is doubled or tripled, less than one-half the potential savings will be achieved. Such increased market penetration may not be likely to occur, according to experience in one large corporation. General Motors, after five years with a MPS' option for its retirees, has found that usage appears to have reached a plateau at under 5 percent of total prescriptions (*Dickinson's PSAO* 1989).

A comparison of the potential of MPS and community pharmacy programs to control costs should also include an evaluation of the difference strategies available to either program. Increasing generic product use and increasing the days' supply dispensed have the same potential in either setting. While legal and rational therapeutic factors limit the use of these strategies, criteria which define the appropriate level of each strategy would be applicable in any program. The advantage maintained by MPS in paying lower prices for medications will be significantly reduced as community pharmacies also are becoming increasingly involved in volume purchasing through one of the pharmacy buying groups currently available.

MPS should be able to maintain some advantage in the cost of dispensing medications through economies of scale, lower occupancy costs because of nonretail locations, more efficient use of professional and technical personnel, and closer inventory control. MPS do have, however, increased costs in telephone use, packaging requirements, and postage costs compared with community pharmacies. While MPS generally have no separate administrative fee, at least a portion of the cost of coordinating the two-component program needed for a comprehensive prescription drug benefit (MPS for chronic and community pharmacy for acute medications) should be allocated to the mail pharmacy component.

In summary, the potential for savings is similar between MPS and community-pharmacy-based programs. While MPS may maintain a modest advantage, if mechanisms to achieve savings potential are utilized, community-pharmacy-based programs should be able to minimize the differential. In addition, community-pharmacy-based programs meet both acute and maintenance medication needs and do not require beneficiary financial incentives to encourage participation.

Finally, there is no definitive assessment of to what extent any potential cost differences between mail and community pharmacy services translate into actual cost savings. There is evidence, however, that they

are not as great as the MPS' industry has suggested. The director of employee benefits at General Motors notes that although there have been some savings to patients because of lower copay requirements, major savings to the corporation have not occurred after five years' experience with MPS (*F-D-C Reports* 1989).

Quality of Pharmaceutical Services

One of the major concerns that has been raised is whether MPS and community pharmacies can provide the same quality of pharmaceutical services to patients (Chi 1987; *NARD Journal* 1987). These professional services can be divided into three areas: providing information to patients, monitoring drug therapy, and dispensing the correct medication to the patient.

Providing Information to Patients

MPS are criticized as less likely to provide adequate information to patients than community pharmacies, primarily because of the lack of an opportunity for oral communication with the patient (Chi 1987; *NARD Journal* 1987). Not surprisingly, MPS' supporters disagree and argue that MPS provide at least as much, if not more, information to their patients as community pharmacies (Ross 1987; Chi 1987; McHugh 1987; Latiolais 1987).

Expectations. Part of the controversy regarding the ability of MPS to provide adequate information to patients involves identifying the appropriate standards/expectations for this service. Professional pharmacy organizations have statements or policies which encourage pharmacists to engage in face-to-face counseling with patients to ensure that they understand how to take the medication and avoid harmful effects (Kalman and Schlegel 1979; American Society of Hospital Pharmacists 1987). Studies of physician attitudes indicate that pharmacists' counseling efforts are viewed as beneficial to patients and that they should be encouraged, especially if coordinated with physicians' own patient-education activities (Wallace and Kradjan 1977; Moss, Garnett, and Steiner 1980). Legal expectations of pharmacists' counseling behavior are not as consistent as expectations of pharmacy organizations or phy-

sicians. At least 17 states currently require some form of pharmacist/patient consultation for a dispensed medication while 5 more are contemplating such a requirement (National Association of Boards of Pharmacy 1986). In addition, the regulatory trend is toward greater expectations from pharmacists to provide medication information to patients.

Most consumers believe that pharmacists are valuable sources of information, although less valuable than physicians (CBS Television Network 1983; American Association of Retired Persons 1984). Positive attitudes toward pharmacists are reflected by policies of some consumer organizations. These groups generally advocate unlimited public access to medication information and have recognized the pharmacist as a valuable source of that information (National Council on Patient Information and Education 1987).

Knowledge about the expectations of benefits managers and health insurers of the pharmacists' role in informing patients is lacking. These individuals appear to be focusing primarily on the costs and quality of the drug product and are either ignoring or are unaware of the type of additional medication-information services that pharmacists can provide (National Pharmaceutical Council 1987; Drury 1983; Jendlin 1987; Bogdanich 1986; Freudenheim 1988).

Comparison of MPS with Community Pharmacies. The best approach to improving patient medication knowledge and compliance is a combination of strategies which include face-to-face counseling, written information, and continued feedback on the patient's compliance behavior. Written information alone is only minimally effective in accomplishing this goal (Mullen and Green 1984; Haynes, Wang, and Gomes 1987). While community pharmacies have a greater potential to provide this combination of strategies, patients continually report that community pharmacists do not provide all the needed information (Penna 1983; Morris 1982; American Association of Retired Persons 1984). These reports are confirmed by pharmacists, who report that they tend to provide information selectively based on their perception of patient need and desire. The principal methods they use include brief oral instructions supplemented by the prescription container label. Written information is distributed by less than one-half of the community pharmacists (Penna 1983; Ascione et al. 1985).

Although more limited in scope than what can be offered by community pharmacies, MPS provide patient information through a variety

of ways. Patient questions can be answered via a toll-free telephone number, usually during pharmacists' working hours. Information on the prescription container is often supplemented by a medication information sheet. Surveys of patient satisfaction with MPS are few and limited in scope. While most are pleased with the medication information sheets distributed by many MPS' programs, patients report rarely using the telephone service and frequently experiencing difficulties in reaching a pharmacist when they do call. Some MPS' patrons admit desiring a more personal relationship with the pharmacist (Roberts and Fitzgerald 1986; Weiss 1986; McHugh 1987). Although there is a greater potential for providing medication information in community pharmacies, there is not convincing evidence that either MPS or community pharmacies are meeting the patients' needs in this area.

Monitoring of Patient Drug Therapy

Pharmacist monitoring of drug therapy to identify problems of non-compliance, misuse, or adverse drug effects is considered an important function by pharmacy organizations, physicians, and patients (Kalman and Schlegel 1979; Schlegel 1983; Schering Laboratories 1983). Both community and mail-order pharmacies maintain computerized patient profiles that can be routinely scanned for drug-related problems (Chi 1987; Latiolais 1987; Ballard 1987).

These profiles typically contain the name of the medication dispensed, the number of units dispensed, and the recommended daily dosage schedule. In addition, the records contain the price of the prescription and the number of times the prescription has been refilled. Because these records are usually created as the result of a financial transaction, the information tends to be quite accurate.

MPS' profiles generally contain information only on chronic medications while community pharmacy profiles cover both chronic and acute therapy. Thus, community pharmacy profiles offer a more complete description of medication use for patients taking both acute and chronic therapy, especially since most patients tend to purchase their prescriptions at one pharmacy (Laverly 1984; Market Facts 1985; Shepherd and Crawford 1987). There are, however, no controlled studies which indicate whether this more complete medical record has enabled the community pharmacist to monitor patients more closely.

Dispensing Appropriate Medication by Pharmacists

Much of the controversy surrounding MPS involves whether or not this type of service is as accurate as community pharmacies in dispensing the right drug to the right patient. Pharmacy organizations have expressed concerns about the quality-control procedures used by MPS. A number of anecdotal cases have been gathered about patients who have experienced problems such as lost medication, receiving the wrong product, long delays in obtaining medication, and lack of control over use of specific drug products (Boyd 1986; Vincent 1987). In addition, congressional testimony from former MPS' employees suggests that poor quality controls exist in some companies (Dickinson 1987; U.S. Senate 1987). The recent death of an elderly woman was attributed to the wrong drug being provided by a mail pharmacy service (*Dickinson's PSAO* 1988).

Despite the concerns raised by these reports, there are no controlled studies which demonstrate the MPS have higher drug-dispensing error rates than community pharmacies. While only a few limited studies have compared error rates, these findings suggest that MPS are as safe as community pharmacies (Roberts and Fitzgerald 1986; Weiss 1986; Miller and Messamore 1987; Consumer Data Bureau 1986). In addition, MPS argue that they are licensed in the states where they are located and subject to the same safety regulations as any of that state's community pharmacies. Very few MPS' violations appear to have been reported by the boards of pharmacy in those states (Robinson 1987).

Opponents of MPS point out that while MPS' pharmacies may comply with the pharmacy practice regulations of states where they are located, they may violate such regulations in states into which they mail medications. For example, as noted previously, a number of states require personal pharmacist/patient counseling at the point of dispensing, which cannot be provided when medications are delivered by mail. The MPS' response is that they comply with the spirit of such regulations with printed patient medication information and toll-free telephone access to pharmacists at the MPS' site.

Problems of this type arise because the practice of pharmacy is regulated by the individual states under authority of the police power, which may be applied differently from state to state. A 1988 survey by the National Association of Boards of Pharmacy (NABP) determined

that only 20 states currently attempt to regulate MPS' practice. The majority of state board of pharmacy officials who responded to the survey indicated that more comprehensive regulation of MPS was needed. In response, a set of model regulations governing MPS' practice was developed and approved at the 1989 annual meeting of the National Association of Boards of Pharmacy (Martin 1989). Approval of the model regulations is not binding on individual states; they do, however, provide guidance for states that may choose to become more active in regulating MPS' practice.

Future Direction of Prescription Drug Programs

Competition in health care will continue to influence the nature of third-party prescription drug programs. Thus, MPS' plans will grow and evolve. Because of inherent limitations in the scope of its services, at least some MPS' providers will become part of integrated programs that also include a network of community and/or hospital pharmacies under one administrative organization.

Traditional community pharmacy programs are also changing to meet the demands of the health care market. Cooperative buying groups and pharmacy service administrative organizations (PSAOs) are examples of organizational changes which are allowing community pharmacies to be more competitive with MPS. PSAOs are like pharmacy preferred provider organizations (PPOs) or networks of community pharmacies organized to offer a comprehensive package of pharmacy services at reasonable cost to employers and other purchasers of health care benefits.

Also changing are the relative considerations of cost and quality of pharmacy services. While the selection of prescription drug programs continues to be influenced primarily by cost, the quality of the pharmacy services provided are now also being addressed. It is likely that, in the future, consideration of a drug option will include a more thorough review of the relative importance of the cost and quality associated with that option.

Unfortunately, there are not sufficient credible data available to assess adequately either the cost or quality issues related to drug distribution programs. The prescription drug program of the ill-fated Medicare Cat-

astrophic Coverage Act was a recent and visible example of this information problem. Throughout its development and until the act's repeal, it was clear that components of the drug program were being constructed by persons relying on poor data or no data at all. The result was an inferior program based on an inadequate understanding of the dynamics of the drug distribution system. More comprehensive analyses of drug cost and quality issues must be undertaken if other drug program decisions in either the public or private sector are to be based upon information that is more accurate and complete than that currently available.

By identifying factors that allow a program to provide reasonably priced pharmaceutical products, prescription drug plan sponsors may elect to offer incentives that encourage both community-pharmacy- and MPS-based programs to control costs. Thus, a sponsor who uses relatively low-cost incentives such as differential dispensing fees to encourage generic drug use or volume purchasing may find that community-pharmacy-based programs can provide medications at a cost comparable to that of MPS.

The quality of the pharmacy services offered should be examined in the context of how they are affected by cost constraints. Consideration of quality should go beyond the drug product to include appropriate distribution procedures, accessibility of information, and review of therapy for drug-related problems. Neither MPS nor community pharmacy services appear to be uniformly providing the highest quality of pharmaceutical services despite the stated desires of patients to receive these services and of pharmacists to provide them. Incentives should be considered which encourage the provision of adequate quality at a reasonable price. For example, specific reimbursement to pharmacists could be provided for those comprehensive pharmacy services that require extensive patient counseling over an extended period of time. Pharmacists can also be encouraged to assist the patient's physician by obtaining a complete medication history of the patient and by frequently reviewing the patient drug regimen for adverse drug reactions, drug interactions, and noncompliance with therapy.

While cost and quality are the two major factors in developing and selecting a prescription drug program, employers are becoming increasingly interested in administratively convenient programs that offer, for example, centralized billing services, effective eligibility screening sys-

tems, and the use of prescription claims databases for drug surveillance and utilization review. MPS have been more administratively convenient to many plan sponsors for the classes of drugs they provide. Community pharmacies, however, are reducing much of the administrative barriers to their services by organizing into networks such as PSAOs and strengthening their relations with existing third-party prescription claims processors.

Selection of appropriate prescription drug programs for health benefit plans is a challenge. Rising costs require that programs offer drug products at reasonable cost without adversely affecting the quality of pharmaceutical services. The growth of MPS reflects the efforts by providers of those programs to seek less costly alternatives to the traditional system of community pharmacies. In turn, this effort is forcing the community pharmacy system to reorganize in structures that can become more competitive with MPS and other nontraditional drug distribution systems. Drug program sponsors stand to benefit by supporting analyses to increase the understanding of the nature and potential of various systems of providing medications and by designing provider-reimbursement mechanisms that ensure that quality pharmaceutical services are provided at a reasonable price.

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