

# Do the Incentives in 3-Tier Pharmaceutical Benefit Plans Operate as Intended? Results From a Physician Leadership Survey

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**Background:** Three-tier pharmaceutical benefit systems use graded co-payments to steer patients toward “preferred” formulary medications.

**Objectives:** To evaluate physicians’ knowledge of formularies and out-of-pocket costs in such systems, as well as their perceived responsibility for helping patients manage out-of-pocket costs.

**Study Design:** Self-administered written survey.

**Methods:** Physician leaders participating in the California Medical Association Leadership Conference were surveyed.

**Results:** A total of 133 responses were received from 205 participants (65% response rate). Physicians reported that they were often unaware of patients’ out-of-pocket costs at the time of prescribing. Fifty-nine percent of physicians reported that they never or seldom were aware of patients’ “preferred” (lower cost) formulary options when prescribing, and 70% never or seldom were aware of patients’ out-of-pocket costs when prescribing. Although 88% of physicians agreed that it is important that patients’ out-of-pocket costs for prescription drugs are managed, only 25% strongly or somewhat agreed that it is their “responsibility” to help. Instead, 69% of physicians believed that it is the responsibility of the pharmacist to be familiar with patients’ out-of-pocket costs. Physicians reported that they receive phone calls from pharmacists concerning formulary issues after 18.6% of the prescriptions they write.

**Conclusions:** Physician leaders reported that they often do not possess the knowledge to assist patients in managing out-of-pocket costs for prescription drugs and they depend on pharmacists to communicate patient preferences in making prescribing decisions. As a result, price preferences are communicated indirectly, likely less efficiently, rather than intentionally when prescribing decisions are made.

(*Am J Manag Care.* 2005;11:16-22)

Over the last 5 years, 3-tier pharmaceutical benefit systems have become the dominant pharmacy benefit structure in the United States.<sup>1</sup> As recently as 1998, only 8% of Americans with prescription drug coverage were enrolled in 3-tier plans.<sup>2</sup> By the end of 2002, that number had ballooned to 57% and is continuing to rise.<sup>3</sup> As more insurers are relying on incentives to influence medication choices, the incentives themselves are escalating rapidly. Co-payments for nonpreferred drugs increased by 62.5% from 2000 to 2002, from an average of \$16 to an average of more than \$26,<sup>4</sup> and out-of-pocket spending accounts for almost half of the nation’s prescription drug costs.<sup>5</sup>

Tiered, incentive-based formularies offer physicians and their patients substantial flexibility in the prescribing process. Such formularies rely on out-of-pocket costs to influence utilization. In 3-tier benefit plans, insurers require the highest co-pays from patients for “nonpreferred” brand-name drugs (third tier), with lower co-pays for “preferred” brand-name drugs (second tier), and the lowest co-pays for generic drugs (first tier).

A growing body of literature has evaluated the effectiveness of tiered benefit systems to direct expenditures and control costs. Studies have confirmed that 3-tier plans improve formulary compliance in classes of medications that have multiple brands.<sup>6-9</sup> As a result, tiered benefits have been shown to help control health plan spending as well as net spending on prescription drugs.<sup>9,10</sup> These plans also shift more of the costs of prescription drugs to patients, with patients paying a significantly higher fraction of the total cost of prescription drugs in tiered plans.<sup>9,10</sup>

Several studies have demonstrated that overall utilization of prescription drugs decreases when 3-tiered plans are instituted as compared to utilization in simpler plans with fewer tiers.<sup>9,11</sup> Adherence to chronic medications for conditions such as hypertension and high cholesterol decrease when more tiers with higher cost-sharing requirements are added to a patient’s pharmacy benefits.<sup>11</sup> These results raise key questions about the mechanism by which offering patients tiered co-payment structures leads to decreased utilization.

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This study was supported by a grant from the California Healthcare Foundation.

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Some have speculated that by offering more choice, tiered benefit systems also create more confusion and complexity for patients and physicians.<sup>12</sup> When financial incentives are used to influence prescription drug utilization, patient responses to those incentives are not as rapid or widespread as may be expected. Large studies evaluating the effect of instituting financial incentives to influence prescription drug utilization have found that relatively small percentages of the affected populations respond to those incentives.<sup>6,7,13</sup> The slow response to financial incentives may be due, in part, to physician and patient ignorance of the relative out-of-pocket costs of potential treatment options.

The ability of tiered formularies to steer patients toward “preferred” drugs may be limited by physicians’ lack of familiarity of their patients’ out-of-pocket cost requirements at the point of the physician–patient encounter, when prescriptions are written. Without knowledge of the out-of-pocket cost requirements of potential treatment regimens, physicians and patients are unable to make wise decisions about the costs and benefits of the treatment alternatives and are unable to proactively use financial incentive information to steer prescription drug decisions.

Physicians face a challenge when trying to prescribe in compliance with patients’ formularies. Physicians, on average, manage patients from more than 13 different health plans,<sup>14</sup> and there is a great deal of variability between the formularies that health plans offer their patients.<sup>15</sup> Little is known about physician’s knowledge of patients’ formularies and out-of-pocket cost requirements at the time of prescribing. Little is also known about physician’s perceptions of their accountability for helping patients manage out-of-pocket costs for prescription drugs and whether physicians believe it is their job to prescribe in compliance with patients’ formularies. Therefore, we surveyed physicians to investigate their knowledge of patients’ formularies and out-of-pocket costs, their perceptions of their roles in the management of these costs, and their estimates of the burden that prescriptions that are not compliant with patients’ formularies place on their practices.

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**METHODS**

**Study Sample**

To address physician knowledge of, and attitudes toward, 3-tier pharmacy benefit systems, we surveyed physician leaders attending the California Medical Association (CMA) Leadership Academy Meeting in Palm Springs, Calif, Nov. 15, 2003. CMA members who were invited to this meeting play a leadership role in their

practice or local healthcare system. We selected this population to study opinion leaders, that is, physicians who may have considered prescription drug issues from both a practice and administrative standpoint and who would presumably be more knowledgeable about formularies and prescription drug benefits. We believe that physician leaders would tend to be more familiar with managed care issues such as the costs of delivering care and formulary restrictions. We did not attempt to identify a nationally representative sample of physicians, but rather surveyed opinion leaders as a means of identifying barriers to the effective and efficient operation of tiered pharmacy benefit systems.

A self-administered written survey was offered to physicians attending the CMA Leadership Academy Meeting on November 15, 2003. The survey was anonymous and participants were recruited via oral solicitation during the meeting’s opening session. The survey was administered to all registrants who attended the opening session of the CMA Leadership Academy Meeting.

**Survey Instrument**

The survey instrument was constructed through a collaborative and iterative process that spanned 3 months and included participation from researchers at University of California, Los Angeles, UC Davis, and the VA Greater Los Angeles Health Care System as well as members of the CMA Executive and Medical Services Committees and staff from the California Healthcare Foundation. The instrument was piloted extensively for validation purposes.

The survey assessed physicians’ demographic and practice information as well as their perceptions of numerous aspects of outpatient prescribing using 42 items. We assessed physicians’ perceptions of the importance of controlling patients’ out-of-pocket costs and discussing those costs with patients. We evaluated physicians’ familiarity with patient out-of-pocket costs and familiarity with the determinants of those costs: patients’ insurers, formularies, and pharmacy benefit structures. We also asked about accountability for the management of out-of-pocket costs and interactions with pharmacists about nonformulary prescriptions. The survey instrument included multiple choice questions, questions answered from 5-point Likert scales, and questions that required discrete numerical answers. The survey instrument is available upon request.

**Data Analysis**

We used descriptive statistics to examine physicians’ demographics, practice information, and responses to questions concerning outpatient prescribing. Bivariate statistical methods were used to analyze the associations

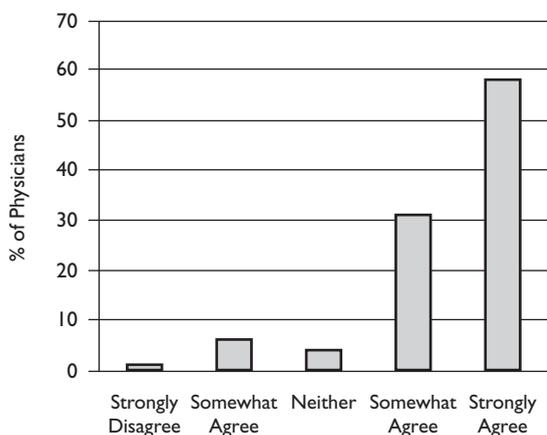
**Table 1.** Study Population Demographics

Characteristic	Value*
Physician's age, y	52.8 ± 9.2
Physician type (%)	
Generalist	57 ± 0.50
Medical subspecialist	22 ± 0.42
Surgical subspecialist	19 ± 0.19
Other (radiologist, anesthesiologist)	2 ± 0.13
Male (%)	79 ± 0.41
Hospital-based (%)	12 ± 0.33
Academic physicians (%)	10 ± 0.31
Practice location (%)	
Urban	38 ± 0.49
Suburban	56 ± 0.50
Rural	5 ± 0.21
Practice size (%)	
Small practice (1-4 physicians)	48 ± 0.50
Medium practice (5-150 physicians)	31 ± 0.46
Large or very large practice	20 ± 0.29
Percentage of physician's patients that are uninsured (%)	12.7 ± 19.1
Percentage of physician's patients that are insured through Medicaid (%)	14.5 ± 17.8

N = 129.

\*Values are means or percentages ± SD.

**Figure 1.** Physician's Responses When Asked if They Agree with the Statement That It Is Important to Control Patient's Out-of-Pocket Costs



N = 129.

between outcome variables and 2 physician variables that we hypothesized to be important: practice size and generalist versus specialist. Chi-square analyses with Pearson chi-square coefficients were performed using

Stata 8.1 software (Intercooled for Windows; College Station, Tex).

RESULTS

**Study Population**

The survey was administered to all of the 205 registrants who attended the opening session of the CMA Leadership Academy Meeting. A total of 133 physicians responded to the survey, approximately 65% of the attendees. After excluding 4 physicians who reported that they did not prescribe medications in the outpatient setting (anesthesiologists and radiologists), 129 survey responses were evaluated. Some attendees were administrators and not physicians, and we received no completed surveys from nonphysicians. Most likely a large percentage of the nonrespondents were not physicians and were ineligible for the study. As a result, we believe that a reported 65% response rate represents a conservative estimate of the percentage of physicians in attendance.

Information describing the study population is presented in **Table 1**. Most notably, the physician population that attended the leadership conference was disproportionately male and older than the general population of physicians as described in the American Medical Association master file.<sup>16</sup> A higher proportion of generalists was seen in our population than the national average.<sup>16</sup>

**Physicians' Perceptions of the Importance of Controlling Patient's Out-Of-Pocket Costs**

Physician leaders overwhelmingly agreed with the statement, "When choosing between equally effective and safe medications, it is important to prescribe the drug that minimizes patient's out-of-pocket costs." Of physicians surveyed, 88% "somewhat" or "strongly" agreed, and only 6% "somewhat" or "strongly" disagreed (**Figure 1**). Physicians surveyed also believed that discussing out-of-pocket cost requirements with patients is important: 54% "strongly" or "somewhat" agreed that it is important to discuss out-of-pocket costs with patients and 26% disagreed.

**Physician Knowledge of Patient's Out-Of-Pocket Costs**

Although physicians were somewhat familiar with their patients' insurers, they reported that they were infrequently familiar with patients' "preferred" formulary options and pharmacy benefit structures (ie, 1-tier, 3-tier, co-insurance) and, as a result, were rarely familiar with patients' out-of-pocket cost requirements

(Table 2). Of physicians surveyed, 47% reported that they were aware of patients' insurers "most" or "all" of the time and 29% reported that they were "never" or "seldom" aware of patients' insurers. Many fewer physicians were aware of patients' formularies, with 59% reporting that they were "never" or "seldom" familiar with the "preferred" medications offered on their patients' formularies and only 16% reporting that they were aware "most" or "all" of the time. Generalists were twice as likely to report that they were familiar with patients' formularies as specialists (Pearson coefficient 4.62,  $P = .032$ ) and physicians in practices of 5 or more providers were more likely to report being aware of patients' formularies than physicians in small practices (Pearson coefficient 5.57,  $P = .018$ ).

Knowledge of patients' pharmaceutical benefit structures and co-pays closely resembled each other. At least 70% of physicians reported that they "never" or "seldom" were aware of patients' pharmaceutical benefit structures or co-pays, with 10% or fewer reporting familiarity in "most" or "all" cases (Table 2).

When asked how often physicians check a patient's formulary before prescribing, 73% reported that they "never" or "seldom" check and only 13% check "most" or "all" of the time (data not shown). One reason that physicians reported for not checking patients' formularies was inconvenience. When asked if they agree with the statement, "It is convenient for me to check patient's formularies when prescribing," 84% of physicians "somewhat" or "strongly" disagreed. Moreover, 85% of respondents disagreed with the statement, "It is convenient for me to check patients' out-of-pocket costs" (data not shown).

**Physician Accountability for Out-of-Pocket Costs and Interactions with Pharmacists**

When physicians were asked if they believed it was their responsibility to prescribe patients' "preferred" formulary medication, most disagreed: 56% of physicians "somewhat" or "strongly" disagreed and only 25% "somewhat" or "strongly" agreed (Figure 2). Physicians in small practices were less likely than physicians in medium and large practices to believe that they were accountable for prescribing "preferred" formulary options for their patients (Pearson coefficient 5.32,  $P = .021$ ), and no significant differences were seen between generalists and specialists.

**Table 2.** Physician Familiarity with Patient Out-of-Pocket Costs and Determinants of Those Costs for Prescription Drugs

Patient-Specific Information	Familiar "Most" or "All" of the Time (%)	Familiar Some of the "Time" (%)	Familiar "Seldom" or "Never" (%)
Insurer	47	24	29
"Preferred" formulary options	16	25	59
Pharmacy benefit structure	8	18	74
Out-of-pocket costs	10	20	70

N = 129.

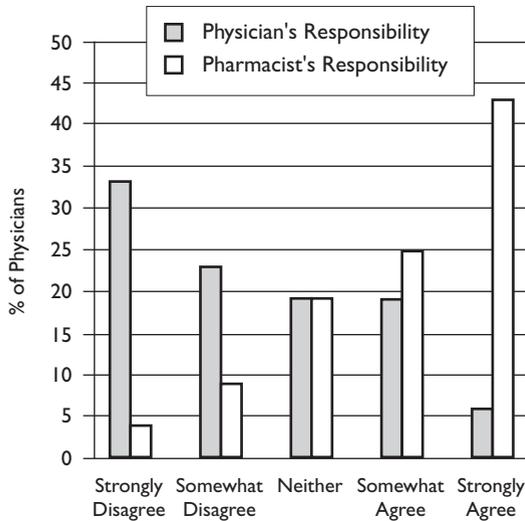
Instead, physician leaders believe the pharmacist is responsible for identifying "nonpreferred" prescriptions. Of physicians surveyed, 68% "somewhat" or "strongly" agreed that it is the pharmacists' responsibility and only 13% disagreed (Figure 2). Despite believing that pharmacists are responsible for identifying nonformulary prescriptions and, hence, for patients' out-of-pocket cost management, physicians find phone calls from pharmacists to be "bothersome." Of physicians surveyed, 65% "somewhat" or "strongly" agreed that phone calls from pharmacists are "bothersome" (data not shown).

Physicians, on average, reported a surprisingly high rate of phone calls from pharmacists about nonformulary prescriptions. The mean number of prescriptions written per day among respondents was 29.2 (SD 28.4). Of those prescriptions, respondents reported that approximately 5.2 a day, an average of almost 20% of the prescriptions written by each physician, resulted in a phone call from a pharmacist about nonformulary status of the prescription (Table 3). Of those calls about nonformulary status, respondents believed that they changed more than half of the prescriptions (53.3%) to the medication suggested by the pharmacist.

DISCUSSION

Most Americans with pharmacy benefits are now enrolled in 3-tiered pharmaceutical benefit systems. This study is the first to evaluate physician knowledge of, and beliefs about, patient out-of-pocket costs when making decisions about prescription drugs. Our findings indicated that physicians lack the necessary information about formularies and incentives to help patients manage their out-of-pocket costs for prescription drugs. We also found that physicians do not believe it is their job to possess this knowledge, and instead rely on pharmacists to help patients navigate their formularies.

**Figure 2.** Physicians' Responses When Asked if They Agree That It Is the Physician's or the Pharmacist's Responsibility to Identify "Preferred" Formulary Medications



N = 129.

By default, a system has developed in which patients respond to cost information at the pharmacy. Our finding that almost 1 in 5 prescriptions written by physicians leads to a phone call from a pharmacist concerning formulary status highlights the fact that patients are addressing cost issues at the pharmacy rather than at the doctor's office. The fact that physicians reported that they change the prescription in response to more than half of the phone calls from pharmacists suggests that physicians are often inadvertently prescribing higher-tier, more expensive medications

**Table 3.** Physician Reports of Communication with Pharmacists About Nonformulary Medications

	Value*
Mean number of prescriptions/day	29.2 ± 28.4
Mean number of calls/day about nonformulary prescriptions	5.2 ± 10.1
Percentage of prescriptions/day that result in a call about a "nonpreferred" drug	18.6 ± 24.2
Percentage of calls in which physician changes the prescription to a drug recommended by the pharmacist	53.3 ± 34.5

N = 129.

\*Values are means or percentages ± SD.

from patients' formularies when similarly effective,<sup>17</sup> less expensive medications are offered. We have termed these prescriptions "imprescriptions" or imprecise prescriptions, that is, prescriptions for higher-tier, higher-cost medications when similarly effective medications are available at lower costs to the patient from his or her formulary. When "imprescriptions" are written, patients must rely on bothersome phone calls from pharmacists to physicians to help patients manage their out-of-pocket costs. This situation is unlikely to be the most efficient method of using financial incentives to steer medication utilization.

We do not believe that our report definitively establishes a clear link between independent variables, but that our findings raise possibilities that ought to be studied in a larger, more representative sample. When interpreting the findings, readers should be aware that, consistent with most literature in this area, the *P* values presented were not adjusted for multiple comparisons. Although we tested relatively few relationships we believe the findings are indicative of important phenomena worthy of further study.

While this study has focused on the costs patients face due to a lack of physician awareness of patient out-of-pocket cost requirements, there is reason for concern that patient adherence to medications is affected as well. A host of studies have demonstrated that even small increases in co-payments significantly influence patient adherence to prescribed medications.<sup>18-22</sup> One recent study found that patients with chronic conditions such as hypertension, high cholesterol, and diabetes are more likely to forgo their medical therapy when charged higher co-pays for medications.<sup>23</sup> It is likely that when physicians are unfamiliar with patients' formularies, not only are patient out-of-pocket-costs affected, but adherence to treatment is affected as well.

The key limitation to our study relates to our sampling method. Our sample of 129 physicians was small and nonrepresentative. Compared with California physicians in general, CMA Leadership Conference attendees were more likely to be older, male, and to occupy positions of leadership in their medical groups and hospitals. The reported response rate of 65% represented a lower bound, as some unknown number of nonrespondents (counted in the denominator) were nonphysicians. We expected minimal response bias among physicians attending the meeting. All physicians in our survey

practiced in California. Physicians nationwide prescribe from 3-tier formularies more often than California physicians, as California has been slower to adopt 3-tier pharmacy benefit systems than the nation as a whole.<sup>2</sup> This fact would suggest that California physicians might underestimate the challenges of prescribing from multiple, complex formularies. A larger, more representative population ought to be studied to confirm the reliability of these results.

Our decision to sample physician leaders serves as a strength as well as a limitation. While we believe our decision to study opinion leaders is helpful for identifying timely and previously undocumented issues, we must be careful when generalizing these findings to physicians at large. We expect that physician leaders are likely to be more aware of pharmacy benefit structures and formulary concerns than most physicians, and our results may underestimate the challenge that most physicians face. But physician leaders may have expressed a negative bias in this study and exaggerated the challenges they face in practice to communicate their frustration with prescribing from complex formularies. Alternatively, physician leaders surveyed were older than average physicians in the United States, and older physicians may have more difficulty with formulary complexity. Again, we suggest further study to better assess the generalizability of our results.

We also cannot definitively state, from a physician's perspective, that there is less efficiency when patients consider financial incentives at the point of the pharmacy rather than in the physician's office. If physicians do not have a convenient mechanism for checking formularies and out-of-pocket costs in the office, and our study suggested that often they do not, a more efficient method for physicians may be to rely on phone calls from the pharmacist to adjust prescriptions rather than take the time necessary to intentionally choose the medication when the patient is still in the office. A recent study found that 67% of physicians who reported barriers to discussing out-of-pocket costs with patients complained that they did not have time to engage in discussions about costs.<sup>24</sup> Some physicians find a potential ethical conflict associated with considering cost when selecting medical care.<sup>25</sup> Yet if patients are responding to cost information at the point of the pharmacy, there is reason for concern that patients' ethnicity, age, and socioeconomic status might be associated with differential responses to cost information.<sup>26,27</sup> Some patients may respond more proactively, others may simply pay the co-payment as requested, and others may choose to leave the pharmacy without ever filling the prescription.

Attention ought to be given to this issue currently because the Medicare Modernization Act has endorsed

the role of private health plans in the delivery of medications to seniors, likely leading to increased enrollment in incentive-based systems and "assur[ing] that drug costs and formularies will vary from plan to plan and locality to locality."<sup>28</sup> Medicare beneficiaries disproportionately utilize prescription drugs, averaging more than 24 prescriptions annually in 1999 among individuals who filled at least 1 prescription.<sup>29</sup> Seniors may have more difficulty with the cognitive task of navigating tiered formularies and advocating for themselves. As a result, seniors who are unable to identify the least expensive medication from their formularies may face unnecessarily high out-of-pocket costs, which may limit their access to necessary medications. Careful evaluation of patient populations that have difficulty identifying "preferred" formulary options would be useful.

Our study did not directly evaluate strategies to improve physician access to formulary information when prescribing. Multiple tools exist that can help physicians prescribe in compliance with patients' formularies. Electronic prescribing can provide immediate feedback to prescribers about formulary information, and may improve physician and patient access to cost information at the time prescription decisions are being made.<sup>30,31</sup> Information technology resources such as computer order entry, software for handheld devices (notably ePocrates software), or Internet Web sites can be used to provide real time information to physicians and patients. These resources may be used by prescribing physicians to improve their ability to prescribe in compliance with patients' formularies and help manage patients' out-of-pocket costs. Our results suggested that physician leaders cannot conveniently access formulary information in practice and that these resources are not being used effectively to prescribe in compliance with patients' formularies. Health plans must recognize and address this barrier to formulary compliance if they hope to maximize the benefit from their formulary design.

Evaluations of the Veterans Affairs National Formulary and surveys of physicians' perceptions of formularies in general have led some researchers to recommend a single formulary for Medicare beneficiaries, or more standardization between formularies in private health plans, which may simplify the prescribing process for physicians while helping manage the costs of prescription drugs.<sup>31,32</sup> Further study evaluating the relationship between types of pharmacy benefit structures, knowledge of out-of-pocket cost requirements for prescription drugs, physician and patient characteristics, and prescribing behavior will be instrumental in developing pharmacy benefit structures that

facilitate appropriate and cost-effective prescription drug utilization.

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