

Patients' Perceptions Of Generic Medications

Although most Americans appreciate the cost-saving value of generics, few are eager to use generics themselves.

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ABSTRACT: Insurers and policymakers encourage the use of generic drugs to reduce costs, but generics remain underused. We conducted a national survey of commercially insured adults to evaluate their perceptions about generic drugs. Patients agreed that generics are less expensive and a better value than brand-name drugs, and are just as safe. However, although 56 percent reported that Americans should use more generics, only 37.6 percent prefer to take generics. We discuss perceptions about communicating with practitioners about generics, generic substitution, and policymakers' role in influencing generic use. These findings underscore the challenge that providers, insurers, and policymakers face in stimulating the cost-effective use of medications. [*Health Affairs* 28, no. 2 (2009): 546–556; 10.1377/hlthaff.28.2.546]

ANNUAL PRESCRIPTION DRUG SPENDING in the United States topped \$286 billion in 2007, prompting calls for greater generic drug use to reduce costs without sacrificing quality.¹ Generic drugs account for about two-thirds of prescriptions filled in the United States but less than 13 percent of costs.² One nationally representative study found that switching prescriptions from brand-name medications to molecularly identical generics could lead to an 11 percent reduction in overall U.S. drug costs.³ Another found that prescribing in accordance with established national hypertension guidelines can lead to greater generic drug use and a 25 percent reduction in total drug costs for hypertension medications while providing higher-quality care.⁴

Insurers and the federal government have broadly adopted strategies to increase generic drug use. Approximately three-quarters of Americans with drug coverage were enrolled in pharmacy benefit designs with at least three tiers of copayments by 2004, requiring patients to pay larger copayments for brand-name drugs than

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for generic drugs. Approximately 86 percent of seniors in Medicare Part D are enrolled in tiered plans.⁵ Insurers stimulate greater use of generic drugs by offering generic medications at no cost, sending coupons by mail for generics, and dispensing free generic samples to prescribing physicians.⁶

Despite widespread efforts by the insurance industry to increase generic drug use, actual use has been inconsistent; there is significant patient-level variability in generic usage.⁷ In addition, there is empirical evidence demonstrating differential use of generics in younger patients, patients cared for by specialists, and patients who live in poorer neighborhoods—all of whom are less likely than others to receive generic drugs.⁸ Patients' and providers' perceptions about the efficacy, safety, or value of generic drugs may be responsible for these inconsistencies.⁹

To evaluate patients' perceptions about generics and their role in the U.S. health care system, we conducted a national mailed survey of a random sample of commercially insured adults. We also explored patient-provider communication about generics and patients' comfort with generic substitution. A better understanding of patients' attitudes toward generics could assist in the development and targeting of educational campaigns to promote rational medication use.

Study Data And Methods

■ **Study sample.** Between February and April 2007, we surveyed a random sample of 2,500 commercially insured beneficiaries of a large, national pharmacy benefits manager (PBM), from all fifty states and the District of Columbia. Inclusion criteria included being older than age eighteen and having had at least one prescription claim filled through the PBM between 1 January and 31 May 2007. Beneficiaries were excluded if they were age ninety-five or older or if they had filled at least one pharmacy claim for a medication to treat cognitive impairment (for example, donepezil, rivastigmine, or tacrine). We also excluded patients on Medicaid or who had filled any prescriptions for antiretrovirals, because of potential overlapping drug coverage. We selected our sample size to estimate descriptive statistics, after conservatively predicting our response rate at 40 percent, with narrow confidence intervals (95 percent CI with a width of less than five percentage points).

We mailed each beneficiary in our random sample an introductory postcard, followed by a survey including a \$1 cash incentive. Beneficiaries who did not respond to the first survey were mailed up to two more surveys; the second survey included a \$1 cash incentive (the third did not). This study was approved by the Brigham and Women's Institutional Review Board.

■ **Survey instrument.** The survey instrument was constructed through an iterative process and was piloted to improve comprehension. It included questions with multiple-choice and five-point Likert scale responses.¹⁰ The survey assessed patients' perceptions of generics' efficacy, safety, cost, and value and their general preferences for using generics. Identical questions were repeated to assess perceptions about generics when used to treat either hypercholesterolemia or acute back pain.

Other questions explored perceptions of prescription drug costs and the role of private insurers and the government in furthering generic drug use. We also explored patients' communication with their providers about generics and their comfort with generic substitution, as well as their rates of cost-related underuse of medications. We collected a broad set of predictors to assess factors associated with patients' perceptions about generics: sociodemographic characteristics (sex, ethnicity, income, and education) as well as self-reported health status.

■ **Linkage to administrative data.** We linked survey responses to information from patients' enrollment files and claims, principally to compare respondents with nonrespondents. We identified patients' ages and benefit design, as well as the total number of medications filled by each patient and the proportion that were generic. On the third round of survey mailing, a clerical error made it impossible for us to link third-survey respondents to the claims-based values. This error resulted in missing values for these variables in seventy-six patients.

■ **Data analysis.** We used descriptive statistics to examine characteristics of the respondents. Patients were considered to agree if they somewhat or strongly agreed and were considered to disagree if they somewhat or strongly disagreed. Responses to questions exploring preferences for generics by disease were compared using McNemar's tests. Bivariate analyses of the relationship between cost-related underuse and preferences were performed with chi-square tests. Patients' responses regarding preferences or beliefs were dichotomized in multivariate analyses for ease of interpretation. Patients who somewhat or strongly agreed with the survey items were categorized in one group, while patients who somewhat or strongly disagreed or who neither agreed nor disagreed were categorized in the other. We used logistic regression to evaluate the relationship between predictor variables and perceptions about generics. Sensitivity analyses were performed dropping patients who responded that they neither agreed nor disagreed to outcome variables; these analyses were qualitatively unchanged, and models including all patients are included here. Missing independent variables in multivariate models were imputed using multiple imputation.¹¹ Patients with missing dependent variables were omitted from the analysis, and all independent variables had less than 10 percent missing values. Statistical analyses were performed using SAS software, version 9.1.

Study Findings

Of the 2,500 beneficiaries who were mailed surveys, 1,054 responded. Six responses were duplicates, and one response was unusable, giving us an overall response rate of 42 percent. An additional 298 addresses were identified as incorrect because the surveys were returned as undeliverable. After we removed incorrect addresses from the denominator, our response rate among correct addresses was 48 percent (1,047 respondents out of 2,202 correct addresses surveyed).

The average age of respondents was 51.6 years; two-thirds were female, and most described themselves as Caucasian/white. Respondents were generally older

than nonrespondents, but respondents and nonrespondents were enrolled in similar pharmacy benefit designs, used prescription drugs with a similar frequency, and used similar proportions of generic drugs (Exhibit 1).

■ **General perceptions about generic drugs.** Respondents overwhelmingly (94 percent) believed that generics are less expensive than brand-name drugs, and few (less than 10 percent) believed that generics cause more side effects than branded drugs. Overall, patients broadly agreed that “generic drugs are a better value than branded drugs” (more than 70 percent agreed, and only about 10 percent disagreed). However, when asked if they “would rather take generics than branded medications,” only 37.6 percent agreed, while 26.1 percent disagreed.

■ **Beliefs about generics for acute and chronic conditions.** Similar proportions of patients reported that they prefer to use generic medications for the treatment of high cholesterol, a chronic asymptomatic condition, and back pain, an acute symptomatic condition (Exhibit 2). Patients perceived generics to be less expensive and a better value without causing more side effects. Less than 25 percent of respondents agreed with the statement, “Branded drugs are more effective than generic drugs” for the treatment of both acute back pain and hypercholesterolemia. No significant differences were seen in the responses to identical questions about generics for both conditions ($p > 0.05$ for all pairwise comparisons).

■ **Older versus newer drugs and safety issues.** Respondents were significantly more likely to agree with the statement, “Branded drugs are more effective than generics” (29.9 percent agreed) than with the statement, “Newer drugs are more effective than older drugs” (22.7 percent agreed, $p < 0.001$). In addition, the safety benefits perceived in using older medications were not extended to generics. Approximately 42 percent disagreed with the statement, “Generics are safer than branded drugs,” while only 4.4 percent agreed. However, only 22.7 percent of respondents disagreed with the statement, “Medications that have been on the market longer are safer than newer ones,” while almost 41 percent agreed ($p < 0.001$).

■ **Communication with providers about generics.** Patients reported that they communicated with their providers infrequently about generics. Approximately one-third (33.2 percent) of respondents reported that they ask their doctors to substitute generics for brand-name medications most or all of the time; 33.5 percent ask their pharmacists. Only 19.6 percent of respondents replied that their doctors talk to them about generic medications some or most of the time, while 53.7 percent reported that they never or seldom talk about generics; 24.2 percent reported that their pharmacists engage in such discussions, while 52.0 percent never or seldom do.

■ **Generics and society.** Almost 86.7 percent of respondents somewhat or strongly agreed that “Americans spend too much on prescription drugs,” and 94.3 percent reported that drug costs are too high. Only 10.9 percent disagreed with the statement, “Americans should use more generic drugs,” while almost 56 percent agreed. Respondents more strongly agreed with the statement that Americans, in general, should use generic drugs than with a statement that they, as individuals,

EXHIBIT 1
Characteristics And Differences Of Surveyed Random Population Compared With
Nonrespondents, Survey About Prescription Drug Choices, 2007

| | Respondents | | Nonrespondents | | Difference (p value) |
|--|---|---------|-----------------------|---------|-------------------------|
| | Number (N = 1,047 or 971) ^a | Percent | Number (N = 1,326) | Percent | |
| Mean age, years (SD) ^a | 51.6 (±15.4) | | 45.9 (±15.5) | | <0.001 ^b |
| Sex (female) | 706 | 67.4 | — ^c | | |
| Education | | | | | |
| High school or less | 245 | 23.4 | — ^c | | |
| Some college | 295 | 28.2 | | | |
| College graduate | 317 | 30.3 | | | |
| Graduate school | 190 | 18.2 | | | |
| Race | | | | | |
| African American | 55 | 5.3 | — ^c | | |
| Hispanic | 42 | 4.0 | | | |
| Asian/Pacific Islander | 31 | 3.0 | | | |
| Caucasian/white | 904 | 86.3 | | | |
| Other | 15 | 1.4 | | | |
| Total household income | | | | | |
| <\$15,000 | 46 | 4.4 | — ^c | | |
| \$15,000–\$30,000 | 140 | 13.4 | | | |
| \$30,000–\$50,000 | 266 | 25.4 | | | |
| \$50,000–\$75,000 | 245 | 23.4 | | | |
| \$75,000–\$100,000 | 178 | 17.0 | | | |
| >\$100,000 | 172 | 16.4 | | | |
| Self-described general health status | | | | | |
| Excellent | 106 | 10.1 | — ^c | | |
| Very good | 410 | 39.2 | | | |
| Good | 354 | 33.8 | | | |
| Fair | 152 | 13.6 | | | |
| Poor | 35 | 3.3 | | | |
| Total number of prescriptions per patient, 1/1/07–5/31/07 ^a | 11.6 | | 11.0 | | 0.18 ^b |
| Proportion of prescriptions filled that were generic (SD) ^a | 61.7 (±30.7) | | 61.3 (±32.9) | | 0.52 ^b |
| Drug insurance type ^a | | | | | |
| Flat 1-tier | 23 | 2.4 | 39 | 2.9 | |
| Flat 2-tier | 75 | 7.7 | 120 | 9.1 | |
| Flat 3-tier | 546 | 56.2 | 762 | 57.5 | |
| Flat coinsurance | 85 | 8.8 | 84 | 6.3 | |
| Tier coinsurance | 136 | 14.0 | 183 | 13.8 | |
| Other | 106 | 10.9 | 138 | 10.4 | 0.25 ^d |

SOURCE: Survey about Prescription Drug Choices, 17 February 2007.

NOTES: SD is standard deviation. The survey instrument is available in the online appendix, <http://content.healthaffairs.org/cgi/content/full/28/2/546/DC1>.

^aData received for only 971 out of 1,047 total respondents.

^bT-test.

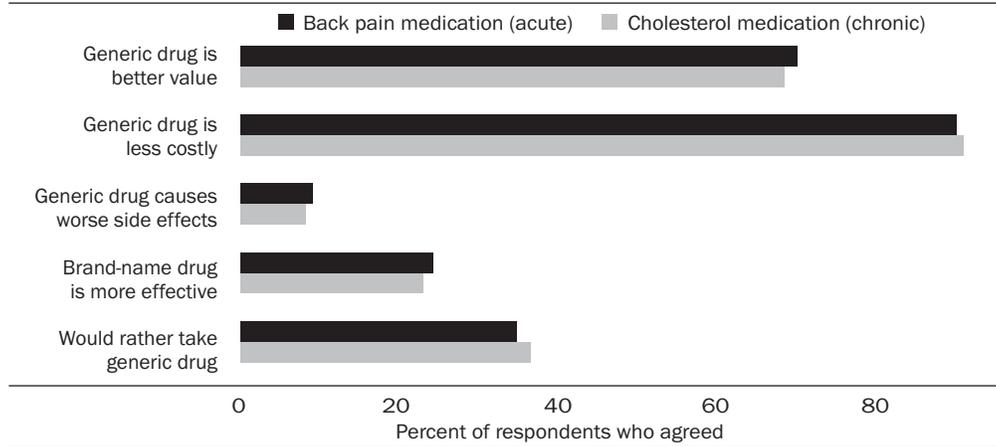
^cNot available.

^dChi-square.

preferred to use generics (Exhibit 3).

■ **Comfort with generic substitution.** Almost two-thirds (66.5 percent) of re-

EXHIBIT 2
Survey Respondents' Views About Generic Versus Brand-Name Drugs For An Acute And A Chronic Condition, 2007



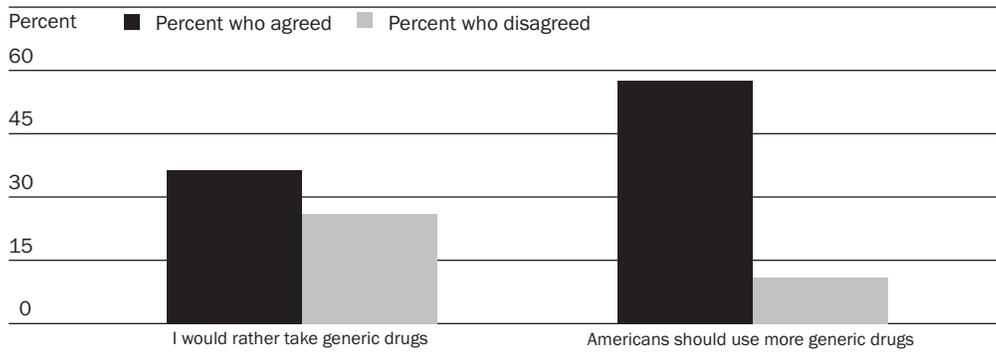
SOURCE: Survey about Prescription Drug Choices, 2007.

NOTES: No significant differences were seen in the responses to identical questions about generics for both back pain and hypercholesterolemia ($p > 0.05$ for all pairwise comparisons using McNemars test). "Percent who agreed" is the sum of respondents who somewhat or strongly agreed with each statement.

spondents reported that they were comfortable asking their physician to substitute a generic for a branded medication, and 61 percent reported that they were comfortable asking their pharmacist. Almost 60 percent agreed with the statement, "I don't mind when my pharmacist switches my prescription to a generic medication," while 30.5 percent somewhat or strongly disagreed.

■ **Role of government or insurers in increasing generic use.** Perceptions were mixed when patients were asked whether the government or private insurers

EXHIBIT 3
Differences In Individual Preferences For Generic Medications And Perceptions About Generics For Society, 2007



SOURCE: Survey about Prescription Drug Choices, 2007.

NOTES: "Percent who agreed" is the sum of respondents who somewhat or strongly agreed with each statement. "Percent who disagreed" is the sum of respondents who somewhat or strongly disagreed with each statement.

should “create rules to increase generic drug use”: 47.4 percent agreed and 23.1 percent disagreed that the government should create such rules, and 41.8 percent agreed and 30.5 percent disagreed that private insurers should create such rules. Likewise, 43.9 percent agreed and 35.7 percent disagreed that the government should require patients to “try generic drugs first, and switch to brand name if the generic is not effective,” and 41.8 percent agreed and 30.5 percent disagreed that private insurers should do the same.

■ **Cost-related underuse.** More than 27 percent of respondents reported that they did not fill or refill a medication in the previous year because of cost. Cost-related underusers were 9 percent more likely to report that they prefer to use generics ($p = 0.007$), when treating both back pain and hypercholesterolemia. These patients were 15 percent more likely to ask their doctors and 3 percent more likely to ask their pharmacists about generic options ($p < 0.001$ for both). Bivariate analyses indicated that respondents who reported cost-related underuse in the previous year had similar perceptions about the safety, efficacy, and value of generic medications compared with those who did not report cost-related underuse ($p > 0.05$ for all).

■ **Patients’ characteristics and beliefs about generics.** Few patient characteristics were associated with respondents’ preferences for using generic drugs. The wealthiest patients—those with annual incomes greater than \$100,000—had 75 percent greater odds of agreeing that they “would rather take a generic than a brand name drug” than those of patients with incomes less than \$30,000, after other sociodemographic characteristics were controlled for (Exhibit 4).

Self-reported healthy patients were more likely to report that branded drugs are more effective than generics; those who described their health as “excellent” had 2.42 times greater odds of agreeing. Younger patients and wealthier patients were more likely than older patients and poorer patients to believe that generics are safer than brand-name drugs (Exhibit 4).

Women were more likely than men to report that generics offer a better value than brand-name drugs and that more Americans should use generic drugs (Exhibit 4). Relative to those with a graduate education, those with less education were significantly more likely to rate generics as greater value, and African American and Asian/Pacific Islanders were more likely than Caucasians/whites to agree that generics offer a better value.

Discussion

Our national survey of a random sample of commercially insured patients with prescription drug coverage found that patients, generally, have positive perceptions about generic drugs, consistent with previous consumer surveys.¹² Few patients reported concerns about the safety or side effects of generics, only a minority believe that brand-name drugs are more effective than generics, and most believe that generics are a better “value” than brand-name drugs. As a result, respondents overwhelmingly agreed with the statement, “More Americans should

**EXHIBIT 4
Patient Factors Associated With Preferences And Beliefs About Generic Drugs (Odds Ratios), 2007**

| | I would rather take generics than brand-name drugs | Brand-name drugs are more effective than generics | Generics are safer than brand-name drugs | Generics are a better value than brand-name drugs | Americans should use more generics |
|---|--|---|--|---|------------------------------------|
| Age (years) ^a (vs. ≥65) | | | | | |
| 18-39 | 0.71 | 1.25 | 3.06 ^b | 1.07 | 1.03 |
| 40-54 | 0.85 | 0.88 | 1.79 | 0.89 | 1.15 |
| 55-64 | 0.83 | 0.78 | 0.90 | 0.95 | 0.93 |
| Female (vs. male) | | | | | |
| | 1.27 | 0.85 | 0.87 | 1.45 ^b | 1.37 ^b |
| Education (vs. graduate school) | | | | | |
| High school or less | 1.33 | 0.87 | 1.12 | 2.25 ^b | 1.48 |
| Some college | 1.17 | 0.96 | 1.84 | 1.75 ^b | 1.50 |
| College graduate | 1.49 ^b | 1.08 | 1.84 | 1.72 ^b | 1.91 ^b |
| Race (vs. Caucasian/white) | | | | | |
| African American | 1.57 | 0.68 | 0.85 | 3.42 ^b | 2.38 ^b |
| Hispanic | 1.09 | 0.60 | 0.49 | 1.74 | 1.47 |
| Asian/Pacific Islander | 0.87 | 0.75 | 1.06 | 2.15 ^b | 1.04 |
| Other | 0.36 | 1.24 | 0.54 | 3.14 ^b | 2.50 |
| Total household income (vs. <\$30,000) | | | | | |
| \$30,000-\$50,000 | 1.28 | 1.12 | 3.43 ^b | 0.70 | 1.07 |
| \$50,000-\$75,000 | 1.24 | 1.07 | 2.65 ^b | 0.89 | 1.00 |
| \$75,000-\$100,000 | 1.48 | 1.12 | 1.92 | 0.66 | 1.06 |
| >\$100,000 | 1.75 ^b | 0.97 | 6.32 ^b | 1.07 | 1.22 |
| Self-described general health status (vs. poor/fair) | | | | | |
| Excellent | 0.90 | 2.42 ^b | 1.06 | 1.03 | 0.71 |
| Very good | 0.97 | 1.60 ^b | 0.86 | 0.75 | 0.64 ^b |
| Good | 0.85 | 1.66 ^b | 1.08 | 0.91 | 0.81 |

SOURCE: Survey about Prescription Drug Choices, 17 February 2007.

NOTES: Results of multiple logistic regression models. Presented as odds ratios—the odds that patient characteristics are associated with agreeing (somewhat or strongly) with survey items, after controlling for patients' sociodemographic and self-reported health characteristics. SD is standard deviation. A version of this exhibit showing 95 percent confidence intervals (CIs) is available in the online Appendix, at <http://content.healthaffairs.org/cgi/content/full/28/2/546/DC1>. The survey instrument is also available there.

^a Imputed age variable for 76 of the 1,047 total respondents.

^b Point estimates with *p* value < 0.05 (where CI does not cross 1).

use generics.” However, when asked whether they “prefer” generics, only about a third agreed. Similarly, perceptions about the role of the government or private insurers to develop strategies to increase generic drug usage were mixed. About one-quarter to one-third of respondents disagreed with statements suggesting that private and government insurers should develop strategies to increase generic drug use. These results highlight a critical challenge for providers and policy-makers: although most patients believe that drug costs are too high and appreciate

the value of generics, far fewer are eager to use generics themselves. Moreover, missed opportunities for communication between providers and patients about generic options and discomfort with generic substitution at the pharmacy, even among patients who reported that they failed to fill prescriptions because of cost, may compound the difficulties faced by insurers and government payers.

In addition, respondents tended to more strongly agree with the statement, “Branded drugs are more effective than generics,” than with the statement, “Newer drugs are more effective than older drugs.” These findings suggest that positive perceptions among patients about the benefit of branded drugs exceed those attributed to the “newness” of a medication, and that patients may believe that branded drugs have additional efficacy benefits. Likewise, patients were far more likely to agree with the statement, “Medications that have been on the market longer are safer than newer drugs,” than with the statement, “Generic drugs are safer than branded drugs.” Patients do not transfer perceptions about the safety of older medications to generics. These perceptions may be associated with the term “generic” itself, which connotes lesser quality for some product categories or the belief that more-expensive products must be more effective than cheaper products.¹³

Although almost all states have adopted generic substitution laws, only about one-quarter require mandatory substitution; the rest are permissive, allowing the preferences of patients and pharmacists to influence how prescriptions are filled.¹⁴ However, even when substitution is mandatory, patients’ preferences may lead to more frequent therapeutic interchange of generics within classes that include multi- and single-source medications (where no generics are available), an important mechanism in reducing medication costs.

■ **Wealth and health.** We found that the wealthiest patients—those with incomes greater than \$100,000 a year—were more likely than poorer patients to report that they prefer generic medications, similar to previous findings.¹⁵ Healthier patients were more concerned about efficacy of generics than sicker patients, poorer and older patients expressed more concern about the safety of generics, and females reported that generics offer greater value than males did. We found no significant difference in beliefs about generics for an acute symptomatic condition and for chronic cardiac prevention, in contrast to a survey of 355 patients in 1995, which found greater concern about generic cardiac medications than about medications to treat symptomatic conditions.¹⁶ Our findings may indicate that perceptions about generic essential medications have improved over time.

■ **Study limitations.** Our study has several limitations. We surveyed only commercially insured patients and cannot generalize our findings to uninsured patients or those covered by state or federal sources. Also, because of a clerical error, we were unable to link responses from the seventy-six respondents in the third wave of the survey with information about their age, benefit design, and prescription drug use. We expect that this omission introduced little bias into our sample because characteristics were similar between those who responded to the first two waves and the

third wave. Respondents to the survey were slightly older than nonrespondents, which is a consideration when generalizing to a younger population.

We randomly sampled medication users to increase generalizability and did not enrich our sample with patients using medications to treat cholesterol and back pain. As a result, a small proportion of respondents were taking drugs to treat these conditions, and we could not stratify responses by actual drug use. We could not account for the patent status of patients' medications, and we were unable to assess whether patients' perceptions were colored by the use of medications that did or did not have generic alternatives. Our survey items focused on general preferences for generics and could not differentiate between patients' willingness to switch from a brand-name to a molecularly identical generic alternative or to a generic version of a different drug for the same condition. As a result, better-informed patients may have had difficulty interpreting these survey items, and we cannot ascertain patients' preferences for generic substitution versus therapeutic interchange. We also did not specify price differentials in our questions about general preferences for generics and could not isolate the effects of price on preferences.

■ **Education for rational decision making.** Broader efforts to educate patients about generic medications may assist patients in making informed decisions and may influence their personal preferences for generic use, which could lead to improved adherence to essential medications.¹⁷ However, patients were generally aware of the value of generics at baseline, and decision making might not be rational from an economic perspective. The optimal content of educational campaigns to increase generic use remains unclear, and interventions to educate patients must be rigorously tested to evaluate their efficacy. Education may be enhanced with a discussion of the complex benefit designs and copayment requirements patients face, and improved education could stimulate more cost-effective medication use.¹⁸

■ **Challenges for insurers and policymakers.** Since the implementation of Medicare Part D, the government has played an increasingly important role in providing prescription drugs to seniors, and U.S. taxpayers are at risk for these costs. Opportunities to increase generic drug use for specific medical conditions can reduce costs without adversely affecting quality. Our findings highlight the challenges faced by insurers and policymakers when trying to encourage generic drug use, despite generally favorable views. Perhaps further education, the "rebranding" of generic medications, improved communication with prescribers, or the adoption of more-patient-friendly programs (that is, zero-dollar generic copayment programs) may help to develop practices that are both cost-effective and acceptable to patients.

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