

## Prescription Drugs: Elderly Enrollee Reports of Financial Access, Receipt of Free Samples, and Discussion of Generic Equivalents Related to Type of Coverage

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**Objective:** To compare elderly health plan enrollee's survey responses regarding access to prescription drugs, receipt of samples, and discussion of generic equivalents across healthcare delivery systems and to examine the extent to which member characteristics are related to responses.

**Study Design:** Cross-sectional, observational study.

**Patients and Methods:** Elderly enrollees (aged 65 and over) in the Preferred Provider Organization (PPO [n = 10 220]) and Medicare cost contract (n = 14 635) of a single health insurer responded to a 2001 member satisfaction survey. Multivariable logistic regression was used to estimate the relationship between outcomes (eg, not filling prescriptions) and patient characteristics.

**Results:** Elderly enrollees in a PPO had more comprehensive drug coverage and better access to pharmaceuticals than Medicare enrollees, with 14% of Medicare enrollees reporting that they "occasionally" or "always" skipped filling prescriptions due to cost, compared with 6% of PPO members ( $P < .001$ ). Similarly, 14% of Medicare enrollees reported taking less medication than prescribed to save money, compared with 7% of PPO members. Ethnicity was one of the strongest predictors of financial access to pharmaceuticals among elderly enrollees, with the predicted probability of "occasionally" or "never" filling medications ranging from 0.06 for Japanese to 0.16 for Filipinos. A majority of members in both health plans reported receiving free samples of pharmaceuticals from their physicians.

**Conclusions:** Further research is needed to determine which medications are not being filled, the impact of sampling on subsequent drug utilization, and specific chronic conditions for which more extensive coverage is cost effective.

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strated that drug coverage affects drug utilization, the financial burden on the elderly, adverse events, and expenditures.<sup>9-25</sup> Of particular concern is evidence suggesting that patients forgo essential medications due to cost considerations.<sup>20-23</sup>

Despite evidence that expanding benefits may improve the health status of enrollees with certain chronic conditions, barriers to expanding coverage remain, including the need to identify a way to pay for the projected increase in expenditures. It has been estimated that if prescription drug coverage were included as a Medicare benefit, costs of prescription drugs for the elderly would rise by approximately 20% or \$2.6 billion annually (in 1990 dollars).<sup>10</sup>

To stem rising pharmaceutical costs, health plans and policy makers have attempted to control drug costs in several ways. One way is to encourage patients to use less costly generic equivalents, whenever possible. Another way is to alleviate the financial burden of prescriptions through the distribution of free samples by physicians. However, this may adversely impact costs by developing loyalty to brand name pharmaceuticals. Little is known about the characteristics of patients who receive these free samples.

The goals of this paper are to summarize elderly health plan enrollee responses to a series of questions concerning access to prescription drugs, receipt of samples, and discussion of generic equivalents.

Rising pharmaceutical costs along with inequitable access to medications have brought the issue of pharmaceutical coverage for the elderly to the forefront of the health policy debate in the United States.<sup>1-8</sup> Numerous suggestions for increasing drug coverage for Medicare recipients have been proposed. Previous studies have demon-

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lents by healthcare delivery system (ie, preferred provider organization [PPO] and Medicare cost contract) and to examine the extent to which member characteristics are related to responses.

We hypothesized that members with less comprehensive coverage are more likely to skip medications and to take less medication than prescribed due to cost considerations. We also expect that physicians are more likely to distribute free samples and to discuss generic equivalents with members with less comprehensive drug coverage in order to lessen their financial burden.

## METHODOLOGY

### Survey Content

Data for these analyses are from a member satisfaction survey for a health plan in Hawaii with several coverage options. Annually, the health plan administers a member satisfaction survey to gain information on the level of satisfaction with services received from providers in the previous 12 months. Analyses of these data produce several measures, including satisfaction with communication, access, and medical services. The survey also asks members to self-report ethnicity, health status using the Medical Outcome Study Short-Form 12,<sup>26</sup> and education. In 2001, the member satisfaction survey introduced 6 items concerning prescription drugs. Members were asked whether they skipped medications, took less medication than was prescribed, received drug samples, and had a physician discuss generic equivalents with them.

### Survey Administration

The survey was conducted using a combination of mail and online administration. Members received a letter notifying them that a survey would be sent and offering the option to complete the survey through a Web site. Mail data collection consisted of 3 mailings between mid-May and July 2001. The survey was sent out to 40 968 elderly members, 24 855 of whom completed the surveys for a 61% response rate. This report focuses on elderly respondents enrolled in the health plan's PPO (n = 10 220) or Medicare cost contract (n = 14 635). Elderly respondents with other coverage types, such as an HMO (n = 150), were excluded from the analyses due to small numbers.

### Drug Coverage

For PPO enrollees, drug coverage is available under our 3-tier drug plan (ie, generic, preferred brand, and nonpreferred brand). Copayments are

generally \$5 for generic equivalents and \$10 for preferred brands. Copayments for nonpreferred brand drugs are generally \$10 plus the cost differential ([cost of drug]–[average eligible charge for other drugs in its therapeutic class]). Placement of drugs in this 3-tier design is determined by the pharmacy and therapeutics advisory committee. This committee relies on evidence-based medicine and the objective review of community physicians and pharmacists. Strong emphasis is placed on maintaining quality care and clinical flexibility. The Medicare cost contract does not offer pharmaceutical coverage, but members may have coverage from other sources.

### Statistical Analyses

Pearson's  $\chi^2$  tests were used to compare demographic characteristics across healthcare delivery systems. Because a gap in the literature exists regarding the characteristics of patients who receive free drug samples, we have also summarized member demographic characteristics according to their receipt of samples (always, occasionally, or never).

For the multivariate analyses, because a small percentage (~1%) of members reported that they "always" skipped medications or took less medication than prescribed, we dichotomized the outcome variables, grouping those who "always" skipped or took less medication with those who "occasionally" did and comparing them to those who "never" skipped medications or took less medication than recommended. Because we had dichotomous dependent variables, multivariable logistic regression was used to estimate the relationship between outcomes (eg, not filling prescriptions) and patient characteristics, including age, gender, education, self-reported health status, ethnicity, number of office visits, and type of healthcare coverage. Likelihood ratio tests were used to determine the characteristics most strongly associated with a given outcome, after adjustment for potentially confounding variables. Using the estimated coefficients from the logistic regressions, we calculated the predicted probabilities of experiencing an outcome (ie, the expected percent of members who would have a given outcome). All analyses were conducted using Stata V.7 (College Station, Tex).

## RESULTS

### Respondents and Nonrespondents

In comparing the respondents to nonrespondents, we found that the percent of female members did not differ significantly by response status (59.5% vs

59.0% for respondents and nonrespondents respectively,  $P = 0.39$ ). Age, however, did vary between groups with nonrespondents (mean age,  $77 \pm 7$  SD) being older than respondents (mean age,  $76 \pm 7$  SD).

### Member Characteristics

As shown in **Table 1**, 14% of respondents were Caucasian, 9% were Chinese, 8% were Filipino, 55% were Japanese, 8% were Hawaiian, and 6% were other ethnicity (eg, Korean, Vietnamese, Native American). In response to the overall health status item, 4% reported poor health, 23% reported fair health, 44% reported good health, 24% reported very good health, and 5% reported excellent health. Forty-one percent of respondents were enrolled in the PPO, and 59% were in the Medicare plan.

For these elderly enrollees, all member characteristics differed significantly according to type of health plan at the .05 level. As expected, the extent of drug coverage differed substantially by type of health plan, with 76% of Medicare plan members reporting that they lacked drug coverage compared with 8% of PPO members, while only 9% of Medicare enrollees reported that most of their drug costs were covered compared with 52% of PPO members.

Compared with Medicare enrollees, PPO members were more likely to be younger, female, and in better health. PPO enrollees were also more likely than Medicare enrollees to be Chinese or Hawaiian and less likely to be Japanese, more likely to have an advanced degree, and less likely to have more than 1 office visit.

### Free Drug Samples

A majority of members in both health plans reported receiving free samples at least occasionally (**Table 2**). Overall, 9% of Medicare members and 6% of PPO members reported “always” receiving free samples, while 54% of Medicare members and 51% of PPO members said they “occasionally received them.”

**Table 1.** Patient Characteristics of Survey Respondents Related to Healthcare Delivery System

Characteristic	PPO (n = 10 220)	Medicare (n = 14 635)	$\chi^2$ test <i>P</i> value
<b>Age (%)</b>			
65-74	57	36	$P < .001$
75+	43	64	
<b>Female (%)</b>	46	38	$P < .001$
<b>Education level (%)</b>			
< High school graduate	20	39	
High school graduate	40	38	
Advanced degree	41	23	
<b>Health status (%)</b>			$P < .001$
Excellent	5	5	
Very good	27	23	
Good	45	44	
Fair	20	25	
Poor	3	4	
<b>Ethnicity (%)</b>			$P < .001$
Caucasian	14	14	
Chinese	12	7	
Filipino	8	8	
Japanese	49	60	
Hawaiian	11	6	
Other	7	5	
<b>Number of office visits (%)</b>			$P < .001$
1	32	18	
2-4	41	43	
$\geq 5$	27	39	
<b>Self-reported drug coverage (%)</b>			$P < .001$
Yes, most covered	52	9	
Yes, but limited	40	15	
No coverage	8	76	

Because little is known about the characteristics of patients who receive free samples, we summarized patient characteristics in relation to their frequency of receipt of samples prior to running the multivariable logistic regression model. Unadjusted results indicated that all patient characteristics examined were significantly associated with receipt of free samples (**Table 3**). Members older than age 75 years comprised a large proportion of members reporting “always” receiving samples (59%), but 53% of those “never” receiving samples. In contrast, females comprised only 35% of members who “always” received samples but 44% of those who “never” received samples.

The relationship between receipt of samples and education was mixed. While members with less than a high school education made up 39% of those “always” receiving samples but 31% of members “never” receiving samples. In contrast, members who were high school graduates were more likely to

**Table 2.** Member Reports of Financial Access to Pharmaceuticals, Receipt of Samples, and Discussion of Generic Equivalents, Unadjusted

	PPO (%) (n = 10 220)	Medicare (%) (n = 14 635)	P
<b>1. In the past 12 months, did you receive free samples from your doctor?</b>			<i>P</i> < .001
Yes, always	6.1	9.3	
Yes, occasionally	50.6	53.5	
No, never	43.4	37.1	
<b>2. In the past 12 months, did you ever skip filling a prescription because the drug was too expensive?</b>			<i>P</i> < .001
Yes, always	1.0	2.3	
Yes, occasionally	4.6	11.5	
No, never	94.4	86.3	
<b>3. In the past 12 months, did you ever take less medication than the doctor prescribed to save money?</b>			<i>P</i> < .001
Yes, always	1.0	1.5	
Yes, occasionally	5.5	12.4	
No, never	93.7	86.1	
<b>4. In the past 12 months, did your doctor ever talk to you about the use of brand vs generic drugs?*</b>			<i>P</i> = .83
Yes	47	47	
No	53	53	

\*Members who responded that this item was “not applicable” were excluded (n = 4649, 21%).

report never receiving samples than either members with advanced degrees or members with less than a high school education.

Ethnicity was also significantly associated with receipt of samples. For instance, Filipinos comprised 13% of members who “always” receive samples but only 8% of members who “never” receive samples.

As expected, the number of office visits and self-reported drug coverage were also significantly associated with receipt of free samples. Members with 5 or more visits accounted for 45% of those “always” receiving samples but only 24% of those “never” receiving samples, while members reporting no drug coverage comprised 54% of those “always” receiving samples but only 44% of members “never” receiving samples.

When we restricted the sample to members who “always” or “occasionally” either skipped filling medications or took less medication than prescribed, we found that members reporting these financial access problems were more likely to receive samples than other members. Of the 14% of members who either skipped medications or took less medication than recommended, 73% reported receiving free samples compared with 58% of members who did not report financial access problems (*P* < .001, data not shown in tables).

While all patient factors remained significantly related to receiving free samples in the adjusted

analyses, the effect of most factors was small (Table 4). The factor most strongly associated with receiving free samples was the number of office visits, with a predicted probability of 0.52 for those with only 1 office visit in the previous year compared with 0.72 for those with more than 5 office visits.

#### Factors Related to Filling Prescriptions

In examining whether financial considerations played a role in a member’s decision not to fill a prescription, we found that approximately 2% of Medicare enrollees and 1% of PPO enrollees reported never filling prescriptions due to cost considerations (Table 2), whereas 12% of Medicare enrollees and 5% of PPO enrollees reported “occasionally” skipping medications because they were too expensive.

While all patient characteristics were significantly related to skipping medications due to cost in the multivariable model, the strongest predictor was ethnicity, followed by level of coverage and type of health plan (Table 4). The predicted probability of “occasionally” or “never” filling medications because of cost as a response ranged from 0.06 for Japanese to 0.16 for Filipinos. Level of coverage was also strongly associated with skipping medications. The predicted probability of not filling a prescription was 0.04 for members reporting comprehensive coverage compared with 0.12 for members with no coverage.

Even after controlling for self-reported level of coverage, type of healthcare delivery system remained significantly associated with not filling prescriptions, with a predicted probability of 0.06 for the PPO and 0.11 for the Medicare enrollees.

Age, gender, and health status were also significantly associated with not filling prescriptions in the multivariable model. In addition, the level of education and number of office visits were not significantly related to not filling prescriptions after adjustment for other factors.

#### Compliance With Prescription Drug Treatment

Although members were not asked detailed questions regarding compliance with prescription drug treatment, they were asked whether they took less medication than prescribed to save money. Approximately 94% of PPO members reported that they never took less medication than prescribed compared with 86% of Medicare members ( $P < .001$ , Table 2).

Level of drug coverage and ethnicity were most strongly associated with taking less medication than prescribed in the adjusted analyses (Table 4). The predicted probability of taking less medication than recommended was 0.05 for members reporting the most comprehensive coverage, 0.11 for those reporting limited coverage, and 0.12 for members reporting no coverage. Japanese-Americans were the least likely to take less medication than prescribed and members of Filipino descent were the most likely (predicted probabilities, 0.08 and 0.14, respectively). Age, gender, health status, and

type of health plan were also significantly associated with taking less medication than prescribed, while education and number of office visits were not significantly associated, after adjustment for other factors.

#### Discussion of Brand Versus Generic Drug

Approximately half of members who were prescribed drugs (ie, did not respond "not applicable" to the question) reported that their doctors talked to them about the use of brand versus generic drugs, with 47% of both Medicare and PPO members reporting having had this discussion with their doctors ( $P = .83$ , Table 2).

In the adjusted model, the strongest predictors of discussion of generic drugs were the number of office visits and ethnicity (Table 4). The predicted probability of having a discussion on generic drugs ranged from 0.39 for members with 1 office visit to

**Table 3.** Patient Characteristics Related to Receipt of Free Samples

Characteristic	Always Receives (n = 1830)	Occasionally Receives (n = 11 986)	Never Receives (n = 9093)	P
<b>Age (%)</b>				
75+	59	56	53	< .001
<b>Female (%)</b>	35	41	44	< .001
<b>Education level (%)</b>				
< High school graduate	39	30	31	< .001
High school graduate	37	38	39	
Advanced degree	24	32	30	
<b>Health status (%)</b>				
Excellent	9	4	6	< .001
Very good	25	23	25	
Good	41	45	44	
Fair	21	24	22	
Poor	4	4	4	
<b>Ethnicity (%)</b>				
Caucasian	12	15	13	< .001
Chinese	7	9	8	
Filipino	13	8	8	
Japanese	55	54	58	
Hawaiian	7	8	8	
Other	6	6	6	
<b>No. of office visits (%)</b>				
1	18	20	29	< .001
2 to 4	37	40	47	
≥ 5	45	40	24	
<b>Self-reported drug coverage (%)</b>				
Yes, most covered	23	25	30	< .001
Yes, but limited	23	25	26	
No coverage	54	50	44	

**Table 4.** Predicted Probability of Financial Access to Pharmaceuticals, Receipt of Samples, and Discussion of Generic Equivalents, Adjusted

	Received Free Samples (n = 22 909)	Not Filled Because of Cost (n = 23 038)	Take Less Than Prescribed (n = 23 133)	Physician Discussed Generic Equivalents* (n = 17 417)
<b>Age</b>	( <i>P</i> = .02)	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> = .001)
65-74	0.60	0.10	0.10	0.48
75+	0.62	0.08	0.09	0.45
<b>Gender</b>	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> = .04)	( <i>P</i> = .26)
Male	0.62	0.09	0.10	0.46
Female	0.60	0.08	0.09	0.46
<b>Education</b>	( <i>P</i> = 0.002)	( <i>P</i> = .10)	( <i>P</i> = .59)	( <i>P</i> = .16)
< High school graduate	0.59	0.09	0.10	0.46
High school graduate	0.61	0.08	0.09	0.47
Advanced degree	0.63	0.08	0.09	0.45
<b>Health status</b>	( <i>P</i> = 0.02)	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> < .001)
Excellent	0.57	0.07	0.07	0.51
Very good	0.61	0.07	0.07	0.49
Good	0.62	0.08	0.09	0.46
Fair	0.62	0.11	0.12	0.43
Poor	0.58	0.12	0.15	0.42
<b>Ethnicity</b>	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> < .001)
Caucasian	0.65	0.11	0.10	0.49
Chinese	0.63	0.10	0.10	0.45
Filipino	0.63	0.16	0.14	0.56
Japanese	0.59	0.06	0.08	0.43
Hawaiian	0.62	0.13	0.12	0.53
Other	0.64	0.12	0.12	0.50
<b>Number of visits</b>	( <i>P</i> < .001)	( <i>P</i> = .11)	( <i>P</i> = .66)	( <i>P</i> < .001)
1	0.52	0.08	0.09	0.39
2-4	0.57	0.08	0.09	0.45
≥ 5	0.72	0.09	0.10	0.53
<b>Drug coverage</b>	( <i>P</i> = .02)	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> = .57)
No coverage	0.62	0.12	0.12	0.46
Limited coverage	0.61	0.10	0.11	0.46
Most costs covered	0.59	0.04	0.05	0.47
<b>Type of health plan</b>	( <i>P</i> = .001)	( <i>P</i> < .001)	( <i>P</i> < .001)	( <i>P</i> = .98)
PPO	0.59	0.06	0.07	0.46
Medicare	0.62	0.11	0.12	0.46

\*The analytic sample for this item was limited to members who said they had received a prescription.

0.53 for members with at least 5 visits, and from 0.43 for Japanese members to 0.56 for Filipino members. Age and health status were also significantly associated with discussions of generic drugs, while gender, education, drug coverage, and type of health plan were not significantly related.

#### DISCUSSION

Our survey of more than 24 000 elderly health plan members found that elderly enrollees in a PPO

had more comprehensive drug coverage and better access to pharmaceuticals than Medicare enrollees, with 14% of Medicare enrollees reporting that they “occasionally” or “always” skipped filling prescriptions due to cost, compared with 6% of PPO members (*P* < .001). Similarly, 14% of Medicare enrollees reported taking less medication than prescribed to save money, compared with 7% of PPO members. These findings are consistent with previous studies showing that the level of coverage affects pharmaceutical utilization.<sup>10-24</sup>

While previous studies have documented differences in financial access to prescriptions between Caucasians and African Americans,<sup>27-29</sup> this is the first study, to our knowledge, that has examined interethnic differences in access to prescriptions and receipt of samples among Asian Americans and Pacific Islanders. We found that ethnicity was one of the strongest predictors of financial access to pharmaceuticals among elderly enrollees. The predicted probability of “occasionally” or “never” filling medications because of cost as a response ranged from 0.06 for Japanese to 0.16 for Filipinos, while the likelihood of taking less medication than prescribed to save money ranged from 0.08 for Japanese to 0.14 for Filipinos. These findings highlight the importance of disaggregating Asian Americans and Pacific Islanders into separate ethnic categories for analyses. In this study, the largest disparities were found among Asian Americans (between Filipinos and Japanese). These results also suggest that targeted interventions may need to be developed for specific ethnic groups to improve access to pharmaceuticals and compliance.

We also found that the majority of members reported receiving free drug samples from physicians. This widespread use of samples creates gaps in information in health plan and pharmacy administrative databases. In addition, although one might expect the distribution of free drug samples to lower health plan pharmaceutical costs, the opposite effect may occur. Because free samples are generally for brand name pharmaceuticals, their distribution may lead to brand name loyalty and diminish the use of less expensive generic equivalents.

The factor most strongly associated with receiving free samples was the number of office visits, with a predicted probability of 0.52 for those with only 1 office visit in the year compared with 0.72 for those with more than 5 office visits. As the number of office visits is most likely correlated with chronic disease and need for medications, this finding is not surprising. We also found that members who reported financial access problems were more likely to receive samples, suggesting that physicians may take the patient’s level of financial need into account when distributing samples. Further study is needed to understand the impact of drug samples on patient compliance and healthcare costs.

Only half of all members who were prescribed drugs were told about generic equivalents and the likelihood of these discussions was not related to plan type. The strongest predictors of receiving

information about generic equivalents were the number of office visits and ethnicity. When interpreting these data, however, it is important to consider that some commonly used pharmaceuticals do not have generic equivalents, so a response of “no” might be appropriate. While members were given the option of marking “not applicable,” they may not be aware that no generic alternative exists. Another limitation is that we did not ask about the nature of the conversation. A member whose physician told him or her to never take anything but brand name medications would have responded “yes” to this item. Despite the limitations of the survey question, these data suggest that there is an opportunity to improve use of generic equivalents among the elderly.

There are several other limitations to this study. First, all data are self-reported by enrollees of a single health insurer in Hawaii, so the results may not be generalizable to other populations. Second, there may be a sample bias resulting from enrollment determinations. To be enrolled in the PPO plan, an elderly member would have to be employed, to be married to someone who is employed, or to be a retired state employee. Our descriptive statistics revealed that the PPO and Medicare populations differed significantly on every patient characteristic that we examined. Although we adjusted for all of these factors in the multivariable analyses, residual confounding may remain.

Third, we do not have information concerning patient diagnosis and the specific medication prescribed, which would be useful in targeting specific groups. For instance, if patients were most likely to skip taking their antihypertensive medications due to cost considerations, health plans could consider offering subsidies for these particular medications as part of disease management programs targeted specifically for the elderly. Although we did not have the detailed information to separate essential from nonessential medications, several previous studies have indicated that use of essential medication decreases with increased cost-sharing.<sup>19-23</sup> This suggests that some of the skipped medications were essential to health. Information on patient income level is also missing from these analyses. While information on level of education was available, it did not appear to have a strong impact on financial access in this elderly population, after adjustment for other factors.

Another limitation of this study is that although we described the extent to which self-reported access differs between groups, we did not measure

the consequences of diminished access. Prior studies have found a link between limited drug coverage and increased utilization of other health services. For instance, studies have found that drug restrictions led to increased nursing home admissions<sup>9</sup> and an increased use of mental health services among patients with schizophrenia.<sup>23</sup>

Despite these limitations, our findings suggest that approximately 14% of Medicare patients and 6% of PPO enrollees skip medications due to cost considerations. The American Medical Association has issued policy statements encouraging physicians to become familiar with the price of the medications they prescribe and to consider this along with the therapeutic benefits (Policy H-110.997). Further research is needed to determine which medications are not being filled, to examine the impact of sampling on subsequent drug utilization, and to identify specific chronic conditions for which more extensive coverage is cost effective.

Moreover, while many of the associations examined in this study were statistically significant, large sample size rather than strong effect size may be operating. Outcomes studies, measuring the impact of access on overall costs of care and health-related quality of life, are needed to determine the significance of the observed disparities in access. In particular, health plans and policy makers may wish to examine whether it would be desirable from an economic and/or a quality perspective to expand coverage of specific pharmaceuticals as a component of disease management programs for the elderly.

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