Physician Awareness of Prescription Drug Costs: A Missing Element of Drug Advertising and Promotion

Lucinda G. Miller, PharmD, and Alan Blum, MD
Houston, Texas

Background. Although the cost of prescription drugs is recognized as an important facet of health care expenditures, many physicians are purportedly unaware of actual drug costs. To test this hypothesis, we surveyed physician awareness of the cost of 20 actively marketed prescription drugs.
Methods. A questionnaire listing four possible cost categories for each drug was administered to 305 registrants of a 5-day family medicine continuing education course.
Results. Ninety-two physicians completed the questionnaire. Only one, a 40-year-old, board-certified physician who had been in practice for 3 years, answered 70% of questions correctly. The average score for the other participants was 37% (range 0% to 75%).
Conclusions. The majority of physicians questioned could not accurately identify the price range of commonly prescribed drugs. We recommend drug cost disclosure in drug advertising to help address this problem.
Key words. Drug costs; cost and cost analysis; advertising; physician's practice patterns. *J Fam Pract 1993; 36:33-36.*

Drug therapy is a major constituent of medical care for outpatients, with 45% to 75% of office visits resulting in a prescription.[1–3] It has been estimated that medications accounted for 7% of health care costs in 1987 in the United States.[4] Hence, rational drug prescribing that incorporates drug costs as an important determinant in drug product selection is paramount in optimal care. Yet many physicians purportedly are not aware of drug costs. To address this perception, we studied drug cost awareness in primary care physicians attending a continuing education seminar.

Methods

A list of the first 20 prescription drugs advertised in two primary care medical journals (*The Journal of Family Practice* and *American Family Physician*) were selected for prescription price awareness analyses. The following drugs were included and are listed in the order of appearance in the journals and on the questionnaire: Voltaren, Wellbutrin, Prozac, Isoptin SR, PediaProfen, Feldene, Verelan, Capoten, Carafate, Axid, Halcion, Cipro, Calan SR, Lorelco, Procardia XL, Cardizem, Tagamet, Suprax, Kerlone, and Ventolin.

A questionnaire was developed listing four price ranges for a single unit of each drug (eg tablet): A: $0.01 to 0.50; B: $0.51 to 1.00; C: $1.01 to 1.50; D: ≥$1.51. We elected to use the average wholesale price to the pharmacy per unit because prices to the patient vary considerably from pharmacy to pharmacy. The physicians were informed of this distinction verbally and in written text. The physicians were also asked to disclose the following demographic information: (1) age, (2) sex, (3) specialty, (4) board certification, and (5) years in practice. To ensure anonymity, names were not requested.

The questionnaire was administered to 305 registrants of a 5-day family medicine continuing education course at Baylor College of Medicine. The participants were asked to return their questionnaire at the end of the day during which it had been administered. Two days following the administration of the questionnaire, the correct answers were posted for educational purposes but no questionnaires were accepted for return thereafter.

Results

Ninety-two meeting registrants (a 30% response rate) participated in the study. Of the 66 respondents who

Submitted, revised, September 30, 1992.

From the Department of Family Medicine, Baylor College of Medicine, Houston, Texas. Requests for reprints should be addressed to Lucinda G. Miller, PharmD, Department of Family Medicine, Baylor College of Medicine, 5510 Greenbriar, Houston, TX 77005.

 ISSN 0094-3509

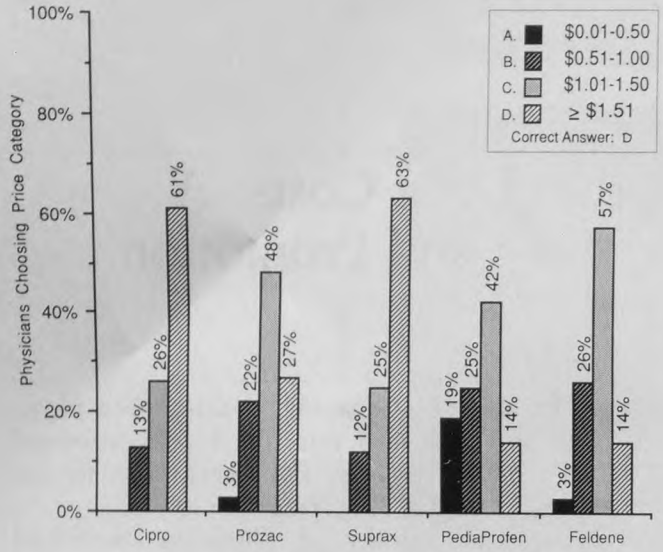

Figure 1. Percentage of physicians (N = 92) who estimated the costs for five medications for which the wholesale prices per unit were $1.51 or more.

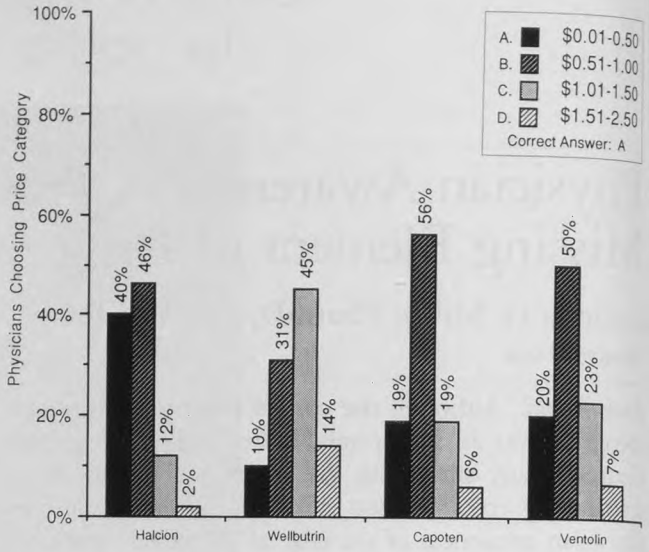

Figure 2. Percentage of physicians (N = 92) who estimated the costs for four medications for which the wholesale prices per unit were $0.50 or less.

stated their sex, 14 were female and 52 were male. Twenty-six (28%) did not respond to the sex question. The mean age of the participants was 45.6 years (range: 31 to 72 years). Sixty-nine (75%) of the participants specialized in family medicine. Sixty-seven (73%) were board-certified within their specialty. The responding physicians had been in practice for a mean of 11.7 years (range: 21 to 42 years). Nearly every geographic region in the United States was represented. Eighty-five physicians completed all questions on the questionnaire; seven did not complete the entire questionnaire. For those who did not complete the questionnaire, on average, 2.25 questions were omitted (range: 2 to 4).

The average score on the questionnaire was 37% answered correctly (range: 0% to 75%). Random guessing alone would have produced a 25% correct response rate. The rate of underestimated medication costs was 22% and the rate of overestimation was 41%. Only one participant answered 70% of the questions correctly. He was a 40-year-old, board-certified Texas physician who had been in practice for 3 years.

An equal number of participants correctly identified the most and least expensive medications. Seven (7.6%) participants correctly identified all medications whose unit cost was $1.51 or more (Cipro, Prozac, Suprax, Axid, Procardia XL, PediaProfen, and Feldene) (Figure 1). An additional 35 (38%) participants thought these drugs were in the range of $1.01 to $1.50, not realizing the drugs were more expensive.

At the other end of the spectrum, seven (7.6%) participants correctly identified those medications that cost less than 50 cents per unit (Figure 2). These drugs included Halcion, Wellbutrin, Capoten, and Ventolin Rotocaps. Forty-two (46%) participants thought those drugs were in the range of $0.51 to $1.00. Only 10% correctly identified the price of Wellbutrin; most presumed that the drug cost more. Thus, 67% accurately identified the drug cost within 50 cents for the least expensive drugs.

Physicians were unable to more accurately approximate costs for drugs at either end of the price spectrum. Thirty-six (39.8%) participants correctly identified those medications priced in the intermediate range ($0.51 to 1.50 per unit). This is not substantially different from that observed with the least expensive drugs (<$0.50; 21.74%) and with the most expensive drugs (>$1.50; 35%). Overall, 73% and 66% of the physicians' cost estimates were within the correct price category or the next closest price category for the most and least expensive drugs, respectively.

Discussion

In this survey, the majority of physicians could not accurately identify drug costs. Only one physician correctly answered 70% of the questions. Physicians were not more adept at identifying the unit drug cost for the most and least expensive drugs. Only an additional 14 correctly identified the price range for drugs in the least and most expensive costs ranges. Although the majority of physicians (55% and 57%, respectively) recognized that Cipro and Suprax were relatively expensive, nearly all (87%) did not recognize that Feldene was also relatively

expensive. Furthermore, only 10% recognized the relatively low cost of Wellbutrin; perhaps they assumed that relatively new drugs cost more.

Overall, 70% selected a price category that was within one ordinal category of the correct price. For the least expensive drugs, however, correctly identifying the drug cost as being within one ordinal category may have indicated that the physician thought the drug cost was double its actual cost. For example, if the unit cost of Halcion was thought to be between $0.51 and 1.00 (ie, answer "B," which is within one ordinal category), the participant may have thought the unit price approximated $1.00, which is more than double its actual cost of $0.46.

No other data involving perceptions of physicians exist with which to compare our data. In a pediatric critical care unit, however, the mean drug cost score was only 46.5% for physicians.[5] Our data do support the current perception of a lack of drug cost awareness among physicians.

The low response rate (30%) and selection bias limit the generalizability of our findings. Selection bias would presume that those individuals who elected to participate did so because they believed they would score well. Additionally, those physicians attending a continuing medical education seminar might be more inclined to stay abreast of other medical matters including drug costs. Both of these selection biases, however, would argue that those who responded had a better chance of scoring higher. Hence, if physicians had been selected randomly in the community, the scores might indeed have been lower than those observed in this study.

It is not known whether the participating physicians had prescribed any of the medications listed on the questionnaire. Presumably, if the physician is not inclined to prescribe a drug, he or she is less likely to be aware of its cost. Therefore, it could be reasoned that a lack of drug cost awareness for that particular medication would be irrelevant. The physician's ability to prescribe an appropriate medication, however, should be based on a general knowledge of all other possible drugs. This involves incorporating efficacy, side effects, and cost data into decision making. Hence, being aware of pertinent information, notably cost data, especially for relatively new drugs (such as those in the questionnaire), should have an impact on physicians' existing prescribing practices either by promoting a change or by reinforcing allegiance to their current drugs of choice.

The availability of cost data has been shown to affect physician behavior. Cost Rounds highlighting the costs of tests, services, and drugs have been shown to reduce health care expenditures following educational intervention.[6–8] Yet availability of medication pricing is not addressed in either the peer-reviewed or promotional literature. Drug cost information is not readily available. Although certain textbooks list drug costs (eg, *RedBook*, Medical Economics, Montvale, NJ), new drugs, which are the subject of the majority of pharmaceutical advertising, will not be included until the next annual edition is available. Most physicians are not inclined to embark on the time-consuming task of calling a pharmacy for the price of each new product as it becomes available. Additionally, physicians employed at health maintenance organizations or other institutions that have a formulary are unlikely to be aware of drug costs unless they are members of the formulary committee. Thus, it is not surprising that 99% of the participants in our study could not provide accurate cost estimates.

Physicians have not shown substantial interest in the cost of medications. Medical schools, residency programs, postgraduate courses, and pharmaceutical company advertising and detailing seldom focus on this subject. There is a paucity of articles in the general medical literature on the cost of medications. This is all the more ironic and alarming when one considers the increasing attention by Congress and state legislatures to other health care concerns.

Inclusion of price information in promotional materials may help. The Director of the Food and Drug Administration (FDA) is in the best position to institute this change, but he has taken the position that the agency is concerned only with drug effectiveness, not cost. The role of the FDA in regulating drug advertising when camouflaged as scientific exchange has been the focus of recent discussion.[9–11] We propose that the FDA extend its role in pharmaceutical advertising by requiring that all advertisements include the average wholesale price of the drug or a cost index relative to other drugs used for similar indications. With 37% of the physicians who completed our survey overestimating medication costs, it may prove advantageous for some pharmaceutical companies to include price information in advertisements.

Most health care professionals and the general public will agree that pricing information related to prescription drugs should be more available. Just as important is the format in which such information should be presented. For the patient, the estimated retail cost for a given quantity would be a more meaningful figure, as price per unit may fail to communicate the magnitude of cost for the duration of therapy. Hence, we recommend that drug price information (wholesale or approximate retail cost) be provided covering the full course of therapy for acute conditions (eg, cost of 10 days of an antibiotic for an infection) and a month of therapy for chronic conditions (eg, cost of 30 days of a calcium channel blocker for hypertension).

Until not-for-profit resources such as *Medical Letter*, the Health Research Group, or Consumers Union are able to provide a comprehensive medication price guide for consumers, it may be left up to the initiative of concerned hospitals, clinics, and individual physicians to post such prices at nursing stations and drug sample closets. Ultimately, the FDA may be best suited to effectively address this issue on a large scale. In any case, it is time to move forward in raising medication cost consciousness.

Acknowledgments

The authors thank Connie Finck, Research Assistant, Department of Family Medicine, Baylor College of Medicine, for her assistance.

References

1. Collyer JA. A measure of a family doctor's work. Part II: drugs, time, charges, morbidity. Can Med Assoc J 1975; 112:1357–60.
2. Rosser WW. Prescribing in family practice: a method of data collection. Can Fam Physician 1981; 27:68–73.
3. Bain DJ, Haines AJ. A year's study of drug prescribing in general practice using computer assisted records. J R Coll Gen Pract 1975; 24:41–8.
4. Woumerai SB, McLaughlin TJ, Avorn J. Improving drug prescribing in primary care: a critical analysis of the experimental literature. Milbank Q 1989; 67:268–317.
5. Sumpton JE, Frewen TC, Rieder MJ. The effect of physician education on knowledge of drug therapeutics and costs. Ann Pharmacother 1992; 26:692–7.
6. Deneef P. Cost rounds: presentations by residents on the cost of care. Fam Med 1991; 23:389–90.
7. Mannheim IM, Feinglass J, Hughes R, Martin GJ, Conrad K, Hughes EF. Training house officers to be cost conscious. Effects of an educational intervention on charges and length of stay. Med Care 1990; 28:29–42.
8. Davidoff F, Goodspeed R, Clive J. Changing test ordering behavior: a randomized controlled trial comparing probabilistic reasoning with cost-containment education. Med Care 1989; 27:45–58.
9. Kessler DA, Pines WL. The federal regulation of prescription drug advertising and promotion. JAMA 1990; 264:2409–15.
10. Peck CC, Rheinstein PH. FDA regulation of prescription drug advertising. JAMA 1990; 264:2424–5.
11. Kessler A. Drug promotion and scientific exchange: the role of the clinical investigator. N Engl J Med 1991; 325:201–3.