

Patients' Attitudes About Gifts To Physicians From Pharmaceutical Companies

Robert L. Blake, Jr., MD, and Elizabeth K. Early

Background: Little is known about patients' awareness of and attitudes about gifts to physicians from pharmaceutical companies.

Methods: During a 7-week period in summer 1994, we surveyed adults (18 years of age and older) in the waiting rooms of two family practice centers in central Missouri. Four-hundred eighty-six adults (83 percent participation rate) responded to a self-administered questionnaire that assessed awareness of and attitudes about representative gifts.

Results: Rates of awareness of specific gifts were 87.0 percent for free drug samples, 55.3 percent for ballpoint pens, 34.6 percent for medical books, 28.6 percent for baby formula, 22.4 percent for dinner at a restaurant, and 13.8 percent for a coffee maker. Of the 486 respondents, the following percentages were reported that "it is not all right" for physicians to accept specific gifts: dinner at a restaurant, 48.4 percent; baby formula, 44.2 percent; coffee maker, 40.7 percent; ballpoint pens, 17.5 percent; medical books, 16.9 percent; drug samples, 7.6 percent. In addition, 32.5 percent did not approve of their physicians accepting payment by a pharmaceutical company of medical conference expenses and from 28.0 percent to 43.4 percent disapproved of their physicians attending specific social events sponsored by pharmaceutical companies at a medical conference. Seventy percent of the subjects believed that gifts sometimes or frequently influence a physician's prescribing of medication; 64.0 percent believed that gifts to physicians increase the cost of medication. Beliefs that gifts influence prescribing behavior and beliefs that gifts increase medication costs were strongly associated with disapproval of each gift except for drug samples.

Conclusions: Respondents distinguished between particular gifts; approval rates were high for gifts generally considered to be trivial or that have potential value to patient care; disapproval rates were relatively high for gifts that have some monetary value but have little or no benefit for patients. Opinions about gifts were related to perceptions of their effects on prescribing behavior and costs. (J Am Board Fam Pract 1995; 8:457-64.)

Gifts provided to physicians are among the strategies used by pharmaceutical companies to promote their products. Such gifts range from the seemingly trivial note pads, penlights, and ballpoint pens through the more substantial lunches and dinners to the lavish expense-paid trips to medical conferences at appealing vacation resorts. Considerable controversy has been generated regarding the appropriateness of physician acceptance of gifts from the pharmaceutical industry. Several authors¹⁻³ have raised ethical objections about the acceptance of these gifts, stimulating a vigorous debate in the literature about this issue.^{4,5} Recently guidelines have been formulated by several professional organizations that

specify appropriate physician behavior with respect to accepting gifts from pharmaceutical companies.⁶⁻⁹ Guidelines^{6,7} developed by the Council on Ethical and Judicial Affairs of the American Medical Association relating to gifts from the pharmaceutical industry have been incorporated into the American Medical Association (AMA) Code of Ethics for the medical profession. The Pharmaceutical Manufacturer Association has included the same guidelines in its Ethics Code of Marketing Practices. The presence of guidelines from professional organizations, however, has not stilled the controversy.

Groups of practicing physicians,¹⁰ academic physicians,^{11,12} residents,^{11,13,14} and medical students^{15,16} have been surveyed regarding their views of the appropriateness of gifts from pharmaceutical companies. In contrast, there is little information in the medical literature about patients' awareness of and attitudes about the practice of gift-giving by pharmaceutical companies and gift-receiving by physicians. In a survey of

Submitted, revised, 15 June 1995.

From the Department of Family and Community Medicine (RLB), and the School of Medicine (EKE), University of Missouri-Columbia. Address reprint requests to Robert L. Blake, Jr., MD, M222 Medical Sciences, Department of Family and Community Medicine, University of Missouri-Columbia, Columbia, MO 65212.

adults in Kentucky, Mainous, et al.¹⁷ found that 82 percent of the respondents were aware that physicians receive such office-use gifts as note pads and pens from pharmaceutical companies. One-third of the respondents were aware of such personal gifts as a radio or dinner at an expensive restaurant. Compared with office-use gifts, personal gifts were perceived by respondents as more likely to increase health care costs and reduce quality of care.

Some professional organizations, such as the American College of Physicians, have recommended that the criterion for acceptability be the physician's willingness to have the receipt of the gift "generally known."¹⁸ The study reported here was conducted to determine the extent to which patients are aware of the practice of gift-giving and gift-receiving involving the pharmaceutical industry and physicians and to assess their opinions of specific examples of this practice.

Methods

During a 7-week period in June and July 1994, we surveyed adults (18 years of age and older) in two family practice centers operated by the University of Missouri-Columbia Department of Family and Community Medicine. Each center is staffed professionally by faculty physicians and family practice residents. One center is located in Columbia, Missouri, a university town with a population of approximately 70,000; and the other is located in Fulton, Missouri, a town of approximately 12,000 persons. During each clinic session in Columbia, 2 to 4 faculty family physicians and 4 to 6 residents and 1 nurse practitioner provide direct patient care. In the Fulton clinic, care is provided by 1 faculty physician and 2 to 4 residents during each session.

While in the waiting room, adults were approached by 1 of the authors (EKE) about participating in the study. Both the patients who were receiving care that day and the adults who had accompanied an active patient and were not receiving care that day were eligible. Prospective participants were provided with a brief explanatory letter and were asked to complete a two-page questionnaire. The letter contained the following statement:

Drug companies that make prescription medication have considerable contact with physicians. This contact has several purposes, such as educating physicians about medications and promoting or advertising certain medica-

tions. We are interested in learning how much patients know about this contact and what they think of it.

The questionnaire was developed specifically for this study and was pilot-tested on 43 adults in the waiting room of the Columbia clinic. The questionnaire informed the respondent that "Drug companies sometimes provide gifts to physicians, such as ballpoint pens, coffee makers, dinner at a restaurant, baby formula, and medical books." The questionnaire then asked whether the respondent was aware that each of these gifts is provided by drug companies to physicians. The respondents were then asked whether they believed "that it is all right for physicians to accept" each of the gifts. For example, they were asked: "Do you believe that it is all right for physicians to accept ballpoint pens as gifts from a drug company?" The response options for each question relating to a specific gift were "Yes, it is all right," "No, it is not all right," and "No opinion." The questionnaire then presented the statement: "Sometimes drug companies provide free samples of medications to physicians who can then give the samples to their patients." Respondents were asked whether they were aware of this practice and whether they thought this activity was "appropriate." Response options to the question about appropriateness consisted of "yes," "no," and "undecided."

The questionnaire then presented a series of questions relating to medical conferences. Respondents were informed: "Physicians attend medical conferences as a way of keeping up with new developments in medicine. Drug companies may be involved in these medical conferences in various ways. Sometimes a drug company offers to pay some or all of the expenses for a physician to attend a medical conference." Each respondent was then asked: "Do you believe that it is all right for your physician to accept such an offer from a drug company?" Respondents were also informed: "Sometimes drug companies sponsor (pay for) social events for physicians at medical conferences." Each respondent was then sequentially asked whether "it is all right for your physician" to participate in a golf tournament, to attend a cocktail party, and to attend an ice cream social, each sponsored by a drug company at a medical conference.

Respondents were then asked: "Do you believe that receiving a gift from a drug company influences a physician's prescribing of medications?"

Response options were "frequently," "sometimes," "rarely," and "never." Respondents were also asked: "What effect do you think gifts to physicians from drug companies have on the cost of medication?" Response options were "no effect," "increases cost," and "decreases cost." The questionnaire included questions about age, sex, education level, and self-rated health. Respondents were also asked whether they "take a prescription medication on a regular basis" and whether "anyone in your household (with whom you live) takes prescription medication on a regular basis."

Questionnaires were self-administered and were collected before the respondents' departure from the clinic. To avoid disruption of efficient clinic operations, not all eligible adults were approached about participation in the study. At the end of each half-day that the questionnaire was distributed, 1 author (EKE) examined the clinic schedule to determine the number of adult patients seen during that half-day.

Questionnaire data were processed and analyzed on a desktop computer using SPSS-PC, Version 4.0.¹⁸ Frequency distributions were constructed and 95 percent confidence intervals (CIs) for relevant prevalence rates were calculated. Differences involving categorical variables were assessed with the chi-square statistic; the threshold for statistical significance was $P < 0.05$.

Results

The study sample was generated from 10 half-day clinic sessions in the Columbia clinic and 3 half-day clinic sessions in the Fulton clinic. A total of 585 adults were approached in the waiting rooms about participating in the study; 486 (83.1 percent) completed the questionnaire. A total of 697 adult patients were seen in the two clinics during the 13 half-day sessions, of whom 323 (46.3 percent) were included in the study. Of the 486 subjects, 81.5 percent were recruited from the Columbia clinic and 18.5 percent from the Fulton clinic; 66.5 percent were patients in the clinic on the day they completed the questionnaire.

Table 1 provides demographic and health-related characteristics of the subjects. Because of missing values from a few respondents, the total is less than 100 percent for particular items. The mean age was 40.6 years with a standard deviation of 15.8 years. The sample was predominantly female and approximately one-half were young

Table 1. Demographic and Health-related Characteristics of Patient Sample.

Characteristics	No. (%)
Sex	
Women	307 (63.2)
Men	160 (32.9)
Age (years)	
18-39	251 (51.6)
40-59	150 (30.9)
60+	66 (13.6)
Educational level	
Not high-school graduate	50 (10.3)
High-school graduate	97 (20.0)
Some college or trade school	148 (30.5)
College graduate	87 (17.9)
Postgraduate degree	83 (17.1)
Self-rated health	
Good	341 (70.2)
Fair	105 (21.6)
Poor	20 (4.1)
Takes prescription medication regularly	
Yes	205 (42.4)
No	264 (54.3)
Household member takes prescription medication regularly	
Yes	212 (43.6)
No	245 (50.4)

Numbers for each variable do not total 486 because of missing values.

adults, a profile that is similar to that of adult users of the clinics. Approximately two-thirds of the respondents received formal education beyond high school. A quarter of the respondents rated their health as fair or poor. Compared with subjects recruited from Columbia, those from Fulton, in general, were older, had lower educational levels, and were more likely to report fair or poor health.

Subjects were asked whether they were aware that drug companies sometimes provide the following gifts to physicians: ballpoint pens that have the name of a drug on them, coffee makers, dinner at a restaurant, free baby formula to physicians with a baby, medical books, and free samples of medications that then can be given to patients. The results are provided in Table 2. Subjects with education beyond high school were more likely to be aware of gifts than subjects who had lower educational attainment. Subjects who reported good health were generally more likely to be aware of gifts than those who reported fair or poor health. Subjects who took prescription medication on a

Table 2. Patient Awareness of Gifts from Pharmaceutical Companies to Physicians.

Gift	Percent Aware of Gift	95% CI
Drug samples	87.0	84.0 to 90.0
Ballpoint pens	55.3	50.9 to 59.7
Medical books	34.6	30.4 to 38.8
Baby formula	28.6	24.6 to 32.6
Dinner	22.4	18.7 to 26.1
Coffee maker	13.8	10.7 to 16.9

CI=confidence interval.

regular basis were more likely to be aware of free drug samples; otherwise, taking medication was not associated with level of awareness. There were no consistent associations between subject age or sex and awareness of gifts. Subjects from Columbia were more likely to be aware of gifts than those from Fulton. Rates of awareness were similar when the analysis was limited to the 323 subjects who were patients at the time of the study.

Respondents' attitudes about specific gifts are summarized in Table 3. Because of missing values, the totals for particular items are less than 100 percent. Subjects who indicated that "it is all right" for physicians to accept a gift or attend a social function at a medical conference were considered to approve of that gift. Subjects who indicated that "it is not all right" to accept a particular gift or attend a social function at a medical conference were considered to disapprove of that gift. The Cronbach alpha for the 10 questions relating to approval of gifts was 0.84, indicating good reliability. Disapproval rates were greater than 40 percent for five gifts and were less than 20 percent for three gifts. There were no significant differences in approval ratings for any gift for subjects recruited in Columbia and those recruited in Fulton and for subjects who were patients and those who were not patients.

Stratified analyses were performed to explore possible associations of demographic characteristics with attitudes about specific gifts. Missing values were excluded from these analyses. Rates of disapproval were consistently higher for men than women, and the differences were statistically significant ($P < 0.05$) for the coffee maker, baby formula, free drug samples, paying for expenses of a medical conference, and participating in a golf tournament. In general, older subjects were more likely to disapprove of gifts than were middle-aged and young subjects. These differences were statistically significant for pens, medical books, and participating in a golf tournament. With one exception, rates of disapproval were higher for subjects who had an education level beyond high school. For the cocktail party, however, the disapproval rate was higher for those with less education ($P < 0.001$). There were no consistent differences in rates of disapproval between subjects who did and did not regularly take prescription medications. Subjects who reported that a household member took a prescription medication were more likely to disapprove of the coffee maker, the golf tournament, the cocktail party, and the ice cream social. Compared with subjects who reported good health, those who reported fair or poor health were more likely to disapprove of the golf tournament, the cocktail party, and the ice cream social.

Gifts from drug companies were considered never to influence a physician's prescribing of medications by 6.2 percent of the respondents,

Table 3. Patient Attitudes about Gifts from Pharmaceutical Companies to Physicians.

Gift	Percent Who Did Not Approve (95% CI)	Percent Who Did Approve (95% CI)	Percent with No Opinion
Dinner	48.4 (44.0 to 52.8)	34.6 (30.4 to 38.8)	14.6
Baby formula	44.2 (39.8 to 48.6)	41.4 (37.0 to 45.8)	10.9
Cocktail party	43.4 (39.0 to 47.8)	40.5 (36.1 to 44.9)	13.0
Golf tournament	41.6 (37.2 to 46.0)	40.3 (35.9 to 44.7)	14.6
Coffee maker	40.7 (36.3 to 45.1)	39.1 (34.8 to 43.4)	17.3
Conference expenses	32.5 (28.3 to 36.7)	52.7 (48.3 to 57.1)	11.5
Ice cream social	28.0 (24.0 to 32.0)	55.6 (51.2 to 60.0)	12.8
Ballpoint pens	17.5 (14.1 to 20.9)	67.3 (63.3 to 71.3)	13.0
Medical books	16.9 (13.6 to 20.2)	70.0 (65.9 to 74.1)	9.9
Drug samples	7.6 (5.2 to 10.0)	82.1 (78.7 to 85.5)	9.3

Note: Percentages for each gift do not total 100% because of missing values.

rarely to influence prescribing by 18.3 percent, sometimes to influence prescribing by 53.9 percent, and frequently to influence prescribing by 16.0 percent. In further analyses, this variable was dichotomized; the 70 percent who considered that physicians were sometimes or frequently influenced were compared with the 24.5 percent who considered that physicians were rarely or never influenced. Respondents' beliefs about the influence of gifts on physicians' prescribing were not significantly associated with age, sex, education level, self-reported health, or whether they or a household member regularly took prescription medication.

Twenty-three percent of the respondents believed that gifts to physicians from drug companies have no effect on the cost of medications, 3.1 percent believed that gifts decrease the costs, and 64.0 percent believed that gifts increase the cost of medications. In further analyses this variable was also dichotomized; subjects who believed that gifts increase the cost of medication were compared with those who believed that gifts have no effect or decrease the cost. Education level was the only demographic or health-related variable that was significantly associated with belief about the effect of gifts on cost of medication. Subjects with education beyond high school were more likely to believe that gifts increase the cost of medication than were subjects who had a high-school education or less (75.0 percent versus 62.2 percent, $P=0.007$).

Beliefs that gifts influence physicians' prescribing behavior and that gifts affect the cost of medication were strongly associated. Of the 325 subjects who believed that gifts sometimes or frequently influence physicians, 78.2 percent believed that gifts increase the cost of medication compared with 50.0 percent of the 106 subjects who believed that physicians' prescribing is rarely or never influenced by gifts ($P<0.0001$). Neither beliefs about the effect of gifts on physicians' prescribing nor beliefs about the effect of gifts on cost of medication varied significantly by clinic or by whether the respondent was a patient.

Except for free drug samples, attitudes about specific gifts were strongly associated with beliefs about the effect of gifts on physicians' prescribing and the effect on costs of medications. Respondents who believed that physicians' prescribing is influenced sometimes or frequently by gifts were

2 to 5 times more likely to disapprove of a particular gift than were those who believed that gifts rarely or never influence prescribing. Similarly, respondents who believed that gifts increase the cost of medication were 2 to 5 times more likely to disapprove of each gift than were those who believed that gifts do not increase costs. Each of these differences was statistically significant with $P<0.002$ on chi-square analysis (2 degrees of freedom).

Discussion

The array of gifts provided to physicians by pharmaceutical companies is diverse and extensive. Practical considerations limited our focus in this study to a few examples that were selected to represent a reasonable spectrum of monetary and educational value. We included in the questionnaire three categories of gifts: those that we considered to be of value only to the physicians, their families, or office staffs (coffee maker, dinner at a restaurant, baby formula, and social events at medical conferences); gifts that we considered to have potential indirect value to patients (medical books and financial subsidies for medical conferences); and a gift that we considered to be of potential direct value to patients (free drug samples).

There was considerable variation in the previous awareness by respondents of the specific gifts included in the questionnaire. Most were aware of free drug samples; similarly most were not aware of coffee makers. The level of awareness of particular gifts is probably influenced by the frequency of the gifts and the visibility of gifts to patients. While we are unaware of data relating to the prevalence of particular gifts, we strongly suspect that pens are more frequently provided than coffee makers and baby formula. A pen that exhibits the name of a drug is almost certainly more clearly identifiable as a gift from a pharmaceutical company by a patient than are dinners, baby formula, and books.

Respondent approval of specific gifts varied considerably. In the absence of information obtained by a more detailed questionnaire, by interviews, or by focus groups, any speculation regarding reasons for respondents' opinions is quite limited. The pattern of responses suggests that few patients object to gifts that might directly benefit them (free drug samples). Also, patients seem to be less likely to object to trivial gifts (ballpoint pens) or to gifts that might be of indirect

value to patients (medical books and medical conferences) than to gifts that have some monetary value and no clear benefit to patients. Interestingly, some respondents make a distinction between a cocktail party and an ice cream social; this distinction probably reflects different concerns about the consumption of alcohol.

While rates of disapproval of specific gifts varied to some extent between subgroups defined by demographic and health-related characteristics, rates of disapproval for the five less acceptable gifts remained substantial across all subgroups. For example, men were generally more likely to disapprove of gifts than women. Yet, rates of disapproval for women (after excluding missing values from the analysis) were 39 percent for coffee makers, 49 percent for dinner at a restaurant, 42 percent for baby formula, 38 percent for a golf tournament, and 46 percent for a cocktail party. While in general, subjects with a lower education level were less likely to disapprove of most gifts, disapproval rates in this subgroup were 29 percent for coffee makers, 38 percent for dinner at a restaurant, 41 percent for baby formula, 43 percent for a golf tournament, and 48 percent for a cocktail party. Rates of disapproval for each of these five gifts were higher than 35 percent for all subgroups defined by the three health-related variables.

Our findings are consistent with those of Mainous, et al.,¹⁷ who collected information by telephone from 649 adult residents of Kentucky. Subjects in each study clearly distinguished between gifts that have potential benefits for patients and gifts that are limited to the personal use of physicians. Each study found much higher rates of awareness of such gifts as drug samples and pens than of a gift such as dinner at a restaurant. In each study, more subjects had negative attitudes about gifts with monetary value and no clear benefit for patients than gifts that are trivial or have potential benefit for patients. Mainous, et al.¹⁷ did not examine attitudes about drug company-sponsored social activities at medical conferences.

In the medical literature there is controversy regarding the appropriateness of physician acceptance of any gift from a pharmaceutical company.¹⁻⁵ Guidelines issued by several professional organizations prohibit acceptance of certain gifts while leaving open the possibility of accepting other

gifts as long as they do not affect a physician's clinical decisions.⁶⁻⁹ The gift included in our questionnaire that is most clearly prohibited by some organizations is payment of part or all of the expenses of a medical conference. Guidelines approved by both the AMA^{6,7} and the Canadian Medical Association⁹ reject direct subsidies to physicians from pharmaceutical companies of such expenses. Gifts such as ballpoint pens and medical books are permissible under the AMA guidelines. Other gifts included in the questionnaire fall into a grey area. The AMA guidelines⁶ state that "subsidies for hospitality should not be accepted outside of modest meals or social events held as part of a conference or meeting." The extent to which a golf tournament, cocktail party, or ice cream social is encompassed in the category of "modest social events" is a matter of individual interpretation. Interestingly, the disapproval rate in our study for the gift that is prohibited by AMA guidelines was lower than the rates for several gifts that are permissible within the guidelines. It is likely that our respondents perceived medical conferences as having educational value that confers a benefit to them, in contrast to coffee makers, dinners, baby formula, and conference social events, which have little or no educational value.

A substantial majority of respondents believed that gifts influence physicians' prescribing, at least sometimes. There is some evidence that promotional activities by the pharmaceutical industry influence physician prescribing behavior.¹⁹⁻²¹ The extent to which gifts specifically influence such behavior, however, is uncertain. Our finding that most patients believed that such influence occurs is disquieting. The AMA guidelines⁷ express concern about the "public impression of impropriety." That patients perceived physicians to be influenced by gifts in an activity as important as the prescribing of medication certainly raises concern about the impression of impropriety. This concern is enhanced by prescribing behavior being logically viewed as the target of the gift-giving. The belief that physicians are influenced by gifts was strongly associated with higher rates of disapproval of each gift studied except for drug samples. This association suggests that concern about such influence might be one reason for negative patient attitudes about gifts. Nevertheless, not all respondents who believed that gifts sometimes or frequently influence prescribing disapproved of

gifts; also, some who believed that gifts rarely or never influence prescribing still disapproved of certain gifts.

Concern about the effect of gifts on the cost of medication could be another explanation for patient disapproval of gifts. A majority believed that gifts result in an increase in medication costs, and this belief was strongly associated with disapproval of most gifts. Some respondents who believed that gifts increase the cost of medication, however, did not object to the gifts we studied, while some of those who did not believe that gifts increase the cost of medication still disapproved of gifts. Quite likely, factors other than beliefs about the effects of gifts on prescribing behavior and on medication costs contributed to attitudes about gifts.

Limitations of the study should be recognized. Subjects were selected from two family practice centers in central Missouri that are training sites for family practice residents. We do not know the extent to which the awareness of and opinions about gifts from pharmaceutical companies found in this sample are representative of those of other populations. The high response rate, the consistency of findings across demographic subgroups and concordance with the findings of Mainous, et al.¹⁷ are reassuring in this regard. The collection of similar data in other settings would clarify the generalizability of our findings. The questionnaire included only a few of the many gifts involved in the promotional efforts of the pharmaceutical industry.

Our survey was designed to disrupt minimally the routine patient care operations at each clinic. Consequently, the short questionnaire, developed to be completed by respondents in approximately 5 to 10 minutes, limited the obtainable information. The questionnaire did not explore reasons for particular responses; thus we have little insight into the rationale and thought processes that occasioned the opinions elicited. The use in future research of a more detailed questionnaire, in-depth interviews, and perhaps focus groups could assist in elucidating the reasoning and feelings underlying the responses. Many of the respondents were unaware of specific gifts before their exposure to the questionnaire. In such cases, the questionnaire elicited an immediate reaction to a very limited description of an activity. It is quite possible that patients' opinions about the appropriateness of gifts would be different after further

description and explanation of the gift-giving, gift-receiving activity.

Despite the limitations we believe that this study has value. To our knowledge it is only one of two studies that assesses patients' awareness of and attitudes about an issue that directly affects them and that has generated considerable discussion and controversy among physicians. In the position paper, "Physicians and the Pharmaceutical Industry," the American College of Physicians suggests to physicians that "a useful criterion in determining acceptable activities and relationships is: would you be willing to have these arrangements generally known?"⁸ Our findings indicate that much of the gift-giving by pharmaceutical companies is not generally known to the public. The findings further suggest that, when informed of some of these activities, a substantial proportion of patients find them objectionable. We believe that the medical profession has the responsibility to assess systematically public attitudes about physicians' behaviors that affect our patients. Additional studies of patients' attitudes about gifts to physicians from the pharmaceutical industry are needed.

References

1. Chren MM, Landefeld CS, Murray TH. Doctors, drug companies, and gifts. *JAMA* 1989; 262:3448-51.
2. Margolis LH. The ethics of accepting gifts from pharmaceutical companies. *Pediatrics* 1991; 88:1233-7.
3. Waud DR. Pharmaceutical promotions—a free lunch? *N Engl J Med* 1992; 327:351-3.
4. Doctors, drug companies, and gifts. *JAMA* 1990; 263:2177-9.
5. Pharmaceutical promotions. *N Engl J Med* 1992; 327:1687-8.
6. Gifts to physicians from industry. *JAMA* 1991; 265:501.
7. Guidelines on gifts to physicians from industry: an update. Council on Ethical and Judicial Affairs. *Food Drug Law J* 1992; 47:445-58.
8. Physicians and the pharmaceutical industry. American College of Physicians. *Ann Intern Med* 1990; 112:624-6.
9. Physicians and the pharmaceutical industry (update 1994). Canadian Medical Association. *Can Med Assoc J* 1994; 150:256A-256F.
10. Thomson AN, Craig BJ, Barham PM. Attitudes of general practitioners in New Zealand to pharmaceutical representatives. *Br J Gen Pract* 1994; 44:220-3.
11. McKinney WP, Schiedermayer DL, Lurie N, Simpson DE, Goodman JL, Rich EC. Attitudes of internal medicine faculty and residents toward profes-

- sional interaction with pharmaceutical sales representatives. *JAMA* 1990; 264:1693-7.
12. Banks JW 3d, Mainous AG 3d. Attitudes of medical school faculty toward gifts from the pharmaceutical industry. *Acad Med* 1992; 67:610-2.
 13. Brotzman GL, Mark DH. The effect on resident attitudes of regulatory policies regarding pharmaceutical representative activities. *J Gen Intern Med* 1993; 8:130-4.
 14. Reeder M, Dougherty J, White LJ. Pharmaceutical representatives and emergency medicine residents: a national survey. *Ann Emerg Med* 1993; 22:1593-6.
 15. Barnes CJ, Holcenberg JS. Student reactions to pharmaceutical promotion practices. *Northwest Med* 1971; 70:262-6.
 16. Vinson DC, McCandless B, Hosokawa MC. Medical students' attitudes toward pharmaceutical marketing: possibilities for change. *Fam Med* 1993; 25:31-3.
 17. Mainous AG 3d, Hueston WJ, Rich EC. Patient perceptions of physician acceptance of gifts from the pharmaceutical industry. *Arch Fam Med* 1995; 4:335-9.
 18. Norusis MJ. *SPSS/PC advanced statistics*. Version 4.0. Chicago: SPSS, 1990.
 19. Avorn J, Chen M, Hartley R. Scientific versus commercial sources of influence of the prescribing behavior of physicians. *Am J Med* 1982; 73:4-8.
 20. Lexchin J. Interactions between physicians and the pharmaceutical industry: what does the literature say? *Can Med Assoc J* 1993; 149:1401-7.
 21. Chren MM, Landefeld CS. Physicians' behavior and their interactions with drug companies. A controlled study of physicians who requested additions to a hospital drug formulary. *JAMA* 1994; 271:684-9.