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Physician attitudes toward industry: a view across the specialties

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Abstract

Objectives—Physician relationships with industry are receiving attention as government and professional organizations move toward restrictive policies and financial transparency. Our objective was to explore attitudes of physicians from all specialties toward gifts from and interactions with the pharmaceutical and device industries.

Design—Anonymous cross sectional survey.

Setting—Hospitals in the Mount Sinai School of Medicine consortium, in the New York City metro area

Participants—Faculty and trainee physicians from all clinical departments

Main Outcome Measures—Attitudes toward industry interactions and gifts and their appropriateness, measured on 4-point Likert scales.

Results—Five hundred ninety physicians and medical students completed the survey (response rate=67%); 59% were male, 39% were attendings, and 24% were from surgical specialties. Attitudes toward industry and gifts were generally positive. More than 65% found educational materials and sponsored lunches appropriate, whereas fewer than 25% considered vacations or large gifts appropriate. Surgeons, trainees, and those unfamiliar with institutional policies on industry interactions held more positive attitudes than others and were more likely to deem some gifts appropriate, including industry funding of residency programs and, among surgeons, receiving meals, travel expenses, and payments for attending lectures. Non-attendings held more positive attitudes toward meals in clinical settings, textbooks and samples.

Conclusions—Physicians continue to hold positive attitudes toward marketing-oriented activities of the pharmaceutical and device industries. Changes in medical culture and physician education focused on surgeons and trainees may align physician attitudes with current policy trends.

INTRODUCTION

Physician relationships with the pharmaceutical and device industry have received widespread attention in recent years. We now know that nearly all physicians maintain some relationship with industry [1], beginning with near universal exposure to pharmaceutical industry marketing

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during medical school [2]. The majority of practicing clinicians accept drug samples and gifts, most commonly food in the workplace, and smaller numbers of physicians accept larger payments such as reimbursement of costs of educational meetings and conferences and speaking and consulting fees[1]. Doctors from different specialties differ in the frequency of their interactions with industry, with surgeons reporting fewer interactions than others[1].

With greater awareness of the prevalence of these relationships has come greater interest in the potential conflict of interest that they pose[3], with recommendations from individuals and organizations to improve transparency and independent regulation[4]. However, the effectiveness of these policies is uncertain[5]. Moreover, detailed studies of physician attitudes toward industry relationships thus far have focused only on the pharmaceutical industry, have not included the device industry, and have overwhelmingly surveyed physicians within academic departments of Internal Medicine or Internal Medicine residents [6–8].

Our objective was to explore attitudes and perceptions of physicians across multiple specialties toward specific interactions with the pharmaceutical and medical device industries. Because older physicians are habituated to industry interactions, we hypothesized that they would have more favorable attitudes than younger physicians or students. In addition, because the existing literature on the influence of industry on practice has been disseminated in non-surgical journals, we hypothesized that surgical specialists would be less aware of this literature and therefore less likely to perceive conflicts of interest in relationships with industry.

METHODS

Survey Administration

The Mount Sinai School of Medicine in New York City supports a consortium of 11 local affiliated hospitals, of which 8 have residency training programs. Consortium institutions include the Mount Sinai Hospital, the primary affiliated academic medical center, and community-based and municipal hospitals throughout New York City (including Manhattan, Queens, and Brooklyn) and northern New Jersey. The School has a policy which bans or limits marketing-related interactions between physicians and industry and which applies to faculty and trainees at all affiliated hospitals. Our study utilized a convenience sample; potential participants included faculty and trainees from all departments of all consortium hospitals as well as 3rd and 4th year medical students working in those departments. We contacted a representative from each department at consortium hospitals to ask permission to distribute surveys. Representatives included department chairmen, residency program directors, or department administrators.

We used two methods to identify participants within participating departments. In small departments, administrators distributed the survey once to all faculty and trainee physicians in their department. Administrators pre-specified the required number of surveys based on the number of potential departmental participants and this number was used to calculate response rates. For larger departments we attended one Grand Rounds presentation, where we distributed surveys to all eligible attendees at the beginning and collected them at the end. We tracked the number of surveys distributed. Those returned as blank or not returned were considered non-responders. All potential participants were informed of the voluntary nature of the study and that their responses were strictly anonymous. We administered all surveys anonymously, but subjects who completed the survey were able to submit their name and email address separately for the opportunity to receive one of two $100 gift cards. All surveys were distributed and collected between June 1 and September 1, 2008. Gift cards were awarded to two randomly selected respondents in September 2008.

Survey Design

Our survey was adapted from previously validated instruments [6, 8, 9]. The 35-item survey contained 7 demographic questions, 14 questions about attitudes toward types of pharmaceutical/device marketing and 14 questions about the appropriateness of receiving types of gifts from the pharmaceutical/device industries (appendix).

Demographic items included standard questions about sex, ethnicity, hospital and department affiliation, level of training, and time since graduation, and a question about past collaborations with the device or pharmaceutical industry. Attitude questions were adapted from published surveys[8, 10] and included items about sample medications, the educational value of industry materials, the impact of industry funding of educational programs, and the impact of marketing on prescribing. Appropriateness items included questions about gifts, samples, and payments for various activities.

Attitude and appropriateness items were scored on different 4-point likert scales. Participants were asked to rate their attitudes toward pharmaceutical marketing on a scale of “strongly agree”, “agree”, “disagree” and “strongly disagree”, and to rate the appropriateness of interactions on a scale of “very appropriate”, “appropriate”, “inappropriate” and “very inappropriate”. The survey required approximately 5–10 minutes to complete and was approved by the institutional review board of the Mount Sinai School of Medicine.

Data Analysis

We used Chi-square tests to test for differences in attitudes toward types of pharmaceutical/device marketing and the appropriateness of receiving types of gifts from the pharmaceutical/device industries comparing physicians by academic department, attending status, and familiarity with institution’s guidelines for interactions between physicians and the pharmaceutical/device industries. For the purposes of analysis, we combined physicians from departments of surgery, surgical subspecialties and obstetrics and gynecology. Analyses were performed using SAS 9.1 (SAS Institute, Inc., Cary, NC). All statistical tests were 2-tailed and used a type I error rate of 0.004 to account for multiple comparisons.

RESULTS

We approached leadership of 61 departments. Thirty-five participated in the study, 3 declined participation, 9 agreed to participate but were unable to distribute surveys during the study period, and 14 did not respond to our inquiry. The 35 participating departments from 9 hospitals represented academic, community and municipal centers in Manhattan, Queens, Brooklyn and New Jersey.

We received 590 completed surveys, representing a response rate of 67%. Respondents were 59% male, 39% attending physicians, and most self-identified as white or Asian. Our sample was well balanced with regard to specialty. Fifty four percent of respondents were familiar with their institution’s policy on industry interactions and 25% had collaborated with industry. Table I contains full demographic data.

Overall Physician Attitudes

Table II demonstrates physician attitudes toward industry marketing and payments. Participants had overall positive attitudes toward marketing-related interactions with the pharmaceutical and device industries. The majority agreed that industry educational materials and industry funding of education are useful, although 69% perceived bias in sponsored lectures. Most felt it was acceptable to receive gifts and lunches and few thought that industry representatives should be banned from meeting with physicians. Participants believed that

other physicians were more likely than they to be influenced by industry marketing (53% vs. 36%).

Table III shows physician assessments of the appropriateness of gifts from industry. Respondents overall felt that small gifts related to clinical practice such as modest meals (65%) and textbooks (82%) were appropriate. Larger gifts (25%) and vacations (10%) were deemed appropriate by considerably fewer.

Influence of specialty

We found significant differences between academic departments in attitudes about marketing and the appropriateness of gifts and payments. Physicians from surgical specialties held generally more positive attitudes toward industry, and many of the differences were statistically significant (Table II). Surgeons were more likely to approve of industry funding of residency programs (76% vs. 56%, p<.001), and fewer believed that trainees (20% vs. 37%, p<.001) and attendings (11% vs. 27%, p<.001) should be prohibited from interacting with industry representatives when compared with all other physician specialties. Similarly, surgeons were more likely overall to rate gifts from industry such as meals (83% vs. 69%, p<.001), travel expenses (68% vs. 49%, p<.001) and payments for attending lectures (60% vs. 44%, p=.001) as appropriate (Table III). Pediatricians held less favorable attitudes toward industry (Table II and Table III); for example, fewer pediatricians approved of industry funding of residency programs when compared with all other physician specialties (47% vs. 62%, p<.001). Similarly, pediatricians were less likely to rate some gifts such as dinners with no educational component (21% vs. 37%, p<.001) and industry reimbursement of travel expenses (38% vs. 56%, p<.001) as appropriate. There were no significant differences in responses between obstetrician/gynecologists and other surgical specialists.

Level of training

Level of training was associated with attitudes toward industry. As seen in Table II, non-attendings held more positive attitudes toward gifts and lunches (75% vs. 61%, p<.001) and were less likely to support a prohibition on trainee interactions with industry representatives (25% vs. 47%, p<.001), as compared with attendings. Similarly, trainees were more likely to approve of a variety of industry gifts such as meals in clinical settings (79% vs. 61%, p<.001), textbooks (90% vs. 72%, p<.001) and samples (84% vs. 73%, p=.002) (Table III) although they were more likely to perceive bias in sponsored lectures (73% vs. 62%, p=.02) (Table II).

Familiarity with guidelines

Fifty-four percent of respondents were familiar with their institution's policy toward interactions with industry. Physicians who were familiar with guidelines were less likely to agree that samples improve patient care when compared with those who were not (53% vs. 66%, p=.002) (Table II) and there was a non-statistically significant trend toward lower acceptability of industry sponsored lunches (64% vs. 75%, p=.007) and the belief that industry representatives should be prohibited from meeting with trainees (39% vs. 26%, p=.007). Similarly, physicians who were familiar with guidelines differed from those who were not familiar in their ratings of the appropriateness of some gifts (Table III). In general, guideline-familiar physicians gave lower appropriateness ratings to some meals, textbooks, samples, and payments for attending lectures.

DISCUSSION

Our study is the first to assess attitudes of faculty and trainee physicians toward directed marketing activities of the pharmaceutical and device industries across specialties and levels of training and the first to describe attitudes toward the device industry in particular. Like others

[6, 8], we found that physicians hold generally positive attitudes toward these interactions with industry. The majority of physicians in our study favored the use of samples and industry-sponsored lunches, educational materials and funding for education. Notably, many participants found large gifts unacceptable, and like participants in previous surveys[8], believed that other physicians were more likely to be influenced by gifts and food from industry than they were.

Our study is the first to describe differences in attitudes across specialties. We found that surgical specialists held more favorable attitudes than physicians trained in other specialties toward a variety of interactions with industry. Previous studies have shown that surgeons are less likely than family practitioners and other specialists to receive samples, gifts and payments[1]. However, surgeons may also be less likely than others to have been exposed to the literature regarding the potential influence of industry. Most studies of attitudes toward industry8 and of programs to educate physicians about the potential influence of industry7, 9, 11 have been conducted in cohorts of internists and family practitioners and results have been broadly disseminated at meetings and in journals within these specialties. Further, official policies differ substantially among the specialties; the American Board of Internal Medicine (ABIM)12 has adopted an extremely restrictive policy toward physician interactions with industry, which acknowledges that “the acceptance of even small gifts can affect clinical judgment and heighten the perception and/or reality of a conflict of interest”12, while policies of surgical societies are less restrictive. The American College of Surgeons (ACS) 13 welcomes industry support for CME without mention of the potential for conflict of interest, explaining that “collaboration between the medical industry and surgeons and surgical organizations has benefited health care delivery in North America for years”. Recently updated guidelines from the American College of Obstetricians and Gynecologists (ACOG)14, the American Association of Orthopedic Surgeons (AAOS)15 and the American Urological Association (AUA)16 caution about potential conflicts of interest in industry relationships but do not ban any types of interactions.

The more permissive policies of surgical societies toward industry interactions may reflect the fact that relationships of surgical specialists with representatives from the device industry may be more complex than relationships of medical specialists with the pharmaceutical industry. Physicians can readily access independent information about drugs, but surgical specialists rely on industry representatives for information about new devices and the training to utilize them, with industry representatives present even in the operating room[17]. The complexity of these relationships may blur the line between scientific collaboration and marketing and make it more difficult for surgical specialists to adopt restrictive guidelines for interactions, and is a likely contributor to the differences in attitudes we found in our study. However, recent editorials in surgical journals have emphasized the potential influence of industry on physician behavior[18, 19] and challenged the ethics of many collaborations and gifts[20], which may portend a shift in attitudes within surgical specialties.

We found that attendings and those who were aware of relevant institutional policies had less positive attitudes toward industry, particularly with regard to samples, meals and interactions with industry representatives. We had hypothesized that attendings would have more favorable attitudes than non-attendings because of habituation to industry representatives. Our findings with regard to attendings and guideline awareness may reflect the potential influence of education. Physicians who become aware of restrictive guidelines may be more educated about this issue in general, and therefore may be more wary of industry interactions. Similarly, attending physicians who have had a longer professional experience and more opportunity to be educated about potential industry influence have more negative attitudes toward industry marketing interactions.

Our overall finding of favorable physician attitudes toward industry suggests that individual physicians may be out of synch with trends among medical schools and public opinion, and even industry itself. Though the evidence that physician-industry marketing relationships result in patient harm is inconclusive, US medical schools have increasingly adopted restrictive policies toward industry interactions 21 and there is widespread public concern that financial relationships between physicians and industry lead to conflicts of interest22. The public framing of the issue has increasingly demonized physicians as partners with industry in defrauding the public, and has equated smaller physician gifts with large fraudulent payments from industry to prominent doctors23. While some in the academic medical community[3] and the Institute of Medicine (IOM)[24] have called for increased regulation and transparency the government has been the greater catalyst for change, in terms of investigating financial fraud and moving toward stricter guidelines for interactions and more transparency25. The Inspector General is increasingly committed to prosecuting doctors for taking kickbacks and has begun issuing subpoenas26, "to send the message to the physician community- particularly surgeons- that you can't do this."23 The current environment has forced the industry itself to rethink some of its marketing strategies; and has led to moves like the pharmaceutical industry's voluntary ban on branded gifts

In spite of this sea-change in public and governmental attitudes over the last several years, the doctors we surveyed retain generally positive attitudes toward many industry gifts, and over 2/3 still find gifts and lunches from industry acceptable. In fact, our findings are remarkably similar to results of other studies of physician attitudes toward industry from as early as 2001[7, 8, 10]. The disconnect between physician and public attitudes toward industry may relate to the micro-environment in which US physicians practice. Studies of medical students[27] and medical residents7 have demonstrated that trainees develop increasingly positive attitudes toward industry over time, presumably because of a "hidden curriculum"27 in the culture of medicine which communicates the acceptability of industry contact and gifts. Restricting contact with industry representatives has been shown to have a long lasting impact on medical residents, resulting in more negative attitudes toward industry interactions even after the completion of training28. The positive attitudes of physicians we surveyed are likely to reflect the continuing acceptability of industry interactions and gifts within the culture of medicine in spite of changing guidelines. Physicians in practice continue to speak frequently with industry representatives[29], and academic physicians enjoy food and other industry gifts when they attend continuing medical educational (CME) events and national specialty meetings[30]. While other groups 9, 11 have found that education about the impact of industry contact may have a modest impact on physician attitudes, physician attitudes are not likely to align with those of the public until the culture of medicine rejects industry marketing interactions more fully.

Our study had several important limitations. First, we utilized a convenience sample. We attempted to minimize selection bias by surveying all faculty attendees of grand rounds or all faculty in smaller departments, and we achieved a 67% response rate. By recruiting participants at departmental grand rounds, we may have inadvertently included some voluntary physicians or we may have over sampled more academically oriented physicians, who may be more aware of the influence of industry. This may have biased our study toward more negative attitudes. In addition, there may have been response bias, where respondents favor socially desirable responses, which would again bias our findings toward negative attitudes toward industry. Further, our small sample size of physicians in some specialties did not allow for analysis of the impact of guideline knowledge within sub-groups and our pooling of surgical specialists prohibits conclusive comparisons.

In conclusion, our study is the first the describe differences in physician attitudes toward the pharmaceutical and device industries across specialties and to clarify the influence of training level and guideline awareness. Our finding of overall positive physician attitudes is notable in

this time of rising public concern over potential conflicts of interest, increasing regulation, and a move toward stricter guidelines for physician/industry interactions. Our findings suggest the importance of physician education about the influence of industry, particularly for trainees and surgical specialists, who may be less aware of the influence of industry and who may in fact be governed through their specialty bodies by more permissive guidelines. However, large changes in physician attitudes are likely to require shifts in the cultural environment of medicine. If physician attitudes become congruent with the attitudes of the public, the medical profession may be viewed as part of the solution instead of part of what the nation at large perceives to be a problem.

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Table I

Respondent Characteristics (n=590).[a]

Sex	
Male	351 (59)
Female	239 (41)
Race/Ethnicity	
White	320 (54)
Asian	154 (26)
African-American	32 (5)
Other	84 (14)
Academic Department[b]	
Internal/Family/General Medicine	131 (24)
Internal Medicine Subspecialty	58 (10)
Pediatrics	54 (10)
General Surgery, Surgical Subspecialty or OB/GYN	131 (24)
Psychiatry	53 (10)
Other	126 (23)
Training level	
Medical Student	37 (6)
Intern, Resident or Fellow	319 (56)
Attending	230 (39)
Mean time since graduation,[b] y (range)	12.8 (1 to 67)
Practiced medicine for 20 years or more[c]	126 (56)
Affiliated with an Academic Medical Center (Mount Sinai School of Medicine)[c]	111 (50)
Familiar with Institution's guidelines about pharmaceutical/device industry interactions	313 (54)
Worked collaboratively in past with pharmaceutical/device industry	145 (25)

[a] Values expressed as number (percentage) unless otherwise noted. Percentages may not sum to 100 because of rounding.

[b] Among physicians who have graduated from medical school (excludes medical students).

[c] Among physician no longer in post-graduate medical training (attendings only).

Table II

Percentage that "Strongly Agree" or "Agree" with the following statements about the pharmaceutical/device industry, stratified by Academic Department, training level, and familiarity with institution's guidelines for interactions between physicians and the pharmaceutical/device industries.

	Overall Sample, No. (%)	Academic Department[a], No. (%)						P value	Attending, No. (%)		P value	Familiar with Guidelines		P value
		IM-GP-FM	IM Subsp.	Peds.	Surg.-OBGyn	Psych.	Other		Yes	No		Yes	No	
Samples improve care for my patients	334 (58)	75 (59)	30 (54)	24 (45)	87 (69)	31 (61)	64 (53)	**0.05**	116 (53)	215 (62)	**0.03**	159 (53)	169 (66)	**0.002**
Drug Co. materials are useful for learning about new drugs	381 (65)	78 (61)	37 (65)	36 (67)	87 (68)	32 (60)	88 (70)	**0.66**	140 (62)	237 (67)	**0.24**	186 (61)	186 (70)	**0.02**
Device Co. materials are useful for learning about new devices	451 (78)	91 (73)	42 (72)	39 (74)	113 (90)	33 (63)	105 (83)	**<0.001**	168 (75)	279 (80)	**0.19**	227 (76)	214 (81)	**0.12**
Drug & Device Co. funds are useful for funding medical school programs	407 (70)	84 (66)	37 (66)	32 (59)	106 (83)	35 (66)	92 (74)	**0.007**	171 (76)	233 (67)	**0.02**	213 (69)	189 (73)	**0.35**
Drug & Device Co. funds are useful for funding residency programs	350 (60)	68 (53)	31 (54)	25 (47)	97 (76)	29 (56)	80 (64)	**<0.001**	146 (65)	201 (57)	**0.06**	175 (57)	170 (65)	**0.04**
Sponsored grand rounds are instructive and educational	461 (80)	105 (83)	48 (86)	42 (79)	105 (83)	37 (73)	96 (77)	**0.48**	180 (81)	278 (80)	**0.73**	233 (77)	218 (84)	**0.07**
Sponsored grand rounds are biased to favor the Co.'s product	398 (69)	100 (78)	32 (57)	37 (69)	65 (51)	41 (79)	93 (76)	**<0.001**	141 (62)	255 (73)	**0.02**	200 (66)	189 (72)	**0.12**
"OK" to receive gifts/lunches	406 (69)	90 (69)	31 (53)	32 (59)	99 (78)	37 (70)	92 (73)	**0.01**	138 (61)	266 (75)	**<0.001**	198 (64)	198 (75)	**0.007**
Receiving gifts/food affects my prescribing	211 (36)	50 (38)	22 (39)	18 (35)	46 (36)	18 (34)	40 (34)	**0.90**	74 (33)	135 (38)	**0.24**	120 (39)	89 (34)	**0.17**
Receiving gifts/food affects colleagues' prescribing	306 (53)	69 (55)	30 (52)	25 (46)	75 (59)	28 (53)	57 (45)	**0.31**	131 (58)	173 (49)	**0.03**	170 (56)	130 (49)	**0.12**
My prescribing is NOT influenced by Drug Co. marketing	415 (72)	91 (70)	41 (71)	46 (85)	91 (72)	40 (75)	88 (71)	**0.38**	166 (73)	246 (71)	**0.60**	216 (70)	189 (73)	**0.45**
My device usage is NOT influenced by Device Co. marketing	413 (73)	88 (72)	38 (72)	44 (85)	95 (75)	42 (82)	88 (70)	**0.28**	170 (78)	240 (71)	**0.07**	216 (73)	187 (74)	**0.75**
My institution should prohibit resident/student	195 (33)	53 (41)	24 (41)	23 (43)	26 (20)	24 (45)	30 (24)	**<0.001**	107 (47)	88 (25)	**<0.001**	122 (39)	69 (26)	**0.007**

	Overall Sample, No. (%)	Academic Department[a], No. (%)						P value	Attending, No. (%)		P value	Familiar with Guidelines		P value
		IM-GP-FM	IM Subsp.	Peds.	Surg.-OBGyn	Psych.	Other		Yes	No		Yes	No	
interactions with Drug & Device Co. reps.														
My institution should prohibit attending interactions with Drug & Device Co. reps.	138 (24)	37 (28)	15 (26)	14 (26)	14 (11)	21 (40)	26 (21)	< **0.001**	63 (28)	74 (21)	**0.05**	82 (27)	54 (20)	**0.08**

Note: IM=Internal Medicine; GP=General Practice; FM=Family Medicine; Subsp.=Subspecialty; Peds=Pediatrics; Surg.=Surgery; OBGyn=Obstetrics & Gynecology; Psych.=Psychiatry; Reps.=Representatives.

[a]Among physicians who have graduated from medical school (excludes medical students).

Table III

Percentage that rate the following gifts or payments to physicians from the pharmaceutical/device industry as "Very Appropriate" or "Appropriate", stratified by Academic Department, training level, and familiarity with institution's guidelines for interactions between physicians and the pharmaceutical/device industries.

	Overall Sample, No.(%)	Academic Department[a], No. (%)						P value	Attending, No.(%)		P value	Familiar with Guidelines		P value
		IM -GP-FM	IM Subsp.	Peds.	Surg.-OBGyn	Psych.	Other		Yes	No		Yes	No	
Meal in a clinical setting	413 (72)	92 (72)	32 (57)	33 (62)	105 (83)	33 (63)	94 (76)	**0.002**	134 (61)	276 (79)	**<0.001**	197 (65)	208 (79)	**<0.001**
Dinner at a modest restaurant: no educational component	201 (35)	34 (27)	14 (26)	11 (21)	56 (44)	22 (42)	54 (43)	**0.001**	65 (29)	135 (39)	**0.02**	98 (32)	99 (38)	**0.17**
Dinner at a modest restaurant: educational component provided by Drug/Device Co. reps.	374 (65)	72 (56)	28 (51)	31 (58)	101 (79)	30 (58)	90 (72)	**<0.001**	117 (52)	254 (73)	**<0.001**	178 (58)	188 (72)	**<0.001**
Dinner at a modest restaurant: educational component provided by a physician (Drug/Device Co. reps. present)	421 (73)	84 (66)	40 (71)	34 (64)	108 (84)	32 (62)	102 (82)	**<0.001**	147 (66)	271 (77)	**0.003**	212 (70)	200 (76)	**0.07**
Textbook	479 (83)	100 (78)	45 (80)	39 (74)	114 (89)	46 (88)	107 (86)	**0.05**	162 (72)	313 (90)	**<0.001**	238 (78)	231 (89)	**<0.001**
Any gift valued at <$50	272 (48)	52 (40)	24 (44)	20 (39)	72 (58)	25 (48)	68 (55)	**0.02**	97 (45)	173 (50)	**0.19**	131 (44)	136 (53)	**0.04**
Any gift valued at >$50	142 (25)	23 (18)	13 (23)	8 (15)	44 (35)	12 (23)	37 (30)	**0.02**	43 (19)	99 (29)	**0.02**	65 (21)	72 (28)	**0.07**
Samples for personal use	219 (38)	54 (42)	20 (36)	18 (34)	51 (40)	14 (27)	47 (38)	**0.53**	79 (35)	140 (40)	**0.26**	107 (35)	107 (41)	**0.17**
Samples for professional use	459 (80)	100 (78)	41 (75)	37 (70)	114 (89)	43 (83)	98 (79)	**0.03**	163 (73)	292 (84)	**0.002**	227 (75)	223 (85)	**0.002**
Travel expenses to a conference	303 (53)	61 (48)	28 (47)	20 (38)	86 (68)	26 (50)	69 (57)	**0.002**	83 (37)	218 (63)	**0.02**	149 (49)	148 (57)	**0.06**
Vacation	59 (10)	10 (8)	6 (11)	5 (9)	16 (13)	4 (8)	16 (13)	**0.78**	17 (8)	42 (12)	**0.09**	27 (9)	28 (11)	**0.45**
Payment for attending an educational lecture provided by Drug/Device Co. reps.	219 (39)	43 (33)	15 (27)	13 (25)	65 (53)	15 (29)	59 (48)	**<0.001**	57 (26)	161 (46)	**<0.001**	105 (35)	109 (42)	**0.08**

	Overall Sample, No.(%)	Academic Department[a], No. (%)						P value	Attending, No.(%)		P value	Familiar with Guidelines		P value
		IM -GP- FM	IM Subsp.	Peds.	Surg.- OBGyn	Psych.	Other		Yes	No		Yes	No	
Payment for attending an educational lecture provided by a physician (Drug/Device Co. reps. present)	272 (47)	56 (43)	22 (39)	21 (40)	77 (60)	19 (37)	64 (51)	**0.01**	80 (36)	190 (54)	**<0.001**	129 (42)	137 (52)	**0.02**
Payment for evaluating a device	257 (45)	53 (42)	18 (33)	21 (41)	60 (48)	22 (42)	63 (50)	**0.30**	88 (40)	167 (48)	**0.06**	130 (43)	123 (47)	**0.29**

Note: IM=Internal Medicine; GP=General Practice; FM=Family Medicine; Subsp.=Subspecialty; Peds=Pediatrics; Surg.=Surgery; OBGyn=Obstetrics & Gynecology; Psych.=Psychiatry; Reps.=Representatives.

[a]Among physicians who have graduated from medical school (excludes medical students).