

## Why Lunch Matters: Assessing Physicians' Perceptions About Industry Relationships

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*Many studies have shown that pharmaceutical marketing affects prescribing choices. Studies that have assessed the effects of educational interventions on perceptions of pharmaceutical promotion have found mixed results. This study assesses the short-term effects of an educational intervention about marketing tactics on the attitudes and fund of knowledge of residents, medical students, and attending physicians.*

*A 1-hour slide show that covered detailing, prescription tracking, drug samples, medical meetings, and journals was developed by PharmedOut and presented at a total of 14 grand rounds and seminars at departments of family medicine, internal medicine, pediatrics, psychiatry, cardiology, and neurology. Pre- and posttests included attitudinal and fact questions addressing the influence of drug reps, gifts, pharmaceutical advertising and drug samples on prescribing behavior. The posttest asked whether attendees intended to change their prescribing behavior. The Mann-Whitney U test was used for Likert-scale questions and the Fisher exact test was used to compare the number of pre- and posttest correct answers for the multiple choice and true/false questions.*

Three hundred seventy-three participants completed pre- and posttests. Significant attitudinal shifts were seen overall, particularly in questions addressing influence of salespeople on physicians in general and on the respondent individually. Some participants commented that they intended to stop seeing drug reps or stop attending industry-funded meals. A new educational presentation can substantially shift attitudes toward perceived susceptibility to pharmaceutical marketing activities. Further research is needed to see if attitude change persists.

**Key Words:** *education, medical, continuing, ethics, graduate medical education, undergraduate medical education, physician behavior, prescribing behavior, pharmaceutical industry*

In 2002, the Accreditation Council for Graduate Medical Education (ACGME) guideline noted “the inherent conflict of values between industry and the medical profession”<sup>1</sup> and encouraged training programs to educate residents about pharmaceutical interaction. In 2006, a group of educators called

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for academic medical centers to curtail industry interaction.<sup>2</sup> The American Association of Medical Colleges (AAMC) issued a similarly restrictive recommendation in June 2008.<sup>3</sup> Recently, the Institute of Medicine of the National Academies (IOM) released a concurring report.<sup>4</sup>

Although studies consistently show that promotion increases prescribing of targeted drugs,<sup>5-7</sup> studies also consistently show that physicians do not believe that promotion affects their own prescribing.<sup>8-11</sup> One review found that less than half (34-49%) of residents believed that pharmaceutical representatives influenced their prescribing; between 42% and 73% of residents agreed that medication samples are appropriate.<sup>12</sup>

A review of 10 studies of educational interventions on industry-physician relationships noted that most studies were small (60% of studies had fewer than 40 participants) and that the majority were pre-post design studies; 3 were controlled trials.<sup>13</sup> Educational interventions increased beliefs that drug reps affected prescribing and that interacting with drug reps was problematic. However, 2 studies in which pharmaceutical companies were involved resulted in trainees having more favorable attitudes toward pharmaceutical companies and their representatives.<sup>13</sup>

Attending physicians also depend on medical meetings, especially CME events, for updating knowledge and skills

TABLE 1. Pretest/Posttest Questions

First Version	Second Version
1. Identify yourself as an attending physician, resident, medical student, nurse, physician assistant, or other.	
<i>Rank agreement with these 5 statements from 1 (strongly disagree) to 6 (strongly agree)</i>	
2. Physicians are influenced by drug reps and ads in medical journals.	2. Drug reps influence physicians' prescribing behavior.
3. Physicians are influenced by pens, pads, or meals from drug reps.	3. Pens, pads, and sticky notes influence physicians' prescribing behavior.
4. I have probably been influenced by drug reps and ads in medical journals.	4. Drug reps influence what I prescribe.
5. I have probably been influenced by pens, pads, or meals from drug reps.	5. Industry-funded food is a good thing.
6. Drug samples influence prescribing practices of physicians.	6. Overall, drug samples are beneficial to patient care.
7. In 1 year, a typical drug company spends how much on the income, expenses, and training of a drug rep? (a) Less than \$50,000; (b) \$50,000 to \$99,999; (c) \$100,000 to \$149,999; (d) More than \$150,000	
8. What is the ratio of drug representatives to physicians in the United States? (a) 1:6; (b) 1:12; (c) 1:25; (d) 1:50	8. What is the ratio of drug representatives to targeted physicians in the United States? (a) 1:2.5; (b) 1:7.5; (c) 1:25; (d) 1:75
9. <i>True or false?</i> Drug samples increase costs of drugs to patients.	9. <i>True or false?</i> Doctors are too smart to be affected by drug reps and pharmaceutical promotion.
10. (Posttest only) Will you change your prescribing behavior as a result of this talk? If so, how?	10. (Posttest only) Will you change your prescribing behavior as a result of this talk? If so, how? Was there information in this talk that was new or surprising to you? If so, what? Do you have any questions for us?

through both formal and informal collegial interactions.<sup>14</sup> Industry is the largest funder of CME events,<sup>15</sup> presumably including Grand Rounds. CME events directly supported by offer a narrower range of topics than independently developed programs.<sup>16</sup> Although studies show that physicians do not perceive differences in commercial bias between industry-funded and non-industry funded CME,<sup>16–20</sup> it is unclear whether physicians can accurately assess the independence or scientific validity of CME activities.<sup>21</sup>

An educational intervention about industry influence was developed for grand rounds presentations by physicians associated with PharmedOut (<http://www.pharmedout.org>), a university-based physician-run project founded with public funds to educate physicians and medical students about inappropriate pharmaceutical promotion. This article describes the effects of this intervention.

## Methods

Physicians associated with PharmedOut developed a presentation for grand rounds and continuing medical education (CME) activities on the components and cost of pharmaceutical promotion, focusing on detailing (pharmaceutical representative visits), the use of samples as a marketing tool, and advertising in medical journals. *The Physician–Pharma Relationship* was presented at 9 venues. In response to audience feedback, we modified the presentation, expanding sections on how personal information, prescription tracking,

gifts, meals, samples, and medical journal reprints are used to influence prescribing habits. The second version, *Why Lunch Matters*, was presented at 5 venues.

Both presentations utilized quotes and advertisements from pharmaceutical marketing literature to reveal specific techniques used to monitor and manipulate prescribing behavior. Additionally, the costs of promotion, research, and regulation were compared.

To solicit talks, the PharmedOut project manager [AMB] called residency coordinators at Washington, DC–area hospitals, and asked to be placed on the grand rounds schedule. If requested, we paid for breakfast or lunch for attendees. The project director [AFB] presented all talks in this analysis. The presentations, along with speaker notes and references, are available upon request.

Our evaluation tool was developed by 3 physicians on the PharmedOut team. All presentations used a pretest/posttest design to assess the short-term impact of the presentation on audience-member attitudes and understanding. The pretest and posttest questions, which differed somewhat between the 2 versions of the talk, included 5 attitudinal questions and 3 fund-of-knowledge questions; these are listed in TABLE 1. Space was provided for comments.

Statistical analysis used the Mann-Whitney *U* test for the 5 Likert-scale questions. For the 3 multiple-choice and true/false questions, the Fisher exact test was used to compare the number of pre- and posttest correct answers. We analyzed the pretest/posttest results separately for each

TABLE 2. Pretest and Posttest Results for Fact Questions

	Entire Sample	Attending	Resident	Medical Student
<i>The Physician–Pharma Relationship: First version of the presentation (n = 266)</i>				
In 1 year, a typical drug company spends how much on the income, expenses, and training of a drug rep?	54% (pretest) 86% (posttest)*	44% 85%*	61% 86%*	52% 86%*
What is the ratio of drug representatives to physicians in the United States?	30% 93%*	28% 88%*	20% 86%*	52% 95%*
<i>True or false?</i> Drug samples increase costs of drugs to patients.	76% 83% (P = 0.0475)	83% 85% (NS)	72% 82% (NS)	76% 79% (NS)
<i>Why Lunch Matters: Second version of the presentation (n = 107)</i>				
In 1 year, a typical drug company spends how much on the income, expenses, and training of a drug rep?	57% 85%*	41% 86% (P = 0.0514)	69% 85% (NS)	61% 93% (NS)
What is the ratio of drug representatives to targeted physicians in the United States?	24% 95%*	18% 86%*	28% 100%*	38% 75%*
<i>True or false?</i> Doctors are too smart to be affected by drug reps and pharmaceutical promotion.	88% 94% (NS)	76% 93% (NS)	94% 97% (NS)	83% 90% (NS)

<sup>a</sup>NS = not significant.

\*P (Fisher) < 0.001.

version of the presentation. A P value of 0.05 was accepted as statistically significant. No adjustment was made for multiple comparisons.

## Results

*The Physician-Pharma Relationship* was presented at grand rounds or seminars in 9 departments of family medicine (2), pediatrics (2), internal medicine (1), psychiatry (2), neurology (1), and cardiology (1) in Washington DC (7), Maryland (1) and Virginia (1). *Why Lunch Matters* was presented at 5 grand rounds or seminars in departments of family medicine (1), pediatrics (2), internal medicine (1), and neurology (1) in Washington, DC (1), Virginia (2), and New York (2).

Eight of 14 talks were solicited. Six talks were spontaneous invitations, generally by referral. All talks were provided at academic medical centers or community hospitals with academic affiliations. None of the residency programs where we spoke provided industry-funded food on the day of our presentation. Each department either paid for attendee meals or, in 2 cases, asked us to pay for them.

Two hundred sixty-six participants filled out questionnaires for the first version of the presentation and 107 for the second version of the presentation. Respondents included 87 attending physicians, 137 residents, 106 medical students, and 26 others (including 6 pharmacists and pharmacy trainees, 3 retired physicians, 3 psychologists, 2 nurses [including 1 nurse-practitioner], 2 research assistants, 2

students, 2 citizens, a “pediatrician in health plan,” a social scientist, a licensed certified social worker, an NP/PA, an MS, a fellow and 1 staff). Seventeen respondents did not identify their profession.

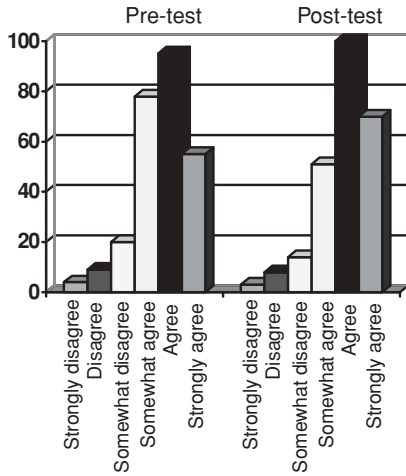
Participants indicated their level of agreement with statements regarding the effect of drug reps, gifts, and meals on prescribing behavior, and about whether drug samples were beneficial to patient care. Responses to the attitudinal questions are shown in FIGURES 1 and 2. The posttest shift in the distribution of responses was statistically significant at P < 0.01 for all questions. Subanalyses of attitude shifts separately in attendings, residents, and medical students showed statistically significant shifts in the same direction as the overall sample (data not shown). Twenty-three respondents filled out pretests but not posttests, and 4 filled out posttests but not pretests. A comparison of pretest and posttest responses for the fact questions on the 2 versions of the presentation is shown in TABLE 2.

Most respondents knew prior to the presentation that drug samples increase the costs to patients and that doctors can be influenced by marketing; there were no significant changes in the percent correct responses to these questions.

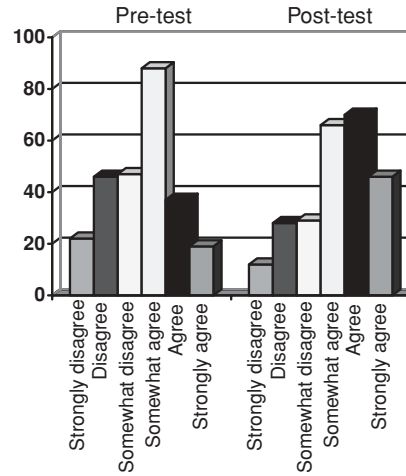
## Comments and Commitments

In response to the general question, “Will you change your prescribing behavior as a result of this talk? If so, how?” 20% of respondents indicated an intention to increase the use of generic drugs and/or decrease the use of samples.

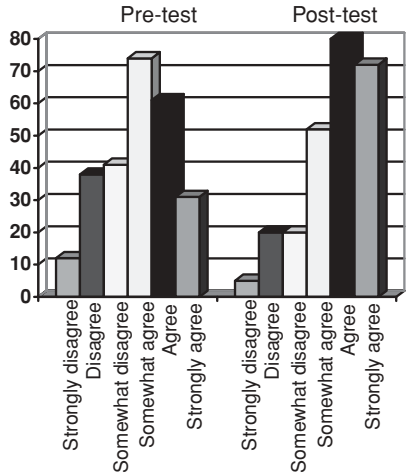
Physicians are influenced by drug reps and ads in medical journals.



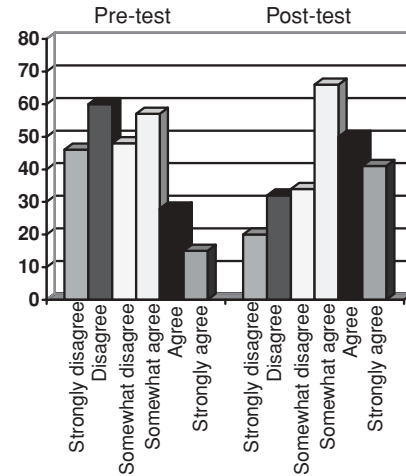
I have probably been influenced by drug reps and ads in medical journals.



Physicians are influenced by pens, pads, or meals from drug reps.



I have probably been influenced by pens, pads, or meals from drug reps.



Drug samples influence prescribing practices of physicians.

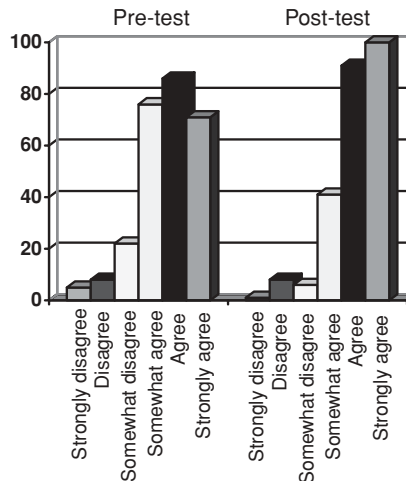


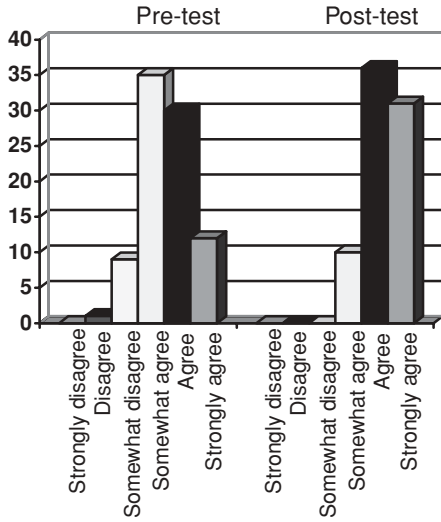
FIGURE 1. Pre- and posttest responses for the first version of the program.

Many mentioned that they would be more aware of marketing techniques.

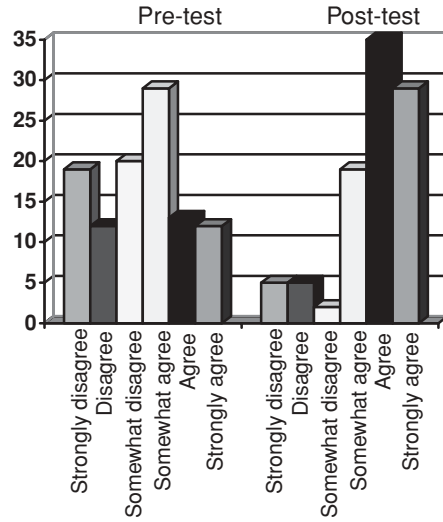
The information in the talk was clearly surprising to many attendees. In comments, several respondents called

the talk “eye-opening” or “enlightening.” A medical student wrote, “I was not aware of the actual statistics, which are staggering numbers and will possibly help many understand the influence of the pharm reps.” Another student

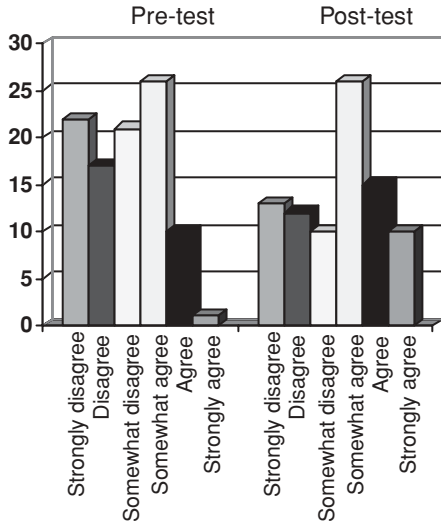
Drug reps influence physicians' prescribing behavior.



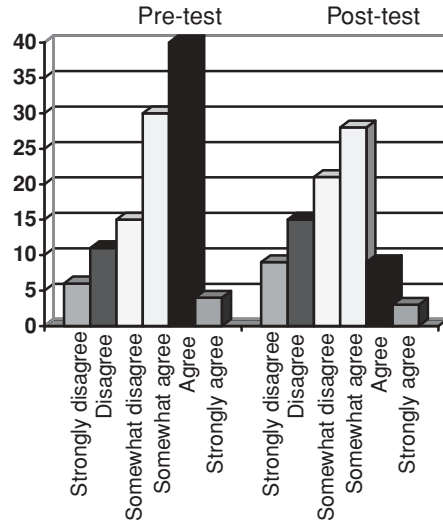
Drug reps influence what I prescribe.



Pens, pads, and sticky notes influence physicians' prescribing behavior.



Industry-funded food is a good thing.



Overall, drug samples are beneficial to patient care.

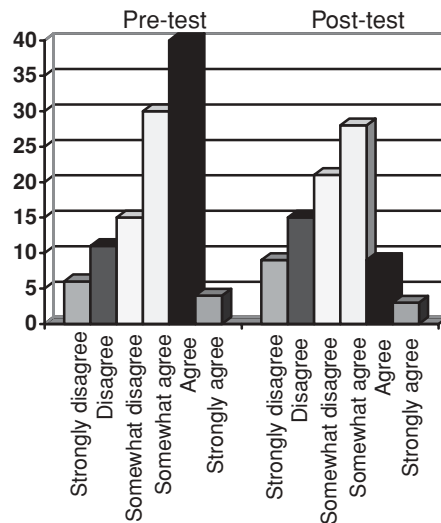


FIGURE 2. Pre- and posttest responses for the second version of the program.

TABLE 3. Representative Comments in Response to “Will you change your Prescribing Behavior as a Result of this Talk?,” “Was Any Information in this Presentation New or Surprising to You?,” or “Additional Comments”

Marketing in general	Be more aware of the influence of pharma companies on journal articles I read.	Resident
	I didn't realize many of the CME organizations are funded by drug companies.	Resident
	I shall be more vigilant, more resistant.	Resident
	Be aware that I am being manipulated!	Resident
	As a student I will be more aware of what I am being told and what is actually true.	Medical student
Drug rep gifts and meals	I won't go to dinners anymore.	Attending
	No more free lunches—no more taking of gifts.	Nurse/PA
	I'll adopt a no-see practice toward drug reps.	Resident
	(1) No longer post flyers or calendars that contain prescription ad information; (2) no more dinners.	Resident
	Beware of sales reps, and freebies!	Medical student
Rational prescribing	Much more caution with new drugs—I will refuse samples.	Attending
	Think more about prescribing less advertised drugs.	Resident
	Think about why I prescribe a drug that I'm used to before I do.	Resident
	When that time arrives, be more educated on what drugs are actually best regardless of being generic or brand. Keep away from drug reps.	Medical student

noted, “There’s an argument that I’ve heard where people say that it’s good for physicians to be exposed to drug reps b/c [because] they give ‘good info’ or its ‘good practice for residents to hear reps b/c they’re going to hear them when they graduate and it’s good to know how to handle them.” Although medical students tended to write complete sentences, attendings were often terse. One attending wrote “SCARY!” Another wrote simply “Help!”

Questions included: “What’s the alternative?” and “How do we combat this?” Some expressed a lack of confidence in identifying or resisting influence. A resident wrote: “If the effects on Rx products are subtle it will (may?) be difficult to alter behavior even if one is vigilant.”

The most common reactions were commitments to increase awareness of marketing tactics and to change behavior regarding drug reps and industry-funded events. Representative comments are shown in TABLE 3. A complete list of comments is available from the authors on request.

During several talks, the speaker noticed an odd clicking sound that seemed to accompany a slide of an industry advertisement, aimed at pharmaceutical marketers, featuring a looming pen and the slogan, “Doctors don’t write prescriptions. Pens do.” The source of the sound proved to be attendees, apparently unconsciously, fiddling with pens that they had removed from their pockets. One physician told us that he threw away his branded pens after the talk, and was surprised to find that he then had nothing with which to write.

## Discussion

While soliciting talks, AMB identified herself as representing “PharmedOut, a project to educate physicians about

inappropriate pharmaceutical company influence on prescribing.” She was then often asked (sometimes repeatedly), which drug company she represented.

Grand rounds and lunchtime conferences are often funded through “unrestricted grants” from industry; the exact percentage is unknown. Although free of contractual obligations, these grants are laden with unspoken expectations. Sponsors may provide lists of possible speakers without requiring their participation.<sup>22</sup> Also, coordinators may avoid inviting speakers who would compromise a sponsor’s marketing goals. This arrangement is so well understood that during 1 presentation, an astonished cardiologist asked, “How did you get in here?” We responded, quite honestly, that the department coordinator thought we were drug reps—and we paid for lunch.

Food is known to increase attendance at grand rounds and is known to increase the receptivity of an audience to messaging.<sup>23</sup> In social psychology experiments, the “luncheon technique” increases participants’ liking of both people and ideas.<sup>24</sup>

In our intervention, the largest change in attitude was seen in response to questions about the behavior of physicians in general. It is important to note, however, that we achieved significant changes in agreement with the statements “I have probably been influenced by drug reps and ads in medical journals.” and “I have probably been influenced by pens, pads, or meals from drug reps.”

Both the answers to our questionnaire and spontaneous comments appeared to document potentially important attitude change after a single 1-hour presentation. We received no negative comments. Attendee status (attending, resident, student) did not play an obvious role in responses to the intervention. The apparent success of our intervention may lie in

the use of industry ads, quotes, and statistics that documented efforts to change prescribing behavior.

Persuasive tactics are undermined when the influencing agent is perceived as being manipulative or trying to trick the subject. Dispelling illusions of invulnerability has been tested in the advertising arena; demonstrating personal susceptibility produced significant resistance to misleading advertisements.<sup>25</sup>

Perceived susceptibility to risk involves awareness of a hazard, belief in the likelihood that others are susceptible to the hazard, and acknowledgment of personal susceptibility.<sup>26</sup> Previous studies have shown that graduates of programs that limit or prohibit interactions with pharmaceutical representatives are just as likely as graduates from programs without restrictions to see drug reps in practice,<sup>27,28</sup> suggesting that academic medical centers have failed to convey the importance of evidence-based prescribing to trainees. Some educators note that formal curricula may conflict with the “hidden curriculum” or the example set by educators.<sup>10,29</sup> Observing trusted mentors accepting food and funds from industry may have a more powerful effect on trainees than formal curricula.

Several of our respondents noted the importance of example: A resident noted that “Overall am influenced by prescribing practice of attendings. Will think twice when speaking to drug rep.” Another wrote, “As a resident, I am more strongly influenced by the prescribing practices of my attendings than by drug reps. But if my attendings are influenced by drug reps, then that does trickle down to me.” One attending pledged, “More talking with my colleagues.”

In programs that restrict trainees’ interactions with drug representatives, attending physicians may still speak and consult for industry as well as see drug reps. If industry perks are viewed as entitlements of practice withheld during training, it is no wonder that previous studies have shown little long-term effect on the acceptability of interaction with reps. The question of whether the example set by attending physicians is a stronger influence than whether or not residents are allowed to interact with pharmaceutical representatives in training should be addressed in future studies.

### Limitations

The questionnaire that we used had not been previously validated. Although shifts in the distribution of responses on the attitude questions were clear and statistically significant, the fact that respondents changed their answers does not necessarily mean they changed their actions. Additionally, there remained a large number of attendees whose responses suggest lack of agreement with the presentation message.

Changed responses between pretests and posttests in the direction advocated by the presentation could have been due to the likeability of the speaker. Short-term expression of attitudes intended to reward an entertaining or likeable speaker may not represent a true change of attitude. We did not evaluate whether the expressed attitude change persisted or affected actual prescribing. We plan to evaluate the durability

## Lessons for Practice

- Studies show that physicians do not believe that promotion affects their own prescribing.
- Studies consistently show that promotion increases prescribing of targeted drugs.
- Increasing awareness of personal vulnerability to pharmaceutical marketing is important in medical education.
- An educational presentation can substantially shift attitudes regarding perceived susceptibility of individuals to pharmaceutical marketing activities.
- Further research is needed to determine if these attitude changes persist and whether commitments to change prescribing behavior are implemented.
- Increasing awareness of pharmaceutical marketing techniques is important in medical education in order to help physicians and students resist marketing tactics that encourage inappropriate prescribing.

of attitude change or effects on prescribing in a randomized controlled trial in the future.

## Conclusion

The PharmedOut presentations elicited verbal and written anecdotes, comments, and commitments that appeared to be more personal, introspective, and emotional than is usual fare at grand rounds. Physicians in training and in practice appear to be willing to give up meals and other perks when the adverse effects of these promotional gambits on patient care are revealed to them in an acceptable form and context.

The response to the PharmedOut intervention should highlight the need for incorporating social psychology concepts into future educational modules on industry–physician relationships. Exposing manipulative industry methods is an effective way to teach physicians and trainees to understand the possible negative ramifications of seeing drug representatives, accepting gifts, and other industry entanglements. We have demonstrated that a 1-hour presentation can substantially shift physicians’ attitudes about pharmaceutical company activities. Further research is needed to see if such attitude change persists.

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