

“Under the Radar”: Nurse Practitioner Prescribers and Pharmaceutical Industry Promotions

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Objectives: To assess nurse practitioners’ interactions with pharmaceutical industry promotional activities and their perception of information reliability and self-reported prescribing behaviors.

Study Design: Self-administered online survey.

Methods: A nationally randomized sample of nurse practitioner prescribers was surveyed. Eligibility criteria included current clinical practice and licensure to prescribe medications in their state of practice.

Results: A total of 263 responses were analyzed. Almost all respondents (96%) reported regular contact with pharmaceutical sales representatives, and most (71%) reported receiving information on new drugs directly from pharmaceutical sales representatives some or most of the time. A large portion (66%) dispensed drug samples regularly to their patients, and 73% believed that samples were somewhat or very helpful in learning about new drugs. Eighty-one percent of respondents thought that it was ethically acceptable to give out samples to anyone, and 90% believed that it was acceptable to attend lunch and dinner events sponsored by the pharmaceutical industry. Almost half (48%) stated that they were more likely to prescribe a drug that was highlighted during a lunch or dinner event. Most respondents stated that it was ethically acceptable for speakers to be paid by industry.

Conclusions: Nurse practitioner prescribers had extensive contact with pharmaceutical industry promotional activities such as pharmaceutical representative contact, receipt of drug samples, and regular attendance at industry-sponsored meal events and continuing education programs. They reported that industry interface with nurse practitioner prescribers in the form of sponsored meals, education events, and paid speakers was ethically acceptable.

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For author information and disclosures,
see end of text.

Prescriptive decision making is a complex process influenced by other factors in addition to scientific knowledge. Studies¹⁻³ document that physicians’ prescribing decisions are affected by factors such as patients’ requests for medications and pharmaceutical company promotions (ie, gifts, meals, and continuing education programs), direct-to-consumer advertising, and formulary restrictions. Fewer investigations have addressed the influence of pharmaceutical promotions on nurse practitioner (NP) prescribing. Studies⁴⁻⁶ that have done so indicate that NPs have positive attitudes toward pharmaceutical marketing efforts, do not believe that interactions with representatives from industry affect their prescribing decisions, and demonstrate high prescribing rates of heavily promoted brand-name antibiotics.

These results are consistent with the literature on physicians’ prescribing practices, which document that physicians do not believe that promotional efforts affect their personal prescribing and that more contact with industry representatives increases their likelihood of (1) prescribing brand-name drugs over lower-cost generics, (2) requesting that a company’s drug be added to the hospital formulary, and (3) dispensing more drug samples.^{3,7,8}

Comparable data on NP prescriptive behaviors are lacking. This dearth of data is striking considering that there are more than 150,000 NPs, significantly more than the estimated 100,000 family physicians in the United States.^{9,10} Nurse practitioners are authorized to prescribe in all 50 states and the District of Columbia. By 2015, there will be more than 190,000 advanced practice nurse prescribers (certified nurse midwives, psychiatric/mental health clinical nurse specialists, and NPs).¹¹ Almost 97% of NPs prescribe medications, and each prescriber writes, on average, between 19 and 25 prescriptions a day, or approximately 6200 prescriptions per NP prescriber per year.¹² In the aggregate, this translates into millions of prescriptions per year, representing a substantial portion of the medications dispensed in the United States. Consequently, these data highlight the need for a new focus on NP prescribers. The objectives of this study were to survey a nationally representative sample of NP prescribers, to assess their perceptions of pharmaceutical industry promotional activities, and to identify their beliefs about marketing influences on their prescribing behaviors.

In this issue
Take-Away Points / e359
Web Exclusive
www.ajmc.com

METHODS

Study Population

The survey was conducted from November 2007 to March 2008 and was approved by the institutional review board of Spaulding Rehabilitation Hospital, Boston, Massachusetts. Participants were recruited from a national membership list of the American Academy of Nurse Practitioners, the largest professional organization of NPs in the United States, with more than 28,000 members. The American Academy of Nurse Practitioners used an automated random-number program to generate a randomized sample of 3000 members. These members received a letter by mail inviting them to participate by logging on to the study site. They were screened for eligibility, current NP licensure, state authorization to prescribe, and active NP practice. On completion of the survey, participants received a \$50 gift certificate. Of 309 respondents who agreed to participate, 12 were ineligible, and 34 did not complete the survey, resulting in a final sample size of 263 NPs and a participation rate of 9%.

Survey Design

The survey was composed of 50 items comprising a Likert-type scale, yes or no questions, and scored responses. The online platform allowed a participant to determine the time frame for completing the survey.

Survey questions investigated the following 3 primary domains of interest: (1) prescribing practices and behaviors and interface with industry, (2) perceived reliability of information provided by the pharmaceutical industry, and (3) ethical acceptability of promotional gifts and meals. Study variables included promotional gifts and meals, the acceptance of industry-supplied free samples, and frequency of attendance at industry-sponsored continuing education events. Descriptive analyses were performed to address the study objectives using commercially available statistical software (SPSS version 15.0; SPSS Institute, Chicago, Illinois).

RESULTS

Sample Characteristics

The study population was predominantly female (88%) and of white race/ethnicity (94%), and 51% were 45 years or older. Most respondents (59%) had been in practice longer than 3 years; 28% were new graduates of their programs (<3 years in practice). Most (67%) practiced in the family practice specialty.

Take-Away Points

Prescriber contact and interface with pharmaceutical industry promotions have been found to contribute to non-evidence-based prescribing by physician and nurse prescribers.

- Nurse practitioner prescribers had a substantial amount of contact with pharmaceutical industry promotions in the form of representative contact, receipt of pharmaceutical samples, and industry-sponsored meal and continuing education events.
- Most nurse practitioner respondents regularly attend industry-sponsored continuing education meetings, and they reported that the information they receive at industry-sponsored continuing education events is reliable.
- These findings are of particular concern because industry sponsorship of continuing education has been found to favor products of the sponsoring company and to directly contribute to an increase in prescriptions of the highlighted drug.

Prescribing Practices and Behaviors and Interface With Industry (Domain 1)

Almost all respondents (96%) reported regular contact with pharmaceutical sales representatives (Figure 1). Eighty-three percent of respondents reported that the information they received from drug representatives was reliable, and 93% of respondents reported that free gifts distributed by sales representatives had no effect on their likelihood to prescribe a highlighted drug.

Sixty-six percent of respondents dispensed medication samples for treatment; 51% gave out samples to 1 to 5 patients a day, 12% to 6 to 10 patients a day, and 3% to more than 10 patients per day. Most (73%) stated that medication samples are somewhat or very helpful in learning about new drugs, and 62% acknowledged that samples encourage the prescription of new highly marketed medications.

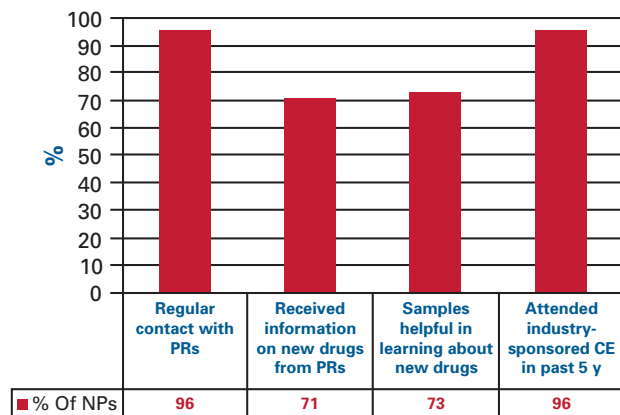
Forty-nine percent of respondents reported regular attendance (1-5 times) at sponsored lunch events in the past 6 months, and 64% of respondents reported regular attendance at dinner events during the same period. Most (78%) reported that meal events were a good-to-excellent way to receive information about new drugs. Most (69%) reported that sponsored meal events encouraged the use of newer highly marketed drugs, and almost half (48%) stated that they were more likely to prescribe a highlighted drug after attending an industry-sponsored event.

Almost all respondents (96%) had attended industry-sponsored continuing education programs at regional or national conferences over the past 5 years. Ninety-one percent thought that the information received at these events was somewhat reliable or very reliable, and 83% believed that sponsored continuing education was a good-to-excellent way of maintaining affordable continuing education.

Perceived Reliability of Information Provided by the Pharmaceutical Industry (Domain 2)

Most respondents (78%) reported that attendance at in-

■ **Figure 1.** Prescribing Practices and Behaviors and Interface With Industry (Domain 1) Among 263 Respondents



CE indicates continuing education; NPs, nurse practitioners; PRs, pharmaceutical sales representatives.

dustry-sponsored meal events was a good-to-excellent way to obtain information about new drugs, and 61% of respondents reported that the information was somewhat reliable. Information received at meal events that also offered continuing education credits was considered at least somewhat (61%) or very (30%) reliable by most NPs.

Ethical Acceptability of Promotional Gifts and Meals (Domain 3)

Most respondents (81%) thought that it was acceptable to give out drug samples to anyone (Figure 2). Even more respondents (90%) believed that it was acceptable to attend lunch and dinner events sponsored by pharmaceutical companies, and 75% reported that it was acceptable for a speaker to be paid by a pharmaceutical company. Moreover, most respondents (61%) noted that the provision of small gifts and meals to clinical offices by pharmaceutical companies was an acceptable practice.

DISCUSSION

Like many of their physician colleagues, NPs in this study believed that, despite frequent interactions with drug company representatives, they remained objective in their prescribing practices. Most respondents thought that gifts from pharmaceutical sales representatives had no effect on their likelihood to prescribe a highlighted drug. Study findings also indicate that many respondents have regular contact with pharmaceutical sales representatives in practice settings, as well as at national meetings, sponsored meal events, and continuing education programs. Indeed, as NPs have gained

prescriptive authority across the nation, they (like their physician colleagues) have become objects of pharmaceutical promotions because of their considerable potential to increase drug sales. Our findings indicate that the acceptance of gifts from industry (free meals most frequently) was common among this NP sample. The participants generally regarded sponsored meal events that coincided with lectures about drugs as a good way to receive information about new medicines on the market. This finding raises a concern because the respondents also noted that they were more likely to prescribe a highlighted drug after attending an industry-sponsored meal event. These data further support evidence from the medical and social science literature that gifting of any kind, even of small items such as pens, snacks, or meals, influences prescribing behaviors.¹³

Nurse practitioners indicated considerable use of drug samples for patient care, which in other investigations has been shown to influence prescribing decisions and to add burdensome costs to the healthcare system.¹⁴ Nurse practitioners noted the need to dispense samples as a way to offset the high cost of brand-name drugs, especially for their uninsured and underinsured patients. However, this stands in contrast to a recent study¹⁵ demonstrating that wealthier insured patients are more likely to receive drug samples than disadvantaged patients.

Industry sponsorship of continuing medical education is problematic because of the inherent potential of proprietary bias.¹⁶ In concert with prior research on physician prescribing, our study demonstrated that NP prescribers are inclined to attend industry-sponsored continuing education programs on a regular basis and, in so doing, are consistently exposed to potential market biases. Moreover, most respondents believed that the information they received at industry-sponsored continuing education events was reliable. These findings are of particular concern because industry sponsorship of continuing education has been found to favor products of the sponsoring company, thereby contributing to increased prescriptions of the highlighted drug at the expense of other nonpharmacologic therapies.¹⁷ Of note, industry funding for continuing medical education has increased by more than 300% between 1998 and 2007, at a cost of more than \$1 billion, leading to increasing scrutiny by professional and legislative organizations.¹⁸ According to the Institute of Medicine's *Redesigning Continuing Education in the Health Professions*,¹⁹ this funding mechanism raises serious questions about conflicts of interest when continuing education programs are used to influence health professionals and to increase market share.

The recent passage of the Patient Protection and Affordable Care Act (healthcare reform), which includes so-called sunshine provisions, may have a significant effect on the in-

terface of industry promotions and NP prescribing. Starting in 2013, these provisions will require pharmaceutical and medical device manufacturers to report all payments made to physician prescribers for services and gifts such as consulting fees, honoraria, entertainment, food, travel, education, and research.²⁰ However, the provisions apply only to physicians or teaching hospitals. Therefore, industry may redirect promotional activities toward NP and other nonphysician prescribers because of the absence of reporting and other constraints for this population of prescribers.

Our analysis has some limitations. The study had a low response rate, affecting generalizability of our findings. However, online surveys have been noted to have low response rates, especially among healthcare professionals.²¹ Also, our results demonstrated convergent validity with other comparable NP research performed during the same period relative to response rate, educational level, clinical specialty, practice setting, and respondent sex.²²

In conclusion, NPs have heretofore been operating “under the radar” regarding research and policy on the influences of pharmaceutical marketing. Although the scope and extent of their prescribing activities have been less than obvious to consumers and to other healthcare professionals, the pharmaceutical industry has clearly taken notice. According to the pharmaceutical research company Verispan²³ (now SDI, Plymouth Meeting, Pennsylvania), a 20% increase in marketing between 2004 and 2006 was directed to NPs and other nonphysician prescribers. This is striking considering the substantial number of NPs and their growing role in the delivery of primary healthcare in the United States. Therefore, it is important that all prescribers, including NPs, have access to unbiased information that is not underwritten by industry. Future research should assess influences of evidence-based academically sponsored continuing education programs on NP prescribers’ beliefs and practices.

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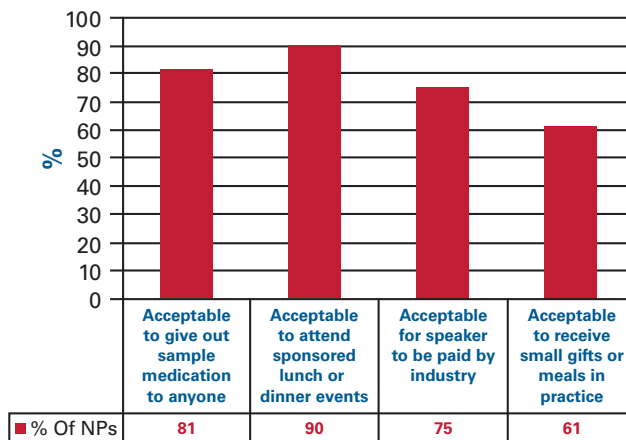
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■ **Figure 2.** Ethical Acceptability of Promotional Gifts and Meals (Domain 3) Among 263 Respondents



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REFERENCES

1. Fischer MA, Keough ME, Baril JL, et al. Prescribers and pharmaceutical marketing: why are we still meeting? *J Gen Intern Med.* 2009;24(7):795-801.
2. Avorn J, Solomon DH. Cultural and economic factors that (mis) shape antibiotic use: the nonpharmacologic basis of therapeutics. *Ann Intern Med.* 2000;133(2):128-135.
3. 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(9):684-689.
4. Crigger N, Barnes K, Junko A, Rahal S, Sheek C. Nurse practitioners’ perceptions and participation in pharmaceutical marketing. *J Adv Nurs.* 2009;65(3):525-533.
5. Ladd E. The use of antibiotics for upper respiratory tract infections: an analysis of nurse practitioner and physician prescribing practices in ambulatory care, 1997-2001. *J Am Acad Nurse Pract.* 2005;17(10):416-424.
6. Muncy-Blunt E. The influence of pharmaceutical company sponsored educational programs, promotions and gifts on the self-reported prescribing beliefs and practices of certified nurse practitioners in three states [Drexel theses and dissertations]. March 17, 2005. <http://hdl.handle.net/1860/435>. Accessed October 23, 2010.
7. Lurie N, Rich EC, Simpson DE, et al. Pharmaceutical representatives in academic medical centers: interaction with faculty and housestaff. *J Gen Intern Med.* 1990;5(3):240-243.
8. Steinman MA, Shlipak MG, McPhee SJ. Of principles and pens: attitudes and practices of medicine housestaff toward pharmaceutical industry promotions. *Am J Med.* 2001;110(7):551-557.
9. Health Resources and Services Administration, US Department of Health and Human Services. The registered nurse population: initial findings from the 2008 National Sample Survey of Registered Nurses. March 2010. <http://bhpr.hrsa.gov/healthworkforce/rnsurvey/initialfindings2008.pdf>. Accessed August 4, 2010.
10. American Academy of Family Physicians. State-by-state number of family physicians in 2006 and projected need in 2020. Updated 2006. http://www.aafp.org/online/etc/medialib/aafp_org/documents/press/charts-and-graphs/family-physicians-state-by-state.Par.0001.File.tmp/st-by-st-need.pdf. Accessed August 7, 2009.
11. Cooper RA. Health care workforce for the twenty-first century: the impact of nonphysician clinicians. *Annu Rev Med.* 2001;52:51-61.
12. Bacchetta S, Green R. Underwriters: the importance of nurse practitioners and physician assistants. August 2007. http://www.sallybacchetta.com/articles_13.htm. Accessed October 23, 2010.

■ TRENDS FROM THE FIELD ■

- 13. Katz D, Caplan AL, Mertz JF.** All gifts large and small: toward an understanding of the ethics of pharmaceutical industry gift-giving. *Am J Bioeth.* 2003;3(3):39-46.
- 14. Adair RF, Holmgren LR.** Do drug samples influence resident prescribing behavior? a randomized trial. *Am J Med.* 2005;118(8):881-884.
- 15. Cutrona SL, Woolhandler S, Lasser KE, Bor DH, McCormick D, Himmelstein DU.** Characteristics of recipients of free prescription drug samples: a nationally representative analysis. *Am J Public Health.* 2008;98(2):284-289.
- 16. Rothman DJ, McDonald WJ, Berkowitz CD, et al.** Professional medical associations and their relationships with industry: a proposal for controlling conflict of interest. *JAMA.* 2009;301(13):1367-1372.
- 17. Council on Ethical and Judicial Affairs, American Medical Association.** CEJA report 1-A-09: financial relationships with industry in continuing medical education. June 5, 2009. <http://www.ama-assn.org/ama1/pub/upload/mm/475/ceja0109.pdf>. Accessed October 23, 2010.
- 18. Morris L, Taitsman JK.** The agenda for continuing medical education: limiting industry's influence. *N Engl J Med* 2009;361(25):2478-2482.
- 19. Committee on Planning a Continuing Health Professional Education Institute, Institute of Medicine. Redesigning Continuing Education in the Health Professions.** Washington, DC: National Academies Press; 2010. <http://www.nap.edu/catalog/12704.html>. Accessed December 16, 2009.
- 20. AAMC Government Relations, American Association of Medical Colleges.** Physician payment sunshine provisions in health care reform. Summary March 30, 2010. <http://www.aamc.org/reform/summary/sunshinesummary04022010.pdf>. Accessed June 29, 2010.
- 21. Aitken C, Power R, Dwyer R.** A very low response rate in an on-line survey of medical practitioners. *Aust N Z J Public Health.* 2008;32(3):288-289.
- 22. Goolsby MJ.** 2008 AANP National NP Compensation Survey. *J Am Acad Nurse Pract.* 2009;21(3):186-188.
- 23. Verispan.** *Verispan Personal Selling Audit, Hospital Personal Selling Audit, and Nurse Practitioner/Physician Assistant Audit.* Yardley, PA: Verispan LLC; 2007. ■