

Promoting Free Online CME for Intimate Partner Violence: What Works at What Cost?

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Introduction: There is a need to provide practicing physicians with training on the recognition and management of intimate partner violence (IPV). Online continuing medical education (CME) could help meet this need, but there is little information on the costs and effectiveness of promoting online CME to physicians. This lack of information may discourage IPV training efforts and the use of online CME in general.

Methods: We promoted an interactive, multimedia, online IPV CME program, which offered free CME credit, to 92 000 California physicians for 24 months. We collected data on user satisfaction, the costs of different promotional strategies, and self-reported user referral source. We evaluated California physician awareness of the promotion via telephone surveys.

Results: Over 2 years, the CME program was used by 1869 California physicians (2% of market), who rated the program's overall quality highly (4.52 on a 1–5 scale; 5 = excellent). The average promotional cost per physician user was \$75. Direct mail was the most effective strategy, costing \$143 each for 821 users. E-promotion via search engine advertising and e-mail solicitation had less reach, but was more cost efficient (\$30–\$80 per user). Strategies with no direct cost, such as notices in professional newsletters, accounted for 31% (578) of physician users. Phone surveys found that 24% of California physicians were aware of the online IPV CME program after 18 months of promotion.

Discussion: Promoting online CME, even well-received free CME, to busy community physicians requires resources, in this case at least \$75 per physician reached. The effective use of promotional resources needs to be considered when developing social marketing strategies to improve community physician practices. Organizations with an interest in promoting online training might consider the use of e-promotion techniques along with conventional promotion strategies.

Key Words: education, medical, continuing, domestic violence, internet CME, social marketing

Background

Intimate partner (domestic) violence (IPV) is a common health problem. Almost 8% of adult women report experiencing IPV in the past year¹ and 12%–14% of women surveyed in primary-care settings report serious physical abuse

from an intimate partner within the past year.^{2,3} Women who experience IPV have higher rates of depression and physical symptoms and lower overall health status than women not exposed to IPV.⁴ They also have higher health care utilization than women not experiencing IPV.^{5,6} Unfortunately, despite the well-documented occurrence of IPV in health care settings, studies continue to show that practicing physicians are not well trained in recognizing and managing IPV.^{7–10}

There are published examples of effective IPV training programs for community practitioners, but these programs are often expensive, institutionally based workshops^{11,12} that are unsuitable for reaching large numbers of physicians. Given its low distribution costs, Internet-based (online) continuing medical education (CME) could be an attractive IPV training strategy. Systematic reviews show that, in general, online education in the health professions is effective.¹³ However, the practical problem with community-based online training is how to get busy physicians to use worthwhile programs. Online CME programs that work in test

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settings can be difficult to disseminate in real-world community situations.¹⁴

Those who seek to improve IPV training must reach community physicians by advertising their programs and competing against massive amounts of free commercially supported online CME.¹⁵ They face legitimate social marketing questions. How much should one spend to attract physicians to an IPV CME program? Do some promotional strategies work better than others? Because many organizations regard this type of information as proprietary and others may not even collect it, CME providers and CME underwriters often face the daunting task of learning through their own experience about what works and what does not work in using online CME for community outreach. Economic risk and uncertainty (“What if we built it and *nobody* came?”) may impede the development and distribution of high-quality IPV CME programs. Access to the practical experiences of others might provide economic benchmarks that could facilitate a broader investment in IPV CME programs.

There are also social marketing and innovation dissemination research issues that are worth considering. Social marketing uses commercial marketing techniques and planning processes to accomplish social goals, such as improving public health.^{16,17} Innovation research focuses on how new ideas and behavior change spreads in communities.¹⁸ Practical information on how promotion affects the dissemination and uptake of an innovation, such as online, community-based CME, can inform future studies on changing physician behavior to improve public health.

We developed an online IPV CME program that provides long-term (12-mo) improvements in key physician IPV knowledge, attitudes, and behaviors.¹⁹ With philanthropic support we were able to customize this program for California IPV reporting and referral requirements and offer it and free CME credit to all California physicians for 2 years. We measured the advertising and promotion costs required to attract physicians to the free IPV CME program and sought to determine which commonly used promotion strategies appeared to be most effective. We hope that our experiences will assist IPV advocacy organizations as they consider their own physician outreach programs and encourage the wider use of online CME by public health-focused organizations. This experience may also prove useful to researchers seeking to better understand the role of social marketing for improving physician performance.

Methods

The Online Education Program

In 2005 a California foundation with an interest in IPV training commissioned us to revise our online IPV CME program and provide this program and CME credit for free to California’s physicians for 2 years. The resulting online IPV

program was publicly available between July 14, 2006 and July 31, 2008 at a dedicated Web site, www.RespondtoDV.org.

Any Web user could register at the IPV Web site and complete the CME program, but the site offered between 0.75 and 16 free AMA PRA Category 1™ credits or AAFP prescribed credits only to practicing California physicians. When a user first registered at the Web site, we captured information on their referring uniform resource locator (URL). This is the Web site the user had visited immediately before coming to www.RespondtoDV.org. In many cases the referring URL could be the user’s home page or a Web site unrelated to www.RespondtoDV.org. If, however, the user came to the IPV CME program by following a link contained within an online advertisement or a promotional e-mail, we could record that the user had seen the advertisement or e-mail.

Upon registration users were required to supply their name, e-mail address, and ZIP Code of residence. They were also required to select their referral source (“How did you learn about this site?”) from a list. They could optionally also choose their profession from a list. Physicians were not automatically issued a CME certificate unless their medical license number (required only if a CME certificate was requested) could be verified against a list obtained from the Medical Board of California (MBC). The original intent was to provide free CME credit for licensed California physicians; however, as the project progressed, the CME sponsors also provided CME credit to California nurse practitioners, physicians’ assistants, and physicians not registered in the MBC database via manual processes.

The basic features of the online IPV CME program have been previously described.¹⁹ The core teaching elements were 17 interactive virtual patients (VPs) that simulated typical IPV presentations in 5 clinical specialties: family/internal medicine, emergency medicine, obstetrics/gynecology, pediatrics, and mental health. Each set of 3 or 4 VPs in a specialty area provided a total of 3 CME credits and was designed to cover all major IPV teaching objectives. There was also a single (1 CME credit) VP dealing with a skin lesion and a patient’s “readiness to change” her IPV relationship. Eligibility for CME credit was based on the number of VP simulations completed by the user.

The program also contained 73 multimedia minitutorials on key aspects of IPV, 6 brief video presentations by experts, 12 downloadable practice tools (eg, patient handouts, pocket guides, and consent forms), 9 downloadable forms and guides for California practitioners, and 170 hyperlinks to National Library of Medicine journal abstracts. All of these educational resources were accessible within the VP simulations as well as from the course home page.

The program’s lead author (Z.S.) revised the previous CME program to address confidentiality issues posed by California law and specific IPV reporting requirements mandated by California Penal Code §11160.²⁰ These revisions required modifications of all VPs, creation of 7 new minitutorials, and development of downloadable versions of

relevant California reporting forms. We also added a brief (3-min) video discussion by a California IPV expert, Dr. Connie Mitchell, addressing the management of IPV disclosure in a clinical setting. None of these modifications altered the basic structure of the program or the key IPV learning objectives.

Promoting the Program

There was no guaranteed market for this program. California law requires that physicians obtain an average of 25 CME credits annually for licensure, but the state does not require IPV (or related topic) CME. California law does require the MBC to “. . . periodically disseminate information and educational material regarding the detection and treatment of spousal or partner abuse to each licensed physician and surgeon.”²¹

In 2005 and early 2006 we worked with a professional advertising agency to develop a promotional theme for the IPV program, a customized look for the Web site, and a series of four 6 × 11-in. postcard mailers. We coordinated this work with the supporting foundation and with staff of the California Medical Association. The intent was to produce a general message to California’s health care practitioners about IPV (“Recognize. Validate. Assess. Connect.”) and encourage them to utilize a “. . . new education resource (that) shows physicians a better way to care for victims of domestic violence.” All promotional messages noted that the online education program was freely available and provided free CME credits for California physicians.

We used multiple advertising and promotional strategies to attract physicians to the CME Web site. These included quarterly announcements in the MBC newsletter, 4 postcard mailers at 6-month intervals to 92 000 licensed California resident physicians, 2 press releases distributed via a commercial news service, multiple announcements in professional publications, contact with key opinion leaders, commercial e-mail solicitations, and online search engine advertising via Google®. We did not use journal advertising or direct detailing.

Market Research

We commissioned the services of an outside market research firm (Decision Support, Inc., Tucson, AZ) to better understand the California physician market and to help assess the effectiveness of our promotional strategies. This company undertook 2 telephone surveys at 6 months and 18 months after project inception to evaluate general IPV awareness, CME use patterns, and specific awareness of the IPV CME program among California physicians. The surveys were based on a brief questionnaire developed by the market research firm. The survey was field tested with 20 respondents, but not otherwise validated. Our budget allowed us to pay for 400 complete surveys on each occasion, a number that we felt was comparable to other reported sur-

veys of physician CME use. Data represent the first 400 complete responses from lists of 6000 and 8000 randomly selected practicing California physicians.

Analytic Methods

We report data on all California physicians who registered at the Web site during 2 years (from July 14, 2006 to July 13, 2008) and the external costs of all promotional efforts associated with this project. A small number of persons registered several times with different user names. Based on CME certificate information, we merged duplicate files to create a data file of unique individual users. When multiple registrations by the same person were associated with different referral sources, we recorded the user’s referral source as the one that was associated with the largest amount of CME credit issued.

To estimate the reliability of self-described referral sources, we compared the referring Internet URL associated with a new registration to the referral source specified by the user. For example, if the referring URL could be directly attributed to a search engine advertisement or to a link in an e-mail promotion, we noted whether the user had chosen search engine or e-mail as their referral source.

We used the direct external costs of each promotional approach to approximate overall promotional costs and costs per user. We did not calculate direct internal costs (eg, staff time) required to develop or manage a particular promotional campaign; nor did we allocate overhead expenses.

After finishing the CME program users were requested to complete an 8-item satisfaction survey (items shown in TABLE 2). The survey used Likert-type responses (1–5 scale) to indicate degrees of satisfaction with 7 features of the program and a no/yes (1 or 2) response for 1 item (Evidence of bias). We used mean scores to measure survey responses.

Results

To help place the findings in context, it is important to understand the extent to which external promotional efforts may have affected results. This project was endorsed by the California Medical Association; the Los Angeles, San Francisco, and San Diego county medical societies; the California chapters of the American College of Emergency Physicians, American College of Obstetricians and Gynecologists, American Academy of Pediatrics, and American Academy of Family Physicians. It was also endorsed by the Permanente Medical Group and the Family Violence Prevention Fund. These organizations presented information on the CME program on at least 1, and often several occasions to their constituents. Our data should be considered in light of this level of uncompensated support.

Over 2 years, the educational program was used by 2149 individual California health care practitioners, 1869 of whom were physicians. There were 1966 total physician registrations; thus there were 97 duplicate registrations (5%

TABLE 1. Individual Physician Users of Intimate Partner Violence (IPV) CME Program by Referral Source and Advertising Campaign Cost

Single Referral Source (Advertising Campaign) Reported by Physician	Physicians Associated with Source	Percent of Total Physicians	Cost of Advertising Campaign	Cost per Physician Acquired	Internet Referral Source Recorded by IPV CME Web Site ^a		
					None	Search Engine Ad ^b	E-Mail Link
Postcard mailing	821	43.9%	\$117 442	\$143.05	806	13	2
Medical Board of California Newsletter	404	21.6%	\$0	\$0	399	4	1
Other ^c	174	9.3%	\$0	\$0	108	60	6
Workplace/colleague/CME coordinator ^d	167	8.9%	\$3252	\$19.47	153	13	1
Commercial e-mail message	152	8.1%	\$5760	\$37.89	57	9	86
Internet search engine	129	6.9%	\$10 461	\$81.09	37	91	1
News/press release	22	1.2%	\$3200	\$145.45	22	0	0
Total	1869	99.9%	\$140 115	\$74.97 (average)	1582	190	97

^aBased on referring uniform resource locator (URL) associated with the user, ie, a unique Internet address.

^bGoogle AdWords®.

^cIncludes “other” as chosen by physician (126) plus 3 small categories that had no direct cost.

^dIncludes targeted mailout to 400 hospital CME coordinators.

of total). The 1869 individual physicians earned a total of 9590 CME credits or 5.13 credits per physician.

Data on the number of individual physician users and self-reported referral source, as well as Internet referral source, are shown in TABLE 1. This table also presents direct external costs for the promotional approaches we used. We spent \$74.97 on external promotional activities for each physician who used the online program. Based on self-reported referral source, the least expensive advertising approaches were professional reference and word of mouth, represented by the “MBC Newsletter” and “Other” rows. These approaches required no external expenditures, although they did require staff time. The most expensive promotional approach overall, and second most expensive approach on a per-physician gained basis (at \$143.05 per physician), was direct mail (postcard mailing). Direct mail was also the most successful strategy for acquiring physician users of the Web site (44% of all physicians), presumably because it reached the largest audience.

The Internet referral source (referring URL) data in TABLE 1 allow an estimate of the accuracy of the self-reported referral data. As shown in the table, the 129 physicians who self-reported that they were referred from an Internet search engine were found 70% of the time (91/129) to have been referred from the URL associated with our search engine advertising. Likewise, of the 190 persons referred from the URL associated with the search engine advertising, the most common self-reported referral source, 48% (91/190) was Internet search engine and the second most common self-reported referral source (32%) was “other.” A similar pattern existed for e-mail advertising. It seems, therefore, that users were able to dis-

tinguish between our major advertising approaches. For example, persons who self-reported that they were responding to a postcard were very unlikely to have actually come to the site directly from a search engine advertisement. These data do not imply that users only saw 1 form of advertising, but they do lend some credibility to our assessment of the “reach” of a specific advertising campaign.

Data in the last 2 columns of TABLE 1 provide alternative means of calculating costs per physician acquired for electronic advertising. These data are based on the referring URL, not the self-reported referral source. They suggest that the cost was \$55.06/physician acquired (\$10 461/190) by search engine advertising and \$59.38/physician acquired (\$5760/97) for e-mail advertising, versus estimates of \$81.09 and \$37.89 derived from physician self-reports. Thus, the costs for these 2 approaches can be estimated to be in the ranges of \$55–\$81 and \$38–\$59 per physician acquired. These ranges are close to the average costs for the entire project and considerably less than the \$143/physician acquired for direct mail.

User satisfaction data are presented in TABLE 2. These data show that physicians who used the online CME program were generally pleased with their experience and reported a high likelihood that they would change their behaviors based on the educational experience. This information suggests that the program was educationally effective and that any word-of-mouth dissemination from early adopters was likely to be positive.

The telephone survey data (TABLE 3) show that respondents were geographically and professionally diverse, representing 26–28 medical specialties. Ages of the 2 samples were similar (38%–39% ≤ age 50), but sex differences in

TABLE 2. User Satisfaction with Online IPV CME Program (N = 1869)

Satisfaction Survey Item	Mean Response (SD)	Survey Item	Mean Response (SD)
How well were the learning objectives of this program met? (1 = Not Well → 5 = Very Well)	4.55 (0.66)	Please rate the quality of the images. (1 = Poor → 5 = Excellent)	4.42 (0.74)
How relevant was the information in this program to your clinical practice? (1 = Not Relevant → 5 = Very Relevant)	4.11 (1.02)	Please rate the transmission speed. (1 = Poor → 5 = Excellent)	4.55 (0.69)
How would you rate this program overall? (1 = Poor → 5 = Excellent)	4.52 (0.69)	To what extent did the activity present scientifically rigorous and balanced information? (1 = Poor → 5 = Excellent)	4.46 (0.71)
Did you feel there was any bias towards any particular product or company? (1 = No: 2 = Yes)	1.01 (0.12)	Rate the likelihood you will make a change in practice behavior based on your participation in this activity. (1 = Poor → 5 = Excellent)	4.19 (0.90)

TABLE 3. Market Research Telephone Survey Findings of Randomly Chosen California Physicians

Survey Dates	11/27/2006– 12/07/2006	11/7/2007– 11/20/2007
Number contacted*	2410	745
Number of respondents	402	400
% Male	41%	85%
% < Age 50	39%	38%
Number of specialties in sample	26	28
Geographic region of respondent		
Northern California	29%	31%
Central California	17%	15%
Southern California	55%	54%
Are you aware of a free online CME program supported by the Blue Shield Foundation to improve a physician's ability to deal with patients who are victims of domestic or intimate partner violence? (Yes)	16%	24%
Do you prefer to take CME courses in person or online?		
In person	66%	65%
Online	24%	25%
Don't know/don't care	10%	10%
In your experience, what percent of your female patients (mothers of your patients if you are a pediatrician) are adversely affected by partner violence?		
Don't know	37%	30%
0%–1%	39%	52%
2%–5%	17%	12%
6%+	7%	6%

*Includes refusals, not qualified, questionnaires sent by fax but not returned, and completed interviews.

the samples were considerable, with the 6-month survey having 41% male respondents and the 18-month survey having 85% males. The surveys should, therefore, be considered diverse, but not random samples. Despite concerns with the representativeness of the samples, answers to survey questions about CME preferences were quite consistent, suggesting some stability in responses. The telephone survey data suggest that the promotional campaigns were modestly effective. In November 2006, when asked about this program (prompted awareness), 16% of surveyed physicians stated they were aware of it. By November 2007 prompted awareness had increased to 24%. When asked how they preferred to take CME courses, the responses consistently showed that most California physicians preferred live events (65%–66%) versus online CME (24%–25%). IPV advocates might be concerned to learn that a substantial number of respondents in both surveys, 39%–52%, felt that 1% or less of their female patients were adversely affected by partner violence.

Discussion

Although these data only represent a single experience and have clear limitations, such as the accuracy of self-reported referral information and the self-selection of physician users of the IPV program, they could prove useful to organizations interested in training community physicians in the recognition and management of IPV until better information becomes available. Over 2 years, with a \$140 000 external promotional campaign, we were able to attract 2% of California's practicing physicians to an IPV education Web site. There was no incentive for physicians to utilize this Web site beyond the promise of free CME credit and their personal interest in the topic. The promotional cost of attracting 1 physician to the program was approximately \$75.

These data should be helpful to those with a general interest in social marketing,²² particularly the use of social

Lessons for Practice

- Even free CME must be promoted.
- The average advertising cost to attract 1 physician to an online intimate partner violence (IPV) CME program was approximately \$75.
- Inexpensive and no-cost tactics, such as announcements in professional journals, accounted for only 1/3 of the physicians who used the program.
- Online advertising approaches for an online CME program may be more cost-effective than conventional printed approaches, such as direct mail.

marketing techniques to change physician behavior.^{23,24} There are some research data on the use of marketing (and other) techniques to improve physician prescribing, a clinical issue with good commercial models and measurable endpoints.^{25–27} There are also data suggesting that CME programs can be helpful in improving physician performance in general.²⁸ However, there are few practical data to guide private and government organizations with an interest in using community-based physician education to address social topics such as IPV, cultural competency, and the management of chronic pain. If these organizations are to address such issues, they not only need to know what works, but at what cost.

We learned that some promotional strategies were more cost effective than others, at least for promoting online IPV CME programs to physicians. We found that press releases and direct mail advertising appeared to be relatively cost ineffective, at \$140–\$150 per user acquired. In contrast, e-promotion, with search engine advertising and direct e-mail blasts, appeared to cost \$40–\$80 per user acquired. We feel that conventional mass advertising (eg, direct mail) serves additional purposes, such as communicating a broad message about IPV, but in the future we will probably use less of these strategies and more targeted e-promotion. Further studies of the effectiveness of e-promotion for marketing online CME would be helpful.

We found that word-of-mouth and opinion leader promotion had a low external cost, but required considerable staff time. Going forward, we plan to document the staff time required to interact with medical organizations, prepare promotional descriptions, and respond to inquiries. We encourage others to do the same to more fully evaluate their promotional costs.

Lastly, those with practical exposure to product promotion or an interest in marketing research and theory already

know that it takes more than 1 advertising impression to change behavior.²⁹ More recent work suggests that the amount of advertising it takes to be effective is a function of brand familiarity, message complexity, and message novelty.³⁰ We were promoting an unfamiliar and complex product with a novel message. We believe that our findings help frame the types of real-world results that can be achieved in such circumstances.

References

1. Thompson RS, Bonomi AE, Anderson M, Reid RJ, Dimer JA, Carrell D, Rivara FP. Intimate partner violence: Prevalence, types, and chronicity in adult women. *Am J Prev Med.* 2006;30:447–457.
2. Kramer A, Lorenzon D, Mueller G. Prevalence of intimate partner violence and health implications for women using emergency departments and primary care clinics. *Women's Health Issues.* 2004;14:19–29.
3. Dearwater SR, Coben JH, Campbell JC, Nah G, Glass N, McLoughlin E, Bekemeier B. Prevalence of intimate partner abuse in women treated at community hospital emergency departments. *JAMA.* 1998;280:433–438.
4. Bonomi AE, Thompson RS, Anderson M, Reid RJ, Carrell D, Dimer JA, Rivara FP. Intimate partner violence and women's physical, mental, and social functioning. *Am J Prev Med.* 2006;30:458–466.
5. Rivara FP, Anderson ML, Fishman P, Bonomi AE, Reid RJ, Carrell D, Thompson RS. Healthcare utilization and costs for women with a history of intimate partner violence. *Am J Prev Med.* 2007;32:89–96.
6. Ulrich YC, Cain KC, Sugg NK, Rivara FP, Rubanowicz DM, Thompson RS. Medical care utilization patterns in women with diagnosed domestic violence. *Am J Prev Med.* 2003;24:9–15.
7. Garimella RN, Plichta SB, Houseman C, Garzon L. How physicians feel about assisting female victims of intimate-partner violence. *Acad Med.* 2002;77(12 Pt 1):1262–1265.
8. Jonassen JA, Mazor KM. Identification of physician and patient attributes that influence the likelihood of screening for intimate partner violence. *Acad Med.* 2003;78(10)(suppl):S20–S23.
9. Groth B, Chelmoski MK, Batson TP. Domestic violence: Level of training, knowledge base and practice among Milwaukee physicians. *WMI.* 2001;100(1):24–28, 36.
10. Williamson KJ, Coonrod DV, Bay RC, Brady MJ, Partap A, Wolf WL. Screening for domestic violence: Practice patterns, knowledge, and attitudes of physicians in Arizona. *South Med J.* 2004;97:1049–1054.
11. Thompson RS, Meyer BA, Smith-DiJulio K, Caplow MP, Maiuro RD, Thompson DC, Sugg NK, Rivara FP. A training program to improve domestic violence identification and management in primary care: Preliminary results. *Violence Vict.* 1998;13:395–410.
12. Harwell TS, Casten RJ, Armstrong KA, Dempsey S, Coons HL, Davis M. Results of a domestic violence training program offered to the staff of urban community health centers. Evaluation Committee of the Philadelphia Family Violence Working Group. *Am J Prev Med.* 1998;15:235–242.
13. Cook DA, Levinson AJ, Garside S, Dupras DM, Erwin PJ, Montori VM. Internet-based learning in the health professions: A meta-analysis. *JAMA.* 2008;300:1181–1196.
14. Abdolrasulnia M, Collins BC, Casebeer L, Wall T, Spettell C, Ray MN, Weissman NW, Allison JJ. Using email reminders to engage physicians in an Internet-based CME intervention. *BMC Med Educ.* 2004;29:4–17.
15. See <http://www.cmelist.com>. Accessed August 29, 2008.
16. Thackeray R, Neiger BL, Hanson CL. Developing a promotional strategy: Important questions for social marketing. *Health Promot Pract.* 2007;8:332–336.
17. Ling JC, Franklin BA, Lindsteadt JF, Gearon SA. Social marketing: Its place in public health. *Annu Rev Public Health.* 1992;13:341–362.
18. Rogers EM. *Diffusion of Innovations.* 4th ed. New York, NY: The Free Press; 1995.

19. Short LM, Surprenant ZJ, Harris JM Jr. A community-based trial of an online intimate partner violence CME program. *Am J Prev Med.* 2006;30:181–185.
20. Attorney General's Task Force on Criminal Justice Response to Domestic Violence. Keeping the Promise—Victim Safety and Batterer Accountability. California Attorney General's Office. June 2005. Available at: http://safestate.org/documents/DV_Report_AG.pdf. Accessed August 28, 2008.
21. CA Business and Professions Code §2196.5.
22. Grier S, Bryant CA. Social marketing in public health. *Annu Rev Public Health.* 2005;26:319–339.
23. David SP, Greer DS. Social marketing: Application to medical education. *Ann Intern Med.* 2001;134:125–127.
24. Wyszewianski L, Green LA. Strategies for changing clinicians' practice patterns. A new perspective. *J Fam Pract.* 2000;49:461–464.
25. O'Brien MA, Rogers S, Jamtvedt G, Oxman AD, Odgaard-Jensen J, Kristoffersen DT, Forsetlund L, Bainbridge D, Freemantle N, Davis DA, Haynes RB, Harvey EL. Educational outreach visits: Effects on professional practice and health care outcomes. *Cochrane Database Syst Rev.* 2007;(4):CD000409.
26. Arnold SR, Straus SE. Interventions to improve antibiotic prescribing practices in ambulatory care. *Cochrane Database Syst Rev.* 2005;(4):CD003539.
27. Figueiras A, Sastre I, Gestal-Otero JJ. Effectiveness of educational interventions on the improvement of drug prescription in primary care: A critical literature review. *J Eval Clin Pract.* 2001;7:223–241.
28. Marinopoulos SS, Dorman T, Ratanawongsa N, Wilson LM, Ashar BH, Magaziner JL, Miller RG, Thomas PA, Prokopowicz GP, Qayyum R, Bass EB. Effectiveness of continuing medical education. *Evid Rep Technol Assess (Full Rep).* 2007;Jan(149):1–69.
29. See, for example, Thomas Smith's observations in 1885. Available at: http://www.mcgreemarketing.com/documents/thomas_smith.pdf. Accessed February 5, 2009.
30. Tellis GJ. Effective frequency: One exposure or three factors? *J Advertising Res.* 1997;37:75–80.