
Selling Drugs: Marketing Strategies in the Pharmaceutical Industry and their Effect on Healthcare and Research

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Abstract

Analysis of the pharmaceutical industry's marketing tactics reveals the extent of their influence on patient care and medical research. These tactics can be arranged into five categories according to the potential for harm to patients (from least to most harmful): physicians-targeted promotions, direct-to-consumer advertising, unethical recruitment of physicians, researchers' conflicts of interest, and data manipulation in clinical trials. Drug companies' promotions subconsciously influence physicians' prescription patterns. Heavy advertising to consumers results in more prescriptions being written, whether or not the new drug is in the best interests of patients, and therefore strongly correlates with sales increases for the promoted new drug. The pharmaceutical industry's public relation firms unethically recruit physicians to endorse their companies' clinical studies. Researchers' financial conflicts of interest often influence results in the corresponding studies; in many cases, the employed researchers receive extra financial benefits, such as stock options and funding for future projects, from the drug company for which they are conducting clinical trials. Pharmaceutical companies manipulate research data to prevent negative data from leaking to the public. Much evidence suggests that the pharmaceutical industry's economic influence on the medical field is substantial. Despite the threats these activities pose to the reliability of medical care and the integrity of research, the reputation for quality in American healthcare is not yet lost; the continuing quality of American healthcare will depend primarily on the morality of next generation's scientists and doctors.

Introduction

The pharmaceutical industry plays a significant role in the United States' economy. According to the National Institute for Health Care Management, U. S. consumers spent \$154.5 billion on prescription

drugs in 2001 (2002, p. 2, Fig. 1). This amounts to 10% of total health spending (NIHCM-2002, p. 2, Fig. 1), which accounts for 14.9% of the U. S. GDP as of 2002 (Pear, 9 Jan. 2004, A:16). Public health activists have voiced their concerns in both public media and specialized journals about the pharmaceutical industry's economic power and influence. After all, if large corporations can influence politics and legislations, pharmaceutical companies can just as likely influence medical care and research. An assessment of the extent of the pharmaceutical industry's influence on patient care and medical research can be made through an analysis of its marketing tactics. These tactics can be arranged in five categories, from the least to most potential harm to consumers: physicians-targeted promotions, direct-to-consumer advertising, unethical recruitment of physicians, researchers' conflicts of interest, and data manipulation in clinical trials.

As the pharmaceutical industry's economic power presents an ethical issue that concerns the professional fields and the general public, I have drawn material from a range of sources: ethics journals (e.g., *Journal of Medical Ethics*), medical journals (e.g., *Lancet*, *Journal of General Internal Medicine*, *Southern Medical Journal*, and *American Journal of Obstetrics & Gynecology*), letters to the editors of *Nature Neuroscience*, the National Institute for Health Care Management, NPR radio interviews, and newspapers (e.g., *New York Times*, *Ottawa Citizen*, and *Washington Monthly*).

Discussion

PHYSICIANS-TARGETED PROMOTIONS

Drug companies' promotions subconsciously influence physicians' prescription patterns. In 2002, the pharmaceutical industry spent \$15.63 billion on promotions, which include free office supplies, all-expenses-paid events, sales representatives, and awards to physicians (Parker and Pettijohn, 2003, p. 283). Dr. Israel reports that, of this promotional budget, \$8,000 to \$13,000 is spent on each physician (2003, p. 1533). In Orłowski and Wateska's study of prescription patterns, doctors assert that the pharmaceutical company's all-expenses-paid seminars at "popular sunbelt vacation site[s]" do not affect their objectivity (1992, p. 270). Yet, when Orłowski and Wateska compared the number of prescriptions written for two promoted drugs before and after the physicians attended the seminar, they found that the numbers of prescriptions for those two drugs, when compared against the national average, significantly increased after the seminar.

Promotion-induced subconscious influence is a widely studied phenomenon. A 10-year study of internists at seven university hospitals, published in 1990, found that frequent contact with sales representatives also changed prescription practice (Israel, 2003, p. 1533). Eleven years later, in a 2001 study, Parker and Pettijohn reach the same conclusion: "Doctors who had contact with pharmaceutical representatives were 13 times more likely to ask that a particular drug be added to an insurance plan's list of approved drugs" (2003, p. 283). An ideal physician provides his or her patients the best available care for the most economical price; however, despite physicians' reassurances, studies show that promotions influence how they prescribe. If doctors under subconscious influence prescribe the promoted drug and it is a more expensive alternative, thereby causing patients to incur higher treatment costs, in theory at least, the patients are still receiving quality care.

DIRECT-TO-CONSUMER ADVERTISING

Heavy direct-to-consumer (DTC) advertising strongly correlates with increased sales for the promoted drugs but, in terms of both money and health, may not be in the best interest of patients. Between 1990 and 1998, the number of patients who sought medical attention for allergy symptoms hovered around 14 million; the number sharply rose to 18 million in 1999. This rise coincided with the expenditure in the same year of 15%+ of the \$1.85 billion DTC advertising dollars that were targeted at prescribed

oral antihistamines. (This 15 % accounts only for the three most heavily advertised and prescribed oral antihistamines: Claritin, Allegra, and Zyrtec). The following data better illustrate the fact that higher expenditures in drug advertisements result in an increase in the number of prescriptions written for that drug and thus, greater profitability. In 1999, prescriptions for the top 25 DTC- advertised drugs rose 34.2% and sales grew by 43% over the previous year's figures (NIHCM-2000, p. 2, Figs. 1, 2, 5). DTC advertising rose from \$2.3 billion in 2000 to a projected \$7.5 billion in 2005 (Parker and Pettijohn, 2003, p. 279). These numbers suggest that advertisements may have prompted those who previously had no need for the drug to imagine that their conditions were more serious and needed the help of the drug (Parker and Pettijohn, 2003).

If DTC advertising only motivated certain patients to see their doctors more often, its harmful effects would be debatable. The larger and more important problem of DTC advertising concerns potential health risks posed by new drugs. New drugs are not time tested; their long-term effects are unknown; many patients who can be just as effectively treated with less expensive, older drugs are risking their health when using newer drugs (Elliott and Ives, 12 Oct. 2004, C:1).

Vioxx (*rofecoxib*), a COX-2 inhibitor, is a case in point. COX-2 inhibitors were intended to replace non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, as a superior temporary pain reliever that does not have the side effect of gastrointestinal bleeding. Arthritic patients have long relied on NSAIDs to temporarily relieve pain, but when NSAIDs are taken on a long-term basis, they can seriously damage the gastrointestinal lining and, with no advance warning, can cause life-threatening internal bleeding. This side effect is an even greater danger to those who had previously suffered serious gastrointestinal conditions such as ulcers, because in these patients, life-threatening side effects can occur even if the drug is taken for only a short period of time. For arthritic patients who are suffering or have previously suffered serious gastrointestinal conditions such as ulcers, or who are allergic to NSAIDs, or who had been using NSAID on a long-term basis, the arrival of COX-2 inhibitors, which include Vioxx, Celebrex, and Bextra, was welcome news, as these new drugs were reported to be safer than NSAIDs for the gastrointestinal system. However, as with any new drug, there is the potential for side effects that had remained un-discovered during clinical trials (which focus on short-term efficacy and side effects); prescriptions for the new class of drugs should only have been written for those at risk from NSAIDs.

This was not the case. By 2001, Vioxx had become Merck's best-selling arthritis drug as well as the most heavily advertised drug in the U. S., reaping a profit of \$1.5 billion, which represented a 300% increase over the previous year's sales (Parker and Pettijohn, 2003). Yet by September 30, 2004, after studies had shown that it doubles the risk of heart attacks and strokes if taken for over 18 months, Merck voluntarily withdrew Vioxx from the market (Singh, 2004, p. 816). Many arthritis patients who "might have done just as well with ibuprofen or other inexpensive over-the-counter remedies" unnecessarily risked their health and some suffered severe consequences by using the newer, more heavily promoted drugs such as Vioxx (Elliott and Ives, 12 Oct. 2004, C:1).

UNETHICAL RECRUITMENT OF PHYSICIANS

Another problem lies in the pharmaceutical industry's public relations firms recruiting physicians to endorse the company's clinical studies. In December 2003, Spears reported in the *Ottawa Citizen*, a well-respected news source in Canada, that "a company rep...emailed Dr. Davis Healy a finished 12-page review paper...ready to present at an upcoming conference. And for convenience, Healy's name appeared as the sole author, even though the psychiatrist had never seen a single word of it before" (Spears, Dec. 2003, A:1). Healy declined the offer and offered to conduct his own study, but the "ghostwritten" paper still appeared at the conference, only under another doctor's name. Although this specific incident occurred in Canada, such unethical offers are not isolated cases; doctors receiving such recruitment

letters often forward them to medical journals. Dr. Drummond Rennie, Deputy Editor of the *Journal of the American Medical Association*, stated, “I suppose I had about 20 at one time” (Spears, 2003, A:1). Many reputable professionals felt the practice to be unethical and would not want to risk their name and prestige for an amount as small as the \$3000-\$5000 that, according to Rennie, was the amount offered in the letters (12 July 2004). There are undoubtedly, however, some physicians who have yielded to the temptation. Furthermore, given the substantial investment that pharmaceutical companies earmark for promotions, it would not be surprising for them to decide to make the offer more enticing. If that were to happen and more physicians were to take up the offer, then the reputation of medical professionals and the reliability of medical information would be placed at substantial risk.

RESEARCHERS' CONFLICTS OF INTEREST

Researchers' financial conflicts of interests (COI) have the potential to influence results in the corresponding studies. COI, as defined by the International Council of Medical Journal Editors (ICMJE), includes “consultancy, employment, stock ownership, patent licensing, and honoraria and excludes financial relationships based on grants, awards, fellowships, free drugs or equipment, and authors serving as speakers or on an advisory board” (Friedman and Richter, 2002).

In October 2003, scientists Bernard Carroll and Robert Rubin sent a letter to the editors of *Nature Neuroscience* criticizing a colleague, Charles Nemeroff, for not disclosing his conflicting financial interest when publishing a review article that compared the efficacy of various antidepressant treatments. In the article, published in *Nature Neuroscience*, Nemeroff and co-author, Michael Owens, described the benefits of a lithium delivery system but failed to indicate that Nemeroff holds the U.S. Patent 6,375,990 for this method. The article also cites “impressive studies indicating that...mifepristone...is very effective in the treatment of psychotic depression” (Carroll and Rubin, 2003, p. 999). Carroll and Rubin contended that the two studies to which Nemeroff and Owens referred were both only small-sample reports. Nemeroff and Owens did not refute this criticism in their subsequent published correspondence. Also, Nemeroff failed to disclose that he held stock in Corcept Therapeutics, the company that markets mifepristone, and was given “the option to purchase 72,000 shares of Corcept stock at \$0.0003 per share,” nor did Owens disclose that he was a Corcept consultant (Carroll and Rubin, 2003, p. 999). None of these financial conflicts were mentioned in Nemeroff and Owen's original review paper; they came to light only after Carroll and Rubin's letter to the *Nature Neuroscience's* editor was published. Such COIs raise questions about the objectivity of authors undertaking such studies.

Nevertheless, COI is prevalent in clinical research. In a study that analyzed COI influence by examining primary research articles published in 2001 in the two largest and most prestigious medical journals, the *New England Journal of Medicine* and the *Journal of the American Medical Association*, Friedman and Richter (2004) found that for-profit corporations fund primary research in one out of every three cases; 38.7% of drug or treatment efficacy studies were conducted by researchers with some degree of COI. Researchers with COI often report positive results with the statistical significance of $p < .001$, a standard for reliability lower than that considered the norm in the wider scientific community, implying that readers can trust the efficacy or safety of the drug in question. In addition, privately funded studies rarely report negative findings. These data suggest that either authors with COI have a better eye for research with positive outcomes or are predisposed to find positive outcomes because of the vested interests they hold. If researchers are influenced financially to manipulate experimental data, doctors and patients run the risk of not finding out the real negatives of a drug until it has been used on patients, often on a large scale.

DATA MANIPULATION

Evidence suggests that pharmaceutical companies manipulate clinical data to prevent negative re-

sults from reaching the public. In 2000, Searle announced that its newest arthritis drug, Celebrex (*celecoxib*), the first of the COX-2 inhibitors, was safer on the gastrointestinal system than the older NSAIDs such as ibuprofen. This claim was important both for the patients and the marketer because gastrointestinal complications from using the older arthritis drugs account for approximately 107,000 hospitalizations annually (Crawford, 2002, p. 1445). Celebrex was heavily marketed and soon cost patients \$2 per pill (Parker and Pettijohn, 2003, p. 280). But in 2004, when Group Health Cooperative of Seattle reviewed the protocol of the study that Searle had conducted for FDA approval and that was kept in FDA's public information database, the agency found that Searle had reported only the six-month results, which showed that Celebrex produced fewer gastrointestinal problems than the older drugs, instead of the results for the entire 12-month study, which revealed no such difference (Brownlee; Rennie and Mora, 4 April, 2004).

Selectively reporting only positive results has happened more often than in this one case. In a study that tracked both published and unpublished studies of selective serotonin reuptake inhibitors (SSRIs), a class of antidepressant drugs, Whittington *et al.* reported that although "published data suggest a favourable risk-benefit for some SSRIs, . . . [the] addition of unpublished data indicates that risks could outweigh benefits of these drug (except fluoxetine) to treat depression in children and young people" (2004, p. 1341). Whittington *et al.* noted that, taken together, both published and unpublished studies suggest that SSRIs could possibly induce suicide in depressed children and that the amount of data against the positive results should not be ignored. Data manipulation distorts the flow of medical information to all physicians and ultimately has the potential to affect the quality and reliability of patient care.

Conclusion

The pharmaceutical industry's economic influence on the medical field is substantial. Of the five marketing tactics discussed in this study, physicians-targeted promotions and direct-to-consumer advertising present the least potential harm to patients because, although there is the possibility of being exposed to unnecessary health risks, the quality of patient care generally remains the same, only patients end up spending more on expensive drugs and extra doctor visits. Pharmaceutical companies' unethical recruiting of doctors potentially poses a greater risk, the extent of which depends on the individual doctor's morality. The greatest harm that could come from this marketing practice is the reporting of unreliable data, either because of researchers' conflict of interests or the manipulation of data; ethical doctors cannot make sound judgments about the most effective treatments for their patients if the information that they receive is skewed. Should this trend continue, patients could end up suffering from unreliable or even dangerous treatments and drug therapies.

There is, however, time to correct these problems. Despite the evidence of the unhealthy and unethical influence of the pharmaceutical industry in the medical field, which threatens the reliability of medical care and the integrity of research, the reputation for quality healthcare in the U. S. is still largely intact. To prevent the degrading or collapse of our highly regarded health system, the U. S. Government should require drug companies to publish the results of all Phase II and III drug trials in a national public registry, thereby preventing the non-reporting of controversial data in unpublished trials. Moreover, for-profit drug companies should not be allowed to contract out clinical studies but should instead be required to give the funding to the FDA for it to contract out the studies. The debate over medical ethics is gaining momentum and is slowly being incorporated into the curricula in some medical schools and graduate programs in fields of study involving medical research. However, the quality of American healthcare will ultimately depend on the morality of this and the coming generations of scientists and doctors.

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