

# LITERATURE REVIEW OF MARKETING FACTORS INFLUENCING MEDICINE PRESCRIPTION BEHAVIOR OF DOCTORS

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## INTRODUCTION

In India same drug molecules are sold under different brand names by different pharmaceuticals. To cite an example: there are over hundred and forty brands of omeprazole, a proton pump inhibitor, available in India. How does a doctor select a brand? What are the factors that influence the prescription behavior of the doctor? What is the influence of pharmaceutical marketing on prescription behavior? Knowledge of prescribing behavior of physicians is a prerequisite for successful marketing of pharmaceutical products. Therefore, this study is aimed to explore the pattern of prescription behavior and major marketing factors influencing physicians' drug prescription behavior in India. To persuade the physicians to prescribe their brands pharmaceuticals engage in marketing techniques like giving samples, gifts, sponsoring travel etc. This study explores the influence of pharmaceutical marketing on the prescription practices of doctors. In the last few years the relations between the physicians and pharmaceutical companies have received considerable attention (Gonul et al., 2001).

## MARKETING FACTORS AFFECTING MEDICINE PRESCRIPTION BEHAVIOR

### Tangible Rewards

The pharmaceutical companies provide tangible rewards in the form of free samples and gifts that include financing for domestic and international conference participation, travel and accommodation, medical education, meals, honoraria and small gifts like pens (Wazana, 2000). However, it cannot be stated that doctors prescribe only based on the rewards that they receive from the company, but the rewards certainly help doctors to remember the company brands and to prescribe them regularly (Wazana, 2000).

A study conducted in Turkey showed precisely how important rewards are for physicians' prescriptions. Most of the medical representatives in their study reported that physicians are commonly influenced by non-medical considerations during their interactions and request gifts other than medical products (Tengilimoglu et al. , 2004).

In 1992, the American Medical Association (AMA) developed guidance on gifts for its physician members. It stated: "Gifts to physicians from pharmaceutical and medical device companies primarily should entail a benefit to patients and should not be of substantial value". In April of 2002, the Executive Committee of the Pharmaceutical Research and Manufacturers of America (PhRMA) adopted its own, similar view on the subject. The voluntary code states that modest amounts may be spent by pharmaceutical representatives on physicians (but not on spouses or guests), only if "the interactions of company sales representatives with healthcare professionals are to benefit patients

and enhance the practice of medicine". Following that, the Office of the

Inspector General (OIG) for the Department of Health and Human Services (HHS) released guidelines for the promotion of pharmaceuticals, published in the Federal Register. Most pertinent, gifts and gratuities were listed as questionable activities. The OIG guidance gives credence to the PhRMA code. As a health care source observes, the industry code "provides useful and practical advice and adherence to the code will help to demonstrate a good faith effort to comply with the applicable federal health program requirements". As a result, under all guidelines, substantial gifts should no longer be a significant promotional activity for pharmaceutical companies and are expected to be greatly reduced.

The issue of gift giving has become so sensitive to some lawmakers that in 2002, Vermont became the first state to mandate the reporting by physicians of the receipt of gifts that are valued at \$25 or more. The definition of gifts includes meals, trips or consulting fees, but it excludes drug samples. Promotional items or gifts of relatively insignificant monetary value have been distributed by pharmaceutical representatives under the auspices that these items might be of some benefit in the delivery of health care. The real intent of leaving gifts of nominal value is to attempt to capture "mindshare" of the prescriber by having some presence of a product beyond the sales call or in exchange for the physician's time spent with the pharmaceutical representative (Vermont,2002). What amount of money defines the boundary between "significant" and "insignificant" with regard to gift giving? Aside from the arbitrary limits set by some lawmakers, this issue can be explored by examining social science research on the nature of influence. It has been reported that physicians overwhelmingly believe that the acceptance of gifts has little or no impact on their prescribing decisions. Murray (2002) reported the results of a survey: "71% of physicians do not think that accepting gifts, trips, and hospitality from pharmaceutical companies diminishes their objectivity". This finding was

confirmed among a sample of radiation oncologists: "74% felt that they should be free to accept gifts of small value" (Halperin et al., 2004). This second study has an interesting and statistically significant finding. Physicians overwhelmingly believe that gifts influence their peers prescribing more than they influence their own prescribing.

Gibbons (1998) compare the attitudes of physicians and patients toward gifts (mostly of nominal value) from the pharmaceutical industry. Patients felt that gifts might influence prescribing and were inappropriate. Physicians believed that "knowledge of guidelines" best predicted prescribing. The study illustrates the differences that can exist between patient and physician on the importance and appropriateness of gifts to the medical profession. Physician awareness of patients feelings on this subject creates a social desirability bias among studies on gifts.

Katz et al. (2003) present the issues regarding size of gifts and potential impact in their review in the American Journal of Bioethics. Their argument is that gifts, regardless of value, create a sense of obligation in the recipient, even if there is no awareness of this feeling of indebtedness. This exchange dynamic is not related to the size of the gift; in fact, it is true even if the gift is unwanted or refused. "Regardless of the size of the gift," the article states, "it is widely considered distasteful or bad form to take but make no effort to give in return". Finally, physicians are limited in the way that they may express their reciprocity, most often in the form of product support. If physicians contend that pharmaceutical representatives are a valuable source of information and that gifts are "the cost of doing business," then gifts are an unnecessary expense, given that the information exchange would take place anyway. The authors conclude that based upon the influence of gifts, regardless of monetary value, "there is no level below which it is guaranteed that marketing wares have no effect on the recipient." Landon et al.(2001) also argues that financial incentives play a major role for the physicians specially who are in solo practice.

### **Medical Representative**

Medical Representative's Personality refers to the physician's assessment that a particular medical representative is friendly, nice and pleasant to be around. Psychological research generally finds a positive relationship between a person's likability and the extent to which the person is trusted by others. Doney & Cannon (1997) also found that salesperson likability positively influences buyer trust. While the likable medical representatives were found to be trustworthy, physicians tend to continuously prescribe the drugs of the particular medical representative's firm. Medical Representatives are considered one of the important sources of information for physicians in making their prescription decisions (Wazana, 2000; Alkhateeb et al., 2009). Unless physician's perceptions are positive about a particular medical representative in terms of professional values, they may not trust those medical representatives and may not prescribe that medical representative company's drugs (Wright & Lundstrom, 2004). When physicians perceive a particular medical representative as having high professional values, it enhances the trustworthiness of the medical representative that translates into the continuous prescription of the company's drugs (Doney & Cannon, 1997).

According to Henry (2002) In US the number of pharmaceutical sales representatives increased from about 30,000 to over 80,000 from 1994 to 2002. Representatives have increased as a percentage of office-based physicians from 10% in 1994 to over 20% in 2002. A comprehensive overview of physician perspectives on prescription drugs developed by this study. This study focused on interactions with representatives, drug advertising, and physician interactions with patients. A total of 2,608 actively practicing doctors responded to a mail survey. The sample was racially and ethnically weighted to be representative of the total physician population. The survey revealed that almost three quarters of physicians rate information from pharmaceutical representatives as either "very" or "somewhat" useful. An even higher number, 80%, believe that the information they receive from

representatives is "very" or "somewhat" accurate. In this survey, 60% of physicians are aware that pharmaceutical companies possess data on individual prescribing, but less than a third believe this practice is unacceptable.

Accenture (2003) study shows primary care physicians regard pharmaceutical representatives as being more influential upon their prescribing decisions than even their own peers. Peer-reviewed clinical journals (80%) and industry association meetings (34%) were rated higher than sales representatives (30%), with colleagues (27%) and the Internet (16%) lagging behind. Although the study was limited in size (n = 100), the respondents did indicate that "approximately one-third of sales visits are helpful." Physicians want more current, comparative and clinical information, based upon objective sources of information. Constraints upon their time and availability were limitations on how much time physicians can give to pharmaceutical representatives. Physicians wished to see the representative because of the value of samples and because of their interest in new products and drug-specific information.

Health Strategies Group tracked physicians who received sales calls that contained one, two, or all of these key components. Only 5% of all calls contained all 4 key tactics, and these calls were the only ones that led to a change in physician prescribing behavior. This study explored the connection between pharmaceutical representative interaction and formulary requests showed that the two are positively correlated. A group of physicians who had requested formulary additions was compared to a group who had not and assessed according to physicians' self-reported associations with drug company representatives. The first group was more likely to have spoken for or performed research for drug companies. "Moreover, physicians were more likely to have requested formulary additions made by the companies whose pharmaceutical representatives they had met" (Health Strategies Group, 2003).

A retrospective literature review authored by Wazana (2000) attempted to identify the meaning of physician-pharmaceutical representative interactions. In this article, a total of 29 studies were taken and mostly focused on family medicine, internal medicine, and resident physicians. The results were reported with regard to the effects of interactions with pharmaceutical representatives, gifts, samples, industry-paid meals, funding for travel to attend educational symposia, pharmaceutical representative speakers, continuing medical education sponsorship, and physician honoraria. The author stated that "interactions with pharmaceutical representatives were found to impact the prescribing practice of residents and physicians in terms of prescribing cost, non-rational prescribing, awareness, preference and rapid prescribing of new drugs, and decreased prescribing of generic drugs". The analysis of this study was more comprehensive as it included larger numbers of respondents from multiple articles and covered a longer period of time. The Wazana article included studies published from 1982-1998 with a total sample population across 29 studies of 8,122 physicians and residents. The author suggested that interactions guidelines, practical training, academic detailing and industry-independent drug information mailings may mitigate the influences that representatives have on physician prescribing. A finding from the Wazana article that elicits interest is that most physicians and residents denied that gifts were an influence upon their behavior. There were mixed reactions over interactions with the pharmaceutical industry and the extent of the influence upon prescribing behavior. The three factors identified in this review that applied the greatest influence on physician behavior were samples, CME, and conference travel funding.

Mizik & Jacobson (2004) study is the most comprehensive assessments of pharmaceutical representative influence on physician prescribing. They used econometric analyses to quantify the persistence in physician prescribing accounting for "own-growth" and competitive stealing" effects. The study also assesses the diminishing effects over time

and controls for spurious correlations (practice size, others) of physician-related factors. The authors contended that the data treatment overcomes limitations of previous studies and includes approximately 74,000 physicians over 2 years, for a total of over 2 million observations.

If pharmaceutical sales representatives influence physician prescribing, what is the mechanism by which they exert this influence? One study shows that pharmaceutical representatives influence upon physician prescribing is directly correlated with the level of credibility they have with a physician. Almost five hundred primary care physicians in a study assessed the costs of prescribing and the credibility of pharmaceutical representatives. A positive correlation was found between representative activity and credibility and the costs of prescribing, especially for those physicians practicing in nonacademic settings (Caudill et al., 1996).

Physicians stated they value representatives who have extensive knowledge of their drug and the correlating disease state and of physician needs and time constraints. The survey covered almost 2,000 physicians about information that would convince them to prescribe more of a certain product. The results showed that "objective information about the product is the most convincing item a sales representative can offer." (Scott, 2003)

Therefore, regular follow-ups means doing something special or unique by pharmaceutical companies which will make the doctor to remind the product or conducting the activity that will continuously hammer the product in the doctor's mind. Regular follow-up mainly include sending a reminder card to the doctors to request the doctor to prescribe the product. Sending reminder cards also include drafting & sending a thanks-giving note to the doctor for extending their prescription support to the doctor. Company always give emphasis on importance of regular follow up.

### **Drug Samples**

Free samples would be useful in the short run as a reminder of new drug trials (Campo et al. , 2005) and it may help physicians to provide these free samples to their patients who are poor. In India, around 70 percent of households use their own savings for healthcare expenditures, as direct and indirect governmental support is minimal and health insurance is a very nascent industry (Sujatha et al. ,2005). When patients find that their physicians provide free sample drugs, they feel positive about the physicians and therefore they spread positive word of mouth about them that supports and fosters the physicians' private medical practice in the long run. However, in the US Gonul (2001) found that providing free samples beyond a particular limit would be counterproductive, as physicians tend to perceive the pharmaceutical company as desperate and too aggressive. They also found that providing free samples would be ineffective with respect to prescription, when patients are covered by insurance. Another study on Insurance Coverage and Agency Problems in doctor prescriptions uses a randomized field experiment to demonstrate that doctors prescribe drugs that are more expensive to insured patients (Fangwen, 2011). The prescriptions to insured patients cost more than 43% of those to uninsured patients on average. However, if the doctor does not have this financial incentive, the prescriptions are similar for insured and uninsured patients. In such situations, the company may rather consider providing free conference participation, as this too influences drug choice by physicians (Campo et al., 2005)

A comprehensive review of literature on drug samples can be found in Groves et al. (2003), sorted by study design since 1986. Samples can provide pharmaceutical representatives with access to physician offices. Physicians may use these samples to offset, partially or totally, the cost to the patient of filling a prescription and samples can be a strong influence on physician prescribing. In 1999, pharmaceutical companies distributed a total of \$7.2 billion in free samples. In the Kaiser Foundation survey, 92% of physicians reported having received free drug samples (Henry, 2002).

In one study, published in the Journal of General Internal Medicine, physicians were tracked to measure the effects of samples on their prescribing decisions. A total of 154 physicians self-reported their decision criteria for a single diagnosis. The study reported that physicians often dispensed and prescribed "drugs that differ from their preferred drug choice". Physicians indicated that they used samples to help reduce the cost of filling a prescription. Perhaps not surprisingly, the study found that "younger physicians were independently associated with drug sample use" (Chew et al., 2000).

In another study that looked specifically at family practice residents' and faculty's prescribing habits in the antihypertensive market, samples were found to have a substantial effect. The authors reviewed first-line (generic) versus second-line (branded) prescribing during two time periods one when samples were provided and one when samples were prohibited. The study found that "following prohibition of sample distribution, there was an increase in first-line antihypertensive use from 38% to 61%." (Boltri et al., 2002)

Accel Healthcare Communications conducted an online survey of 150 high-volume primary care physicians that clarified the reasons why doctors see sales representatives. Ninety-two percent of physicians stated that they wanted drug samples, the top-rated response. Samples proved so valuable to physicians in this study that 63% of respondents said they would stop meeting representatives if samples were discontinued. Physicians are looking for objective and meaningful data in addition to samples. Accel recommends that sales representatives use samples to access physicians and then deliver new information regarding treatment with their specific product. Groves et al. (2003) reported the impact of drug samples on the quality use of medicines in the Journal of Clinical Pharmacy and Therapeutics in 2003. This Canadian paper summarizes the findings of 16 original research studies on the influence of samples; many of the studies were done in the US.

Samples are distributed mostly for branded products, making more available to the physician and patient at mostly higher product costs. This has a decided impact on the overall costs of drugs. Pharmaceutical companies use samples for many different reasons: to launch a new product, to compete with another drug, to change the image of a product, or to enhance demand and familiarity. Despite calling for more research on the quantitative impact of samples, we can conclude that “sampling is a critical driver in the promotion and adoption of new products”.

## DISCUSSIONS AND IMPLICATIONS

The first major finding of the study is about tangible rewards leading to prescription loyalty. Although several prescription behavior studies have suggested that physicians consider rewards in their prescription decisions (Wazana, 2000; Madhavan et al., 1997; Brett et al., 2003), we found that tangible rewards are a significant factor in physicians’ continuity in prescribing the same company drug. By this result, we understand that physicians are committed in prescribing a particular company’s drugs on the basis of the recognition shown by the pharmaceutical company for continuous patronage. The finding is not surprising. Janakiraman et al.’s (2008) study, which analyzed a panel data set for the anti-depressant therapeutic drug in the UK, indirectly suggested that tangible rewards seem to impact persistence in prescription. They found that the persistent physicians were responsive to “symposium meetings”, which are a form of reward provided by the pharmaceutical company to the physicians for their patronage. A study conducted by Tengilimoglu et al. (2004) in Turkey among Medical Representative, showed precisely how important rewards are for physicians’ prescriptions. Most of the Medical Representatives in their study reported that physicians are commonly influenced by non-medical considerations during their interactions and request gifts other than medical products. When the Medical Representatives of competing pharmaceutical companies approach physicians to prescribe their company’s drugs, and when other

considerations like drug quality, corporate reputation etc., from competing pharmaceutical companies appears similar to physicians, they are normally influenced by something different and valuable to them in the context of continuous patronage. From a relationship marketing point-of-view, there is nothing necessarily wrong with pharmaceutical companies providing tangible rewards for prescription loyalty to their physicians (customers). Rewards are provided to physicians by the pharmaceutical companies in recognition of the on going relationship with the companies. It is a known fact in marketing that relationship-based customers have to be respected and recognized, by providing some form of reward for their continued relationships. This is also practiced in many service industries such as air travel, credit cards and various branches of retailing. The finding implies that pharmaceutical companies in India should focus their efforts on providing tangible rewards to physicians for their prescription loyalty. However, companies must be careful as to how and what kind of rewards would be effective in the short- and long-term. Free samples would be useful in the short run as a reminder of new drug trials (Campo et al., 2005) and it may also help physicians to provide these free samples to their patients who are poor. In India, around 70 percent of households use their own savings for healthcare expenditures, as direct and indirect governmental support is minimal and health insurance is a very nascent industry (Sujatha et al., 2005). When patients find that their physicians provide free sample drugs, they feel positive about the physicians and therefore they spread positive word of mouth about them, which in a way, supports and fosters the physicians’ private medical practice in the long run. However, in the US, Gonul et al. (2001) found that providing free samples beyond a particular limit would be counterproductive, as physicians tend to perceive the pharmaceutical company as desperate and too aggressive. They also found that providing free samples would be ineffective with respect to prescription, when patients are covered by insurance. In such situations, the company may rather consider providing free conference

participation, as this too influences drug choice by physicians (Campo et al., 2005). The point of concern would be whether the physician remains loyal or committed to the drugs of a particular company, due to the tangible rewards, even though the drugs are ineffective and of poor quality.

Although, physicians consider drug quality as a "point of parity" factor, there would still be chances that some physicians who are highly influenced by tangible rewards may be tempted to prescribe wrong drugs. In such a situation, the role of drug control authorities and governmental agencies is very important. These agencies should be vigilant and monitor tangible rewards as they have the potential to promote unethical and fraudulent practices by both physicians and pharmaceutical companies. In a country like India, companies providing free samples are welcomed as they help poor people obtain medicines from physicians free of cost. Financing symposiums and conferences as recognition for physician patronage also helps companies achieve prescription loyalty. From a public policy perspective, these measures should arguably be subjected to the vigilance of governmental agencies.

Government agencies should also monitor potentially unscrupulous activities in terms of providing gifts in other forms. The popular UK newspaper, The Guardian, reported the findings of "Consumers International" that the developing world is an easy target for multinationals and states: An unnamed Indian doctor told researchers: "Gifting" of air conditioners, washing machines, microwaves, cameras, televisions, and expensive crystals is an accepted norm now a days.

The second major finding of our study is that Medical Representative personality impact significantly on the prescription loyalty behavior of physicians. This is an important result for the pharmaceutical companies in terms of adopting and nurturing the professional values of their Medical Representative. This is even more important, due to the fact that most of the countries have brought in strong regulations relating to physicians accepting tangible rewards. If providing tangible rewards

(which is found to be a significant factor for prescription loyalty) seems more difficult, companies need to understand that tangible rewards can no longer be a "point of difference" due to government agency intervention, so that they have to focus far more on Medical Representative. This will remain a "point of difference" and generate physician trust and consequently prescription loyalty in the long run. Medical Representative training programs should therefore concentrate on training values and ethics in guiding and detailing drugs to physicians.

Therefore, the pharmaceutical industry have a profound effect on a physician's prescribing. The extant literature suggests that as the industry has increased its promotional activity, including direct sales efforts, physician prescribing has been affected. Pharmaceutical samples have a strong influence upon prescribing patterns and are also being used by health care administrators to increase use of generic and preferred brands of pharmaceuticals. Pharmaceutical representatives has begun to show positive return on investment due to its strong ability to influence prescribing decisions. Pricing as a factor needs to be studied further as this factor is not covered here.

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