EFFECTS OF SAMPLE MEDICATIONS ON THE PRESCRIBING PRACTICES OF PHYSICIANS

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ABSTRACT

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EFFECTS OF DISPENSING FREE SAMPLE MEDICATIONS ON THE PRESCRIBING PRACTICES OF PHYSICIANS

DECEMBER 2004

The purpose of this study was to determine if there were differences in prescribing practices between physicians who dispense free samples and those physicians who do not dispense free samples. Prescribing practices of physicians in three similar clinic locations, one of which permitted dispensing samples, were compared by physician and by group. The log containing information about dispensed samples was analyzed to determine the top 25 free samples dispensed, and these became the study drugs. Detailed pharmacy data including the name of the medication, number of prescriptions, number of day's supply, and cost to patient was available for each prescribing physician's health plan patients. The majority of unique patients seen in each clinic were health plan members. Statistically significant differences were identified among the clinics. The clinic dispensing samples demonstrated higher average costs per 30 day prescription, higher number of prescriptions for study drugs, higher patient costs for study drugs and higher number of prescriptions for study drugs that were non-listed formulary drugs than the other clinics. Individual physician prescribing differences were also identified.

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CHAPTER ONE

INTRODUCTION

The Agency for Healthcare Research and Quality (AHRQ) reported in September 2002 that expenditures for healthcare represents more than 14% of the United States Gross National Product (GNP), and that these costs are among the fastest growing components in the federal budget (AHRQ, 2002). In 1960, by sharp contrast, healthcare costs only represented 5% of the GNP. Americans are greatly concerned about these increasing costs. As reported in an August 2004 poll, more Americans are worried about their health care costs than about losing their job, not being able to pay their housing expense, losing money on the stock market, or being the victim in a terror attack (Henry J. Kaiser Family Foundation, 2004a).

Among the rapidly growing health care expenditures is the cost of prescription medications. Total prescription drug costs in the United States increased an average of 13% annually between 1993 and 2000, and are projected to increase 12% annually through 2011 (Gross, 2002). In the previously mentioned poll, 62% of Americans were very worried or somewhat worried about not being able to afford the prescription drugs they need (Henry J. Kaiser Family Foundations, 2004b). Closer examination reveals that about one fourth of the cost increase of prescription drugs between 1997-2000 was due to price increases. However, 28% of the cost increase was due to the shift from older drugs that are usually lower cost, to newer drugs that are usually more expensive (Kreling, Mott, Wiederholt, Lundy, & Levitt, 2001).

The skyrocketing cost of prescription medications has led to the scrutiny of the pharmaceutical industry (Angell, 2000). According to one analysis, whether measured by return on revenues, assets, or equity, the pharmaceutical industry was the most profitable in the United States in 1999 ("How the Industries Stack Up," 2000). Among the issues related to the profitability of the industry and of the high cost of prescriptions are the marketing practices of the pharmaceutical industry. Pharmaceutical houses may spend up to 40% of their revenues on marketing and administration (Angell, 2000). Many questions arise regarding the influence of specific marketing strategies used by the industry. Among these strategies are the regular person-to-person contacts of physicians by pharmaceutical representatives. Pharmaceutical representatives are known to influence physician-prescribing behavior (Chew, O'Young, Hazlet, Bradley, Maynard, & Lessler, 2002; Mukamal, Markson, Flier, & Calabrase, 2002). It is through this person-to-person contact by pharmaceutical representatives that name brand sample medications are provided for physicians to give to patients—another well-known pharmaceutical marketing strategy. Current studies that describe these practices call for further research in defining the impact of sample medications on the prescribing practices of physicians (Boltri, Gordon, & Vogel, 2002: Chew et al., 2002; Mukamal et al., 2002).

Scott & White is a complex, integrated comprehensive health care enterprise consisting of a 500+ physician multi-specialty clinic, a 400 bed acute care hospital, Scott & White Health Plan (a health maintenance organization with 186,000 members), 15 regional clinics, three dialysis clinics, and an ambulatory surgery

center. Reflecting the national rise in medication costs, the expense of medications prescribed for Scott & White health Plan (SWHP) patients increased from $3.4 million per quarter in 1996 to over $19 million per quarter in 2002 (SWHP, 2002). During this period, Scott & White regional clinic physicians (primarily family physicians) were responsible for 40-60% of those prescription dollars. During that period, commercial companies identified 2002 annual prescription cost increases of 18.5% ("Rate of Increase," 2003). Controlling the cost of care is tremendously important from an internal perspective, as well as from a national perspective. From within this complex organization, there arise questions as to impact of free samples on the prescribing practices of physicians.

Statement of Purpose

The purpose of this study was to determine if there are differences in prescribing practices between physicians who dispense free sample medications provided by pharmaceutical companies and those physicians who do not dispense free sample medications.

Hypotheses

The following null hypotheses are tested:

1. There are no statistically significant differences in the prescribing practices of the entire clinic where family medicine physicians dispense free sample medications provided by pharmaceutical companies when compared to clinics where physicians do not dispense free sample medications.

2. There is no statistically significant difference in the prescribing practices of Family Medicine physicians in the Scott & White Regional Clinic System who dispense free sample medications provided by pharmaceutical companies and those who do not dispense sample medications.

Limitations

Certain uncontrolled variables are identified that create limitations to the generalization of the study.

1. Family medicine physicians have practices that differ in characteristics such as size among the various Scott & White regional clinics. Selection of the participating clinics was made through comparison of clinic characteristics, rather than by random selection. An attempt was made to identify those clinics whose physician staffing and patient populations were most similar.

Delimitations

Delimitations that may influence the internal validity have been identified:

1. While it would be helpful to know the diagnosis for which any particular medication is prescribed so that substitution medication possibilities might be considered, this was not possible.
2. Under certain circumstances, non-prescription medications are the most appropriate for patients, and there were free samples of non-prescription medications distributed during the study time frame. However, this study is limited to the study of prescription medications only.

3. Outside of the single study clinic where free sample medications are distributed, there may be physicians within the regional clinic system who independently decide to accept samples on an individual basis. While organizational policy permits this for individual use, the extent of this practice was not measured, and the influence of this practice was not known.

4. It may be possible that an individual physician dispenses free samples apart from the organizational policy. Because this was not known, both internal and external validity could have been influenced.

Assumptions

Data concerning all prescriptions filled for SWHP patients during the study period was available. However, data regarding prescriptions for patients who were not SWHP members was not available. During the year 2002, 51% of patients seen at the study clinics were SWHP members. An assumption was made that the patient population of non-SWHP patients closely resembles the patient population of SWHP patients. Additionally, an assumption was made that the care provided for the non-SWHP patients was the same as the care provided for SWHP patients.

Hand-written logs of all free sample medications dispensed to patients during the study period were available for the study clinic. Seven reconciliation reports that compared inventory of sample drugs to amount of samples received and dispensed indicate that the sample logs are 95-100% accurate. However, there is no way to verify the accuracy of the reconciliation. Therefore, the logs were assumed to be an

accurate reflection of the distribution of sample medications by the family medicine physicians practicing within that clinc.

Definition of Terms

Sample medications – pre-packaged, limited quantity, name brand drugs, available by prescription only, usually of a small amount but sufficient to allow the evaluation of a clinical response.

Scott & White Regional Clinic – one of 15 clinics primarily staffed by family practice doctors, owned and operated by Scott & White, a complex, integrated, comprehensive health care enterprise.

Prescribing practice – the degree to which a specific drug or group of drugs is prescribed by a physician, or by the group of physicians practicing together in one Scott & White Regional Clinic.

Pharmaceutical house – an enterprise within the pharmaceutical industry that usually manufactures and sells medications. Typically, pharmaceutical houses sponsor extensive research to create and test new medications.

Pharmaceutical representative – a person employed by a pharmaceutical company commonly called a "drug rep." The responsibilities of persons in this role include contacting physicians regularly to promote the prescription drugs made and sold by their company.

Importance

The cost of medical care is a major national issue. The cost of prescription drugs is a major contributor to the cost of medical care. Drug companies are spending major dollars to affect the way physicians prescribe medications. Little research has been done to study the direct effects of sampling on physician prescribing practice. In fact, there is the potential that effects of these of free samples might be contrary to the concepts of the quality use of drug therapy.

Currently, there is national dialog and debate among physician leaders related to the acceptance of any favors offered by drug companies because of the potential influence those favors may have on patient care (Ross, 2000). While this study has limitations, it is among the very first to examine prescribing practices of those physicians who dispense specific free samples compared to physicians with similar practices who do not dispense free samples.

CHAPTER TWO

REVIEW OF THE LITERATURE

The literature has limited information published on the direct effects of free samples on the prescribing practices of physicians. However, there is substantial information available regarding the pharmaceutical industry and the various practices pharmacy companies employ to impact physician prescribing behavior. These strategies are identified, and the review concludes with the subset of information related to the use of free samples to influence physician prescribing behavior.

Pharmaceutical Promotional Strategies

The escalation of drug costs in the United States is alarming and has been identified as an issue of national crisis (California Healthcare Institute, 2003). In less than five years, drug costs in the United States have risen from an annual cost of $75 billion to over $150 billion (IMS Health, 2000; IMS Health, 2003). The drug cost crisis is very complex, and there are many stake holders. Among those who benefit the most from high drug expenditures are the pharmaceutical houses that research, manufacture, advertise, and distribute drug products. A few studies have demonstrated the effectiveness of advertising prescription drugs using various tactics (Boltri et al., 2002; Wang, Ausiello, & Stafford, 1999).

Drug companies face the same pressures to be profitable as other businesses. It is estimated that to bring one new drug to the marketplace successfully costs the

drug manufacturer approximately $600 million ("Drug Marketing," 2002). The success of the pharmaceutical industry is reflective of outstanding marketing programs. Pharmaceutical companies employ sophisticated means and methods to promote their products. The recent study by Ma, Stafford, Cockburn, and Findelstein (2003) identified four directional patterns of promotional spending by pharmaceutical companies: (a) promotion to physicians with little consumer promotion; (b) equal focus of promotion to physicians and to consumers; (c) primary focus on consumers; and (d) primary promotion to hospital based providers with no consumer promotion. However, the use of a prescription drug requires written specifications by a physician. Therefore, most prescription drug promotion targets physicians.

Broad Marketing Strategies

While this literature review focuses on drug promotion designed to directly targets prescribing physicians, there is a body of literature that looks well beyond this marketing technique to strategies that are far more sophisticated and far reaching. The complexities of the industry, and the implications for patient care demand inclusion of this literature in this review, though it is beyond the scope of the study undertaken.

One approach to marketing includes creating a demand for a product. In a recent article by Moynihan, Heath, and Henry (2002), an approach to creating demand by pharmaceutical companies is identified by the authors as "medicalisation" or "disease mongering." This strategy entails turning ordinary ailments into medical problems. The authors use several illustrations of the technique, the first of which is

baldness. This condition is identified as an ordinary life process which is currently being transformed into a medical phenomena, with a drug (Propecia) available to treat it. Hair loss is promoted as a medical problem in direct-to-consumer (DTC) advertising with advice to balding men to "see your doctor." Irritable bowel syndrome is identified as another example. The authors define this condition as a common functional disorder which can cover a wide range of symptoms which is undergoing an "extreme makeover." The authors relate that irritable bowel syndrome is ordinarily a mild problem that frequently requires little more for patients than an explanation of its usual benign course. However, there was a calculated move to identify irritable bowel syndrome as a serious diagnosis, with a drug available to treat it. The strategy of the drug manufacturer was impressive, with sophisticated multiyear plans to re-educate physicians and the public as to the severity of the problem in advance of the release of the new drug therapy. An "advisory board" was established with a physician identified as a "key opinion leader" (KOL). A newsletter was created targeting sub-specialists to convince them that irritable bowel syndrome is a "serious and credible disease." Other health care providers including pharmacists and nurses were also targeted with promotional materials. The drug company's interest in providing education to health care providers and to consumers was self-serving. Of further interest, the authors present a health risk which drug manufacturers have successfully conceptualized as a disease: osteoporosis. While slowing the normal process of reduced bone mass reduces the risk of a possible future fracture, this risk is very low in most people. The authors identify misleading studies that report a

relative risk of decreasing fractures by 44% after four years of drug therapy, but only an absolute risk reduction of 1.7. The authors also point out this strategy tends to negate non-pharmacological therapies such as dietary supplementation and weight bearing exercise. The authors acknowledge their efforts as a series of anecdotal case studies, with the intention of enlightening the spheres of influence of the pharmaceutical industry. An analysis by Hogle (2002), revealed that the same tactic is observed in the studies related to reduction of breast cancer by specific drug therapy. The relative risk reduction was reported at 45%. However, the actual risk reduction was only 1% in the trial group. In other words, the author explains that while 99% of women in the trial taking the experimental drug did not get breast cancer, neither did 98% of the women in the trial who were taking placebo.

In a systematic review, Lexchin, Bero, Djulbegovic, and Clark (2003) sought to determine if studies by pharmaceutical companies differed from methods in trials where funding was from sources other than pharmaceutical houses, or if the outcomes were more favorable to the funding source. The authors looked for outcomes related to differences in drug effectiveness, adverse effects, outcomes, and publication status, and only included those studies specifically sponsored by a pharmaceutical company. Using stringent criteria, 30 studies were identified and reviewed. Thirteen of 16 studies investigating the relationship between funding source and clinical trial outcomes and meta-analyses found those sponsored by drug companies favored the product manufactured by the sponsor. However, none of the 13 had poorer methodological quality than the other three studies. The authors suggest their study

identifies some sort of systematic bias to the outcome of published research funded by pharmaceutical companies. This review points out the high risk of self-interest in research studies funded by pharmaceutical companies. In an editorial appearing in the *New England Journal of Medicine* (Angell, 2000) the following commentary emphasizes this concept: "To rely upon the drug companies for unbiased evaluations of their products makes about as much sense as relying on beer companies to teach us about alcoholism."

A recent study by Choudlry, Stelfox, and Detsky (2002) examined the increased contact between physicians who author clinical practice guidelines to assess the possibility of conflicts of interest. One hundred clinical practice guideline authors of 37 different clinical guidelines were surveyed. Of these authors, 59% reported relationships with drug companies whose drugs were considered in the guideline they authored. In only two cases was there a specific declaration of individual author's association with the pharmaceutical company.

These several examples of sophisticated marketing strategies are illustrative of the ingenuity, pervasiveness and the influence of pharmaceutical industry.

The Well Documented Drug Promotional Strategies

Journal Advertising

Among the most common promotional strategies of pharmaceutical companies are professional journal advertising, direct-to-consumer advertising, detailing, and the distribution of free prescription samples. Of these broad categories, professional journal advertising garners the smallest budget, with 3.1% of

promotional spending by pharmaceutical companies. This amount is down from 5% in 1996 (Kreling et al., 2001). One article indicates that not only is journal advertising underutilized for drug promotion, it also has the best return on investment of all advertising efforts (Pankhurst, 2001).

Direct-to-Consumer Advertising

Direct-to-consumer (DTC) advertising is a relatively new approach to marketing of pharmaceuticals. Regulations of the Federal Drug Administration (FDA) opened a wide door for this approach to drug advertising in 1997 (Tillotson, 2002). This marketing promotion consists of television advertising, and other printed material directed toward consumers. The rate of expenditure for DTC advertising by major pharmaceutical companies has increased from 8.6% ($266 million) of promotional budgets in 1996 to 15.7% ($2.4 billion) in 2000. Television advertising cost in 2000 was $1.56 billion (Kreling et al., 2001). One analysis (Ma et al., 2003) indicates that DTC advertising is concentrated in only a small subset of all drugs promoted to physicians. There are positive and negative studies regarding DTC advertising in the literature. A study done by the FDA was quoted in one article with the title "FDA Wants to Encourage Direct-To-Consumer Advertising" ("News Briefs", 2004). The FDA wants to encourage senior citizens to ask their doctors about untreated medical conditions, and that the guidelines developed by FDA for DTC advertising encourages drug companies to do this type of advertising by simplifying requirements for the risk information. The same study was referenced in another journal with the title "FDA examines direct-to-consumer advertising data," and

subheadings titled "At Issue" and "Influence on drug spending" ("News", 2003) and include much less favorable comments. This illustrates both support and opposition to DTC advertising. One study presents a summary of both positive and negative arguments. On the positive side is the belief that DTC advertising leads to better informed consumers with resultant improved patient-physician interaction. The negative side includes concerns that physicians will be forced to spend limited time clarifying misleading advertising. In addition, there is the concern that physicians will write more prescriptions for newer costly drugs based on patient demand rather than on patient need (Sumpradit, Fors, & McCormick, 2002). The rapid rise in medication costs may be supportive of that argument. A study by Bell, Kravitz, and Wilkes (1999) sought to identify how aware the general public is of DTC advertising. Using random digit telephone dialing and trained assistants for telephone interviews, 329 interviews were conducted. Among their other findings, they describe that consumers are much more likely to be aware of drug advertisements that address their own medical conditions. They report that consumers tend to believe that DTC advertisements undergo scrutiny by some governmental agency, and that only safe and effective drugs are advertised. Regarding the way consumers feel about DTC advertising, they report consumers are generally neutral. Finally, they report that DTC advertising is affecting consumers' behavior. About a third of their respondents reported talking with their physician about a drug advertisement they had seen. The FDA also reports their own previously mentioned study results (Aikin, 2003). This was a survey of 250 generalist and 250 specialist physicians. Only 18% of physicians

reported that a television advertisement had created problems for the interactions the physician had with a patient. In addition, 88% of the time the patient asked about a specific prescription drug they had seen advertised, the patient had the disease that the drug was intended to treat which indicated appropriateness. Of significant interest, 59% of physicians reported that patients asked them for a specific brand name medication, and that 57% of the time when the patient asked for a brand name medication, the physician wrote a prescription for that name brand medication. Most surprisingly, when asked how DTC advertising had effected their patients and their practice, 40% of physicians responded favorably or very favorable, and only 32% responded negatively or very negatively. Another similar survey (Henry J. Kaiser Family Foundation, 2004c) revealed that 63% of physicians either often or very often talk to patients about advertisements patients have seen for prescription drugs.

Detailing

Detailing entails a pharmaceutical representative (commonly called a drug rep) personally contacting a physician. Detailing expenses comprise approximately 30% of major pharmaceutical companies. This amounted to about $484 million in 2000 (Kreling et al., 2001). The dynamics of the relationship between the pharmaceutical representative and the physician has changed dramatically over time. Before managed care, pharmaceutical representatives would bounce from one doctor's office to another, hoping to catch a few minutes with a physician and influence the drugs the physician would prescribe. This has been a very successful strategy, but is currently in flux. In response to lessening opportunities for

pharmaceutical representatives to see physicians, the pharmaceutical industry has greatly increased the work force. Between 1996-2001, the detail force of 42,000 pharmaceutical representatives more than doubled to about 90,000 among the top pharmaceutical companies (Millenson, 2003). However, instead of covering all of a company's drugs, a pharmaceutical representative will be responsible for selling one lead drug, and two secondary drugs. One pharmaceutical representative's secondary drugs are another pharmaceutical representative's primary drug with the idea that at least one pharmaceutical representative will influence the physician. In a study by Creyer and Hrsistodoulakis (1998), the statement is made that the most effective tool that pharmaceutical companies have to convince physicians to use their products is the pharmaceutical representative. In this study, a random sample of 235 residents received a survey and 69 responded. Though the return rate was small, the findings are none-the-less of interest. More than half of the physician respondents believe that pharmaceutical representatives present accurate information, but less than half found pharmaceutical representatives trustworthy. The study identified the primary factors that determine the physician's impression of the pharmaceutical representative's trustworthiness are ethical behavior and accuracy of information. Even when a good relationship is established, (Elling, Fogle, McKhann & Simon, 2002), 15% of pharmaceutical representative visits to physicians result in the pharmaceutical representative leaving before reaching the receptionist; 28% will entail only leaving samples with the receptionist; 37% will result in the pharmaceutical representative leaving samples at the sample closet; 12% will result in a conversation with the

physician with a message not remembered by the physician; and 8% will result in a conversation with the physician which will be remembered. It is reported that the average detail call costs the drug company approximately $100-$150, not including the cost of sample drugs that may be given to the physician (Millenson, 2004). Detailing activities of drug representatives include physician education and distribution of gifts. Considerable controversy exists regarding the acceptance of drug company gifts by physicians, and the influence this practice may have on the prescribing practices of physicians. Gifts may include a wide spectrum of items as simple as pens, scratch pads, and coffee mugs to items such as brief cases or hand held computer devices. Educational activities frequently include the provision of one or more meals to the physician, the physician's family, or the physician's staff. Some educational activities sponsored by pharmaceutical companies may involve vacation trips with a few hours of education (Jureidini & Mansfield, 2001). Brett, Burr, and Moloo (2003) report in their study that in spite of recent publicity regarding ethical problems between physicians and drug companies, both experienced and non-experienced physicians continue with a very permissive view of pharmaceutical marketing activities. In a recent editorial in the Journal of General Internal Medicine, the author points out that while drug companies are free-handed with gifts for physicians, they have corporate policies which limit the acceptance of gifts to those that are $5 to $10 (So, 1998). In a very interesting meta-analysis of published studies that examine the physician-pharmaceutical company relation, Wazana (2000) evaluated 29 articles. Wazana deduced that physicians begin to interact with

pharmaceutical representatives as medical students, that most physicians meet with pharmaceutical representatives about four times a month as residents, and that the frequency of contact with pharmaceutical representatives does not vary significantly for faculty. He defined through his analysis that interactions with pharmaceutical representatives have an impact on physicians and residents in terms of prescribing costs, on non-rational prescribing, on preference and rapid prescribing of new drugs, and on decreased prescribing of generic drugs. Most organizations have policies on interactions with pharmaceutical representatives. Only 62% of physicians knew about those polices, and only 23% to 50% of residents knew about those policies. There were 16 studies which addressed attitudes of physicians and residents toward interactions with drug representatives. Very interestingly, six studies had at least one indicator that physicians and residents deny that gifts might influence their behavior, with three of those studies indicating that in the absence of gifts, physicians would decrease their interactions with drug representatives. In addition, having received gifts was strongly correlated with the feeling that drug representatives have no impact on prescribing behavior. Physicians and residents also indicated that drug samples, continuing medical education and conference travel funding exert more influence than other kinds of promotional activities. Among the negative outcomes associated with physician-pharmaceutical representative interaction was the inability to identify incorrect claims about medications. Among the promotional efforts assessed, those of most concern were pharmaceutical representative educational speakers, continuing medical education sponsorship, and conference travel (Wazana, 2000).

Sampling

The pharmaceutical industry spent over $12 billion in 1998 to promote its products in the United States. Of that promotion budget, over half was dedicated to supplying physicians with free sample medications for distribution to patients. This expense increased to almost $15.7 billion in 2000. With sample drugs once more topping the budget, there was an average of 12.8% annually since 1996 (Ma et al., 2003). The extent of reaching physicians with this promotional strategy is remarkable. One recent survey indicated that 92% of physicians have accepted free drug samples from a pharmaceutical representative (Henry J. Kaiser Family Foundation, 2004c).

Physicians' attitudes toward the use of free samples vary considerably. In the framework of concern for the high cost of medications to patients, physicians may believe offering free samples to patients is a great service, especially for indigent patients. Another benefit rests in the easy availability of medication to begin a course of therapy immediately. There is also the opportunity to use free samples to evaluate patient tolerance and adjust dosage before a full prescription must be purchased by the patient (Chew et al., 2000). In addition, there are countless benefits for pharmaceutical companies.

Several problems with sampling have prompted research. One of those issues is the possibility of misuse by drug representatives. Tong and Lien's study (1995) revealed that of 27 drug representatives surveyed, only 11 had not taken those samples themselves, provided them to friends or relatives, or exchanged them with

other drug representatives. A related problem is the personal use of samples by doctors or their office staff. In a survey of 53 office staff members of a large family medicine clinic, only 2 of the respondents reported no use of samples (Westfall, McCabe, & Nichols, 1997).

Wang et al. (2003) related to antihypertensive drug advertising reveal that, while beta blockers and thiazide diuretics are the only antihypertensive medications shown to reduce cardiovascular mortality, it is the newer, more expensive medications such as ACE inhibitors and calcium channel blockers that have been advertised heavily. Sales of these newer drugs have substantially accelerated, suggesting that pharmaceutical promotions including sampling may have contributed to the adoption of these therapies. This is in spite of the attitude among physicians that they pay little to no attention to drug adverting.

In their recent, comprehensive review of the literature, Groves, Sketris, and Tett (2003) identified 23 papers focused, at least partially, on the impact of sampling. Of these articles, 15 identified influence on prescribing behavior as a key issue; nine addressed the resultant drug expenditure as a key issue; four identified the problem of unregulated handling in the delivery and receipt of the samples, three dealt with the self-medication issue; two identified problems related to disposal problems, and two discussed resale of samples to pharmacies or trading with others. All studies were observational. This meta-analysis identifies that not even one of the major papers focusing on sampling was designed to test specific hypotheses about sampling.

CHAPTER THREE

METHODS

The success of the pharmaceutical industry is reflective of outstanding marketing programs. Distribution of free samples to physicians is a major marketing strategy in the pharmaceutical industry. The purpose of this study is to determine if there are differences in the prescribing practice of physicians who distribute free samples to patients and those physicians who do not.

The 2003 data was the most current available in the samples log from the clinic that dispenses samples and in the Scott & White Health Plan (SWHP) pharmacy data. Therefore the 2003 data was used for the study.

Physician practice regarding the dispensing of free samples within all Scott & White facilities is governed by policy. That organizational policy (Appendix A, Figure A1) requires that any clinic where free samples are dispensed must define mechanisms whereby any sample dispensed from that clinic could be identified, in the event of a recall. There was a unique opportunity to examine the prescribing practices of physicians in both clinics where free samples are dispensed and clinics where free samples are not dispensed, because of this policy, the fact that one clinic continues to dispense free samples, the nature of the high percentage of SWHP members, and the detailed prescription electronic data available for SWHP members,

Participants and Sampling

A cross sectional design was used with retrospective review of SWHP claims data and of samples logs maintained by the clinic where sample medications were dispensed. The participants of the study were the Scott & White family physicians from the Scott & White regional clinic (Clinic X) where free samples are dispensed, and two comparison Scott & White regional clinics (Clinic Y and Clinic Z). The prescribing practices of the individual physicians were examined, as well as the prescribing practice of each clinic, as a whole.

Clinic X with nine physicians during the study period is where samples are dispensed and is located in a community of 15,591 approximately 37.5 miles from the main facility. Comparison Clinic Y with eight physicians is located in a community of 14,623 and is approximately nine miles from the main facility. Comparison Clinic Z with seven physicians is located in a community of 13,575 and is approximately 42.5 miles from the main facility. All three communities are predominately white (United States Department of Commerce, 2001). While there are slight differences in the community sizes and racial diversity, they nevertheless are very similar in location (each is located in a small community), the number of participating physicians is very close, and each is distant from the main facility. Table 1 displays notable characteristics of each community and clinic. The population of unique patients for which care was provided during 2003 was analyzed. All clinics are similar in gender distribution; however, the patient population of Clinic Z is significantly older than the patients of the other two clinics. The size of the

community and the number of physicians make these Scott& White Regional Clinics among the most similar for practice comparison.

Table 1

Clinic and Community Characteristics, 2003

	Community				Clinic				
Clinic	Population	White	Black	His-panic Or Other	Doctors	Miles from Main	Unique Patients	Male	Avg Age
X	15,591	63%	27%	10%	8	37.5	10,404	44%	43.6
Y	14,623	73%	8%	19%	8	9.0	11,671	44%	42.8
Z	13,575	68%	14%	18%	7	42.5	8,815	46%	50.9

Data Collection Procedures

The Drug Sample Log

Organizational policy permits physicians to dispense samples, but requires that clinic specific procedures be developed to facilitate recalling any sample medication dispensed from that area. To meet organization policy requirements Clinic X developed a procedure to meet organization requirements (see Appendix A, Figure A1) whereby a hand-written log was maintained. Samples delivered to the clinic by

drug representatives were logged into the notebook by the charge nurse before the sample medications were added to the inventory from which the physicians could dispense. Physicians were responsible for recording each sample dispensed by documenting the patients' name, medical record number, medication name, medication strength, medication lot number, number of sample packets, and dispensing physician name, so that the patient's physician could be notified in the event of a medication recall. The number of pills varied among the sample packets. Physicians may have dispensed more than one sample packet, or more than one sample drug during any visit. A sample record (one line of data) was hand-written in the log for each different drug dispensed to each patient during any patient visit. Periodic audits, in which a reconciliation rate was computed, were required to demonstrate compliance with the "Samples" policy. Some clinic staff chose to log all sample medications dispensed, including non-prescription items. However, the procedure did not require tracking of non-prescription samples, and these samples were not part of the audits. In 2003, seven audits conducted indicated a compliance rate of 95.5% to 100%. There are no means available to validate the audits. The hand-written log maintained during 2003 at Clinic X was transcribed into an Excel spread sheet, and imported into an Access database.

Selection of Study Drugs

SWHP pharmacies use a commercial classification of medications known as the Medi-Span™ Therapeutic Classification System General Pharmacy Index (GPI) to describe each medication prescribed. This three-tiered system was then used to

classify and stratify the sample drugs dispensed during 2003. Using the highest stratification level, sample medications dispensed were listed in descending order by number of sample records. To assure an adequate number for analysis the top three sample medications dispensed in each category were selected for this study. This selection process insured examination of a broad spectrum of prescriptions, rather than a concentration of drugs used only for a particular condition. Categories in which there was only one sample record were eliminated. There were two topical medications with sample records and the one with the most sample records was included in the drugs selected for the study. The SWHP 2003 Formulary (Appendix A, Figure A2) was used to identify the formulary status of each study drug. The Formulary Classification System is illustrated in Table 2. Appendix B lists the sample medications selected for the study, GPI classification, and formulary status.

Table 2

SWHP Formulary Classification System, 2003

Classification	Designation	Meaning
A	A Tier Generic	Preferred
B	B Tier Brand	Preferred Brand Name
C	C Non-preferred	Extra cost to SWHP & Patient
M	Maintenance Benefit	90 day prescription may be written

Physician Prescribing Data

SWHP pharmacies collect, maintain, and analyze all data related to claims for SWHP members' medications. While SWHP members could purchase medications anywhere without filing a claim, members have a financial incentive to file a claim. In addition, a claim was automatically generated for all medications purchases made at a SWHP Health Plan Pharmacy. Pertinent data collected by SWHP regarding each prescription filled included the name of the prescribing physician, the clinic location of the physician, the medication name, the medication strength, the drug classification, the number of days supply of the medication prescribed, and the selling price of each prescription. The SWHP Pharmacy data for 2003 was imported into an Access database, and encoded for patient, physician, and clinic names.

Data Analysis

The following sets of measures were developed:

- Average cost of 30 day prescription by clinic and by physician with standard deviation
- Total dollars and average cost of 30 day prescription of 25 specific sample drug and sample drug groups by clinic and by physician
- Comparison of use of generic drugs
- Comparison of prescribed drugs by clinic, by physician, and by absence or presence of Scott & White formulary listing

- Inflation of drug costs of the study drugs over time by clinic and by physician

Data analysis included frequencies and descriptive statistics of the study measures. Group differences were assessed using the chi square test for categorical data and ANOVA for continuous data. Two-sided tests were considered significant at $p= 0.05$.

Summary

Two clinics that do not dispense free sample medications that were similar in community composition, population, location, and number of physicians were selected to compare with the clinic where free sample medications are dispensed. Historic data from the 2003 sample log at Clinic X included physician name, medication name, medication strength, and amount of sample medication dispensed. This was transcribed from the hand-written log into Excel database. These data were exported into Access where it was coded. The sample medications were first classified according to the commercial CPI classification system used by the SWHP pharmacies, and the top three medications dispensed as free samples in each high level CPI group were selected for analysis to assure an adequate number for analysis. The 25 study drugs selected represented 84% of the sample medications dispensed in the study period. Prescribing data from the SWHP pharmacies for 2003 including clinic name, physician name, medication name, medication strength, number of days supply prescribed, number of prescriptions, and cost of prescription was retrieved from Excel and housed in an Access database where it was depersonalized. Data

analysis included descriptive statistics, chi square tests for categorical data, and ANOVA for continuous data. Two-sided tests were considered significant at p=0.05.

CHAPTER FOUR

RESULTS

Distribution of free samples to physicians is a major marketing strategy in the pharmaceutical industry. The purpose of this study was to determine if there are differences in the prescribing practice of physicians who distribute free samples to patients and those physicians who do not. The 25 samples drugs most frequently dispensed (by category) by physicians in Clinic X were identified, and these drugs were selected to be study drugs. Prescribing data was then analyzed to measure the prescribing practices of the physicians in Clinic X, Y, and Z . This included analysis of prescriptions of all drugs, and drilled down to the selected study drugs. Analysis included descriptive statistics, ANOVA for continuous data, and chi square for categorical data. All statistical tests were 2-sided with significance at p=.05.

The physicians (n=23) providing patient care in the three study clinics were responsible for 144,442 prescriptions resulting in a cost of $6,315,673.08 to patients in 2003. The data were normalized by calculating the average cost of a 30 day prescription by physician and by clinic. For all physicians, the average cost of a 30 day prescription was $42.90. The range was $34.92- $56.67 and the standard deviation was $4.66. One physician was beyond two standard deviations from the mean, in support of alternative hypothesis 2. ANOVA revealed that average 30 day prescription costs differed significantly as a function of the clinic ($F(2,20)=14.33$,

$p<.0001$). Supportive of alternative hypothesis 1., Duncan's post-hoc test revealed that Clinic X physicians were significantly higher in cost per 30 day prescription than Clinic Y or Clinic Z, and Clinics Y and Z were similar. Table 3 outlines the summarized details, and the entire table with details by individual physician are in Appendix C.

All prescriptions written were classified as either for a study drug or for a non-study drug, and were compared by clinic. Supportive of alternative hypothesis 1., there were significant differences between clinics based on the percentages of

Table 3

Average Cost of a 30 Day Prescription

Clinic	Dr.	Mean	Std Dev.	Min.	Max.
X	8	47.57	4.32	41.83	56.67
Y	8	39.49	2.49	34.92	42.04
Z	7	41.48	1.94	38.17	43.97

prescriptions for the study drugs with Clinic X prescribing the largest percentage of study drugs ($\chi^2=97.01$, p=<.0001) as illustrated in Table 4. In addition, using the chi square test, the same data was analyzed by physician. The results were statistically significant ($\chi^2=546.11$, p=<.0001), demonstrating differences among the physicians in support of alternative hypothesis 2.

Table 4

Prescriptions for Study and Non-Study Drugs, 2003

Clinic	Non Study Rx		Study Rx		Total
	Rx	Percent	Rx	Percent	
X	43750	86.04%	7099	13.96%	50849
Y	44642	88.08%	6044	11.92%	50686
Z	37180	86.65%	5727	13.35%	42907
Total	125572		18870		144442

Of the total number of prescriptions to patients in 2003, 18,870 (13%) were written for the 25 study drugs at a cost to patients of $1,894,485.40 (30% of total costs). The average cost of a 30 day prescription for a study drug was $84.80. By clinic, the average cost of a 30 day prescription for a study drug was $86.99 for Clinic X, $86.09 for Clinic Y, and $80.84 for Clinic Z. While Clinic X was higher, the difference was not statistically significant. Details of prescriptions for study drugs by clinic and physician appear in Appendix C.

All prescriptions written for study drugs were classified by formulary status, and the results were analyzed by clinic. There were statistically significant differences among the three clinics, with Clinic X prescribing the smallest percentage of preferred drugs (χ^2=40.41, p=<. 0001). As seen in Table 5 the analysis indicated that Clinic Y prescribed the highest percentage of unlisted formulary study drugs.

Table 5

Prescriptions by Formulary Status, 2003

Clinic	B List		C List		Unlisted		Total
	Rx	Percent	Rx	Percent	Rx	Percent	
X	6246	87.98%	529	7.45%	324	4.56%	7099
Y	5359	88.67%	380	6.29%	305	5.05%	6044
Z	5056	88.28%	482	8.42%	189	3.30%	5727
Total	16661		1391		818		18870

However, further chi square analysis by total cost as shown in Table 6 revealed that Clinic X demonstrated the highest percentage of total costs for prescriptions of non listed formulary prescriptions among the three clinics (χ^2=6130.34, p=<. 0001).

Table 6

Total Prescription Costs of Study Drugs by Formulary Status

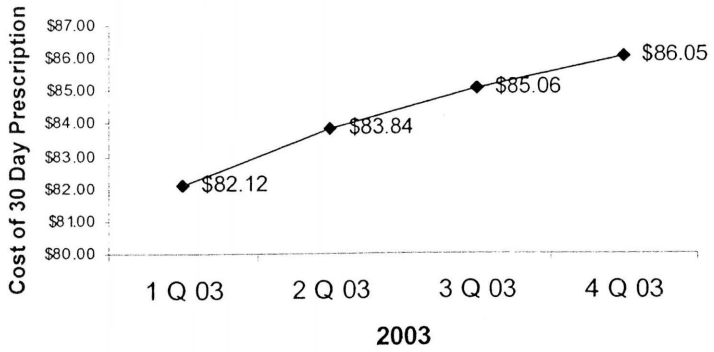
Clinic	B List		C List		Unlisted		Total
	Rx	Percent	Rx	Percent	Rx	Percent	
X	$621,589	87.37%	$54,547	7.67%	$35,345	4.97%	$711,482
Y	$584,272	90.32%	$34,110	5.27%	$28,504	4.41%	$646,885
Z	$471,848	88.01%	$44,724	8.34%	$19,546	3.65%	$536,118
Total	$1,677,709		$133,381		$83,395		$1,894,485

Collectively, these results demonstrate physicians who dispense free samples are less likely to prescribe formulary preferred drugs, more likely to prescribe non-formulary drugs, and that the expense of the non-formulary drugs are likely to be higher.

The number of prescriptions for the 25 study drugs increased each quarter during the year, as did the sum of the costs to the patients. The average cost of a 30 day prescription also increased each quarter during the year and is an indicator of the inflation of the cost of the drugs over time. The inflation of costs is illustrated in Figure 1. The inflation rate is 4.56% from the first quarter of 2003 through the fourth quarter of 2003.

Figure 1

Cost Inflation of Study Drugs



Summary

The pharmacy data was normalized by calculating the average cost of a 30 day prescription by clinic and by physician. Standard deviations were calculated. An ANOVA revealed statistically significant differences among clinics. Duncan's post hoc test demonstrated that Clinic X had significantly higher cost per 30 day

prescription than Clinic Y and Clinic Z. In addition, all prescriptions were classified as a study drug or a non study drug prescription. Chi square analysis demonstrated a statistically significant difference among clinics, with Clinic X having a higher percentage of prescriptions for the study drugs, indicating a higher usage of drugs for which free samples had been dispensed.

Total costs of the study drugs prescribed were tabulated, and the average cost of a 30 day prescription for each of the 25 study drugs were developed. Clinic X had a higher average cost of a 30 day prescription for a study drug, though the differences among the three clinics were not statistically significant. The average cost of a 30 day prescription for a study drug was twice as high as that of other drugs.

All prescriptions written for study drugs were classified by formulary status. Statistically significant chi square tests revealed that Clinic X physicians wrote the smallest percentage of formulary preferred drugs, and had the largest percentage of nonlisted formulary prescription costs.

The inflation of the costs for the study drugs was developed and was graphically illustrated. The inflation rate for the study drugs was 4.56% for 2003.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Summary

Health care costs are skyrocketing, and a major contributor to the increase in healthcare expense is the expense of prescription drugs. Drug companies have many strategies to promote the sales of their products. One of the most common is the distribution of sample medications to doctors through pharmacy representatives. A few studies relate pharmaceutical promotional activities with the sales of drugs. But there are no studies that examine the direct effects of sampling on the actual prescribing practices of physicians. The purpose of this study was to determine if there are differences in the prescribing practices of physicians and physician groups who dispense free sample medications to patients and those physician and physician groups who do not dispense free sample medications. This was an observational study using a cross sectional design. Three similar clinics were selected for study, with data examined by physician and by clinic. The eight physicians at Clinic X dispense free sample medications, while the eight physicians at Clinic Y and the seven physicians at Clinic Z do not dispense free samples. Over half of all patients at each clinic are SWHP patients with electronic pharmacy data available. The sample log at Clinic X for 2003 was analyzed, and the top 25 drugs were selected to be the study drugs. Pharmacy data was then examined to evaluate the prescribing practices

of the physicians and the physician groups related to the prescriptions written for the selected study drugs.

Conclusions

In the practice of a physician whose prescribing was influenced by the use of sample medications, one would expect to see a higher than usual cost of prescriptions ordered for patients, since drug companies typically try to promote their expensive, newer drugs. One would also expect to see that there were comparatively more prescriptions written for drugs that the physician dispensed as samples. In addition, one would expect to see fewer formulary drugs prescribed than that of a physician not influenced by samples. Furthermore, one would expect to see non-formulary drugs prescribed more often by a physician influenced by the use of sample medications.

In this study, differences of prescribing practices among clinics where physicians dispense free sample medications were demonstrated in several different ways. Clinic X physicians had significantly higher costs per 30 day prescription than those in Clinic Y and those in Clinic Z. Clinic X physicians were shown to have prescribed more of the study drugs (drugs that are sampled) than physicians in Clinic Y and Clinic Z. In addition, physicians in Clinic X were responsible for more costs of the study drugs than the physicians in Clinic Y and Clinic Z. Moreover, physicians in Clinic X were shown to be more likely to prescribe the non-formulary drugs they dispensed to patients as free samples than were the physicians of Clinic Y and Clinic Z. Clinic X physicians were also less likely to prescribe preferred formulary drugs

than physicians in Clinic Y and Clinic Z were. Therefore, the first null hypothesis is rejected, and the alternative is supported as indicated in Table 7.

Table 7

Hypotheses Decisions

Hypothesis	Decision
1. There are no statistically significant differences in the prescribing practices of the entire clinic where family medicine physicians dispense free sample medications provided by pharmaceutical companies when compared to clinics where physicians do not dispense free samples.	Rejected
2. There is no statistically significant difference in the prescribing practices of family medicine physicians in the Scott & White Clinic System who dispense free sample medications provided by pharmaceutical companies and those who do not dispense sample medications.	Rejected

Differences among individual physician's prescribing practices are also demonstrated. This can be observed in the analysis of the average cost of a thirty-day prescription. Significant differences were also demonstrated in the amount of

prescriptions for study drugs and for non-study drugs. Therefore, the second null hypothesis is rejected and the alternative is supported, as indicated in Table 7.

Discussion and Implications

The day-to-day practice of medicine is very complex. Physicians are sensitive to the rapidly escalating cost of health care and are interested in helping patients cope with that high cost. Scott & White physicians who dispense free sample medications are convinced they are helping patients. They also reflect the attitudes of physicians mentioned in other studies (Wanza, 2000) who do not believe that their prescribing behavior is influenced by drug companies. Scott & White, as an organization, has taken several steps to dampen the effects of drug company strategies. These include special directives to control when and how often drug representatives can see physicians, and policies related to tight control of sample medications. In spite of these circumstances, these analyses demonstrate that drug companies are still meeting their goal of influencing physician prescribing behavior by distributing free samples of their product for physicians to dispense. This is clearly demonstrated in the comparison of the average cost of a 30 day prescription of non-study drugs and the average cost of a 30 day prescription of a study drug, with the study drug being twice as high. The implications are substantial to patients, because the costs of the medications are not to the doctors, but to the patients

Limitations

The results of this study are not necessarily generalizable to others. It is recognized that many confounding variables exist. Indeed, just the inflation of the

costs of the medications are demonstrated here, and contribute to the overall cost of medications. Very large numbers used in chi square analysis are known to identify the smallest of variability. It is also possible that the clinics observed have differences not recognized in the various data sets.

One of the original measures of this paper was not accomplished. In the planning phase, it was believed that generic equivalents for all study drugs could be identified. However, that was not the case. The SWHP pharmacy identifies this category as "SWHP Therapeutic Equivalent." In certain circumstances a non-prescription medication may be involved, and there is no data available for those drugs. In other cases, more than one therapeutic equivalent is identified. There was no way discovered to measure drug substitution with the available data sets. This category is identified in Appendix A, Figure A2.

As another confounding variable, physicians see patients other than their own. Any prescription signed by the physician was credited to that physician's pharmacy record. Although it is believed that the physician would have the same tendency in prescribing medications, that remains unknown. Moreover, patient panels may have differed more than is believed due to critical co-morbidities. It is not known how this might have affected the data sets or the analyses.

Despite these considerations, the cost of drugs per unique patient at Clinic X is still $24.15 higher per year than the cost of drugs to Clinics Y and Z as measured in direct costs to patients. For patients on the receiving end of "free" samples, the results

of this study imply that for patients, there is no free lunch. The results also imply a measurable effect of physicians' use of sample medications.

Recommendations

Health Care costs are an important national issue, and efforts must be generated from many quarters to assist in bringing down the escalating costs. The cost of prescription drugs is an important contributor to those costs, and is as current as today's newspaper. A great deal of work is indicated in educating physicians about the effects of sample medications. As a body of evidence continues to accumulate, studies such as this can help illustrate the consequences of accepting and dispensing samples to patients. Physicians are experiencing pressures from many different directions. This includes pressure from patients who ask for sample medications. Before drug companies will cease to use this sales strategy for their new and expensive products, physicians must come to the point of refusing to accept or dispense free sample medications. More research in this arena to demonstrate both the direct and indirect effects of sample medications will be helpful. The pharmaceutical industry is known to be the most profitable industry in the United States ("How the Industries Stack Up," 2000). Responsible researchers in health care must do what drug companies have done for many years--study those things that impact physicians' prescribing behaviors, and then publish the results.

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APPENDIX A

Scott & White Documents

SCOTT AND WHITE
ADMINISTRATIVE POLICIES AND PROCEDURES

TOPIC: SAMPLE MEDICATIONS POLICY #: SWC.60

APPROVED: 3/8/00
REVIEWED:
REVISED: 11/02

APPROVAL: Don B. Cauthen, M.D., Clinic President
Brad D. Crye, Executive Director, Clinic

REFERENCES: JCAHO - TX.3.3, 3.5 ('02), TX 3.10 ('02)

I. POLICY:

The physician, or appropriate independent health care professional, will be responsible for determining if sample medications will be maintained in their department or clinic. If sample medications are maintained, the physician leader of that clinic area will assure that samples are carefully controlled, and that there is a written procedure that specifies what mechanism is in place to facilitate recalling any sample medication dispensed from that area. An example of a sample control procedure is attached. Expired sample medications are taken to the Inpatient Pharmacy for disposal. Completed sample medication record sheets are retained in the department for a period of two years from the date the last sample was dispensed. (See the attached example of a sample medication control procedure – Attachment A)

ATTACHMENT A
EXAMPLE OF SAMPLE MEDICATION PROCEDURE

Purpose: To establish uniform guidelines for the management of pharmaceutical drug samples, including receipt, inventory, dispensing/labeling, storage/disposal, and recall.

Step Action

1. Medication is on the formulary list and/or has been identified by the physician/department as a medicine he/she would like to dispense.
2. Pharmaceutical representative delivers the appropriate sample medicine to the department.

Receipt in Department:

a. The pharmaceutical representatives enters information in the PC or on the manual log sheet, including the name of the medication, strength, expiration date, quantity being delivered, and the lot number.

b. The pharmaceutical representative places a colored check on the medication **and** the form.

c. The pharmaceutical representative checks the medicine in with the physician or his/her designee.

d. The physician or designee places the medication in the locked cabinet and the form in the logbook. Ingestible and topical drugs are not stored on the same shelves. Each pharmaceutical representative maintains an inventory of samples supplied.

3. The Clinic designee maintains an inventory of sample medications. Each **MONTH** the designee should verify inventory by counting signed out medications against medications left in the cabinet and place date and initials

on the inventory sheet. At this time, expiration dates are to be reviewed. Drug samples that will expire prior to the next monthly inspection should be logged out and taken to the Pharmacy for disposal.

4. Discrepancies in the inventory are reported to the supervisor who will investigate and address the problem with the physicians.

5. When the physician identifies a patient needing a sample prescriptive medication, he/she is responsible for removing the medication from sample cabinet and verifying expiration date, color and lot number with the log form. The physician is responsible for placing an encounter label for the patient on the form, writing in the quantity dispensed, and placing a copy of the instruction label on the form. The physician is responsible for dispensing the medication to the patient, giving patient instruction on the medicine, and documenting this information in the medical record.

6. Once complete, sample medication record log sheets are retained in a separate filing system for a period of two years from the date the last sample was dispensed.

7. The sample medication log sheets will be used in case of a drug recall to track sample drugs to the patient.

Scott & White Health Plan Formulary
2003

ACCUTANE $$$$$ B
Acebutolol $$$$$ A M
Acetazolamide $ A M
Acetic Acid /HC Otic $$ A
Acetic Acid Otic $ A
Acetohexamide $ A M
ACIPHEX $$$$$ B
ACLOVATE $$$ B
ACTIVELLA $$ B M
ACTONEL $$$$$ B M
ACTOS $$$$$ C
ACULAR $$$ B
Acyclovir $$$$ A
ADALAT CC 90MG $$$ A M
ADDERALL XR $$$$$ B
Adderall* $$$$ A
ADRENALIN $$$ B
ADVAIR $$$$$ B M
AEROBID-M $$$ B M
AGENERASE $$$$$ B
AGGRENOX $$$$$ B
AGRYLIN $$$$$ B
AKINETON $$$ B M
AKNE-MYCIN $ B
ALAPRAM-HC $ B
ALBENZA $$$$$ B
Albuterol $ A
ALDACTAZIDE 50m $ B
Alesse* $$ A
ALKERAN $$$$$ B
ALLEGRA $$$$ B
ALLEGRA-D $$$$ B
Allopurinol $ A M
ALOCRIL $$$$ B
AMBIEN $$$$$ B
AMICAR $$$$$ B
Amiloride $$ A M
Amiloride /HCTZ $$ A M
Amino Acid /Urea $$ A
Aminophylline $$ A M
Amiodarone $$$$$ A M
Amitrip /Chlordiaze $$ A
Amitriptyline $ A
Amoxicillin $ A
AMOXIL 200 SUSP $ B
AMOXIL 400 SUSP $ B
Ampicillin $ A
ANA-KIT $$$ B
ANDRODERM $$$$$ B P
Anthralin Cream $$$$ A
APAP /Codeine $ A
ARANESP $$$$$ + P
ARAVA $$$$$ C P
ARIMIDEX $$$$$ B
ARMOUR THYROID $ B M
AROMASIN $$$$$ C
ASACOL $$$$$ B
Aspirin /Codeine $ A
Aspirin 800 CR $$ A
Aspirin 975 EC $ A
Atenolol $ A M
Atenolol/Chlorthal $$ A M
Atropine Ophth $ A M
ATROVENT MDI $$$$$ B M
AUGMENTIN $$$$ B
Auralgan* $ A
AVALIDE $$$$ B M
AVANDIA $$$$$ C
AZMACORT $$ B M
AZOPT $$$ B
Azo-Sulfisoxazole $ A
AZULFIDINE EC $$ B
Bacitracin $ A
Baclofen $$$ A
Bactrim* $ A
BACTROBAN CREA $$$ B
BACTROBAN NASA $$$ B
BACTROBAN OINT $$$ B
BECONASE $$$$ B
BENTYL SYRUP $ B
BENZACLIN $$$$ B
BENZAMYCIN $$$ B
Benzocaine Otic $$ A
Benzocaine-Antipy- $$ A
Benztropine $ A M
Betamethasone Dip $$ A
Betamethasone Val $ A
BETASERON $$$$$ +
Betaxolol $$$ A M
Bethanechol $ A
BETIMOL $$$$ B M
BETOPTIC $$$$ B M
BETOPTIC-S $$$$ B M
BIAXIN $$$$$ B
BIAXIN XL $$$$$ B
Bicitra* $ A
Bisoprolol $$ A M
Bisoprolol /HCTZ $$$ A M
BLEPHAMIDE OPTH $$ B
BRETHAIRE $$$ B
Bromfed $$ A
Bromfed PD $$ A

ALOMIDE $$$$ B
ALPHAGAN $$$$ B M
Alprazolam $$ A
ALTACE $$$ B P M
ALUPENT 10mg $ B M
ALUPENT MDI $$ B
Amantadine $ A M
AMARYL $$ B M
Calcitonin $$$$ A
CALDEROL $$$$$ B
CAPITROL $$ B
Captopril $$ A M
Captopril /HCTZ $$$$ A M
CARAC $$$$$ B
CARAFATE SUSP $$$$ B
Carbachol Ophth $$ A M
Carbidopa /Levodopa $$$ A M
Carisoprodol $ A
Carisoprodol/ASA $$ A
CARNITOR $$$$$ C
Carteolol Ophth $$$ A M
CASODEX $$$$$ B
CATAPRES-TTS $$$$$ B M
CAVERJECT $$$$$ C
CEDAX $$$$$ B
CEENU $$$$$ +
Cefaclor $$$ A
Cefaclor CD 500 $$$$ A
Cefadroxil $$$ A
Ceftin* $$$$$ A
CEFZIL $$$$ B
CELEBREX $$$$$ C
CELEXA $$$$$ B
CELLCEPT $$$$$ B P
Cephalexin $ A
Cephradine $$ A
CERUMENEX $$ B
CETAPRED $$ B
Chloral Hydrate $ A
Chloramphenicol O $ A
Chlordiazepox /Clin $ A
AVAPRO $$$$ B M
AVC $ B
AVELOX $$$$$ C
AVONEX $$$$$ +
Axid* $$$$ A
Aygestin* $$$ A
Azathioprine $$$$$ A
Azelex* $$ A
Cholestyramine $$$$ A M
CILOXAN $$$ B
Cimetidine $$ A M
CIPRO $$$$$ B
CIPRO HC $$$ B
Clemastine $ A
CLEOCIN 75MG CA $$$ B
CLEOCIN LOTION $$$ B
CLEOCIN SUSP. $$$ B
CLEOCIN VAG $$$ B
Climara* $$ A M
Clindamycin $$$ A
Clindamycin Gel $$ A
Clindamycin Sol $$ A
Clobetasol $$$$ A
Clomipramine $$$ A
Clonazepam $$ A M
Clonidine $$ A M
Clonidine /Chlortha $$ A M
Clorazepate $ A
Cloxacillin $$$ A
Clozapine $$$$$ A P
CODEINE SOL TAB $$$$ B
CODEINE SOLN $$$$ B
Codeine Sulf. Tab. $$$$ A
Codimal * $$ A
COLAZAL $$$$$ B
Colchicine $ A M
Colchicine /Probeni $ A M
COLESTID $$$$ B M
COLYMYCIN-S $$ B
COMBIVENT $$$$ B M
COMBIVIR $$$$$ B
Brontex* $$ A
Bumetanide $$ A M
Bupropion $$$$$ A
Burrow's Soln. /A.A. $ A
Buspirone $$$ A
Butalbital /APAP $ A
CAFERGOT SUPP $$ B
CALCIFEROL $$$$$ B
CORTEF 5mg $ B
CORTIFOAM $ B
Cortisone $ A
CORTISPORIN OPT $ B
Cortisporin Otic* $ A
CORZIDE $$$$ B M
COSOPT $$$$$ B M
COTAZYM $$$$$ B
COTAZYM-S $$$ B
COUMADIN $$$ B M
COZAAR $$$$ B M
CREON $$$$$ B
CRIXIVAN $$$$$ B
Cromolyn Neb $$$ A M
Cromolyn Ophth $$$$ A
CUPRIMINE $ B
CUTIVATE $$ B
Cyanocobalamin $ A
CYCLESSA $$ B
Cyclobenzaprine $$ A
CYCLOCORT $$$$ B
CYCLOGYL 0.5% $$ B
Cyclopentolate $$ A
Cyclophosphamide $$$$$ A
Cyproheptadine $ A
CYTADREN $$$$$ B
CYTOMEL $$ B M
CYTOTEC $$$$$ B
CYTOVENE $$$$$ B
CYTOVENE INJ $$$$$ +
D.A. Chewable* $$$ A
Danazol $$$$$ A
DANTRIUM $$$$ C

Chlordiazepoxide $ A
Chlorhexidine Soln $$ A
CHLOROPTIC $ B
Chloroquine 500mg $$ A
Chlorothiazide $ A M
Chlorpromazine $ A
Chlorpropamide $ A M
Chlorthalidone $ A M
Chlorzoxazone $ A
DEPAKOTE ER $$$$ B
DEPO-PROVERA $$ B
DEPO-TESTOST $ +
DERMASMOOTH $$ B
Desipramine $ A
Desmopres 4 INJ $$$$$ A
Desmopres.01%Nasa $$$$$ A
DESOGEN $$ A
Desonide $$ A
Desoximetasone $$ A
DETROL LA $$$$$ C
Dexamethasone $ A
Dexchlorphenirami $ A
Dextroamphetamine $$$ A
DHE $$$$$ B
DHT $$$$$ C
DIAMOX SEQUEL $ B M
DIASTAT $$$$$ B
Diazepam $ A
DIBENZYLINE $$$$ B M
Diclofenac $$$$ A
Diclofenac Ophth $$$ A
Diclofenac XR $$$$$ A
Dicloxacillin $$ A
Dicyclomine $ A
DIDRONEL $$$$$ B
DIFFERIN $$ B
Diflorasone $$$$ A
DIFLUCAN $$$$$ B P
Diflunisal $$$$ A
Dihistine DH* $$ A
DILANTIN $$ B M
COMPAZINE CAP $$ B
COMPAZINE SUPP $$ B
COMPAZINE SYRU $$ B
COMTAN $$$$$ C
CONCERTA $$$$$ B
CONDYLOX $$$$$ B
COPAXONE $$$$$ +
Cophene #2* $ A
COREG $$$$$ B P
DIPROLENE AF $ B
Dipyridamole $ A M
Disopyramide $$$$$ A M
Disopyramide CR $$$$$ A M
Disulfiram $$ A
DIURIL SUSP $ B
Donnatal* $ A
DOSTINEX $$$$$ B
DOVONEX $$$$$ B
Doxazosin $$$ A M
Doxepin $ A
Doxycycline $$$$$ A
DRITHOCREME $$$$ B
DRYSOL $ B
DURAGESIC $$$$$ B
Duratuss DM* $ A
DURICEF SUSP $$$ B
DYNABAC $$$ B
E.E.S. $ A
EFFEXOR $$$$$ B
EFFEXOR XR $$$$$ B
EFUDEX $$$$ B
Elimite* $$ A
ELLENCE $$$$$ +
ELMIRON $$$$$ B
ELOCON $$$ B
EMLA $$$$$ B
Enalapril $ A M
Enalapril/HCTZ $$ A M
ENBREL $$$$$ + P
Endal* $$ A
Entex PSE* $$ A
DAPSONE $$ B
DARAPRIM $$$$$ B
DAVP 15 INJ $$$$$ B
DAVP TAB $$$$$ B M
ECLOMYCIN $$$$ C
econamine SR* $$ A
econsal II* $$$ A
EPAKENE $$ B M
EPAKOTE $$$$ B M
Erythromycin Estola $ A
Erythromycin Ethyls $ A
Erythromycin Ophth $ A
Erythromycin Steara $ A
Erythromycin Top $$ A
Erythromycin/Sulfis $$ A
Esgic-Plus* $$ A
ESKALITH CR $$ B M
ESTRACE VAG $$$ B
ESTRADERM $$ B M
Estradiol $$ A M
Estradiol Inj. $$ + P
Estratab* $$ A M
ESTRATEST $$$ B M
ESTRATEST HS $$$ B M
ESTROSTEP $$$$ B
Ethambutol $$$$$ A
ETHMOZINE $$$$$ B M
Ethosuximide Syrup $$$ A
Etodolac $$$$$ A
EURAX $$ B
EVISTA $$$$$ C
EXELDERM $$$ B
EXELON $$$$$ B
FAMVIR $$$$$ C
FANSIDAR $$$$$ B
FARESTON $$$$$ +
FELBATOL $$$$$ B M
FEMARA $$$$$ B
Fenoprofen Tab $$ A
Fioricet #3* $$ A
Fioricet* $ A

Diltiazem $$$$ A M
Diltiazem SR $$$$ A M
Diltiazem SR Cap $$$$ A M
Dimetane DX* $ A
DIOVAN $$$$ B M
DIOVAN HCT $$$$ B M
DIPENTUM $$$$$ B
Diphenoxyl /Atropin $ A
Dipiverfrin Ophth $$ A
DIPROLENE $$ B
Fluocinonide $ A
FLUORI-METHA $$ B
Fluorometholone $$ A
Fluoxetine $ A
Fluoxymesterone $$$ A
Fluphenazine $$ A
Flurazepam $ A
Flurbiprofen $$ A

Flutamide $$$$$ A
FML FORTE $$ B
FML OINT $$ B
FML-S $$ B
Folic Acid $ A M
FORADIL $$$$$ B
FORTOVASE $$$$$ B

FOSAMAX $$$$$ B M
FRAGMIN $$$$$ +

FURADANTIN SUSP $$ B
Furosemide $ A M

FUROXONE $$$$$ B
GABITRIL $$$$$ B M
GANTRISIN PED $ B
Gemfibrozil $$ A M
GENGRAF $$$$$ B P
Gentamicin $ A
Gentamicin Ophth $ A

GEOCILLIN $$$$$ C
Glipizide $$ A M

Epinephrine $$ A
PI-PEN $$ B
EPIVIR $$$$$ B
ERGAMISOL $$$$$ B
Ergoloid Mesylate $$ A
Ergotamine-Caffein $$ A
ERYPED $ B
ERY-TAB $ A
Erythromycin $ A
Erythromycin EC $ A
Guanfacine $$$$ A M
HALOG $$$$ B
Haloperidol $ A
Haloperidol Dec $ A
Heparin $ A
HIPREX $$$$$ B
Histussin HC* $$ A
HIVID $$$$$ B

Homatropine Ophth $ A
HUMALOG $$$ B M
HUMATROPE $$$$$ +
Humibid DM* $$ A
Humibid LA* $$ A
Humibid Plus* $$ A
HUMULIN Insulins $$ B M

Hycodan* $$ A
HYDERGINE SOLN $$ B

Hydralazine $$ A M
Hydrochlorothiazide $ A M

Hydrocodone /Guife $$$ A
Hydrocodone/ APAP $ A
Hydrocortisone $ A
Hydrocortisone Ene $ A
Hydrocortisone Sup $ A
Hydrocortisone Top $ A
HYDRODIURIL SO $ B

Hydromorphone $$$$$ A
Hydroxychloroquine $$$$ A M

Fiorinal* $ A
FLAREX $$ B
FLONASE $$$ B
Florinef* $$ A
FLOVENT $$$$$ B M
FLOXIN OTIC $$$ C
Flubiprofen Ophth $$$$ A
FLUMADINE $$$$ B
Fluocinoline Top $ A
Fluocinolone Top $ A
Indomethacin $ A
INSULIN ZINC $ B M
INTAL INHALER $$$ B M
INTRON-A $$$$$ +
INVERSINE $$$$$ C M
INVIRASE $$$$$ B
Iodoquinol / HC $$ A
IOPIDINE $$$$ B
Ipratropium Neb $$$$$ A M
ISMELIN $$$$ B M
ISO ATROPINE 0.5 $ B M
ISO CETAMIDE $ B
Isoetharine $$$ A
Isoniazid $ A M
ISOPTO HYOSCINE $$ B
ISOPTO-CARBACH $$ B M
ISORDIL SL 10MG $ B M
ISORDIL TAB 40MG $ B M
Isosorbide Dinitrate $ A M
Isosorbide Mononitr $$$$ A M
KADIAN $$$$$ B
KALETRA $$$$$ B
Kayexelate* $$ A
KENALOG SPRAY $$$ B
KEPPRA $$$$$ C
Ketaconazole Crea $$$ A
Ketoconazole Tab $$$$$ A P
Ketoprofen $ A

GLUCAGON $$$$ B
GLUCOPHAGE XR $$$ B M
GLUCOVANCE $$$$ B M
Glyburide $$ A M
Glyburide Micro $$$ A M
Gold Sod Thiomalat $$$$$ A
GoLytely* $$ A
Granulex* $$ A
GRIFULVIN Susp $$$ B
Griseofulvin Ultra $$$ A
Guaifed PD* $$$ A
Guaifed* $$ A
Guaifenesin $$ A
Guanabenz $$$$$ A M
LAMISIL $$$$$ B P

LANOXICAPS $ B M
LANOXIN $ B M
LANTUS $$$ B M
Lariam* $$$$$ A
LASIX SOLN $ B
LESCOL $$$$ B M

LESCOL XL $$$$ B M
Leucovorin $$$$$ A
LEUKERAN $$$$ B
LEUKINE $$$$$ +
Leuprolide 5mg/ml $$$$$ + P
Levobunolol $$ A M
Levo-Dromoran* $$$$$ A
Levora $$$ A
Levothroid $ A M
Lidocaine $$ A
Lidocaine Viscous $ A
Lindane $ A
Liquibid D* $$ A
Liquibid* $ A
Lisinopril $ A M
Lisinopril/Hctz $$ A M
Lithium Carbonate $ A M
Lithium Citrate $$ A M

LITHOBID $ B M
LITHOSTAT $$$$$ B
Hydroxyurea $$$$$ A
Hydroxyzine $ A
YLOREL $$$$$ B
Hyoscyamine $$ A
Hyoscyamine SL $$ A
HYZAAR $$$$ B M
Ibuprofen $ A
Imipramine $ A
IMITREX $$$$$ B
Indapamide $$ A M
INDERAL SOLN $ B
INDERIDE LA $$ B M
INDOCIN SUPP $ B
INDOCIN SUSP $ B
LOVENOX $$$$$ +

Loxapine $$$ A
LOXITANE SOLN $$$ B
LUPRON DEPOT $$$$$ B P
LUTREPULSE $$$$$ C P
MACROBID $$$ B
MACRODANTIN 25 $$ B

MALARONE $$$$$ B
Mandelamine $$ A
MARINOL $$$$$ C P
MAXAIR $$$$ B
MAXALT $$$$$ B
MAXIDEX $ B
Maxitrol* $ A
Mebendazole $$ A
Meclizine $ A
Meclofenamate $$ A
MEDROL 16MG $$ B
MEDROL 24MG $$ B
MEDROL 2MG $$ B
MEDROL 32MG $$ B
Medroxyprogesteron $ A M
Megestrol $$$ A
Menest* $$ A M
Meperidine $$ A

Meperidine /Promet $$$$$ A
Mephobarbital $$ A M
Ketorolac $$$ A
KLARON $$$ B
K-Lyte CL* $ A
K-Lyte* $ A
K-PHOS $$$ B
K-Phos Neutral* $$$ A
K-PHOS-2 $$$ B
KUTRASE $$$$ B
KUZYME-HP $$$$$ B
KYTRIL $$$$$ C P
Labetolol $$$$ A M
LACRISERT $ B
Lactulose $$ A
LAMICTAL $$$$$ B M
Methylphenidate $$$ A
Methylphenidate SR $$$ A
Methylprednisolone $$ A
Metoclopramide $ A
Metoprolol $ A M
METROCREAM $$$$ B
METROGEL $$$ B
METROGEL VAG $$$$$ B
METROLOTION $$$$ B
Metronidazole $ A
Mexiletene $$$ A M
MIACALCIN $$$$ B
Microgestin $$ A
Micronor* $$ A
Midrin* $$ A
MIGRANAL $$$$$ B
Minocycline $$$$$ A
Minoxidil $$ A M
MINTEZOL $$$ B
MIRALAX $$ B
MIRAPEX $$$$$ B M
MIRCETTE $$ A
Modicon* $$ A
MONOPRIL $$ B M
Morphine Sulfate $$$$ A
Morphine Sulfate C $$$$$ A
MUSE $$$$ C

LIVOSTIN $$$ B

LO/OVRAL $$$ A
LOCOID $$ B

LOESTRIN $$ B
Loestrin Fe* $$$ B
LOPRESSOR HCT $$$$$ B M
LOPROX $$ B
LORABID $$$$ B
Lorazepam $ A
LOTEMAX $$$ B
LOTENSIN $$$ C
LOTENSIN HCT $$$ C
LOTREL $$$$$ B M
LOTRISONE $$$$ B
Lovastatin $$$$$ A M
NASACORT $$$$ B
NASACORT AQ $$$$ B
NASCOBAL $$$$$ B P

NATACYN $$$ C
Necon $$ A
Neo-Decadron* $$ A
Neomycin $$ A
NEORAL $$$$$ B P
Neoral 100mg* $$$$$ A P
Neosporin* $ A
NEPHROCAPS $$ B
NEULASTA $$$$$ +
NEUPOGEN $$$$$ +
NEURONTIN $$$$$ B M
NIASPAN $$$$ B M
Nifedipine XL $$$ A M

NIMOTOP $$$$$ B

NITRO-DUR 0.3MG $$ B M

Nitrofurantoin $$ A
Nitroglycerin Oint $$ A M
Nitroglycerin Patch $$ A M
Nitroglycerin SL $ A
Nitroglycerin SR $ A M
NITROLINGUAL SP $$$ B

MEPHYTON $$ B

Meprobamate $ A
MESANTOIN $$ B M

MESTINON $$$$$ B
Metaproterenol $$$ A
Metformin $$ A M
Methadone $$ A
Methazolamide $$$ A M
METHERGINE $$$ B
Methimazole $$ A M
Methocarbamol $ A
Methotrexate $$$$$ A
Methyclothiazide $ A M
Methyldopa $$ A M
Methyldopa /HCTZ $$ A M
Ogestrel (Ovral*) $$ A
OMNICEF $$$$ B
Optipranolol* $$ A M

ORAP $$$$$ B
ORAPRED $$$$$ C
Orphenadrine $$$$ A
ORTHO-DIENESTER $$$ B
OVRETTE $$ B
Oxaprozin $$$$$ A
Oxazepam Cap $ A
OXISTAT $$$ B
OXSORALEN-UL $$$$ C
Oxybutynin $ A M
Oxycodone $$$ A
Oxycodone /APAP $ A
Oxycodone /ASA $ A

OXYCONTIN $$$$$ B

Pan Mist LA* $$ A

PANAFIL $$$$$ B
PANCREASE $$$$$ B
Pancrelipase $$$$$ A
Parlodel* $$$$$ A M
PARNATE $$$$$ B
PATANOL $$$$ B

MVI (Generic,Rx On $ A
MYCELEX TROCHE $$$$ B
MYCOBUTIN $$$$$ C
MYCOSTATIN LOZ $$$ B
MYLERAN $$$$ +
MYSOLINE SUSP $$ B
Nabumetone $$$$$ A
Nadolol $$$$ A M
NAFTIN $$$$ B
NALFON CAP $$ B
Naltrexone $$$$$ A P
Naproxen $$$ A
Naproxen EC $$$$$ A
Naproxen Sodium $$$ A
NARDIL $$$$$ B
PHOSLO $$ B
PHOSPHOLINE $$$ B
Pilocarpine $$ A M
Pilocarpine/Epineph $$$ A M
Pindolol $$$$ A M
Piroxicam $$ A
PLAVIX $$$$$ B
PLENDIL $$$$ B M
PLETAL $$$$$ C P
Polycitra-K* $$ A
POLY-PRED $ B
Polysporin* $ A
Polytrim* $$ A
POLY-VI-FLOR $ B
PONSTEL $$$$$ C
Potasium Iodide $ A
Potassium Chloride $ A M
PRAMOSONE CREA $$ B
PRAMOSONE OINT $$ B
Pramoxine /HC $$ A
PRAVACHOL $$$$$ C
Prazosin $ A M
PRECOSE $$$$$ B M
PRED MILD $$ B

NIZORAL Rx SHAM $$$ B
Norgesic Forte* $$ A
Norgesic* $$ A
NORITATE $$$ B
NORPACE CR 100M $$$$$ B M
Nortriptyline $$ A

NORVIR $$$$$ B
NOVANTRONE $$$$$ +
Nystatin $ A

Nystatin /Triamcinol $ A

Nystatin Pwdr $ A
Nystatin Susp $ A
Nystatin Top $ A
Nystatin Vag $ A
OCUFLOX $$ B
OCUSERT $$$$ B
OGEN CREAM $$$$$ B
Ogen* $$ A M
Prochlorperazine $$ A
PROCRIT $$$$$ + P
PROCTOFOAM $$ B
PROCTOFOAM HC $ B
PROGLYCEM $$$$$ B M
PROGRAF $$$$$ B P
Promethazine $ A
Promethazine / CO $ A

Promethazine VC $ A
Propafenone $$$$$ A M

Propantheline 15mg $ A
Propoxyphene $ A
Propoxyphene /APA $ A
Propoxyphene CMP $ A
Propranolol $ A M
Propranolol /HCTZ $$ A M
Propranolol SR $$ A M
Propylthiouracil $$ A M
PROSCAR $$$$$ B
PROTONIX $$$$$ B
PROTOPIC $$$$ B

PAXIL $$$$$ B
PAXIL CR $$$$$ B
PEDIAPRED $$ B
PEG-INTRON $$$$$ + P

Pemoline $$$$$ A
PENETREX $$$$$ B

Penicillin VK $ A
PENTASA $$$$ B
Pentoxifylline $$$$ A M

PERMAX $$$$$ B

Phenazopyridine $ A
Phenergan DM* $$ A
PHENERGAN SUPP $ B
Phenergan VC* $ A
Phenobarb /Bellado $ A
Phenobarbital $ A M
Phenylephrine Opht $$ A
PHENYL-FREE Powd $$ B
Reserpine $ A M
RETIN-A GEL 0.01% $$$$ B P
RETIN-A MICRO $$$$ B P
Retin-A* $$$$ A P
RETROVIR $$$$$ B
RHINOCORT AQ $$$$ B
RIDAURA $$$$$ B
Rifampin $$$ A

RILUTEK $$$$$ C
RISPERDAL $$$$$ B

Robitussin AC* $ A
Rocaltrol* $$$ A
ROFERON-A $$$$$ + P
ROWASA $$$$ B
Roxicet 5mg $ A
ROXICODONE $$$ B
RUM-K $ B M
Rynatan* $ A
Rynatan-S* $ A
Rynatuss Ped* $$ A
Rythmol* $$$$$ A M

PRED-G $$ B
Prednisolone $$ A
Prednisolone Ophth $$ A
Prednisone $ A

Prelone Syrup* $$ A
PREMARIN $$ B M
PREMARIN CREAM $$$ B
PREMPHASE $$ B M
PREMPRO $$ B M
Prenatal MVI (Rx O $$ A M
Prenate Advance* $$ A M
Prevident* $ A
PRIMAQUINE $$$ B
Primidone $$ A M
PRO-BANTHINE 7.5 $ B
Probenecid $ A M
Procainamide $$ A M
Procainamide SR $$ A M
SOLGANOL $$$$$ B
SONATA $$$$$ B
SORIATANE $$$$$ C
Sotalol $$$$$ A M
SPECTAZOLE $$$ B
Spironolactone $ A M
Spironolactone /HC $ A M
SPORANOX $$$$$ B P
Stadol Nasal Soln* $$$$$ A
STARLIX $$$ C
STILPHOSTROL $$$$$ + P
STIMATE $$$$$ B P
STROMECTOL $$$$$ B
Sucralfate $$$$ A
Sulfacetamide / Pred $$ A
Sulfacetamide /Sulp $$$ A
Sulfacetamide Opht $ A
Sulfadiazine $ A
Sulfanilamide $ A
Sulfasalazine $$ A
Sulfasoxazole $ A

PROTROPIN $$$$$ +
PROVENTIL REPETA $$$$ B M
PROVIGIL $$$$$ C
PULMICORT NEB $$$$$ B M
PURINETHOL $$$$$ B
Pyrazinamide $$$$ A
Quinidine Gluconat $$ A M
Quinidine Sulfate $ A M
Quinidine Sulfate C $$$$$ A M
Quinine Sulfate $ A
Ranitidine $$$ A M
RAPAMUNE $$$$$ C P
REBETOL $$$$$ +
REBETRON $$$$$ +
REGRANEX $$$$$ B P
REMERON $$$$$ B
REMICADE $$$$$ +
RENAGEL $$$$$ C M
REQUIP $$$$$ B M
Rescon-GG* $$ A
RESCRIPTOR $$$$$ B
TESLAC $$$$$ +
Tessalon* $$ A
Testosterone Cypio $ +
Testosterone Enan $ +
Testosterone Prop $ +
Tetracycline $ A
TEXACORT $ B
THALITONE $ B M
THEODUR $$ B M
Theophylline $$ A M
Thioridazine $ A
Thiothixene Cap $ A
Thiothixene Soln $ A
THORAZINE CAP $ B
THORAZINE SUPP $ B
THORAZINE SYRUP $ B
Thyroid $ A M
Thyroid Dessicated $ A M
THYROID STRONG $ B M
THYROLAR $$ B M
TIAZAC $$$$$ B M
SALAGEN $$$$$ B
Salsalate $ A
SALUTENSIN $$ B M
SANDIMMUNE $$$$$ B P
SANSERT $$$$$ B
SANTYL $$$$$ B
Selegiline $$$$$ A M
Selenium Sulfide $ A
SERENTIL $$$$$ B
SEREVENT Disk $$$$$ B
SEREVENT MDI $$$$$ B
SEROQUEL $$$$$ B
SEROSTIM $$$$$ +
Silver Sulfadiazine $$ A
SINGULAIR $$$$$ B
SKELAXIN $$$ B
SLOBID $$$$ B M
SLO-PHYLLIN $$ B M
Sodium Chloride $ A
Sodium Cit-Cit Acid $ A
Sodium Fluoride $ A M
TRANSD-NTG 0.8M $$ B M
TRANXENE SD $$ B
Trazadone $ A
Triamcinolone $ A
Triamcinolone/Orab $ A
Triampterene /HCTZ $ A M
Triazolam $$ A
Tricitrates* $$ A
TRICOR $$$$$ C
TRIDESILON $$ B
Trifluoperazine $$ A
Trihexiphenidyl $ A M
TRILEPTAL $$$$$ C M
Trilisate* $$$ A
Trimethobenzamide $ A
Trimethoprim $ A
TRINALIN $$$$$ B
TRIPHASIL $$$ A
Triple Antibiotic+H $ A
Triple Sulfa Vag $ A
TRIZIVIR $$$$$ C
Sulfinpyrazone $ A
Sulindac $$ A
SUMYCIN SYRUP $ B
SUMYCIN TAB $ B
SUPRAX $$$$$ B
SURMONTIL $$$$ B
SUSTIVA $$$$$ B
Talwin NX* $$$$ A
Tambocor* $$$$$ A M
Tamoxifen $$$$$ A M
TAO $$$$ B
Tapazole* $$ A M
TAZORAC $$$$$ B P
TEGRETOL $$$ B M
TEGRETOL XR $$$ B M
Temazepam $ A
TEMODAR $$$$$ + P
TEQUIN $$$$$ C
TERAZOL $$$ B
Terazosin $$$$$ A M
Terbutaline $ A M
Verapamil $$ A M
Verapamil SR $$ A M
VEXOL $$$ B
VIBRAMYCIN SYR $ B
VIDEX $$$$$ B
VIOXX $$$$$ C
VIRA-A $$$ B
VIRACEPT $$$$$ B
VIRAMUNE $$$$$ B
VIREAD $$$$$ B
Viroptic* $$$ A
VISTARIL SUSP $ B
Vitamin D 50,000 IU $ A
VIVELLE $$ B M
VIVELLE-DOT $$ B M
VIVOTIF BERN $$$$ B
VOLMAX $$$$ B M
Warfarin $$ A M
WELCHOL $$$$$ C
Wellbutrin-Sr* $$$$$ A
XALATAN $$$$ B M

Ticlopidine $$$$$ A M
TIGAN 100mg Cap $ B
Tigan Supp* $$ A
TILADE $$ B
Timolide* $$$ A M
Timolol $$$ A M
Timolol Ophth $$$$ A M
TOBI NEB $$$$$ +
TOBRADEX $$$ B
TOBRAMYCIN OIN $$ B
Tobramycin Ophth S $$ A
Tolazamide $ A M
Tolbutamide $ A M
Tolmetin $ A
TONOCARD $$$$ B M
TOPAMAX $$$$$ B M
TOPROL XL $$ B M
TORECAN $$$ B
TORNALATE $$$$ B
Torsemide $$ A M
TRANSDERM-SCOP $$$$ B
Tropicamide $$ A
TRUSOPT $$$ B M
Tussi Organidin* $$ A
TUSSIONEX $$$$ B
Twin K* $ A
Ultram* $$$ A
Ultrase* $$$$$ A M
ULTRAVATE $$$$ B
UNIPHYL $$$$ B M
Urised* $$$ A
URISPAS $$$$$ B
UROCIT-K $$$$ B
Ursodiol $$$$$ A
VALCYTE $$$$$ B
VALTREX $$$$$ C
VANCERIL DS $$$$ B M
VANCOCIN $$$$$ C
VANTIN $$$$$ B
VASOSULF $ B
VELOSEF SUSP $$ B
VENTOLIN ROT CA $ B
XELODA $$$$$ +
XYLOCAINE DENT $$ B
YASMIN $$ B
YODOXIN $$$$ B
Yohimbine $ A
Zanaflex* $$$$$ A P
ZANTAC SYRUP $$$ B M
ZARONTIN $$$ B M
Zaroxolyn* $$ A M
ZENAPAX $$$$$ B P
ZERIT $$$$$ B
ZOCOR $$$$ B M
ZOFRAN $$$$$ C P
ZOLADEX $$$$$ + P
ZONEGRAN $$$$$ C
Zovia $$ A
ZOVIRAX OINT $$$$ B
ZYPREXA $$$$$ B P

Prescription formularies continually change to reflect the most recent advances in drug therapy. Therefore, this list is not inclusive and does not guarantee coverage. However, it represents an abbreviation of the member's prescription drug coverage.

drug = Generic Drug DRUG = Brand Drug P = Prior Authorization

drug* = Brand name listed for reference only, generic equivalent available at a generic copay Brand Name products where generic is available; non-formulary copayment will apply

+ = Charged to Medical

Each $ Represents at Least $10 in Wholsale Cost

A = A Tier Generic C= C Tier Nonpreferred B = B Tier Brand M = Maintenance Benefit

APPENDIX B

Study Drugs

STUDY DRUGS

MEDICATION	Formulary Status	Formulary Therapeutic Equivalent	GPI 4 CATEGORY
Aciphex	B Tier Brand	None	Proton Pump Inhibitors
Actonel	B Tier Brand— Maintenance Benefit	None	Calcium Regulators
Allegra	B Tier Brand	None	Antihistamine-Non-Sedating
Amaryl	B Tier Brand— Maintenance Benefit	Glipizide or Gliburide	Sulfonylureas
Augmentin	B Tier Brand	None	Penicillin Combinations
Avandia	C Tier Non-preferred	Glipizide or Gliburide	Insulin Sensitizing Agents
Avelox	C Tier Non-preferred	Cipro (B Tier)	Fluoroquinolones
Clarinex	Not listed	Allegra	Antihistamine-Non-Sedating
Cozaar	B Tier Brand— Maintenance Benefit	None	Angiotensin Ii Receptor Antagonists
Detrol La	C Tier Non-preferred	Oxybutynin	Urinary Antispasmodics
Ditropan Xl	Not listed	Detrol LA	Urinary Antispasmodics

Elidel	Not listed	Protopic	Immunomodulating Agents -Dermatitis
Imitrex	B Tier Brand	None	Serotonin Agonists
Lexapro	Unlisted	Paxil, Prozac, or Celexa	Selective Serotonin Reuptake Inhibitors (Ssris)
Maxalt	B Tier Brand	None	Serotonin Agonists
Nasacort	B Tier Brand	None	Nasal Steroids
Nexium	Not listed	Aciphex or Protonix	Proton Pump Inhibitors
Oxytrol	Not listed	Oxybutynin	Urinary Antispasmodics
Paxil	B Tier Brand	None	Selective Serotonin Reuptake Inhibitors (Ssris)
Protonix	B Tier Brand	None	Proton Pump Inhibitors
Toprol Xl	B Tier Brand— Maintenance Benefit	None	Beta Blockers Cardio-Selective
Valtrex	C Tier Non-preferred	Acyclovere	Herpes Agents
Vioxx	C Tier Non-preferred	Ibuprophen or Naproxen	Nsaia's

Wellbutrin	Unlisted (SR is listed)	Bupropion	Misc. Antidepressants
Zorcor	B Tier Brand— Maintenance Benefit	None	Hmg Coa Reductase Inhibitors

APPENDIX C

Prescribing Data by Physician

Table C1. Average Cost per 30 Day Prescription by Physician, 2003

Clinic	Dr.	Rx	Days Supply	Selling Price	30 Day Rx
X	X1	5237	153906	242464.45	47.26
	X2	714	19042	35967.69	56.67
	X3	2236	55742	90647.78	48.79
	X4	7921	249126	347359.90	41.83
	X5	10968	321738	524155.43	48.87
	X6	4804	119475	185041.02	46.46
	X7	10866	341687	509842.58	44.76
	X8	8103	233958	358316.53	45.95
Y	Y1	6431	245628	330636.67	40.38
	Y2	5931	204828	254296.28	37.25
	Y3	7860	281850	328040.64	34.92
	Y4	9173	292058	403896.21	41.49
	Y5	4931	168971	215663.55	38.29
	Y6	6674	212098	281990.98	39.89
	Y7	2252	50228	69735.64	41.65
	Y8	7434	228659	320392.42	42.04
Z	Z1	6754	200459	279217.73	41.79
	Z2	1953	64682	82305.57	38.17
	Z3	9391	288847	393241.58	40.84
	Z4	11524	366427	503293.95	41.21
	Z5	2317	71848	105315.94	43.97
	Z6	3111	84437	122708.89	43.6
	Z7	7857	243462	331141.65	40.8

Table C2. Average Cost of 30 Rx for Study Drugs by Physician-

Clinic	Dr.	RXS	Days Supply	Selling Price	30 Day Avg Cost
X	X1	694	25510	$61,876.25	72.77
	X2	157	4787	$14,589.99	91.44
	X3	268	7961	$22,532.19	84.91
	X4	1048	36931	$108,286.13	87.96
	X5	1520	52971	$158,948.17	90.02
	X6	545	16999	$51,252.24	90.45
	X7	1544	53556	$162,562.50	91.06
	X8	1323	45154	$131,434.17	87.32
Y	Y1	966	41012	$115,676.04	84.62
	Y2	686	27477	$69,596.50	75.99
	Y3	888	34183	$90,907.56	79.78
	Y4	848	29684	$93,172.81	94.16
	Y5	704	26200	$68,444.74	78.37
	Y6	845	30607	$91,982.16	90.16
	Y7	115	3860	$12,989.45	101
	Y8	992	36881	$104,116.16	84.69
Z	Z1	811	26041	$72,491.47	83.51
	Z2	309	10675	$29,532.04	82.99
	Z3	1167	42129	$110,433.59	78.64
	Z4	1515	54762	$157,547.90	86.31
	Z5	346	12752	$31,725.06	74.64
	Z6	357	11615	$35,155.68	90.8

	Z7	1222	43157	$99,232.60	68.98