

**HOW PHARMACEUTICAL MARKETING COMMUNICATIONS AFFECT  
PRESCRIBING PRACTICES, IS THERE AN ETHICAL CONFLICT?**

**FOCUS ON PHYSICIANS, MEDICAL CLERKS AND DRUG REPRESENTATIVES**

***THE CASE OF THE WESTERN SIDE OF PUERTO RICO***

By

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## ABSTRACT

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*The main purpose of this thesis is to evaluate the effect that pharmaceutical marketing communications in Puerto Rico has on physician's prescribing practices, and to determine if the communication and promotional system used represents an apparent ethical conflict, keeping in mind that Research and Development should prevail over marketing tactics. The population under study was physicians mainly situated in the Western area of Puerto Rico. The research methodology involved three phases: first, exploratory research; second, a qualitative primary data collection based on in-depth personal interviews, and third, a descriptive method based on a cross-sectional study. Four hypotheses were formulated and tested using Meta Analysis, two were rejected, one was accepted, and in a fourth hypothesis, the researcher could not find enough evidence to accept or reject it. Based on the theoretical approaches examined and the results from empirical research, the researcher can affirm that pharmaceutical marketing communication impact or influence the way that physicians prescribe. Findings suggest that the most prescribed drugs are the pharmaceutical's promoted drugs while the most used source of information to learn about drugs is provided by drug representatives, an action that creates an additional conflict. From the marketing perspective, findings reveal that the communication systems utilized are not the most adequate and that pharmaceutical companies should decrease their marketing costs and encourage more research and development programs in Puerto Rico and worldwide. Recommendations and guidelines of what should be the appropriate interaction between medical practitioners and drug representatives are included.*

## RESUMEN

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El propósito principal de esta tesis es evaluar el efecto que tienen las prácticas de mercadeo vigentes en Puerto Rico en el hábito de recetar de los médicos. El estudio también busca determinar si el sistema de comunicación utilizado crea algún conflicto ético, teniendo en cuenta que la investigación y desarrollo deben prevalecer sobre las tácticas de mercadeo. La población fue seleccionada geográficamente, enfocando en los médicos del área oeste de Puerto Rico. La tesis se dividió en tres fases: primero, se realizó una investigación exploratoria, segundo, se diseñaron los instrumentos para la recolección de información primaria, tercero, se llevó a cabo la investigación descriptiva basada en un cuestionario. Se formularon y probaron cuatro hipótesis usando Meta Análisis, dos se rechazaron, una fue aceptada y en la cuarta hipótesis no se encontró evidencia suficiente para aceptarla o rechazarla. Basándose en las teorías y resultados de la investigación empírica, se afirma que las prácticas de mercadeo utilizadas por las farmacéuticas influyen en la forma en que los médicos recetan; los medicamentos más recetados son los promocionados, y la fuente de información más utilizada para conocer de nuevos medicamentos es la información provista por los propagandistas médicos. Desde la perspectiva de mercadeo, las prácticas de comunicación actualmente utilizadas no son las más adecuadas. En el informe se presentan recomendaciones y guías de cuál debe ser la interacción de la clase médica y los propagandistas médicos, de tal forma que se reduzca la dependencia de la profesión médica con la industria farmacéutica. Al mismo tiempo, las farmacéuticas deben disminuir los costos de mercadeo y fomentar e impulsar la creación de programas de investigación y desarrollo, tanto en Puerto Rico como mundialmente.

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## **DEDICATORY**

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First and most important, my gratitude goes to God for being my inspiration and my strength through the completion of this research.

These last years of my life have been of great changes and growth, professionally, personally, as well as spiritually. I have completed my master degree after many sacrifices and maintaining me firm with the goal of being a professional. On the other hand, I have become a mother and through occasions the success of both phases may look contradictory, my investigation obtained a union of both rolls. I dedicate this thesis and the arduous working hours to my family and specially my parents for being the pillar of my life, and for all their love and support. To my husband, for always being by my side, and for granting me the most wonderful gift of life. Above all, I dedicate this investigation to my daughter VICTORIA, because she is the reason of my existence. She has given me a new way to see life; also she has taught me to love in a different and unexplainable way.

I dedicate this investigation to her, because the benefits that I reach with these thesis, will favor the future generations to which my daughter belongs; and because we must live thinking of the world we will leave to our descendents, a world full of peace, love, and quality of life.

God Bless You All!

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## LIST OF ABBREVIATIONS

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AMA	American Medical Association
AMSA	American Medical Student Association
DTC	Direct to Consumer
FDA	Food and Drug Administration
HIPAA	Health Insurance Portability and Accountability Act
IMS	Intercontinental Marketing Services
OIG	Office of Inspector General
PDA	Personal Digital Assistant
PhRMA	Pharmaceutical, Research and Manufacturers of America
PIAPR	Pharmaceutical Industry Association of Puerto Rico
PR	Puerto Rico
R&D	Research and Development
SAPI	Singapore Association of Pharmaceutical Industry
SMA	Singapore Medical Association
SMC	Singapore Medical Council
US	United States of America

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## CHAPTER I

### INTRODUCTION

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To determine how pharmaceutical marketing communications affect prescribing practices, requires for us to examine and analyze the transformation in quality of life, prosperity, as well as the changes in the population life expectancy rates. The relevancy of this factors and increases in quality of life and expectancy rates are direct result of the skyrocketing cost of marketing and communications rather than increases in manufacturing costs.

Thinking of the previous mentioned affirmation makes us think, who has not heard the term “longevity” in some point of his / her life? Throughout the years the world has suffered many changes, one of these is the increase in life expectancy of people. In the 1950’s decade, the worldwide longevity average was 61 years, currently in most parts of the world the average life expectancy is 76 years; while in United States the average expectancy is 77.85 years, in Puerto Rico it is 78.40 (Cobián, 2006). This dramatic change in the life expectancy of people seems to be caused by many factors: the technological advances in medicine, the ease and free access to health care services, and the increase in the sports, exercise and recreation activities people do, among others. This increase in longevity is also a direct result of prevention practices on people such as: improved nutritional intake, the availability of information on health, health care system and prevention, and the “new age” boom both in food (organic products) and wellness lifestyle. Considering these factors, and observing the ads in magazines, TV announcements, and other mass media communications, we can conservatively utter that marketing communications is possibly the larger influence on this dramatic change in life expectancy.

Some years ago when we witnessed the news, we saw and heard that many companies were searching for the cure of certain diseases; today, we notice that pharmaceutical companies

are marketing a variety of products to combat many disease all of which are largely advertised through media communications. The result of these efforts is the increase in product sales which subsequently are the effect of many years of product R&D. Ads are abundant and most disclose the benefits of consuming the medicine and about general health topics, all of them sponsored by the pharmaceutical companies. Some products which frequently advertise in the massive communication mediums are: Aricept, Adavir, Viagra, Cialis, among others.

The above statements are compelling examples of the impact of ads, communications, and the pharmaceutical industry evolution in our lives. No doubt, the pharmaceutical industry in United States (US) has been evolving radically during the last two decades. Studies by Angell (2004), Moreau (2005), AMSA (Marketing report, n.d.) which appear throughout different media assert that pharmaceuticals have changed from their initial purpose of Research and Development (R&D) to one with more emphasis in marketing and selling drugs, causing an apparent ethical conflict. In this context, this thesis also encompasses the evolution, and the effect of marketing communications in consumer decision making, and more importantly, the effect different communications has on doctors prescribing practices.

### **1.1 Thesis Purpose**

The main purpose of this thesis is to evaluate the effect that pharmaceutical marketing communications in Puerto Rico (PR) has on prescribing practices, and second, to determine if the system utilized poses an apparent ethical conflict, keeping in mind that R&D should prevail over marketing tactics.

This research will be implemented under several premises all of which are directed to testing the anticipated results and specific objectives: First, to determine if the marketing communication process apparently utilized by the industry is the most adequate and ethical,

given the fact that patients use drugs prescribed by doctors, and patients decisions are based on trust and confidence. Second, to assess physicians and medical clerks' perception toward pharmaceutical industry marketing practices and the potential conflict of interest that might arise. Third, to evaluate if current marketing communications practices undermine loyalty obligations of doctors to patients and undermine the trust on clinical relationship between doctor and patient. At the end of the research, the investigator will attempt to establish if the prescribing practices existing in PR are affected by the pharmaceutical marketing communications prevailing in the US and elsewhere.

## **1.2 Thesis Justification**

The idea for this thesis is based on different news, reports, articles, studies and publications reviewed by researchers stating that there are ethical problems and apparent conflict of interest in North America, Europe and Australia between the drug companies and the doctors that prescribe the drugs (The National Institute for Health Care Management Research and Educational Foundation, 2000) which can harm the patient. Specifically, this study will be based on research by, Keim, S. M., Sanders, A. B., Witzke, D. B., Dyne, P., Fulgniti, J. W. (1993), Breen (2004), Strang et al (1996), Hoffman, J.R., Wilkes, M. (1999), and Brennan, et al (2006), and other sources. From this standpoint, this research will address its main objective, the way drug marketing communications affects different sectors and how it is implemented in real practice. The medicines prescribed in US are branded and expensive, contrary to the system used elsewhere including the European Union, where inexpensive but effective products are prescribed, and universal health care exist. Potentially, these costs are due to advertising and to the practice of prescribing what drug representatives inform and the samples given or left to doctors (Families USA, 2002).

While the focus of this thesis is PR, there are no significant published statistics or studies of this nature for the island on the subject. As a consequence, this research utilizes published US data and statistics as applicable to Puerto Rico's case.

### **1.3 Research Questions and Specific Research Objectives**

In order to address the subject, some major research questions are presented. The questions will be answered through specific objectives and quantified formulated hypothesis. The questions to be answered are: First, Which are the most used pharmaceutical marketing communications techniques implemented by the industry? Second, which are the inflectional and decisional factors used by medical practitioners that affect the drug selection process? Third, which are the main sources of information used by medical professionals through which the sectors learn about drugs and pharmaceutical products? Fourth, what impact do pharmaceutical marketing communications have on physician prescribing practices? Fifth, which are the ethical issues between health professional and the pharmaceutical industry? In the following paragraph the researcher will try to objectively answer these questions, and test the hypothesis by defining five research objectives.

#### **Specific Research Objectives**

**1.3.1** To examine and discuss which are the main sources of information used by medical practitioners to become informed about drugs and pharmaceutical products, while illustrating the controlling practices via well-known cases (to answer research question three).

**1.3.2** Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices (to answer research questions one and four).

**1.3.3** Determine which type of communication relationship exists across groups including the pharmaceutical industry representatives and evaluate if is there an apparent ethical conflict in this relationship (to answer research question five).



**1.3.4** Evaluate the influencing factors that affect physicians prescribing practices and drug selection process, across the board, emphasizing PR's case (to answer research question two).

**1.3.5** Based on the study designed, evaluate findings and recommend alternative ways in which the pharmaceutical marketing communication practices towards the medical professionals should be amended to avoid ethical conflicts.

#### **1.4 Thesis Expected Outcomes**

At the end of this study, the implemented research will try to evidence how medical practitioners are influenced by pharmaceutical marketing communications practices, and to investigate the possibility that the system used to market products might create ethical conflicts in the interaction. The research design, will quantitatively test the four formulated hypothesis, and should answer the main questions and specific research objectives in at least forty percent of the cases with a margin error of ten percent.

#### **1.5 Thesis Expected Contribution**

Since no study of the nature of this thesis was found by the author in PR, it is the hope of this researcher that findings in this study will help to clarify the issues regarding pharmaceutical marketing communications and how this affect prescribing practices in the island. Additionally, justifications regarding the apparent ethical conflicts should be addressed. From the marketing discipline perspective, we aim to contribute and illustrate the influence that marketing communications tools have on prescribing practices.

Based on the thesis findings, the researcher will develop a guideline of what should be the appropriate interaction between medical practitioners and drug representatives, while seeking to diminish and eliminate the apparent ethical conflict in the relationship between the sectors. Not least, the study will point out different ways to reduce the relative dependency of the medical profession from the pharmaceutical industry.

## 1.6 Concepts and Terminology

For a proper understanding of the information provided on this thesis, some terms and concepts are defined below.

<b>Drug Representatives</b>	Sales professionals that generally have science education. Many of them have a pharmacy degree and are responsible for: increasing product sales, for a geographical territory, for a group of physicians for a specific area of health care like pediatric or oncology (Rose, 2002)
<b>Ethical Conflict</b>	A situation in which a person, such as a public official, an employee, or a professional, has a private or personal interest sufficient to appear to influence the objective exercise of his or her official duties. (McDonald, 2006)
<b>Marketing</b>	Is a social and managerial process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products of value with others (Kotler, 2000).
<b>Marketing Communications</b>	Methods used by a firm to communicate with its existing and prospective customers (U.S. National Library of Medicine, n.d.).
<b>Medical Clerks</b>	For the purpose of this thesis, the medical clerks are the interns <sup>1</sup> and residents <sup>2</sup> medicine students. The term medical clerk is also relating to a <a href="#">physician</a> who has completed <a href="#">medical school</a> and is in the <a href="#">process</a> of receiving specialized <a href="#">training</a> (U.S. National Library of Medicine, n.d.).
<b>Pharmaceutical Industry</b>	This industry comprises establishments primarily engaged in one or more of the following: manufacturing biological and medicinal products; processing botanical drugs and herbs; isolating active medicinal principals from botanical drugs and herbs; and manufacturing pharmaceutical products intended for internal and external consumption such as ampoules, tablets, capsules, vials, ointments, powders, solutions, and suspensions (Bitpipe, n.d.).
<b>Physicians</b>	The physicians are skilled health care professional trained and licensed to practice medicine; also they are known as doctor of medicine. (U.S. National Library of Medicine, n.d.).

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<sup>1</sup> The interns are physicians gaining supervised practical experience in hospital after graduating from medical school (U.S. National Library of Medicine, n.d.).

<sup>2</sup> The resident is a physician serving residency in which he or she obtains medical training and education that normally follows graduation from medical school and licensing to practice medicine. The resident completes his medical school and / or an internship and is in the process of receiving specialized training (U.S. National Library of Medicine, n.d.).

## **1.7 Thesis Outline and Structure**

The thesis is presented in 9 chapters; the first chapter presents the background and structure of the study. The remaining of this thesis presents the methodology, an analysis of the various phases of the research, and research findings. Further on, conclusions, recommendations and guidelines for future research are presented. Following is the explanation of the chapters' contents.

**1.7.1** Chapter I. Introduction: presents the purpose and justification of the study. It also establishes the objectives, expected outcomes and the potential contribution of this thesis to the academic discipline of marketing.

**1.7.2** Chapter II. Literature Review: reviews and presents secondary data and studies either pro or against the interaction of physicians and medical clerks with drug representatives. Pharmaceutical marketing communications literature and statistics is also reviewed and analyzed.

**1.7.3** Chapter III. Methodology: describes the study design, the population and sampling procedure, the measuring instruments, the procedures for each phase, the time-frame of data collection, and specifies how the researcher extracts, scans, implements, processes and analyzes the data.

**1.7.4** Chapter IV. Results and Discussion: explains the investigation results and compares it with the literature review and secondary data results.

**1.7.5** Chapter V. Limitations: states the limitations of the thesis since its beginning.

**1.7.6** Chapter VI. Conclusions, Recommendations and Future Research: summarizes the most important findings of the research presented, relates it to literature already discussed, and informs the readers if the thesis achieved the objectives set forth. The

recommendation section includes of what to this researcher should be the guideline of an appropriate interaction between medical practitioners and drug representatives in Puerto Rico and in the global marketplace (Thesis Contribution). The recommendations offered aim at reducing the apparent ethical conflict perceived across groups, and suggests potential research related to pharmaceutical marketing communications. Finally, this chapter concludes with expressions on student learning and on how academic experiences and the thesis contribute to the marketing discipline. Not least, recommendations as to where future research should lead or contribute are also included.

**1.7.7** Chapter VIII. Bibliography: this section presents a complete list of the resources utilized in this thesis.

## CHAPTER II

### LITERATURE REVIEW

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#### **2.1 Pharmaceutical Industry and the Case of Puerto Rico**

In order to address the thesis subject, the author examined several theoretical approaches for this study, among them Long (2004), Anderson (2003), Keim, et al (1993), Strang et al (1996) and different reports including (Interphex, 2007). Studies will be compared to findings to determine if the perceived marketing communication problems in PR are different to that elsewhere.

The pharmaceutical industry is a fast growing commerce that is devoted to discover through research, develop, manufacture and sell pharmaceutical products that safely alleviate, treat or cure a wide range of diseases or ailments, extend and improve quality life. According to the Intercontinental Marketing Services (IMS) Report “2003 Year in Review” as reported in Long (2004), the global market size and the growth for the pharmaceutical industry since 1994 have increased significantly. Some of the factors that contributed to the 1994 global market growth are: the amount of drugs launched between 1990 and 1994, where 10 of the largest pharmaceutical companies together to produce an average of five new drugs per year (Stein, R.M., n.d); also, the FDA increased the amount of new molecular entities approved. From 1994-1999 the approval rate for new drugs increased by almost 50 percent per year (Berndt, E.R., 2001). At the same time, many mergers and purchases occur in those years, per example: PCS bought Eli Lilly, Medco was acquired by Merck, Diversified Pharmaceutical Services was purchased by Smith Kline & Beecham, among others (Congressional Budget Office, 1998). The globally sales for the 1994 was \$246.4 billion in sales, while in 2002 this industry reached more than \$400 billion in sales (IMS Health, 2003). The top ten potential key markets for this industry

account for over eighty percent (80%) of the world market. Those key markets are: US, Canada, Japan, China, Mexico, Germany, France, United Kingdom, Italy and Spain according to Long (2004). Particularly, US sales exceeded \$216 billion of dollars (Long, 2004). The same study shows that PR reached a dollar market size of \$1.5 billion of dollars. In terms of PR spending, the average expenditure reached more than \$8.0 billion annually on health care expenditures, including consumer's prescription, medical services, and Department of Health expenditures (PIAPR, n.d.).

To meet the emergent demand for pharmaceutical products, firms employ one of two well-defined task structures: firms either discover or develop branded medicinal compounds or manufacture generic drugs that are not covered by patents and are already Food and Drug Administration (FDA) approved for sale (Anderson, 2003). Studies by Long (2004) show the existence of some upward demand drivers for the pharmaceutical industry from 2004 to 2008 which are: the potential best-seller drugs, price increases, the Medicare benefits and the direct to consumer advertising spending increase. At the same time, other drivers are causing a downward spiral per example: the introduction of generic imports for personal use, product developing economics and slower growth in sales force (Long, 2004). Concurrently, prescription volume continues to increase. Some factors contributing to the increase in prescription volume are: the increasing utilization of prescription drugs, especially by the elderly population, the growth in managed care and its reliance on prescription drugs, and the increased pharmacy therapy for their enrollees (Health Education Alliance for Life and Longevity, 1998).

The market share of medicines is a continuously increasing one and operates in an even increasing competitive environment; pharmaceutical companies discover over and over new products or "blockbuster drugs" to sustain their cash flow. However, in the process, firm's

competitiveness have brought alone some problems: The first problem that companies are facing is the introduction of substitutes that undercut their market share; and increased competition from generics which can slash a manufacturer's cash flow as a result of production of "off patent" products (Spilker, 1994). This subject is relevant to this thesis because branded companies innovate and create value for the healthcare system and often the sector is rewarded with a monopolistic position. Moreover, as patents expire, firms' producing new generic drugs seek the opportunity to create value via competition. At that point, since branded companies lose revenues on older products, they design strategies to generate additional profits and to reduce production cost, including creating strategies directed at marketing communications, product differentiation, and logistic solutions through third parties providers such as DHL, FedEx and UPS, among others (Corbin, 2006).

### **Pharmaceutical Industry in Puerto Rico**

According to the Pharmaceutical Industry Association of Puerto Rico, the pharmaceutical sector is very important and a significant contributor to the Puerto Rico Gross National Product (PIAPR, 2001). The sector has demonstrated steady growth since operations are generated on the Island. Approximately 30,000 direct and more than 96,000 indirect jobs are created by the sector. Pharmaceuticals are a major contributor to the tax coffers of the Commonwealth. At global level, PR industry performance has achieved world recognition as the leading center for pharmaceutical product manufacturing (PIAPR 2005).

According to the latest publication of PRIDCO (n.d.), Puerto Rico's Pharmaceutical sector is one of the largest industrial sectors offers pharmaceutical manufacturers, 16 out of the top 20 best selling pharmaceuticals in the United States manufactured in the island, a full range of suppliers and services, including the availability of contract manufacturers. In addition, over

USD \$31 billion worth of pharmaceutical products were shipped from Puerto Rico in 2003; in fact, Puerto Rico was the world's largest international shipper of pharmaceutical products in 2003 with a 24.5% share of total shipments.

## **2.2 Pharmaceutical Marketing Communications and Promotional System**

The pharmaceutical industry use marketing communications to disseminate a firm's marketing messages to its target market, regardless of the media used. This is a reason why companies use different marketing strategies and tactics to market their products. Additionally, marketing strategies are often the source of a firm's competitive advantage (Anderson, 2003). "Marketing communication is concerned with the general behavior and perceptions of the organizations that are promoted to stakeholders; it focuses on product and service, and is primarily concerned with demand generation, and positioning. This concept integrates the offline and online marketing channels, through the usage of an extensive amount of customer information in setting and tracking marketing strategy (Wikipedia, Marketing Communications, 2007)". Another reason for using marketing communication is the trend toward the globalization of marketing networks, which force promotional campaigns to come more effective in order to reach and influence targeted doctors and patient's audiences (Anderson, 2003).

Pharmaceutical marketing is different from other forms of marketing because the *end user* is not the only decision maker, nor he or she determines the products they will consume. The end users (patients) consult their physicians which at the same time helps patients to guarantee the safe administration of the medicine. As a result of the influence process, pharmaceuticals promote their products to physicians and sometimes target consumers through the use of direct-to-consumer campaigns. The pharmaceutical companies integrate the marketing communications to develop an optimal combination of communication elements. One example



of this trend is the advertisement campaigns for the anti-impotence drug Viagra. Studies show that the objective of the pharmaceutical industry marketing communication is to change medical profession values, attitudes, and behavior as well prescribing practices as a consequence (Peay and Peay, 1988, Coyle, 2002, Engle, 1994).

Table 2.1 summarizes the most examined relevant theories related to the pharmaceutical marketing communications. These approaches will be compared with the thesis findings at the end of the study, and some match up will be implemented to compare the thesis results with the previously reviewed approaches.

**Table 2.1 Theoretical approaches based on several studies**

Studies / Approach	Studies Results	References
<p>Studies on pharmaceutical marketing communications influence prescribing practices</p>	<p>In Barnes and Holcenberg's study (1971), 60% of medical students and 75% of pharmacy students felt that promotional practices influence prescribing.</p> <p>70% of the Canadian surveyed by Strang (1996) et al. agreed that sales representatives affect physicians prescribing habits.</p> <p>Common conclusions across different studies: Doctors who rely more on pharmaceutical promotions are heavier or less rational prescribers, or adopt new medicines earlier than those who rely less on promotion.</p>	<p>Barnes, C. J., Holcenberg, J. S. (1971) <i>Northwest Medicine</i>, 70, 262-266.</p> <p>Strang, D., Gagnon, M., Molloy, W., BTdard, M., Darzins, P., Etchells, E., Davidson, W., (1996). <i>Annals of the Royal College of Physicians and Surgeons of Canada</i>, 29, 474-478.</p> <ul style="list-style-type: none"> <li>• Becker, M. H., Stolley, P. D., Lasagna, L., McEvilla, J.D., Sloane, L. M. (1972). <i>Journal of Medical Education</i>, 47, 118-127.</li> <li>• Bower, A. D., Burkett, G. (1987). <i>Journal of Family Practice</i>, 24, 612-616.</li> <li>• Caudill, T. S. /Johnson, M., Rich, E. C., McKinney, W. P. (1996). <i>Archives of Family Medicine</i>, 5, 201-206.</li> <li>• Cormack, M. A. Howells, E. (1992). <i>Family Practice</i>, 9, 466-471.</li> <li>• Haayer, F. (1982). <i>Social Science and Medicine</i>, 16, 2017-2023.</li> <li>• Mapes, R. (1977). <i>Medical Care</i> 15, 371-381.</li> <li>• Strickland H., Jepson, M. H. (1982). <i>Journal of the Royal Society of Medicine</i>, 75, 341-345.</li> <li>• Stross, J. K. (1987). <i>Journal of General Internal Medicine</i>, 2, 155-159.</li> </ul>

<p><b>Benefits of using drug reps outweigh negative effect.</b></p>	<p>American general practitioner surveyed by Pitt and Nel (1988) rated sales representatives as the 3rd most important influence on their prescribing decisions, while advertisement as 5th, and gift as 6th.</p> <p>Most directors of family practice residency programs in the US (56%) felt that the information and resources provided by sales representatives affect the prescribing of resident and practicing doctors.</p> <p>Most directors of internal medicine residency programs (67%) felt that the benefits of sales representatives outweighed the negative effects.</p>	<p>Pitt, L., Nel, D. (1988). <i>European Journal of Marketing</i>, 22, 7-14.</p> <p>Bucci, K., Frey, K., (1992). <i>Journal of Family Practice</i>, 34, 49-52.</p> <p>Lichstein, P. R., Turner, R. C., O'Æ Brian, K. (1992) <i>Archives of Internal Medicine</i>, 152, 1009-1013.</p>
<p><b>Presentations by drug representatives should be banned</b></p>	<p>From the internal medicine faculty and residents survey (467 participants) by McKinney et al. (1990), 52% of faculty and 66% of residents agreed that presentations by sales representatives should be banned at their institutions.</p>	<p>McKinney, W., Schiedermayer, P., Lurie, D.L., Simpson, N., Goodman, D.E., Rich, J.L. Eugene., C. (1990). <i>Journal; of American Medical Association</i>, 264, 1693-1697.</p>
<p><b>Lack training on how to interact with drug representatives</b></p>	<p>70% of psychiatry trainees did not feel they had sufficient training about interacting with sales representatives.</p>	<p>Hodges, (1995) Brian. <i>Canadian Medical Association Journal</i>, 153, 553-559.</p>
<p><b>Ethical conflict exist between medical practitioners and pharmaceutical marketing and their drug representatives</b></p>	<p>74% of the emergency medicine residents surveyed by Keim et al (1993) felt that sales representatives sometime crossed ethical boundaries by giving gifts.</p>	<p>Keim, S. M., Sanders, A. B., Witzke, D. B., Dyne, P., Fulgniti, J. W. (1993). <i>Annals of Emergency Medicine</i>, 22, 1576-1581.</p>
<p><b>Pharmaceutical marketing material as a source of drug information for medical practitioners</b></p>	<p>In a 1974 FDA survey implemented in the US, 64% of all doctors, and 80% of the general practitioners and pediatricians reported using materials from sales representatives as a source of drug information.</p>	<p>Moser, R. H. (1974). <i>Journal; of American Medical Association</i>, 229, 1336-1338.</p>
<p><b>Gifts increase the cost of medicine and the gift giving should be coarted.</b></p>	<p>64% of the patients surveyed by Blake and Early (1995) believed that gifts giving increase the cost of medicine. They approved more of doctors accepting some gifts like drug samples, medical books, ballpoint pens, and conference expenses, than dimmers, baby formula, and golf tournaments.</p>	<p>Blake, R. L., Early, E. K. (1995). <i>Journal of the American Board of Family Practice</i>, 8, 457-464.</p>

### 2.2.1 Pharmaceutical Marketing Process

The pharmaceutical industry is much related to the marketing discipline in numerous ways. The field of marketing deals with decisions on the 4 P's (product, place (distribution and logistics), promotion and pricing); as well with ethics and the business environment. In the following paragraphs the researcher will compare and make a relation between marketing and the pharmaceutical industry using the Marketing Mix Approach (Pride, W., and Ferrel, O. 1995).

One of first variables that marketing consider is “**PRODUCT**”; this include the research (discovery) and development of a medical product, this part start by an identification of the biological object, and pass through validations and trials in order to develop a new product and obtain the correspondent patent. After firms obtain the patent and due to the highly regulated that the pharmaceutical industry is, the product passes through clinical trials (testing) in order to ensure the safety of the consumers. According to Rowberg (2001) the R&D process can last for about 1 to 19 years (maximum of 12 for research and 7 for development and trials). After the pharmaceutical firm ends the R&D process, they can submit the application for Food and Drug Administration for approval in order to market the new drug product. The product variable also includes the manufacturing cost and production of drugs in order to introduce the product to the commercial market. This segment is deeply controlled, since the product as well as the facilities needs to meet with quality, sanitary and safety standards. This step also includes the formulation of brand names, planning of packages including the designs and materials, packaging and storage of the drug products. After the product is in storage centers, pharmaceuticals need to find the best way to situate the product in the right place and in the consumer / user mind.

In this instance the marketing variable “**PLACE**” takes an important role in the pharmaceutical marketing process because in this step the industry search, analyze and choose

the appropriate distribution channels and design and effective program to handling, inventorying, and carrying products in order to minimize the overall distribution cost. One example of the highly regulation that exists in this industry is the fact that FDA enforced regulation prohibiting the sale and distribution of adulterated, misbranded, or hazardous drug products (Pride and Ferrel, 1995: P.42).

Jointly with the place variable, “**PROMOTION**” takes an important role, and is an intrinsic part of this thesis. Its role in the chain is to deliver the manufactured drugs to the end consumer. Some decisions regarding the promotion variable are: set and determine the marketing objectives, choose the types of promotion to be used, and the right advertising medium to deliver the message. The pharmaceutical products are divided into two main types: over the counter (OTC) and prescription medication. These products are delivered through two channels respectively: direct to consumer (DTC) or through medical practitioners. The OTC products are promoted through television advertisements, print media or over the internet. Moreover, the prescription medications are promoted through scientific journals, conferences, and drug representatives who hold informal meetings with medical practitioners in which presents information from clinical trials. Also, pharmaceuticals send printed promotions to offices and hospitals. As a general approach, the primary pharmaceutical promotion objective is to stimulate demand through different marketing communication channels.

The **PRICE** in pharmaceutical industry is controversial sometimes, because some drugs have a high cost. To set the price, pharmaceuticals analyze the product’s competition, the product cost, the promotion and distribution expenses as well as other internal and external variables.

Jointly with product, promotion, place, and price, we need to consider ETHICS as an integral part of marketing. Matching ethics with marketing highlights a relationship that describes which behavior is right or wrong in marketing practices. Nowadays, some marketers engage in ethical problems because of enlightened liberal self-interest feelings about ethics. This apparent ethical conflict emerges when the personal values are different from the organizational, industry and society values. The ethical conflict arises when the codes of ethics of companies are not clearly expressed (which might occur because of lack of proper training) and drug representatives make their own decisions. Another possible reason is that the pharmaceuticals code of ethic is clearly expressed but not implemented at all, or else because drug representatives misinterpret the code for several reasons: perhaps because when he or she promotes any drugs in the physician's office, they establish a relationship by themselves, without any supervision or without any monitoring mechanism of his or her work. For this reason in pharmaceutical industry the variable promotion can tolerate situations that can create ethical issues. Some examples are: misleading or false advertising, deceptive sales promotion or publicity, and others associated to personal selling situation inducement, all of which are prohibited by Federal law (Pride and Ferrel, 1995: p.67). At the federal level the Lanham Act, originally passed in 1947, prohibits false and misleading advertising. A firm can even violate the act when the company did not expressly intend to deceive. An advertisement or communication is deemed to be deceptive or misleading when:

- A substantial number of people or the "typical person" is left with a false impression or misrepresentation that relates to the product.
- The misrepresentation induces people or the "typical person" to make a purchase (Clow & Baack, 2002).

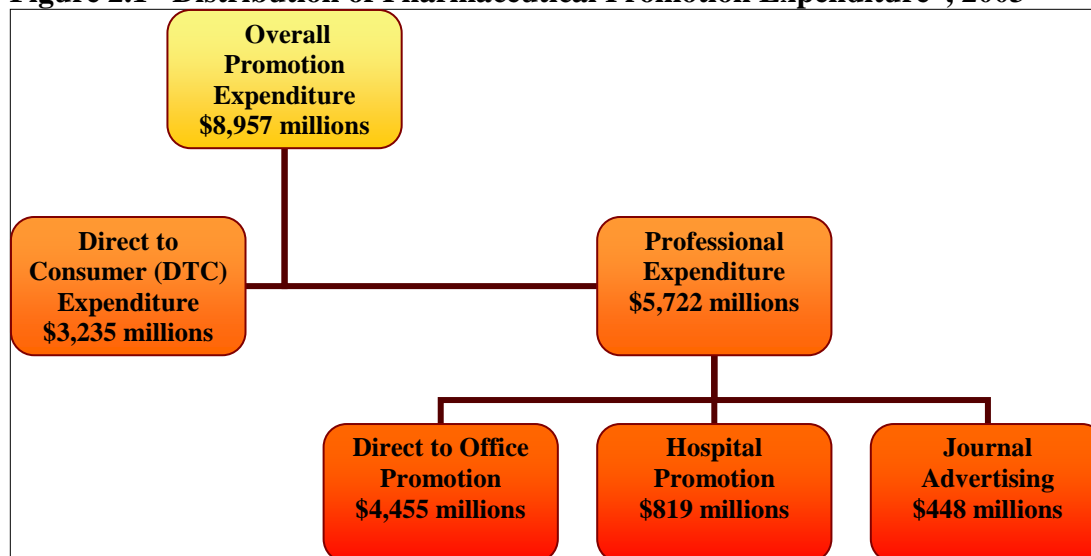
According to the American Marketing Association (2004) in its Statement of Ethics: Ethical Norms and Values for Marketers establishes that marketers must do no harm, must add value to the organizations and customers, must foster trust, and must embrace, communicate, and practice the fundamental ethical values that will improve consumer confidence in the integrity of the marketing exchange system.

### **2.2.2 Promotion and Research at the Pharmaceutical Industry**

Aiming to change prescribing practices, promotional spending in large multinationals has grown significantly since 1990's, according to the latest statistics from Intercontinental Marketing Services (IMS, 2003). However, the same growth is not apparent in Research and Development (R&D) investments. The pharmaceutical industry's trade association, Pharmaceutical Research and Manufacturers of America (PhRMA), reported that the Research and Development expenditures for this industry in US for 2004 were \$39 billion. At the same time other entities like National Institute of Health (n.d.) invests approximately \$28 billion annually in medical research including universities, medical schools, and other research institutions. Also the non-for profit organization PhRMA Foundation (whose objective is to promote public health through scientific and medical research) in 2006 invested in different research programs approximately \$1,832,372 (PhRMA Foundation, 2006). The latest IMS Health report published in 2004 shows that overall promotion expenditure reached \$8,957 million of US dollars; this number does not include samples and other figures (see figure2.1). These expenditures are directly related to the high annuity of money used to promote directly to doctors rather than the amount assigned to any other subject area(s). Moreover, a detailed description of promotional expenditures shows that, from the amount spent in advertising,

\$3,235 million represent the Direct to Consumer<sup>3</sup> (DTC) expenditure and \$5,722 million represent the professional expenditure (CMR, 2004)<sup>4</sup>. From the professional expenditure \$4,455 million are directed to office promotion<sup>5</sup>, \$819 millions to hospital promotion<sup>6</sup> and \$448 millions to journal advertising<sup>7</sup>.

**Figure 2.1 “Distribution of Pharmaceutical Promotion Expenditure”, 2003**



Source of Data: IMS Health report for the year 2003.

Figure elaborated by: Shirley Rodríguez Mari

Even though these numbers appear correct, endless reports affirm that this direct effort stimulates mostly the tendency to entice doctors to prescribe products they hear about or are directly offered at seminars sponsored by drug representatives. Table 2.2 presents a comparison of marketing expenses versus research and development (R&D) expenses for the year 2000 in

<sup>3</sup> Direct to Consumer is the advertisement for products on television, magazines, newspapers, radio and outdoors.

<sup>4</sup> According with IMS Health, Integrated Promotional Service, and CMR, 2004 the professional expenditure includes the office promotion, hospital promotion and journal advertising.

<sup>5</sup> According with IMS Health, Integrated Promotional Service, and CMR, 2004 the office promotion includes cost associated with the sales activities of pharmaceutical representatives that are directed to office- based physicians.

<sup>6</sup> According with IMS Health, Integrated Promotional Service, and CMR, 2004 the hospital promotion capture the cost associated with sales activities of pharmaceutical representatives that are directed to hospital-based physicians and directors of pharmacies.

<sup>7</sup> According with IMS Health, Integrated Promotional Service, and CMR, 2004n the journal advertising reflects advertising expenditures for prescription products appearing in medical journals.

the United States (US). For the purpose of this thesis, US data is taken as Puerto Rico since PR industry is directly related to the US market. The purpose of this information is to present a clear perspective of the industry expenses, according to the U.S. Securities and Exchange Commission (SEC, 2000).

**Table 2.2 Marketing vs Research and Development Expenses for 2000**

<b>Marketing Versus R&amp;D Expenses -- 2000</b>					
<b>Corporation</b>	<b>Revenue (2000)</b>	<b>Marketing and Operating Expense</b>	<b>% of Revenue</b>	<b>R&amp;D</b>	<b>% of Revenue</b>
<b>Merck</b>	<b>40.4B</b>	<b>6.2B</b>	<b>15%</b>	<b>2.3B</b>	<b>6%</b>
<b>Pfizer</b>	<b>29.5B</b>	<b>11.4B</b>	<b>39%</b>	<b>4.4B</b>	<b>15%</b>
<b>Bristol</b>	<b>18.2B</b>	<b>5.6B</b>	<b>31%</b>	<b>1.9B</b>	<b>10%</b>
<b>Abbott</b>	<b>13.7B</b>	<b>2.9B</b>	<b>21%</b>	<b>1.4B</b>	<b>10%</b>

Table elaborated by: Shirley Rodríguez Mari based in information obtained from U.S. Securities and Exchange Commission (SEC), and the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR).

Additionally, pharmaceutical companies target physicians and medical clerks via other different promotion elements including using medical classes as intermediaries in the distribution channel as a third parties logistics new forms to achieve low cost production and “just in time” effectiveness. At the same time, the latest report for No Free Lunch Organization<sup>8</sup> shows that U.S. pharmaceutical industry spends billions of dollars each year promoting its products to physicians. From this researcher’s point of view, the aforementioned is a trend whose main objective is to target medical practitioner through direct promotion.

The latest published report from IMS Health (2004) pronounces that the U.S. value of free product samples reached \$16,373 million of dollars (if the products were purchased at retail prices). Moreover, drug samples have become an important marketing tool used to promote prescription by newer agents, oriented to benefit patients. Reports show that the pharmaceutical

<sup>8</sup> No Free Lunch is an organization integrated by health care providers – physicians, pharmacists, nurses, dentists, among others – who believe that pharmaceutical promotion should not guide clinical practice, and that over-zealous promotional practices can lead to bad patient care. Their goal is to encourage health care practitioners to provide high quality care based on unbiased evidence rather than on biased pharmaceutical promotion.



industry is overzealous on its activities to target physicians as well medical clerks; mostly these activities are designed with the purpose of bringing them drug samples and information and, consequently, to entice them to prescribe the promoted products (Vries, Henning, Hogerzeil, and Fresle; 1994). Furthermore, since doctors use promotional material produced by drug companies, as a main source of information (Mansfield and Jureidini, 2003), the pharmaceutical industry provides them with the information they want through a number of media: medical representatives (detail women/men), stands at professional meetings, advertising in journals and papers, T.V. advertising, and direct mailing (Vries, Henning, Hogerzeil, and Fresle 1994).

Studies (Komesaroff and Kerridge 2002, Adams 2002, Rawe 2002, Brichacek and Seller 2001) indicate that pharmaceutical marketing communications apparently affects and influences prescribing practices through direct promotion programs and thorough other activities, including continuing education hosted by pharmaceutical companies. At the same time, studies by Fugh-Berman, A., Ahari, S. (2007) declare that pharmaceuticals purchase data on physician's prescribing habits in order to identify those prescribers who might be open to influence by their drug representatives.

#### **2.2.2.1 Drug Representatives**

In Puerto Rico (P.R.) as in the U.S., the pharmaceutical sector and drug representatives are an important part of the decision making process; their role is to inform doctors about new or existing drugs, their usage, safety information, cost, availability, benefits and risks or side effects (PIA Report, n.d.). Since drug representative's responsibilities is to inform and sell drugs, a question arises, do drug representatives provide useful and accurate information? This question will be answered in the results and discussion section. Determining the role of advisory information is important because it is the general basis of the prescription

practice and oftentimes it exhibits an apparent conflict of interest. This clarification is relevant because a partial element of this thesis is based on several studies assumptions. According to Breen (2004), it appears that 80% to 95% of physicians see drug representatives as a source of information on a regular basis. A potential explanation is that from 1996 to 2001 the size of the retail force for the top pharmaceutical companies grew more than double, going from about 42,000 to 90,000 drug representatives (Millenson and Shalowitz, n.d.). A recent study by Fugh-Berman and Ahari (2007) supports Breen (2004) studies, which specifies that there is one drug representative per 2.5 targeted physicians (40%) who primary role is not to assist doctors or patients, but to increase market share for targeted drugs.

#### **2.2.2.2 Physicians**

The importance of physicians rest in promoting health and prevent diseases. Their relationship with their patients is based in diagnosing disease and offering therapies for diseases (Thirumoorthy, 2001). This duty is curtailed in their Hippocratic Oath<sup>9</sup>, this code is more than a pledge used in graduation ceremonies, it's an ethical code attributed to Hippocrates used throughout the world to encourage medical practitioners to aspire to conduct that benefits those who care for sick people.

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<sup>9</sup> I swear by Apollo Physician and Asclepius and Hygieia and Panacea and all the gods and goddesses, making them my witnesses, that I will fulfill according to my ability and judgment this oath and this covenant: To hold him who has taught me this art as equal to my parents and to live my life in partnership with him, and if he is in need of money to give him a share of mine, and to regard his offspring as equal to my brothers in male lineage and to teach them this art - if they desire to learn it - without fee and covenant; to give a share of precepts and oral instruction and all the other learning to my sons and to the sons of him who has instructed me and to pupils who have signed the covenant and have taken an oath according to the medical law, but no one else. I will apply dietetic measures for the benefit of the sick according to my ability and judgment; I will keep them from harm and injustice. I will neither give a deadly drug to anybody who asked for it, nor will I make a suggestion to this effect. Similarly I will not give to a woman an abortive remedy. In purity and holiness I will guard my life and my art. I will not use the knife, not even on sufferers from stone, but will withdraw in favor of such men as are engaged in this work. Whatever houses I may visit, I will come for the benefit of the sick, remaining free of all intentional injustice, of all mischief and in particular of sexual relations with both female and male persons, be they free or slaves. What I may see or hear in the course of the treatment or even outside of the treatment in regard to the life of men, which on no account one must spread abroad, I will keep to myself, holding such things shameful to be spoken about. If I fulfill this oath and do not violate it, may it be granted to me to enjoy life and art, being honored with fame among all men for all time to come; if I transgress it and swear falsely, may the opposite of all this be my lot. ("Hippocrates", Encyclopedia Britannica, 2004).

Physicians are very related to the pharmaceuticals, according to Dr. T. Thirumoorthyx (2001) in his presentation “Introduction to Medical Ethics”, where he established that pharmaceutical industry is very closed to the physician – patient relationship as well is to the medical insurance, hospital and laboratories and the patients’ family, culture and religion. The magnitude of the relationship is so strong that Strang et al. (1996), in an important study, concludes that 70% of the Canadians agreed that sales representatives affect physicians prescribing habits. Following the same approach, researchers including Mapes (1977), Cormack and Howells (1992) conclude that doctors who rely more on pharmaceutical promotions are heavier or less rational prescribers, or adopt new medicines earlier than those who rely less on promotion. To confirm these findings, pharmaceutical companies, according to studies by Breen (2004), has increased its investments in a promotional spending per year per practicing doctor to about \$21,000.00 (Breen, 2004).

### **2.2.2.3 Medical Clerks**

These are healthcare professionals who work in hospital facilities and have direct contact with patients as well with drug representatives. The drug representatives overload medical clerks with promotions such as: small freebies (pens or calendars) or glasses, mugs, bags, books, clocks, calculators and many other items. According to Wiebe (1995), these samples encourage residents to develop relationship with drug sales representatives and therefore to be more likely to use the drugs those representative promotes.

Studies published by Monaghan, et al. (2003) conclude that significant deficiencies were noted in several aspects: medical student’s knowledge of pharmaceutical marketing expenditures, knowledge of professional ethics regarding interaction with drug companies, and finally the level of accuracy of drug information received from sales representatives. In the same

token, researchers including Rogers, Mansfield, Braunack and Jureidini (2004) conclude that the best policy for medical students would be to have no contact with drug companies. More importantly a 1990 study conducted by McKinney et al, with internal medicine faculty and residents, found that 52% of faculty and 66% of residents agreed that presentations by sales representatives should be banned.

### **2.2.3 Advertising – Direct to Consumer (DTC) and the End Consumer**

Direct-to-consumer is an advertising medium whose objective is to target consumers (patients). Researchers Bell, Wilkes and Kravitz (2000) in their research “The educational value of consumer targeted prescription drug print advertising”, established the argument that DTC can educate the public about medical conditions and associated treatments (been this a positive statement). On the opposite side, Hoffman and Wilkes (1999) found in their study: “Direct to consumer advertising of prescription drug” that the DTC of marketing creates a substantial demand for products in order to maximize firm’s profits (been this a controversial statement). These researchers insist that this marketing practice increases unnecessary prescribing and strain patient-doctor relationship. It is necessary to clarify that only the U.S. and New Zealand allow advertising of prescription drugs directed to patients (Mintzes et al., 2002), being the patients the end consumer of pharmaceutical products.

The end consumer is one of the most important elements in the marketing channel. The pharmaceutical marketing communications target them because they are the ones who finally buy the products. They are ultimately the patients and the client of medical services. Worse, the patient is a sick individual waiting for under the care and treatment of a physician. The pharmaceutical industry uses advertising as a powerful tool designed to create a demand, and to maximize profits (Hoffman and Wilkes, 1999). There is a public concern about the possibility

that direct to consumer advertising of prescription drugs will result in inappropriate prescribing and higher cost of care (Rosenthal, et al., 2002). The direct-to-consumer advertising consumer does not just influence the sick people; it persuades the entire population too.

**Numerical significance of direct consumers:** According to the Census Bureau (year 2000), the Western side of the Island of Puerto Rico has a population of 595,202 people which is approximately 15% of the population of the entire island. The table 2.2 presents the population, the amount of physicians by city, and the amount of physicians per person.

**Table 2.3 Comparisons of population, physicians and rate of physicians per person**

City	2000 Population	Physicians by city <sup>10</sup>	Rate of physicians per person
Aguada	42,042	47	0.11%
Aguadilla	64,685	192	0.30%
Añasco	28,348	18	0.06%
Cabo Rojo	46,911	56	0.12%
Guánica	21,889	16	0.07%
Hormigueros	17,320	13	0.08%
Isabela	41,789	36	0.09%
Lajas	27,009	19	0.07%
Las Marías	10,140	22	0.22%
Maricao	6,282	2	0.03%
Mayagüez	104,557	410	0.39%
Moca	37,845	36	0.10%
Quebradillas	25,338	16	0.06%
Rincón	14,301	10	0.07%
Sabana Grande	25,528	28	0.11%
San Germán	37,704	105	0.28%
San Sebastián	43,514	53	0.12%
<b>Western Side</b>	<b>595,202</b>	<b>1079</b>	<b>0.18%</b>

Table elaborated by: Shirley Rodríguez Mari based in information obtained from the U.S. Department of Commerce, Bureau of Census and Puerto Rico Planning Board and by Data collected by Shirley Rodríguez Mari for the thesis.

<sup>10</sup> The physicians by city are the amount of physicians in the western side of Puerto Rico.

## 2.3 Medical Ethics and Ethical Conflicts

### 2.3.1 Medical Ethics

The medical ethics concern presented here is very significant for the medical practice. This apparent problem involves the traditions, moral behavior and values by which the physicians may evaluate his/her relationships with patients, colleagues and society (Thirumoorthyx<sup>11</sup>, 2001.). The medical profession code of ethics, changes their approach when society behaviors change their values, competence, integrity, fairness, goodwill, and truth. According to the same author, the medical practice should have six main principles as major drivers for medical ethics:

1. *The Principle of Non-Malfesance*
2. *The Principle of Beneficence*
3. *The Principle of Autonomy*
4. *The Principle of Veracity*
5. *The Principle of Confidentiality*
6. *The Principle of Social Responsibility and Justice*

Komesaroff (2003) in one of his multiple research papers state, “There are concerns that liaison between doctors and drug companies will corrupt the primary purpose of medicine and squander the resources of the community, advancing the commercial objectives of industry and the acquisitive interest of clinicians in preference to legitimate care, education and research goals”. Following the same thinking pattern, Keim, et al. (1993) in his study found that 74% of the emergency medicine residents felt that sales representatives sometime crossed ethical boundaries by giving gifts.

### 2.3.2 Ethical Conflicts

Studies by Rawe (2002), Mansfield and Jureidini (2003) found that some promotion activities geared to the medical profession appear to exhibit ethical conflicts. For example, most

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<sup>11</sup>Thirumoorthyx wrote many presentations for the Centre for Medical Ethics and Professionalism for the Singapore Medical Association.

medical congress or conferences include: advertising on journals, gift giving, support on travel, meeting sponsorship and other education activities are paid for pharmaceutical companies. Studies by Komesaroff and Kerridge (2002) also report that the relationship between the pharmaceutical industry and medical profession includes clearly desirable aspects, (e.g., the cooperative efforts of industry, government and prescribers in trying to achieve quality use of medicines) and less clearly ethically justifiable aspects (e.g., acceptance of lavish gifts and money for entertainment expenses by doctors). According to Dana, Loewenstein, Katz, Caplan and Merz (2003) gift-giving appeals to the reciprocity rule between the sender (company) and the receiver (physician), this action creates a feeling of indebtedness in the target receiver, with an apparent informal avengement to repay the favors in some way. Dana et al. (2003) found that industry interactions correlate with doctors' preferences for new products that hold no demonstrated advantages over existing ones. Moreover, the same study showed that a decrease in the prescription of generics and a rise in both prescription expenditures and irrational and incautious prescribing is an apparent result of the interaction. Others studies by Canilleri, M., Cortese, D.A. (2007) and Brennan, et al (2006), show that pharmaceutical marketing communications affects prescribing practices, and create an apparent ethical conflict. At the same time, some vendor relationships like drug company inducements, including gifts and food, increase the conflict of interest. As a result, academic institutions like Stanford University, Pennsylvania University, and Yale University ban drug company-sponsored lunches and gifts (LA Times, 2007). General opinions coincide that during the past years difficulties regarding products prescribed and ethical issues have intensified. For instance, evaluating whether generics or private brands are used, analyzing how pharmaceutical marketing communication in private sectors takes sides and shows different positions on how marketing practices should be

implemented, are commonly discussed topics. No doubt, drug marketing is a complex process that involves physicians, medical students, drug representatives and patients. From the pharmaceutical point of view the drugs, marketing objective could be communicated by informing and persuading different groups to prescribe their products (drugs). From the patient's point of view, some ethical and moral issues arise regarding the interaction between the health professionals and pharmaceutical industry. Other types of conflict of interest arise from doctors who receive income for referring patients for medical tests. Studies have been shown that these same doctors refer more patients for medical tests than those doctors who do not receive income for referrals (Swedlow et al., 1992).

Recently, some pharmaceuticals were facing some marketing ethical issues. With the purpose of broadening the reader's knowledge, the researcher presents two well known ethical scandals (Pringle, A. (n.d):

**GlaxoSmithKline (GSK)**: A civil lawsuit, filed in New York, claimed that GSK committed fraud when it avoided informing physicians that studies of its highly profitable drug Paxil, also known as Seroxat, had shown that the drug was not only ineffective in adolescents, but might also contribute to some cases of suicide. Assuming these accusations are true, GSK acted in a clearly unethical fashion, as it deceived health care professionals and the public about the effectiveness and safety of its drug, presumably in order to maintain strong sales. This unethical behavior had the potential of seriously impacting human health, as consumers of the drug were sometimes at higher risk of suicide than if they hadn't taken the drug at all.

**Merck**: A study by the Food and Drug Administration reported that over four years, from 1999 to 2003, more than 27,000 heart attacks and sudden cardiac arrests may have occurred due to Merck & Co.'s arthritis drug Vioxx. Merck abruptly pulled its product from the market upon the release of the study. But, some have argued that Merck & Co. knew of the potential for health risks associated with Vioxx as early as five years before the recall, and never followed up on them, opting instead to market the drug without further research. If this is the case, then Merck & Co. acted in a clearly unethical fashion by not informing the public of the health risks, and affected the health of the public by releasing a product which was potentially dangerous.



Regarding the Merck issue, this company instructed the drug representatives to show physicians a pamphlet indicating Vioxx might be 8 to 11 times safer than other anti-inflammatory drugs. The firm also prohibited their representatives from discussing opposite studies (including those financed by Merck) that showed increased risks from Vioxx. Merck also launched a special marketing program -- named "Project XXceleration" and "Project Offense" -- to overcome the cardiovascular "obstacle" to increased sales (OMG Watch, 2005).

#### **2.4 Legal Base and Guides to the profession-rules established in other countries**

Since, ethical conflicts have come under scrutiny, many organizations and governments have developed guides and rules to try to reduce the problem. In 2003, the U.S. Department of Health and Human Services and the Office of Inspector General (OIG) published the "OIG Compliance Program Guidance for Pharmaceutical Manufacturers." Moreover, U.S. Food and Drug Administration (2004) carefully regulated how industry representatives should provide that information to physicians. Furthermore, the Pharmaceutical, Research and Manufacturers of America (PhRMA) created a Code of Interaction with Health Care Professionals (2002). To add to the regulations, the American Medical Association (AMA) has also designed a supplement "The Communication of Ethical Guidelines on Gift to Physicians from Industry" (2001) with the purpose of educating the medical class. Not least, the American Health Insurance Portability and Accountability Act of 1996 (HIPAA) has included important considerations in their bulletins, including the fact that drug representatives should not have free access to exam rooms or patients records (Health Strategy Group, Inc., 2004). During the last few years, some non-for profit organizations like No Free Lunch have emerged with similar purposes. The former organization is encouraging health care practitioners to provide high quality care based on unbiased evidence

rather than on biased pharmaceutical promotion. The American Medical Student Association<sup>12</sup> (AMSA) has also designed programs aiming to educate and train its members to interact professionally and ethically with the pharmaceutical industry, thus introducing specific campaigns on ethical issues.

More importantly, countries like Singapore, well reputed for establishing strict codes of ethical behavior, have set operational directives to govern the medical profession via the Singapore Medical Council (SMC) and the Singapore Medical Association (SMA). The Singaporean government has also established an ethical Code to govern the pharmaceutical industry through the Singapore Association of Pharmaceutical Industry (SAPI) Code of Marketing Practices.

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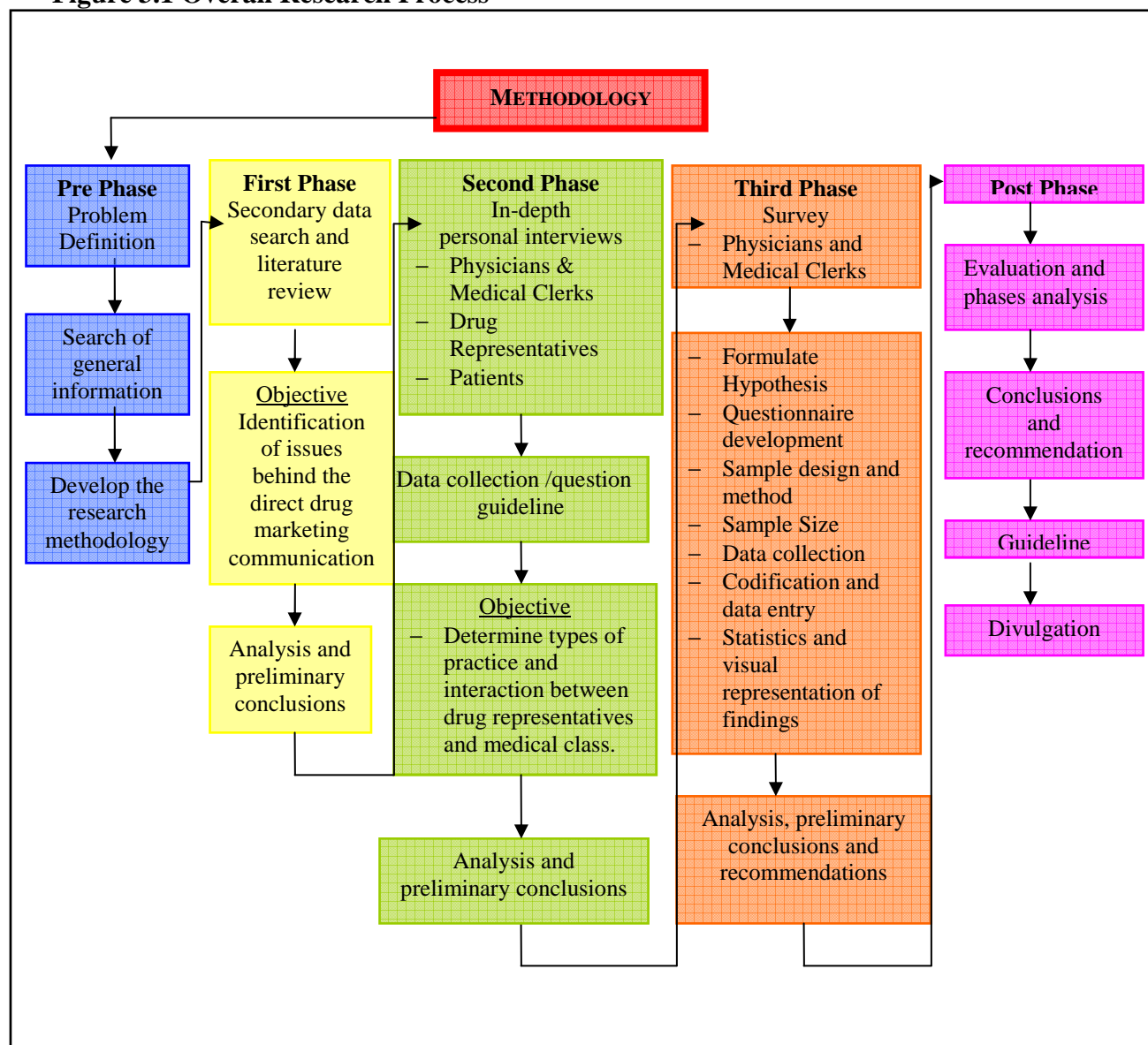
<sup>12</sup> The main purpose of AMSA is to provide medical students a chance to participate in medical organizations.

## CHAPTER III

### METHODOLOGY

For an appropriate execution of this thesis, the study was divided in three main research phases: the first one use exploratory research, the second phase manages a qualitative primary data collection, and the third phase makes use of a descriptive method of research, based on a cross-sectional study. The research sequence is illustrated in figure 3.1.

**Figure 3.1 Overall Research Process**



### **3.1. First Phase**

The first phase encompassed an exhaustive examination of secondary data and literature review related to the pharmaceutical marketing communications and health topics. Data reviewed included general journals, websites, and articles from scientific journals, among others. The relevance of these examinations relayed on in accomplishing the research aim to clarify some aspects of the study. This phase definitely helped to organize the research design and primary data collection plan. This phase was also aimed at understanding and determining which are the prescribing practices of the medical class in PR; how these practices were affected by marketing communications, and to identify the most used sources of information.

### **3.2. Second Phase**

The second phase managed primary data collection based on exploratory and qualitative methods, all established to collect information from different groups, to explore and determine which the prevailing issues among groups are. The research was designed and implemented based on in-depth personal interviews and examinations of limited cases. The findings obtained from this second phase were compared with the literature reviewed and at the end of the study with the results of the final survey. The sample design was a non-probability design based on a convenience sample.

#### **3.2.1. Physicians and Medical Clerks**

In this phase three (3) physicians from different specialties and two (2) medical clerks were interviewed to determine their practices and interaction with drug representatives. A question guideline was designed to implement the interviews (see Appendix #1). The sample of selected physicians used a non-probability design based on researcher's convenience. It is important to establish that the samples used on this phase weren't used in other phases. The final

sample selection was based on information gathered from the National Heritage Insurance Company, Puerto Rico's telephone guide, Health Department of the Commonwealth of Puerto Rico, and from the health insurance coverage guides. The output of information collected from this exploratory phase served as reference for the final questionnaire development.

3.2.2. **Drug Representatives** – Eight (8) drug representatives were interviewed to broaden the knowledge about their profession, their objectives, assigned roles within their organization, as well as understand their opinions on how they market their products. A question guideline was created to provide an appropriate structure to meet the study objectives (see Appendix #2). The purpose of the questions included in the guideline was to clarify the apparent ethical conflict between drug representatives and the medical class sectors.

3.2.3. **Patients** – Ten (10) patients were interviewed to find out the impact that pharmaceutical marketing communication has on this targeted group. The pharmaceutical industry invests an enormous capital in targeting customers (patients) through Direct to Consumer Marketing. At the same time, patients spend a significant amount of money in buying the prescribed drugs and receive drug samples from their physicians. To obtain information on the sector a question guideline was developed and submitted. (See Appendix #3).

### **3.3. Third Phase**

The third phase consisted of a descriptive research and formed the basis for the empirical section of the thesis. Seeking to test the research objective, four hypotheses were formulated. The decision criteria to test the formulated hypothesis was a set decisional rule of  $\alpha = .05$  as a critical value. The question guideline and a questionnaire are the basis for corroborating the hypothesis. This phase included the design, the questionnaire pretest (where twenty-five (25) questionnaires were submitted in order to validate and corroborate that the surveys questions

tested what the researcher wanted to probe), and a submission of an in-office survey to physicians and medical clerks groups. The researcher uses a sample instead of a census because of the time frame and the cost associated with the survey. The questionnaire (see Appendix #4) was designed using a combination of techniques based on findings from literature review and/or in-depth interviews and case analysis. The designed questionnaire includes open-ended, closed-end questions and scale-response questions. The types of questions were designed according the research objectives. To validate the questionnaire a Crombach alpha analysis was implemented. The questionnaires were validated and reliability measures were properly installed following standardized statistical procedures. The questionnaire design will try to prove the following hypothesis.

### 3.3.1. Hypothesis Formulation:

#### Hypothesis #1:

Ho: Current pharmaceutical marketing communications does not affect physicians prescribing practices.

**Ha: Current pharmaceutical marketing communications affects physicians prescribing practices.**

#### Hypothesis #2:

Ho: Even through physicians received information from different sources including publications and printed information, there is not a most impacting pharmaceutical marketing communications.

**Ha: Even through physicians received information from different sources including publications and printed information, the most impacting pharmaceutical marketing communications practice is drug representative.**

#### Hypothesis #3:

Ho: Prescribing private brands instead of generic brands products which ultimately save money for the patients can not create potential ethic conflict.

**Ha: Prescribing private brands instead of generic brands products which ultimately save money for the patients can create potential ethical conflict.**

**Hypothesis #4:**

**Ho:** There is no relationship between the quality of information that drug representatives provide to physicians and the physician's awareness of products.

**Ha:** There is a positive relationship between the quality of information that drug representative provide to physicians and the physician's awareness of products.

3.3.2. **Statistics** - The Statistical Package for Social Science (SPSS) was used to summarize and analyze the data in readable and easily interpretable form. Some used statistical procedures includes: descriptive statistics; Power analysis (p-value), cross tabulations analysis, correlation analysis, Chi Square Goodness of Fit Test, and Meta Analysis. Other programs including Excel were used to develop tables and graphs. Although the researcher initially took into consideration an Analysis of Variance (ANOVA), the statistics used as a critical determinant to prove the formulated hypothesis was a Meta Analysis in the course of the Chi Square Goodness of Fit Test.

3.3.3. **Sample Design & Method** - The population for the survey was a geographic area selection, aimed at physicians and medical clerks from the Western side of Puerto Rico. The cities used for the sample were selected according the geographical division of the Government of the Commonwealth of Puerto Rico as shown in the Figure 3.2. The cities are: Aguada, Aguadilla, Añasco, Cabo Rojo, Guánica, Hormigueros, Isabela, Lajas, Las Marías, Maricao, Mayagüez, Moca, Quebradillas, Rincón, Sabana Grande, San Germán, and San Sebastián.

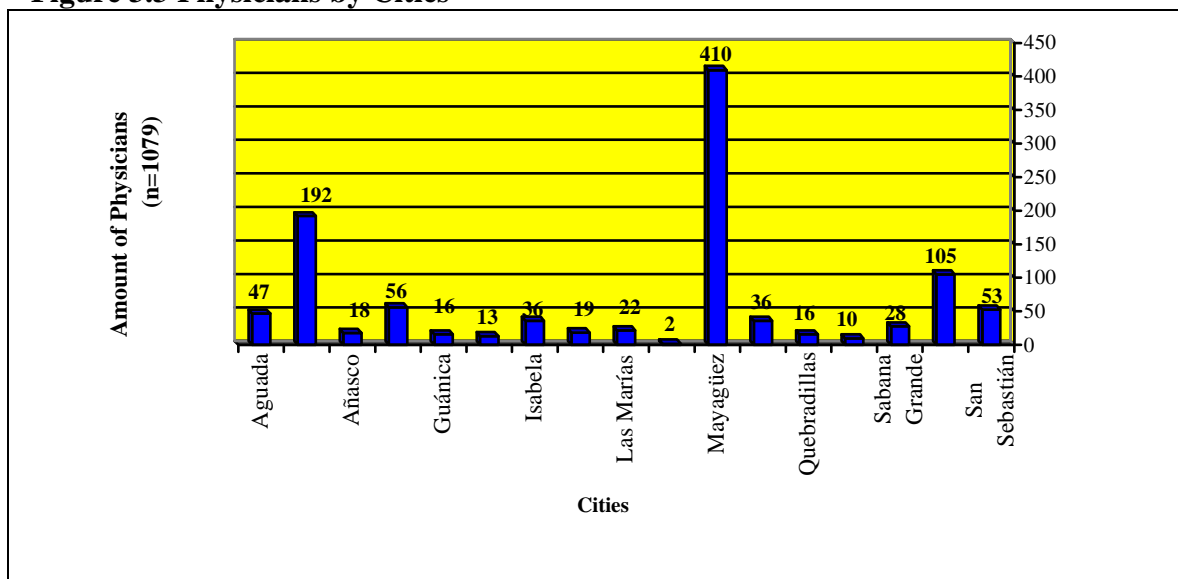
**Figure 3.2 Map of the Western of Puerto Rico**



3.3.4. **Sample Extraction & Size** - To develop a sample plan we defined the relevant population, and then we created the listing of the population (because the cost of obtaining the list from the Health Department of the Government of Puerto Rico is too expensive.) The population of physicians is known and finite; based on this, a probability stratified random sampling<sup>13</sup> was used. This means that the population of physicians would be divided into groups according to their medical practice cities and areas of specialties (see Appendix #5 that establishes the population of physicians by city and medical specialty). According to the created list, there are approximately 1,079 physicians in the Western side of PR. This represents the population from which the sample was extracted and the amount of physicians of the Western Region. As seen in the Figure 3.3 Mayagüez is the Western city with the largest amount of physicians (410), followed by Aguadilla with 192 physicians and San Germán with 105 physicians. The sample was drawn keeping the proportions of physicians per medical specialties and cities in the population.

<sup>13</sup> Stratified random sample selection methods reduce some of the errors that normally occur in a random sample.



**Figure 3.3 Physicians by Cities**

Source: Researcher's own elaboration based on collected data (2005).

Unfortunately, we can not precisely know if the created list is perfectly faithful to the target population, since the target group tends to change and open or close office repeatedly; this error can be consider as a frame error.

At the same time, 37 common medical specialties were considered in order to extract the sample (the researcher use the National Heritage Insurance Company most frequently named specialties). Almost all specialties are included in the sample, among them: Allergists, Anesthesiologist, Cardiologist, Surgery physician, Dermatologist, Endocrinologist, Physiatrist, Gastroenterologist, Generalist, Geriatrist, Infectologos, Immunologist, Emergency medicine, Family medicine, Industrial medicine, Integrated medicine, Internist, Nuclear medicine, Preventive medicine, Nephrologists, Neumologist, Neurosurgery, Neurologist, Obstetric and gynecologist, Ophthalmologist, Oncologist and Hematologist, Optometrist, Orthopedist, Otolaryngology, Pathologist, Pediatrics and Neonatologist, Podiatras, Chiropractor, Radiologist, Rheumatologist, Psiquiatrist, and Urologist.

Once the sample unit was selected, we calculated the sample size using the confidence interval approach. With this method we considered the amount of variability in the population, the accuracy, and the level of confidence.

The initial formula used to determine the sample size appears below:

$$n = Z^2_{\alpha/2} (PQ) / E^2, \text{ where}$$

$n$  = the sample size

$Z$  = standard error associated with the chosen level of confidence

$P$  = population proportion

$Q$  = (1-P)

$E$  = error of estimation

The level of confidence used in this thesis is 95%. A 95 percent level of confidence allow to state that the researcher is 95% confident that the true population percentage falls in the range  $\pm e$  percent around the percentage find in the sample. The  $z$  value associated with 95% of confidence is 1.96. The actual value of  $P$  is not known prior to the study, if  $P$  is unknown, researchers use .5 as an estimated of  $P$  and then  $q=1-.5= .5$ . The acceptable error establishes the desired level of accuracy, and explains how precise our sample estimate (%) is in relation to the population. For the purpose of this thesis, the error of estimation is 10%. The sample size for this thesis is **96 individuals** calculated based on  $n= 1.96^2(.5 \times .5) / 10^2 =96$ . According to Burns & Bush, (1999) a small population is one in which the sample exceeds 5 percent of the finite population size; in the case of this thesis the sample is 8.9% of the population of physicians. This sample exceeds the 5% rule. However, in this case, the sample size formula needs an adjustment (finite correction factor), which is done using a finite multiplier.

As a result, the sample size to be used for this study is:

$$n = \text{Sample size formula} \times \sqrt{\frac{N-n}{N-1}}$$

$$n = 96 \text{ individuals} \times \sqrt{\frac{1079 - 96}{1079 - 1}} = 92 \text{ individuals.}$$

In other words, the researcher needs a sample size of 92, not 96, because we are working with a small population. Using this formula we obtain the same accuracy level and gain time and cost savings. At the same time we ensured that the sample faithfully represented the population as well as for validity and reliability.

To assure that the sampling method is used faithfully, the researcher will use the drop-down substitution method. This is done in the cases where the individual who was qualified to be in the sample show us to be: unavailable, unwilling to response, or unsuitable. The ideal sample for this study was 92 physicians (see Appendix #6 for clarification of the physicians' sample for this thesis by cities and medical specialty). Then a probability sample was extracted within each group. Applying the same sample selection formula and parameters, we selected the sample of medical clerks as above. The Western area of P.R. has a population of 97 medical clerks approximately (see Appendix #7 that established the population of medical clerks' by hospital). From that amount an extracted sample of 10 medical clerks was selected (see Appendix #8 that established the medical clerks' sample for this thesis by cities and medical specialty). An automated random number generator was used to select the healthcare professionals that filled out the questionnaire. The same questionnaire was submitted to both groups between the November 15, 2006 and April 15, 2007. From the previously mentioned extracted sample, the questionnaires were sent. A total of 75 answered questionnaires were received physicians and 10 from medical clerks. The new calculated error using the sample of

75 participants is 11.32% which represents alpha ( $\alpha$ ). The response rate for each was 81.5% percentage for physicians and 100% percentage for medical clerks.

## CHAPTER IV

### RESULTS & DISCUSSION

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#### 4.1. Personal Interviews Results and Discussion

The objective of the personal interviews was to explore some issues among the relationship of the patients as the end consumer of medicines, the drug representatives as part of pharmaceutical marketing communication, and medical practitioners as pharmaceutical target market.

##### 4.1.1. Patients

Results from the personal interview administered to patients in Puerto Rico show that they, as the end consumer of medicines, are aware about the impact that advertising has on prescription cost. In order to find out what patients know and think about pharmaceutical marketing communications, the researcher interviewed patients randomly. The interviews revealed that on average patients see diverse pharmaceutical advertising with a frequency of 4 to 6 ads per day. At the same time, results from the interviews confirmed that the ads generate a question-answer relation between patient and physicians. Within the same study, the typical communication pattern that occurs is described as follows: patient asks physicians about the advertised drug, if the drug is good and appropriate to treat the illness, the physician prescribes it. Patients are conscious that pharmaceuticals market their products in order to promote sales, and keep the product in the consumer mind through ads repetition. Furthermore, they are aware that promotion increases drug cost. Those affirmations correlates with the previously analyzed literature review, where Hoffman and Wilkes (1999) who affirm that the advertising was used to create demand and maximize profits. Some of the products that the consumers remember are:

Claritin, Viagra, Levitra, Zyrtec, Flonase, Prilosec, Lomotil, and remember product for certain illnesses like: allergy, high blood pressure and cholesterol illness, yet patients do not tend to remember drugs names. Some of most recalled drugs are included in the twenty (20) drugs that accounted for fifty-nine percent (59 %) of all pharmaceutical industry spending on consumer prescription drug ads in 2000 (CBS, 2002). These spending are highly significant for this research. Per example the producers of Prilosec, mainly used to treat stomach ulcers, spent \$108 million in direct to consumer advertising, while Viagra which is used to cure impotence spent \$90 million of dollar (CBS, 2002).

#### **4.1.2. Drug Representatives**

Results from the personal interviews, to drug representatives shows that the main purpose of a sales representative is to orient, bring information, and deliver samples to physicians in order to differentiate the products from other similar products and stimulates sales. The dialogue revealed that drugs are promoted through missionary selling in which they deliver information about new drugs and how to use them to threat illness. These statements correlates in part with the PIA Report (n.d.) which state that the role of the drug representatives is to inform doctors about new or existing drugs including their usage, and safety information. To the question of education, the majority of drugs representatives have an academic degree on science or biology, while some have a degree in business. Pharmaceuticals train their sales staff in different areas like marketing (personal selling principally) and science (pharmacology of medicines).

Undoubtedly, drug representatives' report to have many difficulties with their job, one of them is the impenetrability of the market, because physicians do not give access to many drug representatives, or sometimes do not want to see them because say "we are too busy"; physicians, according to them, just want samples and not the information provided by the sales

force. As part of their job, they visit physicians frequently approximately one to four times per month, principally to deliver samples. The samples are mainly to start a new treatment on patient.

According to the interview outcomes, pharmaceutical firms, as part of their marketing strategies, include gimmicks like smalls' freebies or gifts. Yet it is felt that these promotional items did not create a commitment between the medical practitioners and drug representatives. Also, the pharmaceutical companies promote conferences and conventions with the purpose of informing physicians about new treatments, and others receive fees to as a consultant speaker. As a general opinion, drug representatives' belief that there is no ethical conflict between the medical classes in Puerto Rico.

#### **4.1.3. Physicians and Medical Clerks**

As a departure point, the researcher developed a question guideline to obtain information about physicians and medical clerk interaction with drug representative. The interviews revealed that the medical class uses information provided by pharmaceutical companies for various purposes including teaching patients about new products, even though patients often think that the provided information is not trusted at all. Complaints about too many visits by drug representative are frequent. These exaggerated visits is a common issue in many research papers, Vries et al. (1994) show that pharmaceuticals are overzealous on its activities to target physicians with the main purpose of bringing them drug samples. At the same time Wiebe (1995) point out that samples and freebies develop a relationship with drug representatives and encourage medical practitioners to use the drugs promoted by those drug representatives. The last previous statements correlates with the physician's affirmation that, firstly, they prescribe drugs promoted by pharmaceutical companies which are given to then by drug representatives.

Secondly, they prescribe drugs not promoted by pharmaceuticals but that have been used by them for a long time and provide good therapeutically results. As a standpoint, doctors affirm that pharmaceutical companies use drug representatives as link to promote products. Also, pharmaceuticals promote medical education, pay for conferences, convention and dinners where there is a speaker taking about medical themes. Regarding the ethics matter, the medical class takes some ethic courses in the university, but in the continuing medical education program there are no courses on the subject or on how to interact with drug representatives.

#### **4.1.4. Summary of Personal Interviews**

The personal interviews revealed some important details. In terms of patients, they are aware about the medicine cost and the cost association with advertising campaign which entices patients to ask doctors about advertised drugs or illnesses with the objectives of promote sales.

In the other side, the drug representative interviews established that their main role is being sales representatives; also they orient, provide information and bring samples to start new treatments. Results also disclose that the marketing practices used by drug representatives have the objective of differentiate the products and force sales; they affirm that the promotional strategies did not create commitment, and as a consequence did not create an ethical conflict.

Furthermore, the physician's personal interviews, state that physicians interact with drug representatives frequently, many of the time to received samples, promotional items, and /or information. Physicians affirmed that they used the promotional / informational items and participated in many of the marketing strategies they were invited to. However, they think that the information provided is not always accurate and confident. When prescribing, mainly, they recommend drugs promoted by pharmaceutical companies which drug representatives bring



samples. In the ethic aspect, they do not have sufficient knowledge about how the interaction with drug representatives should be.

## **4.2. Survey Results**

To facilitate understanding of this research, this paragraph summarizes primary information source. The main instrument to gather primary information for this thesis was a questionnaire with a total of 39 questions. The first 8 questions are directed to the acquisition of demographic data and general knowledge. The remaining items have a specific purpose which is to gather information that will allow us to test the hypothesis of this research. Out of the 39 questions that were part of the questionnaire, the researcher, extracted 74 variables. (See Appendix # 9 that presents the survey codification entry which presents a relationship between the variable and the question associated with it). The questionnaire was delivered into two groups: physicians and medical clerks. The researcher surveyed the medical clerks, because they represent the continuity of the medicine practice. Their answers were not taken in consideration for the hypothesis testing, because some of them have little or not have prescribing experience, but at the same time this medical practitioner interact with drug representatives in medical facilities frequently. The answers appear as follows.

### **4.2.1. Medical Clerks Survey Results**

#### **4.2.1.1. Demographics Descriptive Statistics Medical Clerks General Data:**

The interviewed medical clerks were 90% male whereas only 10% were females. According to the gathered information, many of them had “less than 30 years” (6/10 participants), and the rest ranges from 31 to 40 years (4/10 participants).

In terms of education, they acquired their degree between year 2002 and 2007, schooling was done from diverse universities in different countries such as: Universidad Central del Caribe,

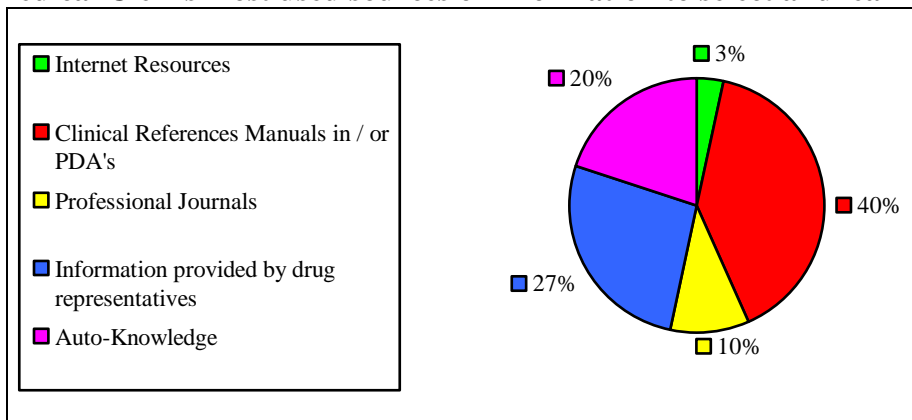
PR (1), Universidad Instituto Tecnológico de Santo Domingo (INTEC), RD (1), Universidad Iberoamericana (UNIBE), RD (2), Ponce School of Medicine, PR (2), and University of Puerto Rico, Recinto de Ciencias Médicas, PR (4). All of the respondents are making their internships or residences in hospitals; at the moment of the interview none of them had an established office. Furthermore, they have been working for a short period of time, 50% work less than one year and the other 50% from one to four years.

#### 4.2.1.2. Results and Statistics about Medical Clerks Prescribing Practices:

In terms of the types of drugs that typically and frequently they recommend or prescribe, they prescribe: first, non-promoted drugs, used by them for some time, which brings good therapeutically results; second, promoted drugs, that at the same time drug representatives leave samples of in the offices; third, promoted drugs, that drug representatives do not provide samples.

As a source of information to select and learn about drugs, medical clerks mostly used: information provided by: drug representatives, Clinical References Manuals and Auto Knowledge. The following figure presents medical clerks most used sources of information to select and learn about drugs.

**Figure 4.1 Medical Clerks most used sources of information to select and learn about drugs**



From the previously mentioned sources of information, medical clerks consider that the Clinical Reference Manuals in/or PDA's are the most confident and available resources to know about newly established drugs; as well the most frequently use source of information, and the easiest for application and usage.

The survey results show that, regularly, medical clerks interact with drug representatives more than 7 times a week (40% of respondents), or at least four to six times a week (40% of respondents). The range of time per visit is between 10-15 minutes. Most of the time, they interact with drug representatives in hospitals without appointment.

Also, the three principal reasons for which drug representatives interact with medical clerks are: to bring information about drugs, and to invite medical clerks to conferences hosted by the pharmaceutical which they represent.

In the same token, this instrument asks some specific questions about the efficiency of pharmaceutical marketing communication, specifically the one directed to medical clerks via drug representatives. Results show that many of the medical clerks agree (50% totally agree and 40% agree) that they use the drug information provided by pharmaceutical, for example the provided by drug representatives. Moreover, some of them are not sure if the information provided by drug representatives about newly introduced drugs (60%) and already established drugs (70%) is accurate, confident and useful. In the educational aspects, 50% of the medical clerks' are not sure about the education role of the drug representatives, whereas the other 50% agree that they are educators. All of the respondents (100%) affirm that pharmaceuticals sponsor classes, courses and seminars for professional enrichment. Even though medical clerks see drug representatives regularly, data shows that 60% of the participants are not sure of taken training about how interact with drug representatives.

The opinion of medical clerk's regarding if medical practitioners would have the same degree of contact with drug representatives if these did not distribute promotions or samples vary a lot, just 1/10 totally disagree, 3/10 disagree, 4/10 are not sure , and just 2/10 agree with the previous statement. In addition, 60% are not sure if the visits, information and gifts had any impact in the habit and behavior in terms of prescribing. On the other hand, 50% agree that gifts and samples will not impact their prescribing habit. When asked if these promotions from the pharmaceuticals influence their prescribing habit, 80% responded of not being sure if the promotion will influences the prescribing practices.

The same promotional freebie items delivered to physicians are delivered to medical clerks. Also the questionnaire sought data on the frequency with which medical clerks receive offers by other parts of the pharmaceuticals or drug representatives, as part of a sales strategy used by the industry. Table 4.1 shows a summary of the results regarding this matter.

**Table 4.1 Frequency into which promotional offers are given by pharmaceuticals to medical clerks**

Promotional Item	Always (%)	Almost Always (%)	Regularly (%)	Sometimes (%)	Never (%)
Small gifts such as pens, notebooks, mugs, etc.	60	20	20	0	0
Meals or drinks (in restaurants or in-office)	50	20	20	10	0
Entertainment or sporting event tickets	0	0	0	0	100
Medical texts	0	0	0	20	80
Medical equipment	0	0	10	20	70
Office equipment	0	0	0	0	100
Pharmaceutical samples for patients	0	0	0	0	100
Pharmaceutical samples or other items for personal family use	0	0	0	10	90
Substantial gifts or money	0	0	0	0	100

Further, medical Clerks consider that the most efficient way to receive information from pharmaceuticals is through drug representatives and conferences.

In the ethical aspect, medical clerks take ethical classes during their medical school years (90%); eighty percent (80%) affirm they attended continuing education courses yet do not consider ethical aspects. However, all of them want to take medical ethics courses.

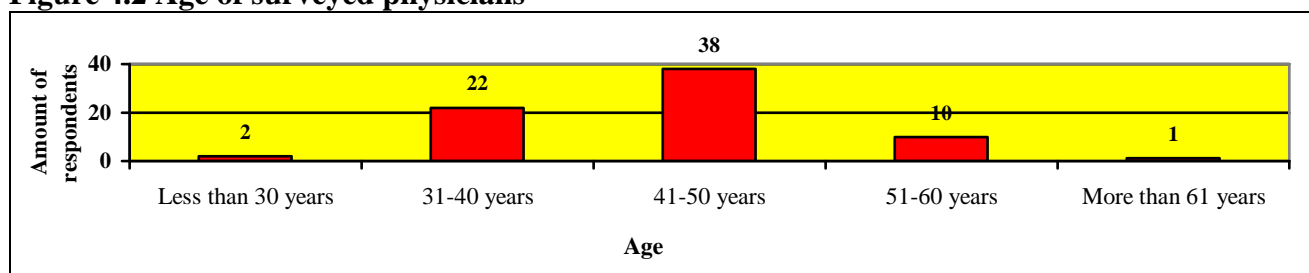
#### 4.2.2. Physicians Survey Results

The physician's survey was the main instrument for this thesis. Through this instrument the researcher was able to query the four formulated hypothesis. Different statistics were used to analyze the gathered information and present the results.

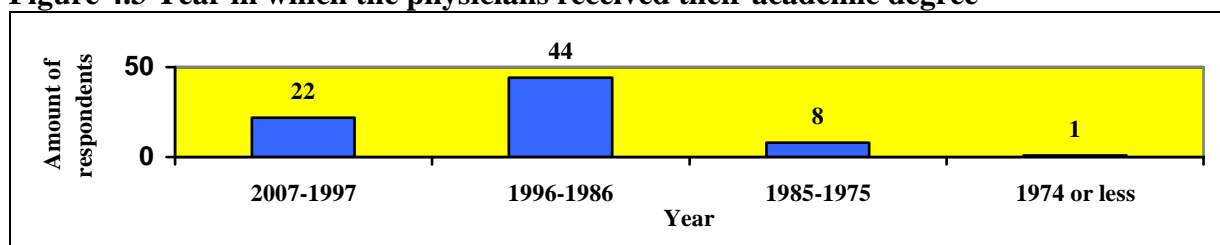
##### 4.2.2.1. Demographics Descriptive Statistics Physicians General Data:

As we can observe in figures 4.2 and 4.3, the used sample presents uniqueness in some aspects; the majority of the sample was male (77%) whereas only (23%) was female. According to the gathered information, the range of age from 41 to 50 years obtained the most answers (38 out of 75 respondents). Simultaneously, the age range with the fewer amounts of answers was the one with 61 years or older (1 person). This was followed by the less than 30 years of age (2 people). Below are illustrative tables for the age descriptive statistics.

**Figure 4.2 Age of surveyed physicians**



The majority of the interviewed physicians, acquired their degree between 1986 and 1996 (44 respondents); others between 1997 and 2007 (22 respondents) as show in the figure 4.3.

**Figure 4.3 Year in which the physicians received their academic degree**

At the same time the interviewed physicians received their degree from diverse universities in different countries including Puerto Rico, United States, Dominican Republic and Mexico. From the information gathered from sample, most of the Western side of Puerto Rico physicians obtained their degree in some higher learning institutions in Puerto Rico (60%), being the University of Puerto Rico the institution that got the first position, followed by Ponce School of Medicine. (See table 4.3 for a complete list of universities by countries)

**Table 4.2 Schools of medicine attended by the surveyed physicians**

Country	Medicine School	Amount of Respondents	Amount per Country
Puerto Rico	Universidad Central del Caribe	9	45
	Ponce School of Medicine	16	
	San Juan Bautista	2	
	University of Puerto Rico, Recinto de Ciencias Médicas	18	
United States	Drexel College of Medicine, Pennsylvania	1	5
	Florida State University, Florida	1	
	New Jersey Medical School, New Jersey	1	
	University of Rochester, New York	1	
Dominican Republic	University of Miami, Florida	1	14
	Pontificia Universidad Católica Madre y Maestra (PUCAMAYMA)	5	
	Universidad Central del Este (UCE)	1	
	Universidad Iberoamericana (UNIBE)	5	
Mexico	Universidad Nacional Pedro Henríquez Ureña (UNPHU)	3	10
	Universidad Autónoma de Guadalajara	10	
n=74 <sup>14</sup>			

Physicians from different specialties were interviewed to have a broader understanding of their relationship and interaction with drug representatives. Physicians of diverse specialties

<sup>14</sup> One respondent did not specify the medical school that he/she attended.

answered the survey; from the 75 answered surveys, 22 were from generalist physicians and 13 were internists, being these the specialties with the greatest amount of physicians. Table 4.4 shows a complete list of the amount of interviewed physicians by medical specialty.

**Table 4.3 Medical specialties among questionnaire respondents**

Medical Specialty	Amount of Respondents	Medical Specialty	Amount of Respondents
Anesthesiologist	3	Emergency Medicine	1
Cardiologist	2	Family Medicine	2
Surgery	5	Neurologist	1
Plastic / Hand Surgery	1	Ophthalmologist	2
Endocrinologist	2	Otolaryngology	1
Physiatrist	1	Pediatricians	6
Gastroenterologist	1	Radiologist	2
Generalist	22	Psychiatrist	3
Gynecologist	5	Urologist	1
Internist	13		
n= 74 <sup>15</sup>			

The questionnaire was also seeking data related to the amount of years that physicians in the Western area of PR have been practicing medicine (Table 4.5). The results show that 42.6% of the physicians in the Western area of the island have at least 5-10 years in their medical practice and 28% of the participants have been working as physicians from 16 to 21 years. A significant piece of information is the fact that only 3 out of 75 physicians who participated in the questionnaire have been working for less than 4 years.

**Table 4.4 Years in the medicine practice**

Range of Years	Amount of Respondents
Less than 1 year	1
1-4 years	2
5-10 years	32
11-15 years	14
16-20 years	21
More than 21 years	5
n= 75	

Out of the 17 towns that are part of the Western side of Puerto Rico, Mayagüez provided the greatest amount of responses, followed by Aguadilla. The questionnaire response rate for

<sup>15</sup> One respondent did not specify the medical specialty that is practiced.

Mayagüez was 84% while Aguadilla area provided a response rate of 94% (15 from 16 physicians (desired sample) answered the questionnaire).

**Table 4.5 Cities in which physicians have their main office**

City	Amount of Respondents
Aguada	3
Aguadilla	15
Añasco	1
Cabo Rojo	1
Guánica	1
Hormigueros	1
Isabela	3
Lajas	1
Mayagüez	32
Moca	1
Quebradillas	1
Rincón	1
Sabana Grande	2
San Germán	7
San Sebastián	4
n= 74 <sup>16</sup>	

For clarification purposes, no physicians from Maricao were interviewed due to the fact that the amount of physicians from the town was not representative for the sample selection. (Maricao only has two physicians). In the same way, Table 4.6 does not show any data from Las Marías since the physicians that work in Las Marías have their main offices in other towns. As an additional fact, 14 of the 75 physicians that answered the questionnaire assured having offices in other towns.

### **General profile of the physicians of the Western side of Puerto Rico**

As a general outline of the interviewed physicians, the majority of the physicians of the Western side of Puerto Rico were males between 41-50 years; they received their academic degree in between 1986 and 1996, from a university in Puerto Rico, and have been practicing medicine 4 years or more. In comparison with the US physicians population, the US physician

<sup>16</sup> One respondent did not specify the city of his main office.

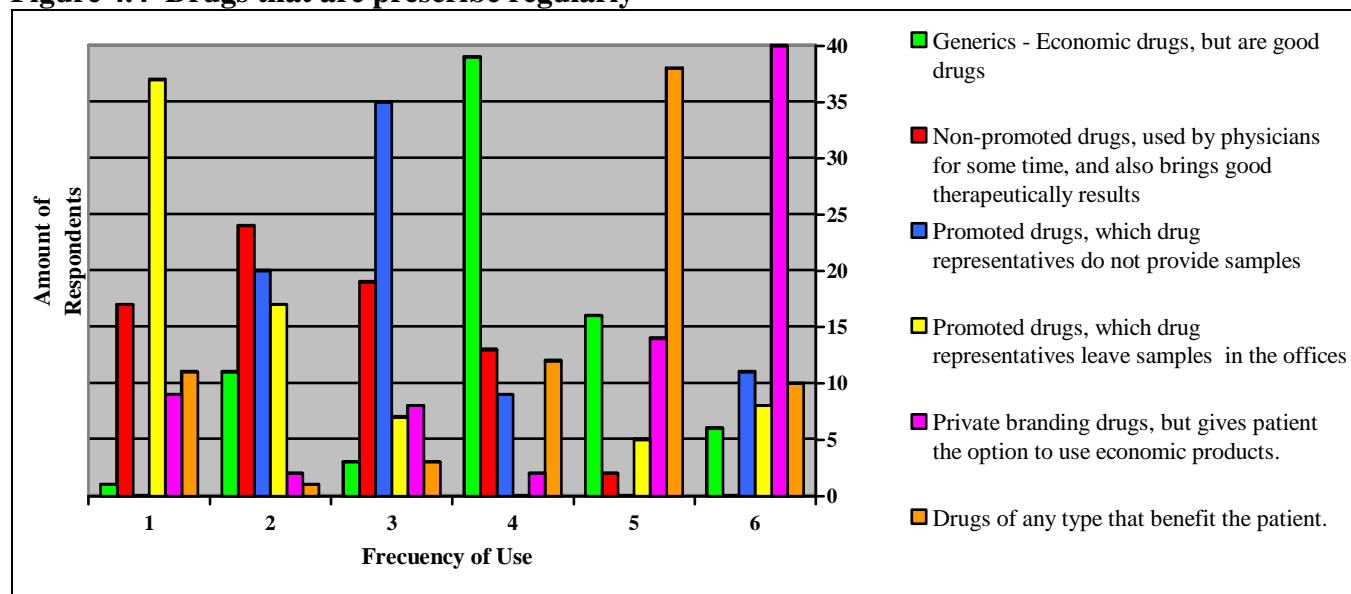


average age is 41 years old, almost were internist and work in solo practice environment (Bensing, Roter and Hulsman, 2003)..

#### 4.2.2.2. Physicians Prescribing Practices Results and Statistics:

In terms of the types of drugs that typically and frequently physicians prescribe, they mainly prescribe: first, promoted drugs, which drug representatives leave samples in the offices; second, non-promoted drugs, used by physicians for some time, which also brings good therapeutically results; third, promoted drugs for which drug representatives do not provide samples. The figure 4.4 shows a graph of the drugs prescribed regularly.

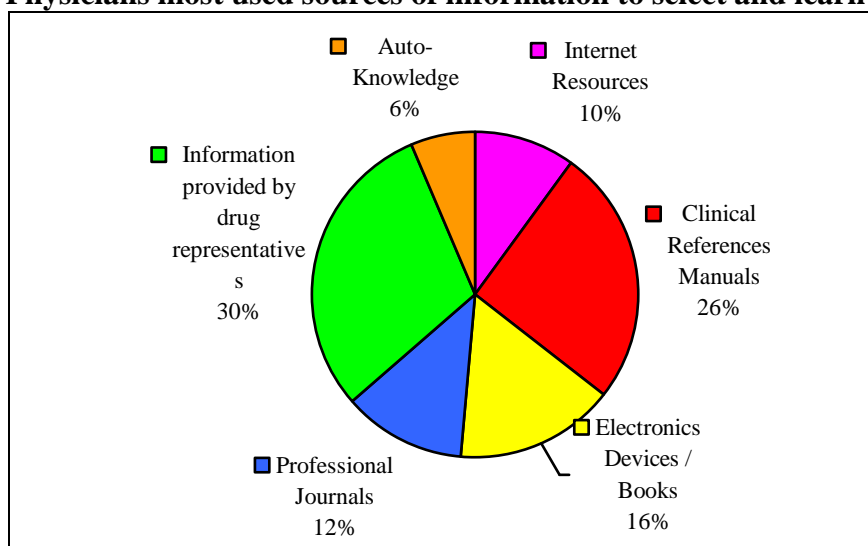
**Figure 4.4 Drugs that are prescribe regularly**



Note: The survey question associated with the Figure 4.4 asks which drug did physicians prescribed frequently. Sequence is to assign 1 to the most prescribe drug and 6 to less prescribe drug.

As a source of information to select and learn about drugs, physicians mostly used: information provided by: drug representatives, Clinical References Manuals and Electronic Devices / Books (PDA's or CD-ROM).

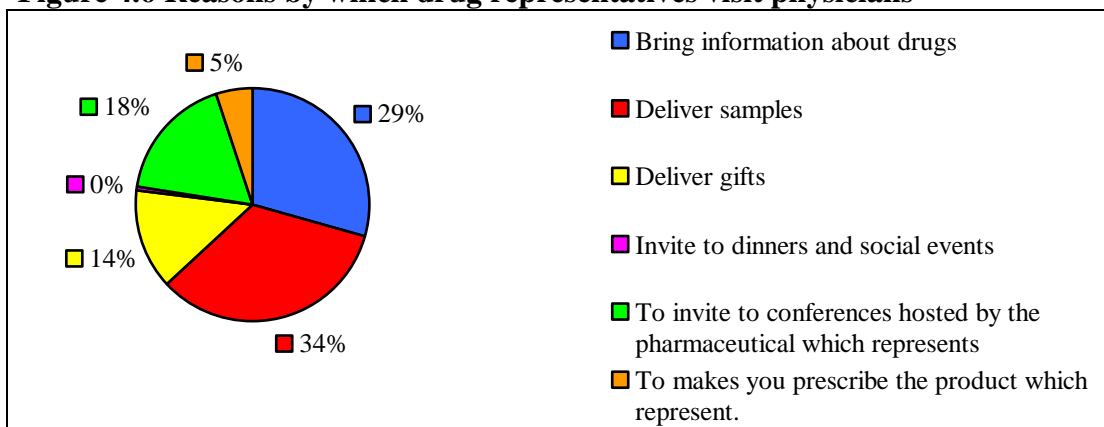
**Figure 4.5 Physicians most used sources of information to select and learn about drugs**



From the previously mentioned sources of information, physicians considered that the Clinical Reference Manuals are the most confident and available resources to know about newly and established drugs. In addition, physicians think that the information provided by drug representatives is the most frequently use source of information, and also is the easiest for application and usage.

The survey shows that regularly, physicians interact with drug representatives more than 7 times a week (53% of respondents), or at least four to six times a week (37% of respondents). The range of time per visit can be as short as five minutes or as long as one hour; an average physician spends 15 minutes with each drug representatives. Most importantly is the fact that 96% of physicians receive drug representatives without appointment; they just go to a physician's office to see the availability of the healthcare professional. According to the survey, the three principals reasons for which drug representatives visit physician constantly are: to deliver samples, to bring information about drugs, and to invite physicians to conferences hosted by the pharmaceutical represented by them (see Figure 4.6 for a complete reasons list).

**Figure 4.6 Reasons by which drug representatives visit physicians**



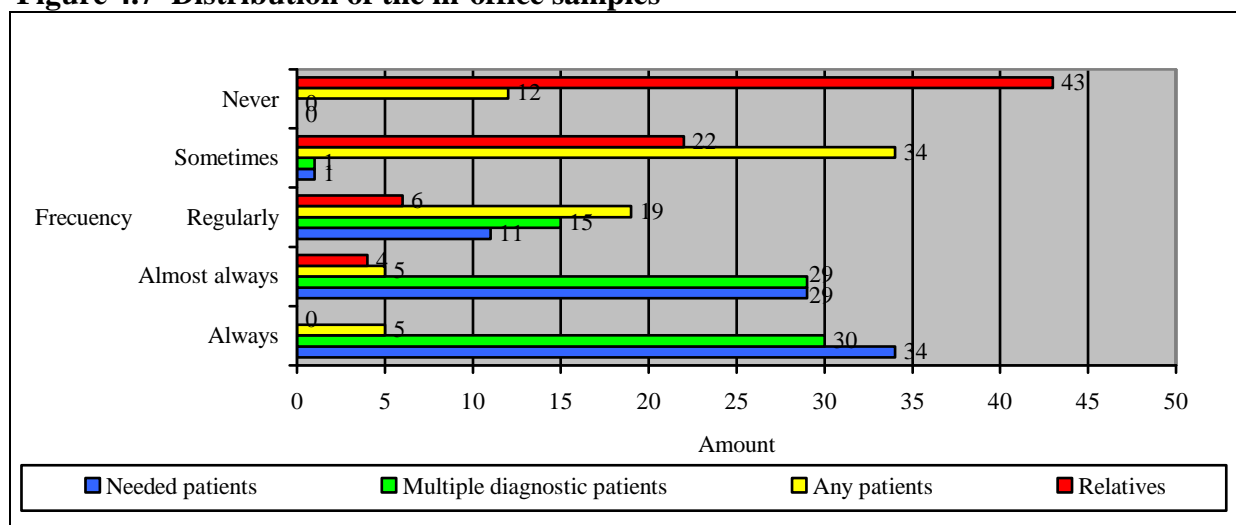
In the same token word, the instrument asks some questions about the efficiency of pharmaceutical marketing communication, specifically the one directed to physician via drug representatives. Many of the physicians agree (75% totally agree and 24% agree) that they use the drug information provided by pharmaceutical, for example the information provided by drug representatives. Moreover, many of them (29% totally agree and 37% agree) state that the information provided by drug representatives about newly introduced drugs is accurate, confident and useful. In contrast, when the researcher asks the same question about already established drugs, some respondents are not sure (37%) about the accuracy, confidence and utility of the information; others agree (33%), but some disagree (18%). The information provided by drug representatives can be seen as an educational media which serves to learn what is new in the market. However, the feedback from the physicians is varied. Based on the data 43% of the physicians are not sure that drug representatives are educating, whereas 40% do think so. Although they are not recognized as educating agents, all (100%) of the interviewed physicians are aware that pharmaceuticals sponsor classes, courses and seminars for professional enrichment. Simultaneously, drug representatives sponsor the majority of the conferences that

physicians attend; according to the survey 52% agree with this statement and 24% are in complete disagreement.

As previously mentioned, physicians interact with drug representatives regularly; this makes us wonder whether these health professionals received within their years of education some type of training about how to interact with drug representatives? The data shows that the majority of the participants are not sure of having taken some type of training whereas 55% are in disagreement with this statement.

According to physicians' point of views, doctors would not have the same degree of contact with drug representatives if these did not distribute promotions or samples, 91% of the surveyed physicians agree with this statement. In the same manner, when physicians were asked if the visits, information, and gifts had any impact in their routine and behavior in terms of prescribing, the answers vary: 60% are not sure that these elements have an impact. However, 51% agree that the gifts and samples do have an impact in their prescribing habit. When asked if the promotions from the pharmaceuticals influence their prescribing practice, 55% are not sure that these are an influence.

The drug sampling area is surrounded by controversy. According to drug representatives the purpose of the samples is to begin new treatments. Regardless of this statement, the personal interviews reveal that physicians use samples with all kinds of patients, in most cases they use the samples for needed patients or for patients with several diagnoses who have considerable monetary expenses because of their multiple medications. In order to find out if this information is correct, the questionnaire asks: "From the drugs left by drug representatives: How did you distribute these?", results appear as follows:

**Figure 4.7 Distribution of the in-office samples**

In the same way; many people think that some physicians receive economic remuneration in order to promote drugs among their colleagues; the results show that 49% does not have knowledge about that, 36% establishes that they do not receive money, and 15% affirm the asseveration. But, regularly physicians receive offers and promotions from pharmaceutical companies including small gifts. The questionnaire sought to obtain data on the frequency with which physicians receive offers by other parts of the pharmaceuticals or drug representatives, as part of a sales strategy used by the industry. Table 4.7 summarizes the results regarding this matter.

**Table 4.6 Frequency into which promotional offers are given by pharmaceuticals to physicians**

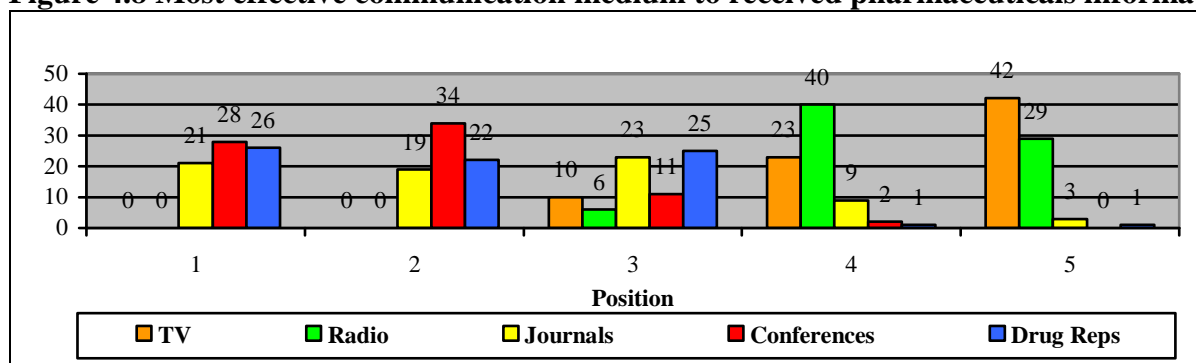
Asseveration	Always (%)	Almost Always (%)	Regularly (%)	Sometimes (%)	Never (%)
Small gifts such as pens, notebooks, mugs, etc.	71	19	10	0	0
Meals or drinks (in restaurants or in-office)	54	13	17	16	0
Entertainment or sporting event tickets	0	0	00	4	96
Medical texts	0	0	3	40	57
Medical equipment	0	12	10	30	48
Office equipment	0	0	0	7	93
Pharmaceutical samples for patients	92	4	3	0	1
Pharmaceutical samples or other items for personal family use	1	3	0	17	79
Substantial gifts or money	0	3	1	0	96
Cash honoraria for attending educational programs at which the physicians was not a	0	0	3	12	85

Asseveration	Always (%)	Almost Always (%)	Regularly (%)	Sometimes (%)	Never (%)
presenter					
Bringing gifts, tickets and hospitalities for attending programs at which the physicians was not a presenter	0	0	3	9	88
Honoraria travel and / or accommodation expenses for making presentations at educational programs out of town.	0	0	11	33	56
Travel and / or accommodation expenses for the physicians to go out of town programs at which he/she was not a presenter.	0	1	1	30	68
Travel and / or accommodation expenses for a family or companion to accompany the physicians to educational programs.	0	0	0	3	97

Note: The table 4.7 was elaborated by Shirley S. Rodríguez Mari using the results of the physician's survey.

Some issues concerning medical ethics strives in the way that pharmaceuticals send information to medical practitioners. According to the questionnaire, the physicians consider that the most efficient way to receive information from pharmaceuticals is the conferences and drug representatives. Figure 4.8 illustrates the order of importance of these marketing channels according to the interviewed physicians.

**Figure 4.8 Most effective communication medium to received pharmaceuticals information**



From the previous mentioned communication channels, physicians received information commonly from journals, conferences hosted by pharmaceuticals and by drug representatives.

At the same time the Direct to Consumer marketing inform patients through magazines, television and radio principally. Usually, the patients ask physicians about the pharmaceutical

promoted drugs; this statement is supported by the questionnaire results where 55/75 physicians confirm this fact.

The marketing communication of pharmaceuticals is very controversial in these days; first the physicians need to be truly ethical, but the truth is that about 90% of the surveyed physicians did not take ethical classes during their medical school years. Right now, the ethical classes are offered by many continuing education sponsors, but just 47% of the respondents take those courses. Good news is that 95% of physicians want to take courses of medical ethics.

#### 4.2.2.3. Reliability Measure

To verify the internal consistency of the individuals responses to the items within a scale, the researcher computes the coefficient of reliability Crombach's alpha using the statistical software SPSS. The calculated Crombach alpha for this thesis was 0.5345. In most Social Science research situations, a reliability coefficient of .70 or higher is necessary to be considered acceptable. The reliability coefficient for this thesis was considered low according to the standard practice. The reasons for the low coefficient is the multidimensional structure of the data (tries to measure distinct dimensions and topics), and the different types of scales used in the questionnaire. A correlation matrix was used to validate the reasons of the low reliability coefficients. The correlation matrix shows many variables with low or negative inter-item correlation which evidence that items are not measuring the same underlying construct scale. The relationship between the amount of items in the questionnaire and the sample response rate does not allow having a larger Crombach alpha because as the number of items in the formula<sup>17</sup> increases, the coefficient of reliability alpha also increases.

$$\frac{N}{N-1} \left( \frac{\sigma_X^2 - \sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

#### 4.2.2.4. General Correlation Analysis

In order to find out the relationship of the independent variables, a correlation analysis was run using SPSS and Excel (see Appendix 10 for the survey Correlation Matrix) The influencing factors used to analyze these correlations are: an inter-item correlation of .50 positive or negative or more, significance in the two tailed correlation test (according the SPSS correlation output). From the 71 variables analyzed in the correlation matrix just 18 bivariate correlations were taken in consideration for the analysis. The following table illustrates the resulting analysis used to test the research objectives. It shows the variables, the correlation and the most relevant findings after the analysis was made.

**Table 4.7 Significant Correlations**

Variable 1	Variable 2	Correlation Punctuation	Correlation Analysis
Medfre1	Entinter	-0.595	A inverse relationship exist between the variables, this means that, as the physicians gets more training about the interaction with drug representatives less generic economic drugs are prescribed.
Medfre1	Regaimpa	-0.516	This inter-item correlation is negative, which presents that as more freebies and samples are distributed to doctors less generic economic drugs are prescribed
Medfre2	Comi32	-0.549	The coefficient of correlation shows inverse relationship between these two variables; it indicates that giving food or beverage to physicians is a good promotion or inducement method, since it reduces the non promoted drug prescriptions.
Fuente1	Fuente2	0.545	The resulting positive relationship between these two variables establishes that the Clinical Reference Manuals and the Electronic texts (PDA) are correlated. One possible explanation is due to the highly technological advances many of the Clinical References Manual is available electronically.
Fuente 2	Fuente3	0.612	A positive association between these variables was found; it establishes that electronic texts as source of information correlates with the information provided by drug representatives.
Fuente3	Cualquie	-0.505	The inverse relation between these two variables shows that an increase in the usage of drug representatives as a source of information decreases the distribution of samples giving to doctors to any type of patients.
Confiabi	Disponib	0.503	There is a positive relationship between the confidence and availability of the information review to learn about the drugs; also it coincides with the findings in the descriptive statistics which shows that the most reliable and available source to learn are the Clinical References Manuals.
Infotarm	Infoesta	0.509	A positive relationship between variables interrelated the accuracy, reliability and utility of information provided by drug representative about established drugs with the use of the information provided by pharmaceuticals, particularly the provided by drug representatives.



Variable 1	Variable 2	Correlation Punctuation	Correlation Analysis
Infofarm	Regaimpa	0.512	There is a positive relationship between the utilization of the information provided by pharmaceuticals and the impact that the freebies and samples has on physicians prescribing habit.
Infonuev	Infoesta	0.577	There is a positive correlation between the accuracy, reliability and utility of the information provided by pharmaceuticals companies about newly introduce drugs and established drugs.
Infoesta	Propeduc	0.697	These variables establishes a positive association between the accuracy, reliability and utility of the information provided by drug representative about established drugs and the educator role play by drug representatives.
Entinter	Regaimpa	0.509	This bivariate correlation interrelated the training about the interaction with drug representatives received in medical school with the impact that freebies and samples giving to physician has prescribing behavior.
Regaimpa	Ptsdtc	-0.546	The negative correlation between these variables shows: as more the patients ask about the advertised drugs, less impact the freebies and samples delivered to physician has on prescribing practices.
Promoinf	Conocido	-0.507	An inverse relation between the influence of pharmaceutical promotion in prescribing practice, and the samples distribution to known people exist; it means if physician is very influence by pharmaceutical promotion will distribute samples to patients who really need the samples instead known patients.
Rega32	Comi32	0.601	The distribution of freebies and samples shows a positive relationship with the giving of food or beverage which is offer to physicians as a pharmaceutical marketing strategy.
Bole32	Gustetic	-0.557	An inverse relationship exists between giving sporting or entertainment tickets and the desire of take ethical classes.
Muesfa	Re\$\$32	0.604	There is a positive relationship between the pharmaceutical samples or other items for personal family use and the substantial gifts or money giving to physicians as a promotion.
Medfrec1	Medfrec2	0.615	The positive correlation presents an association between the journals and the conferences hosted by drug representatives as a communication medium by which physicians receive information frequently.

#### 4.2.2.5. Hypothesis testing:

In order to test the hypothesis, the researcher uses some of the survey variables.

Table 4.9 shows a list of the variables used to test the formulated hypothesis.

**Table 4.8 Summary of the descriptive statistics variables used for hypothesis testing**

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Medfre1	3.92	1.3230	-0.2091	-0.6291
Medfre2	2.71	1.1363	0.3215	-0.3127
Medfre3	3.093	1.1410	0.7659	0.4134
Medfre4	2.32	1.8392	1.2257	-1.0206
Medfre5	4.51	2.0093	-1.0164	-0.7081
Medfre6	4.41	1.3365	-1.2922	1.1305
Fuente1	0.29	0.4564	0.9260	-1.174
Fuente2	0.76	.04300	-1.2430	-0.4690
Fuente3	0.64	0.4997	0.2470	-1.9930
Fuente4	0.36	0.4832	0.5950	-1.6910
Fuente5	0.89	0.3108	-2.6010	4.8940
Fuente6	0.21	0.6975	1.4280	0.0400
Gradocon	2.49	0.8442	-0.1862	-0.5452
Regaimpa	3.24	1.1009	-1.8701	-0.2616
Promoinf	3.07	0.8109	0.3448	0.4040
Auspicon	4.00	0.6975	0	-0.8964
Infoesta	3.09	0.8880	-0.1863	-0.5925
Infofarm	4.73	0.4746	-1.4606	1.0680
Infoimpa	3.01	0.7258	-0.2382	0.8506
Infonuev	3.91	0.8880	-0.2896	-0.8038
Medfrec1	2.96	0.5312	0.5104	20.7452
Medfrec2	3.97	0.1622	-5.9966	34.8893
Vepropag	2.48	0.6649	-0.6332	-0.2370
Eticestu	1.89	0.3108	-2.6007	4.8935
Etcinow	1.53	0.5022	-0.1364	-2.0364
Confiabi	2.31	0.7706	1.4078	1.0552
Disponib	2.56	1.3279	0.7211	-0.5770
Frecuenc	3.51	1.4082	-0.0736	-1.6460
Implanta	3.15	1.4583	0.1411	-1.3756

Each hypothesis was tested using a combination of dependent and independent variables aiming to probe the objectives delineated on the thesis proposal, using the conventional approach of combining p-values using the Chi Square Goodness-of-Fit Test. This statistical analysis is referred sometimes as a Meta Analysis. This type of statistic is used when the amount of variables associated with the hypothesis is significantly large and the complexity of some questions. The Chi Square Goodness-of-Fit Test allows analyzing various dimensions of the

questions, and compares the frequency of observed values to the frequency of the expected values within the sample distribution, and integrates findings. **Decision Criteria:** The criteria of acceptance of individual variables are values equal or lower to the p-value of 0.05, as established in the methodology. Each table present two columns per each variable, the first column presents the chi square and the second shows the associated p-value for each variable.

### HYPOTHESIS #1:

**Ho:** Current pharmaceutical marketing communications does not affect physician's prescribing practices.

**Ha:** Current pharmaceutical marketing communications affects physician's prescribing practices.

**Table 4.9 Hypothesis #1** Deciding Factors

Chi square/ p- value	GRADOCON		INFOIMPA		REGAIMPA		PROMOINF		Rejected Variables
MEDFRE3	20.002	0.172	28.084	0.107	35.613	0.017	25.105	0.197	1
MEDFRE4	29.745	0.003	36.347	0.003	18.210	0.312	15.532	0.486	2

Hypothesis #1 interrelate various variables: the types of drugs that are typically and most frequently prescribed by physicians is as an independent variable, where MEDFRE 3 represents the promoted drugs that drug representatives do not provide samples of and MEDFRE 4 represents the promoted drugs, that at the same time drug representatives leave samples in the office. The dependent variables (columns) involve four common aspects of pharmaceutical marketing communications: GRADOCON (the grade of contact with drug representatives if they do not distribute in office samples or promotions), INFOIMPA (the visits and information provided by drug representatives), REGAIMPA (the freebies and samples), and PROMOINF (pharmaceutical promotions). In order to reject this hypothesis, the researcher must reject all the independent and dependent variables associations. As seen in the table 4.10, there are a few associations that are not rejected. After taking in consideration all the previous associations, the researcher **failed to**

**reject the null hypothesis.** Although the researcher cannot prove that all pharmaceutical marketing communications affect physician's prescribing practices, when analyzing the variables association independently, the researcher can conclude that some types of pharmaceutical marketing communications affect physician's prescribing practices.

### **HYPOTHESIS #2:**

**Ho:** Even though physicians received information from different sources including publications and printed information, there is no identification difference in terms of impact of a most impacting pharmaceutical marketing communications.

**Ha:** Even though physicians received information from different sources including publications and printed information, the most impacting pharmaceutical marketing communications practice is drug representative.

**Table 4.10A Hypothesis #2 Deciding Factors**

Chi square/ p- value	AUSPICON		INFOESTA		INFOFARM		INFOIMPA	
Fuente 1	10.183	0.006	17.268	0.002	8.074	0.018	5.961	0.202
Fuente 4	4.721	0.094	2.808	0.590	2.455	0.293	14.694	0.005
Fuente 5	1.180	0.554	4.166	0.384	12.554	0.002	22.003	0.000

**Table 4.10B Hypothesis #2 Deciding Factors**

INFONUEV		MEDFREC1		MEDFREC2		VEPROPAG		Rejected Variables
13.037	0.005	1.754	0.416	0.853	0.356	3.527	0.317	4
13.414	0.004	1.806	0.405	0.175	0.676	1.417	0.702	2
21.154	0.000	8.762	0.012	0.245	0.620	7.673	0.053	4

Hypothesis #2 evaluates the sources of information used by physicians. The vertical axis of the table includes some sources of information used by pharmaceuticals (Fuente 1 – Internet Resources, Fuente 4- Journals and Fuente 5 – Information provided by drug representatives), while the horizontal axis represents the pharmaceutical marketing communication techniques. Examining the p- values of the variables used for testing this hypothesis, we can infer that the majority of the variables rejects the null hypothesis, principally, the association for the variables Internet Resources, Information provided by drug representatives, all of which evidence the

point. For decision purpose, the researcher prepares and run a Meta Analysis were associates (sum) the p values of the rejected variables. The variable Internet Resources have an associated P value of 0.031; the variable information provided by drug representatives has a P value of 0.014. Taking in consideration the amount of rejected variables and the sun of P values, the researcher **rejects the null hypothesis**, and conclude that the even though physicians received information from different sources including publications and printed information, the most impacting pharmaceutical marketing communications practice is drug representative.

### HYPOTHESIS #3:

Ho: Prescribing private brands instead of generic brands products which ultimately save money for the patients can not create potential ethical conflict.

**Ha: Prescribing private brands instead of generic brands products which ultimately save money for the patients can create potential ethical conflict.**

**Table 4.11 Hypothesis #3 Deciding Factors**

Chi square/ p- value	ETICESTU		ETICNOW		INFOIMPA		PROMOINFO		REGAIMPA		Rejected variable
MEDFRE1	0.121	0.728	1.158	0.282	4.054	0.399	4.416	0.353	0.987	0.912	0
MEDFRE2	0.858	0.651	1.542	0.463	6.267	0.617	11.300	0.185	11.203	0.190	0
MEDFRE3	0.373	0.541	0.223	0.637	2.083	0.720	2.591	0.628	1.148	0.887	0
MEDFRE4	0.396	0.529	0.009	0.926	14.704	<b>0.005</b>	3.119	0.538	3.160	0.531	1
MEDFRE5	2.239	0.135	0.335	0.563	8.368	0.079	6.808	0.146	3.232	0.520	0
MEDFRE6	0.246	0.620	0.029	0.865	4.348	0.361	2.662	0.616	1.403	0.844	0

Hypothesis #3 aims to associate the types of drugs that typically and frequently are prescribed by physicians, with the pharmaceutical ethical aspect, and the role of pharmaceutical marketing communications. Evaluating the results, only 1 variable was rejected. The association shows highly significance between “Promoted drugs, in which drug representatives leave samples in offices” with “Did the visits and information provided by drug representatives impact the habit and prescribing practice?”. Because there is not sufficient evidence to reject the null hypothesis, and based on the hypothesis testing the researcher **fail to reject the null hypothesis**.

**HYPOTHESIS #4:**

Ho: There is no relationship between the quality of information that drug representative provide to physicians and the physician's awareness of products.

**Ha: There is a positive relationship between the quality of information that drug representative provide to physicians and the physician's awareness of products.**

**Table 4.12 Hypothesis #4 Deciding Factors**

Chi square/ p-value	CONFIA BI		DISPONI B		FRECUE NC		IMPLAN TA		INFOEST A		INFOFAR M		INFOIMP A		INFONUE V	
Fuente 5	2.8	0.4	4.2	0.3	4.5	0.2	1.9	0.5	4.1	0.3	12.5	0.0	22.0	0.0	21.1	0.0
	28	19	37	75	51	08	83	76	66	84	54	02	03	00	54	00

Hypothesis 4 establish a relation between the variables related to the information provided by drug representative (vertical Axis) and the confidence, availability, frequency, usefulness, and the impact of this information (horizontal axis). The results show that three variables are rejected with a highly significance P value. Based on the amount of rejected variables the **null hypothesis is rejected**, and the researcher infers that there is a positive relationship between the qualities of information that drug representative provide to physicians and the physician's awareness of products.

**Table 4.136 Summary of hypothesis testing**

	Null Hypothesis	Ho Action
H1	Current pharmaceutical marketing communications does no affect physicians prescribing practices.	Failed to reject
H2	Even though physicians received information from different sources including publications and printed information, there is no identification difference in terms of most impacting pharmaceutical marketing communications.	Rejected
H3	Prescribing private brands instead of generic brands products which ultimately save money for the patients can not create potential ethical conflict.	Failed to reject
H4	There is no relationship between the quality of information that drug representative provide to physicians and the physician's awareness of products.	Rejected

## CHAPTER V

### LIMITATIONS

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Several limitations are present in this research but none one of high implication to hinder this study. In contrast, these limitations heighten the significance of the study. The first limitation found is the absence of published local studies in the field of pharmaceutical marketing communications. Also, no significant published statistics, studies and journals from the interaction of physicians, medical clerks' and drug representatives in P.R exist or are publicly available for this research.

Another important limitation was economic. The current list of physicians has a sales price of \$500.00 in the Health Department of the Commonwealth of P.R. Thus the author had to be very creative to obtain the data base used and had to invest too much time to search for information from different sources, for example: National Heritage Insurance Company, Puerto Rico commercial and residential telephone guide, and from the health insurance coverage guides (Cruz Azul, Reforma, and International Medical Card).

The third limitation is that the final sample of the research was drawn as a stratified random sample of physicians of the Western side of P.R. The first sample was drawn utilizing an online sample calculator tool, but this online calculator omits the sample error and do not present relevant data to calculate the sample among the strata's. Using that calculator the sample was 110 participants. While, for justification purposes the researcher calculates the sample drawing by her own, the ideal sample using the formula was 92 participants, including the seventeen municipalities of the Western side of Puerto Rico; by that reason the sample may not be totally representative of all physicians nationally. The sample operations could be another limitation or mistake in drawing the sample, because part of the population is omitted from the

list of all sampling units. At the same time some physicians have offices in more than one city; therefore the researcher just counts each physician once time and then randomly selects the main office city.

In addition, some kind of limitation exists in the process of administer and obtain the questionnaire answers. Also, some drug representatives, physicians and medical clerks were reticent to the survey which explains why they did not accede to answer any questions. By that reason, as stated in the methodology the researcher used a drop-down substitution method to fulfill the sample drawing. Although the author proposed to use a drop-down substitution method to fulfill the sample drawing; there are many problems with the process: first: some of the participants say that they do not have time to fill the questionnaire; second: the participants never answer the questionnaire or take to much time to answer it (in occasions more than one month). By the previously mention limitations, the thesis could not obtain the desired response rate of 100%.

Moreover, the reliability coefficient Crombach alpha for this thesis was considered low according to the standard practice, one possible reason is the sample size; with a larger sample the statistic analysis may provide precise and reliable results. For further investigation, some types of research grants or financial supports are necessary in order to contract researchers that help to obtain a bigger sample.

Furthermore, from the original proposal some changes were made. The proposal projected two focus groups (patients and drugs representatives), but the groups were too difficult to assemble. Another change was the type of statistics method used, instead t-test, and single regression analysis, the researcher used Cross-tabs analysis, Chi Square Goodness of Fit test, Meta analysis and Power analysis.



## CHAPTER VI

### CONCLUSIONS, RECOMMENDATIONS, & FUTURE RESEARCH

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#### 6.1. Conclusions

This study corroborated the main purpose of this thesis which was first, to evaluate the effect that pharmaceutical marketing communications in Puerto Rico has on prescribing practices and, second, to determine if the system utilized possesses an apparent ethical conflict, keeping in mind that Research and Development should prevail over marketing tactics.

The empirical evidence presented in this thesis validated the information on how pharmaceutical marketing communications affect doctors prescribing practices in Puerto Rico. Based on the theoretical approaches used and the studies revised, the sources, which were validated by statistical samples using well recognized methodology, affirm that pharmaceutical marketing does affect physicians prescribing practices. The previous affirmation rests on statistical findings used for this thesis which affirm that certain types of marketing influences doctors prescribing practices in some ways.

To accomplish the thesis purpose, answer the research questions, and to reach research objectives four hypotheses were formulated and tested. While certain limitations of diverse nature were faced, this did not hinder reaching most thesis objectives. The sample used which was extracted from a population of 1,079 physicians established in the Western side of the Island of Puerto Rico by means of an ideal sample of 92 questionnaires which was administered to physicians. The response rate was a highly significant 81.5%, a number quite unusual for most studies, thus substantiating and validating research results. To validate the questionnaire, the researcher used reliability and statistical analysis, and compared results to literature reviewed. The methodology designed and implemented included both qualitative and quantitative analysis.

From the four hypotheses formulated, two were rejected and in the other two the researcher failed to reject them. Hypotheses were tested using Meta Analysis through the use of Chi Square Goodness of Fit Test . Following are the results.

Results on hypothesis one, aiming to determine if current pharmaceutical marketing communications does not affect physicians prescribing practices was accepted. Although the researcher rejected the null hypothesis one, it does not mean that the hypothesis is necessarily true. An important implication of why there is not sufficient evidence to probe that the hypothesis is false, is, one because there is not enough responses, because n is not large enough or because the hypothesis is partially true. All of this suggests a future study. However, a detailed analysis of the segmented question and statistical probes shows that certain aspects of communication does affect physicians prescribing practices. Although the main issue addressed in this thesis was how pharmaceutical marketing communications affect prescribing practices, results from the correlation analysis strongly validates that as more freebies and samples are distributed to doctors, less generic economic drugs are prescribed. Also, that giving gifts in the form of food or beverage to physicians reduces the non promoted drug prescriptions. These give-giving<sup>18</sup> relationship increases the amount of promoted drug prescriptions despite the fact that this relationship presents a perceived conflict of interest among the clientele population. Studies by Keim, et al (1993) reinforce these findings and emphasize that sales representatives sometime pass the cross-ethical boundaries by giving gifts.

The outcomes of hypothesis two: responding to the question if though physicians received information from different sources, shows that there is no difference in terms of most impacting pharmaceutical marketing communications. This hypothesis was rejected and the

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<sup>18</sup> Even though the correct expression should be gift-giving, standards in the industry use this manner to explain the concept.

investigator accepted that the most impacting pharmaceutical marketing communications practice is drug representative.

This pronouncement coincides in some point with the studies by Strang et al (1996) which affirm that the drug representative interactions impact the prescribing practice. Right now the efficacy of this sales agent is in question because companies invest substantial amounts of money targeting physicians through drug representative's recurrent visits whose main objective is delivering samples. Studies by Breen (2004) state that drug representatives visit the physicians in an exaggerated way; he also indicates that the pharmaceutical promotional budget, as well as the amount of sales force is increasing. Based on the thesis findings and the reviewed literature, the researcher asserts that pharmaceuticals' are devising strategies to increase their sales in order to maintain their market share. Thus firms attach these costs to the price of medicines.

Hypothesis three intended to find out if prescribing private brands instead of generic brands products, which ultimately save money for the patients, cannot create potential ethical conflict, the researcher did not find enough evidence to reject the hypothesis, as such the researcher failed to reject the null hypothesis. Even though findings in this research could not confirm that ethical conflict between drug representatives and physicians prevail, revised research on the subject brings out opposite results. No doubt existent laws prohibit the acceptance of lavish gifts, the acceptance of freebies encourages the reciprocity rule. In the same way, Brennan, et al (2006) shows that pharmaceutical marketing communications affects prescribing practices, and creates apparent ethical conflicts.

Hypothesis fourth was rejected. This aimed to probe that there is no relationship between the qualities of information that drug representative provide to physicians and the physician's

awareness of products. Results from correlation analysis established that there is a positive relationship between the quality of information that drug representatives provide to physicians and the physician's awareness of products.

In summary, the thesis uses triangulation research which combines different research methods of both qualitative and quantitative nature, a design that provides a wide range of perspectives. The overall results from empirical research confirms several findings: a) that the impact of pharmaceutical marketing communications in the physician practices does influence the way that physicians prescribe b) the most prescribed drugs are the pharmaceutical's promoted drugs, and c) the most used source of information to know about drugs is the information provided by drug representatives, which creates an additional conflict. Moreover, the thesis also confirms that to select which drugs to prescribe, medical practitioners choose medicines from samples available in the office. Also, physicians try out the drugs and if that works to treat the patient illness, they prescribe that drug.

From the marketing perspective, the thesis reaffirms that while in the past, physicians were the main clients of the pharmaceutical companies, whose objective was to sell drugs straightforward, today, pharmaceuticals are not considering the industry scenario changes by developing unified strategies involving all the sectors. It is this researcher recommendation that the industry needs to create effective strategies that bond the physician and patient sales campaign taking in consideration the market size, segmentation, the need for a universal health care system, and control of drug pricing.

From the ethical viewpoint, the aggressive marketing of medicines, the amount of information received in different ways by physicians, and the use of patients as a target to generate demand for prescription medicines, all of which contribute to the inappropriate

prescription of drugs, increase the apparent ethical conflict between the pharmaceutical industry and medical class.

The researcher concludes that the marketing communication practices utilized by the industry are not the most adequate. The pharmaceutical sector bombard the patient as well the medical practitioners with information and promotion in order to increase sales, not even considering the product cost, the usefulness, and the efficiency of the product (s). Furthermore, patients are affected by the direct to consumer advertising presented by the industry through TV, Radio or Advertising on print media, to encourage drug usage across the population. The author considers that pharmaceutical companies need to create trustworthy marketing communications messages to unearth appropriate level of transparency and interaction of the various groups it aims to serve. Even though this study could not totally confirm the investigator justification for this study, research examined reconfirms her insistence that many of the marketing practices increase unnecessary prescribing and damage the relationship between patients and medical practitioners. This position correlates with Hoffman and Wilkes (1999) studies, which reaffirm that pharmaceutical marketers should focus their goals in the creation of well defined medical education programs so that firms can deliver a credible and influential content through the implantation of clinical data and practice. Finally, as learning experience this thesis provided a deeper understanding of the marketing strategies and tactics used by diverse sectors, particularly the pharmaceutical communication system used by the industry in Puerto Rico to reach its target market.

## **6.2. Recommendations for system improvement**

This thesis also aimed to present recommendations and a guideline of what should be the appropriate interaction between medical practitioners and drug representatives in order to reduce

the dependency of the medical profession vis-à-vis the pharmaceutical industry. This researcher believes that to achieve this end several sectors should interact: First, physicians should take actions to decrease their interaction with drug representatives. Second, the continuing medical education programs required for doctors should offer effective seminars and courses about how the interaction with drug representatives should be held, including ethical aspects, and legal base and guides. Third, the medical class should encourage the usage of generics products which ultimately cost less than promoted drugs, and decrease the unnecessary volume of prescription. This is significantly relevant now that the census bureau and statistics indicate a large increase in older citizens who naturally tend to demand more medical care and prevention.

Furthermore, pharmaceutical companies should decrease their marketing costs, and encourage more research and development programs in Puerto Rico and worldwide. Since the focus of this thesis is Puerto Rico and the country offers prospects and infrastructure for the pharmaceutical sector, the island could become a niche of opportunities in the Research and Development areas. This effort can create economic activity in the supply chain, create employment, and attract foreign investments, a fact supported by the latest information from the Special Report of “Industriales” (Interphex, 2007). The opportunity is ripe as is reported in the Interphex (2007) which shows that many of the pharmaceutical companies are located in the island of PR and thirty six of the top 200 best selling drugs in the world are manufactured in the island. All of the previously mentioned efforts should be made in order to decrease the cost of drugs, and diminish the apparent ethical conflicts across sectors. Moreover, the researcher proposes that the United States government should follow the example of the Singaporean government which established a universal healthcare plan. By acting in this direction, a cost

reduction will evidence the feasibility of establishing a well needed universal healthcare plan as is the case in most developed economies.

### **6.2.1. Guideline of an appropriate interaction between medical practitioners and drug representatives**

**6.2.1.1.Objective** - The objective of this guide is trying to diminish the apparent ethical conflict between health care practitioners and drug representatives; in order to benefit patients and improve the practice of medicine. This guide includes some recommendations about how the interaction and marketing practices should be.

**6.2.1.2.Contact ways** - The drug representatives interact with medical practitioners in many ways, most of the cases to fill an expedient, or deliver samples. Hospitals, clinics and healthcare facilities can regulate the activities of the drug representative's interactions. Some of the interactions show an apparent conflict of interest across population. In order to diminish the conflict of interest, the healthcare system should take actions immediately and change the contact ways. Some initiatives to decrease or regulate the contact with sales representatives are:

6.2.1.2.1. Eliminate drug representatives totally. The physicians, medical clerks or health staff may consider not seeing drug representatives during working hours.

6.2.1.2.2. Not allowing representatives in patients care areas.

6.2.1.2.3. Permitting only group presentations

6.2.1.2.4. Not allowing sales representatives to speak at educational events.

- 6.2.1.2.5. Pre - approval of sales representatives visit to a health facility.
- 6.2.1.2.6. Scheduling services. The physician can establish an appointment system where the drug representative needs to schedule a meeting to see the physician. This effort helps physicians in many ways: the physician can establish patients as a priority, after receive all the patients; receive the presentation of the drug representatives. Also, physician can receive those representatives that really bring him important and accurate information. Actually, many companies offer scheduling services.
- 6.2.1.2.7. Charge a fee. The physician can charge a fee to pharmaceuticals, and use the money to charity, to help indigent's patients or to cover office cost (Sprague, 2002).
- 6.2.1.2.8. Pharmacist consultant – Hired a pharmacist consultant who will gather and review drug information and offer recommendations to physician group.
- 6.2.1.2.9. Leave the information. The physician may choose the drug representatives that he wants to see based on the information provided by them. The physician take the information, review it, then if he wants to know more about the drug he communicate with the representative to establish an appointment.
- 6.2.1.3. Preparedness. The physician should prepare to interact with the drug representative. The preparation may include background readings, discussion with colleagues on the desired outcome of them meeting and preparation of



questions. The medical practitioners should know everything about the product, by example:

- 6.2.1.3.1. Product name and generic name
- 6.2.1.3.2. Indications for use
- 6.2.1.3.3. Efficacy of products – the representative must provide evidence that the product work for the above indication.
- 6.2.1.3.4. Safety of products – the physician must know what are the side effects that the patient must know; the drug interactions, the contraindications and if exist some warnings.
- 6.2.1.3.5. Cost – the physician must know the cost per unit and per course of therapy.
- 6.2.1.3.6. Compliance of the products refers to a patient who agreeing to and then undergoing some part of their treatment program as advised by their physician. Some of the possible compliance reasons are: prescription not collected or dispensed, cost of drug, unattractive formulation, forget take the medicine, perceived side or lack of effects, among others.
- 6.2.1.3.7. Availability of the product in drug stores, hospitals and if the product is available in a variety of formulations (Ex. Pediatric formulation).
- 6.2.1.3.8. Coverage – The drug representative must know if the drug is covered by major insurance company. (This information is important to those physicians that really take care of their patients.)
- 6.2.1.3.9. The drug representative should provide the clinical pharmacology, prescribing information and some therapeutic guidelines.

The medical practitioners should know everything about the products that they prescribe in order to avoid problems associated with the health of the patients. The product information on labeling, packaging, leaflets, data sheets and in advertisements should follow the laws, regulation and formats established by local and national governments.

6.2.1.4. Marketing – The medical practitioners should know what kind of promotion they can accept or receive; because there are laws controlling drug promotion.

6.2.1.4.1. The physicians must not ask for or accept fees for agreeing to meet representatives of the pharmaceutical industry; there discussions should provide scientific and educational benefits. Jointly with the presentation, the drug representative may offer modest occasional meals.

6.2.1.4.2. The drug representatives who organize educational meetings may offer to provide hospitality (This should be secondary to the purpose of the meeting and the level of hospitality must be appropriate and not out of proportion to the occasion).

6.2.1.4.3. Is also inappropriate to ask or accept any materials gifts excepts those which are of insignificant value and relevant to the organization, and associated with the healthcare practices. Some appropriate, no significant value and reminder items are: pens, memo pads, diaries, calendars, etc. as long as the gift are related to the physician work. Usually, the reminder items has a company logo or a product name, those promotional items transmit a message of commercialism to patients. The gifts accepted

should entail a benefit to patients. Cash payments should not be accepted anytime.

6.2.1.4.4. To avoid any conflict, the drug representatives should present published literature and the regulatory agencies approved indications like FDA.

6.2.1.4.5. What about samples? The free sample represents a threat to the physicians' choice of medication for their patients. The physician should be aware of the impact of free sample have on the pharmacotherapy. They need to think if the free sample saves money in a long term period (many of the distributed samples have a huge cost in the drug stores). The drug representatives should provide samples for the patient use in accordance with the Prescription Drug Marketing Act.

#### 6.2.1.5.Recommendations to pharmaceuticals

6.2.1.5.1. All of the promotional materials send to physicians like mailing and medical journals should be clear, must not be as to disguise its real nature, all the content and context should presents accurate, useful, and confident information.

6.2.1.5.2. The surveillance studies should be conducted on a scientific education basis, not as a means to promote a product or influence medical practitioners.

6.2.1.5.3. The marketing communication practices must be consistent with high ethical standards. The information delivered to physicians should be

designed to facilitate medical practitioners to improve the patient care and services.

6.2.1.5.4. The Healthcare practitioners should not received cash or payments of any kind, it creates a potential conflict of interest.

### **6.3. Future Research**

Regardless of the responses to the surveys implemented and the statistical results, the personal interviews reveals that marketing affect the medical practitioner prescribing practices, which correlates with the literature reviewed findings. Based on the previous evidence the researcher estimates that possibly some of the interviewed did not answer trustworthingly. Thus, even though results did not totally confirm all results, we believed there are several opportunities to extend this stream of research. For example, expand the study to the entire island instead of using only the Western side of Puerto Rico. Also additional research may be productively targeted at examining how well the drug representatives follow the Pharma Codes and all the legislations and laws applicable to them. Further, it will be productive to verify if the physician's behavior change throughout years, this research should be addressed in at least 5 years for now.

No doubt, future investigation is needed to monitor the impact of Direct to Consumer advertising, particularly how advertising increases the consumption of advertised drugs vs. non-advertised drugs. Further, observing the progressively increasing life expectancy of people which naturally tends to demand more medication or prevention will require more socially responsible studies in a sector that naturally demands and spends the most on medicine and prevention.

## CHAPTER VIII

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## CHAPTER IX

### APPENDIXES

#### APPENDIX #1

#### Physicians and Medical Clerks Personal Interview Question Guidelines (In Spanish)

#### Guía de preguntas para las entrevistas a médicos y “medical clerks”

Esta guía de preguntas es la parte intrínseca de la tesis de **Maestría de Shirley Rodríguez** (estudiante de Administración de Empresas de la Universidad de Puerto Rico, Recinto de Mayagüez), cuyo propósito es recolectar información acerca de la práctica médica y sobre cómo se desarrolla la interacción de los médicos con los propagandistas médicos. Su colaboración es indispensable para lograr los objetivos de la tesis. Las respuestas o comentarios que pueda emitir son totalmente confidenciales.

**Instrucciones.** Por favor, responda a cada pregunta en el espacio provisto. En caso de necesitar más espacio continúe escribiendo su respuesta al dorso de la página, identificando la pregunta.

1. Al momento de recetar cualquier medicamento a sus pacientes, ¿Cómo médico, qué fuente o **fuentes de información** usa usted primordialmente?

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2. En el caso de la **información** que recibe de las **farmacéuticas**, ¿De qué forma (brochures, muestras, correos electrónicos, visitas) recibe usted esta información?

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- a. Irrelevante de donde recibe la información, **utiliza** usted la información provista por los propagandistas médicos cuando estos le visitan.    \_\_\_ **Sí**    \_\_\_ **No**  
De qué forma la utiliza y **porqué**

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- b. En referencia a la pregunta anterior, ¿cuán **útil y confiable** considera usted es esta información? ¿en términos a los beneficios reales de los medicamentos que usted receta? **¿Explique?**

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- c. ¿Siente usted que la información provista por los propagandistas **influye en su hábito (o el hábito de algunos colegas conocidos)** y forma de recetar medicamentos?  Sí  No  
Por favor, explique su respuesta:

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3. En término a la **frecuencia con que recibe la información**, ¿cree usted que la frecuencia con que recibe la información es suficiente para mantenerse al día sobre los mejores medicamentos, estudios o tratamientos en el mercado? Por ejemplo: ¿Cuántas de las veces que es visitado por los propagandistas médicos, estos le dejan información útil y confiable de nuevos productos, aunque no sean de las farmacéuticas que ellos representan?

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4. De los medicamentos que le dejan los propagandistas: ¿Cómo los usa o **distribuye** usted?  
Favor marcar para cada aseveración una sola respuesta.

Respuesta Aseveración	Siempre (100% de las veces)	Casi siempre (99% - 75% de las veces)	Regularmente (74% - 40% de las veces)	A veces (39% - 1% de las veces)	Nunca (0% de las veces)
a. A pacientes necesitados					
b. A pacientes con múltiples diagnósticos					
c. A cualquier paciente					
d. A conocidos					

5. En términos a los medicamentos que típicamente receta, ¿Cuáles **medicamentos receta** usted con mayor **frecuencia**? Por favor, seleccione y marque aquellos productos que más receta, en orden de importancia. Asigne 1 al modo en que más receta y 5 el que menos receta.

- a.  Medicamentos **genéricos**, económicos o de precios bajos aunque buenos.  
b.  Medicamentos **no promocionados**, usados por usted desde hace mucho tiempo y que dan/ proveen buenos resultados.  
c.  Medicamentos **promocionados** por las farmacéuticas, que **no** le dejan **muestras**.  
d.  Medicamentos **promocionados** por las farmacéuticas y que al mismo tiempo los propagandistas le dejan **muestras** de ellos.  
e.  Receta mayormente medicamentos de marca privada, pero le permite o da opción al paciente de usar el producto más económico.

6. Algunos informes ya publicados especifican que en algunos países se compran las opiniones médicas. En el caso suyo o de colegas conocidos, ¿Cree que en PR se le **brinda** a médicos **compensación económica** para que hablen sobre y/o auspicien medicamentos específicos entre sus colegas?

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- 
7. Los programas de desarrollo profesional médico, requieren que los doctores tomen cursos luego de graduados (Educación Continua) y también se estimula para que ofrezcan charlas y seminarios. En el caso de los cursos ofrecidos por las farmacéuticas, para desarrollo profesional, ¿De qué modo **auspician** las farmacéuticas estos **cursos**? Puede brindar ejemplos según su experiencia profesional.

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- 
8. Publicaciones variadas señalan que actualmente, se le **paga** a los médicos por asistir a **seminarios** y/o conferencias; a este efecto:

a. ¿Cree que este suceso ocurre en Puerto Rico **actualmente**?

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b. ¿Cree que este suceso ocurrió en Puerto Rico **anteriormente**?

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c. Si usted es orador u ofrece conferencias ¿le ofrecen/otorgan las farmacéuticas algún tipo de remuneración económica?

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9. Actualmente el concepto de **ética** es común en todas las profesiones, Dígame.....:

a. Durante sus años de estudio de medicina, ¿tomó usted algún curso de ética?

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b. Se incorporó el tema de ética médica y profesional en diversos cursos...

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c. Actualmente ¿se ofrecen a los médicos algunos cursos de educación continua de ética?



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- d. Además de los cursos de ética, se ofrecen cursos de educación continua sobre cómo interaccionar con los propagandistas médicos.
- 
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10. Dado que los pacientes confían en los médicos, farmacéuticas y medios masivos de comunicación en la mayoría de los casos; dígame usted que usted hace cuando un paciente:

- a. le pregunta o solicitan **información** acerca de medicamentos promocionados por las farmacéuticas en los medios masivos de comunicación
- 
- 

- b. le solicita un **medicamento** promocionado en los medios masivos de comunicación.
- 
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11. Estudios frecuentes y publicaciones de diversas fuentes afirman que existe un **conflicto potencial** de parte de los médicos ya que tienden mayormente a recetar los productos ofrecidos por los propagandistas médicos. También se afirma, que los productos recetados son generalmente más costosos, no siempre los más efectivos y que las farmacéuticas pagan y financian las conferencias, entrenamientos e investigaciones lo cual elimina o disminuye la objetividad. Por favor, emita su opinión sobre el tema.

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**Demográficos:**

12. **Pueblo** donde tiene su consultorio principal: \_\_\_\_\_

13. **Especialidad** médica: \_\_\_\_\_

14. Años que lleva en la **práctica**:

\_\_\_\_ Menos de 1 año

\_\_\_\_ 11-15 años

\_\_\_\_ 1-4 años

\_\_\_\_ 16-20 años

\_\_\_\_ 5-10 años

\_\_\_\_ Más de 21 años

15. **Universidad** donde estudio y el país: \_\_\_\_\_

**¡Gracias por su colaboración!**

**APPENDIX #2****Drug Representatives Personal Interview Question Guidelines (In Spanish)****Guía de preguntas para propagandistas médicos**

Esta guía de preguntas es parte intrínseca de la tesis de maestría de Shirley Rodríguez (estudiante graduada del Programa de MBA en la Facultad de Administración de Empresas de la Universidad de Puerto Rico, Recinto de Mayagüez), y tiene como propósito, entre otros, obtener información sobre la relación del propagandista médico con los médicos y otros profesionales de la salud. Además, busca investigar los “roles” de este sector dentro de la organización que representan así como conocer su opinión sobre cómo se mercadean productos farmacéuticos.

Su colaboración es indispensable para lograr los objetivos de la tesis. Deseo informarle que las respuestas o comentarios que pueda emitir son totalmente confidenciales. Muchísimas gracias por su cooperación.

1. Según su opinión como propagandista médico: ¿En qué consiste, a su entender, la **labor y función del propagandista** médico y qué **preparación académica** debe poseer para desempeñarse con eficiencia?

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2. Por favor, comente: Luego de ser reclutado por la farmacéutica, ¿Recibió **entrenamiento** en áreas específicas, como por ejemplo ventas o mercadeo?

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- a. ¿Será este su rol principal? Sí o No, ¿Por qué?

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3. Si usted tuviera que expresarle a una persona cuál es la **función principal** por lo que lo(a) contrataron, ¿Cuál sería su explicación sobre su función?

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- a. ¿Ha tenido dificultades o problemas desempeñando esa función? Ej. Ha tenido problemas contactando médicos

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4. ¿Con qué frecuencia en promedio, visita usted a los médicos que caen en su área de cobertura?

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5. ¿Cada cuanto tiempo y con que objetivo le llevan muestras de medicamentos a los médicos?

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6. ¿Cree que darle pequeños regalos, cenas, o artículos libre de costo (gratitudes) a los médicos, compromete estos a recetar los productos que usted (es) promociona (n)?

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- a. Su compañía ¿le provee regalos como bolígrafos, tazas, agendas, etc. para que usted le dé estos a los médicos que visita?

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7. ...¿ha escuchado usted sobre o creen que las farmacéuticas auspician y le dan remuneraciones económicas a los médicos por asistir a conferencias o convenciones?

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**Ahora me gustaría que comentásemos sobre algunos temas.....**

8. Por las experiencias que adquieren ustedes, ¿Qué le recomendarían a las farmacéuticas para mejorar la profesión de propagandistas médicos?\_\_\_\_\_

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9. Artículos e investigaciones diversas en distintos medios de comunicación y publicaciones especifican que existe conflicto ético en la interacción del médico y el propagandista médico, ¿Entiende usted que existe un conflicto ético entre la profesión del propagandista medico y los profesionales de la salud en Puerto Rico?

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**APPENDIX #3****Patients Personal Interview Question Guidelines (In Spanish)****Guía de preguntas para consumidores de medicamentos (pacientes)**

Esta guía de preguntas es parte intrínseca de la tesis de maestría de Shirley Rodríguez (estudiante graduada del Programa de MBA en la Facultad de Administración de Empresas de la Universidad de Puerto Rico, Recinto de Mayagüez), y tiene como propósito, entre otros, obtener información sobre el impacto que tienen las comunicaciones de mercadeo de las farmacéuticas en la mente del consumidor. Su colaboración es indispensable para lograr los objetivos de la tesis. Deseo informarle que las respuestas o comentarios que pueda emitir son totalmente confidenciales. Muchísimas gracias por su cooperación.

1. Típicamente, cuando usted ve el televisor o lee revistas, ¿observa promociones (anuncios) de las farmacéuticas o los medicamentos producidos por estas en estos medios masivos de comunicación?
  - a.  Sí
  - b.  No
2. ¿Con cuanta frecuencia usted ve anuncios de medicamentos en los medios de comunicación?
  - a. 1-3 veces por día
  - b. 4-6 veces por día
  - c. Más de 7 veces por día
  - d. Otro, especifique: \_\_\_\_\_
3. Recordando las promociones que se observan en los medios de comunicación; ¿De cuales medicamentos usted recuerda haber visto anuncios o promociones?  
\_\_\_\_\_
4. Cuando usted ve un anuncio de algún medicamento, ¿Qué piensa?
  - a. El anuncio lo concientiza de las enfermedades
  - b. El anuncio hace que usted le pregunte a su medico si ese medicamento es bueno para usted
  - c. Piensa que el anuncio es una perdida de tiempo y dinero por parte de la industria farmacéutica
  - d. No entiende el anuncio
  - e. Otro: \_\_\_\_\_
5. ¿Usted le solicita o ha solicitado a su médico que le recete algún medicamento que ve anunciado en los medios masivos de comunicación?
  - a.  Sí, ¿Cuál es la reacción del medico, ante la situación?  
\_\_\_\_\_
  - b.  No
6. ¿Tiene conocimiento que los productos más costosos y mas vendidos en muchas ocasiones son los que se promocionan a través de los medios de comunicación? ¿Que opina usted al respecto?  
\_\_\_\_\_  
\_\_\_\_\_

**APPENDIX #4****Physicians and Medical Clerks Questionnaire – Thesis main instrument (In Spanish)****ESTUDIO SOBRE COMO LAS COMUNICACIONES DE MERCADEO DE LAS FARMACÉUTICAS AFECTAN LA PRACTICA DE RECETAR DE LOS MÉDICOS.**

Este cuestionario es parte de la tesis de Maestría de Shirley Rodríguez estudiante de la Facultad de Administración de Empresas del Recinto Universitario de Mayagüez (Colegio), el propósito es recolectar información sobre como las comunicaciones de mercadeo de las farmacéuticas afectan la practica de recetar de los médicos. Por favor urge su respuesta ya que su colaboración es indispensable para lograr los objetivos de la tesis. **Las respuestas o comentarios que pueda emitir son totalmente confidenciales.**

**A. Datos Generales**

1. Sexo:  F  M
2. Edad:
  - a. Menos de 30 años
  - b. 31-40 años
  - c. 41-50 años
  - d. 51-60 años
  - e. 61 años o más
3. En que año recibió su grado de médico: \_\_\_\_\_
4. Especialidad Médica: \_\_\_\_\_
5. De qué universidad recibió su grado de médico y de que país: \_\_\_\_\_
6. Cuantos años lleva en la practica médica:
  - f. Menos de 1 año
  - g. 1-4 años
  - h. 5-10 años
  - i. 11-15 años
  - j. 16-20 años
  - k. Más de 21 años
7. Pueblo donde tiene su consultorio principal: \_\_\_\_\_
8. Tiene usted consultorios médicos (oficinas) en otros pueblos:
 

Si, ¿Cuál (es)?: \_\_\_\_\_  No

**B. Encuesta:**

9. En términos a los medicamentos que típicamente receta, ¿Cuáles medicamentos receta usted con mayor frecuencia? Por favor, seleccione y ordene estos según su importancia en términos a aquellos medicamentos que más receta. Asigne 1 al medicamento que más receta y 6 al que menos receta.
  - a. Medicamentos genéricos-económicos o de precios bajos aunque buenos.
  - b. Medicamentos no promocionados, usados por usted desde hace mucho tiempo y que brindan buenos resultados.
  - c. Medicamentos promocionados por las farmacéuticas, que no le dejan muestras.
  - d. Medicamentos promocionados por las farmacéuticas y que al mismo tiempo los propagandistas le dejan muestras de ellos.
  - e. Medicamentos de marca privada, pero le permite o da opción al paciente de usar el producto más económico.
  - f. Medicamentos de cualquier fuente que beneficie al paciente.
10. ¿Cuáles fuentes de información son las más utilizadas por usted para seleccionar y conocer los medicamento(s) que receta? Marque las tres fuentes de información más utilizadas.
  - a. Recursos de Internet
  - b. Manuales de Referencia clínica
  - c. Textos electrónicos (CD-ROM o PDA's)
  - d. Artículos en revistas profesionales (peer-reviewed journals)

\_\_\_\_\_ e. Información provista por propagandistas médicos

\_\_\_\_\_ f. Auto-conocimiento

\_\_\_\_\_ g. Otros, especifique: \_\_\_\_\_

**Las siguientes aseveraciones tienen como objetivo conocer la confiabilidad de la información que usted usa cuando llena una receta. Por favor para las preguntas 11-14 marque una sola alternativa en los espacios provistos.**

Preguntas	Respuestas	a. Recursos de Internet	b. Manuales de Referencia a clínica	c. Textos electrónicos (CD-ROM o PDA's)	d. Artículos en revistas profesionales	e. Información provista por propagandistas médicos
11. En términos de <b>confiabilidad</b> , ¿Cuál de los siguientes recursos es más <b>confiable</b> para conocer acerca de medicamentos nuevos y/o existentes en el mercado?						
12. En términos de <b>disponibilidad</b> , ¿Cuál de los siguientes recursos está más <b>disponible</b> para conocer acerca de medicamentos nuevos y/o existentes en el mercado?						
13. En términos de <b>implantación</b> , ¿Cuál de los siguientes recursos es más fácil de <b>utilizar o implantar</b> en su práctica médica?						
14. En términos de <b>frecuencia</b> de uso, ¿Cuál de los siguientes recursos es <b>más usado</b> por usted en la practica médica?						

**Ahora dígame, por favor:**

15. ¿Cuántas veces a la semana ve usted propagandistas médicos?

l. 1-3 veces por semana

m. 4-6 veces por semana

n. Más de 7 veces por semana

o. Otro, especifique: \_\_\_\_\_

16. ¿Cuánto tiempo promedio le dedica a cada propagandista por visita? \_\_\_\_\_

17. Cuando los propagandistas necesitan verle, irrelevante del propósito, ¿Qué hacen? (circule sólo una alternativa)

p. ¿Sacan cita para visitarlo en su oficina?

q. ¿Llegan a la oficina para ver su disponibilidad?

r. Otro, especifique: : \_\_\_\_\_

18. ¿Cuál es la razón principal por la que los propagandistas médicos lo visitan? Circule las tres razones principales por la que \_\_\_\_\_ los propagandistas médicos lo visitan.

s. Para llevarle información sobre medicamentos

t. Para llevarle muestras de medicamentos

u. Para llevarle regalos

v. Para invitarlo (a) a cenas o eventos sociales

- w. Para invitarlo a conferencias auspiciadas por la farmacéutica que representan.
- x. Para hacer que usted recete el producto que este promociona
- y. Otro: \_\_\_\_\_

Las siguientes preguntas son aseveraciones sobre distintos temas relacionados a las diversas fuentes de información y comunicación de mercadeo.

Por favor para las preguntas 19-28 marque una sola alternativa en la escala provista.

Preguntas	Respuestas	a. Totalmente en desacuerdo	b. En desacuerdo	c. No estoy seguro	d. De acuerdo	e. Totalmente de acuerdo
		1	2	3	4	5
19. ¿Utiliza <b>información</b> sobre productos que viene de las farmacéuticas, como por ejemplo la que le brindan los propagandistas médicos cuando lo (a) visitan?						
20. ¿Proveen los propagandistas médicos <b>información</b> precisa, confiable y útil acerca de los <b>nuevos medicamentos</b> introducidos al mercado?						
21. ¿Proveen los propagandistas <b>médicos información</b> precisa, confiable y útil acerca de <b>medicamentos</b> ya <b>establecidos</b> en el mercado?						
22. ¿Realizan los propagandistas médicos una <b>labor de educadores</b> ?						
23. ¿Auspician los propagandistas médicos <b>conferencias</b> importantes a las que usted asiste?						
24. ¿Recibió usted <b>entrenamiento</b> durante sus años de educación acerca de cómo <b>interactuar</b> con <b>propagandistas</b> médicos?						
25. ¿Tendrá usted el mismo grado de <b>contacto</b> con los propagandistas médicos si estos no distribuyeran <b>promociones o muestras</b> ?						
26. ¿Tienen las visitas e información provista por los propagandistas médicos <b>impacto</b> en su hábito y comportamiento de recetar algún medicamento?						
27. ¿Tienen los <b>regalos y muestras</b> que usted recibe de los propagandistas <b>médicos impacto</b> alguno en su hábito y comportamiento de recetar algún						

medicamento?					
28. ¿Influyen las promociones de las farmacéuticas en su hábito de recetar?					

**29. De los medicamentos que le dejan los propagandistas: ¿Cómo los usa o distribuye usted?**

Por favor marque una sola alternativa en la escala provista

Respuesta Aseveración	Siempre (100% de las veces)	Casi siempre (99% - 70% de las veces)	Regularmente (69% - 31% de las veces)	A veces (30% - 1% de las veces)	Nunca (0% de las veces)
a. A pacientes necesitados					
b. A pacientes con múltiples diagnósticos					
c. A cualquier paciente					
d. A conocidos					

30. Actualmente, ¿cree usted que se le brinda remuneración económica a los médicos para que promuevan medicamentos entre sus colegas?  Si  No  No tengo conocimiento

31. ¿Cree usted que las farmacéuticas, auspician clases, cursos o seminarios de educación continua para los médicos?  Si  No  No tengo conocimiento

**32. Con respecto a las promociones que usted ha recibido de las farmacéuticas o sus representantes (propagandistas médicos), cuan frecuente usted ha recibido cualquiera de los siguientes:**

Por favor marque una sola alternativa en la escala provista

Respuesta Aseveración	Siempre (100% de las veces)	Casi siempre (99% - 70% de las veces)	Regularmente (69% - 31% de las veces)	A veces (30% - 1% de las veces)	Nunca (0% de las veces)
a. Pequeños regalos o detalles (ej. bolígrafos, libretas, tazas, etc.)					
b. Comidas o bebidas en restaurantes o que le lleven a la oficina médica					
c. Boleto para actividades sociales o deportivas (ej. conciertos)					
d. Libros médicos					
e. Equipos médicos (ej. estetoscopios)					
f. Equipos de oficina					
g. Muestras de medicamentos para pacientes					
h. Muestras de medicamentos u otros artículos para uso familiar o personal					
i. Regalos cuantiosos o dinero					
j. Otro, especifique:					



33. ¿Con cuanta frecuencia las compañías farmacéuticas o sus representantes le han ofrecido alguno de los siguientes: Por favor marque una sola alternativa en la escala provista

Respuesta Aseveración	Siempre (100% de las veces)	Casi siempre (99% - 70% de las veces)	Regularmente (69% - 31% de las veces)	A veces (30% - 1% de las veces)	Nunca (0% de las veces)
a. Pagarle por asistir a programas de educación donde usted no es el presentador					
b. Brindarle regalos, boletos u otras cortesías por asistir programas donde no es el presentador					
c. Pagarle honorarios, viaje y/o acomodo por hacer presentaciones en programas educativos (ser orador)					
d. Pagarle los gastos de viaje y/o acomodo para ir a programas de educación fuera de la ciudad o del país					
e. Pagarle los gastos a su acompañante o familia por asistir a programas de educación.					

**Las farmacéuticas transmiten información y se promocionan a través de diferentes medios de comunicación.**

34. ¿Cuál de los siguientes **medios** es más eficiente para usted recibir la información de los productos de las farmacéuticas? Por favor, seleccione y ordene estos según su importancia en términos al medio más eficiente para recibir información de los productos de las farmacéuticas. Asigne 1 al medio que es más efectivo y 6 al menos efectivo.

z. En la televisión

aa. En la radio

bb. En revistas profesionales

cc. Auspiciando conferencias

dd. A través de propagandistas médicos

ee. Otro, especifique: \_\_\_\_\_

35. ¿De cuales de los siguientes **medios** recibe información con mayor frecuencia? Circule las tres fuentes más frecuentes.

ff. En la televisión

gg. En la radio

hh. En revistas profesionales

ii. Auspiciando conferencias

jj. A través de propagandistas médicos

kk. Otro, especifique: \_\_\_\_\_

36. Usualmente: ¿los pacientes le preguntan acerca de medicamentos promocionados por las farmacéuticas en los medios masivos de comunicación?  Si  No
37. ¿Tomó clases de ética durante los años de estudio para ser médico?  Si  No
38. Actualmente, ¿Toma usted clases de ética médica como parte de los cursos de educación continua?  Si  No
39. ¿Le gustaría tomar cursos de ética médica?  Si  No

*¡Gracias por su cooperación!*

**Appendix #5**

Physicians Population of the Western Side of Puerto Rico (In spanish)

<b>Población de Médicos del Oeste de P.R. *</b>	<b>Aguada</b>	<b>Aguadilla</b>	<b>Añasco</b>	<b>Cabo Rojo</b>	<b>Guánica</b>	<b>Hormigueros</b>	<b>Isabela</b>	<b>Lajas</b>	<b>Las Marías</b>	<b>Maricao</b>	<b>Mayagüez</b>	<b>Moca</b>	<b>Quebradillas</b>	<b>Rincón</b>	<b>Sabana Grande</b>	<b>San Germán</b>	<b>San Sebastián</b>	<b>Población por Especialidad Médica</b>
Alergistas	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Anestesiólogos	0	7	0	0	0	0	0	0	0	0	19	1	0	0	0	2	0	29
Cardiólogos	3	4	0	1	0	0	2	0	0	0	12	1	1	0	1	5	2	32
Cirujanos **	0	12	1	6	0	1	3	2	2	0	39	3	0	1	0	11	1	82
Cirujanos Plásticos	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	6
Dermatólogos	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	6
Endocrinólogos	0	3	0	0	0	0	0	0	0	0	5	0	0	0	0	2	0	10
Fisiatras	1	2	1	2	0	1	0	0	0	0	4	0	0	0	0	3	1	15
Gastroenterólogos	1	2	0	1	0	0	0	0	0	0	10	0	0	0	0	2	0	16
Generalistas	12	74	6	8	3	6	11	5	5	2	82	9	8	4	6	6	18	265
Geriatras	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
Infectólogos	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0	4
Medicina De Emergencia	0	2	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	6
Medicina de Familia	2	4	0	6	4	1	5	3	3	0	21	5	0	1	4	5	9	73
Medicina Interna	9	22	7	10	4	3	5	2	8	0	52	5	3	3	12	27	9	181
Medicina Nuclear	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	6
Nefrólogos	0	4	0	1	0	0	0	1	0	0	7	0	0	0	0	0	0	13
Neumólogos	2	2	0	1	0	0	0	0	0	0	5	0	0	0	0	2	0	12
Neurocirujanos	0	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0	5
Neurólogos	0	3	0	0	0	0	1	0	0	0	6	0	0	0	0	1	0	11
Obstetras y ginecólogos	3	9	1	4	2	1	1	3	2	0	30	2	1	0	2	6	3	70
Oftalmólogos	1	7	0	0	0	0	1	0	1	0	14	1	0	0	0	2	0	27
Oncólogos y Hematólogos	0	3	0	0	0	0	0	0	0	0	5	0	0	0	0	2	0	10
Ortopedas	0	2	0	0	0	0	0	0	0	0	9	1	0	0	0	2	0	14
Otorinolaringolos	0	1	0	1	0	0	0	0	0	0	7	0	0	0	0	2	0	11

<b>Población de Médicos del Oeste de P.R. *</b>	<b>Aguada</b>	<b>Aguadilla</b>	<b>Añasco</b>	<b>Cabo Rojo</b>	<b>Guánica</b>	<b>Hormigueros</b>	<b>Isabela</b>	<b>Lajas</b>	<b>Las Marías</b>	<b>Maricao</b>	<b>Mayagüez</b>	<b>Moca</b>	<b>Quebradillas</b>	<b>Rincón</b>	<b>Sabana Grande</b>	<b>San Germán</b>	<b>San Sebastián</b>	<b>Población por Especialidad Médica</b>
Patólogos	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	1	0	8
Pediatra y Neonatólogos	9	10	2	8	1	0	4	2	1	0	19	3	3	1	3	7	6	79
Podiatras	0	2	0	0	0	0	1	0	0	0	5	0	0	0	0	0	1	9
Radiólogos	2	4	0	2	0	0	1	0	0	0	10	3	0	0	0	1	0	23
Reumatólogos	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	1	6
Siquiatra	1	9	0	3	1	0	1	0	0	0	14	0	0	0	0	7	1	37
Urólogo	0	1	0	1	0	0	0	0	0	0	6	0	0	0	0	1	1	10
Población por Pueblo	47	192	18	56	16	13	36	19	22	2	410	36	16	10	28	105	53	1079

**Appendix #6**

Physicians Sample of the Western Side of Puerto Rico (In spanish)

Muestra de Médicos del Oeste de P.R.*	Aguada	Aguadilla	Añasco	Cabo Rojo	Guánica	Hormigueros	Isabela	Lajas	Las Marías	Maricao	Mayagüez	Moca	Quebradillas	Rincón	Sabana Grande	San Germán	San Sebastián	n
Alergistas																		0
Anestesiólogos		1									1							2
Cardiólogos		1									1					1		3
Cirujanos **		1		1				1			3					1		7
Cirujanos Plásticos											1							1
Dermatólogos											1							1
Endocrinólogos											1							1
Fisiatras																1		1
Gastroenterólogos											1							1
Generalistas	1	6	1			1		1	1		6	1	1	1	1	1	2	24
Geriatras																		0
Infectólogos																		0
Medicina De Emergencia		1																1
Medicina de Familia				1			1				2	1					1	6
Medicina Interna	1	1	1	1	1				1		4	1			1	1	1	14
Medicina Nuclear											1							1
Nefrólogos											1							1
Neumólogos											1							1
Neurocirujanos																		0
Neurólogos											1							1
Obstetras y ginecólogos	1	1									2					1		5
Oftalmólogos		1									1							2
Oncólogos y Hematólogos											1							1
Ortopedas											1							1
Otorinolaringolos											1							1
Patólogos											1							1
Pediatra y Neonatólogos	1	1		1			1				1					1	1	7

<b>Muestra de Médicos del Oeste de P.R.*</b>	<b>Aguada</b>	<b>Aguadilla</b>	<b>Añasco</b>	<b>Cabo Rojo</b>	<b>Guánica</b>	<b>Hormigueros</b>	<b>Isabela</b>	<b>Lajas</b>	<b>Las Marías</b>	<b>Maricao</b>	<b>Mayagüez</b>	<b>Moca</b>	<b>Quebradillas</b>	<b>Rincón</b>	<b>Sabana Grande</b>	<b>San Germán</b>	<b>San Sebastián</b>	<b>n</b>
<b>Podiatras</b>											1							1
<b>Radiólogos</b>		1									1							2
<b>Reumatólogos</b>											1							1
<b>Siquiatra</b>		1									1					1		3
<b>Urólogo</b>											1							1
<b>TOTAL</b>	<b>4</b>	<b>16</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>38</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>8</b>	<b>5</b>	<b>92</b>

**Appendix #7**

Physicians Population of the Western Side of Puerto Rico (In spanish)

<b>Población de "Medical Clerk's" del Oeste de P.R.</b>	<b>Hospital San Carlos Borromeo, Moca</b>	<b>Hospital de la Concepción, San Germán</b>	<b>Hospital Dr. Ramón Emeterio Betances Centro Médico de Mayagüez</b>	<b>Hospital Bella Vista, Mayaguez</b>	<b>Hospital Metropolitano, San German</b>	<b>Aguadilla Regional Hospital, Aguadilla</b>	<b>N</b>
<b>Internos</b>	8	9	10	8	11	14	60
<b>Residentes</b>	4	14	8	9	2	0	37
<b>Población por Pueblo</b>	12	23	18	17	13	14	97

**Appendix #8**

Physicians Sample of the Western Side of Puerto Rico (In spanish)

Muestra de "Medical Clerk's" del Oeste de P.R.	Hospital San Carlos Borromeo, Moca	Hospital de la Concepción, San Germán	Hospital Dr. Ramón Emeterio Betances Centro Médico de Mayagüez	Hospital Bella Vista, Mayaguez	Hospital Metropolitano, San German	Aguadilla Regional Hospital, Aguadilla	n
<b>Internos</b>	1	1	1	1	1	1	6
<b>Residentes</b>	1	1	1	1	0	0	4
<b>Población por Pueblo</b>	2	2	2	2	1	1	10



**APPENDIX #9**

## Survey Codification Entry

<b>Variable</b>	<b>Survey Question Number</b>	<b>Codification Entry</b>
1. sexo	1. Sex	1. F 2. M
2. edad	2. Age	1. Less than 30 years 2. 31-40 years 3. 41-50 years 4. 51-60 years 5. More than 61 years
3. graduaci	3. In which year received the MD academic degree?	Open Question
4. especial	4. Medical Specialty	Open Question
5. unipais	5. From which university and country received the academic degree?	Open Question
6. practica	6. How many years did you work as physician?	1. Less than 1 year 2. 1-4 years 3. 5-10 years 4. 11-15 years 5. 16-20 years 6. More than 21 years
7. pueblo	7. In which city did you have your main office?	Open Question
8. otropue	8. Did you have offices in other cities?	1. Yes 2. NO
9. medfre1	9. In terms of the types of drugs that typically and frequently physicians prescribe; which drugs did you prescribe frequently? Please, select and order the drugs, assign and order the types of drugs according the frequency of use. (1 to the drug that most prescribe and 6 to the less prescribe drugs).	1. Generics - Economic drugs, but are good quality drugs
10. medfre2		2. Non-promoted drugs, used by physicians for some time, and also brings good therapeutically results
11. medfre3		3. Promoted drugs, that drug representatives do not provide samples
12. medfre4		4. Promoted drugs, that at the same time drug representatives leave samples of in the offices
13. medfre5		5. Private branding drugs, but gives patient the option to use economic products.
14. medfre6		6. Drugs of any type that benefit the patient.

15. fuente1	10. ¿Which are the most used sources of information to select and known the drugs that you prescribe? Select the three most used sources of information.	<ol style="list-style-type: none"> <li>1. Internet Resources</li> <li>2. Clinical References Manuals</li> <li>3. Electronic Texts (CD-ROM o PDA's)</li> <li>4. Journals</li> <li>5. Information provided by drug representatives</li> <li>6. Auto-Knowledge</li> </ol>
16. fuente2		
17. fuente3		
18. fuente4		
19. fuente5		
20. fuente6		
21. confiabi	11. In terms of confidentiality, which from the following resources is most confident to know about newly and established drugs in the market?	<ol style="list-style-type: none"> <li>1. Internet Resources</li> <li>2. Clinical References Manuals</li> <li>3. Electronic Texts (CD-ROM o PDA's)</li> <li>4. Journals</li> <li>5. Information provided by drug representatives</li> </ol>
22. disponib	12. In terms of availability, which from the following resources is most available to know about newly and established drugs in the market?	
23. implanta	13. In terms of easiest of application and usage, which from the following resources is most easy to use in the medical practice?	
24. frecuenc	14. In terms of frequency of use, which from the following resources is the most used by you in the medical practices?	
25. vepropag	15. How many times per week did you see drug representatives?	<ol style="list-style-type: none"> <li>1. 1-3 times per week</li> <li>2. 4-6 times per week</li> <li>3. More than 7 times per week</li> <li>4. Other</li> </ol>
26. tiempove	16. How much time did you expend with each drug representative per visit?	
27. hacenver	17. What did drug representative do to established contact with medical practitioners?	<ol style="list-style-type: none"> <li>1. ¿Make an appointment to visit the physician?</li> <li>2. Arrive to the office physician to check that availability?</li> <li>3. Other</li> </ol>
28. razon1	18. Which is the main reason by which drug representative visit physician regularly?	<ol style="list-style-type: none"> <li>1. To leave drug information</li> <li>2. To leave drug samples</li> <li>3. To bring gifts (freebies)</li> <li>4. To invite to dinner or social events</li> <li>5. To invite to conferences or activities hosted by pharmaceuticals. To persuade physician to prescribe the promoted drug.</li> <li>6. Other</li> </ol>
29. razon2		
30. razon3		
31. infofarm	19. Did you use the product information send by pharmaceuticals, like the one delivered by drug representatives?	<ol style="list-style-type: none"> <li>1. Totally disagree</li> <li>2. Disagree</li> <li>3. Not sure</li> <li>4. Agree</li> <li>5. Totally agree</li> </ol>
32. infonuev	20. Did drug representatives provide accurate, confident and useful information about newly introduce drugs?	
33. infoesta	21. Did drug representatives provide accurate, confident and useful information about established drugs?	

34. propeduc	22. Did drug representatives realize an educator labor/role?	
35. auspicon	23. Did drug representatives host important conferences which you assist?	
36. entinter	24. Did you receive training during your medicine school about how the interaction with drug representatives could be?	
37. gradocon	25. Did you have the same contact with drug representatives if they don't distribute in office samples or promotions?	
38. infoimpa	26. Did the visits and information provided by drug representatives impact the habit and prescribing practice?	
39. regaimpa	27. Did the freebies and samples impact the habit and prescribing practice?	
40. promoinf	28. Did pharmaceutical promotions affect the prescribing practices?	
41. usoneed	29. How did you use or distribute the in-office samples? a. Needy patients b. Patients with multiple diagnosis c. Any patient d. Known patients	1. Always
42. xxxdiagn		2. Almost always
43. cualquie		3. Regularly
44. conocido		4. Sometimes
45. remu\$\$\$	30. Actually, did you think that pharmaceuticals bring economic remuneration to physicians to promote drugs among colleges?	5. Never
46. auspedco	31. Did you think that pharmaceuticals host medical continuing education classes, courses or seminars?	1. Yes 2. No 3. I don't know
47. rega32	32. How frequently did you received the following promotional items from pharmaceuticals or drug representatives: a. Small gifts such as pens, notebooks, mugs, etc.	1. ___Si 2. ___No 3. ___I don't Know  a. Always b. Almost always c. Regularly d. Sometimes e. Never
48. comi32	b. Meals or drinks (in restaurants or in-office)	
49. bole32	c. Entertainment or sporting event tickets	
50. libro32	d. Medical texts	
51. equipo32	e. Medical equipment	
52. ofic32	f. Office equipment	
53. muespt32	g. Pharmaceutical samples for patients	
54. muesfa32	h. Pharmaceutical samples or other items for personal family use	
55. reg\$\$32	i. Substantial gifts or money	
56. otro32	j. Other	
57. nopre33	33. How frequently did pharmaceuticals or drug representatives offer the following: a. Cash honoraria for attending educational programs at which the physicians was not a presenter	1. Always 2. Almost always 3. Regularly 4. Sometimes 5. Never
58. renopr33	b. Bringing gifts, tickets and hospitalities for attending programs at which the physicians was not a presenter	
59. orador33	c. Honoraria travel and / or accommodation expenses for making presentations at educational programs out of town.	
60. gastos33	d. Travel and / or accommodation expenses for the physicians to go out of town programs at which he/she was not a presenter.	

61. gastfa33	e. Travel and / or accommodation expenses for a family or companion to accompany the physicians to educational programs.	
62. mediotv	34. Which of the following communication mediums are more efficient to received information of pharmaceutical products? Please order the medium according the efficiency of those (Assign 1 to the most effective medium and 6 to the less effective).	1. On Television 2. On Radio 3. On journals 4. Hosting conferences 5. Through drug representatives 6. Other
63. mediora		
64. mediojou		
65. mediocon		
66. mediorep		
67. mediotro		
68. medfrec1	35. ¿From the following communication mediums, did you frequently receive information?	1. On Television 2. On Radio 3. On journals 4. Hosting conferences 5. Through drug representatives 6. Other
69. medfrec2		
70. medfrec3		
71. ptsdtc	36. Usually, did patients ask about the pharmaceutical advertised drugs	1. Yes            2. NO
72. eticestu	37. Did you take ethic classes in medical school?	1. Yes            2. NO
73. eticnow	38. Actually, did you take medical ethical classes in the continuing education programs?	1. Yes            2. NO
74. gustetic	39. Did you like to take ethical courses?	1. Yes            2. NO

Survey Correlation Matrix

	medfre1	medfre2	medfre3	medfre4	medfre5	medfre6	fuentes1	fuentes2	fuentes3	confiabi	disponib	implanta	frecuenc	vepropag	tiempove	hacerver
medfre1	1.000															
medfre2	-0.393	1.000														
medfre3	0.032	-0.281	1.000													
medfre4	-0.428	0.227	-0.124	1.000												
medfre5	0.117	-0.360	-0.174	-0.655	1.000											
medfre6	-0.317	0.028	-0.212	-0.033	-0.270	1.000										
fuentes1	-0.210	0.134	0.006	0.040	0.247	-0.344	1.000									
fuentes2	0.146	-0.044	0.064	0.013	0.180	-0.468	0.545	1.000								
fuentes3	-0.023	0.018	-0.024	-0.035	0.287	-0.345	0.345	0.612	1.000							
confiabi	0.343	-0.174	0.198	-0.289	0.047	-0.098	-0.314	-0.229	-0.115	1.000						
disponib	0.257	-0.212	0.233	-0.229	0.019	-0.041	-0.061	-0.287	-0.191	0.503	1.000					
implanta	0.069	0.132	0.219	-0.058	-0.169	-0.073	0.122	0.148	-0.075	0.164	0.020	1.000				
frecuenc	0.008	-0.100	0.399	-0.288	0.209	-0.127	0.077	0.016	-0.003	0.017	0.128	0.075	1.000			
vepropag	0.044	-0.312	0.190	-0.028	0.200	-0.226	-0.169	0.108	0.098	0.263	0.105	0.219	0.170	1.000		
tiempove	0.290	-0.223	0.325	-0.091	-0.041	-0.188	-0.197	0.129	-0.018	-0.002	-0.024	0.074	0.202	0.282	1.000	
hacerver	-0.116	0.188	-0.103	0.110	-0.085	0.012	-0.060	-0.053	-0.086	0.082	0.087	0.021	0.074	0.148	-0.032	1.000
razon1	-0.147	0.108	-0.067	-0.073	0.102	0.070	0.180	0.093	0.121	-0.117	-0.005	0.010	-0.123	-0.130	-0.243	0.085
razon2	0.017	0.189	-0.214	0.115	-0.202	0.159	-0.094	-0.136	-0.265	-0.153	-0.176	0.110	-0.217	-0.252	-0.168	0.059
razon3	-0.058	0.121	0.140	0.016	-0.002	-0.161	0.168	0.256	0.297	-0.125	-0.211	0.350	0.153	0.200	0.067	0.019
infofarm	-0.271	0.104	-0.178	0.053	0.073	0.134	0.196	0.165	0.218	-0.143	0.004	0.135	0.043	-0.017	-0.125	-0.115
info nuev	-0.098	-0.054	-0.218	-0.106	0.353	-0.058	0.250	0.067	-0.002	-0.214	-0.070	0.094	0.211	0.031	-0.031	-0.253
infoesta	-0.327	0.188	-0.062	0.106	0.125	-0.113	0.461	0.227	0.159	-0.398	-0.068	0.292	0.059	-0.077	-0.138	-0.287
propeduc	-0.198	0.204	0.014	-0.075	0.179	-0.182	0.306	0.269	0.218	-0.106	-0.134	0.482	-0.038	0.167	-0.059	-0.185
auspicon	0.205	-0.051	-0.051	-0.305	0.125	0.072	-0.179	-0.254	-0.368	0.201	0.438	-0.027	0.138	0.262	0.064	0.098
entinter	-0.595	0.228	-0.408	0.311	-0.013	0.376	0.069	-0.043	0.066	-0.300	-0.279	-0.056	-0.119	-0.052	-0.270	-0.112
gradocon	0.362	-0.058	0.176	-0.199	0.122	-0.387	0.143	0.095	-0.063	-0.049	0.269	0.072	0.264	0.054	0.195	-0.123
infoimpa	-0.140	0.136	0.194	-0.034	0.060	-0.229	0.320	0.377	0.269	0.017	0.048	0.113	0.007	0.099	0.113	-0.091
regaimpa	-0.516	0.262	-0.179	0.195	0.011	0.216	0.335	0.186	0.168	-0.502	-0.306	-0.056	0.095	-0.215	-0.203	-0.142
promoinf	-0.083	0.197	0.387	0.076	-0.220	-0.188	0.211	0.210	0.113	0.291	0.178	0.323	0.242	0.015	-0.030	-0.068
usoneed	-0.156	0.138	-0.125	0.171	-0.047	0.009	-0.108	-0.095	0.031	0.033	-0.243	-0.108	-0.130	0.029	0.001	-0.075
xxxdiagn	-0.168	0.093	-0.056	0.196	-0.012	-0.084	0.171	0.067	-0.009	-0.177	-0.265	-0.118	-0.077	-0.096	-0.059	-0.045
cualquie	-0.141	0.007	-0.056	-0.186	0.135	0.223	-0.238	-0.310	-0.505	0.163	0.163	-0.126	-0.207	0.007	-0.066	-0.018
conocido	-0.224	-0.230	-0.302	0.273	-0.084	0.439	-0.359	-0.384	-0.295	-0.101	-0.086	-0.264	-0.312	0.050	-0.119	0.093
remu\$\$\$	-0.280	0.125	-0.170	0.068	-0.020	0.310	-0.002	-0.107	0.019	-0.410	-0.134	-0.202	0.024	-0.209	-0.148	-0.185
auspedco	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
rega32	0.127	-0.232	0.335	-0.082	0.048	-0.200	0.144	0.022	-0.002	0.383	0.318	0.186	0.252	0.138	-0.018	-0.081
comi32	0.409	-0.549	0.256	-0.258	0.268	-0.232	-0.090	-0.075	-0.133	0.374	0.372	-0.195	0.202	0.338	0.244	0.052
bole32	-0.116	0.128	-0.103	0.036	-0.050	0.115	-0.165	-0.277	-0.230	0.082	0.035	-0.261	-0.218	-0.058	-0.032	0.306
libro32	-0.032	0.001	-0.125	-0.055	0.137	0.038	-0.123	-0.288	0.076	0.141	0.130	-0.084	0.021	0.085	-0.084	-0.045
equipo32	-0.448	0.380	-0.195	0.134	-0.059	0.224	0.275	0.086	0.125	-0.358	-0.302	0.167	-0.196	-0.311	-0.417	-0.106
ofic32	-0.098	0.073	0.022	-0.187	0.148	0.043	-0.161	-0.167	-0.150	0.107	0.073	-0.121	-0.056	0.032	0.038	0.218
muespt32	0.120	0.045	-0.041	-0.082	-0.053	0.077	0.003	-0.120	-0.218	-0.101	-0.003	-0.184	-0.124	-0.530	-0.135	-0.416

	<i>medfre1</i>	<i>medfre2</i>	<i>medfre3</i>	<i>medfre4</i>	<i>medfre5</i>	<i>medfre6</i>	<i>fuelle1</i>	<i>fuelle2</i>	<i>fuelle3</i>	<i>confiabi</i>	<i>disponib</i>	<i>implanta</i>	<i>frecuenc</i>	<i>vepropag</i>	<i>tiempove</i>	<i>hacenver</i>
muesfa32	0.225	-0.028	0.018	-0.096	-0.168	0.158	-0.265	-0.162	-0.268	0.121	0.137	-0.021	0.126	0.112	0.155	0.380
re\$\$32	0.217	0.059	-0.050	-0.143	-0.113	0.138	-0.175	-0.153	-0.209	0.080	-0.010	-0.032	0.019	-0.082	0.118	-0.041
nopre33	-0.115	0.138	0.191	0.068	-0.157	0.031	-0.068	-0.079	0.176	-0.079	-0.244	-0.210	0.013	-0.171	0.012	-0.080
renopr33	0.075	-0.174	0.140	0.078	-0.260	0.227	-0.492	-0.217	-0.169	0.098	0.123	-0.183	-0.168	0.013	-0.025	-0.071
orador33	0.100	0.156	-0.090	0.077	-0.130	-0.090	0.287	0.266	0.017	-0.293	-0.194	0.163	-0.115	-0.188	-0.042	-0.164
gastos33	0.189	-0.222	0.173	0.058	-0.188	0.037	-0.324	-0.008	-0.164	0.038	0.002	-0.096	-0.169	0.103	0.108	-0.127
gastfa33	-0.010	-0.043	0.306	0.029	-0.124	-0.073	0.208	0.079	0.047	0.066	-0.055	0.017	-0.177	-0.130	0.005	-0.034
medio1	0.262	-0.158	0.321	-0.107	-0.005	-0.243	-0.106	0.276	-0.024	0.187	0.144	0.085	0.296	0.041	0.186	-0.069
medio2	0.361	-0.290	-0.020	-0.237	0.113	0.024	-0.244	-0.098	-0.010	0.167	0.141	-0.267	-0.252	0.070	0.109	-0.081
medio3	-0.608	0.433	-0.267	0.311	-0.167	0.297	0.278	-0.208	-0.097	-0.128	-0.141	0.145	-0.125	-0.190	-0.402	0.179
medio4	0.410	-0.133	0.097	-0.152	0.046	-0.239	-0.273	-0.010	0.074	0.220	-0.051	0.058	0.113	0.210	0.281	-0.024
medio5	0.147	-0.246	0.056	-0.109	0.174	-0.246	0.183	0.243	0.116	-0.223	0.161	-0.062	-0.092	0.066	0.127	-0.140
medfrec1	-0.197	0.227	-0.261	0.027	-0.006	0.195	-0.179	-0.186	0.075	0.030	-0.198	0.025	-0.244	-0.021	-0.110	0.242
medfrec2	-0.136	0.177	-0.278	0.074	-0.041	0.176	-0.176	-0.194	-0.128	0.066	-0.118	0.017	-0.177	-0.005	-0.087	0.389
medfrec3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ptsdtc	0.266	-0.244	0.083	-0.188	0.074	-0.029	-0.244	-0.320	-0.173	0.586	0.407	0.001	-0.154	-0.027	-0.119	-0.185
eticestu	0.110	0.140	-0.048	0.037	-0.237	0.108	-0.369	-0.121	0.099	0.138	-0.083	-0.114	0.002	0.120	0.227	-0.071
eticnow	-0.016	0.088	0.030	-0.026	-0.164	0.170	-0.101	-0.186	-0.138	-0.044	0.215	0.169	0.052	0.032	-0.032	-0.191
gustetic	-0.031	0.114	0.033	-0.107	0.088	-0.074	0.069	0.148	0.310	-0.095	-0.146	0.099	0.126	0.007	0.026	-0.254

Survey Cor

	razon1	razon2	razon3	infofarm	infunuev	infoesta	propeduc	auspicon	entinter	gradocon	infoimpa	regaimpa	promoinf	usoneed	xxxdiagn	cualquie
medfre1																
medfre2																
medfre3																
medfre4																
medfre5																
medfre6																
fuentel																
fuelle2																
fuelle3																
confiabi																
disponib																
implanta																
frecuenc																
vepropag																
tiempove																
hacenver																
razon1	1.000															
razon2	0.449	1.000														
razon3	0.104	0.190	1.000													
infofarm	0.075	-0.051	-0.055	1.000												
infunuev	0.001	-0.246	0.000	0.453	1.000											
infoesta	0.170	0.018	0.142	0.509	0.577	1.000										
propeduc	-0.011	-0.145	0.105	0.431	0.370	0.697	1.000									
auspicon	0.000	0.021	-0.097	0.122	-0.044	-0.022	0.099	1.000								
entinter	0.169	-0.017	0.067	0.467	0.435	0.278	0.153	-0.227	1.000							
gradocon	-0.244	-0.272	0.196	-0.274	0.116	-0.008	-0.058	0.184	-0.345	1.000						
infoimpa	-0.060	-0.424	0.091	0.324	0.212	0.334	0.420	0.080	-0.004	0.298	1.000					
regaimpa	0.081	-0.155	0.056	0.512	0.327	0.474	0.340	-0.141	0.509	-0.071	0.453	1.000				
promoinf	-0.081	-0.291	0.117	0.082	-0.029	0.160	0.266	-0.119	-0.039	0.129	0.481	0.254	1.000			
usoneed	-0.145	0.049	0.012	-0.283	-0.378	-0.160	-0.177	-0.127	0.046	-0.328	-0.335	-0.160	-0.122	1.000		
xxxdiagn	-0.100	-0.064	-0.044	-0.375	-0.253	-0.034	-0.091	-0.219	0.032	-0.153	-0.254	-0.014	-0.003	0.810	1.000	
cualquie	-0.011	0.117	-0.283	-0.095	-0.029	-0.029	0.055	0.367	0.066	-0.170	-0.134	-0.085	-0.061	0.051	0.040	1.000
conocido	0.033	0.140	-0.270	0.091	0.030	-0.209	-0.253	0.114	0.393	-0.400	-0.423	-0.086	-0.507	0.106	-0.019	0.396
remu\$\$\$	0.062	0.200	-0.137	0.154	0.114	0.201	-0.015	-0.027	0.235	-0.128	0.068	0.436	-0.178	-0.115	-0.246	0.090
auspedco	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
rega32	-0.134	-0.256	-0.055	-0.168	-0.004	0.094	0.132	-0.057	-0.163	0.194	0.291	-0.094	0.467	-0.172	0.030	-0.023
comi32	-0.181	-0.238	-0.019	-0.410	-0.069	-0.283	-0.312	0.232	-0.412	0.418	0.112	-0.413	-0.026	-0.119	-0.051	0.063
bole32	0.085	0.059	-0.195	-0.115	-0.176	-0.364	-0.185	0.196	-0.032	-0.042	-0.185	-0.142	-0.321	0.014	-0.045	0.306
libro32	-0.070	-0.077	-0.245	-0.003	-0.060	-0.105	-0.032	0.035	0.052	-0.238	-0.389	-0.085	-0.173	0.176	-0.089	0.104
equipo32	0.240	0.131	-0.078	0.212	0.147	0.459	0.385	-0.376	0.368	-0.309	-0.039	0.471	0.070	0.048	0.193	0.016
ofic32	0.111	0.077	-0.076	-0.151	-0.271	-0.275	-0.105	0.309	-0.126	0.030	-0.143	-0.186	-0.376	0.113	-0.059	0.299
muespt32	-0.040	0.174	-0.326	-0.149	-0.051	0.077	-0.065	-0.033	-0.113	-0.012	-0.164	-0.076	-0.049	0.154	0.230	0.212

	<i>razon1</i>	<i>razon2</i>	<i>razon3</i>	<i>infofarm</i>	<i>infunuev</i>	<i>infoesta</i>	<i>propeduc</i>	<i>auspicon</i>	<i>entinter</i>	<i>gradocon</i>	<i>infoimpa</i>	<i>regaimpa</i>	<i>promoinf</i>	<i>usoneed</i>	<i>xxdiag</i>	<i>cualquie</i>
muesfa32	-0.084	-0.076	-0.111	-0.238	-0.065	-0.266	-0.170	0.237	-0.224	0.095	-0.018	-0.125	-0.101	-0.131	-0.139	0.056
re\$\$32	-0.059	0.004	-0.013	-0.114	0.064	-0.064	-0.021	0.181	-0.189	0.118	0.073	0.021	-0.108	-0.008	-0.076	0.062
nopre33	-0.008	0.080	0.169	-0.030	-0.178	-0.231	-0.316	-0.304	0.163	-0.129	-0.076	0.031	-0.005	0.292	0.143	-0.159
renopr33	-0.034	-0.104	-0.186	-0.196	-0.144	-0.357	-0.274	-0.046	0.119	-0.059	-0.169	-0.241	-0.167	0.122	0.084	0.069
orador33	-0.110	0.062	-0.012	0.044	0.182	0.196	0.177	-0.142	-0.019	0.122	0.015	0.087	-0.055	-0.142	-0.003	-0.065
gastos33	-0.262	-0.168	-0.203	-0.253	-0.014	-0.273	-0.150	-0.099	-0.070	0.064	-0.084	-0.221	-0.063	-0.017	0.038	0.142
gastfa33	0.069	0.048	0.119	-0.094	-0.205	-0.170	-0.150	-0.239	0.039	-0.100	0.003	-0.115	0.014	0.157	0.173	-0.067
medio1	-0.178	-0.261	0.003	0.012	0.086	-0.066	-0.010	-0.122	0.000	0.253	0.163	0.059	0.266	-0.169	-0.088	-0.079
medio2	-0.022	0.101	0.006	-0.199	-0.240	-0.415	-0.252	0.287	-0.375	0.076	-0.051	-0.342	-0.318	-0.147	-0.331	0.229
medio3	0.231	0.177	-0.160	0.385	0.097	0.351	0.273	-0.043	0.421	-0.439	-0.048	0.331	0.103	0.116	0.185	0.072
medio4	-0.280	-0.092	0.220	-0.453	-0.163	-0.289	-0.276	-0.024	-0.462	0.247	-0.067	-0.354	0.051	0.307	0.185	-0.206
medio5	0.069	-0.070	-0.009	0.016	0.165	0.159	0.136	0.055	0.004	0.244	0.145	-0.093	-0.227	-0.304	-0.199	-0.025
medfrec1	-0.111	0.131	0.134	-0.150	-0.237	-0.307	-0.036	-0.036	0.048	-0.166	-0.209	-0.122	-0.182	0.205	-0.049	0.041
medfrec2	-0.165	0.226	0.119	0.082	-0.111	-0.264	-0.044	0.119	0.137	-0.199	-0.227	-0.115	-0.192	0.048	-0.141	0.170
medfrec3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ptsdtc	-0.080	0.087	-0.264	-0.043	-0.210	-0.166	-0.072	0.174	-0.249	-0.103	-0.304	-0.546	-0.012	0.183	-0.020	0.188
eticestu	-0.223	-0.087	-0.050	-0.012	-0.086	-0.306	-0.036	0.062	-0.020	-0.157	-0.113	-0.240	-0.132	0.271	-0.021	-0.223
eticnow	0.010	0.096	-0.048	0.094	-0.008	0.099	0.043	0.231	-0.094	0.008	-0.020	-0.137	-0.155	0.113	-0.104	-0.151
gustetic	-0.098	-0.068	0.165	-0.117	0.092	0.244	0.215	-0.257	0.014	0.143	0.243	0.111	0.201	0.088	0.052	-0.243



## Survey Cori

	conocido	remu\$\$\$	auspedco	rega32	comi32	bole32	libro32	equipo32	ofic32	muespt32	muesfa32	re\$\$\$32	nopre33	renopr33	orador33
medfre1															
medfre2															
medfre3															
medfre4															
medfre5															
medfre6															
fuentel															
fuentes															
fuentes															
confiabi															
disponib															
implanta															
frecuenc															
vepropag															
tiempove															
hacenver															
razon1															
razon2															
razon3															
infofarm															
info nuev															
infoesta															
propeduc															
auspicon															
entinter															
gradocon															
infoimpa															
regaimpa															
promoinf															
usoneed															
xxxdiagn															
cualquie															
conocido	1.000														
remu\$\$\$	0.174	1.000													
auspedco	#DIV/0!	#DIV/0!	1.000												
rega32	-0.295	-0.121	#DIV/0!	1.000											
comi32	-0.025	-0.175	#DIV/0!	0.601	1.000										
bole32	0.415	-0.091	#DIV/0!	-0.485	-0.183	1.000									
libro32	0.176	0.363	#DIV/0!	-0.195	-0.217	0.203	1.000								
equipo32	-0.075	0.280	#DIV/0!	-0.174	-0.680	0.027	0.202	1.000							
ofic32	0.248	-0.020	#DIV/0!	-0.476	-0.147	0.764	0.266	0.035	1.000						
muespt32	-0.007	0.165	#DIV/0!	0.054	-0.051	-0.065	0.041	0.191	-0.024	1.000					

	<i>conocido</i>	<i>remu\$\$\$</i>	<i>auspedco</i>	<i>rega32</i>	<i>comi32</i>	<i>bole32</i>	<i>libro32</i>	<i>equipo32</i>	<i>ofic32</i>	<i>muespt32</i>	<i>muesfa32</i>	<i>re\$\$32</i>	<i>nopre33</i>	<i>renopr33</i>	<i>orador33</i>
muesfa32	0.106	0.050	#DIV/0!	0.033	0.175	0.287	0.052	-0.177	0.181	-0.397	1.000				
re\$\$32	0.092	-0.008	#DIV/0!	-0.104	0.036	0.343	-0.029	-0.096	0.248	0.051	0.604	1.000			
nopre33	0.143	0.146	#DIV/0!	-0.170	-0.091	0.074	0.061	-0.037	0.016	0.047	0.001	0.091	1.000		
renopr33	0.345	-0.008	#DIV/0!	0.019	0.124	0.090	-0.114	-0.140	0.034	0.088	0.287	0.109	0.363	1.000	
orador33	-0.166	0.169	#DIV/0!	-0.105	-0.349	-0.064	0.051	0.335	-0.136	0.169	0.065	0.023	0.084	0.046	1.000
gastos33	0.175	0.075	#DIV/0!	-0.007	0.097	-0.009	0.032	-0.054	-0.074	0.117	0.274	0.092	0.224	0.654	0.414
gastfa33	0.076	-0.150	#DIV/0!	0.098	0.137	-0.034	-0.137	-0.140	-0.044	0.042	-0.070	-0.033	0.682	0.334	0.110
medio1	-0.218	-0.205	#DIV/0!	0.151	0.105	-0.155	-0.177	-0.110	0.023	-0.050	0.036	-0.015	0.109	0.309	0.018
medio2	0.231	0.099	#DIV/0!	-0.139	0.313	0.288	0.078	-0.466	0.232	0.048	0.171	0.215	-0.020	0.147	-0.036
medio3	0.139	0.075	#DIV/0!	-0.082	-0.515	0.179	0.120	0.615	0.024	0.022	-0.190	-0.164	-0.117	-0.357	0.005
medio4	-0.300	-0.221	#DIV/0!	0.069	0.325	-0.278	-0.096	-0.423	-0.231	-0.085	0.156	0.133	0.104	0.078	-0.045
medio5	0.043	0.092	#DIV/0!	0.125	0.239	-0.140	-0.081	-0.171	-0.031	0.042	-0.001	-0.030	-0.139	0.123	0.121
medfrec1	0.184	0.072	#DIV/0!	-0.405	-0.286	0.242	0.306	-0.015	0.182	-0.155	0.037	-0.015	0.084	-0.026	0.013
medfrec2	0.369	-0.035	#DIV/0!	-0.393	-0.220	0.389	0.165	-0.059	0.288	-0.101	0.044	-0.033	0.122	-0.057	-0.011
medfrec3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ptsdtc	0.081	-0.248	#DIV/0!	0.090	0.151	0.123	0.278	-0.167	0.161	0.263	-0.036	0.008	0.032	0.209	-0.181
eticestu	0.005	-0.014	#DIV/0!	-0.308	-0.161	0.150	0.187	-0.250	0.081	-0.061	0.151	0.175	0.157	0.289	0.040
eticnow	-0.015	0.227	#DIV/0!	-0.159	-0.124	-0.055	0.104	0.017	0.071	0.144	0.120	0.114	-0.125	0.245	0.034
gustetic	-0.389	0.215	#DIV/0!	0.388	0.111	-0.557	-0.128	0.027	-0.412	0.042	0.018	0.048	0.093	0.082	0.104



	<i>gastos33</i>	<i>gastfa33</i>	<i>medio1</i>	<i>medio2</i>	<i>medio3</i>	<i>medio4</i>	<i>medio5</i>	<i>medfrec1</i>	<i>medfrec2</i>	<i>medfrec3</i>	<i>ptsdtc</i>	<i>eticestu</i>	<i>eticnow</i>	<i>gustetic</i>
muesfa32														
re\$\$32														
nopre33														
renopr33														
orador33														
gastos33	1.000													
gastfa33	0.182	1.000												
medio1	0.256	0.224	1.000											
medio2	0.158	0.009	-0.302	1.000										
medio3	-0.408	-0.181	-0.496	-0.462	1.000									
medio4	0.185	-0.019	0.031	0.029	-0.484	1.000								
medio5	0.165	0.123	0.106	0.244	-0.357	-0.270	1.000							
medfrec1	0.040	-0.013	-0.282	0.141	0.010	0.274	-0.160	1.000						
medfrec2	0.040	-0.027	-0.196	0.233	0.125	-0.122	-0.114	0.615	1.000					
medfrec3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.000				
ptsdtc	0.114	0.100	-0.089	0.212	0.013	0.070	-0.103	0.046	0.100	#DIV/0!	1.000			
eticestu	0.232	-0.057	-0.080	0.253	-0.187	0.175	0.010	0.301	0.211	#DIV/0!	0.111	1.000		
eticnow	0.064	-0.155	-0.192	0.195	-0.016	0.058	0.046	0.132	0.011	#DIV/0!	0.262	0.283	1.000	
gustetic	0.045	0.039	0.055	-0.254	-0.223	0.471	0.078	0.130	-0.329	#DIV/0!	-0.143	0.082	0.103	1.000