When People Choose Wealth over Health:

A Look at Corruption in the Pharmaceutical Industry

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Preface

The purpose of this report is to educate the reader on the global issues that are arising from the pharmaceutical industry. This industry is comprised of companies that research, manufacture, and distribute drugs (Leclerc). The development of science through these companies has saved millions of lives worldwide. Furthermore, the industry has injected money into nations' economic systems while providing employment opportunities to many around the Globe. However, there are problems; although the specific issues vary for each country, it is evident that almost all pharmaceutical companies in the world are choosing wealth over health.

It is said that the pharmaceutical industry is prone to corruption for a few reasons. The first reason is that the industry has a lot of potential to make money. This causes pressure in the industry. This pressure is caused by government regulations that ensure the safety of the drugs, but also the production and selling of the products. This pressure can cause corruption in the industry because "if regulators are subject to pressure from commercial groups, health objectives can be compromised" (Corruption in). This means that the pharmaceutical companies are more prone to taking unfair actions like accepting bribery and lobbying expenditures.

The second reason for the industry's vulnerability to corruption is the system of prescription drugs. Due to the fact that doctors can prescribe drugs freely, it is tempting for pharmaceutical companies to aggressively promote their products. It is not uncommon that doctors get involved with bribery, and the companies understand that well. As a result, it is estimated, in the United States, that $1.6 billion are spent annually by pharmaceutical industries on marketing to doctors (Corruption in).

These are just some examples of corruption in the pharmaceutical industry. This report will explore the different types of corruption seen in developing and developed nations and how these countries deal with specific challenges.

Summary

This global issue is not based on black and white logic. To understand this issue, there is a need to comprehend where it all began. This paper will take a look at how exactly this industry grew to become a big money maker. Then, a look will be taken of previous attempts to solve this issue. It will also review two renowned experts of the issue. Dr. Nakatani is the Assistant Director-General of the World Health Organization, while Dr. Pécoul is the Executive Director of Drugs for Neglected Diseases Initiative. Next, the report will focus on figuring out exactly who has the power in this industry. Then, the report will outline some of the influences religions have on the pharmaceutical industry. To get a better understanding of the variety of corruption in the pharmaceutical industry, the report will take a look at three case studies in Japan, Venezuela and Nigeria. There will also be an analysis of the industry in Canada. Then, this report will look into several international organizations taking action against the corruption. Finally, this paper will raise a few recommendations to solve this global issue. It will also cover an interview conducted on this global issue. The interesting part of this interview is that the interviewee, Dr. Shawn Shirazi is a supporter of the pharmaceutical industry. He is a very intelligent man with lots of experience. Dr. Shirazi's interview will enable the reader to see that this global issue is not just two-dimensional. In order to ensure that the most accurate information is presented to the readers, reliable sources like published books, medical journals, documentaries, magazines, government websites, and online databases were used to complete this report.

Background

Is it extremely difficult to trace the past of the pharmaceutical industry. This part of the report will explore the origins of medicine and the past of when pharmaceutical products became big money makers.

Many people believe that the earliest practices of medicine were conducted by shamans (Wurges). By anthropologists, shamanism is described as an "archaic magico-religious phenomenon" (Edwards). The key character in this religion is the shaman. This person "acts as an intermediary between the supernatural and the community and who may take on one or more roles of healer, hunting magician, diviner, psychopomp, and sacrificer" (Laird). Often, the shaman is the religious leader or priest of the tribe who is believed to be capable of using magical powers to cure the sick (Wurges). They use traditional shamanic rituals including singing, dancing, and chanting. Rather than being possessed by spirits, the shaman can communicate with them through these rituals (Wurges). This form of religious medicine originated about 25,000 years ago in gathering- hunting cultures of nomadic tribes in Siberia and Central Asia (Wurges) (Shamanista). As a result, shamanism is deeply connected to nature (Woolcott). They use natural substances like plants to create medicine (Killham). This was the first step in the development of modern pharmaceuticals. The medications developed by the shamans became the basis for what is now called "traditional medicine". Presently, this type of medication is being looked at as an alternative to chemical pharmaceutical products. This will be further discussed in the "Solutions" part of this report. Although shamanism was the very first step in the development of pharmaceuticals, their medication was heavily intertwined with the religious aspects of shamanism. As a result, their treatments were often viewed as something spiritual, rather than something backed up with walls of logic. For example, in the Evenk tribe,

who inhabit the northern Siberia taiga area, they burn plants in their shamanic rituals to create smoke to chase out the evil in the sick person's body. They specifically focus on the smoke making the evil leave, more than focusing on the substance of the smoke curing the body (Killham).

The next step in the development of the industry is the contributions made by the father of Western medicine, Hippocrates (Spina). Hippocrates was a Greek physician born on the island of Kos in 460 B.C.E. On the island, he developed a rational school of healing (Spina). Hippocrates was the first to clearly state that diseases had natural causes rather than supernatural ones (Janick 203). This was a very different approach from the ideas of shamanism, which explained evil spirits caused sicknesses (Killham). In the Hippocratic Collection, which contains various works of Hippocrates and his school, he described that disease was caused by the imbalance of the four "humours"- blood, phlegm (mucus), yellow bile, and black bile (Spina). Another one of Hippocrates' contributions was the study of drugs. Although during his life time remedies were very few, his school made great contributions to the development of drugs (Spina). In the Hippocratic Collection, the school mentioned between 200 and 400 herbs (Janick 204).

The next transition of pharmacy involved the work of Dioscorides in the first century AD. He described what were considered to be basic science up to the 16th century: how to collect, store, and use drugs (Pharmacy Origins). Another man who lived around this time, Galen, also had greatest influences on pharmacy. He practiced and taught both pharmacy and medicine in Rome (Pharmacy Origins). He suggested ways of preparing and compounding medicines; his principles were highly accepted that they stayed dominant in the western world for 1500 years (Pharmacy Origins). Around this time, "western knowledge of both pharmacy and medicine was preserved in monasteries" (Pharmacy Origins). This means that the monks were the ones

responsible for providing these treatments to people. It was the monks who copied and translated the manuscripts from many countries around the Globe. Also, they were the ones who grew and gathered herbs in their fields and gardens (Pharmacy Origins).

The next major contribution to the development of the pharmaceutical industry was made by the Islamic world. After the collapse of the Roman Empire during the fifth century, the availability for Greek knowledge of medicine was very little, and Arabic medicine developed greatly (Kelly). Under The Church's influence, people were expected to take care of the soul more than the body because the soul is thought to be good and the body evil. As a result, "medicine as a craft vanished" in the West (Kelly). For this reason, around fifth and seventh century, time was created for the development of Arabic medicine. The Islamic physicians first began by collecting and translating the ancient medical works of the Greco-Romans (Fiorin). Then, by the end of the ninth century, they began to add their own information. The first major Arabic medical work was conducted by Abu Bakr Muhammad ibn Zakariya' ar-Razi, who is known as Rhazes in the West. He is known as "Islamic medicine's greatest practitioner and original thinker" (Kelly). He wrote about 200 books, more than half medical and 21 concerning alchemy, which is "a form of chemistry and speculative philosophy practiced in the Middle Ages and the Renaissance" (Dictionary.com), within 35 years (World of Chemistry). In addition to his work in the medical field, he also made great contributions to the development of pharmaceuticals by compounding medicines. He took notes of several chemical reactions and introduced ideas of about 20 different instruments to be used in chemical investigations. Without him, the basis for developing drugs would not have been introduced (World of). Also, it was the Arabs who differentiated the jobs of apothecaries and physicians. They did this by establishing the first privately owned drug store in Baghdad in the 8th century. They produced medication like

medicinal syrups (Pharmacy Origins). These new ideas of the separation of the two professions assimilated into the Western world when the Muslim advanced across Africa, Spain, and southern France (Pharmacy Origins), as explained:

> In European countries exposed to Arab influence, pharmacy shops began to appear around the 11th century. Pharmacy first became legally separated from medicine about 1240 ad in Sicily and southern Italy. Frederick II of Hohenstaufe, Emperor of Germany and King of Sicily, provided a link between the east and west. At his palace in Palermo he presented the first European edict separating pharmacists from physicians, and he laid down regulations for their professional practice (Pharmacy Origins).

This is very important because without the Arabic contributions, there might not have been such thing as the pharmaceutical industry.

Pharmaceutical science continued to develop greatly throughout the 16th century. In fact, in 1546, the first pharmacopoeia appeared in Nuremburg, Germany. Pharmacopoeia is "a list of drugs and medicinal chemicals with directions for making pharmaceutical preparations" (Pharmaceutical Science). Throughout the 16th century and into the 17th century, these lists and directions for medicinal chemicals were introduced in European countries (Pharmaceutical Science). Thus, the 16th century in Europe was a crucial time period for the development of pharmaceutical industries around the Globe because it made the production of drugs for sale more popular, which attracted people wanting money.

As mankind discovers more, solutions increase. However, with those solutions, it is often that new problems arise. It is arguable to when the concept of evil arose in this industry. It may have started when the industry developed, when it started to make money, or even when people realized the neglecting attitudes towards tropical diseases based on the ideas of profiting.

With the realization of the potential profit that could be derived from these drug stores caused the merging of two different firms into an identifiable pharmaceutical industry took place at the end of the 19th century. These two firms were the apothecaries and the dye companies (Top Pharmaceuticals)

Firstly, the apothecaries had moved into the wholesale production in the mid 19th century because it made money. By the early 19th century, chemists were able to take extracts from plants, creating treatments like morphine. By the start of the next century, they realized that by using the same techniques, they were able to take adrenaline out of animals to use as the first hormone to be utilized as medicines (Top Pharmaceuticals).

Secondly, the dye companies with research labs that found ways to incorporate their products into medicine around the 1880s. Pharmaceutical firms in Germany were the first ones to established corporative relations with academic labs to do so. They learned that dye could be used to stain cells in order to observe them better under microscopes. Also, they learned that dyes could be used to react with disease-causing organisms. Chemists soon learned to modify dyestuff into effective medicines. This is still used in the modern medication today. For example, Tylenol uses aminophenol as an ingredient to help metabolize analgesics (commonly known as painkiller) quickly (Top Pharmaceuticals).

Now that the two firms merged to build this industry, all it had to do was keep increasing the profit to become a more stable, stronger sector in the industry. In the mid 19th century, pharmaceutical chemistry and pharmacology emerged as scientific fields. These new fields helped the rise of the industry by allowing people to indentify and prepare synthetic drugs and study the effects. By end of the 19th century, several important vaccines, such as those for tetanus (a disease that affects the nerves and muscles), were found. In 1906, Paul Ehrlich, a German

Nobel Prize winner in physiology/ medicine, gave society the idea that "the concept that synthetic chemicals could selectively kill or immobilize parasites, bacteria, and other invasive disease-causing microbes would eventually drive a massive industrial research program" (Top Pharmaceuticals). He was correct. Currently in developed countries such as the United States, Canada, and Germany, the pharmaceutical industry is strong and growing. For example,

> Canada's pharmaceutical products and drugs industry is one of the nation's most dynamic. Between 1997 and 2001, its net economic output, as measured by gross domestic product, increased by nearly 50%. Furthermore, this industry is one of the most research and development intensive sectors in Canada. In 2001, it accounted for 8% of all industry R&D. (Leclerc)

R&D, research and development, allows the comprehension of what the nation has been putting money towards. A nation's government will not keep supporting something if they do not believe it is profitable. To put in other words, the pharmaceutical industry in developed nations has been making lots of money. Each year, approximately $ 1 billion is invested in research and development in Canada, and about $5 billion is injected yearly into the Canadian economy by pharmaceutical companies (Miller and Meek).

When the industry was just beginning to rise, around the 1900s, most major pharmaceutical companies in North America and Europe were concentrated on finding cures, vaccines, and medications for tropical diseases. This was important because new settlers, war veterans and business persons frequently brought tropical diseases that affected the people of the nation (Olebunne). Through the 19th and 20th centuries, there were discoveries of new tropical, arthropod-borne diseases. For example, the transmission cycles of dengue in 1902, African sleeping sickness in 1903, and typhus in 1909 were all being comprehended. Within the next few

decades, prevention and control programs for these tropical, arthropod-borne diseases were introduced. Insecticides and antibodies were introduced to prevent and cure the diseases in bodies. As a result, by the 1960s, many of the tropical diseases were effectively controlled (Gubler). Malaria, for example, had disappeared from North America and Europe by the 1970s. Also, yellow fever and dengue were being effectively controlled by that time. Nations with strong pharmaceutical companies had succeeded in saving the lives of their citizens from tropical diseases by using antibiotics and other medication. This resulted in a period afterwards where people lost the motivation to research tropical diseases. Policy makers could not understand why they had to assist the research of something that was no longer a public health concern:

> During this period, we saw the training opportunities in tropical medicine decrease dramatically, both at home and abroad. Universities redirected their programs to emphasize community medicine and chronic diseases, and parasitology and arbovirus programs were de-emphasized or eliminated completely. International training opportunities disappeared as funding was terminated for programs such as the highly successful National Institutes of Health (NIH) sponsored International Centers for Medical Research and Training (ICMRT). (Gubler)

Everyone believed, at the time, that the fight against tropical diseases was over; they didn't understand the complexity of the transmission process of tropical diseases. People in the 1970s and 1980s were relieved because these were the times of limited resources. They felt relaxed by the fact that the diseases were no longer hurting the people of their country. This was a mistake because currently, malaria, the disease that was thought to have disappeared, causes about 1.5 million to 2.7 million deaths each year where 80 to 90 % of the cases are in Sub-Saharan Africa (International Development Research Center). However, pharmaceutical companies in the West

are no longer researching these tropical diseases. Large transnational companies like Pfizer currently say that "their obligation to shareholders […] demands that they put the effort into trying to find cures for the diseases of affluence and longevity—heart disease, cancer, Alzheimer's" (Olebunne). These companies claim that it is their responsibility to deal with the health problems of customers in the country first. For this reason, of the many new products brought to market by the pharmaceutical companies, only 1% of their drugs are for tropical diseases (Olebunne). However, there have been efforts at resolution. In November 2001 Doha Declaration, the World Trade Organization members recognized the health issues affecting developing countries such as HIV/AIDS, tuberculosis, and malaria (Industry Canada). In recent years, these types of efforts at resolution are taking place because the general public is becoming more aware of the millions dying from preventable diseases. Perhaps, companies feel the need to respond to their customers' cry for just acts.

To get a better understanding of where greed in this industry originated from, this report will take a look at a very successful, multinational pharmaceutical company named Pfizer. Pfizer was founded in 1849 by two cousins living in New York. This company, like most other pharmaceutical companies, started off as a manufacturer of household chemicals, including borax (Pfizer's History). The company's first medicinal product was sanotin, which helped fight parasite worms. The success of this product allowed the company to be moved to a larger building in Manhattan (Pfizer's History). By the turn of the century and through the 20's and 30's, the company began to introduce new innovative methods to produce more affordable and better quality products. For example, the company introduced "deep-tank fermentation methods to make more affordable and higher quality citric acid from molasses" (Pfizer's History). By this time, the idea of producing products with potential success had developed. Another major

highlight of this company took place during World War II. During this war, penicillin, an infection-fighting medication, was needed very much that several pharmaceutical companies in the US were assigned to figure a way to produce it in mass quantities. Using its new innovative methods, Pfizer was the first company to succeed in doing so. This allowed Pfizer to have enough money to start another big research; in 1959, the company introduced an antibiotic medicine named Tarramycin. Once again, with enough money, the company moved into its larger, new global headquarters (Pfizer's History). As can be seen, the success of this company totally relied on the amount of money it made. The more they sold products and earned money, the bigger and better the company got. This report believes that this is where the origin of greed in the industry was. It is not that the people owning big companies are bad, but it is the relation between money and the quality of companies that turned the health supporting industry into a greedy, money-making business.

Renowned Experts

Hiroki Nakatani

Dr. Hiroki Nakatani of Japan is currently the World Health Organization Assistant Director-General of HIV/AIDS, TB, Malaria and Neglected Tropical Diseases. Prior to joining WHO as Assistant Director-General, Dr. Nakatani was Director-General at the Department of Health and Welfare of Disabled Persons (WHO Hiroki Nakatani).

Dr. Nakatani holds the important position as the Assistant Director- General of HIV/AIDS, TB, Malaria and Neglected Tropical Diseases because he has extensive experience in public health including tuberculosis and HIV/AIDS. In WHO, his responsibilities include

administration, management, and organizational/legislative development of the health workforce (WHO Hiroki Nakatani).

Interested in the health of people worldwide, Dr. Nakatani actively participated in many health initiatives. For example, for two years, he was a member of the G8+ Mexico Global Health Security Working Group and chaired the Chemical Events Working Group. Conferences were held to raise awareness and strive to improve health systems in developing countries, as well as coming up with ideas to fight with HIV/AIDS, TB, and malaria (International Conference).

Bernard Pécoul

Dr. Pécoul obtained his Doctorate in Medicine in France from the University of Clermont Ferrand and has a Masters of Public Health from Tulane University. Before becoming the Executive Director of Drugs for Neglected Diseases Initiative (DNDi), Dr. Pécoul was the Director of Médecins Sans Frontières (MSF) in France. He flew around the Globe as a physician to Africa, Latin America, and Asia. Working with MSF, Dr. Pécoul "directly witnessed the human costs resulting from a lack of drugs for neglected diseases" (Médecins Sans Frontières). In 2003, the MSF committed its 1999 Nobel Peace Prize funds to found an "alternative model for the research and development (R&D) of new drugs for neglected diseases" (DNDi).

As the Executive Director of Drugs for Neglected Diseases Initiative since its founding, Dr. Pécoul has led the organization and its partners to build recognition of three of the most neglected diseases- leishmaniasis, sleeping sickness, and chagas disease. He has also succeeded in leading the team into coming up with low-cost treatments for malaria called ASAQ and

ASMQ and introducing a new treatment, the first time in 25 years, for sleeping sickness. This treatment is called NECT (DNDi).

One of the most appealing parts of DNDi, directed by Dr. Pécoul, is that they do not try to attack the pharmaceutical industry for the lack of treatments for the neglected diseases. Instead, they try to work together with them to establish the initiative's main goal- to deliver six to eight new treatments by the end of 2014, as DNDi explains,

> Acting in the public interest, DNDi bridges the existing R&D gaps in essential drugs for these diseases by initiating and coordinating drug R&D projects in collaboration with the international research community, the public sector, the pharmaceutical industry, and other relevant partners. (DNDi)

With corporative attitudes, under the leadership of Dr. Pécoul, DNDi has been managing more than 300 partnerships, with more than 400 people taking part in their programs.

Role of Control

So, who controls this wealthy and powerful industry? For the most part, the big pharmaceutical companies are the ones who control the industry. This is because they have the most money, so they can hire more people to research and manufacture and use advertisements to sell. They basically control the whole flowing process of money and goods in the industry. A brief look at an American pharmaceutical company, Abbott, and its control with antiretroviral medication will help to understand the economic control big companies have in this industry.

Abbott is an American pharmaceutical company that was founded about 120 years ago by a 30 year old man named Dr. Wallace C. Abbott. This is a very large company, distributing their products to about 130 countries worldwide. In this company, they advertise their contribution to the production of antiretroviral medication, the main type of treatment for HIV (Human

Immunodeficiency Virus) or AIDS (Acquired Immune Deficiency Syndrome). It is not a cure, but it can keep people from becoming ill or dying for many years (RX for Survival). Their antiretroviral medication is called Kaletra. This is very effective and has allowed a half-million people to begin therapy (Huff). However, "there are side effects associated with stavudine [substance in the medication], and resistance to nevirapine [substance in the drug] can arise quickly if adherence is not near perfect," (Huff). This means that as more people begin using Kaletra, the number of people developing immunity to the drug rises, making second-line therapy necessary (Huff). Usually, these second-line therapies are more expensive, making it more difficult for people, especially in developing countries, to continue their treatments. Also, in developing nations, Kaletra is difficult to get because it needs to be refrigerated, meaning nations and organizations purchasing Kaletra must have enough money to pay for a refrigeration system (Huff). For these reasons, Kaletra is considered to be one of the later options for people in developing nations, like those in Africa. Even when Abbott tried to help these countries pay for the treatment by pricing them at a non-profit price, these countries still cannot afford them (Huff). They also made an effort to support these developing nations by manufacturing a new drug, called Aluvia. This drug is the exact replica of Kaletra, except that refrigeration is unnecessary (Abbott Releases). However, even when these efforts were made, many developing nations still cannot pay for the drug. To this reality, the company "says it is losing money[…], and no generic drug maker from India or elsewhere has developed a competing product that comes close to Abbott's $500 a year price" (Huff). Kaletra and Aluvia are advertised by the fact that they are approved by 156 developed and developing nations, but the truth is that not many developing countries can actually afford the drugs (Abbott Releases) (Huff).

As previously mentioned, the lives of millions rely on this type of pharmaceutical companies. What would happen if they were to decide selling in developing countries is not brining them enough profit or benefits? Ultimately, not only do the large pharmaceutical companies have control over the economy, they literally have control of deciding whether to keep millions of people alive or not.

Another key player in the control of this industry is the World Health Organization, or WHO. The WHO is "the directing and coordinating authority in the United Nations' system," (About WHO). This international organization plays a big role in setting regulations; they put in effort to control the corruption in the industry worldwide. Firstly, the WHO is very important in the control of the corruption in the pharmaceutical industry worldwide because it raises awareness of it. They produce many fact sheets, forums, and documents that bring awareness to citizens around the world. Secondly, the WHO takes action against the corruption in the industry, such as organizing programs. For example, in 2004, the WHO launched the Good Governance for Medicines (GGM) program. This program provides support for countries fighting against corruption in the industry (Medicines: Corruption and Pharmaceuticals). GGM helps countries "through a three-step process of assessing their vulnerabilities to corruption" (Medicines: Corruption). Furthermore, the program assists countries to develop and use specific programs to keep their efficient health-care system. The organization plays such a big part in controlling the industry because they are highly respected by people all around the world. This will be further explained in the "Role of International Organizations" component of the report.

Religious and Spiritual Views

The fact that the pharmaceutical industry makes lots of profit around the Globe puts them on a spotlight for people to observe. This industry is always questioned with pricing, researching, and distribution issues. As well, it is always questioned with regards to ethics and morality. As a result, it is natural that religious views give critical opinions.

Many of the beliefs that the pharmaceutical industry is immoral may have been influenced by the Bible. Firstly, drugs are mentioned in the Bible as something wicked and evil. The word "pharmacy" comes from the Greek word "pharmacopeia", which means sorcery and witchcraft (Horowitz). For example, there is a use of the word "sorcery" in the King James Bible in Revelation 18:23-24:

> And the light of a candle shall shine no more at all in thee;
>
> And the voice of the bridegroom and of the bride shall be heard no more at all in thee.
>
> For thy merchants were the great men of the earth;
>
> For by thy sorceries were all nations deceived.
>
> And in her was found the blood of the prophets, and of saints, and of all that were slain upon the earth. (Revelation 18:23-24)

This Biblical reference to "sorceries" is associated with "pharmacy" (Ciola). This prophecy is explaining that the Kings, merchants, and the wealthy were all deceived by the sorcery, or pharmacy (Horowitz). This is significant because it is showing that the wicked nature of pharmacy has the ability to deceive all men. Due to the fact that the pharmaceutical industry arose from apothecaries in the 19th century, it is a possibility that the present-day medications are still viewed as something evil.

Secondly, the pharmaceutical industry may be seen as evil from the points of views of the Bible because of the money making process of the industry. In 1 Timothy 6:10 of King James Bible, the words read, “For the love of money is the root of all evil: which while some coveted after, they have erred from the faith, and pierced themselves through with many sorrows” (King James Bible). The pharmaceutical industry, indeed, profits a lot. As mentioned earlier, Canada invest about $1 billion into the pharmaceutical industry, who puts in $5 billion into the Canadian economy (Miller and Meek). The question is, “Does the industry love money?” Believers in the Bible who answer “yes”, may, therefore, see the industry as something evil.

The religious views have, in some ways, helped to raise recognition and provided some solutions toward the issues of pricing, research, and distribution in the pharmaceutical industry. Religious views in the nations with large pharmaceutical industry believe that the developed nations have an obligation to help those people in developing nations. As well, they do not agree with the companies’ pricings on medication because they view it unethical. For example, Interfaith Center on Corporative Responsibility (ICCR) is an organization made of “275 faith-based institutional investors” (ICCR: Corporate). They work hard to raise voice of faith to encourage companies to transform themselves by integrating social values to their actions (ICCR: Corporate). The Pharmaceutical Industry, of course, is one of their major targets. For example, on December 21, 2001, ICCR gathered attention in the United States when they were described on the Fox News. The article, *Religious Investors Target Pharmaceutical Companies’ Practices*, outlines the organization’s efforts in trying to restrain the increasing price of drugs in the United States (FOXNews). This is very significant because despite the Bible stating the evil of drugs and vaccines, these religious groups urged major pharmaceutical firms in the United States to make drugs more available to people who cannot afford them. This explains that the

revolt against the pharmaceutical industry that may have begun from the text of the Bible is presently based more on helping the poor.

Another religion that follows the Bible is Judaism. This religion is generally very supportive of treatments that save people's lives. This is because "In Judaism, the value of human life is supreme; therefore, to save a life, nearly all biblical laws are waived," (Jewish). For example, the patient-physician relationship is considered a Divine commandment and obligation. The obligation of patients is to listen to physicians, and physicians are considered the messenger of God in care for patients (Jewish). Also, it is not acceptable for patients to refuse treatments that may assist their health or save their lives. They are not allowed to wait for miracles to cure them. Instead, they have to "heal [themselves] according to standard medical practice" (Jewish).

Other religions, following the Bible, like Christian Science and Jehovah's Witnesses, refuse some forms of medical treatments (Faith Healing). Firstly, Christian Scientists believe strongly in the healing power of God's love (Core Beliefs). Although Christian Scientists are free to choose medical treatments, many of the followers choose to pray instead. According to Phil Davis, a Christian Scientist, this decision to pray instead of choosing medical treatment "has nothing to do with dogma, tradition, or the advances of medical science, but everything to do with their understanding of and relationship to God" (Davis). This relationship, Davis describes, has a lot to do with one's happiness and has a direct connection to family, career, and general quality of life (Davis). Secondly, one of Jehovah's Witnesses' beliefs is the value of blood. This leads many of the followers to be reluctant towards blood transfusions (I Accepted). Another belief of Jehovah's Witnesses is that death and sickness is inherited from Adam's sin. As a result, many followers believe that "Only Jehovah God can do away with sickness and death!" (I Accepted). For these reasons, many of the cases involving the refusal of medical treatment involve Christian Science and Jehovah's Witnesses. In some cases, even in life or death situations, parents reject

treatment for their children, and some of these parents have been prosecuted, but others have been protected from prosecution because of their religious beliefs (Herrera).

Of course, there are religions that are not based on the Bible, and they have different views on the pharmaceutical industry as well. Firstly, Buddhists strongly believe in the ability to cease all suffering from life (Rinpoche). As a result, Buddha refers to the importance of medical treatment many times as a method of recovering from physical suffering. For example, in the Four Noble Truths, his first Teachings, Buddha states that one should "Know the sickness, Abandon the cause of the sickness, Aspire the cure and Rely upon the medical treatment" (Rinpoche). Another religion that is not based on the Bible is Hinduism. Followers of this religion are taught to be vegetarians, harming no animal on Earth (Sukumaran). This is called Ahimsa, meaning non-violence. Hindus strongly believe that:

> …all creatures contain the life of God, the divine. By causing harm to another creature, a person causes harm to God's soul. Since all living creatures are part of God, by harming another person, you are ultimately harming yourself. (Sukumaran)

For this reason, many diabetic Hindus are very reluctant to using insulin, which is made from animals (Sukumaran). Diabetics need insulin from other animals because their own pancreas does not produce enough insulin, or the body cannot process it effectively. Insulin is important because it is a hormone that helps control the level of sugar in the bloodstream (The Hindu). Hindus who decide to not take insulin made from animals must be very careful and require exams yearly (The Hindu). Also, many followers practice the Hindu healing system of Ayurveda, which includes herbs, nutrition, panchakarma cleansing, acupressure massage, Yoga, Sanskrit, and Jyotish (Vedic astrology) (Kironi) (The Ayurvedic Institute).

As notable, all religious views have interfered with the pharmaceutical industry in different ways. As well, all of the religions explored in this report demonstrated some beliefs based on morals and values, including being selfless and not harming others. If these teachings could be applied in the pharmaceutical industry, then positive changes in pharmaceutical development and overall health in the developing world could be seen.

Case Study: Japan

Sometimes, it is more obvious to see the corruption in industries in a developing country than a developed one. This is caused by many different things. One possible cause may be the coverage the media provides when it comes to these industries. With lots of money, the pharmaceutical industry in developed nations can get a hold of customers by using the media to promote their products. Ultimately, this results in a corrupted industry that many people trust. This case study will explore some of the reasons to why developed nations have corrupt industries.

Japan's pharmaceutical industry is very profitable; the Japanese pharmaceutical companies make up about 11% of the world's medicine market (Japanese Pharm.). This nation's pharmaceutical industry has gone through ups and downs throughout the 20th century. In Japan, the non-cooperative attitude toward foreign drug companies, over-prescription by doctors, and high prices of drugs, are key indicators of the industry's corruption.

Firstly, the non-cooperative attitude toward foreign drug companies is one form of corruption. Japan has a history of when it completely closed off all trading with foreign countries. As a result, during the late 1950s and early 1960s, the Japanese government didn't allow foreign

companies to start business in the country. In addition, around this time, patent protection could not be provided for pharmaceutical products. This meant that anyone could copy any existing products without getting into trouble with the law (Mahlich). This was a clever way to keep foreign firms away from the nation because pharmaceutical companies compete by introducing new components of drugs. Without the protection provided by patents, it would have been difficult for foreign firms to compete in the industry in Japan (Mahlich). These measures were taken to ensure the Japanese companies make money. Japan could not have foreign companies making money from their people. This, however, has ended up costing many lives, as explained later.

Due to the fact that the Japanese culture has been, and still is, mono-cultural, it would be a lie to say that Japanese attitudes toward foreign companies are welcoming. It has taken years for the nation to loosen its guards. For example, even after 1975, when the Japanese government began allowing foreign companies to start businesses in the country, the Japanese companies were still highly protected from international competition, allowing them to charge excessive prices for their products (Mahlich). Thanks to this, during the 1980's, the industry grew quickly and sold many products within the nation; at the time, it was the most profitable activity in the nation (Odagiri et al.). This was when the scandalous issue of over-priced drugs emerged in the nation. One of the reasons for success in the industry is based on the close relationship between the pharmaceutical companies and doctors prescribing drugs. Although prices of drugs are set by the Central Social Insurance Medical Council, called chuikyo, it is through doctors that distributions of drugs take place (Mahlich).In fact, about 64.4% of the total drugs sold in the nation were prescribed during this time (improvements have been made, as explained later) (Parveen). This over-prescription resulted in high public expenditures on medication (Japan's

Sickly). This was an example of corruption in the industry (that still exists to some extend today) because doctors would liberally prescribe drugs, especially the pricey ones to maximize profits. It was estimated that in 1987, the doctors profited US$13 billion from prescribing drugs (Mahlich).

A non-surprising truth is that corruption in the pharmaceutical industry has not ceased to exist. For example, the health ministry does not recognize clinical trials conducted on non-Japanese persons. They claim that the foreigners' physiology is different than that of Japanese people. As a result, firms wishing to sell their products must conduct trials on Japanese subjects before putting them on the market in Japan. This is a pricey process that takes up to seven years (Japan's Sickly) (Mahlich). The nation's attitude toward foreign drug companies is a form of corruption in the industry because it has cost many lives. For example, when American scientists proved that heat treatment for blood products destroys the AIDS virus, it took two years for Japan to actually start using the treatment. As a result of Japan's protectionism, 2,000 hemophiliacs contracted the HIV disease, and approximately 400 people died from it (Japan's Sickly).

Currently, as a country with money and abundant source of medication, Japan does a few things for the Global need of charitable drug support. For example, Japan has been funding money to Sudan through UNICEF since the year 2000 to help protect children from infectious diseases (Government of). UNICEF is situated in more than 150 countries, and it strives to "support child health and nutrition, good water and sanitation, quality basic education for all boys and girls, and the protection of children from violence, exploitation, and AIDS" (Government of). Japan also donates drugs to developing nations. Takeda, one of Japan's largest pharmaceutical companies, partnered with Plan Japan to start the Takeda-Plan Healthcare Access

Program in August 2009. The program's goal is to improve the health of children in developing nations (Access to Healthcare in Asia). This program operates in China, Indonesia, the Philippines, and Thailand (Access to Healthcare).

Also, presently, the Japanese government is trying to set some of the corruption straight (Parveen). This was sparked by the realization of Japan's population is ageing very rapidly. Around the 1990s, the government realized that by 2025, the expenditures on drugs will have to sextuple to keep up with the ageing population. In order to prevent the nation from plunging into deep trouble, the health ministry has recognized that they must start controlling the rising drug prices and over-prescription (Japan's Sickly). For example, the Ministry of Health regularly checks upon pharmaceutical companies' and wholesalers' balance sheets. This has led to price cuts of about 10 % every year. Also, they promote the separation in prescription and distribution of drugs, and, so far, it has resulted in the reduction of prescribed drugs being sold. These drugs, which once made up 64.4% of the total drugs sold in the nation, went down to 50% in 2004 (Mahlich) (Parveen). Recently, the health ministry has been trying to encourage more people to buy cheaper, generic drugs. In 2009, the laws for the sale of Over the Counter drugs (OTC) were revised to be more relaxed. As a result of this revision, drugs with prices 20% lower are sold in convenience stores and supermarkets. Regardless of these efforts Japan is still the world's second largest spender on drugs. To add to it, the nation must still face and solve many issues in the industry, including the troublesome clinical trial system (Parveen).

Case Study: Venezuela

The Venezuelan pharmaceutical market ranks fourth in Latin America, behind Mexico, Brazil, and Argentina (New). It is one of the better markets in Latin America since the late 1990s when partial liberalization of drug prices was introduced. Although the industry has been making improvements, it has gone through ups and downs (Ups). Venezuela is still a developing nation, thus its economy is not too stable. This has great affects on the pharmaceutical industry. For example, the growth of the industry dropped 7% in 1999, but during the next year, it grew 3% (Ups).To add to it, the current situation is still far from good (Report). This case study is an example of how the deficiency of intellectual property laws in the government leads to corruption in the pharmaceutical industry.

Since 2000, big pharmaceutical companies in developed nations have begun to target poorer nations like Venezuela to sell their brand-name products. This is because "drug sales in the U.S. and other Western countries are declining, and in the U.S. drug companies are facing both increased generic competition as well as political pressure to reduce drug costs," (Noonan). In contrast, sales of prescription drugs in developing countries are rising, from $67.2 billion in 2003 to $152.7 billion in 2008. It is expected to reach $265 billion by 2013 (Noonan). This is very interesting because as Western nations begin to publicize the good quality of generic drugs, developing countries are doing the opposite. Although the brand-name drugs cost twice as much as generics in the nation, the working poor in Venezuela insist on buying drugs with names, assuming they are better (Noonan).

With an increasing number of foreign drugs in the country, the Venezuelan government is trying hard to let local pharmaceutical companies make money by introducing very weak patent laws and encouraging people to buy more generic drugs produced within the nation (Report).

Venezuela's intellectual property laws are very weak. In 2009, the government introduced a reform in the patent laws. The government sees patents as a "barrier to production", and they want to get rid of it. Like the Japanese, the idea is to keep foreign pharmaceutical industries away so that the native companies can make more money. However, this could potentially lead the nation's health to a position of precarious disaster. Edgar Salas, the president of Venezuela's pharmaceutical business chamber, suggests that getting rid of patents will make importing necessary drugs difficult, and it could possibly discourage the world's top pharmaceutical companies from exporting their goods into the nation. This is a huge problem because Venezuela's health is very reliant on pharmaceutical products of foreign companies (Newman) (Report).

This attempt to "save" local companies has, in recent years, led the industry into corruption. This attempt has led to develop a gap between the views of the pharmaceutical industry by the government and citizens. The general population of Venezuela wants brand name drugs, while the government insists on generic drugs. This has caused many people to turn to the black market to purchase drugs with company names. Unfortunately, most of the drugs sold on the market are fake (Noonan). As with many developing nations, the black market is engrained into the culture of Venezuela. When people cannot find goods they believe to be necessary, it is natural for them to turn to the black market (this will also be explored in the next case study). The purchasing of counterfeit drugs is one of the key indicators of a corrupt industry. Counterfeit drugs can be very deadly, taking away lives. The existence of counterfeit drugs, both placebos

and mislabeled drugs, in Venezuela is very deadly because it can not only claim the lives of Venezuelans, but also the lives of many across Latin America. This is because trading between Latin American countries is easy due to the many trade agreements Venezuela has (SICE: Foreign Trade). If not dealt with, Venezuela's position as the fourth biggest pharmaceutical market in Latin America will surely be lost. This may sound like a good thing because it seems like people will not rely on the nation's pharmaceuticals, but if it goes wrong, this can turn the black market bigger and affect more people's lives.

As a method of fixing the corruption in the pharmaceutical industry in Venezuela, it might help to provide education on generic drugs to the citizens. This way, more people will understand the unnecessary efforts of trying to buy brand name drugs sold on the black market.

Case Study: Nigeria

This case study is one major example of how developing nations have a history of development and corruption in the pharmaceutical industry.

Treatments in Nigeria, as many other parts of the world, started as natural concoctions like leaves and roots. This progressed to more advanced drugs around the middle of the 20th century. After that, the market became more competitive. Pharmacies have existed in Nigeria since before 1957. However, these businesses were all owned by big multinational companies like Pfizer. It was not until the 1980s that indigenous companies like Biode emerged. With newer companies being introduced to the market, the industry in the nation became competitive. Currently, there are 86 national pharmaceutical companies in Nigeria, fulfilling less than 30% of the nation's needs for drugs. As a result, it is crucial for Nigeria to get support from other nations.

This, unfortunately, has contributed to the corruption of the industry. Products of suspicious quality began to be introduced to the market (Evolution). Mohammed Yaro Budah, the president of the Pharmaceutical Society of Nigeria mentioned that these "imported fake and substandard drugs in Nigeria come mainly from India, China, Pakistan, Egypt, and Indonesia" (Raufu).

A major issue in the industry this country must face is counterfeit drugs. Although it is believed that counterfeit drugs have been in existence since the beginning of the industry's development, it was not until 1968 that the first fake drugs were reported. Due to the fact that Nigeria's drug market is the biggest in the West African sub-region, the fake drugs not only affect Nigerians, but also others all over Africa (Global Trends). One major example of this was demonstrated in 1995, when Nigeria donated 88 000 meningitis vaccines to its neighbour, Niger. It was after 60 000 people were "immunized" with the vaccine that authorities found it was a placebo, meaning it was made up of substances that had no pharmacological effect (WHO Launches). Although the vaccines did not cause any immediate deaths, in the long run, it caused more than 2,500 children to die because the "vaccines" had no pharmacological effect of the real meningitis vaccines (Fighting Drug Fakes). This unfortunate event proved the point that Nigeria was infested with fake drugs and treatments. A study conducted around this time showed that about 70% of drugs and treatments in the nation were either counterfeit or not effective (Global Trends).

Currently, Nigeria is still on the journey of fighting against this type of corruption. The fight began in 2001 when Dora Akunyili took over the National Agency for Food and Drug Administration and Control (NAFDAC) (WHO Launches). Firstly, she realized the cultural reason for the issue. She recognized the fact that the black market was one of the major reasons for the success of counterfeit drug makers. The black market presently makes up about 40-45%

of the country's GDP. This market supports the lives of many in the nation because it sells goods of necessities that can only be found in the informal economy (Nigeria). With the recognition of this market's existence, Akunyili has been successful in eliminating some counterfeit drugs. She accomplished this by firing officers in the system taking bribes from people attempting to put their fake drugs on the market (WHO Launches). Presently, Nigeria's public awareness of fake drugs has risen through the use of radios and television. Also, the nation now has surveillance around ports and airports where pharmaceutical products enter and leave the nation (WHO Launches). However, these are still just the first few steps of eliminating fake products out of the country. It will be very difficult to erase all sales of counterfeit products, but Nigeria continues to fight. Nigeria is also stepping up as a leader Africa to stop the distribution of counterfeit drugs in West African countries (WHO Nigeria leads fight against "killer" counterfeit drugs).

Role of International Organizations

As noted from the three case studies, and later in "Canada's Part", the issues of corruption in the pharmaceutical industry, brought on by greed, are found around the world. As a result, there are several international organizations working to solve the issue.

The first organization was mentioned earlier in the "Renowned Experts" component of the report. The organization is called Drugs for Neglected Diseases Initiative (DNDi). Under the leadership of Dr. Pécoul, in 2003, the world's first non-profit drug company was launched by Médicine Sans Frontières. It was founded to raise awareness of neglected diseases and to strive to provide treatments and medications to those in need. It is a non-profit organization that conducts Research and Development to provide effective and affordable treatments. The

organization's goal is to provide 6 to 8 new treatments by 2014. In order to do this, however, 230 million Euros are needed. Currently, DNDi has 125 million Euros (Business Plan, DNDi). This organization gets the money from variety of different sources including government funding and funding from other international organizations, like Funding Partners. They are also assisted by private foundations and individual donors. So far, the DNDi has succeeded in introducing three treatments: ASAQ, ASMQ, and NECT (See Appendices) (DNDi). One of the reasons for their success in developing helpful and affordable drugs is that they put in effort to lower the cost of research and development. For example, they do not conduct research to develop whole new drugs. Instead, they branch off with what is already there. This means that they try to research drugs that have already undergone some development (WHO). Also, most researches are conducted by public-sector scientists in developing countries (Cassels). This also helps to lower the cost of treatments.

Another major support for this issue is the World Health Organization (WHO). The WHO has great effects on the pharmaceutical industry around the world. They are the "directing and coordinating authority for health within the United Nations system," (About WHO). Responsible for the health of many people, the WHO especially puts in effort to fight against counterfeit drugs. For over 20 years, this organization has been fighting against fake drugs (About WHO). In 2006, the WHO launched the International Medical Products Anti-Counterfeiting Taskforce (IMPACT). This is a partnership made up of all major anti-counterfeiting groups including international organizations, non-governmental organizations, and enforcement agencies. IMPACT is divided into five working groups, each focusing on a specific aspect of the issue of counterfeit drugs. These five include: legislative and regulatory infrastructure, regulatory implementation, enforcement, technology, and communication

(IMPACT Frequently Asked Question). They concentrate on stopping the productions, trades, and sales of all counterfeit drugs around the Globe (WHO About Us). Currently, this taskforce is raising awareness of counterfeit drugs internationally, establishing effective exchange of information concerning the issue, and developing technical tools to help establish and strengthen international, national, and regional strategies to fight against the issue (Counterfeit Drugs Kill!).

Another major international organization is the International Federation of Red Cross and Red Crescent Societies. This organization is responsible for programs that help "millions of the world's most vulnerable people: victims of natural and man-made disasters, refugees and displaced people and those hit by socio-economic problems" (Where we work). They save the lives of many people by using inexpensive, generic drugs (Kero). This organization, along with Médicine Sans Frontières, worked with WHO to promote the use of Essential Medicines List (EML) (Medicines: Essential Medicines List). This list was introduced by the WHO, and it was meant to act as a model for national to "select medicines to address local public health needs and create national lists" (Medicines: Essential). This is very important because it ended up spreading the idea of how generic drugs are just as good as brand name ones, except cheaper.

The Council for International Organizations of Medical Sciences (CIOMS) also has an impact on the pharmaceutical industries worldwide. It is an international, non-governmental, and non profit organization that has been running for over 60 years. They focus on safety, clinical trials, and human rights issues involved with the pharmaceutical companies. Currently, they raise awareness of these issues by publishing informative writings (What is). This organization's publications on clinical testing are very thorough. The publications include guidelines to protect people's rights. The guidelines describe that if humans are going to be used as test subjects, ethical justifications that are scientifically valid must be provided (International). It then

proceeds with a list of rules required before beginning a human trial. Some of these include ethical review committees, individual informed consent, and choice of control in clinical trials (International). This list is very long and important because it brings to people's attention that clinical trials are very serious in that people are risking their lives. With very thorough publications, the CIOMS is gaining awareness, as well as support from many people all over the world. It is hoped that CIMOS will have some impact on the decisions of drug companies looking to perform unfair or inhumane clinical trials.

Canada's Part

Canada's government is generally very supportive of the pharmaceutical industry. The positive note of this is that they assist the citizens to pay for the drugs. The negative note of this is that they close their eyes when it comes to the question of ethics in the industry.

Firstly, the Canadian government is very supportive of the nation's pharmaceutical industry because it is one of the most profitable industries in the nation (Industry Canada). In fact, "Pharmaceutical sales in Canada are two percent of the world market. Canada ranks as the 8th largest world market in sales. An eight percent annual growth makes Canada the 4th fastest growing market, after China, Mexico and Spain" (IMS Health). Each year, this industry injects about $5 billion into our economic system (Miller and Meek).

The second reason for the government's support is based on the industry's ability to provide employment opportunities for citizens. The industry has grown quickly to become strong, as observed by the rise in employment in the sector. Between 1997 and 2001, employment in this industry rose 22%, compared to the 9% rise in the economy (Leclerc).

The government's supportive attitude for the pharmaceutical industry can be observed by the amount of money used on the sector. Under Canada Health Act, every necessary drug therapy that is administered in a Canadian hospital setting is insured and publicly funded. Other drugs found to be necessary outside of hospital setting are quite often funded by the provincial and territorial governments. To help assist the payments of prescribed drugs in Canada, public or private insurance plans allow many citizens to be covered. Also, the federal, provincial, and territorial governments offer many other varieties of coverage (Health Canada). For example, the provincial governments in Canada have instituted programs to cover the costs of medication. For example, British Columbia, Manitoba, Quebec, and Saskatchewan have universal coverage for drugs. In the other provinces, they provide drugs to senior citizens and the citizens on social assistance. Also, about half of the Canadian population is covered with these programs, as well as the private insurance plans (Lexchin). This is significant because it shows that the Canadian government is pleased with the pharmaceutical industry today.

The industry's success is based on Canada's long history of regulating it to avoid corruption like those observed in the three case studies.The federal government of Canada had no control over the sales of drugs until 1939 Food and Drugs Act. This amendment gave the government power over sales if the product seemed to be injurious to health. By 1951, it was mandatory for companies to submit safety data of their products to the Food and Drugs Directorate (which is presently the Health Protection Branch) before putting them on the market. In 1963, the Canadian law was again changed, this time, to make it mandatory for companies to submit paperwork to prove that their products are effective for the conditions recommended. It is mandatory, in Canada, that all new drugs are assessed by Health Canada to conform to the Food and Drugs Act and Regulations. Also, in order for the product to be allowed to be on the market

and distributed, it must be granted through a Notice of Compliance (NOC) (Patented Medicine Prices Review Board). In addition, the Health Protection Branch (HPB) prohibits false advertisement on drugs. They check advertisements to make sure that products are being promoted only for the conditions that are proved to be safe. However, they have no control over how doctors decide to use those drugs (Lexchin). Finally, drug prices are affected by Bill C-22, which created the Patent Medicine Prices Review Board (PMPRB). This Review Board has successfully slowed the rising prices of medication (Starer 89). It is to "control the introductory price of new patented medications and to keep the rising price rate of patented drugs within the rate of inflation" (Lexchin). Patented medications are drugs that are under the Canadian Patent, which gives the patent holder rights to use the invention for 20 years after the filing is completed. This Board, however, does not have the power to control non-patent drugs in Canada (PMPRB).

This powerful industry seems immune to corruption. However, when ethics and morality come into the picture, things look different. Researchers in Canada concentrate on the production of treatments for the sickness and diseases common in Canada. This is because those are the products that people (with money) are willing to pay for, as IMS Health explains:

> The leading therapeutic class in terms of purchases by drug stores and hospitals in 2005 in Canada is cardiovasculars with 14 percent of the market. The psychotherapeutics class is second with 10 percent of the market, followed by cholesterol agents (9 percent), anti–spasmodics (8 percent) and cancer/ immunomodulators (7 percent). (IMS Health)

This type of researching greatly benefits Canada's population. However, it is important to understand that many of the tropical diseases that kill millions each year in other parts of the world could potentially be aided more by Canada's pharmaceutical industry. The technology and money in the industry is very plentiful that they could help those dying from curable diseases, as

Cletus E. Olebunne, an accomplished scientist and entrepreneur in the global health care distribution, explains, “Multinational pharmaceutical companies neglect the diseases of the tropics, not because the science is impossible but because there is, in the cold economics of the drugs companies, no market” (Olebunne).

Also, it is very evident that the corruption in Canada’s pharmaceutical industry differs greatly from the problems many developing nations face. For example, counterfeit drugs, a major problem in Venezuela and Nigeria, is not an issue in Canada. This is mainly because Canadian citizens have easier access to brand-name and generic medications than Venezuelan or Nigerian citizens. However, Canada does face some problems. For example, citizens say that some clinical testing in Canada goes too slow. When the H1N1 vaccines were needed by Canadian citizens, people began to worry because the system of delivering vaccines were going slow (Canada’s H1N1).

Currently, organizations like DNDi are fighting against these kinds of corruption. Nevertheless, it will be difficult and time consuming to eliminate this issue. This is because it is the pharmaceutical companies who have the actual power. They can decide what kind of treatments they want to research for, providing it is permitted by the law. They can also decide who they want to target as customers. In other words, they have the power to develop specific types of drugs designed for specific types of people. There is no law that tells them that they have to produce more drugs that will aid the tropical diseases in developing nations. As a result, it is natural for these companies to produce drugs that will profit them. Although hard to believe, the pharmaceutical industry in Canada is indeed corrupted. As demonstrated, Canadian companies, like the rest of the businesses in the world, would choose wealth over health any day.

Possible Solutions?

As seen through this report, pharmaceutical industries around the Globe are wrapped up in many layers of corruption. Thus, there are many possible solutions that can be considered.

To begin, people must first consider the option of doing nothing. This option is always present in any issue, and sometimes, it is the most beneficial solution. However, this is not the case for resolving the corruption in the pharmaceutical industry. The reason for this is because it is the option the companies want the public to choose. If the public stands by and says nothing, it gives the pharmaceutical companies opportunity to keep building greed and conduct unethical acts. Just by raising awareness, everyday citizens can put the industry on the spot. It is a way to keep them in "check".

Secondly, over-prescription of specific drugs by doctors is seen in some countries' pharmaceutical industry. Affected by the pressures of pharmaceutical companies with bribes and incentives, some doctors recommend and prescribe products of specific companies to patients. These products tend to be more expensive than others, but that does not mean they are of better quality. Some aspects of this were previously explained in "Case Study: Japan". This is a hard issue to solve because regulating what pharmaceutical companies can say to doctors can be seen as a violation of their freedom of speech. This was demonstrated in the United States when the Food and Drug Administration, who tried to enforce power over drug marketing, was put through court in 1976 (Harris). Thus, a better option for this issue is to allow non-governmental organizations to fight against it. For example, in the United States, a group of doctors who signed a pledge not to accept pharmaceutical advertising called "No Free Lunch" exists. They do a good job of raising awareness of the issue and spreading their ideals of practicing medicine in the

interest of the patients (No). These organizations, in a subtle way, without interfering with anyone's rights to freedom of speech, are helping to resolve the issue.

Thirdly, the issue of drug pricing in both developed and developing countries needs to be addressed. One way of doing this is to take a look at the patents on drugs. Patents are designed to protect new innovations of pharmaceutical companies. These are beneficial to the companies because without patents, competition would not exist. Every company in the world could "steal" ideas of drugs and treatments from each other. Many pharmaceutical companies around the Globe would have the same drugs and treatments. Without patents, many pharmaceutical companies would cease to exist because it would not stay as such a profitable industry. As a result, it is not a good idea to abruptly eliminate patent laws completely. This was briefly outlines in the "Case Study: Venezuela" portion of the report. When the Venezuelan government tried to abruptly erase the intellectual property laws, it resulted in a more corrupt industry. Thus, a better option is to shorten the patents on brand name drugs to allow for opportunities of generic alternatives, which are more affordable. Another way of reducing the prices of drugs is for pharmaceutical companies to reduce its spending on advertising products and use the money for research and development of products. Recently, pharmaceutical companies in the United States spend 24% of their money on promotion, while they spend about 13% on R&D (Big Pharma Spends). This is not uncommon in other pharmaceutical industries around the Globe. Although this solution would be difficult for pharmaceutical companies to accept, if it is successful, it would lower the cost of drugs significantly.

Finally, a major issue in developing nations is the sales of counterfeit drugs on the black market. As mentioned earlier, people turn to the black market when they feel what they need is not accessible in other places. Thus, a possible solution is to make essential drugs affordable and

accessible by everyone. One way to do this is to encourage people in developing nations the use of generic drugs. Some nations like Venezuela have access to generics, but because they believe they are not as effective as brand name products, they turn their backs on the cheaper option. Also, the decision made in 2005 by the World Trade Organization to restrict the export of generic drugs to developing nations to support larger pharmaceutical companies has limited the number of inexpensive drugs (Shah). This was a marketing ploy by big drug producers to ensure they keep making money. It is important to raise awareness of the truth about generic alternatives and increase the manufacturing of them. Another way to make essential drugs affordable and accessible is to increase the production of traditional medicines. As mentioned in the "Background" portion of this report, traditional medicines are used by some people in developing nations in Africa, Asia, and Latin America today, as they are both affordable and accessible. However, if the production of these medications increases, regulations should be introduced to prevent development of new problems. Ultimately, going back to the root of pharmacy could potentially save many lives.

Conclusion

Although pharmaceutical industries worldwide have done great things, like saving many lives, it seems as though they are getting swallowed by greed. The issues found in pharmaceutical industries are very difficult to solve because people's desires are involved. It is simple to explain some of the unethical and cruel things done in the pharmaceutical industry. It is simple because most people would agree that some of the industry's effects are immoral. The core reason why this issue still exists, and possibly worsening, is because people want money; the reason is greed. Although there are some drug companies that donate huge amounts of money

for humanitarian causes, it still remains a mystery to whether that donation is coming purely out of the heart or is just another one of the advertising methods of their company. The industry that once was interested in the health of the public seems that it is now more concerned with the amount of wealth the industry can make.

Appendices

I. According to DNDi:

ASAQ**:** fixed-dose combination (FDC) of artesunate (AS) and amodiaquine (AQ).

ASMQ: co-formulation of artesunate (AS) and mefloquine (MQ).

NECT: simplified combination of oral nifurtimox co-administered with intravenous eflornithine

II. Interview

Interviewer: Aya Tagami

Interviewee: Dr. Shawn Shirazi

Aya Tagami: Firstly, thank you very much for putting aside time for my interview. It really is helpful because I would like to learn more about this topic. :)

AT: You were involved in the pharmaceutical industry for awhile, then you went to school to learned about natural medicine, as well as laser therapy and acupuncture. What made you want to study these things?

Dr. Shawn Shirazi: I need to clarify that I never left Pharmaceutical industry to move to Natural medicine. Pharmaceutical industry is very challenging and rewarding; however, it is not as strong in Canada as the rest of the developed countries especially compared to our neighbour to the South.

My decision was two folds:

A) Dying research and development to a point that I was overqualified for every opportunity that existed in Canada.

B) Pharmaceuticals (drugs) have many benefits but also side effects. As much as I recommend a person to take pharmaceuticals for treating their symptoms when they really need it, I would emphasize the use of natural medicines when healthy for prevention of diseases and strengthening the immune system. As an example, when one has an infection they are prescribed antibiotics; however, antibiotics kill all bacteria in the body, both good and bad. To prevent this, it is recommended for anyone on antibiotics to take prebiotics (good bacteria) to rebuild their systems, for example eating yogurt to replenish the gut flora.

AT: What are some benefits of naturopathic/alternative medicine in comparison to pharmaceuticals? Are pharmaceuticals sometimes better than naturopathic medicine?

Dr. Shirazi: As mentioned in Q 1, they are preventive and do not necessarily cure diseases. Natural products are in our food supply and work with the body to protect it vs. drugs that are mostly synthetic and suppress symptoms or as a chemical inhibit the activities of certain cell or enzyme to correct an issue (disease), which in turn could have adverse events. Natural alternative include vitamin and minerals which the body desperately needs, especially in today's world where everyone is in a hurry, does not eat properly, much processed foods and stressful environment.

Pharmaceuticals are always better than natural remedies as when in need, they act much quicker to correct symptoms. A natural alternative could take weeks or months to do this, if at all, and by then the patient could be seriously ill including death.

AT: What do you do now?

Dr. Shirazi: I use my Pharmaceutical experience in addition to higher education in Chemistry, Pharmacology and Natural Medicine, to develop natural products to supplement human diet, and some specific for athletes to strengthen the muscles, increase endurance and overall performance and recovery.

This includes extensive research, clinical trials and toxicological studies to gather sufficient evidence in order to educate the public interested in using the product.

AT: What is your attitude towards the pharmaceutical industry?

Dr. Shirazi: I owe my success to the pharmaceutical industry and have always enjoyed developing new drugs for known and unknown diseases. We need pharmaceuticals to help us recover from diseases and it is only pharmaceutical industry that is equipped to invent and develop drugs to the regulatory standards. It is a very challenging and exciting environment to be in; unfortunately there have not been too many advances in new drug development which in turn has resulted in mergers and acquisitions. This has lead to a shrinking industry with fewer employment opportunities to a point that every merger has resulted in loss of thousands of jobs globally.

AT: Have you ever witnessed any immoral practices taking place that were initiated by drug companies?

Dr. Shirazi: No, and those that have are no longer employed or the organizations are terminated. You see, the Pharmaceutical industry is the highest regulated industry on earth, and rightfully so as people's lives are at stake. For this reason, they must go through the most stringent audits by government health authorities which does not allow for presence of any immoral practices or at least not for too long.

AT: Thank you very much again for helping me learn more about this topic!

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