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The Blend of Traditional and Modern Medicine: Case Studies from Latin America as Lessons for the United States

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INTRODUCTION

Objectives

Latin American countries harbor a rich history of indigenous traditional and alternative medical practices that are not commonly understood or practiced within modern medicine in the United States—a developed nation with many immigrants from Latin America. This wealth of knowledge from accepted traditional medical practice offers the potential to improve the current care for many individuals residing in the United States. It is important to understand current bridges between modern and traditional medical practices within Latin American countries in order to import the integration of traditional medical practices into healthcare in the United States. This thesis first describes the historical importance of traditional medicinal practices in Latin America, and then examines interactions between the traditional and modern medical systems within five countries: Peru, Ecuador, Chile, Mexico, and Cuba. The ultimate goal of this thesis is to explore the strengths of a variety of indigenous medical practices while laying the foundation for building bridges to the modern medical establishment in the United States as a means to benefit the health of both immigrants and native citizens.

Background

In much of the industrialized world, healthcare systems are based on westernized allopathic medicine. However, in the less developed world there is an entirely different type of healthcare system. This other system is known to the industrialized world as complementary, alternative, non-conventional, or traditional medicine (Alves and Rosa

1). The term "traditional medicine" refers to these various forms of indigenous medicine (Alves and Rosa 1).

These indigenous medicines are practiced in many developing countries around the world. In fact, they are the primary form of healthcare for a large portion of the world's population either by choice or by lack of other options (Graz *et. al.* S6). Within the cultures in which they are practiced, traditional medicines are readily accessible, affordable, and trusted. This is often because they are directly derived from local plants, animals, or other substances found within a community. An example can be found in Latin America where the form of traditional medicine most commonly practiced is humoral medicine (Foster 355). Humoral medicine is an ethnomedical system in which local foods and medicines are labeled with "hot" and "cold" markers, and illness is believed to be a disturbance to the temperature equilibrium in the body that is treated through the principle of opposites (Foster 355). Such practices have been recorded in most Latin American countries as far back as 1877 (Foster 356). These practices are more than merely a part of the local medical system; they are a way of life that is deeply ingrained into the culture of society.

Citizens residing in Latin American countries reach out to traditional medicines for many reasons. For some, they may be an integral part of the culture and be the only medical option available. For others, they may represent an alternative to disappointing encounters with the modern medical system where care is often felt to be expensive, unfriendly, corrupt, with treatments offering too many side effects and disappointing results (Graz *et. al.* S6). Regardless of the reason, traditional medicines may provide significant benefit to those seeking relief from illness.

Historically, most medicines are made from natural sources including leaves, roots, bark, other plant organs, minerals, animals, or secreted products (Alves and Rosa 1). These ingredients have evolved to be important in other forms of alternative medical practices such as homeopathy, aromatherapy, naturopathy, and herbal medicine (Graz *et. al.* S6). Unfortunately, there is a continuing disappearance of natural resources that threatens the existence of such medicines and the cultures that carry them (Alves and Rosa 2). An alarming exploitation by developed countries of much of Latin America for its natural resources (e.g. coal mining, timber, etc.) has decimated the ready availability of naturally growing traditional medicine sources. This renders the procurement of such plant and animal ingredients increasingly difficult, requiring alterations to the form of medicine so it can be stored over time, in addition to necessitating long journeys to gather ingredients (Alves and Rosa 4). Many Latin American governments have attempted to combat this exploitation to no avail. The knowledge of the uses of plants in curing different diseases is in jeopardy of being lost faster than the plants themselves in some parts of the world (Alves and Rosa 3-4). This will interfere with the potential for meaningful sharing of knowledge with the modern medical world.

Traditional and local knowledge systems need to be protected, preserved, and studied as different ways to approach modern healthcare, science, and technology at large (Taylor A208). Significant challenges exist in integrating the differing perspectives. Traditional knowledge is derived from years of history and experience and is preserved through long, complex narrations lacking the traditionally rigorous scientific scrutiny required by modern medicine (Taylor A214). Modern scientists are prone to quickly dismiss its merit, considering it to be irrelevant as a result. In contrast, indigenous

cultures often perceive modern healthcare as uncaring, and therefore refuse modern treatment options and are reluctant to share their own knowledge. Regardless, if such obstacles are not overcome, the indigenous medicines will continue to be driven towards extinction and the modern world will never realize potentially valuable medical breakthroughs. Fortunately, as diverse populations spread throughout the world, many opportunities and scenarios in which modern and traditional health systems cross will arise. It is important for practitioners from both sides to remain open minded and curious in their interactions for the mutual benefit of mankind and the environment (Taylor A214).

Agriculture and Biodiversity

Despite the potential mutual benefit that could arise from the blend between traditional and modern medical practices, few studies address this interface (Taylor A212). If utilized, modern agricultural practices could enhance the sustenance and wellbeing of indigenous medicinal and nutritional plants. Currently, the more primitive indigenous irrigation is being utilized due to its link to acceptable religious practices while modern agriculture techniques offering cultivation with maximum product yield are not. Yielding larger crops through the use of modern practices could better sustain the health of larger populations (Alves and Rosa 4). Additionally, modern populations could benefit from the natural variation existing within the gene pool of indigenous crops. Having a wider genetic base helps prevent vulnerability to pests and disease (Taylor A212). Unfortunately, modern cultivation has narrowed the genetic variability of crops through genetic engineering decreasing resilience in the defense against these potential threats (Taylor A212). By working with the indigenous agriculture practitioners, modern

societies could recover beneficial traits that had been lost, possibly preventing future food shortages and nutritional deficiencies (Taylor A212). In return, indigenous societies could learn how to cultivate their crops more effectively, while increasingly relying upon them as social and economic resources, trading or selling them to others. This interchange of information and resources could mutually benefit the health and livelihood of future populations both in the developed and developing world.

Although promising health benefits to both modern and indigenous societies could come of sharing agriculture practices, it is important to note that human health also depends on diversity within the environment (Alves and Rosa 2). Biodiverse, indigenous environments are marked by poverty and underdevelopment, in contrast to modern environments which lack in protection, resource management, and biodiversity (Alves and Rosa 2). Traditional societies have a long history revering the healing powers associated with natural systems in the world—be it from different animal or plant species to the natural scenery (Alves and Rosa 1). They live in harmony with the environment, which fosters the biodiversity that is essential to the maintenance of ecosystems. Ultimately, this prevents disease and illness in the environment and the people living there.

Changes to such ecosystems can be detrimental to human health. For example, natural disasters, climate change, and depletion of freshwater resources can all damage an ecosystem (Alves and Rosa 3). Further depletion occurs when the developing world exports the natural resources within developing countries with little concern for conservation or renewal (Alves and Rosa 2). These alterations to the environment—whether natural or manmade—can directly impact biodiversity. Unfortunately, the

indigenous and poor populations are largely defenseless to ward off the harmful effects of such degradations to their environments (Alves and Rosa 3).

It is well documented that biodiversity is necessary for human wellbeing (Alves and Rosa 3). Plants and animals provide medicinal and nutritional properties for indigenous societies, and furnish over 50% of the compounds required to produce commercially available drugs in the modern world (Alves and Rosa 4). Losses in this biodiversity limit the availability of these vital raw materials, potentially threatening the manufacture and development of medications to prevent the spread of human diseases around the world (Alves and Rosa 3). The significant forest degradation over the last two decades has obliterated the availability of traditional health resources for many rural and urban poor (Alves and Rosa 3).

Development of New Drugs

The preservation of diversity of plant and animal species is crucial in the quest for new drug discoveries (Taylor A210). Knowledge within traditional practices in the use of plant and animal species as medicinal aides ought to be considered. Modern scientists should seek out traditional healers for insights on their medicines, which may lead to broader medicinal applications of natural compounds (Taylor A211). Beyond its potential for revealing possible new bioactive ingredients, an in depth study of these previously unidentified mechanisms of action could further the forefront of modern medical science by providing the basis for the development of new pharmaceuticals (Taylor A211).

Plants and animals have been used for ingredients in medicines since ancient times and remain vital in modern medicines to this day (Alves and Rosa 7). Of the 252

essential chemicals in modern medicines listed by the World Health Organization, 11.1% are from plants and 8.7% are directly from animals (Alves and Rosa 5). Furthermore, of the 150 most common prescription drugs in the United States, 27 are directly of animal origin (Alves and Rosa 5). Coincidentally, of the 119 known plant-derived drugs utilized in modern medicine, 74% of these plants are utilized for the identical therapeutic purpose in traditional medical practices (Alves and Rosa 5). This lends substantial credibility to the basis behind indigenous medicinal folklore and increases the argument for collaboration. Specific applications of traditionally used compounds that have been developed into modern pharmaceuticals include anti-malaria and pain management drugs amongst others. For example, indigenous populations utilized the bark of the *Cinchona* tree found in South America for therapeutic purposes before the contained active ingredient, quinine, was ever discovered. Quinine remains the oldest known ingredient in modern anti-plasmodial drugs and has saved more lives than any other medicine known in history (Graz *et. al.* S7). Another example discovered in Latin America within the skin secretions of poison dart frogs from Ecuador, were alkaloid toxins whose study led to the identification of painkillers 30 to 100 times more potent than morphine (Alves and Rosa 5). The National Cancer Institute has also identified compounds within indigenous medicines that may be promising in the treatment of various serious illnesses including cancer and AIDS (Taylor A210-211). Overall, modern medical practices could be well served by studying traditional remedies developed over centuries in indigenous cultures tapping into the shared discoveries from both worlds (Graz *et. al.* S7).

Language Barrier

There exists an innate challenge interfering with the optimal sharing of medicinal knowledge between different societies: language. It is in language that the knowledge of indigenous medicines is stored. Unfortunately, much can be lost in translation. For example, in Mexico the Tzeltal Maya have an elaborate language that distinguishes symptoms in ways that cannot be translated into English; for example, the terms for wheezing cough versus hacking cough are often translated as simply "cough" (Taylor A213). Despite difficulties in translation, the existence of multiple languages within a geographical region can actually be used as an indicator of a good biological diversity that offers a plethora of indigenous medicines within the environment (Taylor A213). In order for mutual learning and collaboration to occur, it is essential for differing sides to be culturally sensitive and respectful of one another's local customs and knowledge. When shared respect and common goals can be identified, effective collaborative bridges and learning become possible.

Comparisons between Traditional and Modern Medicine

There is "hardly any aspect of medicine that is not profoundly affected by the differences" between modern and alternative therapies even beyond the differences in language (Knottow 18). Modern medicine is based on rational scientific discourse, accredited knowledge, and standard ethical regulations, while alternative medicine is based on non-rational, non-scientific, non-technical, holistic philosophies (Knottow 18). As modern medical practices have become mainstream, a competition with traditional practices has grown and created a divide in healthcare (Knottow 18).

The disappointments and limitations inherent in modern medical practice today often motivate disillusioned patients to seek alternative approaches. Modern medical practice often falls short of hopes and expectations to provide relief from suffering and cure for chronic degenerative diseases, despite being very expensive. Modern care has become so high-tech and diagnostically oriented that the individual feels neglected (Knottow 19). Alternative therapies are more focused on personal approaches to patient care and treatment. They are based on the holistic idea that the health of an individual is dependent on physical, mental, social, and spiritual wellbeing (Knottow 20). This approach conveys a sense of "existential protection, which operates not on the basis of some truth, but by means of its soothing and comforting effects" for an individual patient (Knottow 19).

Despite the strength of its individual approach, traditional medicine often remains oblivious to specific pathogens causing illness and disregards diagnostic categories (Knottow 18). Furthermore, the use of empirical data is lacking and practice patterns rely on anecdotal narratives as evidence for treatment decisions (Knottow 19). Once a treatment strategy is initiated for a patient, alternative medical therapies continue until symptoms are alleviated. Such practices are based not on a disease, but instead on the treatment of symptoms.

Modern medical approaches are based on diagnosing and treating a specific pathogen to cure a specific disease (Knottow 20). Accurate diagnosis is modern medicine's most powerful tool and is based on scientific knowledge and the application of effective and rational therapies that prove the eradication of the pathogen to elicit a

cure (Knottow 20). Alternative treatments lack this comparative apparatus and are much more of a subjective evaluation of the alleviation of symptoms.

The overall purpose of any medical practice is to provide an ill individual with the help to better adapt to their environment, ideally accomplished through the eradication of a disease or to adapt to the illness when and if it cannot be cured (Knottow 20). Alternative practices are primarily concerned with the second goal. They aim to change a patient's outlook towards a disease and wellbeing, while attacking the symptoms. The alleviation of symptoms does not necessarily mean the disease is eradicated; however, this is not of traditional medical concern. In contrast, the first goal of eradicating a disease is the primary (if not only) concern for modern medical practices. Modern medicine regards improvement in symptoms through unproven means—like the placebo effect—as ethical dilemmas because a scientifically proven treatment has not been rendered (Knottow 20). In general however, both modern and traditional medical practices strive to control and heal diseases while alleviating suffering.

Interchange and Integration

Because both types of medical systems are aimed at achieving the same overall goal through different means, there remain promising areas of interchange between them. Previous research has addressed the efficacy and safety of a few traditional medicines, however this research remains limited. Thus, traditional medicine still remains a largely untapped resource.

In addition to paving the way for possible new drug discoveries, traditional knowledge may also provide novel approaches and key lessons beneficial to public health and economic reward (Graz *et. al.* S6). While the path between traditional ethnomedicine

to the development of new medications from this knowledge seems fairly direct, the research and development process used by pharmaceutical companies is not well suited for uncovering these untapped resources (Taylor A211). For such a research project to be effective, researchers must immerse themselves within the environment of the indigenous culture being studied. This would promote a trusting relationship to develop between researchers and local curers that would ultimately allow for an open dialogue about the efficacy and possible limitations of folk medicinal practices. In addition to the development of trust between researchers and locals, an equally important collaboration needs to be developed between clinical providers in these two worlds. Indigenous practitioners feeling respected and revered could be more apt to share their knowledge with modern practitioners who in turn could provide additional suggestions regarding possible options in patient care. As modern physicians become aware of valuable alternatives to relieve symptoms, they can better inform their patients of options in treatment choices (Graz *et. al.* S9). Shared clinical studies could put in place and enforce quality control of the recipes and preparations of medical concoctions and teach the indigenous groups how to better regulate, trade, and sell prepared medicines for economic benefit (Graz *et. al.* S6). Furthermore, both societies could benefit from establishing rules for certification of preparers and practitioners of traditional medicines in their respective environments. When conclusions are drawn in the clinical research process, traditional medicines proven to be safe and effective should be officially validated and marked for production in the public (Graz *et. al.* S10). Economic gain from the medicines could be used to further support the drug discovery process.

The longest lasting benefit from conclusions drawn in clinical studies would be in the education of health professionals. In an "era of pluralistic medicine" where different cultures and societies are coming together, future health professionals need to be aware of different medical options including traditional, alternative, and complementary medical practices (Graz *et. al.* S9). If they are not informed, they may miss out on valuable opportunities to provide patients with alternatives or aides that may be beneficial to their medical care, to understand the medical practices, and to respect preferences of patients from different cultures. This will also enable them to effectively warn patients of possible dangers or harmful interactions between traditional medicines with modern healthcare treatments.

Overall, studies should aim to complement and benefit both worlds. When traditional and modern practices cross paths, it is essential that they understand each other's practices, thoughtfully coexist, and complement one another. For this to occur, the local people should be involved in the planning of meaningful integration. The resulting interactions between the two approaches may be mutually beneficial where the traditional curer may even refer patients to modern physicians or vice-versa. As a powerful figure in traditional society, the traditional curer's willingness to interact and work with practitioners within modern medicine is critically important in order to increase credibility both with other curers and within members of the traditional culture. Locals who venture out to seek care and improved outcomes with modern medical practitioners will raise expectations for the quality of medical care.

Unfortunately for traditional curers, barriers exist that prevent the optimal integration between traditional and modern medical practices. Current research

approaches may seem too aggressive and leave the indigenous curers unwilling to interact and share their knowledge. The indigenous curer may respond by assuming the role of a cultural conservative who refuses to interact or adapt to advances from the modern society, feeling threatened that the special status inherent in their role will be lost (Landy 113). This resistance may be difficult to maintain in the long run as the population becomes increasingly exposed to glimpses of modern medical options. The curer will have difficulty preserving their indigenous knowledge base and culture while being open to the modernization process.

After the realization that his competitors are not going anywhere anytime soon and that there remains the leveled field for competition in the uncertainty of diseases, curers may develop new approaches in their interactions between the two medical systems. Some curers may be passive or hesitant towards the integration. This leaves them to become pushed to the edge of extinction due to the lack of interaction with the westernized medical system, and ultimately leaves their people to pick sides between the often less effective management of health versus the apparent magic of modern medicine. Other curers have adapted successfully to the coexistence of the two societies, operating in that window of uncertainty. It is here that he may actually gain patients who have lost hope from previous failures of the modern medical system. Still, other curers may preserve their practices through the referral of knowingly terminal cases beyond their capabilities to the modern medical system with the outward intent of appearing to be acting for the benefit of the patient, when really the underlying intent is to discredit the competitor. This would take merit away from the modern medical system while boosting the curer's position in the local community (Landy 119).

Referrals are not always done with the intent to sabotage the image of the modern medical system. In fact, some traditional medical systems retain a degree of cooperative exchange with the westernized system. For example, in Ecuador, the folk curers have adopted a professional referral system with the more modern medical system. Some factors influencing the frequency and quality of referrals include the cost and location of western medical services relative to local indigenous services, as well as the attitude of the western system towards interaction with the local customs (Landy 119). In their interactions, it is possible for both traditional and modern medical practitioners to benefit from the collaboration and exchange of information. In essentially a symbiotic relationship, traditional practitioners could borrow elements from modern medicine and gain a basic knowledge of anatomy and physiology, while modern practitioners could learn to appreciate the value and potential of indigenous medicines (Landy 121; Graz *et. al.* S6, S11).

Experience has shown that despite the acculturation threat posed by the integration with modern medical systems, traditional practitioners are open to educational interactions and are ready to discuss patient referral options (Graz *et. al.* S8). In addition, evidence has shown that patients are taking a more open approach to both medical systems as options in their healthcare. Indigenous patients have been known to reach out to modern medicine when they want a second opinion. On the same note, westernized patients are also increasingly reaching out to indigenous knowledge for alternative or combined therapeutic approaches, especially when it is less stigmatizing to do so—such as reaching out to an indigenous curer rather than seeing a psychiatrist and being labeled as being *loco* (crazy) (Landy 116). Additionally, patients may reach out to traditional

practitioners for combined therapeutic remedies to be used alongside modern therapies. In Mexico, an indigenous practice of using *Argemone mexicana*, a local plant, has been proven to be effective alongside modern medicines in treating malaria (Landy 121). It is interesting to note that traditional medical practitioners are equally as capable as modern physicians in predicting patient progress, responses to treatment, and patient outcomes—perhaps due to significant clinical experience and exposure (Graz *et. al.* S8). With this knowledge, indigenous medical practitioners are able to appropriately refer patients that are beyond their capabilities to modern physicians. In Cuba for example, modern and traditional practitioners have a trusting and mutually beneficial relationship that is marked by meetings between practitioners to discuss such medical cases.

In summary, there are several approaches possible between traditional and modern medical practices. The traditional curer may essentially abstain and ignore recognizing the modern medical field as either a competitor or a partner. However, this position leaves his role threatened to become obsolete (Graz *et. al.* S8-9). Also possible, is the complete opposite reaction—where the curer embraces and accepts both the challenges and opportunities coming from interaction with the modern medical system—could lead to a mutually beneficial collaboration. This would create a mutually beneficial relationship where traditional healers form essentially a natural extension of modern medicine, and both systems could learn from each other (Graz *et. al.* S8-9). Finally, as the two societies come together, bicultural roles will come to life, such as in the case of *mestizos* in Mexico, that neither reject nor prefer one system over the other, but instead represent the literal blending of the two together.

Community Health and Giving Back

Many of the world's indigenous cultures that practice traditional forms of medicine are marginalized from the modern world. They tend to be poor and lack resources and knowledge of how to manage natural resources as well as allocate funds for education or healthcare (Taylor A211). Given the increased use of traditional medicines in westernized nations, it is only fair that they give back to indigenous communities. However, when research has been conducted to ascertain the clinical efficacy of a traditional medicine, communicating these important findings back to indigenous communities has been a "crucial but often neglected part of the research process" (Taylor A211). In fact, historically when clinically beneficial traditional drugs were discovered by modern societies, the indigenous environment was exploited for its resources (Taylor A211). Modern logging, mining, and oil extraction crusades have caused irreparable damage to indigenous ecosystems without any return or benefit to the people living in them (Taylor A211). Such actions deplete the supply of beneficial traditional medicines, drive away indigenous communities and their knowledge from their environments, and destroy ecosystems that may have had hidden undiscovered medical applications. These practices must be changed. Modern societies should channel their research findings and provide returns back to the communities from where these drugs originated—whether in the form of financial or political support, or other incentives that help to conserve the natural environment from which new medicines were discovered (Taylor A212).

In order to give back to a community, it will be important to understand their most pressing needs. Monitoring public and environmental health would require collaboration between modern and indigenous societies. Such collaboration could be achieved through

community-based initiatives to help in the areas most needing assistance. For example, the efficient production and conservation of medicinal plants could be an important community-based initiative that would not only benefit the indigenous community's self-sustaining agriculture, but would also offer promise of more traditional medicines for modern societies (Graz *et. al.* S9). These goals would be accomplished through public health projects that teach indigenous cultures how to develop large-scale commercial cultivation of medicinal plants. Not only would this preserve traditional knowledge, but also it would also create economic opportunities to reduce poverty and protect biodiversity (Graz *et. al.* S10). Such public health projects could be applied to other sectors besides agriculture such as forestry or marine resources (Graz *et. al.* S8-9). Overall, by giving back to indigenous communities, biodiversity can be protected which would be beneficial long term to both indigenous and modern societies.

Significance

It is important to focus on and learn about traditional medicines because they are crucial in the healthcare of populations in developing countries (Alves and Rosa 7). For centuries, traditional medicine was the only medical system available to prevent and treat disease (Alves and Rosa 7). Still today, traditional medicine remains the primary healthcare source for over 80% of the world population (Alves and Rosa 1). As different cultures increasingly cross paths, traditional medical practitioners are able to further improve the lives of their patients by referring severe cases to modern medical physicians when necessary. In rural areas, where modern medical systems are out of reach or unavailable, traditional medical practices can act as the first-line of treatment or provide rapid care for urgent cases (Graz *et. al.* S8). Furthermore, the knowledge gained over

centuries in traditional medicine may provide key leads to the development and widespread use of future beneficial pharmaceuticals.

Threats exist that endanger the survival of traditional medical practices. For example, many indigenous medical systems have been displaced due to the industrialization and urbanization by western societies (Alves and Rosa 3). This leaves many communities without viable healthcare options. Because of declining access to environments that produce natural medicinal products, traditional medicine is declining rapidly. With it, the societies harboring the knowledge of such medicinal properties are also declining. It is crucial that this knowledge and these environments be protected. Over two thirds of the 50,000 medicinal plants in use today are harvested from the wild of which as many as 10,000 are currently endangered (Alves and Rosa 5). When indigenous communities are denied their basic rights to land, freedom, healthcare, cultural identity and integrity, their rich traditions and valuable knowledge are lost (Taylor A214). These communities are not simply populations on the other side of the world with remote illnesses that should be given no more than a second thought, but instead, are essential members of humanity with shared medical conditions and valuable knowledge (Taylor A214).

The United States has always been a nation of immigrants and general medical practitioners can expect more than 40% of their patients to be from minority cultures (Taylor A215). Therefore, health professionals need to have a basic familiarity and understanding of their patients' cultural characteristics and approaches to illnesses in order to best understand how to treat them (Taylor A215). This concept of being aware of and understanding cultural differences extends beyond immigrant groups to include

long-naturalized populations such as Latino communities—who continue to trust their local providers more than outside health professionals (Taylor A214). In addition to effectively understanding the cultural needs of patients and respecting their preferences, a working knowledge of indigenous medical practices is imperative to safely combine modern treatments with traditional medicinal treatments. Patients do not often disclose to their modern medical providers their concurrent use of traditional approaches. It has been shown that while many remedies can have healthy benefits, several indigenous plant, animal, and mineral remedies are capable of dangerous adverse reactions (Taylor A215; Alves and Rosa 8). Being aware of these interactions is critical to the safe and effective treatment of patients.

Not only are immigrants bringing their indigenous medicinal treatments with them, but also, citizens in industrialized countries are increasingly interested in available alternative treatment options. This further motivates modern medical practitioners to increase their awareness and knowledge of such alternatives. Because of an increase in the sale of homeopathic herbal and animal remedies, animal poaching and deforestation increasingly threaten the natural environments where valued ingredients originate (Alves and Rosa 5). This forces those indigenous cultures to migrate away from their homes toward industrialized countries. Present day healthcare professionals need to be educated about alternative medicines and their potential interactions with modern medicines. This will require an evolution of medical education to ensure that physicians possess a basic knowledge and understanding of these facts that would allow them to inform their patients properly on potential usages, interactions, benefits, or dangers of traditional and complementary medicines (Graz *et. al.* S6). In an era of pluralistic medicine, most

medical schools still only teach one type of medicine—be it alternative or modern (Graz *et. al.* S8-9). But before such actions can be taken to integrate the curriculum, there needs to be an emphasis on clinical research of traditional medical practices as a way of creating a database of information on interactions between the two medical practices (Graz *et. al.* S9). As research becomes available in the 21st century, it is likely that innovative combinations of modern medical science and ancient traditional remedies will become readily available to patients (Taylor A209). Acting at the educational and informational levels will be "the interventions with the longest lasting effects" in terms of integration (Taylor A215).

In the current era of urbanization, modernization, and education, the benefits of possible therapeutic uses of traditional medicines still are poorly researched (Alves and Rosa 6). There is, however, a growing recognition that knowledge of alternative medical practices may be beneficial to the possible discovery of new medicines and to the overall wellbeing of patients (Alves and Rosa 4). Therefore, there is an urgent need for research on traditional medical practices of indigenous communities. As of today, traditional medicines remain a largely "untapped health and economic resource, with potential importance at both the individual and population levels" for future therapeutic breakthroughs (Graz *et. al.* S6).

Chapter 2:

PERU

Traditional Medicine in Peru

Traditional medicinal practices have been recorded in Peru as far back as 1877 and still remain an important part of daily life (Foster 356; Bussmann *et. al.* 10). As many as 974 herbal preparations made from 330 local plant species are used to treat 164 different symptoms and illnesses (Bussmann *et. al.* 10). Approximately 65% of the plants have been found to have medicinal uses such as treating inflammation, infections, upper respiratory disorders, kidney problems, urinary tract infections, anxiety, and heart problems (Bussmann *et. al.* 10). Traditional healers have been known to use up to 49 ingredients within a single medical concoction, however, they generally only use one or two ingredients (Bussmann *et. al.* 10). This reflects the complex knowledge base that has been gathered by the native populations in Peru over the centuries.

Despite the broad knowledge base of the medicinal properties within local plants and animals that the natives possess, they are not the only culture in Peru. In fact, there is a sharp contrast between the larger cities—such as Lima—and the more remote areas where natives reside in the Andean Sierra and Amazon jungle (Mansfield and Morris 1684). This contrast is reflected in Peru's two-tier health system. While in the larger cities, most Peruvians can afford excellent private medical care, in the rural areas of the country, people must rely on the government's publically provided health care. The public sector has separate facilities for the *empleados* (white collar workers) and the *obreros* (the rest of the work-force in full time employment) where patients pay a small fee towards the cost of consultation or treatment (Mansfield and Morris 1684). For those

who do not have private medical care or do not work full time in a permanent job, the government provides a state health service where consultations and treatments are free (Mansfield and Morris 1684-5). Unfortunately, this state health service is incapable of dealing with the overall demand for its services (Mansfield and Morris 1684). While there are good doctors and hospitals within this public medical sector, most are located within the cities where they are able to earn the best living. In return for their services, physicians expect to work in increasingly technologically advanced environments that exist predominantly within city hospitals (Mansfield and Morris 1684). Unfortunately, there is too great of a demand for the state services which are "insufficiently diffused" throughout the country to provide medical care to all of the people who require it (Mansfield and Morris 1684). Most Peruvians who require such medical services are impoverished, far removed from the cities, and are unable to afford the sometimes extensive transportation to the hospitals (Mansfield and Morris 1685).

The government has tried to address the shortcomings of its state services through programs that aim to develop hospitals in towns outside of the larger cities (Mansfield and Morris 1685). As a requirement of their medical training, newly qualified physicians are sent to work at these hospitals for at least two to three years after medical school (Mansfield and Morris 1685). Also, these physicians may be sent to satellite clinics further displaced from the cities to work for the allotted amount of time. If sent to a satellite clinic, the physicians usually live and work in the same building: one room is the consultation room, another has basic medical supplies and medicines, and the final is used as living quarters (Mansfield and Morris 1685). The Peruvian government is aiming to instruct these physicians to train locals as medical auxiliaries who are competent in

recognizing and diagnosing prevalent illnesses (such as infantile diarrhea, malnutrition, parasites, tuberculosis, typhoid fever, etc.), dispensing drugs, vaccinating villagers, and instructing women and children in basic hygiene, health, and use of contraceptives (Mansfield and Morris 1685). Ultimately, this would be an inexpensive way to not only benefit local communities in the long term, but it would also help improve the nation's overall health (Mansfield and Morris 1685). Furthermore, if the local auxiliary was already involved in traditional medicinal practices (such as being a folk curer), they could actively blend it with the modern concepts and medicines. Overall, it has been shown that having a hospital or even a one-physician-staffed-clinic in a nearby village has "aided in the promotion of basic healthcare" in rural Peru (Mansfield and Morris 1685). Regardless of the government's efforts to construct these hospitals and clinics, native medicinal practices are often the only affordable and readily accessible treatment options (Bussmann *et. al.* 10). For these populations, readily accessible medicines are found in various plants and animals in the surrounding environment. The rural Quechua and Aymara Indians populations in Peru, for example, have their basic medical needs met by local traditional medical practices, and prefer these even when given the option to utilize modern medical practices.

Quechua and Aymara Views on Illness and Interactions with Modern Medicine

Even in rural areas where hospitals do not exist, modern medicine has influenced—even if only slightly—the understanding of causation of disease and the form in which medicines are taken (pills, injections, etc.) (Simmons 66). While the Quechua and Aymara Indians have altered the forms of some medicines and have acknowledged the modern causes of disease (bacteria, germs, etc.), they still adhere to a

theory of disease that "makes the maintenance of health contingent on the observance of the moral and religious imperatives of the society, and illness a retribution by supernatural forces for lapses in such observances" (Simmons 59). In this theory of illness, there are five main causes of disease, of which only two overlap into the realm of identified modern diseases.

The first cause of disease is believed to be severe emotional upset. *Susto* (fright) occurs when someone is startled by a loud noise or the presence of an unexpected person; it may also be caused by encountering a spirit (Simmons 61). Quechua and Aymara Indians believe that such encounters involve loss of the soul and result in symptoms of fatigue, loss of will, fever, nervousness, and diarrhea (Simmons 61). *Celos* (jealousy) is believed to be an illness caused by sibling jealousy when a newborn baby displaces the youngest child; it is characterized by temper tantrums, aggressive behavior, regression in eating or toilet habits, and annoying the mother (Simmons 61). *Pensión* is an illness brought on by grief due to separation from a loved one that is characterized by severe depression, irritability, inability to sleep, crying, and loss of appetite (Simmons 61). Other examples of diseases caused by severe emotional disturbances include: c*hucaque* (embarrassment), which is characterized by headaches, stomach upsets, pain in the abdomen, vomiting, diarrhea, fever, and chills; *colerina* (a fit of anger), that is characterized by severe stomachaches, diarrhea, vomiting and fever; and *sobreparto,* which is caused by anger or grief experienced by the woman during the 40 days after giving birth that is characterized by colic, fever, debilitation, and possibly instantaneous death (Simmons 61-2). Overall, illnesses caused by severe emotional upsets do not have equivalents in modern medicine.

The second and third causes of disease in Quechua and Aymara theories also have no equivalents in modern medicine. The second cause is believed to be contamination by persons who are "ritually unclean" (Simmons 62). An example is *el ojo* (evil eye), which occurs when a person glances strongly at a child and causes symptoms of constant crying, irritability, diarrhea, fever, loss of appetite, vomiting, and nightmares in the child (Simmons 62). Pregnant or menstruating women are "unclean" and can cause an infant to have *pujo* or *quiebra del niño* by picking him up; the child will then scream uncontrollably, heave heavily, and its belly button will invert (Simmons 62). The third cause of disease is believed to be exposure to *mal aire* (bad air) and is related to changes in temperature. Any sudden alteration in the environment can cause air to enter the body and get trapped; it then causes an illness called *aire*, which is characterized by a variety of vague symptoms that differ from patient to patient (Simmons 62).

Both the fourth and fifth causes of illnesses have some overlap with modern medical diagnoses. The fourth cause of illness in the indigenous belief system of the Quechua and Aymara Indians is the obstruction of the gastrointestinal tract, which prevents food from passing through (Simmons 63). *Empacho* is a gastrointestinal obstruction in children caused by the consumption of soft bread, green fruit, or half-cooked food; symptoms are depression, pallor, diarrhea, fever, a rash, vomiting, stomachaches, and loss of appetite (Simmons 63). Some modern diseases associated with illnesses believed to be initiated by gastrointestinal obstruction in Quechua and Aymara beliefs include chicken pox, measles, and smallpox (Simmons 63). It is thought that the fifth cause of illness is related to excess exposure to either heat or coldness. This emphasis on hot and cold is a "common thread that runs through all popular folk

medicine" (Simmons 63). Exposure to either can be through foods or environments—either literally or through innate characteristics of the item that do not correspond to thermal temperatures (Simmons 63). Quechua and Aymara Indians believe that health is maintained through a balance of both hot and cold, and a disturbance to the equilibrium results in illness that must be treated with the opposite temperature (i.e. if have excess exposure to heat, the patient must expose himself to cold items to regain the balance). Diseases caused by an imbalance in temperature may be fatal (Simmons 63). Some modern equivalents are the common cold, cough, influenza, pneumonia, tuberculosis, malaria, and arthritis (Simmons 63).

Although the indigenous populations of Peru primarily reject the scientific etiologies of illness, they are beginning to have some acceptance of modern science in their consideration of treatment options. Treatment approaches for any of the illnesses will include at least one traditional cure, but at times, modern treatments are also used (Simmons 64). Traditional cures include the extraction of the illness through ritual, chanting, cupping, calling the patient's spirit to return to its body, passing a live animal over the afflicted area in the shape of a cross, ingesting local herbs, praying, and rubbing a hot coal on the body so that the illness may pass into it (Simmons 64). Some of the modern medical treatments used in Quechua and Aymara practices include using infusions, inhalation techniques, injections, syrups, laxatives, enemas, and ointments (Simmons 64). When applications of local medicines or attempts to rid the disease do not work, Quechua and Aymara Indians will sometimes reach out to modern physicians as a last resort. It is rare for indigenous populations to reach out to modern physicians because they perceive that they do not understand their beliefs related to supernaturally

caused diseases. Essentially, modern medicine has no means to scientifically relate to the Quechua and Aymara Indian's illnesses. These are outside of the competence of the modern physicians (Simmons 64). Even if the physician were able to diagnose the disease in terms of scientific facts, the indigenous populations fear that the *remedios del medico* (doctor's remedies) would be ineffective or even aggravate certain illnesses due to the physician's inability to "know "and" believe" in the diagnosed indigenous illness (Simmons 67). Illnesses caused by severe emotional upset, ritual uncleanliness, and bad air, are all illnesses that doctors cannot understand, believe, diagnose correctly, or cure (Simmons 67). In general, only terminal illnesses caused by gastrointestinal blockage and thermally related diseases are brought to modern physicians. This is because the rural indigenous populations in Peru still consider their own theories of core illness as "more useful and adequate" than those described by modern medicine (Simmons 67-8). Even those indigenous citizens who have grown skeptical or even given up aspects of their popular beliefs, still believe in the core causes of illness (Simmons 68).

Regardless of the challenges between the two very disparate medical systems, when modern pharmaceuticals have proven effective, then the indigenous groups are willing to accept them as another means to treat illnesses (Simmons 68). Even then, indigenous patients use the modern medicine in conjunction with the traditional counterpart "regarding it as an additional measure for securing a successful outcome of the treatment" and still depend on the concurrent use of traditional home remedies (Simmons 68).

The realization that modern physicians do not understand the fundamental beliefs of indigenous societies while some modern medicines are helpful in treating disease

results in ambivalent feelings towards physicians. Attitudes towards doctors are marked by skepticism, suspicion, hostility, and a "grudging admission" that they may be competent in curing several illnesses (Simmons 69). On the other hand, modern physicians have also seen benefits in some traditional home remedies and have even begun prescribing their use (Simmons 69). Despite what might seem to be an open interaction between modern physicians towards traditional medical practices, there remains the belief that it is not possible to educate local populations about the scientific basis of disease and that attempting to do such would be "a matter of filling a mental vacuum of the uninformed" (Simmons 57). In fact, in one study, public health nurses practicing in a rural area noted a number of cases of severe gastrointestinal and respiratory symptoms along with emaciation, weakness, anemia, fever, and sweats that had been diagnosed as *susto* or *mal aire*—which are all classical symptoms of tuberculosis (Simmons 62-3).

Despite the strained relationship between traditional and modern medical practices in Peru, a new role has emerged that integrates the two. A druggist is a modern pharmacist who is knowledgeable of and open to popular beliefs that prepares both modern and traditional medicines to be consumed by indigenous and modern populations (Simmons 69). Examples of modern drugs that have proven to be "magic" in Quechua and Aymara cultures include penicillin and sulfa; while examples of traditional drugs used in the modern setting include a wide variety of herbal teas (Simmons 69). One case study on the acceptance of modern medicines in a traditional setting is the use of contraceptives in a small community of Quechua Indians.

Markita is a small, rural village in Cuzco, Peru that has no running water, bathroom facilities, electricity, or industry, but has access to modern contraceptives (Tucker 309). As a part of the government's attempt to improve health care to rural communities, a family planning program was begun in a nearby health post (Tucker 309). While there are 3,500 Quechua people living in the community and the average number of children per woman is 7.3, only 27% use any form of contraception (Tucker 308). Of that, only 24% use modern contraceptives, while the rest use traditional contraceptives based on drinking a "cold" tea to *enfriar* (make cold) the uterus so the woman cannot become pregnant (Tucker 308). Even though the health post provides modern contraceptives (intrauterine devices, injections, or the pill) at no cost, there are several barriers that prevent women from seeking these out. While the contraceptives are free, the consultation with the physician is not. Because it is a rural area in which there is not much economic prosperity, the people cannot afford the physician's fee even though it is minimal (Tucker 309). There is also a lack of publicity within the community about the effectiveness of the modern contraceptives. Speaking openly about contraceptives is taboo in this culture that values women for their procreational capacity (Tucker 314). Further adding to the problem, there is a tradition of blaming any stillbirths, deaths, or birth defects within the community on the use of modern contraceptives (Tucker 313). The high rates of illiteracy in rural areas contributes to the reluctance and embarrassment of the women who receive the modern contraceptives to openly discuss all of the information with the healthcare provider and they are unable to read about potential side effects or instructions in the proper use of contraceptives (Tucker 313-4). Unfortunately, the available hours for visiting the health post are in conflict with the families' work

schedules, further hindering them from learning more about or obtaining modern contraceptives. (Tucker 314). Overall, in rural areas, to be effective, government programs need to adjust their medical fees to be affordable for the community, extend the health post hours to times convenient for the community, and explain clearly the possible failures or side effects of medicines (Tucker 314).

Lessons for the United States

Much like Peru, the United States has fairly separate uses of modern and traditional medicines. Being a developed and modernized nation, the challenge will be to have a willingness to learn from immigrant experts who bring traditional medical practices into the country. From the situation in Peru, the United States should understand the challenges that the traditional belief systems must face, and be more open to traditional medicines for their potential in helping the patient have faith and security in his or her physician's abilities to both understand and treat him or her. Any attempt to change a patient's mind from their traditional core beliefs and practices in order to help them understand the scientific basis of their illness, would require "not only some knowledge of their traditional medicine but also, an assessment of its most receptive and resistant points with regard to modern medicine" (Simmons 57). Therefore, it is in the best interest of both patients and medical providers in the United States to have a basic knowledge of some of the traditional medical beliefs and practices, and to treat patients according to how they will best understand and prosper.

Chapter 3:

ECUADOR

Traditional Medicine in Ecuador

Herbal folk remedies are a part of Ecuador's popular medical practice (Miles 206). Knowledge of traditional medicines—especially in the form of home remedies—crosses all class and ethnic boundaries (Miles 206). Many people have small herb gardens outside their homes or purchase medicinal herbs at local markets (Miles 207). Common home remedies treat indigestion, headaches, and nervousness (Miles 207). Despite the widespread use of household folk remedies, the medical culture of Ecuador is pluralistic in nature (Miles 207). This is not unusual for Latin American countries where there are a wide variety of interactions between the traditional and modern medial practices.

In Ecuador, although modern medicine is the predominant medical choice, much like in Peru, the public medical system is overburdened by demand for services and is primarily located in urban areas too far way from many communities (Miles 209). This serves to increase common household knowledge and acceptance of the use of herbal medicines. Furthermore, the general culture in Ecuador is quite open to traditional remedies. For Ecuadorians, modern medical science represents the accomplishments of man, whereas traditional remedies represent the work of nature (Miles 219). Despite the openness to relying on traditional herbal remedies within the home, the indigenous lowland Indians who represent the living repository of such traditional knowledge are viewed as unenlightened, uncivilized savages by much of the populous (Miles 220).

Regardless of how they are perceived, their knowledge of both the supernatural and natural worlds is recognized as outside the realm of modern science (Miles 220).

Another difference between the perception of modern and traditional medicines is the belief that modern medicines are primarily preventative whereas natural medicines are curative (Miles 215). Since a large percentage of the population in Ecuador has extremely limited economic resources, most individuals are more interested in curing symptoms rather than preventing them (Miles 215). Furthermore, some modern physicians and pharmacists have taken advantage of this appeal to traditional remedies by marketing themselves as being from areas such as Cuenca, Ecuador—where the most powerful indigenous healers reside (Miles 206, 209). Despite attempts to market traditional medical services or products, the majority of Ecuadorians who utilize natural medicines do so independently without the input of professional guidance (Miles 211). This may be due in part to the fact that the many Ecuadorians who use natural medicines are impoverished and cannot afford physician fees or modern pharmaceuticals, but instead rely on the advice of store-owners when purchasing natural medicines (Miles 212). Even with receiving opinions from several different store-owners who claim to know which remedies are the most effective, there is no way to verify credentials of people who claim to have training in alternative medicinal practices, nor are there schools that teach a uniform approach to the use of alternative medicines (Miles 209). Unfortunately, self medicating without professional guidance from a physician or pharmacist leads to using combinations of medications that may be potentially harmful (Miles 211). Despite these possible untoward consequences, the use of natural medicine

thrives via self-medication and consumer shopping in friendly environments where storekeepers offer advice (Miles 216).

Patients choose natural medicines because they are less expensive and are thought to be "detoxifying" as opposed to modern medicines, which are pricey and considered to be "polluted" (Miles 208, 219, 221). People regard natural medicines as being safe, inexpensive treatments for medical problems that modern practices have not effectively dealt with (Miles 221). Many believe that natural medicines are so safe that they lack any side effects: "natural medicines target the illness and don't harm anything else" and "if it doesn't help, then it won't hurt either" are a few of the mindsets when purchasing and using alternative medicines (Miles 217-8). In some natural stores in Ecuador, shopkeepers sell vitamins touting the principle that if one helps, then two or three would be more effective (Miles 217). Generally though, natural medicines are still not seen as more effective than biomedicine, but rather as a healthier, safer, less expensive alternative to treat symptoms at home (Miles 217).

Choosing modern medicine over traditional medicine is largely based on economic prosperity, proximity to large cities, and formal education (Landy 107). This is because modern physicians work in private practices within cities (Miles 209). It is also interesting to note that in Ecuador, there are some traditional medicine doctors working within the urban areas promoting and selling natural remedies (Miles 209). These doctors are knowledgeable in natural medicines and are popular among indigenous communities for their recognition of the wide range of chronic non-incapacitating diseases "for which modern medicine can prescribe no specific remedy" (Landy 107). Mundane illnesses or those believed to be of supernatural origin are generally treated

with common remedies at home, while the more critical and incapacitating diseases not considered to be of supernatural origin, that did not respond to home remedies or a folk curer, are referred on to modern physicians (Landy 107).

In rural areas, the folk curer is sometimes able to realize when an illness is beyond his or her curing capacities (such as in terminal cases) and then refer the patient to a modern physician. This ultimately "enhances the curer's position in the local community while discrediting competition from modern medicine" when the patient dies (Landy 119). Regardless, both modern and traditional medicinal practices are essential to meet the health needs of Ecuadorians (Landy 108). Although modern biomedicine is the primary medical choice in Ecuador, natural medicines have made significant inroads into not only the medical culture of Ecuador, but also elsewhere as "people are coming from all over the world to be healed by these natural products" (Miles 220).

Mass Marketing of Natural Medicines

Cuenca, located in the southern Andes, is the third largest city in Ecuador (Miles 208). Cuencanos depend largely on the agricultural products produced in rural parts of the city (Miles 208). The upper-class citizens admire the products produced rurally and the medical folklore that comes with it, as long as the indigenous populations keep out of the city (Miles 209). As is elsewhere in Ecuador, modern biomedicine is the preferred choice of the urban elite, and it carries with it a higher prestige and a symbolic appeal to the poorer classes (Miles 218). Although some modern medicines such as injectable drugs have proven their use in the poorer classes, there is not a complete faith in all that modern medicine has to offer (Miles 219).

Marketing strategies and global commercialism are influencing even the most rural populations in medical decision-making (Miles 206). With many options available in natural medicine stores, the lower classes who often felt they had little to no control over their healthcare choices are able to pick and choose among hundreds of different products. Overall, natural remedies are gaining popularity because they are less expensive and more accessible than modern medicine, allowing greater patient participation and control in the selection of treatment options without requiring a costly professional consultation or prescription. Currently, packaged blends of traditional medicines are perceived to be harmless, so consumers feel they have little to lose by trying out different products (Miles 211). Some common herbal remedies sold in local stores are *sangre de drago* (dragon's blood), *uña de gato* (cat's claw), and *timolina* (a flower water), which are associated with alleviating common ailments (Miles 210, 213-4). Along with others, these products are so popular in Cuenca that there are several retail outlets in the central shopping district where they can be purchased (Miles 212).

Although there are medical practitioners within Cuenca who use locally produced alternative remedies, these are generally only accessed by the higher classes while the most readily accessible forms of natural remedies are those produced and packaged outside of the area (Miles 207, 211). These products are converted from their natural form into pills and tonics, which conveys the impression that they are modern pharmaceuticals. These repackaged products are sold in shopping districts or by traveling salesmen in rural areas (Miles 207).

In one shopping district in Cuenca alone, there are 13 stores that sell primarily natural medicines (Miles 212). The Mendez couple, both modern physicians, introduced

the first three stores to the area; their customers were attracted by their knowledge of biomedicine, which helped to legitimize their stores' products (Miles 212). The pair gives free advice to customers as to which natural products their symptoms might best respond to. The other ten stores in the historical shopping district of Cuenca are "purely commercial ventures where the owners and clerks have no formal training in medicine of any kind" (Miles 212). Many clerks and shopkeepers are thought to misinform their customers regarding possible diagnoses or the potential effectiveness of different products. This may be due to their lack of medical training or their desire to sell more expensive products to customers who are only marginally literate in Spanish and are unable to understand the packaging product description (Miles 218). Many products' descriptions are written in English or Chinese and are explained to shopkeepers by tourists (Miles 218). Despite the tendency to at times be less than honest to make a profit, most shopkeepers will openly admit that they have little to offer over modern medicines for serious illnesses or infections (Miles 216-7).

Regardless of the possibility of being convinced to buy a more expensive product, poorer Cuencanos still regard the natural medicine stores as being more personal and friendly than the remote, authoritarian biomedical system (Miles 221). An actual diagnosis from a physician would be costly, while visiting a natural medicine store allows customers to talk with shopkeepers and other customers about their symptoms, to compare common complaints, and to share suggestions in a supportive environment (Miles 221). Customers become "patients" who are in control of the therapeutic process; in fact, some customers have been known to negotiate prices of medicines (Miles 215). Overall, natural medicine stores allow patients to be in charge of their treatment of

symptoms, to have choices in their medical care, and to acquire advice and gain support from other customers and/or shopkeepers (Miles 221).

Customers normally go to traditional medical stores for a variety of symptoms. The most common reason people use natural medicines is to treat simple but non-debilitating diseases such as acne and other skin problems, varicose veins, and headaches (Miles 215). In these cases, customers reported that "the problem was not troubling enough to consider paying the consulting fee charged by most allopathic physicians" (Miles 215). The second most common reason to use natural medicines is to treat non-life-threatening chronic diseases that interfere with the activities of daily living yet either did not respond to modern medicines or other home remedies or they worsened in response: such as arthritis, sexual dysfunction, kidney problems, and anxiety (Miles 215). Finally, the last common group of customers to use natural medicines have terminal conditions that did not respond to expensive modern medical treatments, and are looking for less expensive medicines to relieve their suffering: such as in the case of cancer or organ failure (Miles 216). Regardless of the reason patients seek natural remedies, natural medicine stores offer a hybridization between traditional natural medicines and modernized packaging that often bundles popular combinations of drugs together (Miles 216). Because of the high demand for these products by a variety of consumers, there is a growing industry of producers, processors, and marketers that provide the global commodity of natural medicines to populations around the world (Miles 220).

Unique to the situation in Ecuador is how traditional natural medicines are packaged and produced to imitate the appearance of biomedical pharmaceuticals (Miles 218). It is a powerful tool that natural medicine promoters use to play out themes of

modern elite Ecuadorian life so that the products appeal to the poorer citizens. By putting traditional herbal remedies in pill form, natural products become validated through using the symbols of modern medical science (Miles 218, 221). Also, natural medicines "resonate ideologically" with poor and rurally bred Cuencanos who have roots in indigenous societies that produced natural remedies (Miles 221). Natural medicines "take science, the cultural symbol of the elite and powerful, and use it to validate the natural world of the peasant farmer and rural dweller" (Miles 221). Overall, selection of natural medicine is based on price, packaging appeal, and authoritative appeal (Miles 218). It is in this blend of traditional medicines in modern medical forms that make the natural medicines so appealing to consumers both in Ecuador and worldwide.

Lessons for the United States

Unlike the situation in Peru, which had nearly non-existent interactions between traditional medicines and modern medicines (or when there were interactions, they were filled with tension and skepticism), in Ecuador, the interactions are nearly always based on the healing properties of medicines—be it natural remedies or biomedical remedies. Although the people who harbor the knowledge of natural medicines in Ecuador are shunned, their medical practices have gained huge popularity and have helped many people. Similarly, production of over-the-counter and alternative remedies is increasing in the United States. It is important to recognize the people from which the knowledge has come, in order to fully capitalize on their knowledge of natural treatments that may be beneficial in treating symptoms of non-terminal chronic diseases. Another reason to understand the culture from where traditional medicines originated, is to know where their medical treatments are lacking, so as to know the dangers of different drug

interactions, as well as providing modern medical knowledge back to the indigenous culture.

Chapter 4:

CHILE

Traditional Medicine in Chile

The World Health Organization reports that 71% of the population in Chile uses traditional medicines (Bussmann *et. al.* 10). Despite this statistic, it is interesting to note that the healthcare services are apparently similar to those in most other developed countries—with a focus on modern medical care that is highly specialized and hospital based (Navarro 103). Although health indicators reveal a developed country, approximately 40% of the population remains impoverished with 13% in extreme poverty (Reichard 81). Not only is there a mal-distribution of resources by social class, but there is also one between urban and rural areas (Navarro 101). The indigenous Chileans that harbor the traditional medicinal knowledge are the Aymara Indians who reside in the northern part of the country and the Mapuche Indians who live in the southern half of Chile (Reichard 81). North American corporations have exploited the natural and mineral resources of the rural Indians so extensively that they are being driven out of their lands into urban areas (Waitzkin 236). Not surprisingly, the main causes of death in Chile are malnutrition and infectious disease (Navarro 103). The best strategy to combat these problems would be to focus more on rural, community oriented healthcare that would give greater priority to traditional environmental health services and preventative care (Navarro 103).

Mapuche Integration in Modern Medicine

The Mapuche are Chile's largest indigenous population with 900,000 people accounting for 5% of the country's nearly 17 million (Shallat). The Mapuche community

represents 87.2% of all of the indigenous populations in Chile (Estrada). Only 30% of the Mapuche still reside on their land while the remainder have been pushed out due to the exploitation of their natural resources (Shallat; Estrada). When the natural resources are taken or destroyed, their livelihood is obliterated and the Mapuche must migrate to urban areas to find work as maids or unskilled laborers (Shallat). The Ministry of Health Program for Health in Indigenous Peoples indicates that the Mapuche have differing leading causes of mortality and higher rates of infant death, reflective of an urban life marked by poverty, overcrowding, and job instability (Shallat). Because there are large populations of Mapuche in urban areas, their spiritual healers (called machi) are being incorporated into Chile's healthcare system to meet the health care needs of this indigenous community (Shallat).

Machis, which are nearly always women, work out of *rukas* (medical huts) preparing herbs from their gardens into infusions or other forms of medical treatments (Estrada). In urban settings, in return for natural remedies, the Indigenous Association of Chile pays small fees to the machi who run their medical centers (Estrada). The predominant focus of the machi work is not preparing medical treatments, but instead involves healing. This healing involves the simultaneous use of natural remedies from a variety of plants, and ritual remedies (Bacigalupo 177-8). Machis inherit their capability to heal from their *antepasados* (ancestors), in dreams, visions, and spiritual experiences (Shallat; Estrada). Health is believed to come from a harmony between mind, body, and spirit. Illness is thought to occur when this harmony is disrupted through feeling fear or when the soul encounters evil spirits (Shallat; Estrada). The approach to reestablishing health is through a balancing of the mind, body, and spirit, through dynamic therapeutic

processes that combine using medicinal plants, rituals, and sometimes "soul flight" during which the machi is possessed with spirits (Bacigalupo 178). In the urban settings in which they work, machi adapt to the changing needs of the Mapuche community by combining Catholic, modern medical, and traditional symbols in their healing practices (Bacigalupo 177). In doing such, they are able to incorporate the problems of modern life, identity, and psychological healing in ways that are effective and satisfactory to the problems that the Mapuche community faces in urban areas (Bacigalupo 177).

As machi *rukas* began opening up in urban areas, Chileans viewed their practices as exotic and marginalized, however, over a few years, the machi have adapted to modern influences to create a dynamic hybrid model of healthcare (Bacigalupo 177). People consult the machi for many types of illnesses including depression, AIDS, stress, colds, sexual dysfunction, and anxiety (Fundación; Bacigalupo, 178). Specific to the challenges facing the Mapuche who now reside in urban environments, the machi also treat trauma from loss of contact with their land, exclusion, loss of identity in coming to an urban area, discrimination, lack of independence made worse by poverty, and not being of value in society (Shallat). Before a patient can consult machi for free treatment, they must meet four requirements: they must have an identification card, fill out an informed consent form, be registered in the Chilean National Health Fund, and bring in a sample of their first urine of the day (Estrada). Machi are able to diagnose illnesses and classify their cause through swirling and examining the urine (Shallat). Overall, the machi have thrived in urban Chile through reinforcing ancient traditional medical practices while also adapting to treat illnesses related to modern life (Bacigalupo 177).

In 1996, the Chilean Health Ministry began a program to attend to the health needs of the nine indigenous ethnicities; as a direct result, in 2002, the Health and Indigenous Peoples Unit was created (Estrada). It is this program that led to the facilitated integration of Mapuche healers in urban settings. Currently, one-third of Santiago's 37 districts have intercultural health centers with machi in attendance (Shallat). In 2006, President Michelle Bachelet announced that Chile's first Mapuche hospital, the Intercultural Health Complex, was opened in Nueva Imperial (Shallat). This has been the most far-reaching project to date under the Health Ministry's Program (Estrada). This important project responded to the needs of the many indigenous Mapuche who have been forced off of their land due to industrial pine and eucalyptus plantations, construction, and pesticide spraying that led to a shortage of herbal remedies (Estrada). The promoters of the project were Mapuche leaders who worked for over a decade to integrate Mapuche medicine into the healthcare system in Nueva Imperal (Estrada). The building was provided by the state while the Southern Araucania Health Service provides the center with the financial resources to operate (Estrada). The Intercultural Health Complex is composed of a Mapuche medical center run by machi and other indigenous healers, along side a modern medical hospital (Shallat). Each day just over 60 patients—both rural Mapuche and some urban Chileans—seek treatment at the machi clinic (Estrada). This number is restricted, however, because the program is intended for the use of the vulnerable groups of rural Mapuche (Estrada). Regardless, as long as the Mapuche have primary access to the traditional health care, other patients are welcome as well. Some *rukas* claim to have a 50/50 mix of Chileans and Mapuche patients (Shallat). This suggests that Chileans embrace their mestizo heritage and that the

machi clinics are acting as intercultural facilitators (Shallat). Like many modern patients, one Chilean reached out to traditional machi healing because the modern pharmaceuticals "didn't do anything for [her] anymore" (Estrada). Although initially developed to care for the needs of displaced Mapuche from their lands, the machi clinics have gained popularity among urban Chileans. The current mission of the Intercultural Health Complex has evolved "to bring Mapuche traditions of healing to anyone who seeks it" (Shallat). Despite the fact that the machi clinic is side by side with the modern hospital, the two are far from acting as integrated partners (Estrada). Most Chileans who reach out to machi care refer themselves, and although machis continually recommend patients with terminal illnesses to the modern hospital for care, only one modern physician has referred a patient to the Mapuche clinic to date (Estrada).

The Chilean Ministry of Health hopes to see modern physicians and traditional machi working together for the mutual benefit of their patients who require both modalities of care as the rural areas become modernized (Shallat). Pharmacies are progressing toward this goal by offering several traditional remedies alongside modern medicines (Shallat). The top selling Mapuche inspired medicine is *palwen*, a Viagra equivalent (Shallat). Five Makewe Hospital pharmacies in Santiago, Valparaiso, and Concepción have incorporated Mapuche medicines in their inventories (Fundación). The initial hope in these pharmacies was to increase the population's awareness of natural Mapuche alternatives to modern medicines. Interestingly, the Mapuche medicines have become so popular that each year a pharmacy now earns approximately a $900,000 profit from the 54 natural Mapuche medicines it offers (Fundación). Because of the great demand for Mapuche medicines, a new line of cosmetics to improve skin quality using

herbal machi treatments has now been launched (Fundación). The Makewe Hospital pharmacies have received several national awards for promoting the quality of life for Chileans (Fundación).

Despite the growing popularity and use of traditional Mapuche medicine, there is a fear among the Mapuche communities that the traditional cures will be commercially altered to the point that they drift away from their natural ancestral bases (Estrada). These concerns are the greatest where there is the most contact between modern Chilean society and traditional Mapuche cultures (Bacigalupo 178). Still, the machi treatments are primarily concerned with the health of the Mache people—be it in facing challenges to their diminished territory within rural areas, or adapting to the challenges that urban Chile presents to Mapuche life (Bacigalupo 177). It may very well be the intercultural variation that has been key to keeping the machi healing practices alive in modern Chile (Bacigalupo 178). Because of the transformation of therapeutic practices and certain beliefs related to the pressures of modernization, modernized machi practices are those in greatest demand (Bacigalupo 178). For Chileans, machi treatments are in great demand because they are seen as alternatives to modern medicine and as complementary health resources (Bacigalupo 178). For the Mapuche, the adaptation of machi treatments to the modern world has created a greater specialization among machi that allows all of their health needs to be met: be it supernatural illnesses, challenges with integrating into the urban life, or other common diseases (Bacigalupo 177-8). Even though the Mapuche fear that their traditional medicinal practices will be threatened and ultimately obliterated from their ancient roots, it is unlikely that the machi will do much more than acknowledge and learn how to treat illnesses related to the pressures of modernity,

because the machi have “the highest degree of commitment to their culture” (Bacigalupo 178).

Lessons for the United States

Unlike the previous two countries, the example from Chile offers an example of modern and traditional medical practices working side-by-side. Although the Mapuche and modern medical practices in Chile have not completely integrated, this example offers a model for the United States to consider when initially moving towards integration between indigenous and modern medical practices.

Because the United States has such a large number of immigrants from Latin American countries that bring with them their indigenous medical cultures, beliefs, and practices, it will become imperative for the United States to learn to work alongside if not directly with these traditional medicines. It will be essential to validate those traditional practices that are favored and used among immigrants, and to learn how they can be beneficial to the treatment of immigrant patients in a modernized country. Overall, Chile represents a model for the United States to look up to as modern and traditional medical practices coexist peacefully. An important note from this model is that it takes both sides being patient and flexible when adapting to new roles. This will be an important lesson for the United States as it moves towards a greater interaction between modern and traditional medical knowledge.

Chapter 5:

MEXICO

Traditional Medicine in Mexico

Mexico is a third world country with many rural and impoverished areas. In these areas, people often are left to find treatments for their illnesses because there is limited access to modern healthcare facilities (Torres). Usually, people will rely on the traditional folk healers that had been providing care to rural Mexicans for centuries (Torres). Mexican folk medicine is based on the principle of health as a balance of hot and cold within the body (Ingham 76). The balance can be altered by foods or even good and back luck; the hot-cold contrast is more of a basic ideology than a literal description of thermal temperatures of objects (Ingham 78). For example, while the sun is literally hot, and water is literally cold, plants can be described as being either hot or cold depending on where they grow with respect to the sun (taller plants are closer to the sun and therefore "hotter") (Ingham 78-9). Illness is caused by an upset in this balance, with either too much hot or too much cold, and treatments are traditionally given through potions with the opposite characteristic of the disturbance (Ingham 79). Some examples of diseases caused by the disruption of this humoral traditional belief system are colds, pneumonia, and bronchitis (all caused by cold *aires* or drafts) (Ingham 79). Traditional medicinal practices cleanse the *aire* from the patient through passing hot herbs and an egg over the body while blowing smoke on the affected area (Ingham 79). Such practices of traditional medicine are not only the main healthcare source for rural areas, but are also evident in larger cities because they are ingrained into the culture and traditions of Mexicans (Torres).

In larger cities where traditional and modern medical practices collide, there are differing interactions. In Chiapas, Mexico for example, the minority indigenous groups feel there is a lack of respect for their customs and thus, have closed off their natural medical knowledge to modern medicine (Taylor A211). In other areas, no single type of medicine is preferred over the other, but instead both are adequate and acceptable in different circumstances (Whiteford 69). In Mexico City, modern and traditional medical practices overlap because several allopathic physicians routinely prescribe and use alternative curing techniques along with modern pharmaceuticals (Whiteford 72). An example of a combination therapy between modern and traditional medicines is the use of an anti-malarial local plant *Argemone mexicana* in conjunction with modern pharmaceuticals (Taylor A215). While many people believe in the modern medical explanations of the etiology of disease, it is considered to be just only one of the possible explanations of the disease and its possible treatments (Whiteford 70). Patients are able to pick among both traditional and modern treatments and explanations in an eclectic view of medicine (Whiteford 70). When a patient feels that the modern treatments are not alleviating symptoms adequately, they often turn to more traditional natural approaches to their healthcare (Whiteford 70). Mestizos are literally a blend of Mexican cultures and have a unique role as a cultural broker between both the modern Mexican cultural practices and the traditional medicinal practices (Landy 121). Overall, the lack of modern medical options in many areas along with the maintenance of tradition keeps traditional medical practices alive in Mexico.

Curanderismo

For the past several decades, Oaxaca, Mexico has had natural medical clinics alongside modern medical practices within the city (Whiteford 71). It is the major modern medical center for the region, with several dozen hospitals and clinics run by over 50 allopathic physicians (Whiteford 71). Of those, approximately 30 are specialized in practicing alternative medicines (Whiteford 71). Many of these alternative healthcare specialists fall under the category of *curandero* (healer); this category can be broken down into sub-specialties such as *espiritistas* (spritists), *hueseros* (bonesetters), *sobadoras* (masseurs), and *parteras* (midwives) (Whiteford 71). Curanderismo has roots in Aztec and Mayan medicinal knowledge of the healing powers of herbs and the healing process (Torres). There are three distinct aspects of curanderismo: first, health is regulated by a dynamic balance of energy in the body and when this balance is upset, illness ensues; second, diagnosing and treating patients is a lengthy process that is focused on each individual person as a separate case (office visits usually take twice as long and have far fewer medical tests ordered than by allopathic physicians); and third, treatments are able to be altered easily or used in conjunction with biomedical treatments (Whiteford 71-2).

Overall, individual patients are more open to trying whichever type of medicine is believed to be most helpful or appropriate for their symptoms—be it home remedies, *curanderos*, or allopathic physicians. Mexicans do not hesitate to try alternative options in their healthcare regimen (Whiteford 71). The appeal to utilize alternative medicines highlights their individualized approach to illness—where the curer works to understand how the illness is affecting the life of the patient and uses inexpensive natural remedies

that appeal to ancient Mexican traditions (Whiteford 71). Mexicans also reach out to modern medical treatments especially in cases of life-threatening or terminal disorders such as cancer, pneumonia, and cholera, yet do not discriminate or pretend to prefer one approach to healthcare more than the other (Whiteford 70).

Lessons for the United States

Interest in medical pluralism and complementary medicine is rapidly growing in the United States (Whiteford 69). A growing dissatisfaction with failures of modern allopathic medical models has sparked an interest in alternative medical approaches (Whiteford 69). Unlike the situation in Mexico, the relationship between modern and alterative medical practices in the United States is very limited and strained (Whiteford 70). Similarly to the situation in Mexico, patients in the United States are taking more control over their own healthcare and are actively seeking alternative approaches to meet their needs (Torres). Furthermore, with so many Latino and undocumented immigrants coming to the United States, it is important to realize that most are uninsured, unable to afford a decent health insurance, or unable to receive any insurance at all (Torres). Instead, they are either forced to rely on the charity of free health clinics or to reach out to traditional medicinal alternatives that were important in their cultures (Torres). Interestingly enough, a professor at the University of New Mexico teaches a course and proposes a way of incorporating Mexican traditional medicine (curanderismo) with modern medical practices in the United States. He invites local healers and health practitioners to the United States to discuss their integrated health practices (Torres). He provides an example from El Centro de Desarrollo Humano Hacia la Comunidad in Morelos, Mexico to serve as a model for an integrated system where village healers study

alongside modern physicians, nurses, and allopathic curanderos to learn about both traditional and modern medical techniques and practices, how to diagnose and treat simple illnesses, and to identify serious conditions that would require more extensive modern medical attention (Torres). This concept of fusing traditional and modern medical practices would be aimed to "deliver patient care according to the cultural needs and affordability for each person" (Torres). The difficult part of adapting this model in the United States would be attempting to bring traditional medical practices—like curanderismo—in line to "work in tandem with and supplement modern medical practices in the kinds of settings where people may not always have access to it" (Torres). In order for the United States to adopt this model, it would have to come up with a system of certification and training for the traditional healers that would then send them out to work in rural areas to help the poor who do not have access or means to seek out modern healthcare (Torres). In rural areas, lay practitioners would need to address community health, provide immediate care in emergent situations, and teach about prevention and general health education (Torres). The presence of such medical personnel in rural areas would save money within the system and help many people living in the United States. Overall, there is much to learn and be taken from the Mexican integration between modern and traditional medical practices.

Chapter 6:

CUBA

Traditional Medicine in Cuba

Cuba is an excellent example of a mutually beneficial healthcare system with integration between traditional and modern medical practices (Graz *et. al.* S8). Throughout history, Cubans have had a long tradition of treating common ailments with natural remedies (Kovaleski). The free health service, which is a constitutional right to all 11 million Cubans, benefits from Cuba's abundant supply of indigenous medicinal plants and knowledge of their uses (Kovaleski). Natural medicines are believed to be less toxic and also to provide important contributions to modern medical science; in fact, alternative treatments are used alongside modern treatments in a complementary manner (Kovaleski). Even if medicinal herbs are only used for their psychological placebo effect, they are viewed as beneficial to the health of the patient (Kovaleski). Despite the importance of traditional remedies, their application to treat serious illnesses is limited; this is because traditional remedies are aimed at treating symptoms rather than the underlying cause of the disease—at which modern medicine is aimed (Kovaleski). Regardless, alternative medicines are essential to Cuba's goal to improve the country's healthcare system.

The Health Ministry in Cuba has established a division of natural and traditional medicines in every province, with the goal to encourage a wider use of traditional herbal remedies throughout the country (Kovaleski). Each of Cuba's 169 provinces has a state-run clinic with pharmacies that offer traditional and natural medical services to its patients (Kovaleski). In the last few years, over 5 million Cubans have reached out to

utilize traditional natural remedies (Kovaleski). While the government justifies the value of traditional remedies in healthcare, going from the more technologically based modern medical system to integrating the seemingly less sophisticated approach of traditional remedies was a move taken out of necessity for Cuba (Kovaleski). The collapse of Cuba's soviet ally along with the protracted trade embargo from the United States (due to the fact that Cuba remained a communist country) created "dire shortages" of drugs, hospital supplies, and medical equipment needed to support a modern medical system (Kovaleski). These events forced Cuba to find alternatives for healthcare despite lingering skepticism about the effectiveness of natural remedies (Kovaleski). Cubans have overcome their initial skepticism and have embraced and institutionalized traditional medical practices into their healthcare system (Kovaleski). Now, 1 out of every 5 physicians in Cuba prescribes natural products to patients and interestingly, the overall life expectancy in Cuba is just one year less than in the United States (Kovaleski).

Cuban Internationalism and The Medical Education System

Most Latin American countries (and many developed countries) approach the "improvement of health through wealth" (Hush and Kirk 84). This mindset forms the basis of most modern medical systems and structural reforms to developing systems, instead of seeing healthcare as a right to the public (Hush and Kirk 84). Countries are led to believe that improvements in community health will improve with acquisition of increasing national wealth (Hush and Kirk 84). Unfortunately, this approach has been disappointing, leaving most Latin American countries unable to provide even basic healthcare to rural and poor areas (Hush and Kirk 84). Furthermore, it has led to the centralization of medical care with increases in medical care costs, and had a detrimental

impact on the quality of healthcare for workers and on the medical services available for disadvantaged populations (Hush and Kirk 84). Healthcare workers find themselves "forced into urban centers in order to repay the debts incurred through their education" (Hush and Kirk 84). Cuba has risen above this mindset, replacing it with the strategy to do more with less (Hush and Kirk 84-5).

Recognizing this problem in countries throughout the world, Cuba has outsourced its medical services without charge in an attempt to help countries seeking to emerge from underdevelopment and from medical systems that actually impede health (Hush and Kirk 84). In fact, Cuba provides "more medical personnel to the developing world than all of the G-8 countries combined" (Hush and Kirk 82). Cuban internationalism has provided and continues to provide aid to rural communities in Latin America and around the world (Hush and Kirk 81). Cuban assistance has had huge impacts in rural community health through the world; in some cases, patients were receiving medical care for the first time and with medical assistance from Cuba, infant and maternal mortality rates were reduced drastically (Hush and Kirk 81). Not only does Cuba outsource its medical personnel free of cost (Cuba continues physicians salaries along with a stipend while abroad), but it also routinely accepts foreign patients suffering from long-term debilitating or degenerative diseases that require complex treatments (Hush and Kirk 80). Although Cuba has made and will continue to make major contributions to the lives of millions of people living in underdeveloped areas around the world, it realized that to provide more effective long-term care, they should educate locals in medical care (Hush and Kirk 81, 83).

Cuban physicians while abroad began to train locals as nurses and medical aides. While this was a step toward improving the availability of healthcare in rural areas, it did not provide local physicians for the region (Hush and Kirk 82-3). Recognizing this need, Cuba began providing scholarships in 1998 for people from disadvantaged areas around the world to attend medical school in Cuba free of cost on the premise that they would over from Cuban medical staff working in their home countries (Hush and Kirk 83). Cuba opened the Escuela Latinoamericana de Medicina (the Latin American School of Medicine, ELAM) to train students in both modern and traditional healthcare practices with a focus on community medicine and the prevention of diseases (Hush and Kirk 84). Since opening its doors, Cuba has offered medical training to the poor, discriminated, rural, and underprivileged people around the world on a scale never seen before. Because ELAM graduates will have no debt upon graduation and have had ample exposure to community health in both rural and urban areas, it is likely that they will serve in rural communities around Latin America. Furthermore, as a direct consequence, Latin America will see increased access to healthcare in rural areas and improvements in health indicators in areas receiving aide from Cuban-trained physicians. Because Cuba has not only been successful in its endeavors to increase access to quality medical care in rural areas throughout the developing world, but also has spent much less per capita on public health than has the United States yet has similar or better health indicators, suggests that its medical education system should serve as a model for the global community at large (Hush and Kirk 85).

The basic objective of the Cuban medical educational model is to focus on community-oriented primary care through empowering locals to take on the

responsibility of their own medical system and healthcare (Hush and Kirk 84; Appelbaum *et. al.* 43). For example, unique to this Cuban community based approach to healthcare, are home visits to assess the health status of an entire family; these have been proven to be essential to health promotion and education in families and communities (Appelbaum *et. al.* 44). This focus on community participation and involvement was developed in Cuba due in part to the embargo by the United States limiting medical resources of vulnerable populations, and also due to the globalization in Latin America that created a dependence on costly technologies, a fee-for-payment approach to healthcare, and increased inequality and decreased accessibility in the poorer communities (Hush and Kirk 84; Appelbaum *et. al.* 43). Especially during the times of economic hardship after the embargo and in response to the needs of Latin American countries, Cuba began integrating natural and traditional medicines, which are more prevalent and less costly than allopathic medicines, into all aspects of healthcare in 1992 (Appelbaum *et. al.* 43).

As in most Latin American cultures, Cuba has a rich history of practicing traditional, natural, and folk remedies (Appelbaum *et. al.* 43). These were integrated into all levels of healthcare from clinical practice, pharmaceutical use, medical education, to medical research (Appelbaum *et. al.* 43). In the medical educational system in Cuba, medical students, residents, and practicing physicians are trained in both the theory and the practical application of using traditional and alternative medicines along with allopathic medicines in a complementary manner (Appelbaum *et. al.* 43-4). From 2002 on, all of the hospitals and roughly 86% of practicing physicians in Cuba use some form of traditional and alternative medicines—such as prescribing herbal remedies or offering acupuncture anesthesia for minor surgical procedures (Appelbaum *et. al.* 43). With a

patient to physician ratio of 159:1 and a medical student to patient ratio of 4:1 at ELAM, Cuba offers better training for and access to natural remedies (Hush and Kirk 86). Currently, part of the core curriculum at all of Cuba's 23 medical schools is the emphasis of complementary alternative medical practices alongside allopathic modern medical practices (Hush and Kirk 86; Appelbaum *et. al.* 43).

The Cuban medical school education is based on cooperation as opposed to competition, and requires six years to complete (Hush and Kirk 87). It is a rigorous curriculum during which the first two years emphasize pre-medical sciences and intensive language courses. All classes are taught in Spanish and many students come from marginalized regions of Latin America, Africa, and at times from the United States (Hush and Kirk 85-7). The last four years are focused primarily on family and preventative medicine—including traditional and alternative medical practices—within the context of the health of a community (Hush and Kirk 84-5). After the six years of medical school, all graduating physicians are "required to complete a two year residency program in *medicina general integral*, which is similar to family medicine in the United States" (Appelbaum *et. al.*44, 46). After this, physicians are either finished with their training and remain family practitioners and practice in underserved communities, or they further specialize through another three to four year long residency (Appelbaum *et. al.* 46). Although all physicians graduating from Cuban medical schools are well versed in the theory and practice of traditional medicines alongside modern practices, there is a four year long residency in natural and traditional medicine which offers physicians more advanced training in traditional techniques for diagnosing and treating patients (Appelbaum *et. al.* 46). Overall, while the Ministry of Health enlists the cooperation of

herbal specialists and some folk curers to work in unison with physicians, the responsibility of holding the knowledge of traditional and natural remedies and coordinating them with modern treatments, and the role of implementing them, ultimately belong to the medical doctors in Cuba (Appelbaum *et. al.* 45).

In Cuba, traditional medicines are viewed as a valid body of knowledge that is integrated into all levels of education; in fact, school children are routinely given a medicine plant to care for while learning about its medicinal properties, and every medical school professor must have training in natural and traditional medicines before teaching students (Appelbaum *et. al.* 45). Having so many individuals educated in the uses of traditional medicines is invaluable in the case of natural disasters, because even if access to modern medical equipment and resources is unavailable, traditional remedies can still be effective at a basic level of healthcare (Appelbaum *et. al.* 45). Therefore, being educated in the effective use of natural and traditional medicines as well as the implementation of its uses are central to the commitment of access to healthcare for all Cubans (Appelbaum *et. al.* 44). Although the integration of these medical practices into Cuba's previous technologically focused medical system was incredibly arduous and ultimately arose from the economic need to do so, it has led to a far better system of healthcare for not only Cubans but also other global communities receiving medical aid from Cuban physicians (Appelbaum *et. al.* 43-4). The medical education in Cuba is leading to a cohort of bilingual medical practitioners who are focused on family and community health, and are competent in using natural resources in medical treatments to be distributed around the continent (Hush and Kirk, 2007; Appelbaum *et. al.* 45). These skilled physicians are needed throughout the world and are capable of providing valuable

services for millions of rural, poor, and underserved peoples who need medical care (Hush and Kirk 88). Overall, despite the fact that Cuba is a poor, developing country, it has excellent health indicators and is providing exactly what modern healthcare systems should be to millions of patients around the world (Appelbaum *et. al.* 44).

Lessons for the United States

In the United States, presently only 75 of the 126 medical schools offer an elective class on the uses of traditional and alternative practices (Appelbaum *et. al.* 43). In 2005, the American Institute of Medicine released a report recommending that "medical schools incorporate information on complementary and alternative medicine into required medical school curricula, so that graduates will be able to competently advise their patents in the uses of traditional and alternative complementary medicines" (Appelbaum *et. al.* 43). Furthermore, the report states that the United States needs to look for models that successfully combine modern and traditional medical practices; the authors also suggest that Cuba is an ideal model that integrates them into all levels of clinical care and medical education (Appelbaum *et. al.* 43).

There is potentially much to learn from the Cuban model of integrated healthcare. Similarly to Cuba, the United States could benefit from incorporating information about traditional and alternative medicines into the standard curriculum for pre-medical education, medical school, nursing school, pharmacy school, and other allied health related professions (Appelbaum *et. al.* 43). This would ensure that healthcare professionals are competent in advising their patients in the effective uses of these alternative practices. This will be necessary in a time when the United States is incapable of providing affordable care to its often uninsured population including many immigrants

from Latin America who bring with them their beliefs in folk medicines. Physicians must be aware of and knowledgeable in the possible beneficial and harmful interactions between allopathic and traditional remedies.

Despite the consensus to understand these alternative practices at the educational level, there are many barriers and challenges preventing this from occurring. First, there is no consensus on when to include additional instruction on alternative medical practices in the already over-crowded four-year American medical school curriculum. Second, there is no agreement amongst professionals regarding the specific information that should be taught or even who would be qualified to teach it. This will necessitate scientifically supported research of traditional medical practices in order to determine drug efficacy as well as the cost-effectiveness as compared to modern conventional practices (Appelbaum *et. al.* 43). Specifically, a study "comparing health outcomes in a province where traditional medicines are very widely used by primary care physicians versus health outcomes in a province where traditional medicines are less widely used" could determine the specific impact of the integration of traditional medicines on overall health (Appelbaum *et. al.* 43). Performing such large-scale studies would require community participation and a long data collection process in areas that use traditional medicines and in areas with integrated systems (Hush and Kirk 88). Without published research findings, however, the Cuban claims that the integration of traditional medicines with modern medicines has lead to better outcomes for their patients cannot be confirmed at an appropriate level to initiate its adoption in the United States (Appelbaum *et. al.* 44). This is because the United States requires highly scrutinized, evidence derived, scientifically sound clinical studies as the standard criteria upon which decisions about

which information should be included in the healthcare educational system are made (Appelbaum *et. al.* 44-5).

Another challenge in the United States regarding the desire to more fully integrate alternative medical practices is the improbability that medical insurance companies will reimburse patients for expenses related to such remedies (Appelbaum *et. al.* 45). This is an important distinction between other countries and the United States. Where in Latin American countries traditional remedies are less expensive and therefore more available to poorer communities who purchase them directly in stores or grow them locally, in the United States, most consumers of traditional remedies fall into the middle to high economic classes (Appelbaum *et. al.* 45). Unfortunately, for the poorer economic classes in the United States that are located in rural areas similar to lower socioeconomic groups in other countries, they lack access to modern healthcare facilities. Unlike the poor in Latin American countries, in the United States alternative remedies are more expensive and are not grown here. This leaves the poor without access to healthcare of any kind. In 1998, the total out of pocket expenditures for traditional medical practices were $27 billion, and this number has slightly risen over the past decade (Appelbaum *et. al.* 44). The insurances' lack of reimbursement poses a "major impediment to the effective integration" of traditional alternative approaches into the modern healthcare system in the United States, which could be beneficial to low income and underserved populations (Appelbaum *et. al.* 44). Also, because so many low-income families cannot afford insurance or illegal immigrants cannot purchase insurance, there are over 50 million people in the United States without access to affordable healthcare (Appelbaum *et. al.* 44-5).

A final challenge to the integration of traditional medical practices in the United States healthcare system is a mistrust, ignorance, and suspicion cultivating a sharp separation between the allopathic medical practitioners and traditional and alternative medical practitioners (Appelbaum *et. al.* 47). Unfortunately, this creates a "fragmentation and incoherence" in the care of many patients who choose to use both medical practices concurrently (Appelbaum *et. al.* 45). Overall, the lack of a well defined curriculum or physicians with the appropriate credentials to teach traditional and alternative medical practices, the lack of research supporting the benefits of complementary medicines, the inability of poor populations to afford alternative remedies due to the lack of reimbursement and affordable products, and the stifled interactions between modern and traditional medical practices pose major obstacles to their integration within the United States medical system.

While Cuba is an important model for the combination of medical systems, there are some fundamental differences between the basis of the Cuban system and one that could work in the United States. For example, whereas the medical doctor is the facilitator of integration in Cuba, because of the disjointed interactions between traditional and modern medical practitioners in the United States, it is unlikely that physicians will take up this role of both learning about alternative medicines and learning how to implement them, or that traditional practitioners will defer to the knowledge of modern medical doctors (Appelbaum *et. al.* 45). Also, whereas the Cuban goal was to train medical doctors to be competent in practicing traditional medicinal techniques, the goal in the United States would be to train physicians to become competent in advising patients in the uses and interactions of traditional medicinal practices (Appelbaum *et. al.*

45). Despite these differences, Cuba remains an important model for the United States to take note of considering that it has addressed the issue of traditional medicines more effectively than has the United States (Appelbaum *et. al.* 45-6).

There are lessons to be learned from the Cuban model. The Cuban government mandate to integrate the education of natural and traditional medical practices in the medical educational curriculum was the first fundamental step in having a seamless integration between the modern and traditional healthcare systems (Appelbaum *et. al.* 47). If the American Accreditation Council for Graduate Medical Education and the Liaison Committee for Medical Education were to require education of scientifically supported evidence about traditional and alternative medicines in the United States, the goal of producing "a generation of physicians with enough knowledge to counsel patients effectively about alternative medical practices would be moved within reach" (Appelbaum *et. al.* 47). Also, if different lessons on alternative medicines were integrated at different levels into courses already being taught in the medical curriculum, the primary objection that there is not enough time or flexibility in the schedule to permit adding more information could be curbed (Appelbaum *et. al.* 47). By doing so, educating all future physicians in the benefits and dangers of using alternative medicines in conjunction with modern medicines would serve to meet the 2005 American Institute of Medicine's recommendation. Finally, if practitioners of traditional and alternative medicine were trained alongside other healthcare providers in the United States, this would foster a greater interaction and respect between the groups, and help to teach a foundational level of healthcare that could be drawn upon in rural and underserved areas of the United States. Overall, there is much to be learned from the Cuban integrated

healthcare system. In an era of medical pluralism, it seems that the United States' modern medical system will have to adapt to work in parallel with traditional and alternative healthcare practitioners (Appelbaum *et. al.* 47).

Chapter 7:

CONCLUSION

Overview

Traditional medical practices are often an overlooked aspect of healthcare that are nonetheless gaining popularity in the United States and around the world (Whiteford 69). Traditionally in the United States, the medical mindset has relied solely on the western medical model of disease causation, scientific and technologically based diagnoses, and treatment approaches. Despite this, with the enormous immigration of Latin Americans into the United States who bring with them their rich histories and beliefs in traditional medicinal practices, along with an increased global production and marketing of over the counter herbal remedies, interest in natural and alternative folk medicines has multiplied. In fact, in the United States, the number of visits to alternative medical providers has nearly exceeded the number of visits to family care physicians (Bussmann *et. al.* 10). The popularity of alternative medical practices is so great that approximately 42% of people living in the United States have used alternative medicines at least once, and the world market for traditional herbal medicines is valued at over $60 billion (Zhang).

Although the United States is among the top five nations in income, the infant mortality rates and longevity "place the U.S. at the bottom of the same list of westernized industrialized nations" (Reichard 80). Current problems within the healthcare system in the United States are plentiful, including: over 50 million citizens are uninsured or cannot afford healthcare; healthcare costs continue to rise; people in lower socioeconomic levels or in rural areas do not have access to affordable healthcare; and even though traditional medicines are becoming more accessible, healthcare insurance does not reimburse for

their use (Reichard 80). Regardless of these problems, traditional medicines are still gaining popularity and garnering respect amongst modern healthcare systems (Bussmann *et. al.* 10).

In order for modern medical systems to adapt to and integrate with traditional medical practices, research needs to be done to recognize effective herbal remedies and to identify models that have successfully integrated modern and traditional healthcare practices (Appelbaum *et. al.* 47). On this note, the World Health Organization has stated the importance of identifying effective medicinal plant species so that sustainable cultivation may be taught to the societies harvesting them—this will keep natural medicinal herbs protected from extinction before their efficacy can be proven (Bussmann *et. al.* 10). Furthermore, by examining the strengths and lessons learned from different societies grappling with the integration of modern and traditional medical systems, the United States may discover useful lessons to better approach to its own pluralistic system.

Lessons Learned

Through the examination of the interactions between modern and alternative healthcare practices in five Latin American countries, the United States may find a starting point to actively begin to adapt and integrate to the influences of traditional medical practices. Similarly to the situation in Peru, the relationship between modern and alternative medical practices in the United States is limited and tense. Also from Peru, it is important to realize that the modern healthcare system in the United States needs to be open to the uses of traditional medicines because they may have scientifically proven benefit someday, but if not, have at least a placebo affect for their users. Furthermore, in being open to natural remedies, the development of new modern

pharmaceuticals may be discovered. A similarity can also be seen between the situation in Ecuador and that of the United States: where the use of traditional medicines is catching on, even if they are only bought in stores by customers hoping to self-medicate their symptoms. It appears that many citizens in the United States are seeing the possible benefits of these medicines. The modern medical system should pay heed to the common uses of natural remedies, being cautious of their possible interactions (either beneficial or dangerous) with modern medicines.

Chile, Mexico, and Cuba all provide the United States with models of integration between the traditional and modern medical systems. In Chile, the interactions are the most distant in that the two systems acknowledge each other's presence and work in a peaceful coexistence. From the example with the Mapuche working alongside the modern medical centers, it is important for modern United States healthcare providers to be patient and open to interactions with alternative treatment options and to recognize their importance if only in the lives of their patients. Mexico also provides a model for the United States to learn from. Similar to the situation in the United States, Mexican patients are beginning to take control of their own healthcare by making decisions as to whether they reach out to modern or traditional remedies. The interactions between the modern and traditional healthcare systems in Mexico are more integrated than those in Chile. It is important to note that while immigrants to the United States come from all five of the Latin American countries examined in this thesis, most are from Mexico. Unique to the situation in Mexico is how ingrained traditional medical remedies are to the people—in that they remain closely aligned with them even in face of modern alternatives. Modern physicians in the United States will treat many patients from all of

these countries but many more from Mexico, and because these patients regularly practice using traditional remedies, physicians need to be well versed and knowledgeable about their potential benefit or detriment to a patients' health. Finally, Cuba gives the United States a model for where to begin integrating traditional medicine into modern medical practice. Despite the numerous significant differences between the countries, the integrative model of medicine practiced in Cuba challenges the United States to begin to integrate into the education of healthcare providers the cost effective, accessible use of alternative medicines in the care of its patients. It will also be important to develop a careful certification process for traditional medical practitioners to allow them to teach and use alternative remedies in this country. Whereas Cuba aimed to have physicians confident in both theory and application of traditional medical practices, the United States should aim to have physicians be knowledgeable enough to be able to advise patients on the interactions between alternative and modern treatments; and this should begin in the classroom.

Future Direction

Overall, in order for integration to occur in the United States between traditional and modern medical practices, research must first be done to identify the uses, cost-effectiveness, and outcomes of using traditional medicines, and then to study the possible interactions between different modern medicines and traditional remedies (Appelbaum *et. al.* 47). Furthermore, after learning from countries that share interactions between the two medical systems—such as Peru, Ecuador, Chile, Mexico, and Cuba—the United States should adopt practices that would be the most beneficial to their patient base. Ultimately, with the increase in demand for traditional remedies, emergence of research

based evidence of the usefulness of traditional and alternative medical practices, and openness towards these alternatives, the modern medical healthcare system in the United States should expect to see increased interaction with alternative practices and benefits for its patients in the future.

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