

2011

Communicating Health Care Options: Dominican Herbal Remedies in the Dominican Republic and New York City

Marisa K. Crommett
Colby College

Follow this and additional works at: <https://digitalcommons.colby.edu/honorstheses>



Part of the [Alternative and Complementary Medicine Commons](#)

Colby College theses are protected by copyright. They may be viewed or downloaded from this site for the purposes of research and scholarship. Reproduction or distribution for commercial purposes is prohibited without written permission of the author.

Recommended Citation

Crommett, Marisa K., "Communicating Health Care Options: Dominican Herbal Remedies in the Dominican Republic and New York City" (2011). *Honors Theses*. Paper 619.
<https://digitalcommons.colby.edu/honorstheses/619>

This Honors Thesis (Open Access) is brought to you for free and open access by the Student Research at Digital Commons @ Colby. It has been accepted for inclusion in Honors Theses by an authorized administrator of Digital Commons @ Colby.

**Communicating Health Care Options:
Dominican Herbal Remedies in the Dominican Republic and New
York City**

Marisa Crommett

Honors Thesis

Science, Technology and Society

© 2011

Abstract

As the second largest minority group in New York City (NYC), the population of Dominican immigrants continues to increase. Their participation in the conventional health care system, however, remains low. Many barriers exist that discourage Dominicans from seeking conventional biomedical treatment and encourage their reliance on traditional healing practices. Dominican traditional medicine has potential to contribute to the urban health care system in NYC, but more research is needed on the safety and toxicity of ethnomedical remedies and practices. Without efforts to recognize immigrant-healing traditions in the urban setting, tensions between the conventional and alternative medical systems will persist. It is important to preserve Dominican medicinal plant knowledge in order to sustain the cultural identity and improve the health of the Dominican community in NYC. This paper will discuss how increasing communication between conventional and traditional systems can promote the health of the Dominican population in NYC and by extension support the theory and practice of alternative therapies.

Table of Contents

Introduction.....3

The Roots of Dominican Plants: Preservation and Migration of Medicinal Plant Knowledge.....5

 Dominican Population in NYC

Experiences in the Field.....15

 Dominican Republic

 New York City

The Best of Both Medicines: Healing the Tensions between Health Care Options.....23

Final Thoughts.....38

Appendix: Dominican Medicinal Plant Inventory.....40

References.....44

Introduction

“Ustedes saben mejor que yo” [You know better than I do]. The patient uttered in Spanish. The rest of the time he spoke a mix of Spanish and Creole. I, as interpreter for a medical mission in the Dominican Republic, spoke Spanish with an American and Argentine accent. To say the least, we relied mostly on gestures and repetitions. As he clutched his back and complained of kidney pain, I searched my brain for the cultural differences that the Peace Corps volunteers had outlined for us interpreters unfamiliar with the culture. I then translated to the nurse that he suffered from back pain. The nurse offered him core exercises, proper lifting techniques, and *calmantes* (pain killers). To all of these suggestions, he responded the same, “Ustedes saben mejor que yo.” This insinuated that we were of superior status. Whether he felt that way towards doctors, Americans or white people, I was not sure. When we would ask him basic questions regarding his diet, digestion, and sleeping habits, he reacted, “Ustedes saben la situación de nosotros en este país.” (You know our situation in this country).

'Our situation' referred to Haitians in the Dominican Republic, a population that suffers immensely from discrimination and poverty. Why doesn't he return to Haiti and his family? Since the earthquake and more recently, the devastating cholera outbreak, he has not spoken with them. According to him, leaving the DR for Haiti would not improve his quality of life. Soft-spoken, polite, and incredibly patient, he complied by mimicking our attempts at teaching him core exercises. Too many nose crinkles later, a Dominican reflex that signifies “I don’t understand”, I resorted to showing him with my own belly how to "make ourselves skinny", or stabilize our core. To this, his friends outside shared a giggle and my new friend flashed his flawless smile. We gave him vitamins, painkillers, a toothbrush and toothpaste and told him to treat his back the same way he does his perfect teeth.

By advising the Haitian patient to bend his knees when lifting heavy loads and to tighten his abdomen as he works with his machete, the doctors predict that he will be able to work an extra decade or two. What we did not need to teach him was to care for his teeth. Having visited the clinic in the past and been told how to care for them, he had better teeth than either of the doctors or me. Most importantly, knowing that he meant back pain and not kidney pain, allowed for rewarding care. Through culturally congruent care, we can provide long-term benefits for patients. Further, this strategy of increased cultural awareness can be applied to the reality of immigrant patients from the Dominican Republic in the health care system of the United States.

Two-weeks with the medical out-reach mission provided me with insight into the medical knowledge and common health practices of Dominicans. To communicate effectively as an interpreter, I had to consider cultural differences. In fact, the divergences in the health care notions and practices of the people in the Dominican Republic sparked my interest in their traditional medicine, a system strongly based off of herbal remedies. While the Haitian patient did not mention any use of traditional medicine, with a lack of health care options, he depended on self-diagnosis and self-treatment. Upon return, my curiosity led me from the Dominican Republic to New York City, home of the largest Dominican population in the United States, to investigate the health care status of the Dominican immigrant population in New York City. How does the Dominican population in NYC adjust to varying notions of health and illness? Does the health care status of Dominicans in NYC reflect a clash in health care preferences?

Like the Haitian patient in the DR, the Dominican population in NYC depends on self and in-group care. Due to a number of factors, Dominican immigrants tend to avoid participation in the conventional health care system. To understand the tensions between Dominicans and the health care system in NYC, it is important to understand certain background information regarding the origins of the Dominican Republic and the cultural significance of their traditional

medicine. Secondly, I will explore studies regarding the efficacy of Dominican medicinal plants and their uses to provide an understanding of the current use of Dominican traditional medicine in the Dominican Republic and in NYC. Next, I will detail personal experiences in the DR and NYC to illustrate the diffusion of medicinal plant knowledge and the current cultural and medical dependence of Dominican populations on herbal therapies. Then, I will discuss the existing tensions between conventional and alternative health care systems in the DR and NYC and the detriment of these tensions to the health of Dominicans. Finally, I will argue the importance of increasing communication between these two systems to improve health care options. A promising outlet for increasing communication between the conventional health care system and Dominican traditional medicine in NYC is the *botánica*, a Latino herb and spiritual shop.

The Roots of Dominican Plants: Preservation and Migration of Medicinal Plant Knowledge

When tossing and turning do you ever drink chamomile tea to help you sleep? What about the stomach ache that only settles with some ginger ale? After spending that first sunny spring day outside, does anything ease the pain of a sunburn better than aloe? We all use home remedies, we simply fail to realize how these remedies stem from traditional herbal medicine, or how they have potential for toxicity, contraindications, and harmful drug interactions. These three common medicinal plants, chamomile, ginger, and aloe (*manzanilla, jengibre, y sábila*), make up a small portion of the traditional herbal medicine of the Dominican Republic.

Reflecting the cultural history of the island, the traditional medicine of the Dominican Republic encompasses notions that stem from diverse ethnic and religious origins. Dominican traditional medicine blends principles from the Taíno indigenous, African, and European traditions, including aspects of Catholicism, African tribal practices, and the indigenous heritage

of the island.¹ Since the Caribbean houses a diverse array of healing practices, traces of these various belief systems can be found in Dominican traditional medicine. In some respects, such as the treatment of expelling bad spirits, Dominican traditional medicine can be comparable to Santería, the Afro-Caribbean religion closely tied to medicinal healing practices. According to Laguerre's Afro-Caribbean Folk Medicine, a classic in Caribbean ethnomedicine, the way a society defines illness determines the healing practices.² Socially, Caribbean societies tend to self-treat or seek care from family members, close friends or neighbors. Spiritually, one must have complete faith in the model for it to heal the illness.

The rich complexity of Dominican traditional medicine continues to involve many concepts with a variety of spiritual and social roots. In terms of spiritual roots, Dominican traditional medicine consider healers, or “curanderos”, as not only having a wealth of knowledge concerning medicinal plants, but also as having innate spiritual abilities, even powers to heal. Since Dominican patients seek traditional advice from healers for spiritual and physical health reasons, when seeking solely spiritual advice, they will ask a *brujo*, an expert at addressing issues such as bad luck and relationships.³ Brujos often use *ensalmos*, prayers or psalms, baths, and amulets as well as communicate with spirits that guide their healing to target specific illnesses. This type of healing is referred to as vodú. A midwife, or *partera*, represents another type of traditional practitioner who works within this complex healing system. *Parteras* utilize

¹ Ina Vandebroek, Michael J. Balick, Andreana Ososki, Fredi Kronenberg, Jolene Yukes, Christine Wade, Francisco Jiménez, Brígido Peguero & Daisy Castillo. “The importance of botellas and other plant mixtures in Dominican traditional medicine.” *Journal of Ethnopharmacology* 128 (2010): 20.

² Michel S. Laguerre, *Afro-caribbean Folk Medicine*. (Massachusetts: Bergin & Garvey, 1987), 4.

³ Andreana L. Ososki, “Ethnobotany of Rural and Urban Dominican Republic: Medicinal Plants, Women, and Health.” (PhD diss., City College of New York, 2004): 106.

many of the different healing practices of Dominican traditional medicine including medicinal plants, massage, prayers, and baths.

The social roots of Dominican traditional medicine concern the in-group knowledge that families pass down through generations. A less formal, professionalized experience, Dominicans knowledgeable in traditional medicinal remedies will treat their family, neighbors and close friends. Traditional healers almost always know their clientele. The social experience of Dominican medicine exists in NYC; however, traditional practitioners must also work with unfamiliar clientele. The foreign practices, notions, language, and unfamiliar faces associated with the biomedical system warrants the lack of trust of Dominicans in this system.

Unlike biomedicine, in Dominican traditional medicine, the concept of balance is central to a person's health. To maintain and restore balance, traditional remedies function to eliminate illness or evil spirits. Cleansing the body, or *limpieza*, restores balance. *Limpieza* refers to the purging of different organs of the body to rid the person of illness. Examples of *limpieza* include coughing, diarrhea, or sweating, all states that excrete illness or evil spirits from the body. According to Viladrich, Latino practitioners use *limpias* to purify, heal, and relieve both body and soul from negative influences while attracting positive ones.⁴ To induce these states of cleansing, Dominican patients use specific *botellas*, popular Dominican herbal preparations, targeted towards the illness.

Experts at preparing *botellas* are known as *botelleros*. Botelleros devote a lot of time to collecting necessary plant and non-plant ingredients to prepare their remedies. They can differentiate between plants with facility and often aid laypersons in making distinctions.⁵ With a breadth of knowledge regarding the preparation and use of medicinal plants, botelleros advise

⁴ A. Viladrich, "Botánicas in America's Backyard: uncovering the world of Latino healers' herb-healing practices in New York City," *Human Organization* 65 (2006): 415.

⁵ Ososki, "Ethnobotany of Rural and Urban Dominican Republic," 106.

patients. Patients come to them with issues and they recommend a specific treatment. Unlike healers, yet similar to a pharmacist, botelleros do not diagnose patients.

The *botellas* vary immensely in terms of single plant and multiple plant remedies. A study conducted in the Dominican Republic discovered at least four types of botellas that treat different health conditions. The first botella consists of a mixture of “crude woody plant parts steeped in alcohol” and is known as *botella mamajuana*. This botella presumably aids in increasing libido and treating sexually transmitted diseases and kidney problems.⁶ A *bebedizo*, the second type of botella, consists of several plants prepared with spices. These often consist of roots but can also include different species as well as non-plant ingredients and treat reproductive health conditions. The third type, sometimes referred to as *aceites*, mixes animal and plant oils. As a juice mixture that combines raw vegetables and fruits with honey, the fourth type of botella is termed *jarabe*. Aceites and jarabes commonly treat ordinary respiratory illnesses, such as the common cold, the flu, or bronchitis.

While the *botella* symbolizes the informal medical system, the Dominican health care system relies primarily on conventional medical systems, involving hospitals, clinics, pharmacies, insurance companies, and medical programs at universities. The health care system consists of three public health delivery systems that function to cover eighty percent of the population, yet in reality; it only extends to forty percent of the Dominican population. These three systems include the Secretaria de Estado de Salud Pública y Asistencia Social (SESPAS), the Instituto Dominicano de Seguros Sociales (IDSS), and the Instituto de Seguridad Social de las Fuerzas Armadas.⁷ The first system provides public health care and social assistance to the

⁶ Vandebroek, “Importance of botellas,” 25.

⁷ L.M. Babington, B.R. Kelley, C. A. Parsdaughter, R.M. Soderberg, and J.E. Kelley, “From recipes to recetas: health beliefs and health care encounters in the rural Dominican Republic,” *Journal of Cultural Diversity* 6 (1999): 21.

general Dominican population. The second covers individuals and their dependents with social security, and the third system offers coverage to the armed forces.

The government runs these three systems. Due primarily to underfunding and overconcentration in urban centers, these systems fail to provide adequate health services and can be characterized by “inadequate or inoperable medical equipment, high physician turnover, lack of civil services, poorly maintained facilities, and lack of necessary medicines.”⁸ Babington (1999) describes the poorly maintained facilities and underfunded programs associated with the health system as having led to the substandard health care in the DR. The data suggests that Dominicans find it problematic that the folk beliefs fall outside of the conventional biomedical domain. Since health in Dominican traditional medicine reflects the physical, emotional, psychological, social and spiritual well being of the patient.⁹ The poor funding and appreciation for the biomedical system in the Dominican Republic has led to the reliance on traditional medicine by those who lack access to the biomedical system.

Dominican Population in NYC

The reliance of Dominicans on traditional medicine extends to the Dominican population in NYC. Second to Puerto Ricans, Dominicans represent one of the largest migrant populations in NYC. Studies indicate that a paradox exists when Latinos arrive to the United States healthy, but over time, their health status deteriorates. This decline occurs because of lack of health care, health information, economic means, proficiency in the English language, and lastly, trust in the biomedical system.¹⁰ Too often these barriers hinder Latinos from seeking appropriate

⁸ Babington, “From recipes to recetas,” 21.

⁹ *Ibid.*

¹⁰ Isabel C. Garcés, Isabel C. Scarinci, and Lynda Harrison. "An Examination of Sociocultural Factors Associated with Health and Health Care Seeking among Latina Immigrants." *Journal*

biomedical treatment. Among Latino immigrants, this paradox leads to an increased use of traditional knowledge and medicine to treat illness.

The wealth of medicinal knowledge of Caribbean and further, Latin American medicine is detailed in Duke's Handbook of Medicinal Plants of Latin America. This handbook contains 500 of the most well-researched and widely known plants in Latin America. Supplying common names in a variety of languages and from various countries, this handbook represents an essential resource for Latinos who rely on traditional plant remedies. An exhaustive list of synonyms accompanies each plant species, both relevant and outdated names to facilitate the reader in identifying the plant. In addition to vernacular names and synonyms, the guide presents notes, activities, indications, dosages, side effects, natural histories and many illustrations. When an illustration or picture is absent, the guide directs the reader to other sources and page numbers where it can be found.

The extensive research that went into this handbook demonstrates the importance and relevance of this information to current practices. Offering information on 500 plant species, the book notes that “100, 000 of the world’s 300,000 known species of plant” can be found in Latin America.¹¹ With a plenitude of common names, this handbook should serve as a guide for facilitating the relationship between the Dominican patient and practitioner regarding reliable information on safety and efficacy of plant use. However, this book does not cover all of the plant species in the Dominican Republic, leaving room for more research and clinical trials on their medicinal properties. This book demonstrates the immense medicinal knowledge and properties in Latin American ethnobotany, marking the importance of preserving this knowledge as well as the potential for medical advances. In the Caribbean, as each island and several

of Immigrant and Minority Health 8.4 (2006): 378.

¹¹ James A. Duke, Mary Jo. Bogenschutz-Godwin, and Andrea R. Ottesen. *Duke's Handbook of Medicinal Plants of Latin America*. (Boca Raton: Taylor & Francis, 2009),16.

individual communities maintain their own medical traditions and plant remedies, there are many treatments that can be applied to a single illness. The chosen treatment depends on the individual and his deemed social, physical, spiritual states of balance. In contrast, in the United States, patients heavily rely on the conventional medical system that does little to involve patients in their own care.

After over 200 years of biomedical practices, it is apparent that these practices more effectively treat disease conditions attributable to material reasons, for example, infection or poisoning.¹² On the other hand, recent national studies indicate that almost half of the respondents seek complementary and alternative health care in addition to conventional care.¹³ This participation in CAM indicates that many people consider that biomedical health care treatment is not enough. Although biomedicine dominates the health care options available in NYC, this system does not replace alternative options. Unlike biomedicine, CAM acknowledges the social dimension of illness. As satisfaction with biomedicine decreases, stemming from the invasive procedures, ineffectiveness, expenses, publicized iatrogenesis, excessive medicalization of issues and impersonal relationships, the demand for CAM increases.¹⁴ In terms of immigrant populations, they not only use, but also rely on these nonconventional alternatives. This reliance threatens their health status as a population seeing as NYC medical systems today fail to accommodate divergent beliefs and notions. Dominicans tend to seek biomedical treatment only

¹² Maurice M. Iwu and Erick Gbodossou. "The Role of Traditional Medicine", *The Lancet Perspectives* (2000): s3.

¹³ M. Reiff, B. O'Connor, F. Kronenberg, M. Balick, P. Lohr, M. Roble, A. Fugh-Berman, K.D. Johnson, "Ethnomedicine in the urban environment: Dominican healers in New York City". *Human Organization* 62 (2003):12.

¹⁴ Reiff, "Ethnomedicine in the urban environment", 20.

in emergency situations.¹⁵ One study indicated that 81% of Latina mothers seek non-medical advice first when confronting their child's illness and that Dominican women prefer to obtain medical information from in-group sources rather than visit a professional healthcare provider.¹⁶ Often times, people without insurance are criticized for taking advantage of emergency services at hospitals that are required to treat patients. However, research indicates that the Dominican population only uses emergency services because they consider the biomedical system a last resort.

Excluding religion or medicine, immigrants aspire to acculturate in most respects when they immigrate to the U.S. This occurs because medical beliefs often are intricately connected to religious beliefs. In the case of Dominicans, spiritual beliefs are embedded in the medical practices, since a patient must believe in the medicine in order for it to heal. Immigrants also tend to retain and often exclusively use traditional practices to maintain connected to their culture. A pattern of change exists during the acculturation process that impacts the preservation and erosion of traditional knowledge, however this change varies depending on the individual and the group. During the de-culturation from the original culture and the enculturation towards the host culture, migrants often aspire to maintain their own identity by preserving cultural practices.¹⁷ Yet due to cultural, social, and legal boundaries, plant availability and use must adapt. Continued research is needed to address the underlying reasons for specific changes in retained or abandoned beliefs and practices, as it is unclear whether the reasons are cultural or

¹⁵ R. Allen, L.F. Cushman, S. Morris, J. Feldman, C. Wade, D. MacMahon, "Use of Complementary and Alternative Medicine among Dominican Emergency Department Patients." *The American Journal of Emergency Medicine*. 18.1 (2000): 52.

¹⁶ Vicki Breitbart, Haydee Morales, Jaweer Brown, Bethania Betances, and Farra Kahalnik. "Con un pie en dos islas: Cultural Bridges That Inform Sexual and Reproductive Health in the Dominican Republic and New York." *Culture, Health & Sexuality* 12.5 (2010): 551.

¹⁷ Andrea Pieroni and Ina Vanderoek, *Traveling Cultures and Plants: The Ethnobiology and Ethnopharmacy of Human Migrations*. (New York: Berghahn, 2007), 11.

medical, or more likely, a mix of both. Due to insufficient attention from the conventional health care system, the immigrant populations in NYC, particularly Latinos, tend to continue using traditional health care remedies either exclusively or in addition to biomedical treatment. Instead of straying away from these traditions during the acculturation process, as Dominicans migrate to NYC, they tend to bring their traditional practices with them for health as well as cultural reasons.

Socially, the *botella* represents Dominican culture and henceforth plays an important role in the preservation of cultural identity in migrant groups. In addition to *botellas*, *botánicas* represent the assortment of modern plant-healing knowledge and practices in NYC. As shops that sell traditional remedies and function as herbal pharmacies providing fresh and dried herbs, mixtures, and tinctures, as well as religious and ritual items such as candles, figurines of saints, oils, and holy water, *botánicas* offer a locus for these traditional practices. *Botánicas* serve as a place of work for traditional healers, *curanderos*, and can be found throughout the Manhattan and Bronx boroughs. In addition to relieving particular ailments, *botánicas* provide physical, spiritual, and religious support for Latinos. Whether they prefer more spiritually based or more plant-based medicine, Latinos can easily locate a *botánica* that best fits their health needs.¹⁸ While the Dominican Republic offers a familiar array of plants, the transnational herbal economy has developed to allow for the acquisition of specimens from anywhere in Latin America. This availability gives more reason for the NYC health care system to become familiar with Dominican ethnomedicine. Commonly, researchers in ethnobotany assume the knowledge is far away in a distant, remote location, however, new plant information and medicinal uses can be found without boarding a plane or boat, but in our own backyard, NYC.¹⁹

¹⁸ A. Gomez-Beloz and N. Chavez, "The Botánica as a Culturally Appropriate Health Care Option for Latinos." *The Journal of Alternative and Complementary Medicine* 7 (2001): 545.

¹⁹ Pieroni, *Traveling Cultures and Plants*, 11.

To study the ethnomedical knowledge of Dominicans, the biomedical health care practitioners and ethnobotanists will need to understand the Dominican culture and health beliefs. Schumacher explores the meanings, beliefs, and practices of health care in the DR and argues the importance of caregivers to be knowledgeable in culturally relevant views of health, illness, and care. Schumacher supports the view of culturally appropriate care by insisting on the application of Leninger's culture care theory of diversity and universality.²⁰ Leninger's theory argues to discover, document, interpret, explain, and predict some of the multiple factors influencing care from an *emic* and *etic* view as related to culturally based care. The goal of this theory is to identify generic or folk care practices as well as professional practices. While these practices relate to the meanings, beliefs, and practices of professional and folk care for Dominicans in the DR they can be applied to NYC. Considering the different factors that influence health beliefs, including technology, religion, philosophy, family, social, cultural, political, legal, economic, and education, it is challenging to pinpoint the specific factors that benefit a population's health status. Schumacher looked at different nursing care actions that hindered the health of outsider patients. Increasing awareness and strengthening relationships between doctors and patients can aid in pinpointing the areas that have hindered the health status of the Dominican population in NYC.

In 2010, 687,000 Dominicans resided in the U.S., a number that increased between 1990-2000 by ninety-eight percent. The U.S. Census Bureau predicts the Hispanic population in the United States to exceed 102 million, constituting twenty-four percent of the population. These numbers reflect the increasing needs of the Latino population, and more specifically, the Dominican population, in terms of health care. Since Latino populations, especially Dominican immigrants maintain health care beliefs and values unique to their home country, hosting health

²⁰ Gretchen Schumacher. "Culture Care Meanings, Beliefs, and Practices in Rural Dominican Republic." *Journal of transcultural nursing*, (2010): 94.

care systems like that of NYC, can improve care by learning about these beliefs and practices to tend to specific health care needs of their patients.

Since recent studies indicate that Dominican patients tend to avoid the conventional NYC health care system as much as possible, preferring to self-diagnose and self-treat their illnesses, they run the risk of toxicity or harmful herb-drug interactions. This preference highlights the need for more culturally sensitive approaches to health care in order to facilitate the removal of these barriers and offer more effective, less threatening health care options. To improve the health of the Dominican population, the NYC medical system needs to gain awareness of the cultural differences in health beliefs. Without adequate Spanish speaking staff and providers educated in the common Dominican traditional remedies, the conventional health care system in NYC will continue to frighten away Dominican immigrants. To gain an understanding of Dominican traditional medicine, the current use and knowledge, in both the Dominican Republic and New York City, I went out in the field.

Experiences in the Field

Dominican Republic

During two weeks with a medical group in the Dominican Republic, I witnessed the intricate integration of traditional medicine into the Dominican culture. Medicine and beliefs intertwine to such a great extent that the patients I talked to did not refer to the plant remedies that they habitually prepare as medicines, but simply teas or healthy blends. I participated as a volunteer interpreter in an outreach medical program, Partners for Rural Health in the Dominican

Republic. This program travels to 15 rural villages in the Dominican Republic every 6 months, in January and July. Treating mostly chronic conditions and patients, the majority of the health care provided concerns three chronic conditions: diabetes, hypertension and asthma. Many patients return every six months, dependent on this care due to a lack of access to their formal health care system. Others come for the first time with a variety of ailments, sometimes untreated emergency situations, other times mental or untreatable conditions. As an interpreter, this medium proved perfect for collecting field notes since the research was handed to me through the language, the cases, and the reported treatments used. Additionally, since we were there to help them, the patients wanted to do as much as they could to help us – which for me meant access to more information.

As an interpreter, I experienced the medical knowledge and use of the local population during the patient-doctor interactions as well as after the clinics ended. Being one of the few program participants able to speak Spanish, I could offer an open ear, which allowed for an even more effective medium for acquiring field notes. Yet, as much as I learned from the patients, I gained much of my information and understanding of Dominican medicinal plants through a specialist who is associated with the out-reach program. The herbal specialist gave a talk regarding many, yet far from all, of the medicinal plants of the Dominican Republic. After taking photos of these plants, he told me the common name of the plant, their medicinal use, and how to prepare them as remedies. These plants and their medicinal uses can be found in the Appendix. These plants have been matched with their corresponding scientific name and verified for their medicinal properties and uses with other sources such as Duke's Handbook of Medicinal Plants of Latin America and the New York Botanical Garden's, Dominican Medicinal Plants: A Guide for Health Care Providers. Many of these plants contain medicinal properties that are useful for

current research, such as anti-tumor and chemo-preventative constituents.²¹ Additionally, to ensure that I had the correct common names for the plants that the patients reported using, I verified that the patient's symptoms matched the supposed medicinal abilities of the plant with the specialist. With us at the clinic was a local doctor who treated patients himself as well as served as our cultural intermediary during times of confusion or cultural misunderstandings. In the following section, I will detail seven patients for whom I interpreted and gathered relevant information regarding the use of medicinal plants during the medical clinics in the rural DR.

Patient 1, (P1), was visited at her home in Sonador. She suffered from high blood pressure and diabetes. She also had a large diabetic ulcer on her left calf. The records indicate that P1 had been suffering from this ulcer for four years. For two times a year for four years, the nurses have bandaged her ulcer, given her antibiotic cream and advised her to change the bandages as needed, in addition to refilling her insulin. This year, the ulcer had decreased in size immensely. She reported that she tried to bandage the wound but became annoyed by the intense itching so she said that she stopped. When asked how she had been caring for the wound, she said that she began using a remedy that her sister prepared for the both of them. Her sister, who was standing with us along with her daughter, reported to have used “azúquita”, which denotes the “removal of sugar”, and is a common medicinal plant used for diabetes. She also reported boiling “llantén” (*Plantago major*), or plantain, to make a tea to fight the infection and inflammation. P1 demonstrated a common practice of Dominicans in NYC who often self-treat based on diagnoses made by biomedical practitioners. In this case, the out-reach program doctors and the biomedical practitioners. P1 further reported to have taken the pharmaceuticals that the doctors prescribed. However, the supply should have lasted for six months. Eventually, we discovered that P1 had been sharing the pills with her sister, who also suffers from high blood

²¹ Duke, *Duke's Handbook*, xxvii.

pressure. Here P1 illustrated that her unfamiliarity with biomedicine as she explained that the reason they shared the medicine stemmed from fear. She feared taking the pharmaceuticals, but had been advised to take them for the benefit of her health, so both she and her sister took them daily together and once they ran out, they relied on home remedies.

Patient 2 was also visited at her home in Sonador. Although she had been treated in the past for diabetes (“el azúcar”) through pharmaceuticals, she had stopped taking her medicine for fear of her body becoming dependent. She stated, “*Si olvido un día tomar la pastilla de la presión y mi cuerpo ya se ha acostumbrado, temo que moriré. Si acaban las pastillas no puedo comprar más y luego muero de la presión como ellos dicen.*” (If I forget one day to take my blood pressure pill and my body already has grown accustomed to them, I fear I will die. If the pills run out I cannot buy more and then I will die from my high blood pressure like they say.) When asked if she uses any natural treatments to help with her condition she said no. When asked if she prepares teas or uses plants when she feels sick she reacted, “Claro que sí” (Of course I do). P2 viewed herbal remedies as comparable to vitamins. She conveyed the idea that her using herbal remedies meant that she was taking good care of herself.

Patient 3 attended the clinic in Tinajitas. She complained of intense stomach pains, but through a urine sample and vaginal examination, the diagnosis was a sexually transmitted disease (STD). Having not visited the doctor, the last medical care she had received was through this out-reach program six months earlier. Having finished her pain medicine, she had been preparing a remedy using “Juana la Blanca” (*Spermacoce assorgens*), known as a “sanalotodo” (cure all), since she was unsure of what caused her pain. As a plant with small leaves from which the flower and stem can be used to prepare a tea, Juana la Blanca is used to treat vaginal infections, STDs, kidney problems, menstrual problems, infertility, and more (see the Appendix). She

reported this remedy as helping to alleviate some pain, but after consulting the local doctor at the clinic, he said that it is possible that the remedy actually aided in treating her STD.

Patient 4 attended the clinic in los Jobos. He was a young boy who complained of headaches and stomachaches. After a thorough physical exam and questioning, the nurse could not pinpoint the issue. She asked him one last question: Whether or not there were worms in his excrements, and whether they were large or small. While he had not mentioned anything alluding to this through the exam, she wanted to be sure since they are very common in young children in the rural DR. He replied, “Sí, casi siempre hay chiquitos.” [Yes, there are almost always little worms]. In fact, the vernacular they use for these parasitic worms suggests the prevalence of this problem. The word “chiquitos” means “small ones” and refers to the smaller parasitic worms. “El grande” means “the great one” and refers to the large parasitic worms. The nurse then advised him and his mother on sanitation practices and we gave him pills to kill the worms. His mother, expressing feelings of embarrassment, reminded us repeatedly that she did not know he had worms and that if she had, she would have tried to kill them. After the consultation, I asked her how. She stated, “Algo natural, usted sabe, algo bueno para la salud no peligroso sólo para quitar los chiquitos.” [Something natural, you understand, something good for his health and not dangerous only to get rid of the little worms]. According to the field notes I collected, I would assume this remedy to be prepared with the plant *Apasote*, which treats intestinal parasites.

Patient 5 sought medical care at the clinic in el Treinta. He came to refill his blood pressure medicine. His only other complaints were stomachaches and “sobre todo el gripe” (above all ‘gripe’). “Gripe”, in the DR, refers to any cold or flu-like symptom. He had been treating his stomachaches from “la vejez” (old age) with a decoction that he gets from his neighbor made from “Aniseto” (*Piper marginatum*). In Dominican herbal medicine, the plant Aniseto is used to treat indigestion, flatulence, and stomach pain. The leaves and roots are boiled

and ingested orally for stomach pain or wrapped around an area with menthol for other pains. Aniseto has three leaf varieties: male, female and neutral. Traditionally, a male uses a female leaf and the opposite. He reported using the leaves of “Hinojo” (*Foeniculum vulgare*) for these symptoms as well. Hinojo can also be used for digestion and stomach pain by preparing a tea or a decoction.

Patient 6 sought medical care at the clinic in el Hoyazo. She came in with a severe burn on her arm that she had been treating with the seeds of “Bija” (*Bixa orellana*). The leaf and fruit of Bija, prepared in a bath, treats burns as well as other skin infections and wounds. She also complained of black discharge, a symptom that prompted the doctor to tell her to see an oncologist in the city. The local doctor came over with the community leader to tell her where and how she could get transportation to see this doctor. After declining the offer, one of the local people, presumably a neighbor or a friend, at the clinic advised her to try a decoction of “Yerba mora” (*Solanum nigrescens*) if she does not want to go to the city. Recent studies indicate that Yerba mora may aid in treating cancer. However, like many synthetic drugs, when taken in excess, this plant can cause overdoses leading to adverse reactions such as vomiting, headaches, and dizziness.

Patient 7 sought medical care at the clinic in el Hoyazo. He complained of a “nacido”, which literally translates to “born”, but in the DR signifies a rash. To describe the rash, he said “me come” [it eats me], a saying that commonly implies intense itchiness. The nurse realized that the problem was fungal, resulting from poor sanitation, and went to retrieve fungal cream to treat the skin. The patient then reported that he had been using a remedy for hives.

These seven patients illustrate the variety of medical problems that patients came to receive treatment for at the clinics. Prepared to treat mostly chronic conditions, such as hypertension and diabetes, we saw patients that arrived with open wounds, rashes and other

issues that they have suffered from for weeks and sometimes even months at a time. However, since these sites were located in rural areas, the medical problems and treatment of the urban environment is not addressed in these findings. My experience in the urban setting draws from a visit to the leading public hospital in Puerto Plata, DR, Hospital “Ricardo Limardo”. The first lady, Dr. Cedeño de Fernández, has concentrated efforts on improving the function of certain parts of this hospital. Fernández’s initiatives have won national and international praise, winning many awards for her work in the most vulnerable and disadvantaged sectors of the country.

While there had been a large increase in the infant survival rate due to these recent advances in the hospital, the reality of the patient care remains highly unfortunate. Patients must arrive with their own pillows, sheets, and food. With short-staffed floors and overworked nurses, often times, the hospital solely serves as a place of lodging where family members must deliver care. Yet, apart from the obvious lack of sanitation codes and appropriate waste disposal, one sign in particular struck me: “- MUJER- RECUERDA DECLARAR EL NACIMIENTO DE – TU HIJO- ANTES DE ABANDONAR ESTE HOSPITAL” (-Woman- Remember to declare the birth of -your child- before leaving this hospital). Upon reading this sign, I immediately realized that many women, frequently alone, must deliver their child without the help of a doctor or nurse. As the head nurse explained, not only do they lack patient care, but also any guidance, as this sign serves as a reminder to report the birth of the child because without documentation, the child will not have any chance of acquiring a passport.

Our outreach program not only strove to provide patient care for rural patients, but also to teach nurses at the hospital certain skills that would prove useful to them. One of these skills is the ability to locate the heart and properly use a stethoscope. Many of the nurses demonstrated that they were unaware of how the heart sounded and thought that two palpitations indicated a problem. The nurses affiliated with the outreach program cleared up these misunderstandings,

explained how the heart operates, and donated over twenty stethoscopes to the nursing staff.

NYC

After two weeks in the DR, I flew into New York City, where I explored the preservation of traditional ethnomedicine by the Dominican population. I found that the large majority of the population and their herbal shops, *botánicas*, were located in the neighborhood of Washington Heights between 160th and 189th Street between Broadway, St. Nicholas Boulevard and Fort Washington. Walking around Washington Heights, everyone greeted me in Spanish. To locate the first *botánica*, I simply asked a friendly passerby. This passing turned into a conversation during which the man told me that he also had just returned from the DR where he had undergone heart surgery. After asking why he did not have the surgery done here, he said that it would have cost too much money. When the conversation ended, I looked to the sign “Botánica”. He wished me well and that they would take good care of me there. I walked in hoping to ask the owner questions about his medicinal knowledge and how the plants available in NYC compared to those in the DR. I expressed interest in medicinal plants by showing him the pictures I had taken in the DR, hoping this would help him understand that I was truly interested. While the *botánica* owner was able to recite one by one the name of each of the plants in Spanish, he was unwilling to let me see the herbs that he had out back.

Botánicas sell traditional remedies and function as herbal pharmacies. These stores provide fresh and dried herbs, mixtures, and tinctures as well as religious and ritual items. In an area densely populated with Dominicans, *botánicas* offer a destination for culturally sensitive traditional practices in Washington Heights. Some *botánicas* center around the religious aspect of traditional practices, whereas others focus on the naturo-spiritual side of healing, prescribing herbal remedies and baths. The religious-based shops focus on spiritual guidance and prayer

instead of herbal and plant preparations. Traditional healers often have private practices in *botánicas* or send their patients to the *botánica* with a grocery list of plant or herbal ingredients. Ingredients represent one of the major differences between traditional medicine in the Dominican Republic and in NYC. This difference occurs because of the availability of plant species. The owners of the *botánicas* in Washington Heights reported that many commonly used plants in the DR can only be acquired in dried form, which is problematic because the drying process lessens the healing power of the plants. Unlike in NYC, in the DR, healers tend to collect their own plant species to ensure quality and accessibility.

Walking around the shop I took note of the atmosphere. Ranging from candles, figurines, incense, and shrines to baths, plants, remedies, and rubs, the products represented the essence of Dominican traditional medicine, a mixing of the religious and spiritual with the medicinal. As I wondered about the medicinal use of the candles, he described their function as balancing energy, stating: “When you have good energy, you aren’t sick.” In fact, many of the products in the store pertained to restoring one’s balance through both fragrance and cleansing. Still, I wanted to see the medicinal plants. When I asked him about his medical preferences and elected treatments, he responded with an anecdote that explained why advocates a mix of traditional medicine and biomedicine. He recalled how he suffered intense stomach pains that he falsely attributed to kidney stones. Without consulting a biomedical practitioner, he treated his symptoms with the appropriate herb to treat kidney stones. “Unfortunately,” he stated, “the herb worked too well”. Instead of flushing out the kidney stones, he had broken up a cyst that caused him more intense pain. Proving too strong, the owner had self-misdiagnosed and therefore, used too much of the herb. He then concluded that if he had consulted a doctor, received a correct diagnosis, and then chosen the appropriate herbal remedy, he would not have had to suffer. He

added that in the case of not knowing how to treat a diagnosis himself and there were no alternative options that he felt comfortable using, then he would accept the biomedical treatment.

Surrendering, I decided to simply ask rather than see if he had all of the medicinal plants that I showed him in the photographs (around 45). He said that he has the majority of them out back but many of them are in dried form. He also said that some, such as *Salvia*, must be used cautiously. He then talked about a plant, *castor*, which is poisonous when eaten, but can be made into a tea or rubbed on one's forehead to treat headaches. He told me that you must be careful when preparing and drinking the tea because you can overdose. I also noted how he was very private about his customers. Only allowing one at a time in the shop, he would not allow me to sit in on a consult. In fact, when a customer entered, he waited for me to leave before conversing with him even though the man had agreed to let me stay. Despite these feelings of distrust, the owner, while not a traditional healer, demonstrated a wealth of knowledge of traditional plants and remedies and advocated that an individual should choose an integrative approach to medicine in order to receive the most effective and natural treatment.

The Best of Both Medicines: Healing the Tensions between Health Care Options

Do practices of ethnomedical traditions change in the urban setting where there is less focus on nature and holistic medicine? Recent studies done by ethnobotanists and researchers at the New York Botanical Garden (NYBG) concern Dominican medicinal plants in NYC for conditions that herbal specialists believe herbal remedies treat most effectively. These studies indicate that clinical trials have verified that several Dominican medicinal plants contain medicinal properties capable of treating specific conditions and illnesses. The problem lies in ensuring the proper use of this knowledge in terms of plant availability, preparation, safety and awareness by practitioners in the DR and NYC.

Since misusing plant remedies through improper self-treatment and estimating doses can be very dangerous, measures must be taken to increase understanding of Dominican ethnomedical knowledge. These measures entail considering divergences in perspective and health notions. Tripp-Reimer (1984) conceptualizes varying notions of health by organizing insider and outsider health beliefs using the terms, emic and etic. Emic represents an insider's health perceptions, beliefs, and practices, whereas etic concerns the outsiders' approach to the insiders' health studies.²² Using this model, the NYC health care system should view Dominican health traditions as a different way of conceptualizing health instead of as conflicting with conventional health notions. Further, while Tripp-Reimer argues the use of these perspectives in nursing, these notions can be extended to all medical professionals that diagnose and treat "outsider" patients, in this case, Dominicans in NYC or rural Dominicans in the urban DR. The clientele of NYC health care providers continues to become more diverse, which underlines the need to advocate an understanding of outsider's health perceptions.

The health of Dominicans in New York would benefit from an emic approach to health by conventional health care providers. This suggests that biomedical practitioners would consider the cultural background of immigrant patients, especially those who do not speak English. Tripp-Reimer argues that nursing functions to mediate between these two domains, emic and etic, traditional and biomedical, to interpret and intervene to provide better care. Consideration for emic perspectives would allow for more culturally congruent care, and therefore, would increase the participation of Dominicans in the biomedical system and reduce the amount of self-treatment. Ideally, if our health care system encompassed more culturally sensitive attitudes, this would decrease the hesitation of Dominicans in seeking biomedical health care options. However, instead of encouraging more culturally sensitive practices in

²² Toni Tripp-Reimer, "Reconceptualizing the Construct of Health: Integrating Emic and Etic Perspectives". *Research in Nursing and Health* 7 (1984): 101-109.

biomedical systems, the majority of the published ethnomedicinal research has focused on the erosion of traditional plant knowledge and efforts to preserve biodiversity in remote locations.

With recent acknowledgements of medicinal plant use in urban centers, the idea of integrating traditional practices in conventional Western health care systems is becoming less ridiculous a claim. Recent studies indicate that there has been a rebirth of herbal medicine in settings such as New York City. Ironically, these studies are based on the scientific potential for new discoveries, not from traditional herbalists. Each year in the United States, more than 11 billion dollars worth of plant-based medicines are purchased.²³ Integrating traditional medicine such as herbal systems like that of the Dominican Republic, involves intensive research on the strength and toxicity of a variety of plants. Since plants cannot be patented like pharmaceuticals, little research has been conducted that studies the medicinal properties of whole plants and crude plant extracts. Pharmaceuticals often function to treat symptoms, but then cause side effects, for which patients are prescribed more synthetic drugs. In contrast, many botanical therapies use entire plants or a mixture of plants that aim to treat the underlying cause of the illness.²⁴

Most of the available comprehensive inventories of medicinal plants found in the Dominican Republic consulted the extensive program named TRAMIL (Traditional Medicine in the Islands). This program, which originated in Hispaniola in 1982, has published ethnobotanical research pertaining to many countries in the West Indies and Central America and strives to evaluate the safety and efficacy of local plants.²⁵ The TRAMIL program encourages biodiversity to work in conjunction with public health initiatives by advocating the integration of traditional

²³ Tripp-Reimer, "Reconceptualizing the Construct of Health," 654.

²⁴ Nancy Faas, ed. *Integrating Complementary Medicine into Health Systems*. (Maryland: Aspen Publishers, Inc., 2001), 654.

²⁵ Andrea Ososki, Patricia Lohr, Marian Reiff, Michael J. Balick, Fredi Kronenberg, Adriane Fugh Berman, and Bonnie O'Connor. "Ethnobotanical Literature Survey of Medicinal Plants in the Dominican Republic Used for Women's Health Conditions." *Journal of Ethnopharmacology* 79 (2002): 288.

medicinal plant knowledge in National primary health care policy in Central America and the Caribbean. More information regarding traditional plants and their potential medicinal uses would guide alternative treatments for people who either cannot afford Western treatments or who would prefer alternative options.

In Europe, policies enable companies to research and produce herbs as medicine by making it more economically appealing. In Germany, insurance reimburses the purchased herbal products when prescribed by a physician. This ultimately promotes the use of natural medicine and the preservation of traditional knowledge. In the United States, the FDA requires absolute proof for herbal drugs as they do for new synthetic drugs and has rejected the idea of creating an independent panel like that of Germany, where the required proof is far less intense than that of the U.S.²⁶ Fugh-Berman denotes the underlying issue regarding the use of current herbs as medicines in the lack of information provided: “Labeling of herbal products may not accurately reflect their contents, and adverse events or interactions attributed to specific herbs may actually be due to misidentified plants, pharmaceutical drugs, or heavy metals.”²⁷ Without extensive research on the proper use of Dominican plants, due to liability and safety precautions, health care providers cannot justify recommending remedies or refer patients to see a traditional healer. This reality feeds the gap between biomedical and traditional medical systems.

Defining efficacy, however, presents another problem as biomedicine and traditional medicine differ in their measures of effective treatment. According to Janes, biomedicine “might define efficacy in narrow terms reflecting objective changes in disease pathology, however this

²⁶ Faas, *Integrating Complementary Medicine*, 654.

²⁷ Andrea Fugh-Berman, Michael Balick, Andrea Ososki, Bonnie O'Connor, Marian Reiff, M. Roble, P. Lohr, B.J. Brosi, R. Lee, “Treatment of Fibroids: the Use of Beets (*Beta vulgaris*) and Molasses (*Saccharum officinarum*) as an herbal therapy by Dominican healers in New York City.” *Journal of Ethnopharmacology* 92 (2004): 337.

definition is impossibly narrow and, in many if not most cases, difficult to assess.”²⁸ Traditional medicine may more broadly define efficacy as improving quality of life whether that be physically, socially, or spiritually. While neither is right or wrong, the differences in defining efficacy illustrate the way the two health care models differ and how an overlap of the two systems could prove the most efficacious.

To aid in breaching the current gap between biomedical and traditional plant knowledge, researchers from the New York Botanical Garden have compiled a guide for health care providers. This guide lists Dominican native plants, their medicinal properties, preparation, and other use information to ensure safe and effective treatment. Making this resource available to practitioners in conventional medical settings encourages an increased awareness of these traditional treatments. Since the rich complexity of Dominican ethnomedicine has yet to be documented in entirety, the recently published 500-page guide has significantly added to the literature on this topic. The use of this guide by actual health care professionals, however, does not seem to have been solicited only recommended. The guide indicates that when used in a mixture, these plants can act together, increasing the probability that one will be effective in curing the particular illness, these mixtures are known as *botellas*.

A catchy introduction, the guide begins with a quote in Spanish that the authors claim to be a common statement among traditional Dominican practitioners: “Hay plantas que curan y plantas que matan” (There are plants that cure and plants that kill). This saying encapsulates the purpose of this book, to prevent people who self-medicate from harming themselves either by using a plant in an incorrect manner, for example through the wrong dosage, or by hiding this information from their provider because of fear of not understanding. The introduction of the guide states, “Although abundant research data is available for mainstream dietary supplements

²⁸ Craig R. Janes, “The health transition, global modernity and the crisis of traditional medicine: the Tibetan case.” *Social Science and Medicine* 48 (1999): 1807.

and herbs, very little attention has been given to the botanical therapies and traditional remedies used by immigrant communities and minority ethnic groups here in the United States, particularly among low-income and underserved populations.”²⁹ This guide boldly attempts to fill this gap by providing useful information about these plants. Without this information, a health care provider cannot adequately care for a patient that relies or habitually uses traditional remedies. It is probable that a provider is unfamiliar with the common Dominican names of medicinal plants, remedies, or illnesses, and that he is unable to offer helpful advice, advice that may be the difference between life and death. Not only does this guidebook provide efficacy and safety information, but it also provides some cultural context. Congruent with the proposition of my research, the aim of this book is to

Enhance the quality of patient care for Dominicans in New York City by supporting informed patient-provider communication and raising awareness about the use of home remedies and their relevance to health care. We sincerely hope that this book can serve as a model for other educational initiatives to enhance the quality of health care for underserved, minority or immigrant populations with strong traditions of herbal medicine through relevant cultural competency training and curricular materials.³⁰

Other educational initiatives that would benefit the Dominican population include more research and awareness regarding herb-drug interactions, dosages, toxicity and contraindications. This thorough research supports that integration would expand our medicinal knowledge and health care options, promoting the individual’s ability to choose the treatment that he or she desires. Integrative research models of Dominican health seeking behavior must be conducted to focus on how preserving cultural traditions can aid in improving the health of the Dominican community.

²⁹ Jolene E. Yukes and Michael J. Balick. *Dominican Medicinal Plants: A Guide for Health Care Providers*. *Dominican Medicinal Plants: A Guide for Health Care Providers*. (New York: New York Botanical Garden, 2010), accessed December 12, 2010, http://www.nybg.org/science/scientist_profile.php?id_scientist=1.

³⁰ Yukes, *Dominican Medicinal Plants*, 7.

If promoting the maintenance of cultural traditions, through resources such as the one compiled by the NYBG, leads to an improved health status of the Dominican population, then this will facilitate gaining support of an integrative model of health care for the entire population in NYC. The guide provides information on traditional Dominican uses of medicinal plants as well as a review of the available scientific literature on their efficacy and safety to aid in the integration of traditional and biomedical treatments. By improving patient-provider communications, this information will allow for more culturally sensitive patient care for Dominicans in NYC.³¹ Addressing Dominican ethnomedical knowledge, the researchers at the NYBG have also published both respectively and cooperatively various articles and books that research, analyze, and discuss the importance of Dominican traditional medicine in NYC Dominican populations. One study compares the proportion of mixtures in plant use reports from both laypersons and plant specialists in the Dominican Republic (DR) with those from Dominicans who migrate to NYC. The article claims no other research exists that assesses the prevalence of mixtures versus single plant remedies in the ethnomedicinal traditions of the DR, their migrant population nor Caribbean cultures in general. Considering the fact that Dominican traditional medicine primarily uses multiple plant remedies, this claim illustrates a huge gap in the research conducted on Dominican ethnomedicine.

Within the past 10 years, published research indicates that due to lower plant availability in NYC, healers may be in danger of erosion of plant knowledge. Defined as people who use medicinal plants for self-care but do not identify themselves as specialists, laypersons reported using less mixture preparations (*botellas*) in the DR than NYC. In NYC, laypersons and specialists revealed no large differences in plant knowledge, but reported more preparation for respiratory conditions than DR specialists. It is probable that the differences in illnesses between

³¹ Yukes, *Dominican Medicinal Plants*, 130.

the DR and NYC relate to the different environments and increased susceptibility to certain diseases. Therefore, the results of this study indicate a comparable knowledge level of Dominican specialists and NYC specialists. However, if this knowledge begins to erode, this may lead to less use as well as an erosion of cultural identity.

In New York, the boroughs with the most concentrated amount of traditional Latino healers include Washington Heights, Central Harlem, and the South Bronx. While many claim to receive spiritual guidance when diagnosing and treating a patient, traditional Latino healers in NYC have reported that the accessibility of new medicinal information from other Latino healers as well as books about medicinal plants has expanded their knowledge and practice.

In the urban environment, plant remedies can be found, purchased, and prepared in *botánicas*. A *botánica* is similar to a pharmacy, yet instead of pill bottles and white lab coats, the shop is filled with natural remedies, green plants and herbs, and the aroma of incense. This environment is a vital mechanism for preserving Dominican culture and health in NYC. Despite transcultural differences, the *botánica* offers the Dominican confirmation. This confirmation may be spiritual, medicinal, or diagnostic. According to Viladrich,

Botánicas are social niches that welcome religious and commercial networks where patrons and providers share knowledge about new products as well as gossip. In fact, botánicas' success greatly depends on the informal webs of those who visit them to buy and sell products, on chatting with patrons and neighbors, and on participating in religious ceremonies taking place in the religious houses and temples erected in their basements and backrooms.³²

Since healers do not possess licenses, community experience and feedback determines their credentials. With neither space for patio gardens nor the rich array of native species, traditional healers must adapt their remedies to the plant species available in New York. Additionally, not all healers support *botánicas* because the quality and origin of the herbs is often questionable.

³² Viladrich, "Botánicas in America's Backyard," 409.

Through increased availability of plant knowledge, the quality and efficacy of herbs and plant remedies could be monitored and more reliable.

Surprisingly, in Latino neighborhoods in NYC, such as Washington Heights, many species can be found growing wild in parks, in grocery stores, markets, natural food stores, bodegas and botánicas. The following species have been reported by the NYBG as found growing as a weed, in grocery stores, or in botánicas: algodón morado, alquitira, anamú, aniseto, apasote, bija, cacao, guanábana, hinojo, jagua, limoncillo, llantén, sábila, verbena, yerba buena and yerba mora. Each of these species can also be found in the Appendix, as they were all included in the inventory that I acquired from specialist in the Dominican Republic. Ososki (2002) contributes to on-going study of Dominican healing systems and the efficacy and availability of herbal treatments. This study provided information regarding specific plant species and their uses in both the DR and NYC. Uses address: uterine fibroids, menorrhagia, endometriosis, and hot flashes. Ososki notes that some traditional knowledge has been lost due to the use of botánicas to purchase plants instead of relying on traditional methods of collection that consider the time of day and the moon phase.

Since Dominicans in New York lack confidence in the biomedical system, and have statistically and through my own field experience shown a preference in consulting a botánica or a traditional healer, we should preserve this option. In the emergency room at Columbia Presbyterian Hospital in Washington Heights, 85 percent of the patients speak Spanish, frequent local botánicas and use herbal remedies.³³ Therefore, this traditional ethnomedical knowledge can be of value for NYC health care professionals, especially in neighborhoods with large populations of Latinos, such as Washington Heights. Often patients accept conventional diagnosis by seeking treatment from a biomedical practitioner, but then hesitate to use the

³³ Michael J. Balick, "Looking Within: Urban Ethnomedicine and Ethnobotany." *Alternative Therapies* 7 (2001): 114.

prescribed medication.³⁴ This same practice was seen in rural DR, where patients, such as Patient 1 and 2 in Sonador, would be given medicine, but then neglect to use it properly out of fear. Unlike in the urban setting in the DR, for these hesitant patients in NYC, botánicas offer answers by confirming or rejecting diagnoses and prescribed medication, helping to reduce the amount of self-diagnoses and self-treatment in the Dominican community.

Self-treatment, as seen with the botánica owner, can be harmful in many respects, including toxicity and unintentional side effects. For Latinos, a common health practice is self-treatment through shared family remedies before consulting a healer or practitioner.³⁵ This custom helps explain the common choice of Latinos to self-treat before seeking conventional health care treatment. Dominicans in NYC and in the DR report self-treating or seeking advice from a traditional healer before consulting a biomedical practitioner. This pattern illustrates the skepticism of and unfamiliarity with biomedicine that motivates the health care seeking behaviors of Latinos. These behaviors include seeking out alternative options that offer *emic* perspectives like the botánica.

In order to provide the most effective health care for our population, we must read into these health care seeking behaviors. While Dominicans preserve their traditional medicine for cultural reasons, they also rely on these practices for health maintenance. To improve the health status of Dominicans, our health care system could make these alternative options more accessible and reliable in terms of quality treatment. To do so, there needs to be more communication between botánica owners and biomedical practitioners. Why is it in our best interest to facilitate their use of alternative medicine? Traditional medicine, having existed for

³⁴ Reiff, "Ethnomedicine in the urban environment," 20.

³⁵ Josephine Elizabeth Baca. "Some Health Beliefs of the Spanish Speaking," *The American Journal of Nursing* 69 (1969): 2175.

centuries more than biomedicine, continues to have potential to benefit biomedicine by contributing to new findings, research, and a more holistic health care approach.

Without comprehensive safety information, practitioners cannot advise patients on the proper use of these plants. While botánica owners and traditional healers know extensively about medicinal plants and their uses, their knowledge is not comparable to a biomedical practitioner in that they cannot diagnose an illness, but only treat the symptoms. Furthermore, when Dominican patients seek conventional treatment, they often are not forthcoming about the use of herbal medicine for fear of censure and stigma. This poses a problem because many of these plants, even benign ones, such as *Aloe vera*, can be very dangerous when used in incorrect doses or for the symptoms do not align correctly with the actual disease. For example, typically used as a household remedy for burns, *Sábila* or Aloe in Dominican traditional medicine is used as a purgative or laxative. Dominican healers in the DR and NYC recommend Aloe for treating fungal infections, diabetes, flu, common cold, uterine fibroids, and HIV/AIDS. The remedies typically are prepared as juice or applied topically for burns and cuts. However, studies indicate that overuse can lead to the following conditions ranging from common ailments, such as gastrointestinal disorders, abdominal pain, nausea, skin irritations to more rare, serious conditions such as edema and bone deterioration.³⁶ Pregnant women, young children, people who suffer from Crohn's disease and appendicitis should also avoid use of aloe. Additionally, those taking cardiac glycosides, antiarrhythmic drugs, thiazide diuretics, loop diuretics, licorice, corticosteroid and anti diabetic agents should also refrain from using aloe. Since many consider aloe a household treatment for common conditions, such as sunburns, its capacity for causing harm remains unknown to many.

³⁶ Yukes, *Dominican Medicinal Plants*, 128.

The way we use aloe as a common treatment for sunburns can be compared to how Dominicans use medicinal plants for common health conditions. Their common use of these medicinal plants illustrates the immense potential for adverse reactions and misuse. The potential for harm increases in NYC, where the abundance of Dominican plants has lessened and the form of the plants has changed. These changes include fresh versus dried plants, whole plants versus parts, local versus imported. An example that underlines the dangers of self-treatment and misuse is *Apasote* or Wormseed. While native to Central and South America and the Caribbean, *apasote* can be found growing wild in parks, grocery stores, corner shops, markets, and botánicas in Latino neighborhoods in NYC. Despite the fact that this potent plant has been determined to expel parasites, Dominicans use it for unrelated conditions, such as diarrhea, stomach pain, flatulence, skin infections, and skin ulcers.

Containing potent medicinal properties, *apasote* represents the dangers of self-treatment and the problems underlying the lack of communication between conventional and traditional medical systems. Since *apasote* can be used to treat many conditions, Dominicans, unaware of the correct dosages or preparation, are at a high risk of toxicity and adverse reactions. The essential oil of *apasote* can be toxic. In fact, even small amounts, the oil can lead to central nervous system problems, such as paralysis or spasms. More common side effects concern damage to the *Nervus cochlearis*, which results in hearing impairment or a constant buzzing in the ears. Furthermore, the oil is perilously explosive. Reports of the over ingestion of the oil, only 10 milligrams for adults, less for children, have led to fatalities.³⁷ Using herbs may imitate, magnify, or oppose the effect of synthetic drugs. According to Fugh-Berman,

Interactions between herbs and drugs may increase or decrease the pharmacological or toxicological effects of either component. Synergistic therapeutic effects may complicate the dosing of long-term medications—eg, herbs traditionally used to decrease glucose concentrations in diabetes¹ could

³⁷ Yukes. *Dominican Medicinal Plants*, 128.

theoretically precipitate hypoglycemia if taken in combination with conventional drugs.³⁸

This demonstrates that the misuse of medicinal plants has potential for toxicity, contraindications and threatening herb-drug interactions (detailed in Appendix). The deadly potential of 10 milligrams marks a need greater than more information on the safety and toxicity of medicinal plants: it calls for the integration of two health systems.

While potentially dangerous when misused, medicinal plants possess useful properties that with more research and clinical trials, have potential to add to new findings in biomedicine. Pharmaceuticals and medicinal plant remedies share the potential of being therapeutic at one dose and fatal at another. Dominican traditional medicine has existed for much longer than biomedicine and still is preferred by Dominicans even when biomedical options are more prevalent. The language barriers, lack of health insurance, health costs, unfamiliarity of medical treatments and concepts create a hostile environment for Dominicans in NYC. These obstacles prevent Dominicans in NYC from seeking diagnoses from conventional providers. Biomedical practitioners may argue that having come to our country, immigrant patients should educate themselves about our biomedical system, its structure and medical options, and learn our language. While this argument obviously has prevailed thus far in terms of health care options, many benefits could come from an overlap between traditional, alternative medicine and conventional biomedicine. Providers must ask patients in a nonjudgmental manner about their use of CAM in order to receive an honest response. Otherwise, the patient may conceal their use of herbal remedies and run the risk of adverse reactions from herb-drug interactions or incorrect doses. Providers need to be aware of these practices in order to provide beneficial health care to the patient. Additionally, learning more about another culture's language, beliefs and medical

³⁸ Andrea Fugh-Berman, "Treatment of Fibroids," 337.

knowledge that has transpired across generations and countries can only reward our society and increase our awareness of alternative schools of thought.

Although the term ‘traditional’ suggests the system as fixed and having unchanged over years, traditional medicinal practices continue to change and alter with new findings and studies. The unchanging factors of the medicine concern the belief system from which the traditional concepts stem. Through time, the practices and probation of medicinal plants by Dominicans have served as “clinical trials” that have weeded out the plants and remedies that lack medicinal qualities and have identified those that get positive results. Whether these findings were motivated by spiritual inclinations or medicinal knowledge should not matter since many Dominican medicinal plants have discovered medicinal properties. Detailed in the Appendix, many of the common Dominican medicinal plants treat serious ailments, such as cancer, tumors, and HIV. In fact, many Latin American plants have anti-HIV phytochemicals.³⁹ This includes the Dominican Republic, where the plant “Alquitira”, known as Prickly Pear or *Opuntia ficus-indica*, contains luteolin, anti-HIV properties.

Studying Dominican traditional medicine could lead to new advances in treatment, in addition to forcing us to reevaluate our relationship with medicine. While integrative health care is seen as a utopian ideal, allowing all patients to seek their desired medical treatment without hesitation, the nature of professional practices in the biomedical field would have to change in order to adopt a new model. Complementary medical practitioners, such as traditional healers, fear what changes would occur with the biomedical field dominating over their profession. The greatest challenge to assuming a contemporary integrative medical model for the Dominican community in NYC concerns the amount of resources needed. One case study example is the Clinician Workgroup in Washington. Currently, there exists an open dialogue concerning the

³⁹ Duke, *Duke's Handbook*, xxvii.

steps needed to successfully apply complementary and alternative medicine (CAM) into mainstream medical environments. This is the first step and most important step. Simply discussing how to integrate CAM into biomedical systems influences the public to have more respect for these options.

One of the most beneficial aspects to integration would be the increase in the number of interdisciplinary referrals by biomedical practitioners. As more biomedical practitioners refer their patients to CAM providers, more attention and appreciation is paid to these disciplines. In the book *Integrating Complementary Medicine into Health Systems*, Faas includes his personal perspective on the benefits of increased communication between the biomedical and CAM spheres:

I have always said that if I get into a serious accident, take me directly to the hospital emergency department. Do *not* take me to a naturopathic physician. However, once they stop the hemorrhaging, I want the hospital to call my naturopathic doctor, because then I want to integrate. I want the best of both medicines.⁴⁰

While biomedical practitioners can argue the effectiveness of their medicine, especially in treating emergency situations and performing invasive procedures, CAM providers assess the entire picture, and can provide unparalleled long-term benefits in many cases.

With the fundamental clash of ethos between science and traditional medicine, there is a low probability of achieving complete integration in the coming years. Therefore, the most effective way to incorporate is through communication and awareness. Recent guides that have been published, such as “Dominican Medicinal Plants: A Guide for Health Care Providers” encourage this relationship by providing the biomedical practitioner with a resource that allows him or her to have an open discussion with the patient about their use of traditional herbal

⁴⁰ Faas, *Integration Complementary Medicine*, 35.

remedies. This discussion will help the patient feel comfortable to disclose information regarding their traditional practices and remedies so that the provider can assess the safety and possible issues with herb-drug interactions, dosage, and adverse reactions.

Final Thoughts

Critiqued for lacking a sound, scientific basis and for merely representing outdated philosophy and myths, traditional plant treatments are effective medicines that deserve respect as a health care option. Urban ethnobotany encourages the preservation of traditional beliefs and customs as well as the symbiotic relationship between plants and people. By 2050, Hispanics are expected to represent one-fourth of the U.S. population. Today, Dominicans represent 5 percent of New York City's population. These figures suggest the need to investigate the most beneficial health care model for Latinos. A more culturally sensitive and ethnomedically knowledgeable health care system will benefit the Dominican population by encouraging a closer relationship with our neighbors and our environment.

Incorporating traditional, medicinal herbal knowledge and increasing our cultural awareness will lead to a greater appreciation for cultural diversity and alternative schools of thought. Through continued research on the efficacy of Dominican medicinal plants and their use in NYC, more attention will be paid to increasing communication between the two health care systems. Training health care providers to be more culturally competent and aware of the potential for urban herb and plant use can improve the health status of one of our most vulnerable populations, Dominicans in NYC. Through collaborative efforts, both in botanical research and biomedical practice, Dominican ethnomedicine possesses potential to change and enhance our professional practices and personal lifestyles.

By recognizing this information as vital to the Dominican community first, we then can reap the benefits of this knowledge to our own health care. These benefits concern altering our own perception of health. Dominican ethnomedicine teaches us that nature possesses immense healing powers. This holistic medical system looks at the whole picture, including the environment. Adopting a view of medicine that revolves more around the natural world, one that encompasses or at least acknowledges this holistic view, could have spillover effects on other issues in society besides the health status of Dominican immigrants. As we begin to connect more with nature through our medicine, we not only will promote the preservation of ethnomedical knowledge, but also the preservation of biodiversity. Increasing communication between health systems will influence a greater appreciation for the outside and natural world that will benefit our health and our environment.

Appendix: Dominican Medicinal Plant Inventory



Gossypium hirsutum

Medicinal Use: Infertility, infections, wound dressing, excessive vaginal discharge.
Plant part(s): Leaf, flower, root
Preparation: purple leaves foiled for tea, flower as dressing, mix with Yerba mora for infections



Apasote (Wormseed)

Chenopodium ambrosioides

Medicinal Use: diarrhea, intestinal parasites/worms, stomach pain flatulence, skin infections, skin ulcers
Plant part(s): leaf
Preparation: tea, juice combined with coco, orally, crushed, heated and topically applied
Safety and Precautions: essential oil is toxic and explosive. Small amounts can cause adverse side effects. Fatalities have been reported due to over ingestion (>10mg). Should not be administered to those with the following conditions: pregnancy, heart disease, liver disease, kidney disease



Alquitira, Tuna de

España (Prickly Pear)

Opuntia ficus-indica

Medicinal Use: Diabetes, hypertension, infection, inflammation, digestion, sexually transmitted disease, menstrual problems, kidney disorders, burns

Plant part(s): leaf, gel, stem
Preparation: juice, grade or strain, peel stems, boil, apply gel topically, eat

Herb-Drug interactions: Consult practitioner before mixing with blood-sugar medicine



Berenjena de tera

Solanum mammosum

Medicinal Use: mouth infection, skin wounds, obesity, to lose weight, diabetes, high blood pressure, high cholesterol
Plant part(s): leaf, fruit
Preparation: orally, bath, fruit soaked in water



Anamú (Guinea hen weed)

Petiveria alliacea

Medicinal Use: flu, cold, rheumatism, arthritis, digestion, nausea, toothache, menstrual symptoms, ovarian cysts, labor pains, skin infections, fungus

Plant part(s): Leaf, root, stem, fresh/dried

Preparation: tincture in alcohol, orally, topically, aromatic, bebedizos/botellas

Herb-Drug interactions: Consult practitioner before mixing with blood-sugar medicine



Bija

Bixa orellana

Medicinal Use: anemia, labor pains, infertility, platelets, burns
Plant part(s): leaf, seeds, powdered seed covering
Preparation: mixture as juice, topically, seed powder heated in oil and added to herbal mixtures
Safety and Precautions: allergic reactions can occur

Fruta de Bija

Bixa seeds



Aniseto (cake bush)

Piper marginatum

Medicinal Use: indigestion, flatulence, stomach pain

Plant part(s): leaf, roots
Preparation: boil, orally, wrap with menthol

Neutral leaf



Aniseto macho

Male leaf



Aniseto hembra

Female leaf



Algodón morado (Cotton)



Female leaf

**Guanábana***Annona muricata*

Medicinal Use: common cold, flu, menopausal symptoms, anxiety, stress, diuretic

Plant part(s): leaf, fruit

Preparation: tea, orally, bath

**Cabra***Bunchosia glandulosa*

Medicinal Use: Stomachache, common cold, bronchitis

Plant part(s): leaf

Preparation: press for juice, tea, strong odor

**Guayaba** (Guava)*Psidium guajava*

Medicinal Use: diarrhea, nervousness, vertigo, vomiting

Plant part(s): leaf, husk, fruit

Preparation: raw

**Cacao** (chocolate)*Theobroma cacao*

Medicinal Use: lowers blood sugar, fatigue, kidney function, anti-ulcer and tumor

Plant part(s): leaf, seeds, cocoa butter

Preparation: tea, orally, butter

**Campana***Ipomoea carnea*

Medicinal Use: wounds, constipation

Plant part(s): leaf, flower

Preparation: juice

**Cancharagua**

(Sweet broom)

Scoparia dulcis

Medicinal Use: intestinal infections, diarrhea, gastric pain

Plant part(s): leaf

Preparation: tea

**Chinola**

Medicinal Use: high blood pressure, diabetes, common cold, menstrual problems,

Plant part(s): fruit, pulp

Preparation: juice, tea

**Clavel del muerto**

(carnations for the dead)

Tagetes erecta

Medicinal Use: flu, fever

Plant part(s): flower

Preparation: tea



Broquelejo hembra

**Hoja de pata de vaca***Baobab forficata*

Medicinal Use: diabetes, swelling, high blood pressure

Plant part(s): flower, leaf

Preparation: tea, bath

**Hoja de saúco***Sambucus nigra*

Medicinal Use: common cold, flu, fever, swelling

Plant part(s): leaf

Preparation: boil, cover area

**Insulina, Azuquita**

Medicinal Use: diabetes, high blood sugar

Plant part(s): leaf

Preparation: can mix with "pata de vaca" as tea





Jagua

Genipa americana

Medicinal Use: high blood pressure, intestinal parasites, muscular pain, headaches, prevention of cysts, tumors
Plant part(s): fruit
Preparation: prepared in water as drink, eat



Orozul (Mexican lippia)

Pyla dulcis

Medicinal Use: flu, fever
Plant part(s): leaf
Preparation: decoction



Juana la Blanca

Spermacoce assorgens

Medicinal Use: cure all, vaginal infections, STD, kidney problems, asthma, chest congestion, flu, fever, menstrual problems, labor, infertility
Plant part(s): flower, stem
Preparation: tea



Ozúa, Juana la peluda, Berrón, bay run

Pimenta racemosa

Medicinal Use: high blood pressure, diabetes, toothache
Plant part(s): leaf
Preparation: decoction



Limoncillo (Lemongrass)

Cymbopogon citratus

Medicinal Use: asthma, common cold, flu, fever, digestion, diarrhea, flatulence, menopausal symptoms, contusions, arthritis
Plant part(s): leaf, stalk
Preparation: remedy, orally, tea made with cinchona bark
Contraindications: not for use during pregnancy



Perejil (Parsley)

Petroselinum crispum

Medicinal Use: diabetes, high blood pressure
Plant part(s): leaf
Preparation: tea, cook



Llantén (Plantain)

Plantago major

Medicinal Use: conjunctivitis, nervousness, liver problems, menstrual problems, high cholesterol, stomachache, migraine, blindness, abortifacient
Plant part(s): leaf
Preparation: juice, tea, ointment



Piñón de hoja ancha

Jatropha curcas

Medicinal Use: wounds, mouth candidiasis, stomach problems, circulation, asthma, rash, laxative
Plant part(s): leaf, fruit
Preparation: tea, milk



Mostaza (Mustard)

Brassica nigra

Medicinal Use: headaches, sinusitis
Plant part(s): leaf
Preparation: tea, grind, place on forehead



Romero (Rosemary)

Rosmarinus officinalis

Medicinal Use: flu, fever, stomach problems, tightness of chest, sore throat
Plant part(s): leaf
Preparation: tea, eat as powder



Nigua, Noni

Morinda citrifolia

Medicinal Use: kidney problems
Plant part(s): roots
Preparation: tea



Rompe zaragüey

(Billy goat weed)

Eupatorium odoratum

Medicinal Use: flu, cutaneous ulcers, boils
Plant part(s): flower
Preparation: tea, boil



Sábila (Aloe)

Aloe vera

Medicinal Use: laxative, burns, cuts, fungal infections, diabetes, digestion flu, common cold, HIV/AIDS, uterine fibroids

Plant part(s): leaf, gel

Preparation: eat, juice, topically

Safety and Precautions:

gastrointestinal disorders, abdominal pain, nausea, skin irritations; rare cases include edema and bone deterioration

Contraindications: not for use by pregnant women, young children, those with Crohn's disease, appendicitis,

Herb-Drug interactions: Cardiac glycosides, antiarrhythmic drugs, thiazide diuretics, loop diuretics, licorice, corticosteroid, and antidiabetic agents



Yerba Buena, hierba buena (Spear-mint)

Mentha

Medicinal Use: stomach problems, anxiety, stress, menstrual cramps, diabetes, burns, diabetes

Plant part(s): leaf, flower, stem

Preparation: tea infusions or decoction, orally, topically

Contraindications:

gastroesophageal reflux disease



Yerba mora, hierba mora (Black nightshade)

Solanum nigrascens

Medicinal Use: allergies, menstrual problems, cancer, childbirth, postpartum, cysts, fibroids

Plant part(s): leaf, whole herb

Preparation: decoction, orally

Safety and Precautions: taken in excess can cause overdoses due to high alkaloid content of leaves, causing dizziness, vomiting, and headaches



Salvia

Salvia arborescens

Medicinal Use: diarrhea

Plant part(s): leaf

Preparation: chew

Dangers: Narcotic hallucinogen

Uva de playa

Coccoloba uvifera

Medicinal Use: menopausal symptoms, diarrhea, tumors, anemia, skin irritations, asthma, circulation

Plant part(s): leaf veins

Preparation: decoction, bath



Verbena (Porterweed)

Stachytarpheta jamaicensis

Medicinal Use: indigestion, diarrhea, flatulence, anxiety, stress, menopausal symptoms

Plant part(s): leaf, flower, stem

Preparation: tea sweetened with molasses, orally



References

- Allen, R., L.F. Cushman, S. Morris, J. Feldman, C. Wade, D. McMahon, D. "Use of Complementary and Alternative Medicine among Dominican Emergency Department Patients." *The American Journal of Emergency Medicine* 18.1 (2000): 51-54.
- Babington, L.M., B.R. Kelley, C.A. Parsdaughter, R.M. Soderberg, and J.E. Kelley. "From Recipes to Recetas: Health Beliefs and Health Care Encounters in the Rural Dominican Republic." *Journal of Cultural Diversity* 6 (1999): 20-25.
- Baca, Josephine Elizabeth. "Some Health Beliefs of the Spanish Speaking." *The American Journal of Nursing* 69 (1969): 2172-2176.
- Balick, Michael J. "Looking Within: Urban Ethnomedicine and Ethnobotany." *Alternative Therapies* 7 (2001): 114-115.
- Balick, M.J., Fredi Kronenberg, Andreana Ososki, Michael Reiff, Andrea Fugh-Berman, Bonnie O'Connor, M. Roble, P Lohr, D. Atha. "Medicinal plants used by Latino healers for women's health conditions in New York City." *Economic Botany* 54 (2000): 344-357.
- Breitbart, Vicki, Haydee Morales, Jaweer Brown, Bethania Betances, and Farra Kahalnik. "Con un pie en dos islas: Cultural Bridges That Inform Sexual and Reproductive Health in the Dominican Republic and New York." *Culture, Health & Sexuality* 12.5 (2010): 543-54.
- Carman, S. K. and J. Scott. "Exploring the health care status of two communities in the Dominican Republic." *International Council of Nurses* (2004): 27-33.
- Duke, James A., Mary Jo. Bogenschutz-Godwin, and Andrea R. Ottesen. *Duke's Handbook of Medicinal Plants of Latin America*. Boca Raton: Taylor & Francis, 2009.
- Faas, Nancy. *Integrating Complementary Medicine into Health Systems*. Gaithersburg, Maryland: Aspen Publishers, Inc., 2001.

- Fugh-Berman, A., M.J. Balick, F. Kronenberg, A.L. Ososki, B. O' Connor, M. Reiff, M. Roble, P. Lohr, B.J. Brosi, R. Lee. "Treatment of Fibroids: the use of beets (*Beta vulgaris*) and molasses (*Saccharum officarum*) as an Herbal Therapy by Dominican Healers in New York City." *Journal of Ethnopharmacology* 92 (2004): 337-339.
- Fugh-Berman, Adriane. "Herb-drug Interactions." *The Lancet* 355 (2000): 134-138.
- Garcés, Isabel C., Isabel C. Scarinci, and Lynda Harrison. "An Examination of Sociocultural Factors Associated with Health and Health Care Seeking among Latina Immigrants." *Journal of Immigrant and Minority Health* 8.4 (2006): 377-85.
- Gomez-Beloz, A. and N. Chavez. "The Botánica as a Culturally Appropriate Health Care Option for Latinos." *The Journal of Alternative and Complementary Medicine* 7 (2001): 537-546.
- Iwu, Maurice M. and Erick Gbodossou. "The Role of Traditional Medicine." *The Lancet Perspectives*: (2000): s3.
- Janes, Craig R. "The Health Transition, Global Modernity and the Crisis of Traditional Medicine: the Tibetan Case." *Social Science and Medicine* 48 (1999): 1803-1820.
- Laguerre, Michel S. *Afro-Caribbean Folk Medicine*. South Hadley, Massachusetts: Bergin & Garvey, 1987.
- Ososki, Andreana L. "Ethnobotany of Rural and Urban Dominican Republic: Medicinal Plants, Women, and Health." PhD diss., City College of New York, 2004.
- Ososki, A., Patricia Lohr, Marian Reiff, Michael J. Balick, Fredi Kronenberg, Adriane Fugh-Berman, and Bonnio O'Connor. "Ethnobotanical Literature Survey of Medicinal Plants in the Dominican Republic Used for Women's Health Conditions." *Journal of Ethnopharmacology* 79 (2002): 285-298.
- Pieroni, Andrea, and Ina Vandebroek. *Traveling Cultures and Plants: the Ethnobiology and Ethnopharmacy of Migrations*. Vol. 7. New York: Berghahn, 2007.

- Reiff, M., B. O'Connor, F. Kronenberg, M. Balick, P. Lohr, M. Roble, A. Fugh-Berman, K.D. Johnson, "Ethnomedicine in the urban environment: Dominican healers in New York City." *Human Organization* 62 (2003): 12-26.
- Schumacher, Gretchen. "Culture Care Meanings, Beliefs, and Practices in Rural Dominican Republic." *Journal of transcultural nursing*. (2010): 93-103.
- Tripp-Reimer, Toni. "Reconceptualizing the Construct of Health: Integrating Emic and Etic Perspectives." *Research in Nursing and Health* 7 (1984): 101-109.
- Vandebroek, Ina, Michael J. Balick, Andreana Ososki, Fredi Kronenberg, Jolene Yukes, Christine Wade, Francisco Jiménez, Brígido Peguero and Daisy Castillo. "The Importance of Botellas and other Plant Mixtures in Dominican Traditional Medicine." *Journal of Ethnopharmacology* 128 (2010): 20-41.
- Viladrich, A. "Botánicas in America's Backyard: Uncovering the World of Latino Healers' Herb-Healing Practices in New York City." *Human Organization* 65 (2006): 407-419.
- Yukes, Jolene E. and Michael J. Balick. *Dominican Medicinal Plants: A Guide for Health Care Providers*. *Dominican Medicinal Plants: A Guide for Health Care Providers*. New York: New York Botanical Garden, 2010. Accessed December 12, 2010. http://www.nybg.org/science/scientist_profile.php?id_scientist=1.