2017

Building Healthy Futures: Two Students' Experiences With Global Health in Rural Ecuador

Varsha Kumar

Purdue University, kumar192@purdue.edu

Daniel Shyu

Purdue University, dshyu@purdue.edu

Follow this and additional works at: <https://docs.lib.purdue.edu/pjsl>

Part of the [Community Health and Preventive Medicine Commons](#), and the [International Public Health Commons](#)

Recommended Citation

Kumar, Varsha and Shyu, Daniel (2017) "Building Healthy Futures: Two Students' Experiences With Global Health in Rural Ecuador," *Purdue Journal of Service-Learning and International Engagement*: Vol. 4 : Iss. 1 , Article 9.

DOI: <https://doi.org/10.5703/1288284316527>

Available at: <https://docs.lib.purdue.edu/pjsl/vol4/iss1/9>

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

This is an Open Access journal. This means that it uses a funding model that does not charge readers or their institutions for access. Readers may freely read, download, copy, distribute, print, search, or link to the full texts of articles. This journal is covered under the [CC BY-NC-ND license](#).

BUILDING HEALTHY FUTURES:

Two Students' Experiences With Global Health in Rural Ecuador

Varsha Kumar, *College of Health and Human Sciences*, and Daniel Shyu, *College of Engineering*

ABSTRACT

This article highlights two students' experience on Timmy Global Health's medical brigade to Quito, Ecuador. Timmy is a nonprofit, Indiana-based organization dedicated to advocacy, service, and fundraising on a domestic and global scale. Every year, Timmy sends a group of sixteen students and medical professionals to Quito, Ecuador, over Purdue's spring break to treat people in underserved communities who otherwise would not have access to quality health care. On this medical brigade, Timmy students travel to a different location each day for a week, set up clinic, and diagnose, treating nearly 100 patients a day. Those with conditions too complex to treat with the basic medications brought to the communities are referred to the Padre Carollo hospital in Quito, funded by Tierra Nueva, Timmy's partner organization in Ecuador. Through this trip, the authors were exposed to a very unique health care experience. The brigade was an opportunity to witness how the team's hard-earned donations directly aided the patients. Although they could have directly donated the two thousand dollars required to go on the brigade, the trip educated them in not only treating the immediate conditions in patients, but also in understanding the cultural, public health, and governmental roles in the reasons health disparities exist in Quito today. The trip inspired them to return to campus and work harder to collect donations and fundraise, as well as to advocate for global health and engagement in other ways college students can help.

KEYWORDS

Timmy Global Health, Ecuador, impact, health care, clinic

INTRODUCTION

In Ecuador, due to recent massive, unplanned urbanization, the city of Quito has considerably expanded, resulting in sizable disparities to health care access. Almost one third of the population lacks access to health care, and two thirds are uninsured with insufficient means to pay for health care (Lopez-Cevallos & Chi, 2009). Although a free health care system is available to the public, it is often not a viable option due to appointment waiting times of approximately 6 months (Timmy Global Health, n.d.). As premed students, Timmy Global Health seemed like a good fit with our interests in public health and international medicine. After hearing numerous testimonies regarding the life-changing experiences

that the Ecuador Medical Brigade provided, we were both convinced to apply. Varsha chose to participate in the medical brigade because she wanted to witness firsthand the impact the Purdue Timmy chapter had on the communities abroad. In addition, this trip would increase her understanding of rural health gained by previous experiences volunteering in rural Nicaragua and India. Daniel thought it was a wonderful opportunity to reaffirm his desire to pursue medicine and witness the impact that Timmy Global Health's sustainable health care has on the communities around Quito. Our service trips would enhance our understanding of the issues surrounding developing countries, as well as our advocacy skills to inspire others to learn about and become involved with global health.

In preparation for the trip, our leaders hosted monthly meetings to develop our Spanish skills, to meet the medical professionals accompanying us on the brigade, and to enjoy some classic “Timmy-Bonding.” In addition, each student volunteer participated in “Donation Days,” where medical items, such as toothbrushes and vitamins, are collected and transported to Quito with the brigade. Because many of the trip participants were new members, each brigade collaborated with Timmy Global Health headquarters in Indianapolis, gaining a better sense of the nonprofit organization’s mission and the ways in which our chapter’s trip fit into the desire for sustainable health care in Quito.

Timmy Global Health, commonly shortened to Timmy, is a nonprofit, Indiana-based organization founded by Dr. Chuck Dietzen in 1997. The organization’s name originated from Dr. Chuck’s younger brother, who died in infancy, and serves as a tribute to patients around the world who still lack access to primary care. Timmy provides health care services to underserved communities while empowering both student and professional volunteers by creating opportunities for service, advocacy, and leadership. In addition, we partner with local organizations within the host countries, providing financial, medial, and human resources to expand their outreach. This partnership ensures that our organization embraces each community and its unique situation, resulting in optimal, sustainable care. While Timmy headquarters are located in Indianapolis, there are 43 college and 10 high school chapters scattered throughout the country. Timmy supports over 6 countries, provides sustainable health care to 84,447 patients, and has donated over \$25 million to local community partners (Timmy Global Health, n.d.).

Every year, the Purdue Timmy chapter travels to Quito, Ecuador, on a brigade over spring break, bringing along health care professionals and basic medical supplies to provide primary care to locally identified, underserved communities in Quito. We provide care with our local partner organization, Fundacion Tierra Nueva, which supports an outpatient hospital, a team of community health promoters, and a mobile medical unit. While each patient is treated to the best of our medical professionals’ abilities, many conditions cannot be treated at our community clinics, so the patients are referred to the Tierra Nueva Hospital, Padre Jose Carollo, located in central Quito. Furthermore, Timmy subsidizes patient transportation and health care costs for the visit. Each brigade also brings translators, in addition to the health care professionals and students, to improve the communication between patient and provider.

DESCRIPTION

Once we landed in Quito, the work began. The night before each clinic day, we individually packaged vitamins and medication, such as acetaminophen and common antiparasitics, into easily distributable bags for the next day (see Figure 1). On the day of, we unloaded the medical supplies we brought with us from Purdue and set up the clinic. To maximize the number of patients served each day, the clinic was separated into eight stations (see Figure 2): registration, patient history, vitals, lab, primary care, pharmacy, eye care, and fluoride. In addition, each station communicated with each other through Timmy’s secure electronic medical record database, TimmyCare. Registration consisted of asking for the patient’s name to find their previous records or to initialize a medical history file. At the patient history station, translators recorded complaints, medical history, and family history into TimmyCare. Patient vitals, such as blood pressure, temperature, height, and weight, were collected and recorded. Urine and blood analyses were conducted at the lab station. Physicians and student scribes performed physical examinations at the primary care station. Pharmacy prepared medications prescribed by the physicians. At the eye care station, visually impaired patients received donated eyeglasses, and at the fluoride station, children’s teeth were painted with fluoride to improve their oral hygiene. We saw over 500 patients in five different villages of South Quito. Below, Varsha describes her daily experience; Daniel later provides a summary of how this trip impacted his time at Purdue and beyond.

The first day of clinic I (Varsha) was assigned to work the registration desk. Along with another student, I was tasked with the job of looking up each patient in the TimmyCare system to see if their information had been entered. This would give physicians a record of past

Figure 1. Students counting donated vitamins to take to clinic.

Figure 2. The stations on a brigade.

conditions, treatments, and general and medical history to better conduct their physical exams. In cases where the patient was new to TimmyCare, a new account was set up. It was interesting to see the clear differences between our cultures, even in the brief interactions at registration; for example, in Ecuador, people always gave both their paternal and maternal surnames, a major source of confusion. After around 1 p.m., registration slowed due to the high volume of patients seen in the morning and the limited time left. Several people came at the end of the day after registration had closed, asking if they could still receive treatment. While it was difficult to turn them away, we did not have the resources or the time to see everyone.

My second day of clinic, I scribed for a doctor in the primary care station. Essentially, I took notes on a patient's condition and updated the doctor's prescriptions into the TimmyCare system to allow the pharmacy station to process and prepare the medication ahead of time. While this station was tiring due to the continuous stream of patients, I gained additional insights into the differences between American and Ecuadorian patients. The Ecuadorian patients were extremely expressive in their gratitude toward the doctor, whereas I had witnessed contrary behavior from primary care patients in America. It was humbling to see how Ecuadorian patients saw receiving treatment as a gift as opposed to something routine, which made treating them more meaningful. The doctor also noticed that many patients would complain of pain, only to backtrack once questioned. The doctor speculated that many patients wanted to ensure they received some medication to certify that their experience

was meaningful. A significant incident that also illuminated the differences between the two cultures occurred when an old patient came in complaining of pain. When the doctor asked, "What seems to be the problem today?" the patient replied, "My heart hurts when I think of my daughter who died three years ago. Do you have any medication for that?" The patient had no understanding of the discrepancy between psychological and physical pain. All the doctor could do was explain there was nothing physically wrong with the patient, although he may have been suffering from a mental illness. With the regulations on subsidies and the lack of mental health professionals, we were unable to refer him for further treatment. In Ecuador, mental health policy and programs exist, but less than 10% were implemented by authorities. Mental health treatment is available at the primary care level; however, less than 25% of the population is covered by this service, making resources difficult to access (WHO, 2005).

On the third day of clinic, I was assigned to the pharmacy rotation. When initially setting up the station, a student helped maximize efficiency by organizing the medications alphabetically, rather than by indication, and by making sure that the most likely prescribed medications were the primary focus of our organization. Volunteers were grouped into two teams of two students. Within each team, one student would search for new prescriptions added into TimmyCare and label a bag, while the other counted, filled, and delivered medications to the nurses for verification. The fifth student at the station, who was mobile, was assigned the task of

managing the supply of medications for the two teams. This system was imperative in maintaining the efficiency of the pharmacy in such a limited space. While this system worked well initially, we soon ran into the problem of supply and demand. Toward the end of the day, there were shortages of certain medications and doctors were forced to prescribe alternatives. In addition, there were several occasions when the available medication was not in the correct dosage and pills had to be cut into smaller parts to ensure our patient received the correct dose. While we had to improvise through these difficult situations, the lack of availability to basic medication highlighted the importance of resource allocation.

During my fourth day of the brigade, I worked with three other students at the vitals station. For each patient, we measured blood pressure, temperature, height, and weight. In addition, we helped the laboratory station with blood drawing and blood and urine analyses. As a medical lab science major, I have had exposure to hospital laboratories, so it was interesting to see how large-sample processing machines were condensed to become portable and user-friendly in these rural communities. I observed how, in Ecuador, there was a much stronger sense of community than I was accustomed to back home. If a mom had to deliver a urine sample, another community member would immediately step in and offer to watch her kids. Or, if a kid needed blood drawn, people around the station would gather and comfort the child. Although the patient care was less private compared to the US, the support system the community had developed was interesting as it was a characteristic of what I had witnessed in other developing countries, but not in the US.

On the last day of clinic, I was assigned to fluoride—an incredibly fun station. Fluoride consisted of painting kids' teeth with fluoride and entertaining them while their parents were examined. While the number of kids were sparse that day, those who showed up were friendly and playful. In addition, to the delight of the children, the other student assigned to fluoride dressed up as Spiderman. One memorable experience from fluoride was when a girl who seemed slightly sick was discovered playing outside the clinic. When taken to the pediatrician, she was diagnosed with pink eye. However, when we searched for her family for consent for treatment, they were nowhere to be found. After extensive searching, her grandma, the primary caretaker, was found. The grandma refused to believe that the girl's condition was serious enough to require treatment and decided she could be healed with natural remedies. A doctor,

a volunteer student translator, and a nurse spent hours explaining that refusal to treat the infection would lead to a more serious problem. Finally, the grandma gave in and allowed the pediatrician to prescribe medicine; however, due to the brigade's schedule, we could not follow up and see if the girl was given the medication. It was frustrating being in an environment where doctors were not trusted for something so basic. Conversely, it showed the importance and necessity to consider the grandma's perspective and misunderstanding of modern medicine.

Besides working at the five clinics, we had the opportunity to visit the Tierra Nueva Hospital in central Quito and examine how it serviced some of the poorest residents of South Quito. We learned that Timmy had aided in funding the construction of the hospital and that the hospital received referrals for conditions that are untreatable onsite. The funds that Timmy chapters, such as our Purdue organization, collect are used to subsidize the costs of the referred patients' health care and transportation to the hospital. The experience was eye opening in terms of how the donations we as a Timmy chapter raised throughout the year were being used for patients.

COMMUNITY IMPACT

The medical professionals who came with us on the brigade were easy to communicate with, and we met a few of them before traveling to Ecuador. The Timmy coordinator who was stationed full-time in Ecuador was also friendly and helped us understand the way the clinic functioned. In Ecuador, the local volunteers from the Fundacion Tierra Nueva required a slightly longer time to adjust to due to the language and cultural barriers. However, after the first day of adjusting to how a clinic worked, we functioned much more smoothly. For pharmacy, in previous brigades, there was a significant lag time compared to when the rest of the clinic stations finished for the day. However, the new rotation-based system described above significantly slashed that lag time and increased efficiency. The purpose of the medical brigade was to provide care to 500 patients and to refer those with serious conditions. Every patient who came through the clinic was given a three-month supply of vitamins and basic hygiene items. We also educated patients on various sanitation and hygiene techniques to prevent easily transmittable diseases. For many of them, Timmy volunteers were their only source of continuous health care, meaning a different Timmy chapter will return to the same communities and provide health care services throughout the year. Education on the benefits of Western medicine as opposed to traditional home

remedies would also be beneficial in increasing the overall health of the community.

Going on this trip as a first-year student, my (Daniel's) trip was similar to Varsha's description of the day-to-day activities two years later. Our trip in 2014 was the first year that TimmyCare was used in the clinics, and it was enlightening to see the importance of a secure, electronic medical health record. Not only did this give Timmy Global Health an easier way to track patients and provide continuous care, but it also gave community and organization leaders the ability to quantify the positive and sustainable impact that our clinics can have on these communities.

STUDENT IMPACT

As premed students, the brigade was an invaluable shadowing experience in an international medicine setting. It was rewarding to apply the concepts we learned in class to real-time patient care settings. The monthly meetings leading up to the brigade were helpful in terms of bonding with the other trip participants, meeting the medical professionals, and exposing us to Spanish terminology. In recent years, the preparation for the brigade has focused more on improving knowledge of Spanish medical terms used in the clinics. In addition, increased cultural research and exposure to the TimmyCare system have been useful in preparing the recent trips for the day-to-day experience.

In addition to a cultural difference, communication was difficult due to the variations in Ecuadorian Spanish compared to the traditional Spanish taught in school. The Ecuadorian dialect is much faster, and the accents alter certain syllables, making interpretation more difficult, especially in the context of unfamiliar Spanish words. After the first two days, we became more familiar with the dialect and communication flowed more naturally. The other barrier to providing medical care was the shortage of medical supplies the last few days of the brigade. As a result, future brigades increased their donation goals and brought different levels of medication that matched our experiences.

Personally (Daniel), this trip also provided the motivation behind my change in focus throughout my time at Purdue. As a biomedical engineering student, I was torn between careers in industry, academic research, and medicine. However, this trip served as my first medical experience and showed me the potential impact that I can have on patients, students, and whole communities

as a physician. I brought these lessons and experiences back not only to motivate myself, but also to inspire other students to think about global health from West Lafayette. Even now, as I attend the University of Missouri School of Medicine as a first-year student, I still continually reminisce about this trip that reaffirmed my desire to practice medicine. This is something I hope future students have the opportunity to experience, whether it is through Timmy or another organization.

The brigade for me (Varsha) was an invaluable look at the modern-day challenges to achieving universal, reliable health care. Listening to patients' stories about both medical and casual topics illustrated the surface-level depth of the differences between Ecuadorian and domestic patients. It was eye opening to see the differences in the health care system and the relative challenges associated with the Ecuadorian system. Touring the city also educated us on the vibrant culture and rich history of Ecuador. The trip reminded us that there is still much work to be done toward expanding access to health care; however, it also provided us a sense of satisfaction knowing we had made a difference in the lives of so many patients. We used the experiences we had to fuel our passion for global health at Purdue and to raise awareness for issues that developing countries face. In addition, we actively work in our local communities to combat poverty through service and education.

CONCLUSION

The medical brigade was an opportunity to serve the rural communities of Ecuador, providing an invaluable opportunity to experience the complex issue of health care in developing countries. Through providing primary care, educating the community on public health issues, and supplying them with basic hygiene, we had a unique volunteer experience that opened our eyes to the impact of culture and the challenges of providing health care services in rural settings. Despite the two-year gap between our trips, we found that Timmy Global Health's consistency in the clinical environment has continued to benefit both the students and communities. Thus, this common experience reinforced our passion for global health and encouraged us to consider careers in international medicine. We encourage others to consider this experience because of the impact it has on our lives. While a donation may have a similar impact on a community, an experience that can educate and inspire the next generation of health care providers is invaluable. With these personal experiences, we will continue advocating, educating, and inspiring people to become

involved with global health. We plan use our experiences to advocate for global health at Purdue and inspire more people to get involved with global health issues.

ACKNOWLEDGMENTS

We would like to thank all those who helped edit our paper, especially Will Austin and Lindsey Daoust for their input and revisions.

REFERENCES

- Lopez-Cevallos, D. F., & Chi, C. (2009). Health care utilization in Ecuador: a multilevel analysis of socio-economic determinants and inequality issues. *Health Policy and Planning*, 25(3), 209–218. <https://doi.org/10.1093/heapol/czp052>
- Timmy Global Health. (n.d.). About us. Retrieved January 10, 2017, from <https://timmyglobalhealth.org/about-us/>
- WHO. (2005). Ecuador. In *Mental Health Atlas 2005*. Geneva, Switzerland: World Health Organization. Retrieved June 3, 2017, from http://www.who.int/mental_health/evidence/mhatlas05/en/

AUTHOR BIO SKETCHES

Varsha Kumar is a junior from Cupertino, California, majoring in medical laboratory sciences pre-professional within the Department of Health Sciences at Purdue. She participated in a service-learning experience on a medical

brigade with Purdue Timmy Global Health volunteers to provide medical care to underserved communities in Quito, Ecuador. The experience inspired her to become more involved with global health and to pursue a career in international medicine.

Daniel Shyu graduated with a bachelor's degree in biomedical engineering and is now attending the University of Missouri School of Medicine. Originally from Columbia, Missouri, Shyu attended the medical brigade in Quito, Ecuador in 2014. He also led Purdue Timmy Global Health's service trip to Atlanta, Georgia, where he initiated a discussion panel with CDC professionals. These experiences led him to pursue a career in public health to narrow the health disparity gaps found worldwide.

Kumar, V., & Shyu, D. (2017). Building healthy futures: Two students' experiences with global health in rural Ecuador. *Purdue Journal of Service-Learning and Engagement*, 4, 39–44. <https://doi.org/10.5703/1288284316527>