

I interned with the Carter Center in conjunction with the Vector Control Division of the Ministry of Health of the Government of Uganda during the summer of 2016. The internship lasted from June 1st to August 1st. The Carter Center is a non-governmental organization (NGO) founded in 1982 by former U.S. President Jimmy Carter that assists the Ugandan government in the eradication of preventable diseases, such as Onchocerciasis (river blindness), with the use of sustainable, low-cost solutions. Thousands of Ugandans are currently affected by river blindness, which manifests in symptoms ranging from itchy skin to permanent blindness.

River blindness is transmitted to humans by small black flies carrying parasitic worms that breed on crabs in well-aerated rivers. When one human is bitten, not only do they contract the disease themselves, they also serve as a host that can infect healthy flies, which will thereafter transmit the disease to other humans. Onchocerciasis is prevented in two ways, one is by the spraying of insecticides in areas neighboring fast-moving rivers, and the other involves a pharmaceutical regimen. In affected areas, every community member over the age of five is given two doses of Ivermectin each year.

As an intern, I compiled and analyzed data detailing the incidence of river blindness, and pre-existing treatment program outcomes. My time was also spent working with community members and leaders throughout Uganda in an effort to improve health education and environmental conditions, while participating in disease surveillance, prevention, and treatment programs that affect Ugandan health policies. I spent the majority of my internship stationed in Kampala assisting the Vector Control Division of the Ministry of Health with various projects structured to eliminate river blindness from Uganda. One of my roles involved examining skin biopsies and blood samples obtained

from villagers in the Carter Center epidemiology lab to ensure that Ivermectin is effectively treating river blindness. The small black flies are collected from rivers frequented by villagers and analyzed in the lab to determine whether or not they are carrying the parasitic worm responsible for the disease. If the flies test positive, the area will be re-sprayed with insecticide until it yields negative results.

I spent 11 days in Arua, Uganda meeting with politicians, Ministry of Health officials, village health teachers, community drug distributors and villagers to ensure that river blindness is being effectively treated within the district. This region shares a border with the Democratic Republic of Congo and has the highest prevalence of this endemic disease within the country, making it a priority for the Carter Center to closely monitor. Our team supervised health education meetings held in villages where community members were informed of what the vector looks like, where it is prevalent, and the resulting symptoms that can arise if they neglect to take the medication. My favorite aspect of this exercise involved answering questions and addressing the skeptics that resist the idea of taking Ivermectin as a means of protecting the health of themselves and their community. At the end of our time in Arua, I drafted a report that was submitted to Carter Center and Ministry of Health officials, informing them of the status of river blindness within the Arua district and suggesting various ways by which health education and Ivermectin distribution can be accomplished more effectively.

After health education sessions took place within the villages, follow-up surveys were conducted to gauge the villagers' understanding of the symptoms and mechanisms by which river blindness is contracted. The survey also asks if the disease affects them, or members of their communities. The results of these surveys allowed us to generate trends,

thereby illustrating which districts the Carter Center should prioritize when organizing future meetings with community leaders, insecticide sprayers, and drug distributors, to ensure effective treatment and prevention of the disease.

This experience allowed me to further develop the skill of working with individuals of a distinctly different culture to achieve a common goal. It has taught me the value of being adaptable and open-minded in order to successfully carry out the various tasks necessary to fight disease in underserved areas of the world. The elimination of river blindness from communities has a ripple effect on the economy and the lives of subsequent generations. Farmers are now able to cultivate abandoned plots of land bordering previously fly-infested rivers and children can spend their time going to school instead of devoting themselves to the burden of caring for blind family members. It is rewarding to know that I played a role in improving the quality of life of thousands of Ugandans through this experience.

As an incoming Senior, biology and Spanish double major on the pre-medical track, I plan on becoming an emergency medical physician with a Master's Degree in Public Health. In addition to practicing Emergency Medicine in the United States, I plan to utilize my knowledge of medicine, public health and the Spanish language to combat the under allocation of healthcare resources in developing countries. This internship has taught me how NGOs function at both the national and community level, while inspiring me to work towards embedding sustainable solutions that will enhance the quality of healthcare in underserved areas domestically and abroad.