

Lessons

An Ebola outbreak in the Kibaale District of Uganda reveals the soul of a public health worker

BY NANCY BRADY (SPH'13)

from a

Hot Zone



AGGREY TOUCHA

HELP ARRIVES Nancy Brady (left) greets counselor Maria Assumpta Nakafeero, who provided psychosocial support to Ebola patients.

“NANCY, WE HAVE a problem.” I looked squarely into the eyes of Bruno, our data manager, trying to gauge his concern. It was a phrase I was accustomed to hearing. I was spending the summer of 2012 working in public health centers in Kibaale, a rural district 136 miles west of the Ugandan capital of Kampala. The Ugandan health system was plagued by frequent shortages of workers and supplies, so “having a problem” was not particularly alarming. Bruno’s tone, however, was. He was noticeably shaken. “There is a mysterious disease that has killed 14 people, including Dr. Claire,” he said. “Now her sister is sick.”

Claire Muhumuza was a clinical officer at Kagadi Hospital and the new mother of a four-month-old baby. Swiftly, I made my way through the hospital, searching for the clinical in charge.

Kagadi Hospital was bustling, as it usually is, on this Thursday afternoon in the final days of July. About 40 people waited on old wooden benches in the outpatient ward. Several patients lay on multicolored sheets covering the dusty cement floor. Anxious mothers cuddled crying babies, waiting for their number to be called.

Nothing here appeared to be out of the ordinary. No triage system had been established in the outpatient ward. No public health message had been communicated in the hospital or on the radio. Personal protective equipment was not even being used. We are exposed, I thought.



On Saturday, two days after Bruno's warning, I got an emergency alert email from the US Embassy. The Uganda Ministry of Health had confirmed that the disease that had killed Claire Muhumuza and others in Kibaale was Ebola.

I didn't want to die. Working in international public health and having made at least 10 trips to Africa, I have seen my share of death and had my heart broken more times than I care to mention. I could tell many stories of pain and loss, but this is a story of hope and resilience, and it takes place in a country I have grown to love. It is a story of the determination of the Ugandans I have worked with. In the midst of an outbreak of one of the deadliest and most contagious viruses known to man, the health workers in Kibaale refused to run. And because I witnessed their unshakable dedication even in the darkest hours, I also refused to run.

EVERYTHING GROWS

I love Uganda. It's a green and incredibly fertile country that sits squarely on the equator. People say, "If you drop a seed in Uganda, a forest will grow," and it seems to be true. The country is said to have two seasons, rainy and dry, but from my perspective they are more like rainy and more rainy. During the more rainy times, the roads turn into long ribbons of mud. Cars that have sunk to their wheel wells wait beside the road for able-bodied pedestrians to push them out. Most people travel by foot or bicycle, and those going long distances pack into overstuffed minibuses called *matatus*. They share the bumpy dirt roads with trucks that drive at high speeds with their loads of



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She earned an MPH in international health from the School of Public Health in 2013.

PHOTOGRAPHS BY NANCY BRADY



WAITING ROOM A woman and her child, who had flu-like symptoms, await medical care. Both tested negative for Ebola.



TENSE MOMENTS Two women seek medical care at a health center in Kibaale while family members wait nearby.

cows, goats, and pigs, while men hang on rails on the open back.

On my trips from Kampala to Kibaale, a three-hour trek on paved and unpaved roads, the windshield of our four-wheel-drive truck was inevitably splattered with mud. In Uganda, there is no such thing as a yard, so life takes place in the streets. The centers of the towns are teeming, as people carry goods and foodstuffs. In the mornings, children dressed in brightly colored school uniforms line the edges of the road on their way to school. And in the evenings, the number of villagers seems to multiply. Music pours from speakers through the wee hours of the night.

I was a School of Public Health student, thrilled to be working at the Infectious Diseases Institute (IDI), a local Ugandan nonprofit where I have volunteered in communications and training since 2008. The effort was doubly rewarding, because it served as my summer practicum, a requirement for all international health students at SPH. Founded in 2003, IDI has trained thousands of health care workers throughout Africa in research and clinical management of infectious diseases, particularly HIV, malaria, and tuberculosis. Largely because of its compassionate—and mostly Ugandan—leadership, IDI has earned the trust and confidence of all Ugandans. The organization routinely adopts the most ambitious programs, including Saving Mothers Giving Life (SMGL), which I was working for as a communications specialist (*see sidebar*). Our goal was a reduction in maternal mortality of 50 percent in one year. To do that, we planned to build an emergency obstetric care system and create a referral system to link facilities to emergency transport. Ultimately, SMGL hopes to provide 24-7 access to health care at government health centers.

A TRAGIC AFFINITY FOR UGANDA

Identified in 1976, Ebola hemorrhagic fever is a fierce, often lethal, filoviral disease, with a case fatality rate of 50 to 90 percent, according to the US Centers for Disease Control and Prevention (CDC). It can be hard to diagnose, because the symptoms are similar to those of other tropical diseases, and positive identification requires testing that can be done only at a special pathogens facility.

Ebola has a 21-day incubation period, and health experts believe that patients are contagious only if they exhibit symptoms: headache, joint and muscle pain, sore throat, and weakness, followed by diarrhea and vomiting. The virus is most likely to spread in three ways: contact between family members, close contacts, and caregivers of the sick (the contagion can spread via personal belongings, such as clothes, cups, cell

Tackling Maternal Death in Africa

Saving Mothers Giving Life (SMGL), the organization Nancy Brady worked for in Uganda, is a partnership of public, private, and nongovernmental agencies working in the field of global health. Its primary goal is to reduce maternal and newborn deaths; 40 percent of the deaths of children under age five occur in newborns. SMGL has also partnered in Zambia with the BU chapter of Engineers Without Borders, under the guidance of Muhammad Zaman, a College of Engineering associate professor of biomedical engineering, and with the BU Center for Global Health & Development, under the guidance of Donald Thea, a School of Public Health professor of international health. Thea

phones, and money); contact with bodies during burial proceedings (in Uganda, family members—usually women—bathe, clothe, and prepare a body); and contact in health centers, from the reuse of medical equipment.

Ebola appears to have a tragic affinity for Uganda. The virus has struck the English-speaking landlocked East African country 4 times in the last 12 years. In 2000 and 2001, an outbreak in the Gulu, Masindi, and Mbarara Districts killed 223 people, with a case fatality rate of 53 percent. In 2007 and 2008, an outbreak of a different strain in the Bundibugyo District killed 42 people, or 32 percent of those who had been infected.

Those outbreaks, among other things, have moved Ugandan health officials to beef up emergency preparedness efforts. In 2000, the government created a national policy for disaster preparedness and management and adopted the Integrated Disease Surveillance and Response (IDSR) strategy, a system linking national laboratory services to regional and district health centers. The IDSR relies on village health teams to report priority diseases, and they in turn notify health centers, which alert national authorities. The government also established the Uganda Virus Institute, a special pathogens laboratory built in collaboration with the CDC and the Uganda Ministry of Health, which is now capable of diagnosing highly infectious diseases like Ebola.

When Ebola hits a country like Uganda, it can be disastrous, stretching an already strained health care system to the breaking point. Uganda, where the government pays for only 20 percent of the country's health care spending, relies on aid from international agencies, whose fastest response can never be fast enough to contain a virus like Ebola. The initial defense always falls to the local health teams.

In Kibaale in July 2012, the Ugandan IDSR system failed to detect the first flush of Ebola. While it was Claire Muhumuza's death that set off alarms, the virus had been active for weeks before she got sick. The so-called index, or primary, case was found to be a family from Nyanswiga village in Kibaale District, where 12 people died suddenly in early July. Community members knew of the deaths, but because they suspected that witchcraft was the agent, they failed to report them.

When tests at the Uganda Virus Institute confirmed that the killer was Ebola, President Yoweri Museveni ordered all of the district's markets and schools to close. Public transportation was halted. People were discouraged from shaking hands or assembling in public places.

In Kibaale, dread was taking its toll. Some health care workers at Kagadi Hospital refused to show up for work. Villagers started to abandon

their homes, escaping what many continued to think was an illness linked to witchcraft. Outside Kibaale, word got out that at least one infected patient had been transferred to the national hospital in the capital.

Six days after my conversation with Bruno, international agencies started to arrive in Kibaale. The CDC, the World Health Organization (WHO), Médecins Sans Frontières (MSF), and the Red Cross met with local officials from the Ministry of Health and mapped out a plan, which included setting up an isolation unit for those who were infected, putting in place a safe disposal method for the highly contagious human waste and personal possessions of the sick, and making sure that all burials followed WHO guidelines.

At Kagadi Hospital, the international agencies found that the locals had done little to contain the virus. Fiercely contagious human waste was being collected in buckets and thrown out in back of the quarantined patient ward. The clothes and personal belongings of the sick were tossed in piles on hospital grounds. Even the health care workers were not wearing sufficiently protective clothing. Alarmed by the dangers, MSF quickly erected a fence around the hospital.

Alex Coutinho, IDI executive director, along with SMGL program manager Brenda Picho, was one of the first to arrive. What he saw was a perilously understaffed hospital and a frightening lack of supplies. All of the patients were confined to the isolation ward, and those who wished to leave were allowed to do so only after they had had two negative tests for Ebola. Because family members, who often bring food to hospitalized relatives, were barred from entering the quarantined ward, many had not been fed. Some had lost loved ones. Alone, scared, and hungry, patients threatened to leave the hospital in search of food. Coutinho also saw that those staffers who did show up were working around the clock. He arranged the delivery of workers, food, and supplies.

Over the next three weeks, my work with SMGL was put on hold, and I made three trips from Kampala to Kibaale, delivering supplies and food to health centers and clinics. We carried bleach, gloves, sanitizer, medical boots, and personal protective equipment. We also brought staples that included *matooke* (green bananas), groundnut sauce, and rice, all cooked by IDI personnel. Our efforts, and mainly the steadfast dedication of the hospital staff, were staving off even greater calamity.

THE STUFF OF BAD TELEVISION MOVIES

Back home, I knew, few people were aware of the outbreak. Their ignorance of the tragedy, through no fault of their own, drove home for me the great



AGGREY OUCHA

A NEW DOCTOR IN THE HOUSE

Brady with medical officer Michael Suuna, hired by SMGL to provide emergency obstetric care.

is working in the Southern Province Medical Office of the Kalomo District, putting in place several interventions to improve the accessibility and quality of maternal health care services. Founding partners of SMGL include the US government, the pharmaceutical company Merck, the government of Norway, the American College of Obstetricians and Gynecologists, and the nonprofit organization Every Mother Counts.

disconnect between our lives in the United States and the tragic realities of so many places around the world. I knew that for practically all Americans, events like an Ebola outbreak are the stuff of bad television movies. I learned that Ebola, like many hardships across the African continent, is real. And I learned that the way we choose to respond is just as real. We do what we can: take precautions, try to help, and try to stay positive.

Through it all, I felt many things, but fear was not one of them, although I breathed a sigh of relief when I moved beyond the 21-day incubation period with no symptoms of Ebola.

I never seriously thought about returning home to escape the danger. I knew that situations like this were precisely when public health professionals were needed the most.

On August 17, I boarded a plane back to the United States, as scheduled. I kept in touch with people in Uganda, and learned that many patients had improved and the number of new Ebola infections slowed after I left. On October 4, 68 days after the outbreak was identified, the Uganda Ministry of Health declared it over. All told, 53 people had been infected, and 16 had died.

Many more would have died had it not been for the doctors and nurses I saw working night and day in Kibaale, sometimes without electricity and in conditions that could jeopardize their own lives. Looking back, I could never have guessed what my summer would unveil. But I could have guessed that I would come back humbled. Uganda can do that to a person, and it had done it to me, again. ■