

Becoming a Disease Detective

Behind the Scenes at the CDC **by Michael Gerot**

I APPROACHED THE GATE AND FLASHED THE GUARD MY I.D. BADGE. SECURITY GUARDS ESCORTED ME OUT OF MY VEHICLE WHILE DOGS CHECKED IT FOR EXPLOSIVES. ONLY THEN WAS I ALLOWED TO ENTER THE HEADQUARTERS OF THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) IN ATLANTA, GEORGIA. I WAS THERE LAST SUMMER TO ATTEND THE CDC DISEASE DETECTIVE CAMP, A ONE-WEEK PROGRAM THAT GIVES HIGH SCHOOL JUNIORS AND SENIORS THE OPPORTUNITY TO EXPLORE CAREERS IN PUBLIC HEALTH AND GET A GLIMPSE OF WHAT GOES ON BEHIND THE SCENES AT THE CDC.



JAMES GATHANY, CENTERS FOR DISEASE CONTROL AND PREVENTION

I became aware of the CDC in 2014 when I read an article in *Discover* magazine about the work they were doing to try to contain the Ebola epidemic in Africa. I was intrigued by the idea of helping to prevent major disease outbreaks and having a global impact on public health. An academic counselor encouraged me to pursue my interest by submitting an application for the CDC-sponsored summer camp. I applied in February and learned in May that I was one of 30 students selected to attend the camp in June. We would stay at a local hotel with counselors who had previously attended the camp and spend our days exploring the inner workings of the CDC.

Where Science Meets Passion

Founded in 1946 as a division of the U.S. Department of Health and Human Services, the CDC works to identify and prevent potential disease outbreaks and inform the public about healthy behaviors. It comprises researchers, public affairs officers, and doctors who specialize in preventing the spread of disease. The organization uses advanced computing and lab analysis of huge amounts of data to track diseases and their causes and quickly

The CDC's Arlen Specter Headquarters and
Emergency Operations Center in Atlanta, Georgia

find solutions to impending threats like the highly contagious—and deadly—Ebola virus.

If there was ever a time to appreciate the role of the CDC, this was it. The Ebola epidemic was at its peak, and the world was terrified. The CDC employees who spoke to us about their work in Africa were passionate about their mission. Although they knew that Ebola was dangerous, that knowledge didn't outweigh their desire to care for sick people, their families, and the communities in which they lived.

Public Health: A Big Umbrella

I was struck by the range of specialists who work at the CDC. In addition to epidemiologists, we heard from behavioral scientists, human resource specialists, health education specialists, and computer technologists. One of my favorite lecturers was a violence prevention specialist, a job I hadn't associated with the field of public health. He explained that he uses the same tools as those who work in disease prevention and eradication, but that he works in schools and communities. Like any epidemiologist, he must identify the cause of the problem that led to its spread and eliminate the source of the problem.

Recently, he had worked in a small southern U.S. city to learn why there was so much fighting in local schools and an increase in homicides in the community. He went into the schools and the community to talk with students and families, many of whom didn't exactly welcome his questions, to try to determine the reason for the increased violence. Ultimately, he found that the school conflicts stemmed from new zoning laws that had led to the integration of students from two rival schools. The increase in homicides, he concluded, resulted from the elimination of a public transportation system that cut down on available jobs and limited community members' ability to commute to other jobs.

His work stood out from the others' in that the problems he was trying to solve were abstract and their roots ingrained in society. Solving such problems requires a lot of thought and exploration of possible solutions. Due to confidentiality requirements, we never learned the name of the city, and the case is ongoing. It was fascinating, though, to realize how wide of a reach the CDC has.

On the Trail of Infectious Disease

In addition to lectures, we attended a public health fair at the CDC's David J. Spencer Museum, where we talked with CDC employees about their work. One woman had spent her entire career examining foreign cruise ships docked in domestic waters for infectious diseases. I had never considered the hard work that goes into inspecting and clearing a cruise ship before it can sail.

We also had the opportunity to work with live bacteria in a Biosafety Level 2 lab within the CDC's PulseNet labs. Biosafety levels

range from one to four, with four dealing with the most dangerous microbes, such as Ebola. While a BSL-2 lab houses microbes that pose moderate hazards, such as the equine encephalitis viruses, the particular microbes we were allowed to work with were harmless. In a mock scenario, we used gel electrophoresis to determine the origin of a microbe and evaluate its potential to lead to an outbreak. It was thrilling to talk with professionals who were at the top of their fields and to have their assistance as we worked in the lab.

Communicating Calm

One of the more entertaining activities involved attending a mock press conference where the CDC's director, Dr. Tom Frieden, explained what's involved in giving a live address to the nation in the event of an epidemic. A key part of his job is not only making sure that the public trusts what he has to say, but also that he keeps classified details classified. It's a difficult but important balance to maintain, because you don't want to cause unnecessary panic among the public. He told us that it's okay to say you don't have the answer to a particular question yet, as long as you're clear that you are hard at work finding one. It's better to tell too little than to say something that might not end up being true, he said.

Following Dr. Frieden's "press conference," we conducted our own mock press conference. We were each assigned a role as a reporter, speaker, or technician. I was part of the technical group that learned what went on behind the scenes during an actual press conference, from camera placement to volume control. From the green room—the technology hub of the press conference center—we watched as our fellow campers addressed the public about a mock outbreak of measles and fielded questions from the media. We saw Dr. Frieden's advice in action as the students made sure to clarify which details were classified before the press conference and then reassure the press that the CDC had the outbreak under control.

The CDC's use of advanced diagnostic and computing techniques, their vast reach, and their ability to communicate widely with the public help decrease our vulnerability to epidemics and other threats to public safety. While I'm still considering career options, my experience at the CDC has opened my eyes to the many opportunities in the field of public health. ■



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Learn more about the CDC Disease Detective camp at www.cdc.gov/museum/camp/detective.