Part One: The Future of Health Security

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The World Health Organization recently declared that the outbreak of the Ebola virus disease in Liberia is over. At the peak of transmission for Liberia, which was in August and September 2014, the country was reporting 300 to 400 new cases weekly. Now Liberia has zero new cases of Ebola. WHO calls the declaration "monumental" for a country that "reported the highest numbers of deaths in the largest, longest and most complex outbreak since Ebola first emerged in 1976."

Over 10,000 people have died in West Africa since the Ebola outbreak was officially declared on March 22nd in Guinea. The outbreak is the largest ever and at its height it spanned seven nations four of which have been declared Ebola free. “It will happen again,” says the Director of Global Health Delivery and Diplomacy at UCSF Global Health Sciences.

Dr. Eric Goosby says we have never found the initial source of Ebola “we have never figured out the reservoir for Ebola. The organism appears, is transferred to a human being and we then see a sick human being but then it disappears from months to years in the same region and we’ve never figured out where it hides.”

Dr. Goosby says that it is just a matter of time before the virus will be documented as being found in fruit bats. Experts have found Ebola’s genetic material in the feces of fruit bats so they know it is in the fruit bat on some level but Ebola has not been successfully recovered from the animal itself.

Western Africa has seen Ebola before but it has always been short lived and contained. “Ebola usually kills one so quickly they don’t have time to spread it,” says Dr. Goosby. But what happened this time was different. “This time the virus had mutated to develop an incubation period that was long enough to allow for the person to be infected, be viremic (have the virus present in his/her blood) but not have symptoms—which is when a person spreads Ebola,” says Dr. Goosby.

At the beginning of the Ebola crisis many people distrusted the Ministry of Health during this time and some went on the radio saying the Ministry of Health just wanted money, says the Liberian Ministry of Health’s Deputy Incident Manager Miatta Gbanya. She says the first few cases of Ebola in Liberia were identified in the spring of 2014. “Between March and April we didn’t have that many cases; it was primarily in one rural location” says Gbanya. “People in rural areas felt it but the ones in the city just heard the news,” says Gbanya. “For a long time (as a country) we were in denial about Ebola,” says the Liberian

Ministry of Health's Deputy Incident Manager. Because of this denial there was a delay in Liberia's internal response to its own Ebola crisis.

But by June or July no one in Liberia could be in denial about Ebola any longer. Gbanya describes the summer of 2014 as a time of intense fear and hopelessness. She says that once Ebola hit urban areas in the summer of 2014 "it spread like wildfire" because once it hit the city not only were highly populated areas affected but "people started to leave and go out to the counties with certain practices such as bathing the dead. There's just constant contact among people. We had issues with taxis and motorcycles transporting Ebola patients." Liberians "were scared and we were going to do everything in our power to save Liberia" says Miatta Gbanya.

Most people who were in West Africa during the summer and fall of 2014 describe what they witnessed as "something unlike anything they had ever seen." Most people tend to stare off in the distance. A look washes over their face; its almost as if they are struggling for words to describe what they saw, what happened to their friends, family, coworkers but that nothing comes close. Some use terms like "apocalyptic," or just say "bodies." But it seems impossible for anyone who was not there to truly comprehend what was taking place. "You can't imagine the fear," says Gbanya. "Those people who were going on the air a few months back saying they wanted to see a body from someone who died of Ebola—from July to November—we all saw everything that anyone could see from Ebola. Bodies that haven't been picked up for days—there weren't enough beds to isolate sick people." says Miatta Gbanya.

"During the height of Ebola my nephew ran to me in terror. He was about twelve years old. He said 'I'm sick. I'm sick. Don't touch me.'" Miatta Gbanya says her nephew was sick because he had a fever and that even though he is still a child he was trying to protect her. Her nephew only allowed her to touch him if she wore gloves. "So I told him 'watch me, I wont touch you I will wear the gloves,'" and he let me give him a rapid Malaria test and he tested positive for Malaria.

Even Miatta says she once thought she was going crazy when she had food poisoning. She was vomiting, had cold chills and was taken over by the fear that she too had contracted Ebola during her time out in the field helping respond to the epidemic.

When the Ebola outbreak hit West Africa in 2014 it had been spreading for about four months before anyone realized a new outbreak had occurred says Dr. Goosby. President and CEO of the Skoll Global Threats Fund. Dr. Larry Brilliant, an epidemiologist, was instrumental in the eradication of small pox. Dr. Brilliant says, "outbreaks are inevitable but pandemics are optional." Health experts such as Dr. Goosby, Miatta Gbanya, Partners in Health Co-Founder Paul Farmer and the head of the UN Ebola Response team Tony Banbury all agree with Dr. Brilliant. A pandemic is optional and in the Ebola crisis it was exacerbated by lack of a sufficient rural health monitoring system, poor road infrastructure in rural areas, strained human resources, limited space within hospitals, lack of isolation rooms within medical facilities, and absence of supplies and equipment in the wake of crisis. Another factor that exacerbated the spread of Ebola within Western Africa was that the Ebola blood test is not one that is readily available in most countries because many countries did not have the required laboratories set up to test for suspected cases. This delayed what could have been a prompt isolation and treatment of people with Ebola had there also been enough hospital beds for men, women and children who needed to be placed in isolation.

"Liberia as a country did not have the capacity to test for Ebola," says Miatta Gbanya, "we had to send all our samples to Guinea." Also, just a few months before the Ebola outbreak Liberia had gone through a nationwide health care strike. Health workers were demanding better benefits, compensation and working conditions. Many public hospitals were already under staffed and there was very little enticing people to join the health worker field. Then Ebola hit. Health workers began dying faster than patients. Some health workers weren't showing up out of fear. "Clinics were getting boarded up because they weren't

staffed," says Dr. Goosby. As a result all other services started to decline. "Maternal and child health rates started to decrease because these services weren't being provided. Other metrics that the health system was measuring all went south," added Dr. Goosby. First responders were dying and there was no one left to respond because "the reserve was zero." Dr. Goosby says "there were also people dying in these countries from HIV, TB and Malaria. So the tragedy of the clinic closing not only impacts treating Ebola but all the treatable and diagnosable illnesses that could have been engaged with and weren't because of the lack of that healthcare facility." At the height of the outbreak the fatality rate of health workers infected with Ebola was 57% higher than the overall fatality rate of Ebola in all of western Africa, which was around 47% in October according to the World Health Organization.

In September 2014 the U.S.' Centers for Disease Control and Prevention estimated Ebola would reach 1.4 million cases within four months. This shocked the international community and the reason these numbers weren't ultimately realized was because of the funding and manpower poured in to assist Sierra Leone, Liberia, and Guinea. Liberia had been working toward fighting Ebola on its own but it needed more health workers, more facilities and more money.

"Had the international community engaged earlier, fewer people would have been infected. That's all. It's pretty simple. That being said, the international community did respond and the response made a remarkable difference," says Dr. Goosby. "When we knew help wasn't coming as early as we expected we still had our own boots on the ground. You have to make do with the limited resources you have," says Miatta Gbanya who was part of the team responsible for the Liberian Ministry of Health's response to Ebola. Had the alarm bell from the WHO sounded earlier the international community could have responded earlier say global health policy experts. "It was August when the World Health Organization said that this was an extraordinary outbreak of international significance and this is a category in the UN system that opens up money that can move to the outbreak. Until that is declared the money doesn't move," says Dr. Goosby. It was MSF that was ringing the alarm bells all summer says Dr. Goosby. Miatta Gbanya says she understands the fear that may have delayed the international community's response because it took Liberia nearly four months to realize that Ebola was a problem of high magnitude within its own borders.

Before responding, non-government agencies also had to try to convince people to go to Liberia in the midst of a reported Ebola outbreak says Gbanya. But Gbanya says Liberia is grateful for the international community's support. "Be it that help from the international community came late, that help still made a difference and it got us to where we are today. Those tents made a difference. Construction takes time," said Gbanya.

When the international community did react, global health policy experts say there was very little coordination among the various groups working towards fighting Ebola. "There wasn't one single common place for all the responders to send information that could be collected, aggregated and analyzed," says Dr. Goosby. "There was no one orchestrating everything and that allowed for more people to get exposed," says Dr. Goosby. "Information analysis that needs action should have more adroitly identified then it was. And there is a technical component to that," says Dr. Goosby. "Sometimes it's a matter of getting software from one place to talk to other software but even if it had been done by paper it would have been better than what it appeared to be," added Dr. Goosby.

The lack of coordination among responding agencies is why in September of 2014 the first ever UN emergency health response mission was established after the unanimous adoption of a General Assembly and Security Council resolution on Ebola. "There was no plan to end the crisis" prior to the establishment of the United Nations Mission for Ebola Emergency Response says first head of UNMEER and current Special Representative to the UN Secretary General Tony Banbury. There was only one purpose for the Mission and it was to "bring crisis management capabilities to the Ebola response," says Banbury, who stepped down in January. "The governments, communities, UN Agencies and NGOs were all generating some progress on Ebola response but it was happening in pockets of isolation and there was no over-reaching plan to end the crisis," says Banbury. "The same agencies that were on the ground when UNMEER was established were the same ones that were on the ground as the crisis was getting worse and worse so we couldn't rely on current capabilities," says Banbury. "They had shown they were incapable when the issue was much smaller and now the risk

was much worse. So that role of crisis management starts with a plan to end the crisis," and that is what UNMEER brought to the table says Banbury. "The crisis is not over but is under control. The capabilities necessary to end it are in place and I very much believe it will be ended in the not to distant future," says Banbury.