

CDC Ebola Response Oral History Project

The Reminiscences of

Thomas K. Nagbe

David J. Sencer CDC Museum

Centers for Disease Control and Prevention

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Thomas K. Nagbe

Interviewed by Samuel Robson

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Interview 1 of 1

CDC Ebola Response Oral History Project

Q: This is Sam Robson. I'm here today at the EOC [emergency operations center] in Monrovia, Liberia—this is March 6th, 2017—with Mr. Thomas Knue Nagbe. We're here talking about Ebola history for the CDC Ebola Response Oral History Project, a project of the David J. Sencer CDC Museum. Mr. Nagbe, I'm very pleased that you gave me some time today, thank you so much.

Nagbe: Thank you very much.

Q: If we could just start out, would you mind pronouncing for me your full name?

Nagbe: My name is Thomas Knue Nagbe. The center name of course is a traditional name.

Q: What is your current position?

Nagbe: [I am currently serving as the director of the Infectious Diseases and Epidemiology Division, National Public Health Institute of Liberia. Before the transition, I was serving as the director of the Disease Prevention and Control (DPC) Division,

MoHSW [Ministry of Health and Social Welfare]. The transition did not affect the core functions of my program.]

Q: If you were to describe to someone in only two to three sentences what your role was in halting the Ebola epidemic, what would you say?

Nagbe: My role, when the disease struck Liberia, I was then serving as the director for Disease Prevention and Control. Before the disease entered Liberia, we had received communication from Guinea through the office of the minister of health indicating that there was some situation in Guinea [assumed by the Guinean authorities as Lassa [fever]]. Hence, I have received communication from the Guinean minister of health requesting Liberia's assistance with ribavirin, because we had adequate quantity of ribavirin in stock. (Ribavirin is one of the essential emergency drugs for Liberia and Lassa fever is endemic in four counties.) While processing the request, I was informed by the minister of health to disregard it because the cause of the outbreak had been identified. It was Ebola.]

[The Liberia situation began in March, while serving in my former capacity. I led the epidemiological surveillance technical working group. This group was coordinating data collection, investigation, and producing situation reports, amongst other things. I was also supporting the coordination at the national level, co-chairing meetings with the chief medical officer, Dr. Bernice Dahn, and working very closely with epidemiologists from CDC, WHO and other partners and working groups.]

Q: Thank you very much. If you don't mind, can I ask you—this is going back in time, but where and when you were born?

Nagbe: Wow. [laughter] I was born in Monrovia, zero-nine, zero-nine, nineteen seventy-five.

Q: Thank you very much. Did you grow up in Monrovia?

Nagbe: I spent most of my time in Monrovia, but I also did part of my schooling in Sierra Leone.

Q: Like high school, or what age?

Nagbe: [I graduated at age sixteen from high school. More than 60% of my early learning was achieved in Sierra Leone. Reunited with my parents before the 1990 war in Liberia.]

Q: You stayed in Liberia?

Nagbe: [Yes, since then I have been in Liberia, except for official travels, including school.]

Q: How did you get into the field of health?

Nagbe: [At the end of the major episode of the war, I enrolled at the Tubman National Institute of Medical Arts [TNIMA] and graduated with honors as a physician assistant. Following my graduation in 1998, I served as officer in charge [OIC] for about five years in a county hospital, and a primary health care screener in peripheral health centers and clinics,] especially in rural Liberia. That was [Grand] Cape Mount [County]. I worked in that place for about three years or so, and later moved to Monrovia and graduated from the University of Liberia, acquiring a bachelor of science [biology], and thereafter, I acquired a [master's] degree in public health.

Q: What interested you about public health?

Nagbe: [My interest was catalyzed, or driven, by immense involvement as a primary screener in community-based activities. Secondly, with the Global Polio Eradication Initiative, I was elevated to the position of district coordinator. I was the focal person for Gola-Konneh District, Cape Mount County. My responsibilities included managing supplementary immunization activities, including the polio and yellow fever immunization campaigns. In 2002, I was requested to take assignment at MoHSW by the newly appointed director of the Emergency Preparedness and Response (EPR) Unit, who was previously serving as the county health officer of Cape Mount County. While in EPR unit, I served as the assistant director. During this period, I was hugely involved in public health activities; planning and coordinating reactive immunization campaigns; outbreaks of communicable disease; and representing MoHSW in coordinating humanitarian crisis

response (from the crisis we had in 2003-2004). We had to coordinate with partners working in displacement camps and making sure that the needs of Liberians were met in accordance to existing standards. I have seen how much can be gained or achieved in public health to save more lives than you can imagine.]

Q: What were some of those needs, just very briefly?

Nagbe: Very briefly, it was around water sanitation, making sure that the standards that the Ministry of Health set are [instilled]—what type of latrines or access to safe drinking water and food security issues, health conditions in the camps were all met. And partners that were doing these activities, we ensured that they do what they were hired to do.

Q: What did you do next in your life?

Nagbe: [Given the enormous work demand in the expanded program on immunization in Liberia, I was requested to serve as deputy director (2006-2008) and director (2008-2010) of the expanded program on immunization (EPI).]

[I also worked briefly, a year and a half I guess, managing the Neglected Tropical Disease Program, EPR and Epidemiology Units of the Ministry of Health.

Following a review in 2012 and the return of the former director of EPR, I led the creation of a division called Disease Prevention and Control (a merger of the EPR Unit

and the Epidemiology Unit) in order to relinquish the Neglected Tropical Disease Program to another person.]

Q: When did that division come to be?

Nagbe: In 2012.

Q: What were you doing from then, from 2012 up to when the Ebola outbreak began?

Nagbe: We've been rolling out public health surveillance, but basically looking at priority diseases. These priority diseases were immediately, weekly reportable diseases, and we produced weekly bulletins. We [were principally active in responding to any outbreak and sometimes prompt action based on predictive probabilities.] Basically, that's exactly what we were doing from 2012 until we got Ebola into our hands.

Q: You described at the beginning how initially, Guinea reported down to you and thought that it might be Lassa, but then you got worried that it would be Ebola. What happened then?

Nagbe: To be honest with you, we did not see Ebola coming. We thought like them, that it was Lassa, because Lassa is endemic in the three countries. That's Liberia, Guinea, and Sierra Leone. When we began receiving reports that they've confirmed this is Ebola, it brought us to a standstill. Because one, we were not technically equipped, even though

it's one of the hemorrhagic diseases. [We knew much more about Lassa than Ebola and Marburg [virus disease]. We initially had to work with what we had with WHO [World Health Organization] guidance. The initial resources, including national staff deployment, was supported by WHO and MoHSW.]

We began receiving cases in March in Liberia. [Then we deployed teams to Lofa [County] over a period of time. We had one imported case from Lofa to Monrovia; we followed that case. The total number of laboratory-confirmed cases recorded during this episode was six. We had a one hundred percent case fatality rate. The last case died on the 9th of April and was buried on the 10th following a very tough negotiation that was brokered by the International Federation of Red Cross and Red Crescent Societies. After this cluster of cases, I was deployed to the epi-center especially following the withdrawal of Dr. Peter Clement from WHO in the month of May. I was in Lofa when the second cluster of cases were confirmed, beginning with a Liberian lady (the probable case) who travelled from Sierra Leone to seek medical attention in fatherland. She was seen at Foya-Borma Hospital, but a day after, left the hospital against medical advice. The team was notified when another member of the family fell ill and died, and others were feeling sick. This was around the close of May 2014. Most likely the 29th-30th. The situation escalated beyond Foya to Voinjama District within two to three weeks. Following these developments, I had to relegate some of the national-related functions to Luke Bawo (coordinator of the health information system and research, MOHSW).]

Q: Mr. Luke Bawo?

Nagbe: Yes, Luke Bawo, so that I can pay absolute attention to the response at that end. [However, I was recalled] by the minister [of health, Walter T. Gwenigale], “I think you need to come to Monrovia since cases have begun coming at this end and see how we can help coordinate this entire process.” I had to come down to Monrovia, and others were sent to Lofa. But while we were in Lofa, I was able to work very closely with the community. I was able to work with the community to ensure that, one, we were able to introduce household surveillance during this process. We were also able to leverage support from the indigenous traditional custodians, because we realized that most of the predisposing factors that were persistently fueling the outbreak were: [religious festivities—traditional burial rites and rituals for the dead; the myths of disease; the uncultured way in which their dead were managed without dignity (meaning buried in bags as if they had no one,)] etcetera. So it was incumbent that we have the traditional folks, traditional chiefs, town chiefs, be involved and lead the process. We had a couple of town hall meetings in which they were able to pin down some resolutions as to people that entering the community, what should be their function, who should they report to. If someone enters the community without their notice, who will be penalized, and the rest of it.

Another critical group of people we also identified was the motorbike riders. We were [clandestinely notified that they were transporting dead bodies for burial at night. The reason for this act by the families was because of the response to dead body management. Bodies were bagged, put in open pickups, and driven in the middle of the town. This act

was against cultural practices and the body of the dead will never be in peace. In response to the act, the Lofa team had to establish community vigilante groups to set up road blocks at night. These guys were up at night, monitoring every process, and we were able to train the riders and deployed hand-washing facilities at the motor bike parking lot and advise other measures.]

[Other related effort were: to coordinate supplies, including finances; liaise with the district superintendent (chair of the coordination) to establish burial teams; and liaise with the MSF (Médecins Sans Frontières) team working in Guinea for supplies and sample testing in Guéckédou. At this time, Liberia had no capacity to confirm EVD (Ebola virus disease) in-country. Samples from Monrovia were also transported to Guéckédou to be tested. The turnaround time for lab result was a week in some cases more.]

Q: Can I ask, what was the mood like? What did it feel like as you were coordinating?

Nagbe: It was one of the most stressful moments for me. [I think I sort of lost that personality around me to the extent—there was one that caught the attention of my colleagues. Hardly will I go a week without getting a new haircut. I was following a case in Voinjama when a colleague en route to Monrovia in the middle of town called my attention to my looks and handed me] five United States dollars and said, “Thomas, have you seen your hair?” Because I don’t wake up in the morning thinking about hair. I’m waking up in the morning at four o’clock to ask what’s happening in the ETU [Ebola treatment unit] and someone is telling me, “We have seven dead today, we have six dead

today, and Chief, this is what we have.” That’s what drives the way you move in a community and the way your day begins with you. It begins with that moment where you’re thinking that several lives you’re going to bury this morning, and what happens during the course of the day? So you really lost that sense of personality where you want to look at what you wear or what you do and the rest of it. It was one of those moments in my life that I really knew [we could be heading for the worse if nothing was done].

But the most challenging thing for me was, how we transmit what we knew to people who are still in doubt and people who—it was still challenging. [For instance, let’s look at the primary case for Voinjama. I was called at night. “Look, we have this case, there is this woman who is vomiting blood and the rest, and you need to come for her.” She has a son, too. Following the ambulance pick-up, she died five minutes later en route to the hospital. The family refused that the body be taken to the hospital, so they kept the body. I instructed, “No one touch the body until the team arrives.” We had one ambulance responding to a situation now in two of the six districts in the county. We went over the following day, I spoke with the family, engaged the community, including the town chief. The family and community agreed to the decisions from the meeting. Mouth swabs and cardiac blood samples were collected. The body was bagged and ready for burial. The truce broke down, and the request to collect samples from the deceased son became impossible. The child was taken into hiding until the team left the scene. Meanwhile, an investigation revealed that the deceased husband had died a few weeks ago following similar presentation and was buried by the family. The agreement broke up because of the request of the deceased sister to bathe the corpse.] “Please, you need to let me bathe

my sister before you bury her.” So we had to go through another process of discussion. I could sense how much desperation was in this sister to the extent that she said, “If you people don’t allow me to bathe her, I will not eat. If I will have to die, let me die.” And as we speak, she died. Because we did not allow her to bathe her sister, she refused eating food. [She became infected by the deceased while serving as caretaker.] Even when we took her to the ETU, managed to convince her to go to the ETU, she did not eat anything and she finally died.

So there were a lot of cultural things that played into it. The way you buried the dead, how do you position them in a grave, the chance of saying the last word to the dead body. These were all critical issues that I personally had to deal with when I was in Lofa to address some of the things that later came up, and [we were able to look at them more closely to find solutions. Some of these areas] are predominantly Muslim communities, and so they think that death is a serious matter that goes beyond just the way we look at it from a formal, literal point. So that was very, very personal and touching.

[The family that was involved in the second cluster were isolated by their community. In fact, they were seen as being] cursed by God or something else. I’m happy that we have partners that were able to aggressively work with us to change a lot of the myths that people had. By and large, the turning point was when the community themselves saw that this is about them and they needed to take the lead. That was a huge turning point in a lot of what happened.

When I left Lofa, I came back. Tolbert [G. Nyenswah] was announced as the incident manager. A new structure was then formed. I was asked by him to serve as the deputy incident manager responsible for county coordination and operations. Because the crisis was not only affecting Monserrado [County], but a couple of other counties that were affected. I had to establish a county support team through eHealth [Africa] and CDC support. My role was to be able to work with the fifteen counties to identify local and international expertise that we need, human resource gaps that exist in the county, making sure that we have a [multi-disciplinary team in each county to support every aspect of the response. I was deploying both local and international staff to counties based on county needs. Other responsibilities included: identify logistic gaps in counties, and elevate those at the appropriate table/technical or support group].

I was like the bridge between the counties and the national incident management system. I was providing technical guidance to the development of operational plans, or strategic plans, making sure that we bring to the table the perspective of the national level and new innovation and other good ideas. I led, for the most part, the county planning processes and development of those plans, and also making sure that we are able to map partners' resources that are available and counties can leverage. My office was also able to establish desk officers that were closely monitoring these counties and showing that they regularly report and the response is going as planned. We were able to recruit local expertise and also work with partners to deploy international expertise.

Q: What were some of your biggest challenges in planning at the county level?

Nagbe: The challenge that I would say many times is, of course, coordinating partners sometimes can become a challenge. Everybody was kind of excited about wanting to help, but sometimes you have a redundancy of support because you might have four or five partners doing one thing in one area. These are instances you had to be very strong, coordinate them well, and be able to guide that entire process.

[Secondly, the plans were fluid in operations—operationalization of the plans was in many instances dictated by the epidemiology of the disease and the emergence of other vital factors, including environment and culture. Notable situations that describe the fluidity of the plan were: When the crisis was descending, Montserrado [County] was sort of seeding other counties with cases. I was also able to work with other folks, especially CDC, to develop and work on the entire concept of Rapid Isolation and Treatment [of Ebola], the RITE response; a temporary/mobile ETU was set up in isolated places, and in some places, the communication system was enhanced to ensure that regular updates were provided on progress. We were also able to mobilize resources at the national level with partners to ensure that these sites, we reduce the rate of transmission/contact generation/reduce exposure as much as possible so as to not increase the chance of having another chaotic situation.]

[As we moved to the “getting to zero” strategy, cross-border health became a priority. A Border Coordination Group was established, led by Dr. Keiteh (deputy incident manager for medical planning). Following weeks of coordination, I was asked to chair the group as

a national focal person. It was a multi-sectorial group, and we were able to develop a cross-border strategic plan, and work with other key partners like IOM [International Organization for Migration] to develop key activities to support cross-border efforts.]

Q: It sounds like throughout the response, you were doing a lot of higher level work, a lot of coordination work. What was it like to be a leader? To be someone not necessarily going door-to-door, but needing to manage the high-level things?

Nagbe: What was it like? [pauses] The way our people see, everything that goes wrong is on the side of the leadership. We saw this as our responsibility to drive a national corps. We saw this as—personally, I saw this as my responsibility. I saw this as a Liberian. I saw this as something beyond just going to work. I sleep with it in my mind, I wake up with it. The entire thinking process was, how do we get this done? How do we get this done and get to our normal lives? It was quite challenging coordinating and getting in touch with people. But, again, with the introduction of the EOCs, it made a lot of difference. It made a lot of difference because I could reach anyone in a split second. CDC was housed in a building, I can get them in my office every day. WHO was housed in a building and they had focal persons that were directed to me. We could meet in less time when any issue emerged and coordinate efforts. We were reachable at every point in time when the situation dictates that meeting. As much as it was quite intense, but the environment facilitated that smooth movement and coordination. That in itself was a very good step forward. We had to leave the Ministry of Health [edifice, move out there to 17th Street at the national telecom building that was converted as EOC.] So, I will fairly

say that, yes, coordination was good as much as it was very intense. Because there are many times you don't plan for certain things that take your entire day, but we had to create that room for it because we were in that mood already that this is an emergency, anything can emerge and there is a need to meet. We had a series of standing meetings. There was this operational meeting at eight o'clock before the nine o'clock IMS [incident management structure] meeting. We had to go through that before you go through your normal—but I feel it was later on that I realized that I was lost into the moment. It was—I don't know, how do you describe it? We were passionate about it and extremely emotional about it, and wanted it to end. I was giving more than ten, twenty hours almost every day to make sure that the role I have to play is done, people that I need to get in touch with—counties need to be supported, we make sure we support them and keep in touch with them very actively.

Q: Was there one point at which when you look back, you think, that was the most intense time?

Nagbe: Yeah. There were times honestly that it was extremely tough. I think the August, September, October belt [was extreme—the number of cases per day was at its highest, the number of dead bodies, uncontrollable (corpses were lying in street corners and homes. Families abandoning the ill and dead), limited functional ambulances to pick the sick from the communities, limited number of treatment units (ETUs) and ill-trained staff and wage demands (health worker refusal, resulting from fear of death, compensation, etcetera). The situation was fearful if not terrible. You're walking or driving through the

streets of Monrovia. The streets are deserted to only the passing ambulances, police vehicles, response cars—the true feeling of physical war in the air. We could not trust anyone, not even yourself, taught less to talk about someone else. It was those times that you feel that if you don't do something, you might be next, or those you love.] We became extremely passionate about what we were doing, and it was not about money, it was not about work, it was just about getting this to zero and let our people live again. That was what it is. Especially, the most exciting moment for me is when the people themselves realize and internalize this entire crisis that it is about them. And we give it over to them to lead. It was quite interesting.

Q: Do you remember any specific moments that illustrated that? That, oh, they are taking ownership?

Nagbe: Of course. Many instances. One, there was an instance in fact in—there was a community called 540 [in Monrovia], alright? They knew that this house had people that were exposed, and this house was under a voluntary surveillance quarantine. The community was providing them food [and making sure they observe the voluntary observation without molestation. I also saw the Lofa Muslims establishing a Muslim burial team to supplement the county-designated burial team. Communities established vigilantes and support groups. Household-based community surveillance structures were established; community registrars deployed to track movement. Yes, communities took matters into their own hands and only asked us for guidance and support, and that was a very critical thing. For me, it was extremely important.

Q: To your knowledge, do some of those community structures still exist?

Nagbe: I hope they still exist, but [laughs] we have not honestly gone back to say, let's do a fact finding. Sort of like saying, "Did you create this structure out of EVD?" "Yes." "Is it still existing?"

Q: [laughs] It's a little difficult.

Nagbe: We haven't done that as yet, [but be assured that it has built some level of resilience. Liberia is implementing community event-based surveillance. If you look at the reports that we've had in recent times, including an assessment report which shows that over twenty percent of the data recorded at the national level were generated from the communities.] That is to demonstrate how community involvement and engagement is playing a critical role in epidemiological surveillance across the country. We've developed simple community case definitions for a lot of the priority diseases that we are reporting on. You can easily see the job aid and be able to identify that, hey, I think they are looking out for diseases like this in this country, so in case you see it, you can easily report. Communities are becoming extremely [confident] in the entire system.

Q: Can you describe one of the people who you worked with most closely in your response? Maybe here in Monrovia.

Nagbe: Here in Monrovia, there are many, especially from CDC that I worked with, but I'm not a very good person at names, so I can't remember names that smartly, but there are many of them. I worked with John [Vertefeuille] at some point in time. John led the CDC team in-country. I worked with a couple of folks from CDC. Dee Dee [Diane Downie], we worked extensively on community event-based surveillance, [modelled from the Sierra Leone version. The initially version was skewed; we developed it to EVD, but it has since been broadened to include the other diseases in IDSR (Integrated Disease Surveillance and Response)]. There are a lot more of them that I really worked with, but like I told you, I'm not very good at keeping names, but a good number of them. Kim [Kimberly A. Lindblade] was another one that I worked with, with focusing on the entire border health. Kathleen]. There are a lot of them. Some of them I can imagine by face right now, but I'm not very good at storing names in memory.

Q: It's okay. How about non-CDC people though?

Nagbe: Yes. Like I stated, I was coordinating partners' efforts, aligning them with the counties. Eventually, more like all of the partners must have passed through my office during the course of the crisis, especially those that were working in the counties, either providing epidemiologists in the county or sending any specific skill set to support county effort. I needed to know about that and then be able to map, oh no, I don't think they need this kind of person, they need this more. Make those kind of decisions. I think I've worked very closely with people from CDC, WHO, UNMEER [United Nations Mission for Ebola Emergency Response], UNMIL [United Nations Mission in Liberia],

the African ASEOWA [African Union Support to Ebola in West Africa], groups from the EU [European Union]; of course the Red Cross and Red Crescent, I worked with them very highly, especially when I was in Lofa recruiting contact tracers and getting them in the field, and they had a lot of community folks that we had to work with them to have that done. In Montserrado, they were managing the entire dead body stuff, so we worked and coordinated a lot at many fronts. A lot more other NGOs [nongovernmental organizations] that I can't name now, but these were key partners that I really worked with on a day-to-day basis.

Q: You described the establishment of the EOC as a big turning point. Can you just describe when you started to feel that the tide was turning, and go from there maybe until the end?

Nagbe: When we started the crisis management, if you go to the big building, the Ministry of Health building, there is a room labeled 327. The entire incident management team was in that room. [I think it's like the size of my office], or in fact this room is a little bit bigger than what it is.

Q: This room is maybe what, thirteen by fifteen? It's your office. It's office-sized.

Nagbe: Yes. It's office-sized, and so it is that 327, sort of like small office size. That's where we were meeting, and that's where all the partners had to meet. We didn't have that environment where I could easily meet CDC folks or meet this other group, or where

we were able to follow up on the technical working groups as to whether they were meeting, or sort of coordinate these efforts. It was a really exciting moment for us because, one, it kept us focused when we shifted to the EOC. It made everyone and everybody and everything reachable, accessible. The guys who were managing the food security issues, logistics—if there is a need in a particular county, I can easily just call or I'll walk to their desk. [If] there is this situation in county X, all I need to do is to pull the data and send it. The next thing you're talking about, food is on its way to that place. So we have that very coordinated effort being marshalled in that area. So in itself, it was extremely important.

Q: Can you tell me about the time when you started to see a big difference being made? When you started to see the numbers plateau or drop? When was that, and how did that feel?

Nagbe: When a crisis—when we began experiencing an usual increase in Monrovia, did we have what it took to respond? The answer is no. We needed ETUs, we needed ambulances to pick up sick people from the community, we needed vehicles, trucks that would pick up dead bodies. Those were times that were extremely painful. Then too, we presented EVD like a demon itself. It was like when you have Ebola, you have no hope and so you are doomed. So people lost confidence in the health system. There was the issue of trust that was in the balance and the unavailability of facilities that they feel have had a history of survival, was also another issue. When you go there you will die, you know? So if you go there you will die, why not die at the sight of your family that would

perhaps take care of you and provide you a place, a burial that they can go and see tomorrow? People will take the risk of being infected, making sure that their loved ones are buried as they wish.

We saw a lot of things changing when the partners started pooling in. The international community realizing that this is a Public Health Emergency of International Concern. We saw monies coming in, we were able to build a couple of ETUs in no time, and brought in ambulances. We had Red Cross taking over dead bodies. Because we didn't even have the capability to bury these bodies. There were some private companies that we were even hiring to pick up dead bodies from the street and help us bury them. We were paying them by body. It was quite challenging in the early moments until the help came. When the help came, they came big and they came right, and I think we were very aggressive in trying to turn the curve. But by then, we've already generated a huge number of infected people in the chain, and so we had to reduce that [unclear]. Because you and I know that Ebola is about speed, precision. Speed, speed, and precision. You must run faster than EVD and when you do, you must do the right thing to be able to address the crisis. We had to run faster, and we were able to address this, and by and large when the curve turned—another thing I wanted to state was the impending social chaos, because it was the political atmosphere—but it must be good to state here that the leadership played a very strong role. The [Liberian] president [Ellen Johnson Sirleaf]—and this was never a contest between politicians and other political parties, so this was one of those things that the president was able to do, to pool all key stakeholders together. and firstly, commission a [unclear] committee that is called PACE. That's the

Presidential Advisory Committee on Ebola. And the secretary to PACE was also seated at the incident management system of coordination regularly. So we had a fantastic coordination that assured information flowed from that level to the level of the president. Then the leadership, too, at the county level—in some of the counties, you had the county superintendent steering the affairs of the crisis, co-chaired by the chief medical officer, the county health officer of that county. In some counties where the county officer seems stronger, he or she was managing it, and then the superintendent serving as the co-chair to that person. Coordination in itself went well. It's one of those turning points. It grew from just one room to a broader—and we were able to systematically look at what each institution's role was or could be, and their function was tailored as far. It was not just a Ministry of Health thing. That was another good thing that happened. You had people from internal affairs, people from transport, people from all the different line ministries. Even the military, they played a very awesome role in building some of the ETUs we had.

So, yes, that transition was a very good thing. But it was a painstaking moment to move from that August, September, October, November period, which were those dark moments in the history of the country. Handling that particular crisis to getting to a point where we were only looking at hotspots where we'd get two cases pop up from somewhere, another case because someone in Montserrado ran away and went into a particular district or a particular county and hid themselves and then later infected other people.

Q: Do you remember any moment especially where you felt a sense of relief?

Nagbe: Yes. When we had the May 9th announcement, it was a big relief.

Too, there was a time yet before the May 9th, was one of the challenges we had even in coordination was the flexibility of partners to shift as the epidemiology of the disease was shifting. There were some—for instance, we established what we call CCCs. That's the community [care] centers, and that was a time that we never needed that anymore because the cases were dropping very fast. But partners had gotten money to build CCCs, so they had to, they were insisting on building CCCs because they got the money for that purpose. Someone had money for a household kit, Ebola kit, they still insisted on wanting to still provide those kits when we no longer are doing household management of EVD. So you have that situation where partners were not flexible because of the donor restrictions or the donor stuff, "I got this money for this purpose" and the rest of it. And we needed them to be flexible. Some of them we had to outrightly, outburst with them in a meeting. "Look, we don't want this anymore. The crisis, it's moving at this point this way, so you need to move with it as well." So yes, those were some of the challenges that we had, getting partners' flexibility to move as we change our strategy.

Q: Did you deal with that on a case-by-case basis, as you're saying, like in meetings with them you would say, look, we don't need it? Because I'm wondering how you build flexibility into the system sustainably for the next outbreak. How would you do it? I don't know.

Nagbe: It is simple. For what we've done post-EVD, we've developed a national emergency preparedness and response plan. We have county-specific EPR plans as well. And we've also further established and trained a county rapid response team, and we have key thresholds and epidemic threshold and [unclear] thresholds. So we are able to determine, when do you activate and deactivate a response? For instance, the EOC. You have one, the team for the crisis and coordination was one plan, one coordination, and one—one strategic plan, one coordination, and one something else. We had this going in which you had Liberians were at the forefront of it. They managed it. We had a team set up in which Liberians were chairing those committees and co-chaired by the subject matter expert partner. We would have communication, for instance, was chaired by the health promotion division and co-chaired by UNICEF [United Nations Children's Fund]. And epi surveillance was chaired by someone from the Ministry of Health and was co-chaired by WHO. You have those kinds of stuff so that you have equal partnership and seeing what we are doing. But it was driven absolutely, there was local ownership. We were able to map very clearly who is working where and doing what. There were some that slipped, but we got the information in the field, and we were able to call them up, look, you're in this place and you are not to be in this place.

Q: Can you describe an example of one of those times?

Nagbe: We had a situation with Montserrado, for instance. In Bong County for instance, there was a time the county health officer called me and said, "Look Thomas, I have

more than seven partners here doing IPC [infection prevention and control] and I don't need all of them, everyone that is coming wants to do IPC, and I have other areas that they could support." I said, "Well, how did you get them in the first place?" Some of them will take authority from the national level and go into the county without county consent. Then they will tell you, "I got permission from the national office." So the county kind of like, okay, this is the national level sending someone here to work with me, so what do I say in this? So they end up accepting. But I have to tell you, I said, look, sit down with your partners, map out what you want and who is doing what. Those that you honestly don't need, negotiate with them to see if they can be flexible enough to see where the needs are and shift. If they cannot, I don't think you want to have redundant activities in your counties.

Q: I appreciate the conversation about what partners can do to make themselves more sensitive to what the needs actually are and then support those needs instead of coming up with whatever they have on hand. Were there any ways, when you look back, that CDC could've improved, or any lessons that CDC can come away with? I just ask this because I hope that this project can be useful for CDC in the future, and pointing out shortcomings or areas of improvement I think could be helpful.

Nagbe: I think what CDC is doing now is in the right direction. These are things that they've done before the crisis where they've worked with counties, with countries, map their public health intelligence capabilities and capacity and response capabilities and capacity, and be able to work with them to build resilience. If that was done before the

crisis, I think we would not have had the magnitude of the situation we had. It was one of the first times in my profession to encounter that many group of people from CDC working. Our entire focus then was on resolving the crisis. As much as capacity was going on here and there, what it was tailored to was resolving the crisis.

The lessons learned in my view is, I don't think we need to wait till these crises emerge before we go on a very reactive way of doing it. That is one of the reasons why for now, I think I'm happy with the trend in which bigger institutions are moving. I've seen the move of CDC, I've seen the move of WHO in the right direction in looking at the Global [Health] Security Agenda, looking at the International Health Regulations, technical areas that countries are now submitting voluntarily to conduct self-assessment and then eventually do their extended evaluations. It gives us a very good baseline as to where we are in building resilience to public health emergencies, and we can use that also as a resource mobilization tool and advocacy tool to reach out there and be able to mobilize the requisite resources.

Internally, also, that has even led to a lot of different changes. When the Ministry of Health and Social Welfare was created, it was created without a department called Public Health Emergency. At the ebb of the crisis, the president of the Republic of Liberia created that department with a deputy minister position. The Ministry of Health also took up some time to reassess the entire health system and realized that they had too many gaps that also contributed to the magnitude of the crisis that we had. They were able to look at key areas and then develop an investment plan, which is like a continuing of the

2010-2021 ten-year strategic plan and policy, to consider key areas around, how do we re-engineer our health infrastructure? Because many of them did not have isolation facilities, triage facilities, and the public health surveillance was hugely people-based. HR [human resources] was poor at every level, and at some point in time, when we did the post-EVD rapid assessment, we realized that [unclear] percent of those surveillance officers have not been trained in IDSR. We didn't have district surveillance officers. So we were pretty not-well-seated in terms of public health surveillance, epidemic preparedness and response. I think it's a very big lesson. We have seen CDC supporting our country right now, we've completed five cohorts of our staff being trained in frontline field epidemiology [note: Field Epidemiology Training Program, FETP]. We should be starting an intermediate course of nine months. These are all supported by CDC. We've been able to send, through support from the West African organization—we've graduated three of the Ministry of Health staff in advanced field epidemiology, a master's program. We have another two right now in school. We're hoping when they come out, that will take the number to five. If we have more in the coming years, we hope to send additional people to be trained. I feel building countries' capacity over time will help, and strengthening pre-service institutions and building the requisite skill sets, not just at the national level or the sub-national level, will prove very useful. I think these are things that I think in my view our partners should have looked at long since, or into the fact that we have equal vulnerability across the world.

Q: Dr. Nagbe, is there anything we haven't talked about, especially any memories that you have of responding to Ebola that you'd like to share before we end the interview?

Nagbe: I really don't know.

Q: It's okay! [laughter]

Nagbe: I'm honestly grateful to God. It all began, went very tough, and at the end of the day, we were able to address that. More so, I think it has been—the crisis came and Liberia lost too many lives. It came at the expense of many lives. But it also provided a lot of opportunities to address some of the very reasons that caused this crisis. My mother is an illiterate woman, she never went to school. One day I went home, I went to visit her and she asked me a question. She said, "Tom, what do you think caused this Ebola? Why were people dying?" I tried providing answers to her, and she told me, "You were the one causing the problem because you never had what it takes to solve the problem. You never had the facilities, you never had anything. Even if you knew what to do, you never had anything." The next question was, "Now that Ebola is done with, what are you guys doing to make sure that we don't have another Ebola or any other disease that will kill this much lives in this country?" I said, "Okay, I can answer this one peacefully." But they were touching. Touching to the point that—she wanted to remind us of system problems, and she also wanted to remind us of being accountable for what we're doing and taking responsibility for what we do and what we fail to do. Also, even though they've happened, how do we solve them? How do we prevent them from happening moving forward? To be honest, I see a lot of effort from the side of the government, I see the commitment from the side of the partners. Right now, CDC is resident in this building

and they're here for a much longer time. I'm seeing WHO becoming not just a technical institution but a more operational institution, and I'm seeing a lot of traditional institutions shifting from just being technical or being office-based to field-based and getting much more involved. For me globally, there is a shift, and I'm happy too that countries are beginning to also take this extremely seriously. And the region. There is also a lot of regional effort. All of this we feel should have been done pre-Ebola, but I'm happy that Ebola had a way of rejuvenating the minds of our people to take responsibility, more responsibly.

Q: Thank you very much for this interview, Dr. Nagbe. It's been a privilege.

Nagbe: Thank you so much for the time. I hope it was useful.

Q: Very much.

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