CDC Ebola Response Oral History Project

The Reminiscences of

Mateusz M. Plucinski

David J. Sencer CDC Museum

Centers for Disease Control and Prevention

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Mateusz M. Plucinski

Interviewed by Samuel Robson
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Interview 2 of 3

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Q: This is Sam Robson, here with Dr. Mateusz Plucinski. Today's date is January 12th, 2018, and we're here at the Clifton Campus audio recording studio at the Centers for Disease Control and Prevention in Atlanta, Georgia. I get to interview Dr. Plucinski today for the second time now about his work in West Africa. The first interview a couple months ago, we talked about his deployment, his actually very early deployment in the response to Guinea, and just I think finished up with that. We talked about his time in Botema, the experience of unfortunately getting chased out of a village and a bunch of other kind of amazing things. I think we honestly just ended with you about to leave the country. I'm interested in—obviously, that was a pretty intense experience. What was it like coming home from that?

Plucinski: As you said, this was one of the earlier deployments. One of the things that I remember very distinctly is, and certainly in contrast to future deployments or later deployments in Guinea, Ebola was still not on people's radar, both in the US and even overseas. At that point, the cases were maybe in the dozens or hundreds, and it had really mostly been in Guinea, which has never really been on the top of anyone's radar, anywhere in the US or outside. I remember when I came back—so that must have been the end of May, to the US, I actually had—I was quite sick when I came back, and I think

I had either an ear infection or some kind of cold. Back then, they were doing exit screening at the airport in Guinea. They had just started exit screening, the idea being they wouldn't let you on the plane if you had a fever. I remember being worried, rightfully so I think, about not being able to get on the plane, and of course, this was around the time there were not that many flights and a bunch of flights had been suspended to and from Guinea. This was, I think the last time we talked, I had told you that the situation was clearly getting worse and that was really one of the things that Mary and I, we had this definite sense that we had left things probably worse than when we had come in. I remember being quite worried whether I would be able to get back on the plane. Fortunately, I did, and it was connecting through Brussels on the way back, as I think we had—I don't actually remember how we had flown in—it might have been through Air France. Brussels might have been a different deployment now that I think about it. I remember when we came back to the US, in contrast to the entry screening that would later be put into place, no one really batted an eye when I said that—you know, the customs or the border patrol person asked me, "Where have you been?" They always ask you where you're coming from. I was like, "Guinea," and I think they asked me where that was. Really, again, Ebola was not on people's radar at all.

I remember getting back and I think a day or two later, I spiked a fever and was quite sick, but I was fairly convinced that it was not Ebola because I didn't have symptoms consistent with Ebola other than the fever. I definitely had some kind of respiratory infection. But a few days later—I don't actually remember whether the fever had broken or not, but I traveled to Poland to see my family, and I remember having multiple

conversations with people about what I had just seen and where I had just been. I think most people had not really even heard of the epidemic. They were not fully aware of what was going on, which would change drastically over the next few months as the media picked it up and the fearmongering, and once there were reports of cases in Europe. Over that summer of 2014, you had the priest in Spain that came down—or who was at least treated in Spain, and then one of his nurses got it. There were a few cases of healthcare workers in the UK [United Kingdom], and then of course, the cases in the US. But this was all beforehand.

As you had said, Sam, I had been through quite a difficult experience, and I was met mostly with bemusement on the behalf of friends and family, which would change later on. I was actually finishing EIS, so I was busy finishing EIS, and then I was offered a position in my branch as a staff epidemiologist in the Malaria Branch, and I started that in August 2014, so a few months later. I believe around October, November, the division or the branch asked me to travel to Guinea for an extended TDY [temporary duty assignment] to cover our malaria program there. Guinea has been a PMI country—PMI is the President's Malaria Initiative, which is the main arm of the US government's response or effort for malaria control. It's run by USAID [United States Agency for International Development] in conjunction with CDC [United States Centers for Disease Control and Prevention]. Right now, we have twenty-four or twenty-five countries. Guinea was one of the younger countries at that time; it had become a PMI country in 2011. PMI is basically a way the government funds and contributes technical assistance to malaria control. Part of PMI is the stationing of two epidemiologists in-country, one

from USAID and one from CDC, to provide technical assistance to the Ministry of Health and specifically the National Malaria Control Program or NMCP. In addition, other than the actual technical assistance, the resident advisors, they're called "PMI resident advisors," are required to manage the US government implementing partners in-country that receive the PMI money and then basically implement our activities in conjunction with the Ministry of Health. At the time, like I said, there was usually two staff for PMI in each country, and at the time, there had not been a USAID PMI resident advisor for a while—for a few months. The previous resident advisor had left, maybe even before the Ebola epidemic. I don't know exactly when he left, but certainly when I went, there was no one yet from the USAID side. The CDC resident advisor had been hired on earlier in the year, probably around the time of the Ebola epidemic, and her name was Jamila Aboulhab, who was a French-Moroccan physician. What had happened is basically around the time that the Ebola epidemic really blew up, so April/May, she was one of the few foreign epidemiologists in-country. She was kind of opportunistically drafted by the Ministry of Health to work on the Ebola epidemic. What had turned into—what had been a temporary assignment or a temporary diversion turned into something quite permanent. She was almost completely diverted to Ebola response through—basically on the request of the host government—the Guinea Ministry of Health [and Public Hygiene]. We were in a situation where we had a PMI program that did not have anyone from PMI actually implementing or—not implementing, but rather, managing the implementation and providing that technical assistance that we're required to provide to the Ministry of Health. So the Malaria Branch requested that I fly out there to basically backstop the resident advisor position for a period of a few weeks in October/November.

I replaced my colleague, David Gittelman, who had been out there before, basically just doing that, providing that backfilling. I was in the unique situation where I was a CDC deployer in Guinea at the time of the Ebola epidemic, but I was probably the only one who was not actually doing strict Ebola work, which was I think a unique situation and gave me a unique perspective on the actual CDC mission there.

I stayed in the [Hotel] Palm Camayenne, which I had stayed in on my previous deployment. But when I got there, it was obvious that things had changed quite drastically in the intervening months. I got there in October—I had last been there in May. So when I left in May, at the end of May, Mary and I were the last CDC deployers in-country, so when we left, there was literally no one from CDC in Guinea, maybe aside from some lab [laboratory] people. I was surprised when I came back in October, and by then, it was on the order of dozens of deployers, many of which were just stationed in Conakry and staying for the most part in the Palm Camayenne. And the Palm Camayenne when I left was literally, it was a ghost of a hotel with barely any guests, and when we came back in October, it was quite full. There were a fair amount of guests, a fair amount of activity, and it was very clear that it was mostly driven by the Ebola response, specifically the US government Ebola response, because there were folks from CDC, there were folks from USAID, other government agencies, all camping out if you will at the Camayenne. We were in an interesting situation where the Ebola response had negotiated full room and board with the hotel for deployers, so we were fed—I guess if you stayed at the hotel, you would be fed three times a day by the hotel, so you ended up seeing a lot of the same people over and over, especially during the meals. To some

extent, some of the epi [epidemiology] teams had taken over some of the rooms in the hotel for the Ebola response. They were actually working out of the hotel. I think it was certainly something that was eye-opening because whereas before, we were stretched very thinly with the amount of deployers early on, here, there seemed to be almost a surplus at times. And that sense of urgency was not there, I think, which it makes sense because it was by then a fairly mature response. It was mature and also much larger, and there were already procedures in place where they had a very strict schedule of meetings and updates, and there was already a huge team in Atlanta that was supporting the deployers from out of the EOC [Emergency Operations Center] here in Atlanta. And of course, there were equally large teams in Liberia and Sierra Leone, if not larger probably by that time.

Q: Can I ask, when you say the sense of urgency was not there, how did you see that?

Plucinski: I think the most succinct way of putting it is that I think the response had become—the CDC bureaucracy had taken over the response. Which I think is probably inevitable, that with the large response, you have a very well-defined command structure and everything is compartmentalized to some extent. I think there was also much more—I would say probably distance from—there was more separating the typical deployer from the actual work. Whereas early on in the epidemic, we would—Mary and I and some of the other EIS officers, we would be the ones going to, for example, the Donka treatment center, to the ETU [Ebola treatment unit] to pick up, for example, forms. We would be the ones going to the meetings or helping out with the contact tracing and so on,

so much more involvement in the field I think. At that point, CDC had taken on a more data-analytic role, and certainly it was just a larger response. I think it was well staffed. Again, at that point, I was technically not part of the response, so I wasn't actually working on the response. But for example, they had teams, and I'm sure you've talked to more deployers from Guinea and you know that there was like an epi team and there was a logistics team, communications team, etcetera, all of whom probably spent most of their time talking amongst themselves rather than actually doing direct work with the Ministry. To some extent, this was not an issue just with CDC. The actual response at that time, the actual country response was much larger as well. It was no longer being run out of the WHO offices. They were moving into the Pita building. They were building a new EOC, which I think took them a year to put that all together. An EOC that was modeled under the CDC EOC, and I think this was something that they were doing in the other two countries as well as one of CDC's priority activities. The epidemic at that point had been well characterized. There was I think just a larger effort, clear situation, but I think the immediacy of April/May had I think probably passed. At least that was my feeling. I remember attending some of the evening meetings, just as an auditor if you will, and really being impressed to some extent and also surprised by the division of labor that at that point had occurred. I think to some extent, it was also just better thought out. There was a whole fleet of cars just for the response. There was someone taking care of logistics, making sure people had hotel rooms, making sure people had cell phones and communication and all that stuff. Whereas I think for us, a lot of that we were just depending on WHO [World Health Organization], since we had—officially, Mary and I had gotten in under GOARN [Global Outbreak Alert and Response Network], G-O-A-R-

N, the WHO deploying and deployment system. That was my perspective on the response. My recollection is that by that time, obviously, the epidemic had become much more widespread than even at the end of May. I think the epidemic in Forested Guinea, so Macenta and Nzérékoré, was going down, certainly in Guéckédou. Guéckédou by then had its epidemic fairly under control. I think Macenta and Nzérékoré was maybe still quite a hot spot, although that would later go on, and things were starting to pick up in areas like Forécariah, which was one of the last areas to be put under control in Guinea. Of course, Conakry was still I think reporting cases. I think to some extent, maybe what I said before about the sense of urgency and a different feeling is probably something that was just a subjective feeling for me. By then, we had been thinking about Ebola for months and months and months, and we had—I had been in the field, and I think some of that initial shock had worn off. There was certainly a feeling that this was going to be a long-term effort. This was not going to be, send a few EIS officers for a few weeks and collect the data and implement the control measures and go home. This was going to be long-term, which would turn out to be quite true. But I specifically was there for malaria control.

Q: Sorry, I didn't mean to get us on Ebola.

Plucinski: No, that's fine. In the end, this is the reason we're here.

Q: But I want to stick with your experience, and I really am interested in what was going on with malaria at the time.

Plucinski: Yeah, so I was based out of the US Embassy, so the PMI resident advisor. Their offices, both the CDC's and USAID's offices, were in the embassy, so since I was backfilling that position, that's where I was working. Most mornings, I would take the embassy shuttle to the US Embassy, and the US Embassy is located quite a bit outside the center of the city. It's located in Ratoma District, or Commune.

Q: Commune?

Plucinski: I think it's the official kind of—Conakry's boroughs, I think, are called communes. I believe it's in Ratoma. It's basically away from the city center. I was based out of there mostly—you know, the folks who were there were USAID workers who were mostly there—they weren't there specifically for Ebola, these were people who were foreign service officers who were working for the USAID mission in Guinea. Some of them had been working there before the Ebola epidemic. However, there were a lot of people there just on short-term contracts, if you will, or being deployed to fill in gaps in the mission, and the reason is that I think even before the Ebola epidemic, Guinea had never been a prime destination for foreign service officers. Quality of life is not high. There's the French language requirement. The schools are not great for children of the foreign service officers. I think they'd always had difficulty in filling positions in Guinea, and certainly after the start of the Ebola epidemic. Even at the mission at the embassy, there were still a lot of people there on temporary assignments, kind of like me. I was based at the mission, but I would spend most of the day with the Ministry of Health, and

specifically the National Malaria Control Program. The National Malaria Control Program is part of the Ministry of Health, yet it's based—the building, the headquarters of the NMCP are in—so the Ministry of Health is based in the center of the central business district in Kaloum, but the NMCP has a building in a very unfortunate I think part of Conakry, which it's right next to the entrance to the Madina Market. It's at this really crazy intersection right outside the market. It's loud, there's tons of people, and basically there's a traffic jam everywhere around the NMCP. It's this really unfortunate location. On top of that, the actual building is quite, quite run down, which is very unfortunate because the NMCP is actually very well-functioning. Even getting there was always an adventure because you had to basically drive into this huge market, which was open all day, every day, really one of the main markets in Conakry. I would work there, and I was working there closely with the Ministry of Health and the National Malaria Control Program. The head of the National Malaria Control Program was and still is a physician named Moussa Keita. He's maybe in his sixties or early seventies, with quite a lot of experience, and very much a—he's a political appointee, and very much a hands-off manager. But the main person behind the scenes who de facto did a lot of the day-to-day running of the program and the technical direction of the program was and still is a physician named Timothée Guilavogui, who, as the last name might suggest, is from Macenta, from the Toma tribe, and is someone who is a close friend and someone I still work with on a very close basis to this day. At the time, he was the adjunct coordinator of the National Malaria Control Program, but de facto was the technical coordinator. There was a Senegalese technical consultant, international consultant, that was being paid for by PMI called Dr. [Youssoufa] Lo. He was there providing management assistance to the

National Malaria Control Program. Then the NMCP is divided into many teams, and I was specifically working with—I was most often working with the monitoring and evaluation team, which is the team that is in charge of collecting data, evaluating interventions, analyzing the routine data, and informing the NMCP's decisions with—so basically, if you will, the epi [epidemiology] department of the NMCP. There, I was working closely with the three members at the time, so the head was Dr. Nouman Diakité, and then there was Dr. Souleymane Diakité, and the data manager, Dioubaté, Mohamed. That was the team at the time, and most days, I would actually just work in their office. The three of them shared an office, and the thing that we were tasked with at the time or that we came to be tasked with was—there are two things that we were interested in. One was to figure out a way of seeing how the Ebola epidemic was affecting the National Malaria Control Program's activities in the field, and so that was activity number one. That was directly related to the Ebola epidemic. Then activity number two was to start or to figure out a way of routinely and systematically analyzing the data that they were collecting through health facilities on malaria. These were the two activities that I was mostly working on with the National Malaria Control Program.

At the same time, I was also working with the PMI implementing partners. We had two main partners at the time; one was StopPalu, which was our case management bilateral partner whose job was basically to train and supervise healthcare workers and support the Ministry of Health and National Malaria Control Program in the functioning of health facilities and community case management of malaria as well as surveillance and also some other parts of the NMCP's portfolio. Then we had a partner called SIAPS, which

was in charge of the commodity side, so they were the ones who would buy the drugs that PMI was donating and distribute them out throughout the country, and also keep track of where they were and where there were stockouts. The key people from StopPalu, there was—the head was Dr. Aissata Fofanah, who interestingly enough had been a classmate of Dr. Timothée. They knew each other very well. The two key people at SIAPS were—the head was a Frenchwoman, Marie Paule Fargier, and her deputy was a Senegalese pharmacist, Dr Serigne. They were my main contacts in the partner community. There was also the main Global Fund partner. Global Fund is the other main donor of the malaria funds in Guinea, and they basically cover half the country, the eastern half of the country. PMI covers for the most part the western part of the country. The Global Fund worked—their main implementing partner was CRS, which is the Catholic Relief Services. It's an NGO [nongovernmental organization] that had an office in Guinea. The person I most closely worked with there was their monitoring and evaluation person, Ibrahima Bah. The head of their malaria project was—and Ibrahim is Guinean. The head of the malaria project was Dr. Olivier [Byicaza], who was from Rwanda. Those were the key people, and these were the people that I would see during the very calm and very frequent meetings between the National Malaria Control Program and its partners. These were people that I would work with very closely over the course of the next few weeks, and whom I would get to know quite well.

The malaria control program I think was in a very unique position during the Ebola epidemic because, as I said, Guinea had become a PMI country in 2011. Prior to 2011, Guinea had basically no modern malaria control. We're talking about really minimal

funds, most of which were coming from the government or some haphazard donors. While neighboring countries were already implementing modern malaria control, so distributing bed nets and switching over to the newest class of antimalarials and actually doing diagnosis of malaria in health facilities, Guinea was not doing that. But that all changed in 2011, and it changed drastically to the point where the country made huge strides. To this day, I think it is one of the success stories of how to quickly scale up modern malaria control in a country. The period of 2013, 2014 was a period where really, the National Malaria Control Program was rapidly, rapidly meeting its goals and scaling up all of its interventions. This was—you know, the fact that PMI had come in, Global Fund was providing a fair amount of funding as well, and then the partners really just hit their stride. A key development was the hiring of Dr. Timothée, who really was and is a masterful manager and also just a very dedicated public health worker.

I was kind of thrown into this situation never really having had a chance to directly work on a PMI portfolio. For me, the first few weeks were a learning experience and getting to know the partners. One of the first things I did was I went on a supervisory visit to some of the islands in Conakry. Conakry is situated on a peninsula, and at the end of the peninsula, it kind of looks like an alligator snout, Conakry. At the end of the peninsula, there are a group of islands, and some of the islands have—some of the islands are not inhabited, but some of them are, mostly with fishing villages. The French had some factories, there were mines or steel mills on some of the islands. One of the first things I did—I think this was either the first or second week—I went out on a supervisory visit with folks. This is really how malaria control was done in Guinea at the time, so it would

be a supervisory visit and folks that would go would be people from StopPalu, which was the main PMI case management partner, people from SIAPS which is our PMI partner doing commodities, folks from Global Fund, from CRS, and then the staff from the National Malaria Control Program. We took a boat from the port, the small—so there are multiple ports in Conakry, and we took one from the Petit Bateau Port, which is a small boat port. We basically took a pirogue, so a large canoe with a motor, over to the island and did a supervisory visit to the health facility there. Supervisory visits—they've evolved since then, but basically, it's looking at how well a health facility is doing malaria case management. They have stocks of commodities. Are they filling out the register properly, are they looking through the register, do they test people with fever for malaria, which they're supposed to. Those who are testing positive, are they treating with the effective antimalarials? All the steps of malaria case management. In retrospect, at that time, for me, I was really just getting the lay of the land and trying to integrate myself with the teams, but in retrospect, the fact that the malaria control program was organizing these kinds of activities during the Ebola epidemic is actually quite unique and actually something that in retrospect is quite admirable because at the time, the country was obsessed with malaria, and obsessed I mean in the sense that it was kind of an all-consuming—

Q: Obsessed with Ebola?

Plucinski: Yeah, sorry, what did I say?

Q: Malaria. I knew what you meant.

Plucinski: Freudian slip. It was really in the throes of this epidemic, and all attention was focused on Ebola, and it was Ebola all the time, rightfully so—it was something that was a huge risk to the country. It could potentially—the country was at risk of being cut off from the rest of the world. This was at a time when the US was going through internal struggles about how to deal with people traveling in from these countries. Again, there was always constant, are they going to stop flights to Guinea? Understandably, the Ministry and the government and even the actual population was very engaged in the Ebola epidemic, but here was this National Malaria Control Program which not only was not really talking about Ebola, but it was going on its merry way, continuing supervisory visits. This was at a time when health facilities were being closed, doctors were dying from Ebola, not going to health facilities—patients were not going to health facilities. People were hiding cases of Ebola at home. There were these huge campaigns on trying to convince people to not hide malaria cases at home and declare all contacts. And here was this boat full of public healthcare workers just going to a health facility to ask them how malaria was going on in the health facility. Which is, again, quite admirable and I think very unique, not just in Guinea but also in the three countries. The reason was—basically, I think there were a few factors that played into this. Part of it was the fact that the timing was such that around 2014, mid-2014 is when all of these investments that the country had done and its donors had made in the preceding years were starting to finally pay off. This was the first time when, for example, they were actually getting sufficient stocks of rapid diagnostic tests for malaria, and then they could actually blanket the

country, so like all health facilities could finally start testing for malaria. Before then, they were just treating empirically. This was actually when RDT [rapid diagnostic test] started being available throughout the country. This was when the ACTs, so artemisinin-based combination therapy, the newest class of antimalarials, were finally starting to hit pharmacy shelves throughout the country. They finally had installed a network of folks that were able to do malaria supervisions and go to health facilities and make sure that people were following malaria case management guidelines. They had already trained a critical mass of healthcare workers and nurses, laboratory technicians, and had just finished in the previous year the first universal coverage bed net campaign, which was the main prevention activity for malaria control—bed nets—and were expanding a community case management program. The idea was having community healthcare workers in villages, testing and treating malaria. So someone with malaria or suspect malaria could, instead of schlepping to the nearest health facility, which could be five or ten kilometers away, could just go to the community healthcare worker's hut in the village and get tested and treated for malaria without ever having to leave the village. Which was being done and had been done in neighboring countries throughout sub-Saharan Africa, but this was really when things were starting to take off in Guinea. There was this huge amount of momentum that, again, coincided with the start of the Ebola epidemic. That's really why—the timing was very interesting. Let's say it was unique timing for a country to really start doing malaria control right when an Ebola epidemic is hitting. But the Ministry and its partners, to their enormous credit, did not waver and continued, basically said there's Ebola but we have thousands of kids dying a year from malaria, we have millions of cases a year. We can't stop what we're doing. We have all

this inertia, and we're going to continue. To their credit, the—you know, basically, no one from the National Malaria Control Program went to work on Ebola, which was I think quite admirable because at the time, there were a ton of partners, donors, international donors that were supporting Ebola control. If you were like a clinician, a physician working for the Ministry of Health, you could make a ton of money by signing up to one of these international partners who were—at that point, there were so many that they were fighting for the same pool of healthcare workers. I mean Guinea, before the Ebola epidemic, had had a limited amount of nurses, physicians, epidemiologists, very limited. Once Ebola hit, the Ministry—first of all, the Ministry started shifting people towards the Ebola response—rightfully so—and then once the donors came in, all the donors—sure, they could have folks deploying from overseas, but they also needed local staff to help with the actual work. CDC also needed folks that we were going to work with. Basically, that limited pool of individuals started being picked off one by one by these international groups, and they were paid a per diem that could be—or salary—that could be orders of magnitude more than they would make at the Ministry of Health. Very easily, the Malaria Control Program—anyone from the program could have just gone and said, I'm going to do Ebola for the next few months, and it would have been to some extent justified. There was definitely that demand, and they would have made a ton of money.

This was a time when—in contrast to March and June when there was very little attention, this was a time when funds were rolling in, to the point where oftentimes, you could get the impression that there was more money than sense. We had actually laughed

many times—actually, this would be almost a constant joke within the National Malaria Control Program, which was that the donors would—I think the preferred—it turned out that the preferred way of donating money was—the easiest way to donate money was to buy a pickup and send it to Guinea because it was—literally, if you have donations and you want to spend money, the easiest thing is to just buy a car and send it. You could always justify buying cars. You would see on TV—constantly, you would see on TV, every time there was a donation of these pickups or Land Cruisers or whatever, they would show it on TV. It was almost an inside joke to see the fleet of 4 x 4's, quatre-quatre, arriving by ship or plane or whatever. Sometimes you would go to the central pharmacy stores and there would be ten to fifteen new pickups, all emblazoned with "Ebola Response." There was that—you know, there was a lot of money, just to make that clear, but the Malaria Control Program was not getting that money, and to their credit, really stayed out of that whole donor Ebola response activity. What helped I think a lot was the fact that—as I was saying before, the National Malaria Control Program is to some extent independent of the Ministry of Health. It's certainly part of it, but it's not headquartered in downtown Conakry, it's off on its own and has a history of being very, very autonomous within the Ministry of Health. I think that helped a lot. I don't think I can emphasize this enough, the leadership of the National Malaria Control Program was very, very openly and deliberately—I would say clear that they were going to continue their activities despite the Ebola response, and they were not going to be sucked into the Ebola response. Again, this is something that did not happen in other countries. Dr. Timothée not only said that they were going to continue their activities, he said that they were going to expand. They were going to keep the momentum going, and this was their

chance to really—they had this plan, they had this vision in place, and they were not going to let Ebola stop them. I was kind of thrown into that, and that was where I found myself at the beginning of my deployment. As I said, when I arrived, really one of the first things I did was to meet with Dr. Timothée and see where he wanted PMI to support him and his efforts.

[break]

What I was saying was Dr. Timothée really indicated two things, as I was alluding to before, two priorities. The first was to figure out a way of systematically working with the data they were receiving from the health facilities, and the second thing was to figure out what was going on with how the Ebola epidemic was influencing their activities. For the first thing, over the preceding years, I think really since 2013, specifically with the help of SIAPS, the PMI commodities partner, the National Malaria Control Program had rolled out a way of systematically collecting routine data from health facilities. They, together with the trainings and the supervisions and the commodities, they gave health facilities paper forms that they told them to fill out once a month, reporting data on the number of suspect cases for malaria and the number of those that were tested, the number of those that were treated, the number of deaths, and also data on commodities, so how many tests did they start the month with, how many tests did they use, and how many tests did they have at the end of the month. The idea was that all of Guinea's three or four hundred health facilities would fill this out once a month and then send that to the districts, one of the thirty-eight health districts in Guinea, and that those data would be

compiled at the district level, input into a database and sent to the headquarters in Conakry. This was something that's recommended to be done in all endemic countries for malaria, collection of routine data on malaria burden and also to some extent malaria commodities. This was something that was donor-funded, but the National Malaria Control Program was finally seeing these data come in consistently with better and better timeliness. But there was this question of what to do with the data—there was starting to be a huge amount of data, and they realized that they didn't really have a plan for what to do with those data. What we did is, together with the monitoring and evaluation team, we devised a monthly malaria bulletin. We said that every month, we're going to take all the data that have come in for the preceding month, analyze them in the same way, have a plan for how we're going to analyze them, which indicators to report, which maps to draw, and to write a—put procedures in place so that would be done automatically, and then have a very standardized template, two-page bulletin that would be sent out at the same time every month and would be shared with the Ministry of Health, all the malaria partners—so PMI, Global Fund, and also the districts themselves, the interior of the country, so they could see what's kind of—so basically, a snapshot of what had happened in malaria in the preceding month. The first one that we wrote or generated if you will was in October 2014—actually I guess it was in November, but with the data from October. That first one was—if you looked at the map, about half of it was gray for missing data. This is when things were still being rolled out. But I'd say within the following six, seven months, still during the Ebola epidemic, the completeness went up to a hundred percent so you could get data from all districts, and it's something that to this day is being sent out once a month with basically the same format that we came up with

in November 2014. We're going on well over three years at this point, and that was something that's really been instrumental in how malaria control works in Guinea. Every month, all the partners and the NMCP look at this snapshot of what happened, where are there a lot of cases, where are the commodities, and it helps them figure out where the problem areas are, where to focus resources, and has really been a model that even other countries have adopted, specifically based on the Guinea bulletin. I think in and of itself, that's quite remarkable that that was being done, and it's something that's I think quite impressive, but it becomes really impressive when you think that it was done in the midst of an Ebola epidemic in a country that was actually a relatively young PMI country. Other countries had been receiving PMI money since 2007, 2008. Guinea was one of the younger ones. It was certainly one of the poorest countries. I think in retrospect, that's really a great achievement that the National Malaria Control Program was willing really to take that step because a lot of programs, faced with shortages of staff and all of the difficulties associated with the Ebola epidemic, might not have said well, this is a good time to start implementing a way of routinely analyzing our data. But the NMCP said, this is as good a time as any other time. That was one of the main projects that I did.

The second project was to figure out what was going on with malaria control during the Ebola epidemic. So to help basically the NMCP get a grasp on how the Ebola epidemic was influencing their efforts in malaria control and how they could act on that data to insure proper malaria control.

The first thing we did is we went to—basically, we wanted to look at data. We asked to look at data to figure out what was going on, and the first thing we tried to do was look at the data that had been coming in through this surveillance system that the malaria program had put into place. We quickly realized that we didn't have enough data in that system, as it had really only been functional since 2013, and even then, the first bulletin we published was half empty basically because there was still incomplete reporting by basically half the country. So the data were not complete, and on top of that, we didn't really have that much past data so we could compare trends. Because really we wanted to know what was going on with cases since the start of the Ebola epidemic, and we didn't have a good baseline for that. But what we did is we realized that there was another set of data out there, and another arm of the Ministry of Health had for years—I mean almost a decade—had been collecting data from health facilities on a weekly basis using a WHO-inspired and supported system of weekly surveillance, which is known by its English acronym, which is IDSR [integrated disease surveillance and response]. This was in, like I said, a different arm of the Ministry of Health. I believe it was in their arm of prevention and disease control, basically—disease control and prevention [Direction de la Prévention et de la Lutte contre la Maladie]. The head had actually been Dr. Sakoba Keita, who had been tapped early on to be the lead person on Ebola control from the Ministry and would play that role until the end of the epidemic. But prior to the Ebola epidemic, he was working in that division, so it was basically the surveillance arm of the Ministry of Health. They for years had collected data on maybe ten diseases through weekly phone calls to a subset of health facilities. They would take a fair amount of health facilities distributed throughout the country and they would call them every week

and ask them, have you had—how many cases of acute flaccid paralysis have you had in the last week? How many cases of bloody diarrhea have you seen in the last week? How many cases of rabies have you had in the last week? And they had been asking them, how many cases of malaria have you had in the last week, and how many deaths have you had in the last week from malaria? These data were actually very, very fortuitous because—so most countries have an IDSR system in sub-Saharan Africa, something that WHO has really been pushing throughout the region. But most countries do not include malaria because IDSR is meant to—it's meant to be a surveillance system for diseases of epidemic potential. So cholera, meningitis, polio, AFP [acute flaccid paralysis], bloody diarrhea would be like—something like typhoid fever or something that you would expect to see flare-ups and things that you want to be notified of on a weekly basis. Malaria actually in Guinea is not of epidemic potential. Malaria in Guinea is completely endemic, so it occurs everywhere all the time. You'll never find anywhere in Guinea that doesn't have malaria at some point, at any given time. It's very fortuitous that they had years before decided to include malaria as one of the diseases that they would collect data on, and the data were actually really interesting. If you looked at the data, there would be—from the IDSR data, there'd be a handful of cases of suspect cholera or AFP. Then you'd get thousands, tens of thousands, hundreds of thousands of malaria cases being reported through the system. It was basically—most of what it was reporting was malaria, and the data was actually shared on a weekly basis with the National Malaria Control Program and had been for a while. But what we wanted to do is we wanted to have data from previous years, so we wanted to have data from like 2011, 2012—data that we did not have, and the idea was to compare basically previous years' data on malaria cases

from previous years and compare it with what had happened since like March 2014 when you saw the first cases [of Ebola], or the first cases were detected in Guinea. I remember we—I think getting data is always quite difficult from the Ministry of Health, even if you are working with the Ministry of Health. A lot of it is based on personal relationships and knowing the right people and asking in the right way. I remember, it took us a long time. It took us several days of trying to get the data, going to the office, no one being there or no one really wanting to meet with us. Again, this was—I don't think it was that surprising considering the other priorities. But finally, we were able to get a hold of this guy who worked at this particular branch of the Ministry, and his name was Dr. Richard James, who was Guinean despite the name. His office was actually in a very weird place because it was also the place that you would go to if you wanted to get a yellow fever vaccination. [laughter] Very bizarre. It's the equivalent of like having the flu surveillance people being right next to the place where you get some kind of routine—like in a CVS or something. It was a very, very bizarre location, but I think it's quite normal to see that kind of efficiency of space in areas where the Ministry of Health offices are quite limited. We went there and we were able to request and get the retrospective data from previous years from Dr. James, Dr. Richard, on a flash drive. Then we went back to the Ministry and started looking at the data.

The first thing we did was we just overlaid the previous years and then 2014. You could see—and malaria in Guinea is very seasonal, so you could see the rise and fall from year to year—very, very regular, which corresponds to the rains which are also quite regular in Guinea as in most of West Africa. Then once you started looking at the data in 2014, you

could see a slight decrease. You could see the number of malaria cases going down. But that was still—it didn't really pop out. But then what we did is we stratified and we split the curve up according to three regions. We split it up according to areas like Guéckédou, Macenta, Conakry, that had had Ebola cases early on. Then we split it up into areas that had Ebola cases but later on, like over the summer, like July, August. Then the third were districts that at the time still had not had any Ebola cases, which were quite a few. There were still pockets of Guinea that had not reported any cases. When we did that, it was kind of like a eureka moment because you could see that in Guéckédou and Conakry and Macenta, cases started going down in April, and you could see a sharp decrease in cases starting in April in Ebola-affected areas. But later on, you could see the drop-off in malaria cases that occurred basically starting late June, July. The areas that did not have Ebola cases had a slight decrease, but basically were in line with previous years. That was really the first evidence that we had that there were fewer malaria cases being seen at health facilities. The thing about malaria control is that unlike other diseases, usually we want—we're happy when we see a lot of malaria cases being reported because a malaria case that's being reported is a malaria case that's being treated. In other diseases, when you see some case of a disease going down, you're like oh, that's great. Like Ebola for example. If you see less Ebola, it's great. But for malaria, if you see cases going down, it's not necessarily a good thing, especially if you think that there is still malaria transmission. The evidence showed that we were reaching fewer malaria cases through the health facilities, and we shared the data quite quickly. Everyone was concerned. The next thing that the National Malaria Control Program really asked itself was, are the data true? Again, this was a retrospective analysis of just routine data. Really, it wasn't—

although it was indicative of a drop-off in cases, (a), we didn't really know whether it was true; (b), we couldn't really characterize where it was happening; and (c), there were a lot of data that were of interest to the program that the routine data didn't have. We were interested, for example, in whether there were fewer cases because people were less likely to come into the health facility, or were there fewer cases because people would still come to the health facility but they were not being tested and not being identified as malaria cases? Also just quantifying the scale of the reduction was important, and these were things that we really couldn't do with the routine data. The partners and NMCP came up with a plan. What we had is we had money. Both Global Fund and PMI had had some money set aside for a health facility survey, looking at malaria case management in health facilities, so this was going to be a survey that had been planned and had been being postponed for a while. But the idea was to gather more information about malaria case management in Guinea. Actually, both Global Fund and PMI had money for this activity, and we quickly decided, we have all these unanswered questions about the data that we're seeing through the routine analysis. Can we basically send people out into the field as part of the survey and gather more information about what's going on with the situation of malaria in the country? That's what we did, so we lined up the money. I think Global Fund put up a hundred thousand dollars and PMI maybe twenty-five thousand dollars. We wrote a protocol that was specifically designed to answer the question of what was going on with malaria care delivery at health facilities, and to some extent, community healthcare workers in areas that were affected by Ebola and areas that were not affected by Ebola. We hired an epidemiologist, Dr. Sidibe Sidikiba, who was an epidemiologist who had worked previously with the Mafèrinyah Research Center. He is

Guinean, and he and I wrote the protocol and designed the sampling scheme where we randomly picked 120 health facilities, so a fair amount, in I believe eight different districts. Eight out of the thirty-eight health districts. We chose four districts that were what we called "heavily affected" by the Ebola epidemic, and then four that had not reported any cases. The protocol had basically surveyors going to these health facilities and doing a very comprehensive retrospective review of the data from 2013, and then again with the same period in 2014 in order to collect data on basically differences in malaria case management from the pre- and post-Ebola, basically. At the same time, they would interview healthcare workers and ask them about their perceptions about malaria case management and their knowledge about Ebola, a whole slew of questions, and try to get at what was going on in terms of malaria case management during the Ebola epidemic. So we wrote the protocol. It was very quickly reviewed and approved. The money moved very, very quickly, and the training—so I left I think a few days before training started. Training started I believe at the first week of December, and the survey was done during the course of three weeks in December 2014, with I think really great support from PMI, Global Fund, CDC. I had a lot of help from the headquarters side here as well because I was doing multiple things when I was in Guinea, and we had a student from Emory [University], Ian Hennessee, who really did a lot of the protocol development, and also my colleague, Jessie [Jessica K.] Butts, from the Malaria Branch. We implemented, or rather Global Fund and—basically did the implementation of the survey in December 2014. Fortunately, unlike the US, Guinea is a Muslim country and things do not—or majority Muslim country—and things don't actually stop in December or end of December. So we were actually able to do the survey up until the end of the

year. We did visit all 120 health facilities. Very quickly, in January and February, they were doing data entry in Guinea, and by February/March, we had a really—we started analyzing the data. At some point, either it was in March or April of 2015, I deployed again to Guinea. Or not deployed but was sent to Guinea, also as part of the Malaria Control Program. Technically assisting the Malaria Control Program, and also as part of PMI planning and implementation. During that time, we finished the analysis of the data that we had collected during the health facility survey, and it was very interesting because we were able to confirm and actually almost perfectly match what we had seen from the routine data. We had the signal that we had seen from the routine data, and then when we went out and did this retrospective data collection from health facilities—this meant people pouring over hundreds and thousands of records—we were able to confirm that indeed, there were—compared to previous years, ever since the beginning of the Ebola epidemic, there had been fewer patients coming in, fewer patients with fever coming in, fewer tests being done, fewer treatments being done. We were able to document the scale at which the Ebola epidemic had impacted malaria care delivery. Over the course of the interviews, it really became obvious that the changes that we were seeing were due to the Ebola epidemic. There was patients' reluctance to go in if they had fever, there were closures of health facilities, although not as many as had been rumored—most health facilities were still open and functional, but there was certainly fewer patient volume because there was this suspicion, rightfully so, that if you came in with a fever, there was a chance that you would be sent to an Ebola treatment center. If you had other symptoms or had a notion of contact with someone who had Ebola. Patients picked up on this. Then, of course, there were changes in healthcare worker behavior as well. I think it's been said

that health facilities were kind of the battleground of the Ebola epidemic, in the sense that that's where you really had the interaction of the actual Ebola cases with the healthcare workers. There were a lot of healthcare workers in all the highly affected countries that were infected and eventually died from Ebola, so there was a fair amount of transmission but it was also where most cases were being detected, and that was the opportunity to isolate the cases. Inevitably, it did have an impact on malaria case management and malaria care delivery throughout the country, and we found we were also able to document a really huge almost-collapse I would say of the community healthcare worker program. Prior to the epidemic, we had been in the stages of rolling out community case management, so like I was saying, the idea that you could get tested and treated in your community without having to go to a health facility. That pretty much stopped completely, so that was a huge blow to malaria control during the epidemic. What's interesting is we were able to—so remember, we stratified by Ebola affected, Ebola non-affected. What's interesting—certainly, in Ebola-affected areas, we found decreases in patient flow, patient testing, treating and so on. Interestingly enough, we found similar declines in areas that had never had Ebola, so even entire districts that had not had a single case of Ebola, you still saw decreases in malaria care delivery. They were certainly not as big as the ones that you would see in the areas that were heavily affected, but we were able to document that you had this spillover effect, even into areas that were not directly affected by Ebola. That was I think a major finding, the idea that it wasn't necessary to have actual Ebola cases in order to start seeing this impact.

The results of the survey I think were quite notable and were very relevant at the time, and they were shared very quickly with the malaria control partners and also the donors. The fact that the program was able to document this was I think really very—I guess admirable, and also something that I think really changed the way in which malaria control was being done in these countries. It attracted—the report ended up being published quite quickly in *The Lancet ID* [Infectious Diseases], and there was a fair amount of press coverage. If you went to Google News, it was one of the top stories under the health section, and I remember going on BBC News and talking about it. There were definitely a lot of press articles about it.

Q: You went on BBC News?

Plucinski: Yeah—like radio. It was a snippet, but I remember being called from—it must have been—I think it was at night because it was like the morning program, so I had to stay up and Skype in. That was actually quite a terrifying experience. [laughter] It did attract a lot attention, which I think was very good because (a), it really alerted people to the fact that—it was really the first concrete evidence that the Ebola epidemic was not just costing lives through the actual deaths that were occurring from Ebola, but could potentially be causing even more increased mortality and morbidity by its indirect effects. Just with the decrease in malaria care delivery alone, we estimated that there were probably more deaths that were being caused by missed opportunities for treatment than actual Ebola cases in Guinea, and that's just malaria alone. Then there's all the other diseases—control programs are being impacted or potentially impacted. I think that

actually really—it was I think very useful to prove that and get people talking about it because I think it did influence the way that a lot of the post-Ebola recovery efforts were focused or were designed. Because it really drew awareness to the fact that the health systems in these countries had suffered a severe blow, and again, you didn't need actual Ebola cases to see that. So that was certainly important I think from the point of view of the Malaria Control Program, seeing the extent of it and being able to quantify the changes was also very, very important and influenced how the Malaria Control Program and its partners approached malaria control during the Ebola epidemic.

I think the final thing that came out of it was that even though the report and the survey documented a decrease in malaria care delivery for sure, it wasn't an absolute collapse—we didn't go in and find that half the health facilities were closed. We found a few closed health facilities due to Ebola, but for the most part, they were open, they were offering malaria care services, it's just that people weren't coming in at the same frequencies and then once they were coming in, they weren't as likely to be tested. But malaria control went on during the Ebola epidemic, and the fact that we were able to document that as well I think is important and is something that should be applauded because—you know, even in these very, very difficult situations where healthcare workers were dying, healthcare workers were being killed, remember in Macenta or Nzérékoré in like July or August, there were like six or seven folks from the health authorities who had been killed during a village visit. That still, the basic malaria control interventions at health facilities were still ongoing. Not only that, but the Malaria Control Program—so not only was the Malaria Control Program still implementing malaria control and still supporting it, but it

had taken a step of proactively mounting a survey during the peak of Ebola in Guinea. I think it really cemented the National Malaria Control Program as a truly world-class malaria control program. In most countries, you wouldn't typically decide to do this kind of complex activity at a time when your attention is being split in different ways and you're having all these challenges, especially with the epidemic. But for the program to not only say we're going to continue malaria control but we're also going to mount a study to figure out how we can do it better and where the problems are, I think was really something that to this day stands out in my mind. It shows that even when things are quite dark and don't seem to be evolving the right way, with the right people and the right mindset—and really, everyone worked perfectly together in conjunction with the National Malaria Control Program and its partners and the CDC headquarters, everyone was extremely supportive and very willing to work on this, and that was something that really for me stands out in my mind.

Q: I have a question about something I just don't understand super well. I assume there are really good reasons for this, actually. When the patients would go to health facilities—and we can say now they had malaria but at the time, it's like who knows, they just have the symptoms—they make it to the health facilities, why were the diagnostic tests not being offered to them?

Plucinski: Why were they not being offered?

Q: Yeah.

Plucinski: One complicating issue is that there were rumors, or not even rumors but new guidelines were being introduced to minimize the risk of Ebola transmission in the health facility, to not do any testing. Malaria testing involves a finger prick, and there was this idea that a finger prick could potentially transmit Ebola from a patient to a healthcare worker, even though there was actually quite limited evidence that that was a substantial risk. Certainly, it was a risk. There were recommendations to move over from testing to empiric treatment, but what we found was that oftentimes, rather than not test and treat, the healthcare workers would not test and also not treat because they didn't have malaria tests. They didn't have a malaria positive test, and they had been trained only to treat if positive. So yeah, we found that people were less likely to be tested, and perhaps because—and this could have been either from the patient or the healthcare worker—either the patient didn't want to get tested or the healthcare worker didn't want to do the test. It was not a question of test availability—we actually were able to show that there were a lot of tests out there—that rates of stock-outs were not significant, but rather, it was just the willingness of the patient or the healthcare worker to get tested. That was probably the main factor, that even patients that made it to the health facility, that they were not being tested at the same rates.

Q: When was the study published again?

Plucinski: It was published over the summer in 2015.

Q: And you continued to work on malaria in Guinea through 2016? Am I correct in thinking that?

Plucinski: Even to this day, I'm still—

Q: You're still doing it?

Plucinski: Yeah, I still support the PMI program in Guinea. But I would say my last major trip to Guinea during the Ebola epidemic was probably in early 2015. Because in 2015, that's when cases started going down, and by 2016, there were very few or no cases in Guinea. By then, our resident advisor had switched back to malaria, so there was no need for folks from Atlanta to go there for long periods of time to backfill.

Q: I know we want to get to Guinea-Bissau. Do you want to take a quick break? Or are you okay to just roll into—

Plucinski: Actually, maybe we can do it some other time.

Q: Let's do it some other time, because yeah.

END