CDC Ebola Response Oral History Project

The Reminiscences of

Sarah D. Bennett and John T. Redd

David J. Sencer CDC Museum

Centers for Disease Control and Prevention

2016

Sarah D. Bennett and John T. Redd

Interviewed by Samuel Robson
May 6th, 2016
Atlanta, Georgia
Interview 1 of 1

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Q: This is Sam Robson. Today's date is May 6th, 2016, and we're here at CDC's [Centers for Disease Control and Prevention] Roybal Campus audio recording studio and I'm here with the wonderful [Dr.] Sarah Bennett and [Dr.] John Redd. We're just here to talk further—we've done individual interviews before—but about their experiences being in Sierra Leone together for the Ebola response. I'm going to quickly shove the mic [microphone] over in John's direction here.

Redd: Right here.

Q: Maybe a good starting point might be when you guys met each other.

Bennett: Do you remember when we met each other?

Redd: I was going to ask you. [laughter]

Bennett: I don't actually remember when we—I'm trying to think when you were—when did you first come to Sierra—

Redd: I got there, I think it was September 14th. It was basically right before the House-to-House [Campaign].

Bennett: You got there on September 14th?

Redd: Yeah.

Bennett: Okay, so I was still there. I can't remember that actually. Wow. [laughs] I thought it was much later that you first came.

Redd: No, I was there. I was in the second group that went to Bombali [District].

Bennett: Oh, that's right. That's probably why I don't remember so much because you were almost immediately deployed out.

Redd: Yeah. It was crazy. I got in very, very late at night, early in the morning, and—

Bennett: Because the only flights coming in were in the middle of the night. [laughs]

Redd: It literally was like two in the morning, and it was—

Bennett: You got to the hotel at seven, just in time to start working.

Redd: Yeah. That's exactly what happened.

Bennett: Oh, it was terrible. I had my first meeting at 7:00 am.

Redd: Yeah. I got in, it was like three in the morning and I was jetlagged. I'd been through Morocco and the whole thing, and then they said, the first meeting's at seven. [laughs] I didn't know where I was going to go, what they had planned for me or anything, which was fine, that didn't bug me. I probably met you that morning, I bet.

Bennett: I don't—yeah, September for me is like a really big blur. There were a lot of really big things happening in September because the House-to-House Campaign was one. The home care issues were starting to be discussed. Where to manage all those patients, like, didn't have space in isolation units. The Kenema ETU [Ebola treatment unit].

Redd: I lived that every day, yeah.

Bennett: It was a pretty rough experience. Wow. That was your first deployment.

Redd: Yeah. I was only in Freetown maybe—it was probably twenty four hours because I—

Bennett: I was going to say like an hour. And then you're like on your way. [laughs]

Redd: I think I had one night in the hotel and then I left very early the next morning.

Bennett: Did you get to experience the 4:30 am fire alarm?

Redd: Yes.

Bennett: At the hotel? That's terrible.

Q: What is this?

Bennett: Every single morning for like two weeks straight, the fire alarm would go off at four thirty in the morning. There weren't that many people in the hotel, so they had everybody in one wing of one floor. The fire alarm is really funny because it's this like British man who says something in British, like "This is an emergency, please leave the building," in an accent. Of course, you're not entirely sure if you're dreaming that, and I wouldn't mind dreaming a British voice speaking into my ear. [laughter] You almost miss—he only says it twice, and so you're kind of disoriented. Then you start hearing doors slamming in the hallway, and then you look out the door and you see your colleagues in their pajamas and their bath towels and their bathrobes exiting the building. It was raining in September, so you go outside and it's pouring rain.

Redd: I had just gotten there. I was incredibly jetlagged. Yeah, and the fire alarm went off. I thought, well, we're supposed to go outside. I just—I did all the training, you know, I'll go ahead.

Bennett: You leave when there's a fire drill, yeah, or a fire alarm. The funny thing about it was all the time that the unit was being evacuated, the hotel staff were running around like no, no, it's fine, go back to your rooms. And you're like, are you sure it's fine? Nowhere else in this building there's a fire? Because most of the building is empty. It was just one of those really weird, quirky things that happened for two weeks straight. It was miserable.

Q: At some point do you just sit through it?

Bennett: No, I think most people got up and evacuated.

Redd: Yeah, one of them is going to be the real thing someday.

Bennett: People met a lot of interesting people that way. Because as they were coming up to the House-to-House Campaign, a lot of companies that were still in-country like the mining companies and other NGOs [non-governmental organizations] were putting their staff up in the hotel, and so one of our EIS [Epidemic Intelligence Service] officers was staying across the hall from two guys that owned one of the diamond mines. I was like, in

the middle of your evacuation, you hit them up for money. That's what you're supposed to be doing. [laughs] That's why we have these four thirty in the morning drills.

Redd: How long had you been there at that point?

Bennett: I got to country at the end of August—like the 28th or something of August. So just a couple of weeks.

Redd: Oh, so we were largely same vintage. But we had different jobs. We're both medical officers, had somewhat similar backgrounds.

Bennett: Well they kept sending me back and forth to Kenema to try to help out there as best I could. Then if you went to Bombali, yeah, we probably didn't overlap at all. You were the first—no, you followed Ruth and Alexia.

Redd: I was the second group, that's correct. Yeah. But honestly, they had seen hardly any cases and—

Bennett: Right. They were getting prepared. They were setting up all the surveillance.

Redd: There was preparation, right. When I got there, they had set up the VHF, the viral hemorrhagic fever database, and it was barely going. But when Brigette [Gleason] and I

showed up, there was a backlog of, I don't know, probably two hundred or more case investigation forms.

Bennett: Were you there when they were setting up Arab Hospital and Paramedical—

Redd: Oh, yes, yes. I was there for all of that.

Bennett: —basically the three holding units.

Redd: Three holding centers, right.

Bennett: Yeah.

Redd: There were three holding centers.

Bennett: And were you there when the—was it Al Jazeera had gone out and done that really tough story on—

Redd: Yes.

Bennett: Was it Paramedical Hospital?

Redd: Yep.

Bennett: Where the patients were just basically left.

Redd: Yeah. I got to go—I didn't get into any holding centers other than that, but I was able to go through Paramedical before they opened it. No, sorry, Arab Hospital before they opened it. Then I spent loads and loads of time at both the government hospital and then also I went to the holding centers all the time.

Bennett: Yeah, the hospital. That's definitely a difficult place to work.

Redd: Yeah, very hard.

Bennett: Yeah.

Redd: It was very interesting because of course, once they opened the holding centers, unless you were going to put on PPE [personal protective equipment]—which we were supposed to avoid, unless of course it was—

Bennett: Yeah, because you'd get in trouble with me. [laughs]

Redd: Yeah. I didn't want to go in there.

Bennett: Because if anybody had put on PPE, I was supposed to be notified and then I was supposed to sort out whether you had to be whisked out of country because of an exposure. Although I'm the only one probably on the team—myself and Kevin [L.] Clarke were probably the only two who ended up putting on PPE.

Redd: For the driver?

Bennett: Yeah, for our driver.

Redd: There was a driver who got ill, yeah.

Bennett: Yeah.

Redd: He didn't have Ebola, but—

Bennett: He didn't have Ebola, but he still passed away. The terrible thing in all of this is that people died from so many other things because they weren't getting care and they didn't have Ebola, but you certainly were worried about it until you got a death swab back, which took some time. I think you were involved in trying to track that death swab down.

Redd: I spent about a day and a half trying to find that death swab.

Bennett: Yeah, and I think it was like five days before we finally tracked it down because it wasn't clear where the swab had gone to, where it was collected, why. It went all the way to Waterloo Cemetery.

Redd: It went to the Italian lab, right?

Bennett: I think in the end, yeah, that's where we found it. But I think somebody on the WHO [World Health Organization] team started going around, trying to track it down. It's crazy how difficult that was.

Redd: Yeah. Yeah, lots of it was difficult.

Bennett: I can't remember actually when Paramedical and Arab and all of those facilities closed. Do you remember when they closed? Because they weren't open, I don't think, for very long.

Redd: Probably December, I think around there.

Bennett: Mabente and then Mateneh ETUs opened.

Redd: When they opened, right.

Bennett: Okay, and then they got—they didn't need the holding units anymore.

Redd: When I first got there, it was unbelievable. Those holding centers were just opening up and the cases were really starting to take off. In fact, the House-to-House actually was very effective at case finding.

Bennett: Right. There was a little bump in the epi [epidemic] curve.

Redd: Really—yeah, really, and we saw that in Bombali also.

Bennett: Yeah. You needed some place in Bombali because the drive to Kenema was so difficult.

Redd: Right.

Bennett: Because they would take them down and then it was a several hour drive, I think, to get—even though they're very close on the map, there's no direct—

Redd: No direct route, yeah.

Bennett: No direct route, and so you're on terrible roads down—

Redd: It's hours and hours.

Bennett: —I think it's like through Tonkolili District and then oh, it was terrible.

Redd: Yeah. Down through Tonkolili. And the labs had to go to a different place. They went to Bo, to the CDC lab in Bo.

Bennett: Did they at that time? I didn't think—

Redd: They did. Bo had just opened up. Every night I would talk to Jon [Jonathan S.] Towner who was there, too. Dr. Towner.

Bennett: Oh, he was—I think he was the one that actually moved the lab.

Redd: Yep.

Bennett: Yeah. Wow. Yeah, because the lab was sitting in the Kenema Government Hospital and that space was really not a safe space because of what was going on at Kenema. I guess you guys were sending patients—I think actually somebody called me because Kenema got like a truckload or an ambulance load of patients from Bombali and I guess the Bombali DMO [district medical officer] had been told not to send them because Kenema was full and the DMO in Bombali sent them anyway. They were dropped off in the parking lot of the Kenema Government Hospital and our team walked in the next day and found them just milling around the general wards and the parking lot

and in front of the ETU. One, I think, had gone into the pediatrics ward and just took a bed there.

Redd: We used to send patients to either Kailahun or Kenema, basically.

Bennett: Yeah.

Redd: Yeah. Those were the only choices for us in those days.

Bennett: But for the whole country. The other problem was coordination. You'd have Freetown and its hospitals just shipping all their patients to Kenema and Kailahun, but you had that coming from all the other districts as well and there was no centralized basically triage system trying to figure out which patients from where go to which facility. Since there are only two of them, DMOs just made the—like, we'll take them—we'll send them to Kailahun today, we'll send them to Kenema today. It was just terrible for the ETU staff.

Q: Is that something that got addressed? The chaos of that?

Bennett: Really, we needed more beds. That's the case management stuff I spent a lot of time working on was going to meetings. The case management pillar had started up at the very beginning of the outbreak, like April—well, May, I guess. Right after the first confirmed cases in May, and had continued to meet I think until like mid-June/late-June.

A lot of the work then was focused on getting the hospitals prepared to potentially isolate cases. MSF [Médecins Sans Frontières] came in and put the two facilities in Kailahun and Kenema, but most people didn't think the outbreak was going to get as out of control, and almost everybody was convinced it would not spread to Freetown. Or at least there was denial about spread to Freetown.

Redd: I think it was denial, yeah.

Bennett: It was definitely denial. Because when there were cases in Freetown, people were like, they're not in Freetown, or if they're in Freetown, they're in the poor areas—

Redd: They were imported, right, yeah.

Bennett: —of Freetown. They've come from somewhere else. This is not a problem for Freetown.

Redd: Yeah, it's really true that people—

Bennett: It was very slow to get new facilities up and running, partly because it's very expensive. The other problem is that MSF had reached their capacity to open new facilities and the NGOs, I think, were really afraid to take that on. Definitely a high risk, high liability, very difficult task.

Redd: Risk for their staff.

Bennett: Yeah, and actually at one of those meetings was when MSF reported four infections in their workers at the Bo—when they were opening up the Bo facility or just after it had opened. That didn't help NGOs want to take on ETU care. I remember, one of the most difficult meetings I ever went to was the meeting where the Ministry [of Health and Sanitation] essentially begged partners to get involved in case management. I remember I was sitting around this big table, it was held at the WHO at the time because we didn't really have any other meeting space and the EOC [emergency operations center]—the national EOC really hadn't opened, like the physical space had not opened, and then the new, what we called the NERC [National Ebola Response Centre], now the THINEOC or something like that, it had not been built yet. We were meeting in the WHO room, and I just remember looking around the table, and if we had been standing up in a line, every NGO would've stepped back to see who was left stepped forward. [laughs] It was a really terrible—it was a very, very difficult meeting and it was unclear how quickly—like, DFID [UK Department for International Development] had funds for, I think, five ETUs in country, five one-hundred-bed ETUs. It was really unclear the timeline for the delivery on those ETUs, partly because it was difficult to coordinate the Ministry in selecting sites. Nobody wanted an ETU in their area. And so a lot of the ETUs that were built were put up in like very difficult to reach—or like a field somewhere.

Redd: Yeah, they would clear land.

Bennett: Basically, like undesirable land, I guess, is what—and not always best selected for the environmental—

Redd: Accessibility.

Bennett: —the accessibility or the environmental issues that go along with ETU management. We didn't really see an increase in beds until late December and into January actually, because those ETUs then—picked up by other NGOs like Save the Children. I mean, they all did a great job, I think, given that they had no experience in this area, but it was so slow. December every day, more than once a day, Oliver [W.] Morgan would call me and be like, "How many beds do you think we're going to have by the end of the week?" And I was like, "The same number as four hours ago!" It was just this obsession with beds.

Redd: Well, it was what was needed.

Bennett: It was definitely what was needed, yeah. Because you had holding units which—that was the local solution to not having ETU beds. There's a lot of discussion about the case fatality rate at ETUs between the different ETUs, like one has a better case fatality ratio than another. A lot of that probably goes back to the level of care provided in the holding unit and that by the time you got transferred to an ETU you are already

likely to survive because you'd survived two weeks in a holding unit where care may not have been as aggressive.

Redd: On the other end—on the supply end, as it were, of that up in Bombali, we were making true triage decisions. I hope it's the only time in my life I ever have to do something like that. I didn't do it [all by] myself, but I was, you know, I would consult on those decisions.

Bennett: Those are the kinds of things actually I think that haunted maybe some of the deployed staff that went out from CDC. Because a lot of them would come back to Freetown and be like, you don't understand what it's like out there to have twenty-five sick people—

Redd: And only four spaces in the ambulance.

Bennett: And it would be a surprise. You'd go out to follow up on an alert, like one call, and you'd find twenty people that are ill and you've got one ambulance with you and then your vehicle and maybe a district vehicle and that's it. You've got children, you've got elderly, you've got pregnant women. Even those with medical backgrounds I think are not equipped with training on how to triage. I mean, it's not the same as trauma triage, which more people are familiar with. But you've just got somewhere between mildly ill to very severely ill and can you do anything for the severely ill? I don't know. So do you send the mildly ill because they may benefit more? It's unclear.

Q: Are there times, John, when you were in that situation? Can you describe a specific decision you had to make? Some people you saw just in vague terms? You know, there was an older woman versus a young child versus—

Redd: Well, it was all types of people certainly, young and old. We would go by every day and I got to know the nurses very, very well at the holding centers. They called them holding centers in Bombali. As I say, I wasn't making the decisions myself but I was consulting on them. I'll get emotional, but every day we had to decide who was going to be able to go and—uh—and who wouldn't. And every single day the decision was being made by the team that some people were so sick that they probably wouldn't make the four or five-hour hot ambulance ride in which they would not be getting intravenous fluids for the most part. It was an attempt at—

Bennett: Attempt at giving ORS [oral rehydration solution], but you know.

Redd: Yeah.

Bennett: It's difficult to do in the back of an ambulance.

Redd: Yeah. And they tried, you know, there was an attempt and I really—I just had immeasurable respect for the local people who were making these decisions, you know, all the time. There was an attempt to make it sort of first-come, first-served. If people

were equivalently ill, then it was sort of first-come, first-served. But there were triage decisions at either end. Either too well to take up a space or already too ill to take up a space.

Bennett: And sometimes those decisions were also made at the community level. Like you had people—if you had too many people and not enough ambulances. You could send more ambulances, but sometimes if you're way out in some of these districts it's hours before—and they didn't have ambulances services overnight so everything had to be completed by six or seven o'clock-ish.

Redd: Correct.

Bennett: Because it's really dangerous to put on and take off PPE, personal protective equipment, in the field and you cannot do it in the dark. It's just really unsafe in the dark, especially when the risk is much higher because you are probably transporting sick Ebola patients, which was true during the peak of the epidemic. You didn't always have the luxury of saying, well, I'll just come get all the rest of these patients. You actually had to make decisions. That might be something I think in future outbreaks, if resources are limited and we know we're going to have issues with case counts, then we might need to equip our staff a little bit better with how to make those decisions. I always try to make myself available to people by phone, but the cellular networks are not easy. I was also in like a million meetings in Freetown. It was just really, really just challenging.

Redd: It was one of the times that I was glad I was a little more experienced actually than some others—I mean I certainly was very experienced with death. I mean, I'm fifty-three, I've been an internist now for quite a while. I've certainly never seen anything like that, but I was okay fundamentally with being out there sort of on my own, but I really felt—or for people we sent who were PhDs, for example. Certainly most of our jobs, being a PhD or an MD is largely equivalent. But dealing with those settings was different.

Bennett: I definitely felt like there were moments where I fell back into kind of like doctor mode where you try a little bit to distance yourself. Almost as if—it's a protective mechanism and you get a lot of really good training on how to do that when you go through medical school and residency training in the US, but you don't get that when you're—well, you probably don't get that when you're like a PhD epidemiologist. I do feel like I did come off as a little bit callous to some of our colleagues just because I was a little bit like, okay, the reality of the situation is that we do not have enough beds, we do not have enough ambulances. You just have to make tough decisions and if you can't do it, somebody on the team there has to.

Redd: I did the same thing and largely I was able to take a decision, as they say there, make a decision and move on to the next one, but—

Bennett: This is where that home care discussion started to occur, which is a politically incorrect term in Sierra Leone. Nobody—well, first of all, none of us believed that home

care for Ebola is the right way to go. The House-to-House Campaign was a good example of increasing the number of alerts and then not having the appropriate number of beds—

Redd: Absolutely correct, yes.

Bennett: —for isolation. It was also the case in Western District when we had the surge. So they identified additional cases in December and they had nowhere—we didn't really have enough space to put them in and so actually there was this big movement to provide counseling to families who were then going to have to isolate somebody who was sick who might have Ebola in their home. I think we ended up calling it something really generic like home support and—home protection and support.

Redd: Yes. [laughter] There was something that was kind of a euphemism for the whole thing.

Bennett: Right, for aka [also known as] home care. The NGO that actually ended up doing it in Western [District] was GOAL [an Irish NGO], and they hired survivors to basically go out every single alert call and they were like, if we're beaten by the ambulance, fine. The right thing happens, that person gets in the ambulance and they go to an isolation unit. But if we beat the ambulance then we begin the process—and it doesn't matter how long it takes between them beginning and the ambulance arriving, they start that process every single time for every alert, and the survivor then stays to help the family kind of move through the process of managing somebody at home. Identifying

the single caregiver, equipping them and training them on the PPE that's in the kit. How to mix ORS, give them all the supplies for the ORS mixing. You know, where do you put this person in your home? And in Western, homes are very difficult because they're not—often families are living in like one room. Maybe it's partitioned, maybe it's not. It's just really challenging.

Redd: In all of Bombali when I first got there, it's about five hundred thousand people in the district, there were two ambulances. The logistics were literally impossible.

Bennett: There were some things actually about the ingenuity of the local staff that I thought was really great. There was an infection in an ambulance driver in Tonkolili District, and he survived, and he believed that the reason he got infected was that the ambulance that he was driving was an ambulance that had been in Sierra Leone before the outbreak had started. Lots of ambulances came in to the system from outside the country, but at the beginning of the outbreak, they were relying on their local vehicles and they didn't have a complete partitioning between the cab where the driver sits and the patient compartment in the back. And what he had noticed—he actually described very vividly one event about two weeks before he got sick where he would store his food and water under his seat because it's so hot in Sierra Leone, so you have to keep everything in shade as much as possible, so he would store it under his seat. When he went to get one of the bags of water, he noticed that they were kind of wet, and he didn't think anything of it because the bags are kind of leaky. They have these little 500-ml plastic bags with water in them. They actually taste kind of gross, tastes like plastic. And he thought

nothing of it, but then at the end of his shift, he had started cleaning out his stuff from under the seat and had realized that the patient's body fluids from the patient compartment had leaked under the wall of the compartment separation. So then what they did—and actually it was a Bombali team that sorted this out—what they did was they ended up reinforcing the walls by putting up two-by-fours and then using like a caulking material to seal around the edges to keep the fluids from going in and out. Then they devised this mechanism to test the seal every few days to make sure that the seal was still strong where they would basically put hosed water into the back of the ambulance and then they would check the front of the ambulance. And you know the ambulance was not meant to be partitioned that way because it had drains in the driver cab under the seat, so there was this assumption that fluids and whatever might move between the two. So you have this local staff trying to figure out how to fix a problem. I thought it was a really simple solution and available locally without having to bring ambulances in from outside and it was the best they could do at the time. There were a lot of ambulances brought in and I don't know where they are now because now districts are saying, "We don't have enough ambulances to transport our pregnant women who need to go to hospitals for delivery." Well, the chlorine was not so great on—

Redd: Right. Yeah, it was incredibly corrosive.

Bennett: Yeah, you'd open up the back doors of ambulances and find like everything in there just completely rusted because the chlorine solution used to clean the backs of the ambulances just was—

Redd: Which they were laying on pretty heavy.

Bennett: Yeah. Not like washing it off and then not wiping it down and so, because when you think about it, you're doing ambulance decontamination on a mass production scale. There was a site actually in Western Area that was managing like forty-two ambulances, I think. They had twenty stationed at a firehouse in Freetown and then twenty out at this "facility," as best I can—I don't know what else to call it—out in like the middle of nowhere, Western rural district. And ambulances after every patient would just like go through this thing. It was like this crazy carwash, hand carwash kind of like, I don't know, it's so difficult to describe, but you were trying to do decontamination on a mass scale. I mean really when you think about it, it's totally insane. Household decontamination on a mass scale. You're talking about hundreds of people, hundreds of houses being decontaminated every day.

Redd: Well, that's what really happened in Western. The first time I was in Bombali, it was fairly personal. I saw a lot of the patients and helped manage some of them. Did I tell you last time about the young man with appendicitis?

Q: I don't think so.

Redd: Did I ever tell you about this?

Bennett: No.

[break]

Redd: I managed appendicitis with a nurse on a young man who we were sure didn't have Ebola, but we knew that they wouldn't accept him until they—

Bennett: He met the case definition, yeah.

Redd: Yeah, yeah.

Bennett: Nobody would do surgery on anybody at the time.

Redd: Right. And I couldn't go into the hot zone, so this nurse would go in and examine the guy and let me know how he was doing. Was he eating, you know, and it was crazy, but he survived.

Q: That's right. I think actually we have a little bit of that in the first one but we should do it again.

Redd: Most of those stories were actually not positive from that era, but there are a couple that are little bright spots. That was one of them.

[break]

Redd: How did you end up in case management? I really am just interested, because our training is technically—

Bennett: To stay away from it?

Redd: No, no, no. I mean our medical and public health training actually is—I mean, you did ID [infectious disease], right?

Bennett: No.

Redd: Oh, you didn't.

Bennett: I'm an internist.

Redd: Yeah, so you and I, we're the same in terms of qualifications.

Bennett: If you think about it, though, Ebola doesn't really require complicated case management. Really it's isolation and keep on top of their fluids. And if you can, test for electrolytes, you try to keep on top of those as well. But it's not super complicated. I think the way I got into it [case management] was more from the desire to have more isolation spaces and so in order to push that agenda, we had to start attending the case

management pillar meetings. I actually went for infection control, that was the task I was assigned. But the two are inseparable really from each other. And so I ended up getting into the case management space and I think just reasonable people with reasonable clinical backgrounds are able to help with—you know, we ended up working on guidelines for the management of patients both in the holding units or holding centers and the ETUs. And guidelines for the home protection and support of Ebola patients. So that's sort of how I got into it. Then once you got into it, you couldn't get out of it because—oddly, because CDC is not really known for having long-term deployers, but in this case management and infection control realm I was a pretty stable presence right through almost—

Redd: I would say so.

Bennett: —the entire Ebola outbreak, right? And our counterpart at the WHO, they were not and so they would rotate in and out, in and out, in and out and so actually the pillar became kind of dependent, I think, on CDC and their input. It wasn't just me, there were several others that contributed to that. There was a lot of work. It got into the ambulance side and the household decontamination. I also sat on the burial pillar for the entirety of that time and the whole thing, it's basically management of Ebola patients all the way from getting sick to dying. That's how I got into it.

My first day in Sierra Leone, Tom [Thomas G.] Ksiazek says to me, "You have to go to Kenema." And I was like, "What am I going to Kenema for?" And he was like, "Ute

[Stroeher, CDC laboratory PhD] has called and it's really bad out there." Basically, he wanted me to make sure that our team was safe at the hospital because the epidemiologist office, the district office, was actually on the hospital grounds. Basically, you had to walk between and through wards to get there and so it was a pretty risky place for them to be. And then the same with the lab. There wasn't really a natural way to get there without meandering around. You had Ebola patients just being dropped off by other districts by ambulance so you were never quite certain, you'd round the corner and in front of you would be somebody vomiting. So that's how I got into the case management thing.

Q: I've heard that Kenema was really bad and that they had to shut it down even.

Bennett: Yeah. Well, the Kenema—there was an ETU in Kenema that was largely run by the WHO and the Ministry of Health. This was co-managed. I think generally, co-management—my personal opinion from my experience has been that co-management of Ebola treatment units is not a good idea because nobody is certain of whose responsibility it is to solve problems as they come up and I think the assumption is that, oh, that's the Ministry's problem to solve, or that's WHO's problem to solve, and then nobody actually fixes the problems. The Kenema ETU was problematic because it was put together very quickly. It was an emergency. There's no fault in that, but it was put inside the government hospital grounds, which I don't think is generally probably—it wasn't a good idea when you had massive numbers of patients. And it was on a hill and in the rainy season, that just meant everything washed out of the ETU into the neighboring hospital grounds—trash, body fluid waste, personal belongings of patients. It got associated with

being a very unsafe place to work. The staff did not want to go in and out of the unit, and I don't disagree with their personal opinions on the matter. There was an infection there while I was there in an expatriate staff member and then just following that there was a needle-stick injury to an expat staff member there and I think that was what sort of led to its closure. And then IFRC [International Federation of Red Cross and Red Crescent Societies] set up a unit in the field basically outside of Kenema Town—Kenema City, whatever they call it. That replaced the government hospital, and then that government hospital unit downsized and became more like a holding unit inside the hospital, which is probably more appropriate for the time of the outbreak for them. Personally, I don't really want to see Ebola treatment units set up in fields, disconnected from hospitals, especially when you only have one, probably, Ebola case every few weeks or so, because patients who get isolated there who don't have Ebola, but are sick with something, do not get adequate care. It's not a hospital. It's a place to go to be tested for Ebola, and two days later you are sent back to the hospital for care, but by then it might be too late for whatever it is that caused you to present in the first place. People don't go to hospitals for mild things in Sierra Leone. They only go if there's really no other option and they think they might die. So people show up late for whatever illness they have and to spend two days waiting to get treatment while being tested for Ebola is really not good for patient care. So now I think actually the right thing to do is to have these mini isolation units in hospitals so that you can manage the patient with consultation services and pharmacy, like having a pharmacy available with medications in it for what you think they actually have while you're testing them for Ebola.

Redd: And the laboratory turnaround is much better now. Which makes that model work.

Bennett: Yeah, and I think embedding rapid diagnostic testing into that at the regional hospitals that will probably have, you know, Public Health England-supported labs that can do PCR [polymerase chain reaction] testing for Ebola. There are a lot of things that have come because of the outbreak I think that hopefully will prevent this from ever happening again. I don't think I have the energy to do it again. But at the time of the peak of the outbreak, I think having isolation at the government hospital was probably a bad idea. It really caused a lot of the fear of hospitals that people without Ebola had and so nobody was coming for care for other things because it was just deemed a really unsafe place and you could see that from the outside. There's patients milling around and there's an ETU at the entrance.

Redd: And that spread around the country. That common wisdom spread every place.

Bennett: Oh, yeah. I still think we're still trying very hard to get that confidence in the healthcare system back. You know, we want women to deliver in healthcare facilities.

Redd: That's a good example.

Bennett: We want babies to come in for immunizations and vaccinations. We want people to come for malaria treatment. It does seem like some facilities have recovered. You go and you see hundreds of mothers and babies lined up for whatever it is they're

there for, but it's actually nice to see that that has come back, but unclear yet—I think it's unclear still the full impact on the healthcare system there. And there will probably always be facilities that are always going to be associated with bad Ebola experiences. There was a PHU [peripheral health unit] in Port Loko that had like twenty-five Ebola patients just in the compound, and our team just happened upon it. Nobody ever called in an alert, so they were just out doing routine checks of facilities and found this. I think there will always be facilities that people associate with good and bad things during the Ebola outbreak.

Redd: True.

Bennett: I think of Mabela [Clinic in Freetown] all the time as a good story.

Redd: Oh, they were so—they were heroic.

Bennett: Yeah. They were in the wharves basically, Moa and Magazine Wharf. They serve that population.

Redd: And it's by Susan's Bay.

Bennett: Yeah, it's a clinic. It's tiny. It's not very big. It's like two stories actually, because it's basically built up in this very narrow space. It almost looks like it was an afterthought facility because it kind-of-sort-of protrudes into the street a little bit and then

perches on the edge of the cliff looking down into the wharf. But they had been through the Moa Wharf outbreak, and as part of that they had been enrolled in ring IPC [infection prevention and control]. That facility, because they had put down a new road in front of it, they had had their isolation space basically torn down by the government road officials. During Moa Wharf, Concern Worldwide, which is the NGO that was supporting all the PHUs in Western, built them a new isolation space and had done a lot of IPC training as part of the Moa Wharf ring IPC activity. Mabela was the unit that basically picked up and isolated one of the first cases in the Magazine Wharf outbreak and was the reason that we knew there was an outbreak going on in Magazine Wharf. They also probably had some nosocomial transmission during that cluster because initially there was a pregnant woman that delivered there that subsequently resulted in another woman getting infected, but—

Redd: Yeah, a woman came in at term—

Bennett: With Ebola.

Redd: —and delivered, and was understandably not suspected at first of having Ebola. I mean, she came in in labor.

Bennett: Yeah, people in labor, they—they have abdominal pain, they might be vomiting, they have nausea, they might have fever. There's many causes of fever basically at term labor, so yeah, it wasn't picked up.

Q: What happened with her and her baby?

Bennett: The baby died. And she—

Redd: I think she died also.

Bennett: She died also? I can't remember.

Redd: No, no, I'm wrong. She lived. She lived. I'm sorry. That's correct.

Bennett: Yeah, and then the other woman who got infected was transferred to—no, left, I think, and then ended up getting treatment at Rokupa [Government Hospital] in the outpatient ward for Ebola for like four or five days, and we were never able to confirm her. But if you go back and look at her—and she did have serology testing done—I think that was positive.

Redd: Correct. She was positive.

Bennett: We had missed her acute infection. But Rokupa ended up taking care of her in their outpatient department. Every day she'd come in and get fluids and ORS, and then she'd go home, and then she'd come in the next day. It was really eye-opening actually because we went and investigated at Rokupa. Rokupa had a horrific outbreak in the

hospital in October of 2014 where eleven staff were infected. I can't remember how many died, but it was like half of the staff died and it was all—

Redd: It's a little bit out of downtown Freetown. A little bit to the east.

Bennett: I think it's the only hospital in Western Rural, if I'm correct. It's technically still in Freetown. Anyway, it's this little, tiny hospital in this very crowded compound and the medical officer that was there when we went to do the investigation was describing how this patient came in. The patient was memorable. He didn't even need the chart notes to describe how she came in. I remember us asking him, "You've just described to us a suspected Ebola case," and he was like, "Oh." You could see it on his face like oh, crap. I kind of wonder actually if Rokupa did not have a nosocomial transmission event at least of the healthcare staff, because more of them are probably survivors from that October cluster than we know about. Because eleven staff out of—I mean, I don't know what that—we could probably get the numbers of staff at that facility, but—

Redd: But it was very surprising, but there was no transmission in Rokupa.

Bennett: We were never able to track down any transmission to other patients from her being in that outpatient department.

Redd: We followed the other patients, followed staff, and we didn't find—and we had quite complete records.

Bennett: Rokupa was lovely, actually, to work with because we were working with two other hospitals at the same time that were not as easy to work with and I think partly was related to how we approached working with Rokupa. We engaged their IPC focal person, which is a new thing in Sierra Leone. We did not go in with an accusatory or punitive—we did not place the staff into hard quarantine. But some of them were asked to stay home, some were still allowed to come to work, but they were all contact traced and monitored through the usual system.

Redd: They weren't placed into quarantine for the most part.

Bennett: Right. Yeah, and I think it changed the way the staff thought about how they would participate in the investigation. We actually see this in foodborne outbreaks, which is my background. It's the way you approach a company to get them engaged in the activity, especially if they feel like they're part of the investigation, I think it really helps. You get more information out of people that way. But I do wonder a lot about whether Rokupa had a lot more survivors from that October cluster, and that's probably the reason why they didn't get infected. They even drew blood on her and did laboratory testing in the lab, like blood specimens of this woman, and nobody got infected. They say they were using PPE [laughs], and they were using PPE on the day we arrived to do the initial investigation, but you just never know. I mean, they describe it—most people can describe it to you. We actually don't allow them to describe it any longer. We actually ask them to put it on and take it off because that's actually much more telling about

whether they are likely to do it. We're like please, can you show me where your PPE is, so that you make sure they have all the components that they say they use. Then, can you show me how you put it on and take it off? Where do you put it? And then you follow where they put it to where it's disposed of, like the final disposition of the waste.

There were a lot of problems at Rokupa. A lot of these hospitals built fifty to a hundred years ago didn't have infectious disease control measures in mind when they put up the buildings and the urban settings are very, very tight spaces. You don't have any room, and they're concrete. Trying to retrofit that to do Ebola isolation is a little bit of a challenge. But Rokupa actually, they are getting there. The holding unit I think was set up and took over a little bit of the HIV [human immunodeficiency virus] clinic, but now they want that clinic back because they want to start moving on by providing HIV testing and treatment services, so I think they've closed their holding unit. They're not going to be a site for isolation. They'll eventually get a facility through—UNOPS [United Nations Office for Project Services] is trying to figure out how they can put a space in there because actually when you walk in the compound, there's no room. I mean, it's like the compound wall and then you've got a little, tiny courtyard and then everywhere else is pretty much like the building is up to two feet close to the compound wall. You have to, I don't know, go up? I have no idea.

Redd: Add another floor.

Bennett: Yeah, but you wouldn't put isolation up there, probably.

Redd: No.

Q: When did you two start working together more?

Bennett: Probably in Western because I was always mostly based in Freetown.

Redd: Right. And then what happened, I did the first deployment that we discussed and I was out in Bombali. I only spent in that whole time, I think, maybe three days in Freetown. I stayed up in Bombali for the weekends. There was an option to come down—sometimes we'd have all-hands meetings so people used to come in usually just for a day, day and a half, but I stayed up in Bombali really as much as I could. The only time I came down was when [Dr.] Tiffany [Walker, an Epidemic Intelligence Service officer] was coming up to us and Dan [Daniel] Martin actually, and I didn't know Dan was coming. Actually, I didn't want Tiffany to—she's a female trainee, and I didn't want her to ride by herself so I came back really to get her.

Bennett: You're such a dad. [laughter]

Redd: I am. I know, I can't help it.

Bennett: I have this like mental image. During one of his later deployments, we had a very enthusiastic group of very young, early public health professionals pretty much

arrived, like twenty, twenty-five of them all at the same time. They were lovely, but they didn't have a lot of experience and this is a great way to get experience. I assigned like eight of them to John in Western District, and every morning he'd kind of be like, "All right, we're heading out" and he'd head out the door—

Redd: "Let's go!"

Bennett: —and behind him would be this like string of ducklings. It was just so funny. And they all had little backpacks on. I mean, it was just a little bit like kindergarten. You know, or a mother duck and her hens, or—

Redd: They did a great job.

Bennett: They did really do a good job. I mean, they were so enthusiastic, which was what was really nice, and not quite so jaded by this.

Redd: Yeah, it's such a hard job. That was later. That would've been in July, most likely, 2015.

Bennett: Oh yeah, it was definitely July.

Redd: Yeah, and that was during the Magazine Wharf cluster that we'd referenced. Magazine was a close to impossible place to try to control anything. It's packed, there's not running water.

Bennett: I remember trying to plan for Tom [Thomas R.] Frieden's visit down to Magazine. [laughter]

Redd: Yeah, Dr. Frieden came and visited us there.

Bennett: Nobody wanted to let him go on his own anywhere because he gets himself in trouble.

Redd: He said, "I want to go where it's happening." So we compromised, basically. He went to the upper portion, to the overlook.

Bennett: Not down into the nitty-gritty of the Wharf.

Redd: Their [the young epidemiologists'] job was to do house-to-house assessment, and it was on many thousands of people. We divided up the Wharf [geographically]—this was a technique that we gradually developed over the course of the outbreak. We didn't use it everywhere, but in places where we judged that it was really likely that our regular contact tracing might have missed someone—might have missed a contact who then

converted to a case. It was really, it's active case search, active case finding, and it was really rigorous.

Bennett: Social mobilization. Really, the whole point is to mobilize messaging and—

Redd: That is the technique that I'm proud that we developed, actually. The teams were truly multidisciplinary, so there were social mobilizers, volunteers, some WHO people, MSF, CDC and—

Bennett: African Union.

Redd: Yes, African Union, absolutely. When I got to Western in January—Western is divided up into wards like Chicago, I guess—yeah, Chicago has wards—same principle exactly—and they're fairly small. At least the ones right in the urban part of Freetown are.

Bennett: With a surprisingly large number of people in those small wards—

Redd: Very, very large—yeah, geographically small and population large.

Bennett: The density is insane.

Redd: In the Western Surge that Sarah mentioned before, it was all about massive logistics. We, African Union, WHO, and MSF divided up all of Western Area by wards. Those were wards in which all those groups vouched to help supervise, sort of to mind those wards, literally. But one strong opinion that I had that was shared with Stephane Hugonnet from WHO was that that was too formal. I could understand how it had developed, because there was a great need for strict organization, but by the time I got there in January—and I wasn't there for the surge, I was there at the very end of it. It was obvious that even though the wards were broken up, obviously the risk of Ebola—

Bennett: Was not equal—

Redd: —was not equal everywhere and the case burden wasn't equal everywhere. And there was a risk if it was too formal a system of sort of feeling like my ward's okay even if the neighboring one was having trouble. We worked out a way literally to vouch to help each other. It led to really a nice, multidisciplinary approach. We had very organized social mobilization, which I have to say was really—I didn't feel like it was fun at the time, I was just going to describe it as fun. I wouldn't—but it was very—

Bennett: You definitely preferred to be in the nitty-gritty of the response staff because at that time when we were doing the Magazine Wharf, you were supposed to be response lead. Which means you were supposed to be going to all the boring meetings at the national level and you were like no, no, no, I just need another week in Western, I need another week in Western. And I think at some point I was like, John Redd, I am

abandoning the response lead post because I can't take it anymore. [laughs] Like, you have to get out of there.

Redd: Yeah, Sarah really covered me. I was supposed to be the response lead.

Bennett: And oh, the staffing and the personnel and the money and the—

Redd: Movement of people in and out—

Bennett: —signing people's overtime slips.

Redd: —money—

Bennett: I was just like, ah, I can't do it anymore.

Redd: It was such a big response that there was a—it had a bureaucratic aspect. That's not a surprise. So many people coming in and out, that was inevitable.

Bennett: Yeah, and they were coming so quickly so it was like you never—we actually had to put a "please only send people to arrive on Sunday or Monday," because we just can't get that machinery up and running every single day to keep taking in more people and then sending people out. It was just so logistically burdensome on us. Because when

you get to Freetown, you'd have four hours maybe of safety training, field training, and we just didn't have time to do that every day.

Redd: Briefing on where the cases were and sort of an epi-update and—

Bennett: Yeah, and it was like sucking up the time of the response lead, the epi lead, the IPC lead, the health promotions team lead. Because all these leads would have to be there to sort of like, "Hi, I'm Sarah, I'm the infection control lead." You know, do a little song and dance about what you might expect on the IPC team. We ended up actually restricting everybody for the most—I mean, there were a few exceptions, but for the most part, almost everybody came in. That was a great job done on this end.

Redd: And Sarah was IPC lead and I at different times was epi lead and then the response lead—

Bennett: And sometimes we were all three or four leads at the same time. [laughter] It was just really terrible. Sometimes acting country director. It was like an in-fielder advantage kind of thing. [laughs]

Redd: During Magazine Wharf, you and I sort of together as one amoeba-like organism were covering Western lead, epi lead, response lead, and IPC lead, right?

Bennett: Yeah. It was terrible.

Redd: [laughs] Yeah, it was terrible.

Bennett: And Tom Frieden came to visit. [laughs]

Redd: Yes.

Bennett: It's like oh, I can't take this anymore. [laughs] And Oliver was in-country at the time because he was transitioning out and Sara Hersey had come in and she was transitioning in and he was like, how can I help, how can I help? And I was like, unless you're going to sit down and do this staffing stuff for us, that's what I need help with.

Redd: And the staffing was super—at the peak, how many people were we keeping track of? Probably one hundred and twenty or so I bet was the peak.

Bennett: Yeah, yeah, including the vaccine.

Redd: Right. Yeah, thereabouts.

Bennett: Actually, some of the most annoying issues were things like housing. Where do you put—I mean, if you have a case in Kambia and suddenly like six NGOs, the Ministry of Health, CDC, WHO surge into Kambia District, where the hell does everybody stay? We had a lot of disgruntled colleagues who were like, I don't want to share a room with

somebody, and I was like, then you won't be sleeping. I can't magically make rooms up here in the hotels. But the quality of some of the hotels was not desirable. I don't begrudge people for wanting a comfortable place to go at night because their days are so hard, but it's also Africa. [laughs]

Redd: We did what we could, yeah.

Bennett: We did the best we could. I've been to places that have had worse accommodations in Africa, so I do feel like we tried to do the best we could. I went to Kenema several times in the early outbreak and the hotel manager, Sally, she would just assign you to share a bed with somebody. [laughs] She just did it randomly and you'd be like hello, I'm Sarah, you're Ann, [laughter] I will be sharing your room—your bed today. [laughs] No electricity, no running water.

Redd: I remember one young woman, I can't remember who it was, but one of the young women who'd been up in Kambia was coming back through Freetown so I saw her sort of on the way out and she said, "I was able to deal with it pretty well because I kept telling myself, just pretend you're camping." [laughs]

Bennett: That's exactly what it is.

Redd: That's how she handled it.

Bennett: Actually, there are a few hotels where I would have preferred to just be camping. Some of them were really, really gross.

Redd: The Wusum [Hotel] was nice. That's the one in Makeni where I spent a lot of time.

Bennett: Well, when you checked in, you always had to ask them to wash the sheets and towels.

Redd: I may not be quite as effete as you, Sarah, but I—[laughter]

Bennett: Ruth and Alexia who were there before you, they basically got the Wusum back open again. Because almost every—a lot of the hotels closed down because there were no corporations and mining companies had pretty much shut, and investors who were building things were not building things anymore and contractors were not in-country any longer, and so a lot of the hotels ended up closing down. They were like the first two guests I think to really get the Wusum back open again and it wasn't pretty in the beginning.

Redd: And then I moved in with Brigette.

Bennett: And then you moved in, yeah.

Redd: Yeah. Brigette and I were the only two guests—

Bennett: And then there was a point in time where you couldn't even get a room at the Wusum, it was so packed, filled with responders. In Port Loko, what they did was they put together a tent city. The Danes put together this—

Redd: I heard that was a pretty nice place to stay.

Bennett: Actually, it was not bad. There was an outbreak there, but—[laughs]. But one of the NGOs—one of their expatriate staff got infected with Ebola and was staying at the tent city. It's a communal living environment, so you share dining space and some people are like—I think there's like a couple beds in each room. Some of the rooms are individuals, but there's communal bathrooms and communal showers and a lot of opportunity for basically transmission. They had a little medical clinic, and he had gone through the medical clinic a couple of times and not picked up his Ebola. There were some problems there, but yeah, it was a really nice place to stay. Actually, people preferred it to the hotels. Although the MJ [Motel] in Port Loko is pretty good. I'd have to say if I had to pick some hotels, but you get the same egg and toast pretty much every single morning. You get really tired of eating in Sierra Leone.

Redd: They do eat a lot of eggs.

Bennett: Yeah, I thought I would never eat eggs again when I came back to the United States, but I actually surprisingly eat a lot of eggs. [laughs] The food, ugh. I lost a lot of

weight in Sierra Leone. Most people I think gained weight, partly because of those carb-heavy diets.

Redd: Yeah, it's all carb. There's very few—

Bennett: But I think about month number eight, I stopped eating. [laughter] I just couldn't eat anymore. There were no more possible ways to mix and match the foods available to get a different flavor. I remember Oliver Morgan looking at my plate one day and he's like, "That's a very weird combination of things," and I was like, "I'm just trying to make it interesting." I just want to be interested in eating. Yeah.

The thing that was difficult in the outbreak was that—I mean, it shut down the local healthcare system, but it also shut down health resources for our team. And one of the really big challenges was that febrile gastroenteritis was so common on our team. I had two or three people a day calling me with fevers and diarrhea and vomiting and—

Redd: Sarah's prior expertise in—

Bennett: Foodborne—

Redd: —diarrhea haunted her.

Bennett: Yeah, and we were pretty certain that the source was the hotel we were staying in and we worked a lot with—I never thought I would go on an Ebola outbreak and do food safety inspection. [laughter] But we did and actually the hotel was really good about getting it fixed and we actually saw lots less diarrheal cases after that. But when you think about it, when you have fever and diarrhea and abdominal pain and some people had joint pain because campylobacter, you meet the case definition for Ebola and you cannot take them to the US Embassy health clinic if they meet the case definition. So even that resource was not available to the vast majority of our staff.

Redd: Which would be the normal resource for minor—

Bennett: Right, for minor things. We ended up having to figure out how to manage people in-country. They weren't always in Freetown, so if they get sick out in the district, they can't move between districts because there were roadblocks that prevented you from passing if you were ill. They weren't very effective, but if you did show up there with a fever, you probably would not be allowed to move. We always had to isolate people. Can you imagine being isolated in some of these terrible hotels, like through the day? It's a hundred degrees.

Redd: I lived it.

Bennett: Oh, it's just awful. John and myself and a handful of other staff with clinical backgrounds ended up having to manage people.

Redd: Sarah did the majority of it.

Bennett: We had some really tough—I mean, the driver—our driver who passed away and then we had another driver who got Ebola. We had many, many, many staff with fevers and diarrhea.

Redd: We used to joke that the cumulative incidence of diarrhea there is 100%. You stay there, everybody—literally everybody gets it.

Bennett: I did not get a diarrheal illness, but I did call you once because—well, I texted you. This is really bad. In the middle of the Magazine Wharf outbreak, I was doing some visits and I was coming back from a meeting with the UNMEER [United Nations Mission for Ebola Emergency Response] representative. I was like ten minutes outside that meeting and we were coming down the hill on King Harman Road and I just felt this overwhelming sense to vomit. I leapt out of the moving vehicle—my driver's like, "What's going on?" I had this driver for like six months so he knew me really well. I leapt out of the moving vehicle, starting vomiting into the gutters. The gutters there are like six feet deep and two feet wide, but there's just like—

Redd: Yeah, because the rainy season—the gutters are—

Bennett: There's like three feet of water down there, so it splashed back on me.

Redd: Oh, no.

Bennett: It was really terrible and it was in front of King Harman Road Hospital holding unit. So my driver drove down the street. There's a little turnoff maybe twenty feet down. He comes running up the street. And he's holding my hair back and rubbing my back and he's just like, "You have to get in the car, Sarah. You have to get in the car because they're going to take you away." I look up, and through the fence are the isolation unit staff with their PPE on just looking at me. Like, do I need to come out and get her? And I was like, "John, I just need"—no, it was Ibrahim at the time. I was like "Ibra, I just need two more minutes." Continued to vomit for like two more minutes. He was like "I'll buy you a plastic, don't worry if you vomit in the car, I will clean it up. It's fine. But I don't want you to be taken away." So he got me back in the car and then I messaged you. I was like, "Uh, if you get an alert about a white girl who's been vomiting in the street, that's me."

Redd: "And I think I'm okay."

Bennett: "I think I'm okay." But then I spent like three more days vomiting. It was over the 4th of July and my birthday. It was a pretty terrible—pretty terrible experience.

Redd: We had one event in Magazine that was—you know, it's funny in retrospect, right? [laughter] As I mentioned, those teams were there and it was so hot. I mean it was—

Bennett: Yeah. It's hot in Sierra Leone, and then you go down in this crowded, congested, no breeze wharf.

Redd: Yes. And it was very, very close, and there's an open air fish market there. There was an open air abattoir. So there were a lot of ripe smells.

Bennett: In addition to the smells of the wharf and the water and the people—the bodies that are just there, yeah.

Redd: It's so close and hot and so, of course—

Bennett: Old food cooking—

Redd: I'll let the person—he'll remain anonymous, but it's a woman, I was going to randomize the sex, but it's a woman.

Bennett: Probably going to mix your pronouns.

Redd: Right. I may not have even told you about this.

Bennett: You did tell me about this because I saw her because I was also still sick and I was like, I should just go lie around her.

Redd: As I said, these teams were—and there were probably eight of them—eight teams, each of which probably had ten to fifteen people. It would vary a little bit. There were really a lot of people down on Magazine Wharf who were clearly there looking for Ebola. It was easy to tell who was an expat and who wasn't. And not just because of skin color, but—

Bennett: Yeah, because there's a lot of responders that were not—people had t-shirts and—

Redd: There were loads of locals, but they would always have t-shirts or something identifying them. This woman had been down on Magazine and it was very, very hot. You tromp up and down the stairs, and it was really pretty brutal sometimes. She got up to by the—but bear in mind that they're down there asking, "Does anyone have diarrhea, anyone vomiting?" She got back up and was walking by the fish market and was just overcome by the smell and vomited, and word went around the wharf pretty quickly that she'd been sick. It was incredibly quickly. It's a talking culture and the people are so densely packed and boy, stuff would—

Bennett: It kind of makes you wonder actually—the cases that we think we missed in the wharves that kept that transmission percolating along in the wharves, everybody must have known that those cases existed. You can't hide anything in the wharves.

Redd: Because we were sure that in that—

Bennett: You can hide them from us, but you can't hide it from the people of the wharf, yeah.

Redd: What had been happening, I mean, these wharf areas from around—well, when it took off in Freetown, maybe December to January probably, 2014 into 2015. Because I can remember the first big event we had is on Hagan Street, and that was in January. We had cases in the market in Hagan Street. That's right next to Magazine Wharf. I mean, it's all really—

Bennett: It's a surprisingly small area.

Redd: It's like Minneapolis and St. Paul, to compare something. There are these places right next to one another. I'd bet that it was just percolating transmission there the whole time.

Bennett: There was an outbreak in fishermen in the Aberdeen Wharf, which is the wharf that's right across the street from the Radisson [Blu Mammy Yoko] Hotel. The international news media picked it up because by that time Ebola was just old news, I guess, in West Africa and it had been—you know, the stories were sort of tiresome and so you didn't see a lot of Ebola stories. But that broke the news internationally because we're like oh, it's in the neighborhood where all the expat staff are staying. We actually

ended up getting phone calls from people on our team—their parents would call CDC like, is my child going to be safe staying at the Radisson hotel? It was really strange because they actually ended up quarantining the wharf and we were still allowed to pass down the road through the communities that were—you know, in order to reach the restaurant that's at the end of the street, you had to walk through there, and those families, they knew us so well. Every night, you'd have this chitchat with them and the guards and the—it was a very strange experience.

Redd: You'd walk down the road and left and right were both quarantined.

Bennett: They were on both sides of the road, yeah. I mean, actually quarantined up against the wall of the Radisson hotel and the Family Kingdom [Resort] hotel and it was just very strange.

Redd: I was the Western lead then, so it was very easy to go—it was very convenient to go check on the quarantines and stuff. [laughter] Just walk down the street.

Bennett: Yeah, get into your flip flops and do it on your way back from dinner.

Redd: Didn't even have to get my driver. Yeah.

Bennett: I remember that area was also affected at the beginning of the outbreak, it had some cases. And then because of the mandate to bury all deaths safely. But at the

beginning when that mandate first came into effect, there wasn't enough burial teams and the turnaround time to come pick up bodies was a couple days—three days. What they would do is they would—this is really terrible—they would actually put the bodies in front of the Radisson hotel because it got immediate attention. I think as a local person, to be driven to do something like that—either the fear must have driven that or the concern about the bylaws. There were just so many things going on at the time. Our staff had to call burial alerts because there were bodies in front of the Radisson hotel. Not because they dropped dead there, it was because people placed them there to try to get them attended to. I remember—you weren't there in December—

Redd: Right.

Bennett: One of our colleagues, Dick [Richard] Brostrom from Hawaii TB [tuberculosis] team, who came out to work with the burial teams in Western District. I think he came for something else, but I think I might've just taken him for my purposes. He ended up doing a lot of work with the burial teams in Western District, and there was a lot of work done, I think, to try to make the process of safe burial more dignified and try to incorporate some of the local traditions into the safe burial practice. Because there was a lot of resistance against having eight men come into your house in a spacesuit to collect a body and then bury it in a way that is not traditionally appropriate, in a place that you have not selected. I have this photograph that Dick took that I think really captures how far the burial teams had come in terms of incorporating that. There was a death in one of the markets in Freetown, it was a really congested market. The person had died in the

street and the family was there and an alert was called in. The burial team went out and it turns out this was a Muslim man and they actually got an imam to come to the market to perform a service over the body that's already been prepared by the burial team. It was placed in a white shroud, placed in a white body bag, and the imam is praying in the street and there's like hundreds of people observing it. Dick had gotten up on this really high overlook point, and the family asked him to take a photograph and send the photograph to them. I have this photo, and it's just this really moving and compelling photo of how far the burial teams had come. Because there was a team that had worked with the burial teams in September and at that time, it was just terrible. You'd go to the cemetery and people were being—multiple bodies were being placed in the same grave. There were no grave markers. Just digging at the cemetery, they were digging up old graves so there would be bones in the soil used to—so there's just a lot of like—it was very, very messy and so I think they—I think that picture really captures how far they came.

Redd: I was up there in Bombali at that time and the burial teams there had just started to work and we saw them all the time. They used to gear up in the morning—it was the room right next to ours—and they'd get in their pickup trucks.

Bennett: I think one of the big success stories actually is the burial pillar and the consortium that managed the burial—

Redd: Absolutely.

Bennett: —teams and the burial fleet. Before the NGOs got involved, it was overwhelming for the Ministry of Health teams and nobody could afford—I mean, it's a very risky job that they performed because bodies are incredibly infectious and the fluids that are evacuated just prior to death are incredibly infectious and you're sending out young men, mostly, who volunteered. They did get paid through a hazard pay system, but it wasn't until I think the NGOs came on board and the military got involved in the process that it really got organized and it got structured. Then you had time to actually think about how to incorporate traditional practices to make it more acceptable. I actually think that's one of the big success stories that really hasn't been clearly documented. It would be great, I keep encouraging the burial pillar to actually write that story because there was a story written in September of 2014 where it basically is like, horrific description of what the burial teams were doing, but I think they really took great strides to fix that.

Redd: Yeah, it was a big success. Absolutely.

Bennett: That was a pillar that was always, always attacked by the others, like what you're doing is not dignified, what you're doing is—and I remember Abu Jalloh, who was the Sierra Leone Red Cross lead. He was the representative for the burial pillar to the rest of the pillars, the inter-pillar coordination team and then the rest of the EOC, and he would give these very passionate—like, I know what you think we're doing in this one instance is really undignified, but imagine what we do throughout the entire process.

Families don't take issue with this thing that you are stuck on. They take issue with the fact that we do it at all. And he would get this very emotional—

Redd: What they were doing was just incredibly difficult.

Bennett: I also think they were probably the one pillar where I thought they did the best in terms of responding to the needs of their teams, the actual people that were on the teams. Towards the end of the response, they really agonized over what would happen to these hundreds and hundreds of men and women who were hired for the burial teams, because you don't need burial teams in those—you need some, but you don't need—some districts had, I think Western had like fifty teams. I mean, it was something ridiculous.

Redd: Yeah, there were hundreds.

Bennett: Hundreds of teams. Each team was like eight to twelve members, so you're talking hundreds, maybe a couple thousand people, and they agonized over what they were going to do for them when they basically let them go. I think they're working on programs. In Freetown, they've started their own NGO. Concern Worldwide is mentoring them on how to get their—actually, they ended up—it's funny, Concern was telling me that this new NGO managed to get their letter from the government—every NGO has to be registered with the government and you do it every year. They had managed to get their letter before Concern Worldwide had gotten theirs. She was like, maybe they don't

need to be mentored by us much anymore. But they are trying to come up with new activities for them to do on a volunteer basis. I think partly because a lot of them found camaraderie in the teamwork and a lot of them lost connections with their families because they were put out of their homes because of what they did for a living.

Redd: Yeah, they were absolutely heroic.

Bennett: Yeah. I think healthcare workers are always constantly recognized in Sierra Leone, but I don't feel like the burial team workers got the same level of recognition for much of the outbreak. Towards the end I think the president did recognize them, but—

Q: Is there some part of it which is also a class issue? I'm curious about—

Bennett: Yeah, a lot of the burial team members came from parts of society that—they did not have advanced education. Many of them had not finished secondary school. Literacy was a problem. I remember the data collection component of the burial team activities required basically a surveillance officer to do that activity. Towards the end of it, a lot of the NGOs had done basically a survey of their burial teams to find out, what do you want to do next? And a lot of them were like, I just need a small amount of money to start up a business. I want to work with my team.

There's a lot of that, and then there's also a lot of needs for PTSD [post-traumatic stress disorder] counseling. And there was a lot of psychologists that came in to provide some

guidance to the burial pillar as well and they said right now all you can do is psychological first aid because they're still in their traumatic event. Until they are no longer burying people, they're still in their traumatic event and you can't begin that process of evaluating people for PTSD and grieving and all that stuff.

Redd: I can't imagine what that would be—I can only imagine what that would be like.

Bennett: One of the things that we've been trying to advocate for is better mental health in-country. Partly because survivors need mental health services and there is a skeletal structure in Sierra Leone for mental health. There's basically a nurse in each district that does all the mental health diagnoses and counseling, but they are unable to prescribe medication. So there's sort of that skeletal structure and there's no more senior mental health specialist in-country, so like if the nurse doesn't know, there's nobody for her to ask other than other community health officers or other physicians that may not have good mental health training in their background. I think there's a lot of thought that for the survivor support services that mental health is really necessary, but I also keep advocating it's not just about the survivors, it's the responders, the survivors, the affected communities. There are just so many people impacted by the outbreak in different ways. You might have had a business that didn't survive because of the outbreak. You might be the only survivor of your entire family.

Redd: I was just thinking family structures were disrupted.

Bennett: Yeah. Mental health is always the bottom of every country's list in terms of things to address, because there are very many things to address in this weak, weak healthcare system. But I think you could—you don't actually require a lot of inputs and a lot of—there's not a lot of infrastructure required to address mental health. It's really personnel and human resources capacity building and so there's a lot of—I mean, it's like thousands and thousands of responders, local and expatriate, that probably could—

Redd: Had traumatic experiences.

Bennett: Yeah, and could probably use—I don't think you would require medications for all of them, but you know, counseling and supportive services. That would be a nice thing to see, I think. Yeah. And then the general population could have mental health issues, so yeah.

It's nice to see the country thinking about how to move forward, dreaming big, partly because there's a lot of interest, and right now there's a lot of money. I think there's a lot of big dreams that are being put together by the three countries. Whether those dreams are realistic and sustainable I think is yet to be determined.

Redd: But it's good.

Bennett: Yeah, it's nice. In January, everybody was still so down about the outbreak.

Redd: But we're trying very hard to move on to the next phase. But there were so many public health lessons from it and they were learned by the local resources, so you know, people have learned about surveillance, about reporting. We're trying to improve vital registration, births and deaths, all kinds of things that are fundamentals for a good public health system.

Bennett: The FETP [Field Epidemiology Training Program] program I think will be really—like training people in epidemiology, like foundations of epidemiology I think will be really good for the country. There's a lot of people who have been taught about Ebola contact tracing and surveillance, but those are the same techniques that are useful for tuberculosis, for STDs and HIV. How do we capitalize on that experience so it's not lost? Over time, those skills will be lost, and now is an opportunity to try to—

Redd: Right. That's why we're so interested in doing the FETP, the [Field] Epidemiology Training Program. It's crucial. I used to tell the CDC people who were going out to supervise the district surveillance officers, be mindful that the future minister of health is in there someplace. [laughter]

Bennett: It's interesting over the course of the outbreak to see how our role has changed, I think, in terms of response. In the beginning, I'd say August of 2014 through to maybe like March of 2015, a lot of our team in the field were doing sometimes the jobs of surveillance officers and contract tracers because there just weren't enough of them to address the need. Then after that, I felt like we were really trying to get our teams to

transition into providing technical assistance. You were there to help make sure the machinery is moving, not to actually be the machinery. We had a little bit more trouble with people who had repeatedly deployed because they were used to it being a certain way and having certain jobs. Trying to grow them up really into more technical assistant types of roles, I think it was a challenge for some more than others. I think the people that really enjoy their experience, I think they like being down in the nitty-gritty weeds. They don't want to be going to the strategic meetings. I can tell you, these strategic meetings, they suck. [laughter] They're boring. Everybody's arguing. No decisions are ever made. Nobody wants to go to those meetings.

Redd: Yeah, you were right. You had me pegged properly. [laughter]

Bennett: John Redd doesn't want to go to those meetings.

Redd: I really, really loved working with the DSOs [district surveillance officers]. They were just wonderful.

Q: Could you talk about some specific ones?

Redd: Sure. Well, I've become very, very friendly with a young man named Francis Abu Bayor—we would say B-A-Y-O-R. I mentioned him before. But his name locally is pronounced Bayo. They just use the last name. People would call me Redd sometimes, too. I think it's pretty common local practice. But anytime—

Bennett: It's sometimes easier if you just call me Bennett.

Redd: Yeah.

Bennett: There's too many Sarahs in our lives.

Redd: People would come into the room and they'd just say, Bayo, Bayo, Bayo, looking for him. But I've gotten friendly with him. I spoke about him before. I dealt with literally hundreds of them, I'm sure, of the DSOs, but it was a wonderful relationship because I had so much respect for what they were doing and they weren't getting paid—sometimes. Or it was late, I should say.

Bennett: Sometimes very late.

Redd: Sometimes very late, yeah. Sometimes pay is so late that it's as if you weren't getting paid. But they still stuck with it. It was just incredible. They had that personal risk. I mean, true personal risk. They were all young and I felt like I saw, from top to bottom, the response. I'm not talking about clinical care, but just in terms of the response. The pure epidemiology. I felt like the DSOs bore most of the burden because they had to make a lot of the decisions all day long, which is what we—which was hard. And I take nothing away from contact tracers. All these jobs were very, very difficult. The contact

tracers had to decide who was ill or not on a given day. But the surveillance officers really had—

Bennett: That decision meant a lot to the person who was being assessed, right?

Redd: Oh, yes.

Bennett: Because if that contact tracer assessed you as ill, that meant you were going to an isolation unit.

Redd: You had to leave, yeah.

Bennett: You don't want to be that contact tracer.

Redd: No. That was tough and we really encouraged the DSOs to know their neighborhood. I mean, to get out to—

Bennett: Just be out there whether you had cases or not, yeah.

Redd: Just be out there, yeah. One thing that we tried to emphasize was, especially in Western where we said the machinery had to be—there's so many millions of people that just had to be somewhat—we would say stove-piped here. Where there was one pillar for just entering data, one pillar for burial management, one pillar for contact tracing, and all

that was totally understandable. But out where we were supervising, we weren't their technical supervisors but we called it "supportive supervision." We were helping them do their jobs and trying to teach them. We emphasized with the CDC people that we wanted to teach the DSOs about how to go through the process. How to assess someone correctly and how to think. How to think about the problems that were at hand. And they did a great job. Yup, they did a great job. Because it wasn't—things like that are not cookbook. I mean, there's a case definition that may seem somewhat cookbook.

Bennett: I think actually in some ways case management is a little bit more cookbook, right? You're supporting the patient until they get better or they die. Healthcare workers work very hard, lots of risk to themselves, but yeah, I couldn't—I mean, they did not have to go out into the community and make decisions about who, what, where they were going to go.

Redd: Whom to refer that day, where. They had to keep track of the labs, which was really challenging. It got hard. There were so many labs that it got difficult and they juggled a lot of balls, those DSOs, I'll tell you.

Bennett: I went to a conference recently where we were talking about lessons learned and I started the presentation off, I was like, let's reflect before we get too critical on ourselves. But there was like—in December—I think it was probably like October through January, where every day in Western they followed between ten and fifteen thousand contacts twice a day.

Redd: It's unbelievable.

Bennett: When you think about it, you're just like, no wonder there were problems. Again, it's like doing it on a mass scale, like a factory-level scale, and you have to be a little bit rigid in the logistical management of that—

Redd: There had to be systems. Yeah.

Bennett: It had to be kind of military-like in that everybody had to know what their job was, do their job, report to their supervisor and then that person knew their job, did their job, reported to their supervisor. Actually, that military-like structure, I think, was really helpful, though.

Redd: Very helpful.

Bennett: The role of the military I think sometimes was detrimental.

Redd: But that kind of regimented approach was what was required.

Bennett: Yeah, when you had to do it like that. I don't know how else you would've done it.

Redd: Well, that's the same way that we try to train our trainees at CDC. People like Epidemic Intelligence Service officers. You want to teach them that the big part of it is that it is not actually just all cookbook. At the lowest level, you know, really literally person-to-person.

Bennett: Yeah, and there are always problems, right? People always just want to bring the problems, but they don't actually make any suggestions about the solutions for those problems and honestly, the solutions are best arrived at by the people who have the problem or people like them who've already solved that problem. It was just this constant "I have a problem, I have a problem, I have a problem," and it's like well, what is your solution to your problem? Only bring solutions.

Redd: Right, I'm laughing—I'm laughing because we had a rule at the meetings in Western District.

Bennett: Only bring solutions?

Redd: That you were only allowed to bring a problem if you had a suggested solution.

Bennett: Well, then you worry, what are the underlying problems that never got reported, but maybe they weren't—maybe they weren't a problem.

Redd: Yeah, but usually the people—part of the reason for that is that if you—the frontline people, it didn't mean that their suggested solutions were always accepted or taken. [laughter] But if you at least hear what the person thinks might be the way to fix it, it gives you insight into the severity of the problem and that sort of thing.

Bennett: Yeah, that's true. To bring the problem to a room filled with expats who are sort of supervising the process, who some of them may not actually get out into the field to really understand what it's like in the field, they're not the ones that are going to come up with the best solution. It's always really interesting to see how things were solved. That's one thing—there was a guy from the WHO team, Simon Mardel, who was the clinical management lead for some period of time, I can't even remember when. He was really driven by trying to understand local solutions to problems inside the ETUs. For example, you don't have enough nursing staff and the staff can only go in for short periods of time because of the heat and they have to go in two at a time. You might have eight nurses total that can only go in for forty-five minutes during their—and maybe only twice during their entire eight-hour shift. So you have periods of time actually inside the ETU where there is no clinical staff and the patients pretty much have to manage themselves and if they're too weak to get up and go get ORS, then how do you actually deliver ORS to somebody who's weak and sick? Even if you put an IV in somebody, you still want them drinking ORS as much as possible. So he was working with survivors who had been in ETUs to try to figure out how you can get ORS to the patient who might be too weak to stand up and go get it for themselves. Or how do you—you know, one of the ETUs was like, cholera cots actually are really quite useful in the setting if the patient is too weak to

get up. There's a natural hole they can just go straight into the bucket and we can collect the bucket. And actually, cholera latrines were deployed, which is basically a chair with a hole cut in it so that each patient could have their own commode essentially—cholera commode. Because they'd had this cholera experience a couple of years before the Ebola outbreak, those kinds of things were fresh in people's minds. People had these creative local solutions to trying to fix some of the really difficult case management stuff that they were doing, again, on a very mass scale. I thought it was really interesting to see. What Simon was focused on was that he's like, we don't have a good forum to share these solutions. People have Problem A and Solution A was how they solved it and there's no way to disseminate that information among other clinical staff that might be facing the same problem and have to go through the problem-solving on their own. It's true, it's not really a good way to—it wasn't really a good way to share learned lessons.

Redd: It's always the challenge in a big system like that. With so many thousands upon thousands of people.

Bennett: Yeah. Like every twenty-nine days, people did a handoff report. I could not possibly read them all, and they would all come—I couldn't even keep up with the IPC team handoff reports about District A or District X, or you were twenty-nine days here and there. It was just incredibly difficult to help the next person coming in to try to figure out how to get up and running in their district. Unfortunately, you were really only able to provide really good supervision to those where the risk was the highest, and many other people had to come in and just kind of figure it out. I wonder a little bit if some of our

staff did not have a good experience because they were put out there and kind of left to their own devices for a month and then left country. I don't even remember their names, I couldn't even tell you what they looked like.

Redd: There were so many people it was just—yeah.

Bennett: So many people. Was it thirteen hundred I think or something?

Redd: Yeah. I had that problem this week at the EIS conference.

Bennett: Oh, my God, I get approached by people that I'm certain I must—

Redd: I must know you. I have to say, I'm glad to hear you say that because—[laughter]

Bennett: It's a little bit awkward. I've gotten hugged by people I'm not quite sure—I'm assuming you're Sierra Leone, but I'm not—

Redd: Well, it's a good guess. When it's a thousand people moving in and out and it's hard to keep track.

Q: Can you guys talk a little bit about—as you have been doing—about just being leaders of this thing?

Bennett: Yeah.

Redd: Well, I said something last night that I could repeat. Remember I was telling you about my dad? My dad's an engineer. He's retired now, but he owned a die shop—cutting dies like stainless steel, metal. It wasn't a huge company, but probably maybe fifty people or so at the peak, I suppose. But the principle that I really try to live by is not asking people to do something that you wouldn't do yourself, and [my dad's] that way. He could do any job in his shop, and would, in a pinch. That was one principle I really did—well, we all did, but I'm speaking—I'll say "I" for this moment. But I had total respect for what people were doing in the field. There was a challenge and a balance between what we were talking about before, which is kind of a cylindrical or stovepipe structure which was absolutely necessary. I mean you had to have those pillars because especially when things started taking off in Freetown, the logistics were key. But at the same time if you do that it can be hard to share information. It had all the risks that are common to systems. That was one principle I would say.

The other leadership principle that I had, in Bombali, I've done a couple tours on US Navy ships with the US Public Health Service and I actually picked up a few things from the Navy. One was hotwash, which we use at CDC also but which is where you get—the principle is it's supposed to be terse, I mean, truly brief and if no problems, you say, no problems. Remember the Brits would always say, "No points sir—no points sah." No points, no points.

Bennett: If you could understand their accents.

Redd: Yeah. [laughter] Anyway, it's the same thing. We didn't say no points, but it's the same principle. You try to hear from everybody every day. I know you were the same, but our doors were always open, I mean 24/7 [twenty-four hours a day, seven days a week]. I had many, many people in my hotel rooms at different times. There's a little desk in there—I mean, it was, you know—

Bennett: Yeah. I remember my dad at one point saying something to me over the phone about, "Aren't you worried about putting all these people out in these dangerous places?" And I was like, "Well, I am now." [laughter] But really, it wasn't just the Ebola risks, it was the road traffic accidents, the getting sick with some sort of febrile something—getting malaria. We were very lucky we didn't—

Redd: No CDCer got malaria.

Bennett: Well, we did actually have a couple.

Redd: Really?

Bennett: Later. Much later.

Redd: Oh, later? Okay.

Bennett: I'm actually looking at the data now about what we can learn from our staff illnesses and injuries. To try to—vast majority—

Redd: Well, that's news to me, thank you.

Bennett: The vast majority are febrile gastroenteritis, like by far. However, those are not the ones that result in evacuations and requirements for surgery and things like that. I think for me I found the most difficult thing was worrying about staff out in the field. Because you're in a leadership position, you have this duty of care, I think, to make sure that you can do the best you can in terms of staff safety. There are many instances where there's almost nothing that can be done and you have to just wait, which is a little bit hard to do when you're in Freetown and someone is sick in any wherever district. I thought that was a real challenge.

I think the other thing was, in leadership, trying to model good leadership behavior to our other partners. Because there were a lot of young junior leaders from NGOs and the Ministry of Health and the WHO, who many didn't have a lot of experience in a very complex response structure. I think CDC sort of had a common understanding that we were supposed to role model good behavior to our partners. That goes back to things like when there's an incident that occurs on your team, to have another partner like the WHO or another NGO to assist you in trying to assess what went wrong and what could be done differently and try to be transparent about leadership decisions and policy changes

that we made. For example, when our driver got Ebola, we then put very—maybe almost a little bit draconian policies in place to try to protect the safety of our drivers because they were contract staff. They weren't necessarily CDC staff, but I feel like we had an obligation to ensure their safety because they were doing this job on our behalf and if they got sick, it put our staff at risk as well. But we wanted to make sure that if we made big changes in our policies, that other organizations were aware, so that they can make the decision to follow the same path or not. I think that it was not always easy to be a good leader in that role. Going to some meetings in Freetown, it was very difficult to maintain your composure and to behave like a good leader just because things were so personally intense for a lot of people. I got called a bad doctor in a meeting because there was a lot of—there was not a lot—there was actually one person advocating for placing IVs in people in the street and his assessment of the situation was that it was the right thing to do. I actually said it's a dangerous thing to do. You would never put an IV in any patient in a street setting. You might put an IV in a patient at home like we do in hospice care or other settings, but IVs are dangerous in ETUs, which is why there was a lot of resistance at the beginning to using them. I was basically called out in a meeting with lots of our partners to be a bad doctor by this one individual, and I was just like, whatever. I'm a good doctor. I'm confident in what I am. You have to speak up. I think you have to be comfortable in those meetings to say I don't agree, and for the record, you know—and you have to be comfortable doing that as a representative of a US government agency, which is a little harder. It's a hard thing to do.

Redd: But it was required, yeah.

Bennett: It was required and in most cases, I think our staff had to make personal choices about how they were going to represent the agency because there just was not a lot of supervision, the time to supervise everybody making those decisions. So, I don't know. I think—would you do it all again?

Redd: I would absolutely do it again, actually. I would.

Bennett: I would, too.

Redd: Yeah, no question.

Bennett: I think it's—I hope it's the hardest thing I'll ever do in life. I hope so. It was so, so hard sometimes.

Redd: Oh, it was by far the most difficult thing I've ever done. Not even close.

Bennett: One of our colleagues, Charles [Alpren] from Australia—he's got a great accent. On our team, everybody's like, why do you have all these Brits and Australians on your team? But he asked me in a car one day, we were driving back from investigating the Tardy nosocomial outbreak and cluster. He is a physician in Australia and he is getting his master's in public health now, and he was like, "Do you think this is career-defining? Because I haven't even gotten my master's degree in public health." [laughter] And he

was like, “Why would I even continue?” But I don’t think it’s career-defining. I think it’s definitely—it’s kind of like what people felt like, you know, every EIS class has something that happens to their class. For me it was Haiti cholera, the class before me it was H1N1. There’s always something I think going on that sort of defines that period of your life and probably my—because everything that comes from that will in some way be linked back. Either my next job will be because I knew somebody during the response and then I go on to do other response work, or—I don’t know what the future holds, but—I don’t know, I’d do it again. There were definitely things I wish would be different the next time, but—

Q: What do you wish would be different the most?

Bennett: I think we have some health and safety stuff that we could do better. We didn’t have first aid kits when we first arrived. We didn’t have an AED [automated external defibrillator] when we first arrived and you had hundreds of people coming through and some of our responders were not young. Although I do have these thoughts like, I could shock you back to life, but then what do I do with you? [laughter] I can keep shocking you for the seventy-two hours until the airplane comes to evacuate you. Stuff like that. I did not realize that you are not required by US government employment to have health insurance. You’re only required overseas to have evacuation insurance, but if you don’t have health insurance, you have to pay out-of-pocket basically for all your care that’s provided over there, and it can be very expensive to pay out-of-pocket for that. So I don’t

know. It's just stuff—small things like that I think would be different. I wish would be different.

Redd: But overall, actually, very little. I think because now, looking back now obviously, it's come out fine, right?

Bennett: Yeah.

Redd: But I think there were especially, well, there were many times when it seemed as if it was more likely it was going to go poorly.

Bennett: Yes. [laughs]

Redd: So there were times—

Bennett: There are many, many moments of shit hitting the fan. [laughs]

Redd: Yeah, there were times when it—

Bennett: And being splattered all over the room.

Redd: —it seemed it was going to be apocalyptic. But what I mean by that is you can't take a good outcome—well, you can. We'd debrief and talk about what we can do better.

That's normal. We need to do that. But still, we have to remember that we're looking backward on something that I think went extremely, extremely well when—

Bennett: Considering the—

Redd: Con—exactly.

Bennett: No preparation for it, yeah.

Redd: It could have gone terribly and it didn't. I'm actually, I'm personally—I'm extremely proud of having worked on it.

Bennett: I think, at the very beginning—you were there at the time—we didn't have that many people in Sierra Leone because the US government was really focused on Liberia and the Brits were supposed to be focusing in Sierra Leone and the French had Guinea. We just did not have enough people in Sierra Leone to do anything.

Redd: One of our colleagues is named Regan [Rickert-Hartman]. This is apropos at this point. Regan was there that fall. That's how I got to know her. And now she's joined the team just as Sarah and I have. But I had to, anyway, for some reason I was trolling through my emails. I had to look up an old email, very old, from the fall of 2014.

Bennett: Oh, it's so hard to look up old email. [laughs]

Redd: I had something I had to try to find, but in the process, I had come across one that had Regan and me on it but at the time, I think there were five epis [epidemiologists]—now this is just on the epidemiology team. I think there were five CDC epis in all of Sierra Leone, [and Regan and I were two of them]. I couldn't believe it, how this was, early in the response.

Bennett: We were on a call with Tom Frieden doing an update call and it was Jono [Jonathan H.] Mermin and Peter Kilmarx and I can't remember exactly what was said, but it was basically—Tom Frieden was like, "What the hell are you guys doing in-country? The outbreak is getting out of control. It looks worse and worse every—you guys are not doing anything." Peter or Jono was like, "Frankly, we just don't have enough staff, we don't have any money. What do you expect us to do? We're here witnessing it happen." I think most of our response was focused on Liberia, and in-country we called ourselves the redheaded stepchild—or no, we were the stepchild of Liberia, and then when Texas happened, I was like well, now we're the redheaded stepchild. [laughs] Because like, so many resources then sent to investigate the Texas-Ohio cluster. It was very frustrating I think to see so many people going to Liberia, and at that point in time it looked like Liberia was starting to get it under control.

Redd: Correct.

Bennett: And in Sierra Leone, it did not look like it was getting under control and it was starting up in Freetown, and Freetown was starting to have more cases.

Redd: When it hit the outskirts—remember when it popped up in Waterloo, which is on the way into Freetown, and it's a junction, that's when—I mean, there'd been cases in Freetown, but when we knew there were ongoing clusters in places like Waterloo, that's when all of us who were there knew it was only a matter of time until it was really down to Freetown.

Bennett: Those were the meetings where you had this impending sense of doom. I think there was a lot of denial about it at the beginning that it could happen in Freetown. Everybody'd say well, we have better healthcare resources, we have a better, stronger district health office, but everybody was just overwhelmed, including in Freetown.

Redd: It would not have been possible, I don't think, for any country in that situation not to have been overwhelmed. It was an impossible situation.

Bennett: Right. All roads in Sierra Leone lead to Freetown, and because it's a small country, people travel back and forth pretty much on a daily basis from some of these rural districts to Freetown. I think districts like Koinadugu and Kono probably didn't have the same sort of explosive outbreaks that the other districts had because they're hard to reach.

Redd: That's right. They had a couple of flare-ups, but—

Bennett: Bonthe had like five cases total maybe confirmed during the entirety of the outbreak. Hard-to-reach places I think were largely protected. But everywhere else, the roads in Sierra Leone—the main roads in Sierra Leone are surprisingly quite good and I think that if you—I don't know, there's a lot of thoughts about why the outbreak spread the way it did in Sierra Leone, but it does seem like it traveled from Kenema, Kailahun, along the main road to Freetown and then up the main road to Port Loko and Bombali.

Redd: Up toward Bombali and then Port Loko, yeah.

Bennett: Yeah, but all during that time you had individuals making those little trips and starting the seeds of little nidus-type clusters all over the country, and then you started getting more and more mass movement along the roads. I think it's different than in Guinea and Liberia. Both of those countries had much more geographically focused outbreaks, but in Sierra Leone, if you look at the map, it's like the whole thing was affected and for the most part, heavily affected.

Redd: I think there were some paradoxes. Part of it was that the roads in Sierra Leone—there are two things—the roads in Sierra Leone are actually better. I've never been to Liberia, but I have that on good authority, as you say, Sarah.

Bennett: You see the photographs of people taking like three days to get to their counties in Liberia. [laughs]

Redd: Yep, yep. From the point of view of spread of Ebola, that was actually a relative disadvantage for Sierra Leone. Then also Sierra Leone has some large outer districts. It's relatively less concentrated in its capital than [Liberia] is concentrated in Monrovia. I think both of those things made it easy for things to spread out in the farther flung regions of Sierra Leone. Once those clusters started up, particularly in places that have relatively large cities like Port Loko or Bombali, then it really took off. I remember in Bombali, there are some slums there. Some of Bombali, of course, is wide open spaces, but there are quite densely packed places there.

Bennett: I think it'll be interesting for the Koinadugu team to really describe their outbreak well, because it happened in such a unique district and so late in the outbreak. I mean, Koinadugu was heralded for its lack of cases. There was a *Washington Post* article about it. And why they were able to keep Ebola out for long? A lot of people thought it was because they had very restrictive entrance requirements in the district, but all the districts had district quarantine lines to keep people out basically, and these very strict bylaws about who can stay overnight and who can come to visit, and strangers were not acceptable pretty much anywhere. I think it'll be interesting to try to figure out what do we think happened in Koinadugu. I think Kono is another interesting district because it was a largely nosocomial outbreak that I think seeded the community and—

Redd: I was going to say with some subsequent community spread.

Bennett: Yeah, but the spread that happened at that hospital—because the Kono outbreak wasn't like a widespread district outbreak. There were very small clusters mostly scattered just off the main road getting out of Kono. Or the main road getting into Kono. It's horrifically bad. Oh, it's terrible even in the dry season. You had these little clusters along the road, but the vast majority of cases, I think, were really concentrated right around that hospital. We talked about this the other day that probably it seeded the outbreak in Kenema that happened late after Kenema—

Redd: I'm certain it did, yeah.

Bennett: —had finished their outbreak because they were transporting all these cases that happened in Kono, at the hospital there, to Kenema for isolation.

Redd: Because their local facility had been shut down.

Bennett: Well, they just had the government hospital at that time with the holding unit in it and—

Redd: Right, it had a holding unit, but not a treatment—

Bennett: Right, and then subsequently, IFRC—

Redd: Oh, you're right, you're right, you're right.

Bennett: —opened up a treatment center in Kono.

Redd: No, yeah, I stand corrected. You're right, it was not shut down, it hadn't opened yet.

Bennett: Yeah, it hadn't opened yet. I think it was that outbreak that they made the decision to move in very quickly—they retrofitted a—

Redd: And made an ETU quickly?

Bennett: Yeah, and then the lab was placed out there very quickly to try to address that outbreak. But it never blew up in Kono District. Not quite the same as some of the other districts were, like Bombali's raging epidemic, Port Loko.

There's some really funny-now stories, when you look back on some of this time. Like the meeting in Port Loko at the DHMT [district health management team] about this woman being haunted by her husband's ghost because she was now sleeping with someone else, and so the ghost was haunting her and the new sexual partner. There was a discussion at the DHMT about digging up the safely-buried body, cutting it into pieces, and then setting it on fire to get rid of this person's ghost. [laughs] These are happening

in a public health—like we're having a public health meeting about this decision to basically get rid of a ghost, and I was like, you just can't make this up. Or the questions about dogs and pigs and chickens. I think the weirdest question ever asked to me was the risk to manual pit latrine emptiers through occupational exposure to Ebola. I was like, worst job. Got to be the worst job ever. That, and the ladies cutting granite rocks into granite gravel by hand. That's probably number two worst job in Sierra Leone. [laughter] Fifty feet from the diamond mine. Kono was weird because you were out there for the response and the mining company had given buildings over to the response. You were right next to a diamond mine and there'd be blasting going on, and you'd hear this siren go off and then suddenly the ground would shake and then everybody would be back to counting cases again. [laughter] Weird place.

Q: I haven't actually talked with many people about how companies—aside from Firestone [Tire and Rubber Company] in Liberia—reacted to Ebola.

Redd: Well, in Bombali—I won't remember the company, but there was a—I'll remember it later. I met—I'm not sure if he was the president, but one of their representatives. They owned a lot of land in northern Bombali and they did the same thing. They donated buildings, and in fact, they paid to convert a couple buildings at the government hospital in Makeni.

Bennett: I'm wondering actually, are they the one sponsoring the build of the—there's a new emergency room and radiology, maybe, suite going in there. I mean, it's massive, actually.

Redd: Yeah, that wouldn't surprise me at all.

Bennett: I don't remember there being tons of private partnerships. There were some, but not too many. There was a lot of discussion about whether some companies could be helpful in certain ways, like they have transport networks worked out. There was a lot of thought about whether you could get something like an organization like Coca-Cola or Total Gas, because they send trucks all over the country, could they transport specimens? Could they transport supplies? Or maybe they could just give advice about how to do it. But I don't remember there being tons of private partnerships.

Redd: There were, yeah, some, as you mentioned.

Bennett: There was a lot of money donated through CDC Foundation, private. But a lot of the private large contractors and companies I think were mostly shuttered during the peak of the epidemic and then slowly started coming back online maybe like March-April of 2015 when the outbreak was largely confined to small geographic clusters.

Redd: Yeah, so not too much. I mean, if anything—

Bennett: There's not a lot of private industry in Sierra Leone.

Redd: Nope. There's truly private micro-industry. You know, people selling things.

Bennett: Yeah. I mean, there's a lot of mining.

Redd: Yeah, but big companies mining and minerals.

Bennett: When you think about it, the poverty in Sierra Leone is probably some of the worst I think I've seen. I mean, people are still farming by hand. You don't see mechanized farming. You don't see large-scale farming. It's like stepping back maybe a century in many places there. Although cell phones are pretty prevalent.

Redd: Yeah. Better than where I live in New Mexico. [laughter] That's true.

Bennett: Yeah, trying to call you when you were moving in New Mexico was a real challenge. [laughter]

Redd: It's horrible. Yeah, if I'm calling Sarah from New Mexico, we'll pine for Sierra Leone just because of the cell phone coverage.

Bennett: I mean, there are things like Africell and Airtel did a lot of work on the response. There was a lot, particularly I think in the social mobilization sector like BBC

[Media Action] and some of the local media organizations plus Airtel, Africell. There was a lot of that kind of partnership for the social mobilization piece. And I think, I don't know, probably on a small scale, small businesses in small ways contributing to the response by posters and putting things up on their walls. But large companies, a lot of them are foreign-owned and were just not there.

Redd: And we mostly work in an essentially government-to-government—

Bennett: Role.

Redd: Capacity, yeah.

Bennett: I think the biggest disappointment for a company was Air France not flying any longer into country, because it just made it so much more difficult to get people—

Redd: It was hard to get in and out and if—

Bennett: To get people in and out.

Redd: If Brussels Air [Airlines] had quit—

Bennett: Well, that was a real threat, yeah.

Redd: —we would've —

Bennett: So I came in the day—

Redd: —would've been stranded.

Bennett: —that Air France cancelled their flights and they ended up—they were like, keep going to the air—I got a call like four hours before my flight. I was in the middle of finishing my packing, getting in a taxi. They were like, just go to the airport and we'll have it sorted out. So I get to the airport and well, we don't have it sorted out but you're going to get on a flight to Paris. I got on the flight, and they were like, we'll have it sorted out by the time you arrive in Paris. So I get on the flight to Paris. I get to Paris and I get an email saying okay, you're going to go through Morocco and you've gotta find this weird airline called Royal Air Maroc which is not actually easy to find.

Redd: You got there the same way that I did, then.

Bennett: Yeah, I did. It was terrible, actually, and that's when I met David [L.] Maples, who I didn't realize was CDC. I knew he was coming, but I didn't know what he looked like. He was actually sitting in the aisle seat across the aisle from me, but we didn't realize we were both CDC until we whipped out our Blackberries in Paris trying to figure out what our connecting flight was. [laughter] And then Jon [Jonathan G.] Meiman, an EIS officer from Wisconsin, I think, was also on that flight and we couldn't figure out

how to find the departure gate because it's at the old airport in Paris and nobody had heard of Royal Air Maroc at the new terminal in Paris. We couldn't figure out where to get our boarding passes, so we blow through security with just our official passports [laughs] and then get into the—finally somebody comes to open up the gate like six hours later and David and I go to her to get a boarding pass with seat assignments and she's like, "What would you guys like?" And we're like, "If it's not too much trouble, we'd both like aisle seats." She's like, "I'm not sure I can accommodate that request," and we said, "That's fine, whatever you can do." And we get on the flight, it's like empty. The whole entire flight is empty. [laughter]

Redd: Yeah, I remember it was empty, yeah, yeah.

Bennett: We couldn't quite understand why it was going to be so hard to get us both aisle seats. Maybe she thought we were together and wanted to sit across the aisle from each other, which is what she managed to do. Then it was like five hours in Casablanca, where I met Pierre Rollin, who was on his way to Guinea at the time. It was a really strange experience. But then there was a lot of pressure I think on Brussels Airlines to keep flying to Sierra Leone because if they had stopped, you would be left only with Royal Air Maroc, which is the flight that comes in at like three thirty in the morning. People's bags don't usually come. It's a hot mess way to arrive.

Q: Okay. Well, I know I've talked—this has gone—

Redd: Yeah, I'm running out of gas.

Q: You're running out of gas?

Redd: Yeah.

Q: Are there any final things you want to remember together now that you're here? Are there any questions you want to ask each other?

Bennett: [laughs] No. That's a weird question.

Redd: Yeah, that's a weird question.

Bennett: We talk so long—we talk—

Redd: I will go on the record, since this will be on the record, about how much I respect you.

Bennett: Oh, it's been a really—

Redd: I really mean it. It was a tough job over there and I really, really honor and respect you for what you did.

Bennett: I am so thankful that it was you and Oliver and Sara, which would have been nice if we could get all of us in the same room to reminisce together. The shared learning I think that we were able to do. We're going to be better epidemiologists, I think.

Redd: We're a hive mind. [laughs]

Bennett: The three-slash-four musketeers.

Redd: Yeah, the four musketeers, yeah. [laughter]

Bennett: It would've been so hard, I think, without you guys—very challenging.

Redd: Yeah. It's also amazing for me—

Bennett: It would still be hard now, yeah.

Redd: I have complete trust in you. I would trust you with my life, and it's actually kind of sweet and satisfying to have that kind of relationship and that's what—yeah, that's what I mean, that we're a hive mind.

Bennett: You asked me the other day for a cheek swab because he thinks that we're secretly related.

Redd: Yeah. [laughter]

Bennett: I think that's what—I actually do think that sometimes, the success of the CDC team in Sierra Leone was because we got along so well, you and me. We worked really well together and we were at this level, like comparable level. Oliver and Sarah unfortunately, were—

Redd: A little bit above us.

Bennett: Yeah, and were having to deal with other crap that we just—unless we were filling in for them, didn't have to put up with most of the time, and so it was so—it was reassuring to have you on the epi team there because I didn't have to worry about it.

Redd: It was an important thing to be able to take—to drop—that's what I mean about being able to trust you so much because to be able to drop a worry was everything.

Bennett: Yeah.

Redd: Because there would be another one to—[laughs]

Bennett: Right. Like you would call me and be like, we got a hospital issue over here. [laughs] I think we probably had disagreements, but I can't remember any of them.

Redd: Yeah, we had productive disagreements. Nothing—

Bennett: Yeah, but that's—you know.

Redd: That's normal. That's actually good. I always say, if you're teaching a medical student or something—if you're—I mean, doctors are used to that. Honestly, you get trained that you're supposed to have—if you're never having any disagreements, you're not actually thinking it through enough. So actually, disagreements never bothered me.

Bennett: Well, they don't stick out, so they couldn't have been—

Redd: Yeah, I can't remember any big ones either, yeah.

Bennett: They can't be that important. I think they were just—partly I think they were just the nature of the stressful environment that we were always under. Gosh, it would've been so different if it hadn't been you.

Redd: I know. It's hard to—I mean, I recall the stress, but it's a little like recalling pain.

Bennett: Yeah, you kind of don't remember how bad it was.

Redd: I can remember feeling the stress and sometimes I get flashes of it a little bit, but it is like pain where you don't exactly remember. You remember having the pain, but not the pain per se.

Bennett: It did take some time, I think, after the ending of those sort of longer response—you know, we definitely transitioned, over the last—

Redd: Yeah, thankfully.

Bennett: —maybe eight months, out of this very intense experience. It took some time, I think, for that stress memory to dissipate. There are things that stick out for me that are still bad. Difficult, you know. But I don't think about them anymore. Only when I'm reminiscing with other people. And now they're not as painful, those memories.

Redd: Yeah, that's what I mean about pain.

Bennett: I actually remember more of the happy or the fulfilling or the—some of the things that I enjoyed the most was just being on the back patio of the Radisson like having a drink with the EIS officers, with you, with Oliver. We had a very team-oriented—

Redd: Absolutely. It was a true team.

Bennett: Yeah, and you would sit down with people who are like, legendary in public health, because they were there and they were reporting to me, which was totally weird. You had this very, I think, like a common sense of purpose that I don't think I've ever had on that kind of a scale before.

Redd: The camaraderie was just incredible. I wanted to do my bit, but the camaraderie is what kept me wanting to go back. That feeling. And it was really, I thought very, very highly of the CDC people who deployed. The Americans really can be proud of the effort that the CDC people—that CDC put forth in this.

Bennett: I think we get a lot of criticism for the twenty-nine day rotations, but for lots of people, that twenty-nine days is a lot of time. They've got spouses, they've got work commitments, they've got educational commitments, they have children, they have pets, plants. And that was really, really hard.

Redd: What people were willing to put up with was just inc—

Bennett: Yeah, and to come do something that was completely outside their normal work experience and something that they're largely maybe unprepared for, but most people stepped up. And there were people who had never traveled outside the country before. Or never thought about traveling outside the country before. I'm thinking of one guy who was up in Kambia who'd pretty much never been outside of West Virginia. And he loved it.

Redd: He did a great job.

Bennett: It took him a little bit of time. It always takes a little bit of time for these people to get sorted, right? Because it's new, they're stepping into this big machinery and they don't—it's hard to figure out what your place is in that. For me, it was really easy because I was just there all the time and I didn't have to have that startup time every single month. Yeah, you're right, people really stepped up to do things that were sometimes not easy and very challenging and tiring and stressful and I think they did a really good job. Some of them are doing it on their own. Like they weren't— there was nobody else out there but them and their driver.

Redd: Yep. People really brought their best game and the effort was just monumental.

Bennett: Yeah. I think for a lot of people it will be career-defining probably in that way. It'll be something that is so different from their career track that it will stick out. You and I, we enjoy the outbreak response world. It's kind of to our personal detriment. [laughter] I mean, I think I have gray hair because of my Ebola outbreak response.

Redd: Yeah.

Bennett: I had four when I left for Ebola and now I have a lot more than four.

Redd: I haven't been counting mine for a while, so I can't say. [laughter]

Bennett: The worst moment was, Oliver was like, "You have to go to Bombali, they need a gray-haired person out there." And I was like "I don't have any gray hair," and he was like, "You're getting gray hair." [laughter]

Redd: That's funny. Is that when you decided to send me? [laughter]

Bennett: I don't think you were in-country at the time. It was during that last outbreak at the hospital.

Redd: No, but it was an honor to work with the people from CDC.

Bennett: Yeah.

Redd: And I felt—actually, it made me feel patriotic and believe me, I understand very well that it was a multi-country, multi-entity, NGOs, WHO, I mean I totally get all that, but we were there representing—we're a government agency and we were there representing the people of the United States and I was really proud of everyone—

Bennett: Yeah.

Redd: —in the way that they represented the US. I think Americans, I think they are proud of the effort, but it was a very, very good effort that came out well.

Bennett: Yeah, it could've gone so many other ways, I think.

Redd: Yeah.

Bennett: I completely agree with that. I hope that people had a good experience and I hope that people learned something. I hope Americans have learned something about the importance of investing in health and public health and surveillance. I'm a little worried, actually, that the transition to the Zika response—because it is a response that directly affects, you know, a disease that probably will be locally transmitted here. I get the shift in focus, but Zika emerged out of Africa and I think we keep forgetting that lesson that these new diseases or very old diseases like cholera often are going to keep emerging from these very poor places and we keep getting behind. That's the thing I think that if anything comes out of the Ebola outbreak response in West Africa is that investments will be made in the health and surveillance in public health systems there. But I'm a little worried actually that each event, each new event is coming so much more quickly after the last one, maybe because there's more attention on it and there's more interest in not letting it get out of control again, but I am just worried that our focus will suddenly shift and countries like Sierra Leone and Liberia and Guinea that are very poor countries just won't be able to capitalize on the investments—

Redd: The positives—

Bennett: —that are needed, yeah. Because what they went through was a terrible tragedy—I mean it's a tragedy, actually, and I don't think—like history may not judge us well for our lack of attention leading up to the outbreak. We just need to care more about poor countries.

Q: Okay, that's a great way to end.

Bennett: It's kind of a sobering way to end.

Q: Well, but it's a great thought. That's forward-looking.

Bennett: I hope so.

Q: And reflective.

Bennett: If we can get more people doing public health. You know, physicians, doctoral epis, doctoral environmental sanitarians. If we could just get more people doing public health—

Redd: I've got an email [on my phone] and I really don't know how he found me, but this is kind of sweet. What's the kid's name?

Bennett: Everybody's a kid to you.

Redd: Well, this person really is a kid. "Ebola and other deadly virus prevention." "Dr. Redd, I'm a student in Downing Middle School, Texas." So I said, "Sure, I'll call you next week." I have no idea how he got me.

Bennett: Did I ever tell you about my interview with my middle school alma mater when I came—between my two deployments? I had my best friends from growing up—well, my best friend growing up is married to a middle school teacher who teaches at my middle school and he is a science teacher and he was like, would you give an interview? And we ended up setting it up by Skype and I'm thinking it's just with his class and then five minutes before he was like, oh, it's actually going to be broadcast to the whole school. I was like, oh my God. But the first question they asked me was, how had the outbreak changed me? And I thought, what a question from a seventh grader. And you know, at that time, I just had no idea how. I mean, it was too soon—

Redd: Yeah, sure. It was too soon to really think it through.

Bennett: —for me to be able to comment on that, but they had all these great questions about like the risk—you know, is it a risk to us here in the United States, and will people travel with Ebola to the US. They just had great questions and I think it's—the problem is—

Redd: Well, they produced you. [laughter]

Bennett: You know, it's actually my seventh grade science teacher that changed my course in life. Because otherwise, I probably would've been in history or literature or something, you know, like one of the humanities.

Redd: You should've told them, listen to your science teacher.

Bennett: Yeah, so I don't know, I thought it was a really well-done—I mean seventh graders are super smart. I don't remember being that smart in seventh grade, but—

Redd: I was a goofball.

Bennett: I was not that interested in science. I mean, when you think about it, if you go back to like middle school, public health is not—it's like an abstract thing.

Redd: Yeah.

Bennett: It's not a thing—

Redd: Kids know their pediatrician, and that's—

Bennett: It's not a thing that you grow up wanting to be. You don't grow up thinking oh, I'm going to be an epidemiologist.

Redd: You weren't Sarah Bennett, Girl Epidemiologist?

Bennett: No. [laughter] Which is why I do think the programs like the CDC [Museum Disease] Detective Camp and the—

Redd: Yeah.

Bennett: I mean, I think those are things that—

Redd: You did it?

Q: I didn't do it, but we're in the midst of—

Redd: Yeah, it's cool.

Bennett: I think those are really great ways to try to expose really young people to the concept of public health because it's kind of this esoteric thing. You know, it's a field of many kinds of individuals. It's not like medicine where you have doctors and nurses. It's very multidisciplinary and it's a little hard to explain exactly what public health is. It's not medicine, which is what most people think of it as. It's just this very nebulous thing

and nobody grows up saying I'm going to be a public health specialist, you just don't. It's just not what you grow up doing. We certainly could use more epis. Or at least more healthcare professionals who think about public health or try to incorporate that into their practice. I don't know. I love the CDC Disease Detective Camp.

END