

CDC Ebola Response Oral History Project

The Reminiscences of

David T. Kuhar

David J. Sencer CDC Museum

Centers for Disease Control and Prevention

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David T. Kuhar

Interviewed by Samuel Robson
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Interview 1 of 1

CDC Ebola Response Oral History Project

Q: This is Sam Robson, here with David Kuhar. Today's date is May 3rd, 2016, and we are here in the audio recording studio at CDC's [United States Centers for Disease Control and Prevention] Roybal campus in Atlanta, Georgia. I am interviewing David as part of our CDC Ebola [Response] Oral History Project for the David J. Sencer Museum. David, thank you so much for being here with me. I really appreciate it. For the record, could you state your full name, and your current position with CDC?

Kuhar: Sure. My name is David Thomas Kuhar, and I am a medical officer who works in the Division of Healthcare Quality Promotion.

Q: Great, thank you. And can you tell me when and where you were born?

Kuhar: I was born on July 27th, 1972, in New Haven, Connecticut.

Q: Okay. And where did you grow up?

Kuhar: I think when I was about six months old, my parents moved to Baltimore, Maryland, and I grew up in Baltimore. I have no memories of Connecticut. [laughter]

Q: Gotcha. What was it like growing up in Baltimore?

Kuhar: It was good. I mean, I think I had a—I had a very happy childhood. I grew up in a small area called Mount Washington. I went through Baltimore city's public school system, which was a good experience. I think seeing—very different from a private school experience there. There was a lot of economic diversity for those of us who went through the public school system, and I think it was a good experience, just great people. I had a good time.

Q: Good. Great to hear. And were you raised by your parents?

Kuhar: Yes. Raised by both of my parents.

Q: Gotcha. And what did they do?

Kuhar: My mother was at home while I was little. And then when I had gotten close to middle school, she started working as a social worker. She did therapy sessions with people. My father was a neuroscientist, and so he did basic research.

Q: Okay. Was he employed with a university?

Kuhar: He originally worked for Johns Hopkins [University]. And then I think while I was still at home, had eventually at some point changed to NIH [National Institutes of Health]. And then after I had gone off to college, actually now worked for Emory [University].

Q: So what kinds of things did you start getting interested in up through high school?

Kuhar: When I was little, I pretty much always wanted to be a scientist. I was probably influenced by my father. [laughs] I am sure that—I know that is in part true. I liked being outside. I was always interested in, you know, bugs, animals, plants. Baltimore is on the Chesapeake Bay. We had a boat, and I liked going out on the boat, and swimming, catching fish—you know, those—I was outdoorsy. I always liked understanding how things worked, how ecosystems, the environment, and all the animals fit together. So I—always interested in science. And I suppose I followed through with that.

Q: No doubt. So at the time you graduated high school, what did you imagine for your future?

Kuhar: I don't know that I really knew exactly how it was going to play out. When I—graduating high school, I went to Oberlin College. I planned to major in either science—and I was giving computer science some thoughts. The introductory courses that you needed to take to start those majors both happened at the same time for both science and

computer science. So in a way, coming in, I had to choose. So I chose the general chemistry that I needed for a science major and ended up on that path. But I was happy that I did. At first, I thought I was going to major in biology, and I ended up actually refining that to neuroscience, in part because I wanted to understand what my father did. And it was all the same courses as a biology major, plus a couple of additional neuroscience courses.

Q: Had your father talked much about his work?

Kuhar: I mean, sure. Sure, he talked about it, but you know, he did a lot of basic research. His focus was drugs and their effect on the brain. I suppose I had always felt like there was a little bit of a gap, not knowing a lot of the basics of cell biology, how the brain worked and those things. It was a rare opportunity, especially that Oberlin offered neuroscience courses. So I ended up doing the neuroscience major.

Q: And what was Oberlin like just generally?

Kuhar: Oh, this is a small, liberal arts school that is very, very liberal. Growing up, I had actually played the piano as one of my hobbies. I had probably taken lessons from when I was maybe six up through high school. So I had always been interested in music. Oberlin has a very well-known conservatory of music, and so I thought there would also be a lot of opportunities for music lessons, seeing music performances. And, oh, were they. I mean, I went to them as often as I could.

Q: Oh, that's brilliant. Okay. So tell me about what happened after college.

Kuhar: I think as I got to the end of college, I wasn't really sure what I wanted to do. I wasn't sure that I wanted to do research, scientific research. And I also wasn't sure that I wanted to do something like medical school. You know, I had been to doctors before, but I—[laughs] oh, my. I can't believe I'm going to say this—I had never met any that I thought were particularly nice, and I wasn't sure: is this something that happens to people in medical school? [laughs] That it changes you, or makes people not—perhaps not as kind. And so I thought—I felt unsure. I didn't see necessarily research, I didn't see medicine. So I wasn't sure where I was going to go with this. In college, I had started just in my spare time doing a Japanese martial art, aikido. And I stuck with it for four years. It was a nice group of people. Good exercise. Very enjoyable. And so afterwards, that had gotten me interested in Japan, and I thought, well, I'd like to see a little bit of the world. And so right after college, I had applied to a few programs that would set me up with a job teaching English, and ended up accepting one of the jobs. I went to Japan to teach English in middle schools for a year right afterwards.

Q: Wow! What years was that?

Kuhar: This was—I graduated in '94, so this was like '95. Mid-nineties.

Q: Oh my goodness. So where in Japan? Tell me about it.

Kuhar: Sure. So I ended up in Saitama Prefecture, which borders Tokyo. The small city I was in was called Yashio City. Which, believe it or not, I had a fifteen-minute bicycle ride where I could get to, actually, the border of Tokyo, though it would take me a while to—it would end up taking forty-five minutes to really get into the city, because getting onto the right subway—navigating, getting yourself into the subway system, and getting into the deep city took some time. But I ended up teaching English there in I think it was about five middle schools. I would do rotations. I would stay at one for, say, a month, rotate to the next, and kind of keep switching. I think the idea was that they wanted their middle school kids to have some exposure and some good experiences with foreigners. Which was great. It was great both ways. I think it was good for the kids, and it was good for me. I only spent one year there, but also during that year, I had some time to—you know, some off time where I could travel and see some of Asia. So I took a trip to Thailand, which was great. I had always wanted to see more parts of that world. And although I had planned to see some of the other parts in Asia, during that time, I ended up traveling a lot through Japan, which I was very interested in seeing some of the other cities, some of the others like Kyoto. Doing some travel up north and such. I made my way to some of the other places, like China, after coming back, rather than directly from there where I was a lot closer. [laughter] So it goes. But it was in Japan that I think I really decided or started to understand what I wanted to do. I haven't thought about this in a long time. I didn't want to be an English teacher for the rest of my life. It's a great thing, but it hadn't been one of my passions growing up. While I was there, there were the—I don't know if you know about the—or you might know: there were these subway

bombings. The sarin gas subway bombings happened while I was in Japan. I wasn't there for this. [laughs] I wasn't on the subway that day. But subsequently, there were some other attacks that I think probably weren't as publicized, and one of them was on my subway line that was not too far from where I lived. And I had gone to the subway that day. Now, I was not in the subway when it happened. However, I arrived for some of the aftermath. There were people sitting just on the street, kind of in lines, up against the building where you'd enter into the subway and such. People in the streets. There had been—it was a—not a sarin gas attack. It was some other type of gas. But people were being seen by medics and such. And I stood there, and I remember watching the medics as they went from person to person, examining them. I think they were probably triaging, treating some of the people. I just thought, what a great thing to do with your life, to help other people. Such a rewarding job. And I thought about what I saw that day quite a bit.

After that, I think I was very focused. Once I left Japan, I came back. I had already fulfilled all of the pre-med requirements for medical school. I took the medical school entry exam, the MCAT [Medical College Admission Test]. I actually took a certification course for becoming an emergency medical technician as well. I figured if I didn't get into medical school immediately, maybe I'd ride in an ambulance for a while in the meantime. I was very, very fortunate, and I got into medical school my first time around, at Emory. So after a year, came back, worked for a year, got myself prepared, and then made my way off to medical school here in Atlanta.

Q: Wow! What did you do in that intervening year?

Kuhar: I had actually returned to Oberlin, and I did some basic research with one of the professors that I knew there who had a few projects that he wanted to move along. So I worked on a few different neuroscience-related projects.

Q: Neat. Was this someone who had kind of a bigger influence on you during college?

Kuhar: I suppose so. His name was David Holtzman, and David did a lot of work looking at—thinking how to describe this easily—he had done a lot of work looking at how brains may heal from damage. When people suffer damage to the brain, we often see permanent effects. And part of the reason, one of the many reasons is that in many areas of the brain, the brain cells don't actually regenerate. You can form new connections, but they don't come back. The reasons for that is complicated. The pathways by which it grows disappear as you age, and so you—it's not as simple as—even if cells were to grow, they might not be able to get to the right areas. But snakes in particular, actually, can regenerate brain tissue throughout their lives. I was working on a series of behavioral experiments on snakes as part of that research. Like I'd said, I enjoyed working with animals. I also enjoyed that a lot of what we did was behavioral research on them, rather than something that involved sacrificing them and such.

Q: That's amazing. So, you come down to Atlanta, and start at Emory medical school. Tell me about that.

Kuhar: Oh, medical school was a whirlwind. [laughs] I—yeah, I think I had a fairly standard but good medical school experience. You know, the first two years are a tremendous amount of hard book work. A lot of fact memorization. You just have to learn the basics, and you have to get it in there as quickly as possible. And there's a lot! I think one thing I really liked about Emory is there was a big emphasis on the patient-doctor relationship all throughout, and it was very important to all of the instructors. And one of the things that I think was front and center when they emphasized their medical school curriculum. Really focusing on teaching people to interact, just in having positive and healthy interactions with patients. And that really spoke to me. I thought that was just so important. It's like I said, one of the reasons I wasn't sure I wanted to go to medical school was I hadn't met a lot of doctors that I had positive experiences with when I was younger.

The third and fourth years were really your clinical rotations. I spent a lot of that time at Grady [Memorial] Hospital, a bigger public hospital, learning, I think, the basics of how to care for patients and such. I think we all have to choose what part of medicine you want to go into a little too quickly. You have a very tiny exposure, and you need to kind of choose what you want your residency to be. But I was never sure exactly where I wanted to specialize, or where I wanted to focus. I had considered surgery; I liked—I think—truthfully, I enjoyed all my rotations. I enjoyed psychiatry. But I really settled on internal medicine. I had thought all along I really wanted to be someone's doctor. I wanted the chance to treat a variety of diseases, and to really have that opportunity to help people. So I settled on an internal medicine residency, had applied around, and in

truth, because of my serious girlfriend, who I later married [laughs], ended up going to New York City, because it fit for—well, they had great residency programs for internal medicine, and it fit with her graduate work as well.

Q: What did she do?

Kuhar: She's a Chinese art historian. So Alex, she recently finished her PhD program, which she had started at Columbia, but had—I think progress had slowed after we had gotten married, and once we had had kids. Spent—instead of, say, a four-year plan to get that done, it turned into more of a ten-year plan. But she just finished it, finally.

Q: Congratulations.

Kuhar: Well, thanks! Thanks!

Q: How did you two meet?

Kuhar: Oh, we had—we met in college, actually. But we had never dated while I was a student. It was actually when I came back to work with David Holtzman. I was two years ahead of her; she was a senior when I had come back. And so we started dating then.

Q: Okay. Neat. So tell me about residency in New York.

Kuhar: I did my residency at NYU [New York University] Medical Center, and at Bellevue [NYC Health + Hospitals/Bellevue] primarily. We spent some time at two other private hospitals, but the far majority of my time was at Bellevue, which is kind of like the Grady Hospital of New York. Residency was a big mixture of very—I mean, very positive experiences. I feel as if that's where you really learn to be a doctor. It was very labor intensive, a lot of long hours. I went through that residency program with a lot of really good people. Again, that patient-doctor relationship, important to people, very important for being human. People who, you know, understood wanting to take time off. You know, I think a very work hard, play hard kind of environment. And so it was—it was good. It was good. I finished my internal medicine residency in three years, and then I stayed around as a chief resident for a fourth year there at Bellevue.

Q: Okay. This is totally out of order, so sorry about—

Kuhar: No!

Q: —screwing this up. [laughter]

Kuhar: No, it's all right. I am just talking, so—

Q: No, this is wonderful. It's a wonderful portrait so far. But I was wondering, you had mentioned that you had these negative experiences with doctors, doctor-patient relationships before. Were there any particular instances that kind of motivated—

Kuhar: No, it's a good question. No, I—so for example, the pediatrician I saw growing up, he was great. Oh, what a nice guy! And so I would say the main doctor that I saw was—truthfully, I think he was fantastic. So maybe I am overemphasizing that point a little bit. I had seen some specialists who I—you know, an occasional injury in my life, like orthopedics and such, that I thought were a little abrasive. And I was surprised, I think is simply it. It didn't seem like there was any reason for it to be that way. And then some of my experiences, like even in—going to college, and a rare visit to a physician, I also had thought they were not as personable as the pediatrician that I used to see, which I found surprising. So I would say it wasn't, for example, one experience. Just my impression of—that, for example, I had seen one of the greats growing up. [laughs] And the others just weren't as engaging.

Q: Gotcha. I see that. Just kind of a general trend. Okay. Neat. So what happens after your time as chief resident?

Kuhar: So I think throughout residency, I had developed—I just—I really enjoyed infectious diseases. I suppose I was always very curious about them, but I just slowly realized over time that I could probably be very happy doing an infectious disease fellowship and specialty, which is what I did. [laughs] And I think things that I liked about it was, number one, that very often, you can cure them, and you can get someone better. Which is wonderful. It's not always the case. But I enjoyed that aspect. It was something that you could identify, something that you could treat, and in many instances,

something that could be cured, and a person could be done with. So I—after my internal medicine residency, I had applied for fellowships, and I ended up going to the Mount Sinai Medical Center, which is just—still in Manhattan, just a little bit north of Bellevue, for a two-year infectious disease fellowship.

Q: What did you study there? What did you learn?

Kuhar: The curriculum is primarily consultation based, and it's very similar to a [inaudible] residency. You serve as an infectious disease fellow. You're a consultant for the other teams. And so an internal medicine team might have someone—a patient who has HIV [human immunodeficiency virus], for example, and they would consult you for assistance in management, where you might help them with discussions in management of medications that could be related. Or infections that might be unusual for them to see that might need specialty treatment, or a specialty assistance in treating. And so those types of things. So you would spend probably most of your time seeing patients in the consult service, overseen by an infectious disease [doctor] attending who would work with you, teaching you about the patients as you saw them. And that's pretty much the idea.

Q: Okay! Good deal, good deal. So what happens after that?

Kuhar: About halfway through my second year of infectious disease fellowship—that's the truth, it's kind of sad—my mother was diagnosed with lung cancer. Which was a big

surprise. She was a lifelong nonsmoker. It was, I suppose, an unusual cell type that does not typically occur in smokers. And the treatment options are poor. I had discussions with my wife at that time about what to do, and I had thought there probably wasn't—it wasn't likely that there was going to be a lot of time. So I needed to find a job after fellowship, and we weren't sure where we should go. But I thought, "Why don't I look in Atlanta, and see what's there?" Obviously, I had medical—I had done medical school at Emory, and so I applied to Emory to be one of their infectious disease faculty, and was lucky enough to be offered a job. So I ended up taking a job here in Atlanta, and joined the infectious disease faculty at Emory, and worked there for several years.

Q: Okay. And that's where your mom was living?

Kuhar: Yeah. Oh, yeah! Forgive me. So while I was in college, my parents had moved from Baltimore to Atlanta. My father had changed jobs, and so he started working for Emory. So they both lived in town, not too far from Emory.

Q: Gotcha. Okay. Was she sick for a long time?

Kuhar: She—from her diagnosis, she had—she ended up living for about three years. And I would say two of those three years, she did pretty well. She ended up choosing some pretty aggressive treatments, and hoping for a cure, even though it was unlikely. I would say those first two years, she did very well. I think her last year, she was much sicker. But I was glad we came. Valuable time. Having a family dinner even once a week,

you know? A great opportunity to reconnect after living apart, and in different cities for so long. I had my first kid a few months after we arrived here, so an opportunity for her to spend time with her first grandchild. I was hoping that I would have kids who would remember, a kid who would remember actually meeting her.

Q: I identify with that quite a bit, because my father had Alzheimer's, and—yeah, that desire for the future generations to know who they were.

Kuhar: Yeah. Knowing who they were, and I guess understanding a little of where I came from.

Q: Absolutely. So what's it like at Emory?

Kuhar: Oh! It was good. It was busy. I think the biggest thing that I wanted was to see patients, and so I took a pretty clinically busy job for an academic infectious disease position. I had five half-day clinics per week, and spent roughly three months—broken up into usually two-week blocks—on infectious disease consult service. It was probably one of the greatest times for learning medicine, and really learning how to be someone's doctor. You know, like when you first transition to being an attending, that's where it's suddenly all your responsibility. And so, the learning to be careful with how you treat people, learning about being careful with everyone, from just how you care for them to your interactions with them over medical care, which can be so—it's such a sensitive topic. So in many ways, I feel like it's with Emory that I really learned what it meant to

be someone's doctor, which I found so enjoyable. I spent roughly four years at Emory as part of the infectious disease faculty there. As another part of my duties while I was there, I took call for their Serious Communicable Diseases Unit. Although while I was there, we had no patients. [laughs] We would have drills every year, where there would be a mock patient brought in through the unit, and just to go through the motions of how we were going to provide call and all the rest. But we never had any patients with serious communicable diseases brought there while I was there.

Q: Gotcha. Were you working with Bruce Ribner at all?

Kuhar: Yes. I know Bruce well from back then. In fact, all of the physicians that work in that unit were all friends. But as time had gone on, I found myself ready to try something new. I initially talked to an Emory faculty member who was also a CDC employee. This was Arjun Srinivasan, and Arjun works in Division of Healthcare Quality Promotion. I had spent some time talking to Arjun about what he does in public health. I was like, "Arjun, it's kind of a mystery. What happens over there?" [laughs] "What's your day to day like? You know, what do you do?" And Arjun, he talked to me about the—I suppose, about the diversity of things that he did, or that were possible, from outbreak investigations, helping develop guidelines, policy, and other things. And it sounded interesting to me. I ended up—I just ended up very lucky. I had interviewed over at CDC, and just fortunate enough, probably, to hit one of those times when there was—a job opening came up, which they offered me. And then I had the hard decision. Oh boy! Do I walk away from—not just from Emory, but take a step away from what I had always sort

of envisioned myself doing—taking care of people—to public health, where you have an opportunity to affect healthcare of people on a much wider scale, but you are a step removed—a big step removed—from that human-human interaction, which I always really liked. In the end, I thought, why not? [laughs] What do I have to lose? The worst thing that happens if I am unhappy at CDC is I could always leave and go back to clinical medicine. So I decided to give it a try. I joined the Division of Healthcare Quality Promotion as one of their medical officers, and here, six years later, I am still here. [laughs] I was just going to pause for a sec in case—

Q: Yeah, yeah! Tell—just tell me about the first few years of DHQP.

Kuhar: Sure. So I joined taking responsibilities over for someone who had recently left. The Division of Healthcare Quality Promotion is what many people have referred to as the “hospital infections group.” A big focus of what DHQP does is prevention of transmission of infectious diseases in healthcare settings. It sounds like such a narrow slice: just in healthcare settings. But healthcare is a hotbed for transmission, or for potential transmission of infectious diseases. You are bringing people who are sick there. In a way, it’s going to be a focal point, where people with infectious diseases and other diseases where they are susceptible to infectious diseases are all going to gather. And making sure that you care for people there effectively and do it in a way that’s safe, that communicable diseases don’t end up transmitted to those that are very susceptible, can be challenging. There are many—the way that you provide care and prevent transmission of disease in a healthcare setting is very different than what people often do in a community,

where there's a lot more space between people and such. People in a household, different issue. [laughs] They're all very close together. But healthcare really has a lot of unique considerations that you don't see elsewhere.

Q: Right. What were some of the outbreaks or the longer-term things that you were working on?

Kuhar: I worked on several things joining. One of the earlier things was guidelines for preventing transmission of infectious diseases. Helping to draft them, providing subject matter expertise and opinions on what recommendations might make sense, what the science might support CDC in saying. That was one big aspect of what I would work on. I suppose related to infectious diseases, the other thing I ended up picking up ended up really—maybe I should say it this way. The person who I had followed up, their position was really about focusing on healthcare worker safety. And so I picked up the healthcare worker safety portfolio of work from that person. And the guidelines that I was working on were related to preventing transmission of diseases between healthcare workers and patients, but giving consideration to how to keep healthcare workers safe.

Sorry about that aside, but then as related to outbreaks, there was a lot of work to be done in the post-H1N1 flu pandemic setting, where I think a lot of questions had been raised about healthcare worker safety, appropriate personal protective equipment and such. Upon arriving, I started to attend meetings, with consideration for how we would shape our guidelines. What things would we need to think about in the setting of a pandemic?

And from working on flu, I think that slowly, it slowly began to build a niche of work related to other emerging infectious diseases. So I think the MERS coronavirus, the Middle East Respiratory Syndrome coronavirus, work on that followed. And then Ebola as well followed that, all grouping together into those emerging pathogens with potential for—I suppose more clear risk for healthcare workers who might be caring for patients infected with those. Does that make sense? [laughs]

Q: Yeah. It makes total sense. Definitely. And so I'm wondering what—you know, if H1N1 and then the later MERS are bringing up new challenges. What are those challenges?

Kuhar: That's a fun question. There were—I'm trying to think of—there are so, so many. [laughs]

Q: Some of the bigger ones.

Kuhar: I think—yeah! I know. I suppose one of the more prominent or interesting for me is that—I think typically, our work, especially in DHQP, has been about preventing transmission of infectious diseases in domestic healthcare settings. So our focus has really been on—you know, had been on the domestic United States. And one of the big shifts was that in thinking about MERS and diseases where they were endemic—or I should say start—you know, becoming more prominent outside of the United States, was what was our role going to be in investigating how these were transmitted, and

understanding the risks so that we could make acceptable and safe guidance for US hospitals who might end up seeing cases of these? I think that was probably one of the biggest emerging aspects of a public health response for these pathogens. It was really interesting to see this evolve over time. For the MERS coronavirus, there had been reports of not only it emerging in Saudi Arabia, but in outbreaks in their hospitals. I think initially, CDC had an interest in going and trying to understand what was happening there, offering assistance to the Saudis. Can we help you? We're glad to do so. We ended up with a few opportunities to go to places where there had been MERS outbreaks to try to get a better understanding of what was happening with the MERS coronavirus.

So I did actually end up going to Saudi Arabia once, for a little bit less than four weeks, as part of one of the responses where there was a large MERS outbreak, primarily focused in one of the hospitals in Saudi Arabia, in Jeddah. I can tell you, it actually relates to the Ebola response and such. I think it was—I may be off on my dates. I think it was May of 2014. We knew that there was an escalation in MERS transmissions happening in Saudi Arabia. And so there had been discussions of sending teams and trying to find people who were able to go. The EOC [Emergency Operations Center] had activated, I believe, twice for MERS already, and in both of those, I had actually served in the Emergency Operations Center as the healthcare—I'm just trying to remember the title—the Healthcare and Worker Safety Team lead. I had helped to develop infection control guidelines for avian flu as part of my usual duties. I had also done MERS coronavirus, so I was already very familiar with a lot of the issues, and when the EOC had activated, I went in to serve as their Healthcare and Worker Safety Team lead. I

could bring some subject matter expertise, and I had been there all along. I knew the guidance that had been developed and the issues, familiar with the issues. As things were evolving—and I think it was May 2014—I was being asked if I would be able to go to Saudi Arabia, as one of several waves of people that—teams to assist the Saudis, not only with the outbreak, but in putting together a public health response for it. And a big part of it to focus on infection control in their hospitals and training their healthcare workers so that they could safely care for MERS patients. In May, it was when I first heard about the second outbreak of Ebola happening in West Africa. I had been also asked if I might be able to go to Liberia as part of contact tracing efforts for what then was a smaller [laughs] Ebola outbreak. I remember well one of my division leadership telling me that they were worried about this Ebola outbreak, that the previous ones had been in more isolated areas, and this was the first time we were seeing it in sort of a major, highly-populated area, and there was a lot of potential for growth. And so that was why they said they were—that was why they were asking. They were like, we realize this isn't—a lot of international travel isn't something that we've done a lot of in this division, but we think this one is important, and to consider going. As things turned out, they actually found someone else who was easily able to go to Liberia, and then I was able to go to Saudi Arabia.

I spent not quite a month in Saudi Arabia, but in that time, I saw many hospitals where there had been transmissions of the MERS coronavirus between healthcare workers and patients. And I don't want to give the impression that there were that many. It was just a few. And I saw many other hospitals that were preparing to possibly see cases of MERS, and went through, with their infection preventionists, their strategies on how they were

preparing. Which was very educational, to see—you know, every hospital is designed differently. Every one is going to have different opportunities, almost, based upon how their building is designed. So it was very interesting to see the different strategies. Some would have an outside area where they would find out if someone had just a cough and respiratory symptoms, which were among the most common symptoms for MERS. If anyone had a cough, they wouldn't actually even send them into the ER [emergency room]. They would have them go through a separate outside area to a different, isolated area, so there was no chance that they might expose other people in the ER, and where they could be assessed there. So a lot of diversity in how people were—in strategies to actually manage that, which was fascinating. I also worked with the Ministry [of Health] while I was there, and just helping them with the development of their infection control guidelines for healthcare, as well as a curriculum for training their healthcare workers in infection control, and everything from reviewing slide sets which the ministry had developed, observing training sessions, helping—you know, along with a lot of other people, helping to provide feedback on things that might work. And I must say the Saudis did an incredible job and put an incredible amount of effort into controlling MERS transmission. It was impressive to see.

Q: Were there some things that you were learning from MERS—or any of the other outbreaks that you were studying, like, internationally, H1N1—that you say, brought new challenges to domestic healthcare quality promotion? What am I trying to say? What lessons, maybe, were you learning that could potentially be applied to the domestic sphere?

Kuhar: I'm thinking about this one. There were so many possibilities. There were many of the same—I think there were many challenges that would have been just the same in US hospitals that you saw abroad. Resources. Certainly an opportunity to see—abroad, certainly an opportunity to see some hospitals that had very, very limited resources, limited access to personal protective equipment, and seeing some of the challenges that that posed for healthcare workers. And hearing some of the challenges in confidence that the healthcare workers would have in their hospital. In Saudi Arabia, I think with MERS transmissions happening in one of the hospitals, there was shaken confidence in the Ministry of Health in how well they were able to protect healthcare workers from that transmission. The Ministry went to—I mean, put tremendous efforts into regaining that confidence, demonstrating how committed they were to really helping their health, to helping—creating a safe work environment. And so I thought there was a lot that resonated with the United States. For some of the issues that had emerged for H1N1, even simply what healthcare workers should wear on their face, and whether a facemask would be suitable, or whether they needed something that would filter the air that they were breathing, and whether that would be a safer option. And so those—the perception—or I should say, if healthcare workers don't feel safe, they won't come to work. And so it's so important. It's so important that they are safe, and importantly, that they feel as if they are safe. If they don't have that confidence, I mean, you—if you think you are at risk when you are going to care for a patient, well, there are many people who might not come to work. So I think that was one of the big points that I learned being abroad.

[break]

Kuhar: Kids really changed how I saw things. I used to go to work, and I'd spend most of my time focused on it. And if I didn't get home for twelve hours, it was okay. It was no big deal, you stay as long as you need to to take care of your patients. But once I had kids, it slowly—you begin to realize, they really need me. They need to see me. And it's important that I am an active part of their life. And so the need to get home—it seems like such an obvious thing to say, [laughs] but that need to get home and to be present, it had never been so important in the past. It was really important to me to make sure that I was getting home at a reasonable hour, and making sure I am seeing them, being there for, you know, putting them to bed, and—

Q: And let's be fair: there are generations of fathers that did not understand that at all.

[laughter]

Kuhar: Yeah. So, yes. Yes. This was about how I wanted to be a father. I had friends in medical school who had parents that were physicians. I did not. But I would say many—maybe most—did. And you know, there were some common themes, and some were that they would hear from people they would meet how great their parents were. But their parents weren't always there. And I didn't want that to happen for me. I wanted to make sure that I was able to be present.

[break]

Q: We have returned from a short break. Thanks, David, again for sitting here and doing these oral histories with me. And you had mentioned that there were some further things that you learned upon learning about these—like these international epidemics, these pandemics. Lessons to bring home.

Kuhar: Yeah. I feel like some of the lessons were on a big scale and a small scale. On the big scale, the importance of good relations with other nations, and these ministries of health and these health departments. I mean, so important. The Saudis were so open once we were there about the cases that were happening and where the transmissions were happening. We would sit in every day with—on their—essentially their emergency operations—the equivalent of their emergency operations center morning reports, where they would discuss the new cases that had been identified, what they thought had happened. That openness was so important to getting a handle on what was actually happening, what factors were affecting it, and understanding the outbreak. So, so important. And on a much more detailed level, the development of a training program for healthcare workers. In broad strokes, there is developing slide sets and teaching sessions. But what I really also got to see was the subtleties of what could be misunderstood from a single slide, what might not be communicated clearly, the challenges in what some of the individuals needed to be shown. That talking about it wasn't necessarily enough, but having it demonstrated, and then having them demonstrate that they could do it. The real specifics and the subtleties in how to teach infection control practices to healthcare

workers was another big thing that I learned while being abroad in Saudi Arabia. Seeing several different strategies which they used. People may be in different countries, but there are a lot of commonalities in how we all learn things. So really very interesting. A good experience. Time away from my family, not so good, but I mean, an invaluable experience to be there with what you have the opportunity to see.

Q: Thank you. So, we're kind of thinking about your 2014. You are in Saudi Arabia, you come back from Saudi Arabia. What did—what happens then?

Kuhar: After that, I ended up taking a family vacation. I can't remember where we went! [laughs] Where did we go? I can't remember!

Q: Does that say something? [laughs]

Kuhar: Oh, gosh! That's not good. [laughs] I don't remember, but I ended up taking a week off and spending time with family. It was the day that I came back—the morning I walked in, my branch chief said come to find him when I came in, and I did. He had told me the EOC was activating for the Ebola outbreak. That he had been sitting in on many of the discussions, and as things were picking up, he thought that a role for the hospital infections group, for DHQP, was going to slowly expand, and that we needed a presence in the EOC. And so they asked me if I would go and participate in the meetings. On that day, I started to go to the EOC to be a part of the briefings, and ended up incorporated, initially, as the Healthcare and Worker Safety Team lead, which was working with

members from DHQP and NIOSH [National Institute for Occupational Safety and Health] as well. As that response went on and grew, where more teams were formed, eventually task forces, my—certainly, my job title changed and evolved over time, although most of the basic responsibilities stayed essentially the same.

Q: Can you talk about what those were?

Kuhar: Yeah, yeah, yeah. So the outbreak was in Africa. Initially, I think that was really the focus of most efforts. We had, I think based upon previous experience from—you know, even from MERS, our division had hired personnel and started an International Infection Control Team, which we didn't have before. So we had a new lead [note: Benjamin Park] for that who ended up going to the EOC meetings with me, because there were international hospital infection control issues that needed to be addressed and would likely need work from CDC, and then domestic ones as well, in terms of preparation. So my colleague who was there to focus on international infection control took the lead on those issues. I ended up focusing on the domestic needs. Initially, for the domestic needs, we needed an infection control guideline on how to safely care for patients with Ebola. There actually already were recommendations in place from many years before—I think from 2007—that had been posted. And they were reviewed, I think to make sure that nothing had changed, there wasn't new information published that would require changes. So, it was one of the first duties of that team. We took those recommendations, put them in a separate guideline, expanded it a little bit to provide a little additional information, and put them up, so it would be easy for the public to find.

Q: What is an example of some of those guidelines? And it's for the public, not just for, like, hospitals and clinics?

Kuhar: Oh! So we did—an example of the guideline would have been—I'm trying to think of what the title was when we had initially—I don't think it was "Interim Guidance." It was "Guidance for Infection Control of Ebolavirus in US Hospitals." So it focused on hospitals. It was intended for hospitals to use, but outpatient clinics and such could apply the same principles, even though the focus was on the hospital. And they're on CDC's website, so anyone can look. But the target audience was healthcare facilities.

Q: Gotcha. And can you—let's see. Was this July? August?

Kuhar: August.

Q: It was in August?

Kuhar: Yeah. I think it was August. It was right around August 1st that I ended up going to the EOC for the first time. So it was in August and probably two or three weeks in that that first guideline went up. And you know, the needs evolve. [laughs] And they become apparent as a response goes on. So the infection control guideline going up there needed—it was quickly apparent, just based upon questions from state and local public health agencies, that waste management was something that was going to need to be

addressed. So what followed then was a guideline on waste management. Waste management in the hospital. So when you are throwing out potentially contaminated devices, personal protective equipment, stuff you had used in caring for a patient with Ebola, where does it go? [laughs] You've put it in the trash, where does that trash go? How does it get handled? How would people move it safely? So we put out a guideline to address that. And there were many challenges in that. My understanding was this was the first time we had talked about moving what was classified as a Category A agent in US hospitals. And although there were procedures in place, they hadn't been tested before. No one had actually done it. There was some discomfort from the industrial waste management companies on how to do it. Part of what we had done on that team was just facilitate discussions between us, the Department of Transportation, and those companies in how to work out the sticky spots, [laughs] and how the waste was going to move out of a hospital safely.

Q: And this was even in August that you are talking about?

Kuhar: Those discussions probably spanned a few months. I think it started in August, but it went—it definitely went through October. And it wasn't until the first patient diagnosed with Ebola in Dallas happened that I think things had to be worked out—and were—to move it. So I think it really spanned—they probably spanned a good three months of discussions and working out how to do that.

Q: Right. So you are working with several different groups, really. I mean, hospitals, working with these industrial waste management companies—yeah. Tell me about your role just doing that.

Kuhar: Sure. Well, we absolutely did. It involved working within CDC with other teams, like our epidemiology team, a laboratory team. Part of putting out guidance, a hospital not only needed, say, an infection control guideline, but they also needed a guideline for the lab in how they were going to handle specimens, blood samples, from patients and such. We all had to work together to coordinate how those pieces would come together. That was sort of one aspect. And then, you're right: there was also working with other government agencies, like the Department of Transportation. And then non-governments, like the industrial waste management companies. A big part of that was really first understanding that there were even concerns from them about how to safely move the waste. And then a series of meetings, where we might have had, say, vice presidents or presidents of these companies, and several of them, to talk with us, and just to explain the process from their point of view: what happens, where the areas are that they see risk. We needed to understand what the areas were that they thought could be problematic, and how that was going to work out, in part so we could all talk about not only just the process itself, but how—you know, the companies needed to be sure that they were going to be safe when they were transporting Ebola waste. Otherwise, they weren't going to be willing to do it, potentially.

Q: Absolutely. It's an extension of that lesson from MERS: that healthcare workers need to feel safe, and so do these companies that are transporting this hazardous material, potentially.

Kuhar: Yeah. But in many ways, it was just about trying to make sure you ask the right questions, and then just listening. [laughs] Just carefully listening. And I wasn't alone on this team. I had a lot of people working with me. There could be several of us on a call with one or several of the companies to hear their concerns, to make sure we ask questions so that we can clarify and that we are sure we really understand what the sticking points might be. And just little things that I know I might never have considered. Maybe not so little, I should say. For example, there were packaging requirements from the Department of Transportation in the way you have to pack up Ebola-contaminated waste. There had to be a certain number of layers. Container dimension requirements. And some of the containers that would meet the federal requirements didn't exist initially. So a plan had to be put forward by the companies—a proposal on “we are going to use this.” And then it had to be approved by the FDA [Food and Drug Administration]—which, once we got to that stage, very quick. [laughs] FDA approved it very quickly. But identifying those roadblocks to make the waste move was challenging, in part—and I know for me it was something new, and not a process that I had ever gone through or discussed in great detail before.

Q: Tell me about some of the other people on the team.

Kuhar: Oh! We had many. Initially, it had probably been just me going into the EOC in August. But, you know, rapidly increased in size with the addition of team members. Over those first couple of months, there had been a decision to make a medical care and countermeasures task force, where John [T.] Brooks ended up taking the lead. And then I ended up being the Domestic Infection Control Team lead under John. Our team, essentially we would add people as were needed to really take care of whatever work was needed. Over time, and I think fairly quickly, I ended up with a deputy who I could just interchange roles with. So for example, sometimes there would be two meetings at the same time that we needed to go to, and we could just divide and each go to one of the meetings, and come back later and inform the other about what happened. Very important roles. We had some subject matter experts who were going to help with developing various things to support healthcare, from developing a transmission brief about Ebola, talking about what information had been published about how Ebola had been transmitted person-to-person, putting it together into a brief, like I just said, that could be posted on CDC's website. Information really targeted at physicians, nurses, and other healthcare workers as a part of not just educating them, but making the references and the data that was out there—a way to leave it at their fingertips, to make it easy for them to find it, was the idea. We had a team member that we had added for that. We added some logistical support as the numbers of meetings, tasks for reporting in team activities, and summarizing our activities for the day would become more and more cumbersome. Depending on how much we were working on, we added team members who would help to manage some of those functions. While I was present, which was August through maybe November to December, I think the team had only grown in that time period.

Q: So how do you notice things changing between when you first start in August up through when the first patient in the United States is diagnosed?

Kuhar: I'm going to think a minute. From my point of view, it seemed to be that there was more and more of a focus on preparing domestic healthcare facilities for being ready to possibly receive a patient with Ebola. I think that we're starting in August—this is an outbreak we have in Africa. The focus was really on efforts abroad. But as those numbers kept growing, and there were more and more people who were having possible or confirmed infections, I think there was a perception that there was more and more risk that a patient was going to present in the United States. And so the questions and the efforts, I think, to prepare US hospitals were growing really for the whole time that I served there. All the way up to the first patient presenting for Dallas.

Q: Right. Okay. Well, tell me about the month of—the end of September.

Kuhar: The end of September. So CDC would receive samples, like blood samples, from patients who fit criteria as possibly having Ebola who had presented to US hospitals. And then it would be tested. The CDC had received a sample from the patient who had presented to Dallas at the end. It was always difficult to say what the test would show. There were, as I recall, several that could have possibly had it where the tests had come up negative. However, this one was different because it came up positive. There had been some discussions before the test results were available, about what would happen, and

what would happen if that test was positive? And there was already thought very likely that the state would request an Epi-Aid for CDC staff to deploy for assistance. And so before we knew the test results, I know that the EOC leadership had reached out to several people and asked, if this happens, would you be willing to go? I had been among those who had said yes, if it's a positive test, I would be willing to go. But we did not know with—we hadn't been told, yes, you would be one of the people to go. But, however, on—I believe it was September—was it the 30th? It was the 30th, I think. We had a call somewhere around 4:00 pm with Texas state and Dallas County public health departments, where we were told the test was positive, that they had a patient who they had just diagnosed with Ebola. And requested the deployment of CDC staff, or the Epi-Aid, on the telephone. From there, I was told—or I was told that they would like me to go, among—I think it was probably a total of seven of us that were sent: three staff members and four EIS [Epidemic Intelligence Service] officers. We left the call with the health department to get ready to go. From that call to actually getting on a plane was really just a matter of hours. Maybe four? I am not really sure how many. I'm not sure how many it was exactly. Maybe four to six? So we had a brief meeting in the Emergency Operations Center, in one of the rooms there, to just discuss—for all of us to meet each other, who was going to go. When we went into that meeting, John Brooks asked—it was after the meeting. So we all met each other, discussed some of the trip, what our major tasks were going to be when we got there, with the primary that—contact tracing: to figure out everyone who had been potentially exposed to the index patient, and to make sure that we were tracking them, following them carefully, so we—if they did develop Ebola, that we would be able to identify and isolate them quickly to prevent

further spread. As we finished that meeting and we were leaving, John Brooks had asked me—had said that he had wanted me to be the field team lead, if that was okay with me, as I was about to leave. And I said, “Uh, okay.” [laughs] I was not expecting that, but, okay.

And so I left there, I went home, I talked to my wife and kids briefly, packed my bag. One distinct problem was that I had just taken a big load of shirts and other things to the laundromat the day before, and it was not ready. So I had just—I think I had, like, three shirts. [laughs] Fortunately, I found two jackets, or one suit and one jacket I could wear. And I was like, okay. This is going to have to be enough. But I felt limited on the clothing. I just—really bad timing to take your clothes to be dry cleaned. I don’t know what I was thinking. For lessons learned: plan ahead on making sure you have nice shirts available. [laughs] So packed, went to the airport, and I can’t remember what time, but I’m pretty sure we flew out by—maybe by eight o’clock? The flight over was uneventful. I was trying to organize my thoughts: documents we were going to need, things I was going to need to talk to people about. I had received some emails that we were going to go over to the hospital, where we were going to meet the health department and everything. It was the hospital that was caring for the gentleman from Liberia with Ebola. We were going to meet there at 7:15 in the morning. So our flight landed sometime not too far from midnight. Eleven o’clock? Something like that. I remember we all got off the plane. Almost all of us were on the same flight. As we had walked out of the gate, and as we walked into baggage claim, we were met with television cameras and reporters, just going to get our luggage, who immediately honed in on us and started asking, “Are you a

CDC team? Have you been deployed here to take care of—to help care for the patient with Ebola?” A series of questions. Which was surprising. I was not expecting that kind of attention in the airport, certainly. We ended up referring them to CDC communications to talk. We got our bags and headed over to the hotel. I am sure we got to our hotel sometime after midnight, went to sleep, got up, and headed into the hospital at around 7:15, where we met everyone that day. When we arrived, we parked in a—we were told where we could park, which was a lot that had a—like an underground entrance into the hospital. And where we were met by someone from the health department to—you know, once we got in there, they were told to call, and they would lead us in on where to go. And there were—I mean, there were many news vans along one side of the hospital. A large number. I couldn’t begin to guess. The press presence was very apparent as we were going in. But the way we had come in, we actually did not go by the press. So we went in through an underground entrance. From there, we went into a large auditorium where there were members of the state health department, I believe the—maybe the commissioner showed up later. Might have showed up right after that first meeting. But members of the state health department, the local health department, and the hospital, who were all working together. And we walked in. Probably, my guess would be about sixty people. And so we walked in, and I introduced us to the whole group, and they wanted us to talk a little bit. And so I explained what you do on most Epi-Aids: that we are here to assist the state and the local health department in responding to the case of Ebola. We are here to serve as consultants. I think there are many things that we just usually explain in the beginning so people understand our role, and the things that we were—some of the basic things that we were there to do, like to help with contact tracing

and such to identify people who they might have come into contact with, and such. I think we had an initial hour meeting with the hospital. Right after that, I think I was—and again, I was surprised there was going to be a hospital press conference. I was asked to go in as part of the press conference. The governor and the mayor were also there, and who were going to speak. It was my first time being in front of—I don't know that I could accurately describe—more than twenty cameras, constant photos being taken. The governor made some statements, a representative from the hospital—actually, yeah. I had been asked if I would speak, but I actually declined. I said, “I have just shown up. I don't know what's happening here. I don't know that I have anything informative that I could really say, and we need to be acquainted with the situation in the hospital.” So after that first big press conference, then met with the team, and we decided to divide and conquer. We had one staff member who was leading several EIS officers who was going to work with the local health department to identify the community contacts—the wife and kids of the index patient—and make sure we knew everyone who he had been in contact with out in the community. I was going to work in the hospital with the other staff member, who was actually a Division of Healthcare Quality Promotion medical officer. We were going to look at the processes for how they were caring for the patient, seeing how they had their unit set up, what personal protective equipment they were using—some of these basic things, and also get a sense if there were healthcare worker contacts, who they were, what was going to be their process for tracking their healthcare workers who were caring for the patient, and a lot of the questions on the hospital side. From there, we made our first trip to the ICU [intensive care unit], which had been cleared and dedicated to

caring for just the Ebola patient, to see their processes. I want to pause there for a minute.
I just said a lot! [laughs]

Q: Yeah! Well, thank you for that. What does it mean to be the team lead?

Kuhar: That's a good question. It really leaves you as the liaison to anyone—or for anyone who needs to speak with the CDC field team. So if there were, for example, questions about which staff members would be working where, say, from the Dallas County health department, I would talk with the Dallas County health department, we'd try to assess what they need from us and decide which personnel are going to actually go and join them. I would speak to the leadership from the health departments, leadership from the hospital, to help coordinate how we were best able to assist them. That was primarily the role. It could also involve press interviews, obviously, which it did, not just for me, but for individual team members as well. There was a lot of curiosity about what we were doing. And some of the things that I think we take for granted in understanding, like contact tracing—which, you know, a process of just interviewing a person, finding out who they had contact with, and in the case of Ebola, who they might have touched. And then getting their names, talking with those people, seeing if there was anyone who might have been missed, making sure we knew everyone who was in the group of “possibly exposed.” So we were able to follow them and make sure that they remained well. And if they did not remain well, to isolate them, like I had said earlier. We take this for granted, but a lot of questions from the press on what contact tracing was. How does the process work? I think really just for—especially for the interviews, just explaining

what it was we were doing there. But curiosity, like I had—there had been many Epi-Aids where we have done the same process of assisting with contact tracing and the rest. This one was different. This one, there was much, much more attention.

Q: Was the tone of the attention different?

Kuhar: Initially—that's a tough question. I mean, that there was attention alone was different. Do you know what I mean? We had requests to have reporters sitting in the room while we were going through contact tracing, discussing who had been identified, making sure we had phone numbers. For example, that request we had to decline, because we actually—we are talking about—they are individual people's names, potentially protected health information—things that couldn't be released to the public. But, no. I had never experienced requests to really be a part of such an investigation like that before. That was very new. So that attention alone was definitely surprising.

There was definitely—it might not have been apparent to me immediately, but an atmosphere—there was a lot of fear in Dallas about that case, and about potentially exposed people, and fear of an outbreak of Ebola, or transmissions that could occur. And there were a lot of ways that we saw that fear as we were doing our work. Just one example. For the public health workers who were helping with contact tracing—and mind you, these are people who are not caring for an Ebola patient, and who are not having contact with Ebola—some of them had kids. There were requests from the schools to not send their children to school. I don't know that I can explain it well. I think there

was a lot of pressure from parents who were uncomfortable with anyone who worked in the Ebola—or with contact with anyone who could be working in the Ebola response, even if they weren't having contact with Ebola. That atmosphere slowly became very apparent. This was, I think, very unusual. I think this was probably unique to Ebola. There was a lot of fear of the disease itself, which is understandable: a very serious disease wherein a lot of people die who get it. So that was something I think that I—I don't know what to say other than that I was surprised. And maybe I shouldn't have been in hindsight. But I wasn't expecting things like that, and certainly not to hear from the local public health workers that we were working with that they were being asked to not send their children to school for what ended up being a response that was lasting quite a long time. This went on for—I don't know when that ask may have changed. But I was surprised to hear that.

Q: Gotcha. Had—I'm thinking about how to phrase the question, too.

Kuhar: Don't worry.

Q: You mentioned that one of the first things you did when you got to Dallas is you met with, you know, the state and local health departments, and these officials, and explained what you were there to do. What CDC's role was to do.

Kuhar: Absolutely. And—

Q: Was this something that they had had previous experience with?

Kuhar: For the state and local health departments, yes. My understanding is they had had CDC presence during West Nile, West Nile public health work, years before, and many of the same people had been there before. However, the hospital personnel who were there, I thought many of them probably had never interacted with CDC before, so I thought it was important that we just lay out the basics because it was completely new to that hospi—you know, to those—that hospital staff at the very least.

Q: Right. And “the basics” being that you are there as support staff?

Kuhar: Yes, yes. No, I mean, there is often a perception that CDC will show up and run a response and take over for everyone that’s there. And we don’t have the authority—we don’t have authorities to do that kind of thing. So I wanted to explain what our role was and how we would be able to assist.

Q: Right. Okay. Thank you. So—

Kuhar: And I should say one other—I suppose the other thing was to bring up and identify areas that were going to need work. For example, there were experimental treatments for Ebola patients at that time, and it’s something I wanted to make sure the hospital was aware of, and that we would be glad to assist in any way: making connections; making sure that those treatments were going to be available for the index

patient; that there might be experimental options for post-exposure prophylaxis if a healthcare worker had a sharps injury; and talking about the processes for helping get that into place. You know, that waste management and moving the waste could be an issue, which at that time we knew. And that we wanted to make them aware and have discussions on how we were going to manage those issues. So another part was not only what are the things we are going to do, but also to identify the things that we expected needed to happen, things that we would try to help them with where there would be sticking points that were going to need work. To start that discussion of working out the barriers to care and working out the barriers to a smooth response.

Q: Okay. I think in the chronology that we were going along, we might have ended when you get to—

Kuhar: Sorry! [laughs]

Q: —the—no! It's—

Kuhar: I think I went out of order! [laughs]

Q: I am not super-concerned with order, actually. That's just how memory works.

Kuhar: True.

Q: I remember you said that you got to the—maybe the incident management room, or the—let's see. There's a moment in which you—

Kuhar: The MICU, the medical ICU—

Q: Medical ICU.

Kuhar: —I think? Yeah.

Q: Okay. Yeah. Take it from there.

Kuhar: So we arrived at the medical ICU, and we wanted to see where they were caring for the gentleman from Liberia. We were walked in. Everyone had to sign in at the unit door. Which was a good sign, to see they were recording every person who went in and went out, which was one of the recommendations we had had early on. I was glad to see that. Went in and got to see the area that they had designed for care. They had blocked off, in a way, a hallway that had—oh, I can't remember how many rooms! Maybe four rooms on each side of the hallway? And just one of those rooms had the patient himself, who had Ebola. The other rooms were support areas where they might store waste, one where they might store personal protective equipment, you know, where they had put in a special changing area. We wanted to see, where are they doing it? Does it look like the area is secure? Does it look like—that their process for going in, getting to the patient, taking care of him and coming out, was safe? And we wanted to see what equipment they

were using. When we had arrived, they had already moved to using full—what we call Tyvek suits, and powered air-purifying respirators, a helmet that fits over the head. Essentially a fully—a completely covered body approach, similar in some ways to what Emory had done in their Serious Communicable Diseases Unit. But different makers of the equipment, some different styles. There is variability in all of this equipment, depending on who it's purchased from and depending on who's made it. There's not just one maker of body suits, or not just one maker of these powered air-purifying respirators.

We wanted to see the equipment they were using, and we wanted to see their process. They had one of their nurses come out and demonstrate what we call “donning and doffing.” One of the nurses came out, they had brought out all the equipment that they put on, and we watched her put on the full suit, from coveralls, apron, PAPR [powered air-purifying respirator], gloves, foot coverings that they wore. Then we also watched how she took it off, and we had four of us actually go to watch it. We wanted to see it from all angles. For healthcare workers, one of the most dangerous points is in the doffing process, or removing that personal protective equipment. We wanted to make sure there were a number of eyes seeing this; that as they took it off, was there an area where we saw where they were potentially contaminating themselves or something else? And I think we were very relieved, actually, that we saw, I think, a very competent doffing. And as we saw that process, she took it off very competently and said that she felt very good about the process. I was very happy to see that. And then we all talked about it privately afterwards, and felt good about what we saw. Mind you, at the end of these days, we always had a call with the Emergency Operations Center, reported in on

what we did and what we saw. Talked about next steps. And this is pretty standard. They do that on all of these deployments. There was a team lead for the field team in Atlanta who was our liaison, if you will, for the rest of the EOC, and I would say that person was initially Barbara Mann, and poor Barbara. I called her so much, at all hours. [laughs] I think there was little sleep for Barbara, but she was wonderful. There was a lot to do, and a lot of discussions that needed to happen. And everything needed to move very quickly. So it was a very busy time. Very interesting.

After we had spent our time seeing the unit, how things were put together, walked through some of the processes on how they were planning to take the waste out, where things were going in, discussions about how everything that could be contaminated might come out of the unit and such, we then went to another area of the hospital that they had set out for us where we could work to look at contact tracing. We needed to look at this in the hospital, as he had come into the hospital while symptomatic with Ebola, had not ended up identified as possibly having Ebola, had contact with healthcare workers, and left. When he came in the second time, it was identified quickly, but we wanted to make sure we were able to identify who those healthcare workers were who had come into con—you know, had possibly had unprotected contact with him while he was sick. Just to make sure we were monitoring them, monitoring their health, and that we had all of their names. That was where we had gone after that, to make sure we had that piece together, with the goal of having all these things together before the end of that first day.

Q: Wow. And this was, what—like October 1st or something like that?

Kuhar: Yes. October 1st. That's right. We arrived on site on October 1st.

Q: Okay. So what happens after that?

Kuhar: So things—I don't know if it—I don't want to say “slowly,” but it was probably very rapidly—came together. We pieced together and completed the lists of names of everyone who was possibly exposed, and there had set up ways to monitor them. And there were a lot of different activities. We would have staff check in in the ICU several times a day. Needs; how were things going; did they have personal protective equipment, supplies; were there issues that were emerging that none of us had considered early on? You know, those discussions. There was a lot of support from Atlanta. There were calls with the physicians that were caring for him, clinical calls where they would discuss the patient's care. Over time, access was established for post-exposure prophylaxis, medications, experimental therapies for the patient himself. And those efforts weren't just CDC. This was a huge collaborative effort, and a lot of the lifting had to be done by the local health department, the state. Texas activated its own emergency operations center, helping to coordinate activities, and they were located maybe a thirty-minute drive, or a little bit more, from the hospital. We ended up basing most of our response at the hospital, as it made it easier to focus on the hospital issues, and a lot of the community issues could be focused on there. As time went on, where we began to feel better and better that we had identified all of the people who had potentially had contact either with the patient or with something that was potentially contaminated, things—in a way, things

began to calm down. We slowly start to develop a rhythm to the work and how the day is going to proceed, and checking in with all of the appropriate people. That was good, and it was very welcome.

There were certainly some pretty unexpected and amazing moments. I remember one in particular. The index patient, the man who was from Liberia who was diagnosed with Ebola, had come in by ambulance, and there was someone who had gone in that ambulance after him, who was homeless. He was a possible contact that we needed to identify. But there was no phone number or home to find him. One of those miraculous moments was one of the Dallas County health department people who had had one of our EIS officers in the car with them, they were driving along the street, and there had been a photo of this guy. They had the photo, they knew what he looked like, and drove by an area, and the Dallas County epidemiologist spotted him! On the corner! [laughs] And they stopped and talked with him, and ended up entering him into contact tracing that way, which was just—how unexpected! [laughs] That was—that's pretty amazing. But things—so as time progressed, things calmed down. Until the evening, which I think was—September 10th?

Q: October 10th?

Kuhar: Oh! Thank you! October 10th. [laughs] Where one of the nurses had called in having some symptoms. Between that and the 11th, in the middle of the night, they had come in, been isolated, worked up. But diagnosed with a positive Ebola test. This was

one of the nurses that had been caring for him. After that is certainly where things began to become much more complicated, as you can imagine. Not long after she had become ill, we had many discussions with—or, not long after her test had come back as positive. Mind you, there had been people all along who were coming in with symptoms, and they were being tested again and again. This was something that we were facilitating, and negative test after negative test. But this one was different. She had cared for him, and it was positive. After that, had discussions with the Emergency Operations Center, and I remember what I was asking. I was like, “I think we need more people deployed.” [laughs] I had asked for—I had said at first, “You guys tell me what you think is going to be needed. But I think at the very least, we need support to interact with the press.” I thought we needed to make sure we had more leadership support who could interact with politicians, hospital leadership, state health department leadership. And that we were going to need more staff for contact tracing efforts, because now we had another person who was—we needed to make sure we were aware of their contacts and such. Essentially, managing all of those issues. Also, investigating what had actually happened with the healthcare worker who had been exposed and trying to make sure that we were able to address wherever that risk or wherever that exposure could have happened. So we had many more staff members come. I actually don’t know how many, I can’t remember. [laughs] Oh, we probably tripled the number of people—maybe more than that—who were actually there, with a variety of tasks. And there was always contact tracing. We ended up putting together a data management team who would just keep track of the daily data in a database—an electronic database just for managing it. There were quite a number of people there, and it just made things move much smoother. We added logistic

support: people who were helping with just scheduling meetings, transportation. It really unloaded a lot of the things that we might have been able—we might have had the time to do before, but I think that we didn't anymore.

Q: Did you continue to be the lead of the—like the general field response?

Kuhar: Yes. I was going to get to that. So, no. Lyle [R.] Petersen came in to essentially lead. When Lyle had arrived, he was wonderful. I don't know what else to say about Lyle. He is a great guy. When Lyle had come, he had said, "We should talk about what roles should be." I think he was trying to be very sensitive. He was like, "I don't want you to feel like you have"—he didn't want me to feel like I had done a bad job or anything else. So I'm like, "No, no, Lyle. I mean, this is just—this has escalated." Lyle is a division director. So we had talked about the roles and what would happen. Lyle was going to be the field team lead, and we discussed how we could help this—you know, how we could best help. I had said, "Why don't I be your deputy? I know the whole response that's happening. I can feed you the information, and that will help you get up to speed on everything else." So once Lyle had arrived, I ended up serving as his deputy, and basically, it was the same role I had already. [laughs] Essentially the same responsibilities: interacting with each of the smaller team divisions, what are the issues, how to make the response go forward. I knew a lot of the specifics, even down to some of the data on what was happening with individuals. It was easy for me to continue to do that as Lyle was able to get up to speed on everything that was happening.

Q: Right. For some reason, I have—let's see—October 8th in my head as the date when the index patient passed away. I don't know if that's accurate.

Kuhar: Oh, yes. We didn't talk about that at all. That was a horrible day. That was—it was quieter. I got a call that morning, early, that—I can't remember the time. I think I had actually been dozing and woken up with a call that he had died. And was surprised. In general, our impression was that he was getting better, which was just wonderful. So we had gotten the call that he had died, and there was a general air—not just with the field team, but even from the physicians who were in the hospital who were caring for him, they were a little bit surprised. We weren't expecting it. He had gone from being pseudo-stable to all of a sudden, having some parameters that make it—like indicating that he was not doing well and getting sicker, to actually dying very quickly, I think over the period of an hour or two from what they told us when we had arrived. It was—that was—just very—it was very sad. It was very disheartening. It was so much, and not just work, but many of our team members had gotten to know his family through daily interactions with the contact tracing, having them take their temperatures, making sure they were okay. There was some very personal interactions with his loved ones that had developed between a lot of our staff and them. I think it hit—his death resulted in a lot of heartache with the field team. It was terrible. Obviously, we had a lot of questions about what had happened and talked with the physicians, but ultimately, we had to keep doing our job. We continued with the—really, at that point, it was just the contact tracing efforts. For the most part, the unit was getting closed down because they now didn't have

patients. They didn't have a patient with Ebola to care for, for three days, in there. Until the first nurse had gotten sick.

Q: I know from my conversations with people who are in West Africa that after one passes away from Ebola, the corpse is highly infectious.

Kuhar: That is correct. The thing here is that we were in the—there was a lot of uncharted territory. That was, of course, the immediate worry. Having that managed—and that was something we had talked about. That was other guidance that had gone up, was the management of the deceased, and how to manage someone who had died with Ebola, where there was guidance about how to interact with their body and how to safely transport it for further management, and limiting people who come into contact with it, how the body might be wrapped and such. There was pretty detailed guidance on how that would be done. That was a very, very sad day. I don't know if you have any specific questions about that. I—

Q: Well, the question was just, were there any complications that arose because this hadn't happened before in the United States?

Kuhar: Oh. I think there certainly were. Arrangements were made to move the—with the body. And there had been some lead time here. With it said that we weren't expecting him to die, but there had been some time to work out moving someone with Ebola. So I think that the process of getting them to the area where he was going to be cremated went

fairly smoothly. I believe that there were certainly a lot of concerns and discussions about final resting places, which went on for some time after that. I can't speak to the specifics of that, as I just wasn't involved in that aspect. It was more the response that was happening there.

Q: Well, I appreciate you saying that, because we do want to—I do want to stick with your experience.

Kuhar: Yeah, no. In fact, I don't know all the details of what happened there.

Q: Right. Okay. Appreciate that. So the nurse, the first nurse, tests positive on October 10th or 11th.

Kuhar: Yeah, the 11th.

Q: The 11th? Okay.

Kuhar: It might have been in the middle of the night, I can't remember.

Q: Wow. Yeah. And speaking of that, what are your hours like right now? At this point?

Kuhar: I mean, the truth?

Q: Yes. [laughter]

Kuhar: I would sleep probably two hours a night. There was just too much. Phone conversations all night. A lot of demands. [laughs] The issue wasn't not having enough people. It was just that I had been involved in almost every aspect. I was a point of contact for the EOC and all the rest. I think for all of us who had been there from the beginning, there was a tremendous increase in demand in what was needed from us. We had to explain to everyone what had happened. The rationale for doing certain things, and for not doing other things. Especially in those first few days, we had a lot of people to bring up to speed on a lot of specifics that they might not have been aware of, and for all the new staff that were arriving as well. It was very intense. Very, very much so.

Q: No doubt. And then the second nurse comes down—

Kuhar: Yes. Yeah. Things that we hadn't—you know, things that had not been considered. I believe it was the first nurse who had a dog, and there were concerns about her dog. I believe in another country, someone had also had a dog who had come down with Ebola [note: the person, not the dog], and the animal was euthanized. We did not want to see that happen. So believe it or not, there were staff dedicated to making sure that the dog was cared for. Which was one of the big worries, that just—it's one thing if the dog were sick, but a well dog, and where we had—where the person coming in was not very ill, and their likelihood of being contagious was low, though not zero. Want to make sure that we behave rationally. So there were arrangements made for the dog to be

housed, and I actually had—it was one of the many things that I was keeping tabs on, but I remember when someone I worked with had received a video I had asked about, which was her dog playing with someone sitting in a fully-covered suit; you know, wearing a powered air-purifying respirator, completely covered, but the dog sitting on their lap wagging his tail, and it's like, oh, good. [laughs] He's managed and he's happy. He'll be up for a period of quarantine. So that was wonderful that that part went well.

When the second nurse—but onward, I should say, to the second nurse. The second nurse had presented days later. Maybe it was the 14th? Roughly around there. She was the one who had gone to a different state as part of preparations for her wedding, had come back, and then—come back the night before, and come in in the morning with symptoms consistent with classic Ebola. Her test was positive. And so that stimulated a lot more activities, first involving interviews to figure out what might have happened, and for preparing. Part of what we were doing even with the first was preparing for the potential that more healthcare workers might get sick. Which—I think which we did. One of the teams that had come—you know, part of the expanding personnel is that we were going to have a team dedicated to going through how they were providing care in that unit, and with that one sick nurse, we wanted to make sure that we were—there's not going to be a chance of other healthcare workers getting sick. So we had a team who was going to come in, go through every step of the process, make sure that—go through the equipment that they have, make sure that it was—there was consistency in how it was being used, that their healthcare workers were trained to use it safely. So there was a big focus on ensuring that there was safe care being provided in that unit. With the second nurse, it

was also horrible that we had another person become ill. She was also cared for at the same hospital. And I think that that hospital, there was a great sense among everyone who was there that they wanted to take care of their own who had gotten ill. They wanted to come, and they wanted to provide that care for them. These were their friends. I think they wanted to be a part of making sure that they got well. Which was wonderful.

[break]

Kuhar: I think without a doubt, there were some examples—as the attention grew, the poor nurses were suddenly in the spotlight. And not only getting probably—and this is an assumption—well, it's not just an assumption. I know for one, but I can't say for the other. But not only getting a lot of unwanted attention, but I think worried about being blamed for things, while they're dealing with having Ebola. I mean—horrible. But—

Q: I know that at some point, Pierre [Rollin] comes in, too.

Kuhar: Oh, yeah! He was part of one of the many others who came in with—part of—

Q: With Lyle coming down?

Kuhar: —expanding—yes, exactly. And came in after the first nurse got sick, but before the second. Does that make sense? Part of that surge of adding personnel. He worked with the team who was going through the unit processes to make sure that we revisited

that. Neither nurse recognized a moment where they got sick. So it wasn't clear that there was one thing that could be fixed. Do you know what I mean? There wasn't a—people use the analogy of a smoking gun. There wasn't that “oh!” You know? “There was this incident. We can change this one thing, and then it's done.” Neither of them recognized that moment. And there is a lot of ways that healthcare workers can get sick, even from contaminating themselves when doffing and not realizing it, which is very possible.

There are actually studies that have shown that. So without knowing, we needed to look at the whole process of what was happening there, from beginning to end, and address every step of it. In a way, to recreate—take the things that seemed like they worked well, and change some things, even if they—it could have been that some of those processes in their patient care were completely safe, but to change them to the ways that we thought made the most sense and might be the safest way possible. So he was a part of the team that worked on that while we were there. And there were other efforts beyond that, which was also not just training for workers there, but also other hospitals, in case there were going to be a surge of more cases where multiple centers were going to be needed locally to take care of them. To take care of patients. That didn't happen. But we needed to be prepared just in case.

Q: No doubt. Louise [E. Shaw] and I had the chance to talk with Inger [K.] Damon a little bit, and that was a great opportunity. We were talking about these perceptions of people and managing perceptions as an important part of the response. You know, you want the nurses not only to be safe, but you want them to feel safe. And she made the point that

having Pierre, someone who had been involved in Ebola specifically for several years, go to Dallas, and then I think to Bellevue, was important. Did you find that?

Kuhar: While I agree and I think that helps, in hindsight, I think they had that perception of us anyway. I think that it helped to have new people because when someone gets sick, there can be a loss of confidence in who is there. But all along, they certainly had the—I think that there were sometimes expectations that many of us had been working in Africa on Ebola for years. There were times when I was like, well, actually, no. What I do is work in US hospitals and doing infection control. And it's very different, doing it in a care area in Africa versus a hospital in the United States, where the processes, the equipment, the kind of care you can provide, is all very different. But I am probably getting away from the point. Ultimately, Inger's right. Having that experience people find reassuring. Without a doubt, having someone who they think—who is experienced in caring for patients like that, and who has done it without getting sick, is huge. And that was in part why we had Pierre, and why we also flew nurses from Emory in to do that, to offer their experience and how they had done it.

Q: I understand. And then somewhere along the line, the nurses leave Texas. Is that right?

Kuhar: Yes, yes. That is right. The hospital was doing great, and I mean, they wanted to rise to that challenge and provide care for their own. What ended up happening was that there were a series of calls after—you know, with both nurses sick where there were healthcare workers who were calling in sick, or resigning from their positions. It was an

increase in that happening that we were hearing about from human resources, and we were concerned that there may be a trend, and that more and more may do that out of fear over what happened. And that ultimately prompted the decision to move them out, to give the [Texas Health] Presbyterian [Hospital] staff a break.

I don't want to suggest that Presbyterian was not up to the challenge. I think this was bigger than what Presbyterian can handle. There were people who weren't involved in that care who were calling in, and we were worried about other patients—about having enough staff for other patients, and the toll that it was taking on people beyond those who were providing just direct patient care. They went through a lot. I feel a lot of empathy for them. There had been a pattern in Africa where a healthcare worker would get sick, and people would stop coming to work, and that healthcare facility would effectively collapse. Where there would be worries about having enough staffing, and would end up closing as a result. And we were worried that that was early signs of what might be happening there, and wanted to make sure that we addressed it before there was any potential that we were getting to that point.

[break]

Kuhar: I continued to serve under Lyle as we addressed not only making sure that there was—trying to help facilitate care being there for the nurses, if there were issues with supplies or other things that were needed, working out those things. Providing the services that public health can to help support them. Making sure that the contact tracing

was all happening. That was essentially our functions. Worked very closely with their health commissioner, David Lakey, who was great in making sure that—and just providing expert consultation for Texas in some of the harder decisions that they had to make about how to monitor their healthcare workers. There was a lot of controversy at the time about how closely quarantine—whether people needed to be quarantined. How to make sure that we were monitoring them without discouraging people from wanting to care for an Ebola patient at all. Providing advice. It was fortunate none of the other healthcare workers got sick, and everyone got through their monitoring periods. I ended up staying for roughly three weeks, I think. Right around there. And then I ended up—once, I think, things were with a team lead that was up to speed on everything happening and all the processes in place and running fairly smoothly, and no other cases, I was able to come back home after that. So I left three weeks in, and Lyle stayed for another—a couple of weeks as team lead for the field response.

Q: So it was—was it November or December by the time you get home?

Kuhar: I'm trying to remember. No. It was late October. Twenty-second, 23rd, somewhere in there.

Q: Gotcha, gotcha. Because I know that you continued to be involved through, I think you said, November and December.

Kuhar: Yeah.

Q: So what happens after you get back?

Kuhar: Oh! After coming back, there was just—debriefing with CDC leadership. Wanted to talk through, and I think more than once, what had happened in Dallas. You know, we were there. What had happened, the circumstances surrounding the nurses becoming infected. Looking at ways that public health could try to make patient care safer. And a lot changed after that, I think as you know. The approach to infection control, including what personal protective equipment was changed;¹ that a tiered hospital system was enacted. Instead of having possible Ebola patients cared for at various facilities, there would only be a few that would be providing that care, and if they were identified, they would be moved off to those centers who were volunteering to provide such care and taking special preparations and such to do it. I tried to provide whatever insight I could into the happenings of Dallas, to try to help inform a lot of those efforts. There was a lot of time spent debriefing over what had happened. I am trying to remember what else, but that was a big focus afterwards. When I had gone to Dallas, the person who had served as my deputy took over as team lead for the Domestic Infection Control Team, and when I was back, they had another deputy. So they continued with the domestic infection control activities. I did not end up rejoining to take the team lead position again, in part as I had gone from response to response for quite some time. Really over a year. We had some

¹ Note from D. Kuhar, September 2018: The change was from using typical hospital gear (gowns, gloves, facemasks, eye protection) when there may be exposed skin when caring for a patient, to recommending that healthcare providers be fully covered for patient care, which required use of PPE, such as a Tyvek suit, that had not been used for providing care for patients, previously, nor was typically on-hand in most US hospitals.

discussions in my division about simply getting some of my usual job duties done. At that point, the Ebola response had really expanded and was well-staffed. There wasn't a question about not having enough experienced people involved in the response. They were well-staffed. So it was a good opportunity for me to return to my usual duties.

Q: Good deal. I have to apologize, I have taken you now to 11:25, actually.

Kuhar: That's okay.

Q: Okay, thanks. [laughs]

Kuhar: That's okay. Don't worry about it.

Q: Are you good to talk for a little bit more? Because I'd like to just talk about what happens—what's happened in the last year and a half, and also your family. Like the effect of Ebola on your family.

Kuhar: Oh yeah. Ugh. [laughs] Oh, my. So in the time since, in the past year and a half, I have returned to a lot of my usual duties, occasionally participating in outbreak investigations in healthcare and helping develop some guidelines, and towards my typical scope of work, which is infection prevention among healthcare personnel. That's a lot of work to be done there. Some of the guidelines that we work on can take several years to fully update. They are long projects. So I have returned to a lot of those duties.

As for my family, travel is always hard. When I had gone to Dallas, I didn't know how long I was going to be gone. And I told my family—which was probably foolish—that I thought this really shouldn't be longer than two weeks. [laughs] Which, we didn't know what was going to happen, and we didn't know how long we were going to need to be there. I think, after a while, there was clearly the desire that CDC be there until the incubation periods were finished. Which is twenty-one days for Ebola, so it's at least three weeks. A lot of time. But when I had initially gone, I thought, well, it probably won't be longer than two weeks. I remember especially in my last few days, getting a call with one of my kids on the phone saying, "Dad, this is getting ridiculous." [laughs] I think my seven—I think he was seven or eight—a seven-year-old at the time, to say, "This is ridiculous. When are you coming home, here?" [laughs] And I was like, "I am coming soon! I promise!" So there is always that aspect of missing them. But they bounced back from that pretty quickly.

Q: Can you talk—I think that for many people at CDC who were involved in the Ebola response, there was—there is stigma actually even here in Atlanta about—

Kuhar: There was. That was—it was hard. Especially after the nurses had become ill, that heightened a lot of the attention that this was getting in the press and concerns about transmissions in the United States. So I know my older kid, who was seven at the time, had heard from other students worries about what his father was doing. That he might bring Ebola back to Atlanta. And had been given a hard time in school. And the teachers

at the school actually intervened and put an end to it. But I had heard about that while I was in Dallas, and that was a—that was very hard on me, that my job might be affecting the happiness of my kids and how they were getting along at school. That was terrible. Fortunately, that was the only incident that we heard about, and at their school, I think the teachers handled it very well, really just explaining that I wasn't going—[laughs] I wasn't going to be bringing diseases back to Atlanta, and all the rest. They were very active about it, and I think that probably it's to the credit of those teachers that those issues were put to rest. But like I said, very hard to be away and to hear that what you are doing is possibly affecting your kids' happiness and friendships at school.

Q: No doubt, no doubt. I have a couple of questions to wrap us up here. Do you have any final reflections on your time with the Ebola response—or actually, your career in general?

Kuhar: That's a fine question. As far as the scope of work in terms of working on—as well as focusing attentions on preventing transmission of diseases among healthcare workers and patients, and that worker safety aspect when caring for someone with a communicable disease, it's working in a response like Ebola or even MERS that highlights how important it is to maintaining a functional care environment. It's incredible. With a lot of diseases in healthcare, a lot of the time, they get transmitted to other patients, but not so much to healthcare workers. It's with these ones, these serious communicable diseases, the ones that are able to infect healthy individuals, where the concerns for healthcare worker safety really come out. And I think it's a lot more rare a

topic. It's Ebola or MERS that really bring it under the spotlight of what an important aspect is. I myself, I am a healthcare worker. [laughs] You know, I value my own safety when I am caring for patients. I still continue to see patients, although a lot less than I used to when I worked full time for Emory. Now it's typically four weeks in a year that I round on an inpatient infectious disease consult service. But I think I understand better what a key component it is to keeping a working healthcare system in the United States and abroad. It's a perspective you wouldn't have without seeing the possible consequences of what happens when healthcare workers get sick.

Q: I want to, reflecting on some of those thoughts, reflect back on that transition that you made from the clinical work to public health, that jump. Because as you said, caring for patients, having that contact, is so important to you, and going the public health route, coming to CDC was a big step removed from that. And now you say that about four weeks a year, you are able to continue seeing patients. Can you reevaluate that, reflect on that decision of yours?

Kuhar: To keep seeing patients? Or do you mean the decision to come to public health—

Q: I mean to—

Kuhar: —in general?

Q: —come to public health and see patients a little bit. Just reflect generally on that.

Kuhar: I was very fortunate in negotiating how I would come to CDC. When the division was hiring me, they made the point that they were actually interested in hiring clinicians. They wanted to have people who were familiar with hospital processes, with how infection control works, and how patient care works. Because it's able to inform the processes for their guidelines better. You want to make recommendations that are going to work, and you want to make sure that you consult people who are actually going to be doing them. And while I wouldn't be doing it full time anymore, I could at least provide hopefully some basic insights, [laughs] into how the processes work. So I was able to negotiate actually staying clinically active, and seeing patients for usually four or six weeks in a year. Recently, I have been doing four. But that that option to do so would be part of my job for CDC. I didn't want to completely let go of the patient care part, for personal reasons. I thought it would actually make me a better public health responder to just maintain that perspective. So in a way, I managed to work in public health without completely letting go of that patient care aspect, which in some ways is the best of both worlds. So I have never regretted making the jump. I like public health work. It's like I said, you really—you still have that opportunity to help people. It's on a different level. It's possible impact with a greater number of people. You just might not have the same personal interactions with the individuals. Still, I think I have been very—like I said, very fortunate to find a way that I have been able to work in public health and still see individual patients.

Q: No doubt. Okay. Do you have any other—anything you would like to put on the record for—

Kuhar: No.

Q: No?

Kuhar: I think we have done good. I think we [overlapping dialogue]

Q: I think we have, too. I think this has been wonderful. Thank you so much for your time and your energy that you have put into this, David. It's been a total pleasure.

Kuhar: No, it's my pleasure. Thanks for having me. I mean it. It's—I was surprised when you'd asked, so I'm honored.

END