The Clinical Center
National Institutes of Health
Oral History Project
Interview with Dr. Robert Lembo
Conducted on July 19, 2022, via Zoom by Holly Werner-Thomas for
History Associates, Inc., Rockville, MD

HWT: My name is Holly Werner-Thomas, and I'm an oral historian at History Associates Inc. in Rockville, Maryland. Today's date is Tuesday, July 19, 2022, and I am speaking with Dr. Robert Lembo for the Clinical Center at the National Institutes of Health, or NIH. This is a virtual interview over Zoom. I am at my home in Los Angeles while Dr. Lembo is in Bethesda, Maryland. Before we get started, can you please state your full name and also spell it?

RL: Right. It's Robert Michael Lembo. Last name is spelled L-E-M-B-O.

HWT: Thank you. Dr. Robert Lembo retired from his position as the Director of Education and Training in the Office of Clinical Research Training and Medical Education in October 2021. Dr. Lembo was responsible for administrative oversight of all graduate medical education training programs at the NIH Clinical Center since 2006, and for maintaining NIH institutional and program-specific accreditation by the Accreditation Council for Graduate Medical Education. He received his BA from Swarthmore College, and MD from Cornell University Medical College in New York. He also was both intern and resident in pediatrics and chief resident in pediatrics at Yale-New Haven Hospital in Connecticut. In 2008, he completed the NIH University of Maryland senior leadership program. He is a diplomate of the National Board of Medical Examiners and the

American Board of Pediatrics and is a Fellow of the American Academy of Pediatrics. During his 15 years at NIH, he has been recognized for his service with several awards, including the NIH Clinical Center Director's Award for Exceptional Administrative and Organizational Leadership; a 2014 NIH Director's Award for exemplary performance while demonstrating significant leadership, skill, and ability in serving as a mentor; the 2015 National Institute of Child Health and Human Development Partnership Award in recognition of critical support for NICHD's graduate medical education programs to advance the NICHD's mission; and the 2018 National Institute of Mental Health Director's Award for special recognition of the initiative, creativity and effectiveness of the NIH Distressed Trainee Work Group on behalf of intermural trainees in distress. Does all that sound about right?

RL: It sounds about right. I would add that after residency training, I completed a fellowship in general academic pediatrics at Yale University School of Medicine. And thereafter, I held faculty positions, first at Case Western Reserve University, then back at Yale. And then my longest tenured activity in academics was an associate professor at New York University School of Medicine and Bellevue Hospital Center from 1990 to 2006.

HWT: Quite a lot. So, thank you for adding that. Let's begin by going back to your background. You know, your childhood. Just briefly describing your background in relation to your career path. Where you grew up. And if you had people who influenced you for that career path that you eventually took.

RL: Well, I'm a native of New Haven, Connecticut. My parents were working-class individuals who recognized the value of education and allowed me to be the first member of my family to go to college. My father, who served in World War II, had an interest in health care because he was a medic during the war and had some training in the field of physical therapy. And I think that sort of was the framework for my ultimate interest in going into medicine. He had opportunities to introduce me to physicians who referred clients to him for physical therapy. And it seemed like an exciting field. Although certainly I didn't have a lot of understanding of what the practice of medicine was ultimately about. But my parents also were very much of the mind that the way to success in life was to become educated, to maintain an appropriate level of focus and dedication and determination. And I think from one of the questions that I saw on your list, I would say that they were my first mentors. And highly effective mentors.

HWT: Why did you then choose to focus on pediatrics?

RL: Well, it's an interesting story, at least from my perspective. Because it was sort of by default. And not by design. Prior to medical school, I had no interest in pediatrics. Once I had gotten into medical school, in fact, I was interested in going to medical school to become an orthopedic surgeon because I was influenced during college by the director of sports medicine on the campus. I became a student athletic trainer. I got involved in various activities that related to sports medicine on campus. And he was a highly effective individual in terms of being a teacher and an inspiration. And I thought well, this sounds like a lot of fun. This sounds very interesting. And let's try this out.

And then when I got to medical school, finally into the clinical years, I was not exactly thrilled with essentially a focus on procedural medicine. That really didn't get me jazzed up. And I realized I wasn't as good with my hands as I would need to be in order to be an outstanding orthopedic surgeon. So, during the clerkship years, I was looking around for what got me jazzed up? And what did get me jazzed up was pediatrics. And for a couple of reasons. The first was that the patients, the kids, were extremely frank, straightforward, and pulled no punches when you were communicating with them. Although at sometimes, communication was kind of difficult. Like for neonates. But then again, the great thing about that was that despite the severity of many illnesses, they seemed to get better, and they seemed to get better quicker, and they seemed to stay better for a longer period of time. Which made sort of the feedback loop of medicine much more pronounced, much more satisfactory from a career perspective. So, I became more interested in that, along with obstetrics and gynecology, and ultimately decided that I would pursue a career in pediatrics. But purely sort of not by any specific design. But default, I would say.

HWT: Always interesting to see how people choose what they do. And oftentimes, it is exactly that. It's not always–

RL: I would say serendipity has been an important factor in my life. I assume it's an important factor in other people's lives. But being open to opportunities, you know, I think was certainly something that I was able to embrace, luckily able to embrace, not be

so focused on a specific pathway, whether it was in personal relationships or professional relationships that allowed me to, actually, I think, make very good choices over time.

HWT: So, the next two questions I have for you sort of combine. I want to ask you what inspires you. You've already been telling me, actually, but also just to develop that a little bit. You know if it's curiosity that motivates you. If you identify some sort of societal need. But also, the second part of that question is what drew you to clinical work over theoretical or laboratory work more generally? So perhaps combining those.

RL: Well, certainly curiosity is something that I embrace. I like to know things about a lot of areas. Not just medicine, but things outside of medicine. Current events, etc. So, I believe I've always been intellectually curious. And medicine is great because it continues to evolve. Science continues to advance. It's a challenge. One is not a slave to dogma. And I think those are all exciting aspects of both science and medicine and have informed my life for a good deal of time.

I would sort of say, though, that I have an interest in focusing on excellence. And an interest in focusing on service. So, the two of those factors combined, I think, have been sort of the currents that have propelled me forward. And the concept of the servant-leader is very appealing to me. And I hope that I've sort of practiced that over the years, both from the point of view of interacting with patients, but also from my administrative tasks at the various academic medical centers and at NIH.

HWT: So, let's talk about NIH. What brought you to NIH, and what were you first hired to do?

RL: Oh, another serendipitous event. I was at New York University School of Medicine. And I had responsibilities of directing both the pediatric clerkship for the medical students as well as the pediatric residency training program, which had about 19 trainees in the pipeline. And I originally, I was more of the mind that well, my career would be that of a clinician-educator. I would focus on patient care and teaching. And then given these administrative responsibilities, they got very interesting. And the concept of could institutions act as force multipliers relative to increasing the good that would be coming out of the training programs and these educational activities got me to become more interested in advancing within the world of administrative medicine. Although I had no interest in that to begin with, again, that sort of became an interest that evolved over time.

And so, I was looking for an opportunity to advance in academic medicine through administration. At my home institution, NYU, there really wasn't an avenue available to do that. And I started to look outside for opportunities. And just by chance [I] was on the internet one day and saw that NIH was looking for an executive director of graduate medical education. And I had no idea that the NIH actually had graduate medical education training programs. Obviously, I knew what the NIH was and held it in high esteem. But I hadn't realized that they really had an active educational component from the point of view of training individuals. And as I delved further into the opportunity, the opportunity to help develop clinician investigators and physician scientists became very interesting. That was a sort of unique element of graduate medical education that I had

not necessarily been contemplating previously at NYU and other places. We were training individuals to be the best community practitioners or the individuals who would become subspecialists and render subspecialty care. It wasn't really a focus on producing academicians and maintain the pipeline of investigators, grant-supported investigators in the United States.

So that was very interesting to me. And I decided to pursue the opportunity. The interesting story I would tell is that for anybody, I think, who has been applying to the federal government for employment, there is a rather interesting process through an online website, USA Jobs. And I took one look at that application and tried to understand what these "standardized" questions, these seemingly bizarre questions that I thought had nothing to do with my position, had to do with getting this position. And I decided to just submit a cover letter and a CV to the contact person who was listed in USA Jobs website. And even though that probably wasn't the right thing to do in order to apply, I got a response. And the response was, "We want to talk to you."

And so, the rest sort of is history. Although I had to endure a rather prolonged recruitment process where there was a hiring freeze. Negotiations stopped. They resumed. And then ultimately, I was able to, I think, convince [Deputy Director for Intramural Research, NIH] Michael Gottesman and others that they should take a shot at me for the position, somebody who was not an established and grant-funded investigator, to come and be the administrative face of graduate medical education at the NIH.

HWT: Can you just take a moment to tell us one or two things that you told them to convince them that you were the right person?

RL: Well, I tried to indicate to them that from my background and experience, I would be able to undertake the specialized administrative tasks required of an institutional graduate medical education director. Which included making sure that the institution continued to meet the standards and be accredited by the ACGME [Accreditation Council for Graduate Medical Education]. So, understanding accreditation requirements and the approach to that, which I did while I was at NYU, was important. So, experience was important. But also, my vision for what I wanted to accomplish, which was to ensure that the programs that were in existence were able to continue to do what the NIH wanted to continue to do. To train individuals who would ultimately be well-prepared to become investigators, but also, obviously, having to complete the process of rigorous training to achieve clinical competence in a specialty or a subspecialty. And making sure that we had the institutional resources and a support system in place to do that was part of that vision or what I would say would be my mission statement.

And I do believe that we've been able to put into place and maintain those resources and that we've had success over time in making sure that our programs are doing what the NIH wants them to do, in addition to ensuring compliance with the regulations and requirements of accreditation bodies, external accreditation bodies.

HWT: So, let's talk about then, the Clinical Center [CC]. And can you describe what it was like when you first arrived? And the second part of my question is how it's evolved. So perhaps an overview. Obviously, we'll be getting into the weeds as we describe or talk about your work further; so, describing the CC when you first got there.

RL: Well, my sense was that there was a lot of excitement because the new CRC had just opened in 2004, the Hatfield Clinical Research Center. I think that there was a lot of enthusiasm, there was a lot of energy. And there was also a transition within Michael Gottesman's office. The Office of Intramural Training and Education was then being established. Ultimately, the graduate medical education activities that had been in the Office of Intramural Training and Education were transferred over to the Clinical Center. So, in 2007, I moved out of the Office of Intramural Training and Education and Michael's office into the Clinical Center's Office of Clinical Research Training and Medical Education under John Gallin and Fred Ognibene. And it was a good fit. I mean, we were focused on clinical training and clinical research training. And so, it was pretty clear that probably the best place for the focus and the activities of graduate medical education and administration was the Clinical Center. And I believe that as we continue to evolve the mission of the OCRTME within the Clinical Center, we found that we were able to have outreach to visiting medical students. We had outreach to, of course, our graduate medical education trainees, but also, we had a focus on continuing medical education. Trying to maintain knowledge and, to a far lesser extent, skills for individuals who've already completed their training and gone through the process of specialty/subspecialty certification, who were here at the Clinical Center as either staff

clinicians or principal investigators. So, it was a large portfolio, but it was a portfolio that made sense given the structure and function of the Clinical Center.

HWT: So, going back to just one year, you mentioned 2004, but 2003. Can you talk about the Office of Clinical Research and Training and Medical Education, which the CC established in 2003 [that] you've been mentioning. I know it was before you joined, obviously. My understanding is that it was needed because of the rapid growth of clinical research training opportunities at CC and at NIH intramural scientific research programs in general.

RL: Yeah, I believe that's the case. I mean, obviously Fred Ognibene would be the more knowledgeable individual to comment on that. But I believe that what you have stated was correct. And there was an acknowledgement that there was a need for a focus on that activity. And it was not something that could be folded into the generic activities of training postdoctoral fellows at the NIH. There really was an important set of activities, important set of requirements, that clinical fellows had to focus in on and to become competent in, as opposed to other non-MD postdoctoral fellows at the NIH.

The other thing was the evolving focus of the ACGME, the Accreditation Council for Graduate Medical Education, on being far more prescriptive as to what constituted training, appropriate training, in graduate medical education programs. And so, the institution had to be very much aware of what those requirements were and the mechanism by which the ACGME enforced those requirements. So you really had to

have individuals with content expertise as well as the ability to work within the NIH but specifically the Clinical Center, to make sure that the clinical and learning environment was appropriate in order to meet those standards and to not put us as an institution in jeopardy of not being able to accomplish our mission because of discordance with respect to reconciling what the ACGME wanted with what we wanted and what we did in terms of our training model.

And so, if you think about it, the training model at the NIH for clinicians is pretty broad. There's very prescriptive training with respect to the requirements of the ACGME. But as you know, we have other fellowship programs that focus on clinical research training. The [NIH Earl] Stadtman, the Lasker Clinical Research Scholars programs, they have evolved over time. And although our office is not administering the Stadtman program or the Lasker program, clearly, we have been consulted with respect to the important elements that would make candidates qualify for those appointments. But more importantly, there are those fellowships within the Institutes and Centers of the NIH Intramural Research Program that support advanced research training within an established or newly evolving area of a medical discipline. And so, for example, when I came to the NIH, it was pretty clear that the administrative part of my role would not necessarily be fulltime. I would need to have some clinical responsibilities and I gravitated toward NIAMS [National Institute of Arthritis and Musculoskeletal and Skin Diseases], which had a very active research program in autoinflammatory diseases that involved adults and children. And from my affiliation with NIAMS, I was able to see how NIAMS wanted to train a selected group of highly qualified postgraduate physicians

in these specific clinical research areas. So, they had created [the] Henry Metzger and the Lawrence Shulman Scholars Programs in Rheumatologic Research. And these sorts of "boutique" training programs that really focused on advancing clinical research training, and related laboratory-based research training, specifically for physicians, was extremely important to support. And I believe that model is one of the success stories of the entire NIH in collaboration with the Clinical Center.

HWT: You were responsible for administrative oversight of not only all graduate medical education training programs at the Clinical Center from 2006 until last year, but also for maintaining institutional and program-specific accreditation by the Accreditation Council for Graduate Medical Education. So, taking each of these roles in turn, can you describe an average day? And I know that's probably difficult. Also, what were your initial goals and how did they evolve? And how did you accomplish what you set out to do? So quite a lot there. But starting with each role.

RL: So, the average day was never average, I would have to say, because there was something new to address every day. And a lot of what I would do on a daily basis was more proactive and strategic thinking about what we, both as an institution and as the training program specifically, needed to be attuned to in order to, number one, provide the appropriate training that was necessary for individuals, and then the training milieu that was appropriate collectively for programs, coupled with the need to be in compliance with institutional requirements that guided oversight of those programs. There was a committee dealing with these issues that was put together prior to my arrival, but once I

arrived, it was important for me to work with that committee, the trans-NIH Graduate Medical Education Committee, to optimally engage all appropriate stakeholders in discussions of what needed to be done and what potentially could be done to advance our collective training mission. So, doing some strategic thinking on a daily basis, making sure that our specific training programs were in compliance with accreditation requirements, and doing the things that they needed to do to achieve appropriate outcomes, was also important. And then finally making sure that collectively we had the appropriate group of people in place to have strategic discussions about the learning and work environment, including resources, things like salaries and benefits, and to look at indicators of success, markers of success for graduate medical education. How we were doing in the various national training program matches, for example, to bring qualified people to the NIH?

The additional responsibilities included thinking about appropriate approaches to enhance recruitment for NIH graduate medical education programs. And so that sort of also crossed over into the concept of early capture of individuals who might see the NIH as a desirable place to train. The original Clinical Research Training Program (CRTP), which was established to focus on medical students to take a year out to come to the NIH to pursue clinically oriented research on campus, was part of that process. And an offshoot of the CRTP was the Clinical Electives Program to allow visiting medical students, who did not necessarily want to spend an entire year here on campus, to spend a month or two months or three months to experience what it was like to work either with a principal investigator on a clinical research team from the patient care perspective, or to join and

work with staff clinicians on some of our subspecialty services, consult services, to see how translational medicine was practiced at the Clinical Center.

And in addition, we received a directive from the advisory committee to the director of the NIH to think about ways to enhance clinical research experiences on campus for visiting MD/PhD students nationally. That was a process in which we consulted with NIGMS [National Institute of General Medical Sciences] to think about what we might be able to offer that could enhance the experience in MSTP [Medical Science Training Program] programs across the country in terms of promoting elective research experiences for MD/PhD students here, limited research experiences here prior to the students graduation from medical school. And we created a total of five pilot programs for these visiting students enrolled in MD/PhD degree granting programs, both within the MSTP world and outside the MSTP world, to come and spend time and engage in limited clinical research training activities in fields like biomedical informatics, or immunotherapy, for example.

And so, the focus of my day was often administrative followed by, let's think about ways to improve programs, followed by ways to make sure that all of our constituents were on the same page with respect to certain things that had to be accomplished. So, it was a wide portfolio.

HWT: I don't know if you have anything sort of off the top of your head, but I'm curious about feedback from some of the students, say, who came for two or three months versus a year. Anybody come to mind? Any feedback there?

RL: Well, the usual feedback is, "Boy, it's difficult to get in the door here at the NIH." And that was the biggest feedback. But once they got here, the experience almost uniformly was excellent. And that's a credit to our staff clinicians and our principal investigators, who really do enthusiastically embrace the concept of education and training. And although that's not their primary focus – we understand that – they're very good at it. And they're very open and receptive to all visiting medical students. And so, the comments from those students was that their experiences here were uniformly beneficial to them individually as students looking for guidance, looking for inspiration, and looking for practical ways to improve their skills, which they did.

And on the other hand, I think that many of our staff clinician investigators really liked this influx of visiting medical students. It kept them on their toes. I mean, there's nothing like inquisitive students to keep things very interesting in the clinical setting. Never a dull moment when you have to explain to enthusiastic learners the rationale for what you are doing and why you are doing it. So, I think it was a mutually beneficial arrangement.

The thing that I would find interesting administratively, though, is of course trying to negotiate clinical training agreements with extramural institutions. And that was also part of my portfolio. Just to go back a little bit, we rely extensively on collaborations with

extramural partners for training in graduate medical education, but we also engage in outreach with medical schools so that students can see what we have available on our campus as resources for professional development. And I can tell you that many medical students have no idea what we have available for professional development on campus. And many medical schools don't have much in the way of an idea of what we have available that is beneficial, potentially beneficial, to their students for clinically oriented education and training. And it usually came as a surprise to them as to what we had to offer. So, the issues of negotiating agreements for these training partnerships was interesting. Because again, it was sort of like the "ah ha" moment for these medical schools, which is: NIH really has these things.

But the other thing that really got my attention was the graduate medical education training agreements with partnering academic medical center, and a lot of my time was spent actually negotiating the agreements with those institutions. So, we worked collaboratively with the NIH Office of General Counsel quite a bit. But the Office of General Counsel did not directly negotiate these agreements. We would negotiate the agreements with the proposed academic medical center affiliate, confer with the Office of General Counsel, and then execute those agreements. So, in addition to the graduate medical education programs and executing agreements with partners like George Washington University and Medstar Health and Children's National Medical Center, as noted previously we had a whole portfolio of negotiated agreements with medical schools to permit their medical students to rotate here. And that occupied a good deal of my time and effort in the office.

HWT: So, you recently wrote, I believe it's a UK journal, *Open Access Government,* you wrote about physician training. And you stated, despite the favorable impact of the CAP, which is the Clinical Association Program, founded in 1953 at the NIH, on the advancement of academic medicine nationally, the interest in it had waned by the 1970s. Which you attributed to both the increase in the number of funded, dual-degree programs at medical schools, and the requirement for research of scholarly activities within accredited residency or clinical fellowship training programs. You also list a number of driving factors of this. For example, student struggles over debt accumulation and work/life balance, not surprisingly. So, can you describe when and how the NIH IRP [Intramural Research Program] developed new approaches to address these issues? And also, how you even identified them.

RL: Well, I think it's an evolutionary approach. In one sense, the NIH has been a victim of its own success. The Clinical Associates Program was wildly successful. And if you look at a compendium list of individuals who were in the Clinical Associates Program and their career paths, many, many of them went on to become department chairs at academic medical centers nationally, members of, tenured members of, the teaching faculty at academic medical centers. And in essence, they came here, they got the bug for academics, they got the skills to be successful at academics, and they went forth and populated academics nationally. And guess what happens when that occurs? Individual academic medical centers develop their own programs. And just like anything else, I think individuals want to keep their best trainees for advancement, particularly joining

faculties, over time. And so, I think this model was really, really important with respect to advancing academic medicine in the United States for a good deal of time but had to give way to the realities of evolving academic life, and, unfortunately, because people could stay at their home institutions to get clinical and research training, eventually they did not need to come to the NIH. And to be funded by extramural NIH going forward, they did not necessarily feel compelled to come to the NIH intramural program for this type of training.

And so, we needed to understand how we were going to go about continuing our mission, but also with an eye towards maintaining the pipeline of well-trained but potentially fundable investigators. So, the training model that currently exists, which is to have accredited specialty/subspecialty clinical training on the campus leading to board certification combined with additional time in research training, would allow individuals to either come directly out of medical school into our GME [Graduate Medical Education] programs, or to finish their core clinical training in a specialty elsewhere and then come for clinical subspecialty and research training at the NIH.

So that model was implemented with essentially the expectation that the NIH then would be part of graduate medical education sponsoring institutions nationally under accreditation by the ACGME and would offer that training to really capture at, again, an earlier stage, individuals who had the desire to become competent both clinically and as researchers. And as you're probably aware, many of our training programs go beyond the mere standard duration of training that is necessary for a board certification in a clinical

specialty/subspecialty, or to be accredited by the ACGME to enhance research capabilities and productivity. So, for example, our subspecialty fellowship programs in internal medicine, which normally would be two years in duration at another academic medical center, are usually a minimum of three years at the NIH. And in some cases extended to five years to permit this combination of clinical and research training. And of course the NIH funding to allow that to happen is through appropriated funds from Congress. And so there really is a reasonable assurance that individuals in NIH graduate medical education programs who are meeting expectations in terms of their clinical training as well as their research activities can continue on in training programs and to graduate as competent clinician-investigators which other institutions cannot offer. So, I think that that is an extremely important feature of NIH training programs.

And then as I mentioned, we have many, many what I would term "boutique" clinical research training programs that offer fellowship-level training to individuals who have completed standard training in certain disciplines of medicine that are not offered by other academic medical centers. So, for example, we have a very, very productive program supported by NIDDK [National Institute of Diabetes and Digestive and Kidney Diseases] in hepatology. Hepatology is a subspecialty field of gastroenterology that's incorporated, in part, into gastroenterology fellowship training, but not exclusively. And here at NIH, individuals can exclusively focus on studying and treating diseases of the liver, specifically hepatitis C and other infectious hepatic disorders. And that enhanced training is very important to maintaining, of course, a cadre of individuals who are

clinically competent, but more importantly, who can become funded investigators in the field.

And another example would be our program in HIV malignancies, which of course didn't exist before HIV (but was prompted given the HIV epidemic) but became extremely important for the care of HIV infected patients. Not only important in terms of clinical care, but in fundamental mechanisms of how viruses might transform cells into malignant clones. And that program also is another successful NIH clinical research "boutique" fellowship training program, but one in which draws on individuals who have either prior training in oncology or infectious diseases to advance their understanding of the basic science, and also the clinical application of care given to those patients.

HWT: I understand it's very much a growing area, as well, in the post-COVID world. So just a broad overview question: I'm wondering if you can describe the infrastructure required in performing clinical research and the steps involved in developing and funding research studies? I know that's broad.

RL: Yeah. I would say I am certainly not the expert in that area. I mean, my understanding of what has to be in place obviously relates to mostly clinicians who are interested in conducting clinical trials. And clearly at the NIH, we focus on phase one and phase two clinical trials. We're not essentially in the intramural program focusing on phase three, phase four clinical trials. But relative to first-in-human experimentation, obviously a key concept is, well, what's the idea? How do you flesh out the idea into something that could

be investigated? And that requires, of course, working with mentors. And having the appropriate experienced and effective mentors in place to think about ideas, brainstorm, but also to focus on transforming the idea into something that's operational.

And then having the resources for individuals to write and conduct clinical research protocols. To be able to capture the idea. How to test the hypothesis. But how to put it down on paper, write it, and have it approved by an IRB, an institutional review board. So, all of that education has to be in place. And there really has to be opportunities for people to engage in conducting clinical research during training It's not just theoretical application of the concept. It's "You have to engage in it." And I think that's one of the important features of our graduate medical education training programs, which it does get individuals involved in that activity at an early period of time in their training. Plus, it allows them to do this without the external pressures of, well, worrying about where's the money going to come from? Where am I going to find funding for this idea? If it is thought to be a good idea within the intramural program, there will be support for it. So that is one aspect of our support for graduate medical education and training that's important and not easily reproduced elsewhere.

Now we do have an important caveat here. Not everybody who comes to the NIH for their training is going to stay at the NIH going forward. So, they do have to be prepared to make the transition, to go out into the wider world of academic medicine. And we do try both within the NIH institutes that support graduate medical education training programs within the intramural program, as well as through resources from the Office of

Clinical Research Training and Medical Education, in conjunction with the Office of Intramural Training and Education in the Office of the Deputy Director for Intramural Research, to provide courses on how to write grants, particularly K Awards, such as K23s for clinicians. Also, K22s for those individuals who are more focused on basic science research. But also, to support individuals who are interested in pathways to independence. So, the K99/R00 sequence is also something that we focus in on for grant writing at the level of graduate medical education training programs at the NIH.

So, preparing individuals both for basic understanding of how to generate hypotheses, how to test hypotheses, the realities of how to conduct the research, these are all part of what we do. And hopefully we allow our clinical fellows to generalize what they learn here to their next step. For many of them, that of course is in extramural academic medical centers.

HWT: So, just about a year after you joined in 2007, the Metabolic Clinical Research Unit at CC opened to study obesity and related issues. And CC also enrolled the first patient in human genome sequencing, there was a study. And then in 2008, the Clinical Center launched the Undiagnosed Diseases Program. What was your involvement with each of these initiatives, if anything? And taking each in turn, why were they important? What effect did they have?

RL: Yeah, I would say my involvement was really peripheral in all of them. But I mean, I can tell you that the metabolic program was certainly an important feature of the

endocrinology fellowship training program offered by NIDDK and NICHD [National Institute of Child Health and Human Development]. So, the ACGME-accredited program that we had oversight of in endocrinology, adult endocrinology, certainly utilized that resource for training purposes. Both clinical training purposes as well as research training purposes.

The UDP program certainly became part of the experience for our fellows in the medical genetics fellowship training program. Again, the ACGME-accredited genetics training program. And that provided a great opportunity also for visiting medical students, specifically MD/PhD students to see how in fact the application of newer, rapid sequencing techniques could potentially lead to breakthrough diagnoses. And in fact, one of our pilot programs in the Clinical Electives Program for visiting medical students, specifically focused on the education and training of MD/PhD students. This pilot program engaged them in time spent learning from the clinicians and working with patients at the UDP program.

So the UDP program not only was important in advancing the mission of the NIH research perspective, but it was essential in advancing the training aspect of what we do in a number of areas that not only focused on the genetics training program, but individuals who are thinking about careers broadly in other specialties that involved genetic research and breakthrough technologies, the application of breakthrough technologies to solving problems.

HWT: So, just building on that, and again, I know this is broad, but what other CC initiatives are important to discuss since you joined?

RL: Well, I would say that the CC initiatives really relate to the focus now of the Clinical Center on being a high-reliability organization focused on patient care and patient safety and seeing how graduate medical education can be an important partner in improving the quality of care and the safety of care for our patients here at the NIH.

And so, as we see the evolution of the Clinical Center as a research hospital with a focus on reliability, high reliability, I think that we see how our graduate medical education training programs not only can focus on the standard expected training outcomes. Are you clinically competent? Do you have the ability to engage meaningfully in research activities? Can you become a principal investigator? Can you be a collaborative research with individuals? But also, can you improve systems of care? Can you make things better for the system in which you are practicing? And here at the NIH, the practice is that of the clinical research enterprise. So, I think that this evolution in graduate medical education training is also important.

And also, I would say that we are very much aware of the stressors that affect individuals. Not only in clinical research training, but those who are trying to become a clinician investigator or physician scientist. It's not an easy road to travel. We understand that, and it is a highly competitive road given the funding environment in the United States. And so those stressors are something that I think we've become more and more familiar with

over time. And the Clinical Center is committed to working collaboratively with all of the institutes within the intramural program. In addressing the issue of potential burnout, mitigating burnout, and having an appropriate detection system in place to avert or mitigate the effects of burnout. Not only on our trainees, but also of our staff clinicians and our other healthcare professionals, including the nursing staff. So, I do think that again this issue of focusing on the Clinical Center as a high reliability organization is an important advancement.

HWT: And I wanted to talk about 2017, 2016. So, in 2017, CC hired its first CEO, Dr. James Gilman. Of course, this was after the so-called "Red Team Report" from 2016, which was an outside review of the CC that claimed to have found quote unquote "substantial operations issues" with what you just mentioned, patient safety, as well as regulatory compliance and leadership. It described a culture in which patient safety quote, "became subservient to research demands." What is your personal response to that report?

RL: Well, I think that with most reports, there probably is an element of truth in the findings. I think, though, that my concern was sort of the implication in the aftermath of the Report that nobody really cared about patient safety or the welfare of our patients. And that, I think, is completely false. I don't believe that any of our principal investigators or staff clinicians cared less about patient safety then than they do now. And I don't think that anybody in the administration of the Clinical Center cared any less about patient safety then as they do now. I think the system-wide awareness of these issues, of course, is higher now than it was then. And I think that may really have been the problem. Which

is, well, okay, was awareness at a high enough level? Were the mechanisms for reporting as familiar, well-developed, and user-friendly? And was the culture permissive with respect to the process of improvement, permissive enough with respect to the process of improvement that things could have been different? And I guess my thought is that yeah, things could have been different. And in retrospect, as in most things in our lives, we see things that we either missed, we downplayed in terms of importance, that could have been better, but that are better now.

So, I think the report was an important stimulus. I think it was an important factor for us to do some self-analysis to think about the fact that even though our mission is a little different than most academic medical centers, the very fact that we are a hospital puts us in the same league with other academic medical centers that focus on the process of quality improvement and patient safety in accordance with national initiatives. And so, I think that we are now certainly up to date with respect to that process. And I do think that we are now focused in teasing out the specific aspects of providing care to patients on clinical research protocols that can be further enhanced by what we do here at the Clinical Center.

And that gets me back to the original point that I was making, that partnerships with constituencies like the GME community would be really important. To integrate the GME community more into those activities at the Clinical Center, as opposed to having a concept, well, that is more compartmentalized. GME does its thing, Clinical Center administration does its thing, the Office of Patient Safety and Clinical Quality will do its

thing. All of those operational aspects I think now are seen as an appropriately synergistic process that will reap dividends when we get to the ideal interdependent model of both clinical care training and hospital administration going forward. And I think we're making considerable progress in that regard.

HWT: So, you've sort of been answering this question I'm about to ask. But if there's anything you want to add? Obviously hiring a CEO for the first time and creating a new hospital board, two outcomes of that report eventually, what are others? And what effect has the restructuring had on the Clinical Center?

RL: Well, I think hiring the CEO provided an opportunity for focus on systems activity while preserving, through the appointment of the Clinical Center's Scientific Director, who is John Gallin [and Chief Scientific Officer], on preserving a focus on the clinical research conducted here at the NIH. So, in essence, it was creation of a partnership. And I think that that partnership is important and allowed the previous position of director of the Clinical Center to not have responsibility for all sorts of things. It's very difficult, I think, for one person to be a content expert in everything related to the running of a complex research hospital like the Clinical Center. So, I think the opportunity to sort of divide the responsibilities of leadership to include a focus on making the hospital itself a highly reliable organization in the model of other academic medical centers was important. But then also having a focus on maintaining high-quality clinical research and having the ability of an experienced clinical researcher providing oversight of protocols was really, really important. So, I think that that was a very good thing, even though at the time it

seemed like, “Oh my goodness, what is happening here at the Clinical Center?” Would things be different, would the focus just on administration then take away from our research enterprise? It has not, and likely will not.

The clinical research board is interesting. Because it raised, I think, a number of questions for us to answer internally related to processes and procedures to ensure high quality of patient care, as well as focusing in on ways to improve safety. And I do think that having that board provide that oversight, but not really making the day-to-day decisions about what goes on at the Clinical Center, was an important synergistic aspect of the advancement of the organization. And so, I think it’s been a good thing.

Now it does not necessarily do the same things that other boards do, because other outside institutions are concerned about financial activities, outreach in terms of healthcare systems, etcetera. So, it really wasn’t, the board wasn’t focused on those sorts of things; it was more focused on making sure that the quality of clinical research that was going to be provided at the Clinical Center in the context of a high-reliability organization was actually going to take place.

HWT: And then of course just five years before 2016, in 2011, the Clinical Center was recognized by the Lasker-Bloomberg Public Service Award for serving as a model research hospital. What did that mean to you, if anything? And what other major awards and honors have been the most meaningful to you personally?

RL: Well, I think from the point of view of the Clinical Center, it was really important to have that recognition. So, individuals outside the NIH were aware of the major contributions of the Clinical Center, not only to the health of the American population and, quite frankly, international populations, but also the fact that we had a hospital on the campus. The hospital was providing outstanding care to patients with rare, complex, and refractory disorders. And to put us appropriately on the map with respect to other outstanding medical centers throughout the United States. But we were able to demonstrate our contributions to both public health, but also training. Because the award did recognize what we have done with respect to training physician scientists and clinician investigators.

HWT: Are there other awards that you want to mention?

RL: Well, I think I'm most proud of the mentoring award that I was honored to receive a number of years ago, the Ruth Kirschstein Mentorship Award. I think that was in recognition of my willingness and my desire to work closely with my colleagues at the NIH in the graduate medical education community. And I do want to recognize my colleagues. They are outstanding individuals, number one. They're really, really accomplished investigators, number two. I want to say I'm a bit envious about number two, but I really respect them for that accomplishment. But most importantly, I respect that they're not only very dedicated to training the next generation of individuals who are competent clinicians. But also, as we mentioned, clinician investigators.

HWT: And then just last November, November 2021, you were appointed as Special Volunteer Graduate Medical Education in the Office of Clinical Research Training and Medical Education at the NIH Clinical Center. And of course, this was just after you retired. So, I wanted to ask you, what were your initial goals for this position? And how, if at all, have they evolved? And what have you accomplished so far, and what do you still want to do?

RL: Yeah, so the position really was designed to smooth the transition to my successor. And that was first to give the NIH and the Clinical Center an opportunity to vet a number of candidates for the position as well as to decide on who would take on the responsibilities for graduate medical education at this unique institution. And this really is a unique institution with respect to the dual missions that I was talking about. Maintaining accreditation as well as advancing the goals and objectives, training goals and objectives for the NIH Intramural Program with respect to graduate medical education. So, an individual who not only had the skills to do that, but also had the vision as to how to evolve graduate medical education at the NIH was important to vet and to think about carefully. So that was number one.

Number two, of course, was that the responsibilities of this position had grown over time. And so, they've grown with the complexities of the requirements of the ACGME. But the oversight for other things that this position requires. Overseeing the match. Overseeing the process of submitting applications, for example, for consideration for training programs. For engaging with partners in the extramural world in terms of training agreements and negotiating training agreements. So, the transition process really was and

continues to be kind of complex. I'm almost done now with the transition. But I can tell you that the learning curve is pretty steep for somebody coming into a relatively unique position like this. And so, it's always important in my view to have somebody available as a resource to provide historical perspective but also to provide counseling and mentoring in order to affect a much more meaningful transition, a much more effective transition, for the position.

HWT: So, I wanted to discuss with you some questions about the clinical learning environment in general. Beginning with best practices. What, from your points of view, are best practices in the clinical learning environment?

RL: Well, I think that's sort of a difficult question to answer because the clinical learning environment for graduate medical education does have sort of areas that need to be focused on by some programs and maybe not so much focused on by others. But clearly what needs to be available is a patient population that serves the training needs of the individuals in our training programs. And that's why it was so important for us to supplement the highly specialized training experiences here at the Clinical Center with more "bread-and-butter" exposures to standard disease processes and standard disease entities that are more likely encountered at our extramural training partners. So, making sure that there really is a good mix of the common and the rare in terms of the patient population is important as part of the clinical learning environment. And as I was alluding to, we couldn't do that solely here at the Clinical Center. We need appropriate partners at local and regional academic medical centers. But we also need partners who

understand our graduate medical education training model and understand our training mission and needs. So that is, I think, not only the most important aspect of the clinical learning environment, but the one that can be calibrated, and needs to be calibrated. And what one of my focuses was, as well as our training program director's focus.

The other, of course, is having the appropriate support staff to provide outstanding clinical care. Our social work department. Our nutrition department. And, of course, our nursing staff. And our nursing staff is able to, I think, effectively engage our trainees in the process of team-based clinical care. And I think that that is an extremely important aspect of the clinical and learning environment here at the Clinical Center.

The other aspects that are important are appropriate administrative resources for our trainees. And I think we have a very responsive administration, starting with Dr. Jim Gilman and Mr. Pius Aiyelawo [CC's FACHE Chief Operating Officer] and Mr. Dan Lonnerdal [CC's Executive Officer], who are extremely supportive of the process of graduate medical education. And help us provide the appropriate resources to support our clinical fellows. Call rooms. Rooms to mitigate fatigue if they're tired. Appropriate lounges for them to relax and to recharge, as well as the appropriate services, ancillary services that help them to their work in caring for patients. Blood drawing, phlebotomy. Appropriate laboratory support. Appropriate support from the diagnostic radiology department. Physical therapy. I think you can go down the list. And I think we have that here and we have individuals who are extremely responsive to the needs of our trainees.

And then lastly, having a very active organization of trainees that is focused on improving the process of learning within the Clinical Center. We have that organization, the NIN Clinical Fellows Committee, which has very effective leadership, and also works collaboratively with the Clinical Center executive administration in order to raise issues that not only improve their training, but also are improving the quality of care and standards of patient safety. So, it's an important pipeline of information from our frontline providers to Clinical Center administration.

HWT: I have sort of several related questions, but you have answered parts of each of them already in this response. However, I want to build on what you said a little bit. So, I will ask you if you want to add anything, that's fine. One of the things I wanted to ask, you talked about burnout. What increases, decreases the rate of burnout in the clinical learning environment? And I also wanted to know more about communication. So, for example, improving the environment that provides the context for physician education, and how do you foster improved communication and emotional health? So those kinds of things combined.

RL: Yeah, so we sort of learned through the COVID experience a number of important lessons, and one of the first lessons was we actually created a subcommittee of our Graduate Medical Education Committee that focused on wellbeing and wellness. And that committee has done excellent work in not only ascertaining the magnitude of the stressors and the extent of burnout through surveys and direct interaction with our clinical fellows, but also has focused on ways to mitigate those stressors, including focus groups

and other activities that engage our clinical fellows in aspects of self-care like physical exercise that are important to maintain balance between work and life.

Now I know the term “work/life balance” is used quite a bit. And I think many people question, like, what is that? I mean, you integrate work into life and life into work. So, it’s not like you have one side of the room for the work and one side of the room for the other aspects of your life. But you know, ways to integrate those two aspects, important aspects of your being, have been really addressed comprehensively by the wellbeing subcommittee.

We also have, of course, the support of the National Institute of Mental Health. And they have been very, very helpful, of course. And going back to one of the other things you were asking about, the stressed trainee project, to provide resources for identification of individuals who are under stress to both principal investigators as well as clinical faculty members, a compendium of resources for use for referral of individuals for appropriate diagnostic or therapeutic interventions. And having a very, very, important and a more structured relationship with our employee assistance program at the NIH.

So, the focus of our attention to these issues is manifold. And includes resources that have already been in existence at NIH, such as employee assistance program. And making sure that we have our finger on what the temperature is in the individual training programs with respect to stress levels and with respect to utilization of resources to mitigate that stress.

HWT: And is one of those resources the Distressed Trainee Work Group?

RL: The Distress Trainee Work Group was actually put together to evaluate approaches to educating and increasing awareness about stress among trainees, both clinical fellows and other trainees at NIH, and what to do about it. And the activities of the group were actually stimulated through discussions with the Office of Intramural Training and Education, which was becoming increasingly aware of the stressors on our nonclinical postdoctoral fellows, as well as our postbaccalaureate trainees. So, it's not just an issue of stress for clinical trainees; it's an issue for trainees across the campus. And so, the awareness of the problem was raised by the training directors of not only the GME programs, but also of the research training programs. And then was elevated to a higher level with the support of NIMH to create this compendium of resources which continues to be revised on a regular basis to incorporate newer resources that we might have here. Also, to facilitate the appropriate referrals for individuals for actual care.

So, the important things that we focus in on for clinical fellows are self-assessments of individuals with respect to compassion fatigue and potential burnout. We have an instrument called ProQual, the Professional Quality of Life survey, which is then, again, a self-administered questionnaire that can be then converted quantitatively into a score so that people could sort of see the trends in their own life with respect to stress and allow them to have the appropriate level of awareness that they need to initiate contacts that will mitigate that stress going forward. So the focus is not only on the availability of the

instrument, but in making sure that the graduate medical education training programs continue to provide the message to clinical fellows that seeking help is a strength, not a weakness. And the ways to seek help have been very, very important to us. And have been certainly magnified during the COVID pandemic.

HWT: And of course we will talk about COVID. Just staying with the [clinical] learning environment, CLE, for a few more questions, I wanted to ask you about diversity, equity, and inclusion. I have a couple of questions. First of all, how should diversity and equity be defined and operationalized in the clinical learning environment and within medical education? And also, how or in what ways does the current clinical learning environment fall short of meaningful incorporation of these concepts or, in terms of policies and processes? Even the culture.

RL: Yeah. Well, I guess I don't have a good answer for that question. I think that we can define diversity in a number of ways. Diversity with respect to ethnic background, socioeconomic background, gender, race, etc. But I'm not sure that there is a prescription for that, and one of the things that I think many of us in graduate medical education have been struck by is that the pipeline for underrepresented minorities in medicine remains a challenge. Getting people interested in medicine in the first place. I think if you look at the figures that the Association of American Medical Colleges can provide, I think we're all aware that there seems to be a significant underrepresentation with respect to African American males in medicine. Why is that? It's not something that I have an answer to. But clearly, it's a challenge with respect to the pipeline of medical practitioners going

forward. And I'm not talking just about investigators; I'm talking about medical practitioners going forward.

So, you know, I wonder is there an issue with respect to medicine that is a turnoff generically, as opposed to a turnoff for certain groups of individuals? And if so, what can we do about that? I think it's pretty clear from research that individuals who can identify with their primary care provider, their healthcare provider, their subspecialist, really increases compliance and has better outcomes with respect to health specific outcomes, so ensuring broad diversity in medical practice is really important to ensuring and improving the care of patients. I think the same applies to clinical research.

And so, I do think that there is a large challenge in medicine in general to be much more representative of the American population. So that of course involves balancing the need for individuals who have the aptitude and who are prepared to enter the profession with the opportunities to enter the profession.

Here, we're sort of at the apex level with respect to who comes to us. For the most part, people who come to us want to come to us. They want to come to us because of what they see us offering with respect to our clinical research training model. They're not coming here to become community practitioners. They're here to advance their academic careers, or hopefully advance their research careers, as investigators and as scientists.

And so, if in fact the pipeline is really not open at the earlier levels, the folks who come to us are going to be restricted. So, it is a challenge to us with respect to exercising any approach to increasing diversity. You know, if we don't have the substrate to do that. And that's a limitation of what we can do.

Now, that doesn't mean that we can't continue our outreach, and attempts to engage in early capture of individuals to stimulate their interest in clinical research training. And again, that gets back to what I was talking about in some of our existing programs for visiting medical students for early capture. But again, those people are currently in medical school and are not yet ready for the transition to residency or clinical fellowship training. They've already passed a certain hurdle but there are many intervening factors before decisions about pursuing an academic or research-intensive career are reached, and where and how to pursue one.

And so, we also rely on the resources of the NIH intramural program to stimulate interest in science, in STEM, for individuals who might ultimately then choose to go on to medical school. So, I think the process is kind of complex, but not just restricted to the graduate medical education training programs at the NIH. But hopefully there's a broader focus on recruitment of individuals who do get excited by science. Who do get excited by the concept of research. Who are interested in engineering, mathematics, etc., and the application of those fields to advancing human health so that we can do better in training talented individuals and improving the health of patients.

Now relative to outreach, I think we can always do better with respect to outreach. It's an important aspect of getting our message out. As I said, one of our challenges has always been that many people don't have a good idea of what we do at the NIH from the standpoint of the intramural program. I think a lot of people know what we do in terms of making grants and providing money to support extramural training initiatives and programs. But I don't think that they have a good idea of what we do with respect to the other opportunities that we offer individuals on campus. So, outreach is extremely important, but also difficult. Honestly, we're a government organization. It's not that we can go uninvited into academic medical centers or colleges or high schools and say, "Hi, here we are. We're from the government, we want to help recruit your best and brightest." That's not something that we're going to be able to do. And so, we need to create effective partnerships. And perhaps we can do a little bit better in public/private partnerships in order for that to happen. But outreach via modern information dissemination technology, I think, is extremely important for us to employ.

HWT: So, I wanted to ask you a couple of questions getting back to your personal experience, and how you apply your own experience in learning. For example, in the hospital environment, you were a staff pediatrician at Cleveland Metropolitan General Hospital. You were attending pediatrician at Yale New Haven Hospital. But also when I read out your bio and you talked about your extensive academic experience. So how does your experience in those very different environments come into the clinical learning environment, in your own experience, in your life?

RL: Yeah, well, having been on the front lines of patient care in academic medical centers and having experienced teaching first hand in the clinical setting, it makes it a lot easier to work with people who are in that environment. And in that environment from the point of view of patient care, but also from the administrative perspective. How to run the training programs. So, I see it as a cumulative learning experience. And as I mentioned previously during my sixteen years at New York University and Bellevue Hospital Center, I was able to see the learning environment from the medical student perspective in directing a pediatric clerkship, as well as from the graduate medical education perspective in directing the pediatric residency training program.

But also, from the administrative perspective. I was the chair of the Bellevue Hospital Graduate Medical Education Committee, which worked closely with the New York University Graduate Medical Education Committee in making sure that, again, programs had the appropriate oversight with respect to operations, policy, and procedures. Programs had the appropriate resources. We were appropriately recruiting individuals of high quality. So, bringing all of that experience then to the NIH made my life a lot easier, obviously, from the transition perspective, but informed what I was doing. Because I'd experienced it, I anticipated what needed to be done. And I was able to essentially not only "talk the talk" of graduate medical education, but "walk the walk" of graduate medical education administration when it came to working with program directors and trainees.

HWT: Do you think you can take a moment to give us one example when that experience came into play in an important way for you?

RL: Well, I think probably the best example was kind of a complex example. And that was when we were discussing with the National Cancer Institute and the National Heart, Lung, and Blood Institute, consolidating their training efforts into a combined program in hematology and oncology. And previously, each one of those subspecialty fields had a separate training program at NIH that was accredited by the ACGME independently – so an independent hematology program supported by NHLBI, an independent oncology program supported by NCI. But I think we were aware from trends nationally that the desire for training was for combined training in both hematology and oncology leading to dual Board certification. Not for individual training in one subspecialty. And I think we were aware that there were potential opportunities for recruiting really, really high-quality potential clinician investigators or physician scientists interested in combined training and dual Board certification that we were missing because we did not have a combined program that was accredited by the ACGME to offer combined training. And so, we had multiple discussions about how this would work, how this would be supported, how the training would actually be done, what sort of resources were needed, and clearly extramural resources were needed.

But the big thing was ultimately how to get it accredited. Because lo and behold, as we were moving forward and we contacted the ACGME, we were surprised at their response. Which was well, how are you going to actually get this program accredited

when you don't have an internal medical residency training program on your campus? And you're asking us to combine two fully accredited programs into a new program. Which by the way can't happen unless you have a residency training program in internal medicine.

So that issue would have blown up the entire process. And so, then we had to go to work with the ACGME to negotiate an acceptable solution. And we were able to successfully get exemptions from the accrediting organization in order for us to proceed with submitting an application for a new combined hematology-oncology training program. We were able to have the training program ultimately accredited through collaboration, persistence, and hard work. We were also able to pass an initial site visit three years after the provisional accreditation of that program because of the excellence of the training that was offered by the staff at NHLBI and NCI.

And so, we got to "yes" through sort of an arduous process. But one that required understanding not only of the training model at the NIH, but also of the accreditation process with a few wrinkles along the way. But one that really involved a collaborative effort to demonstrate the worth of what we offer in clinical research training at the NIH to an accrediting organization that thankfully was flexible in its approach to its mission, and to our mission. And that, in the end, was an extremely rewarding process. Not easy, but extremely rewarding. And I don't think we really would have accomplished that unless we did not have collective experience in multiple administrative areas in order to make

this happen. Administrative, from the point of view of the individuals who were going to collaborate on the training model and from the negotiation perspective.

HWT: I'm glad I asked. It's very interesting. So, you've taught a workshop or course on teaching students to think like clinicians. What is important to know?

RL: I think what is important to know is how one deals with uncertainty. And what strategies that you can utilize to mitigate uncertainty as best as you can mitigate it in the clinical setting. And I think that was the lesson that I had to learn as a young clinician. Everything wasn't black and white. The diagnosis was not necessarily always known. Things were not always either correct or incorrect therapeutically. There were areas where patient input was important for negotiation in formulating action plans. So, in addition to clinical reasoning, the limits of clinical reasoning, maybe the application of quantitative methods to enhance clinical reasoning. The other thing was integrating values into decision making. And so, in addition to dealing with uncertainty, it was negotiating with respect from a value-based orientation. Understanding the patient's value as well as the clinician's value. And so, I think all of those things are important with respect to that topic. And you know, our understanding of this continues to evolve. And I'm not sure that we formally teach it here at the NIH. And I'm not sure that many medical schools formally teach it. But certainly, there's a much more focused interest on the process of clinical reasoning and the integration of values into clinical decision making at the NIH.

HWT: I want to ask a little bit more about, just a few personal experiences in total as we wrap this part of the interview up. So, thinking about, before I ask you about sort of the total impact of your work, I always ask about setbacks. Because you know, successes, always wonderful to talk about, but setbacks can be revealing in and of themselves. Talk about what people have learned from those. So, if there's anything that you want to mention that comes to mind, now is the time.

RL: Well, yeah, I mean, I think when I completed my fellowship in general academic pediatrics, the expectation was that I was going to pursue a research career. And I certainly tried to do that. And in fact, in the area of qualitative and quantitative clinical decision model construction. But that pursuit didn't get much traction. It didn't get much interest. And it certainly didn't get funding. And so, it was necessary to rethink my career path. And so, when it became pretty clear that that was not going to be a pathway for me, I had to really focus on what it is that I thought I was good at and that I could advance as a clinician. And having interest in education, that's where I went.

But as I mentioned, once I got there, then something else happened, which is that medical education administrative activities became interesting, number one. Number two, it seemed to have value. And it seemed to have big-time value, because you could use it to multiply the beneficial effect of training institutions. Large number of people. And, therefore, do greater good. So, with respect to, you know, my own career advancement, as I said, there was a need to take a different fork in the road because of very pragmatic

circumstances. On the other hand, there was also an opportunity to take advantage of serendipity to grow my career going forward.

HWT: So, if you can, I know this is, again, a big question. But can you talk about the total impact of your work? What would you say is your legacy?

RL: Well, you know, that's a tough question to answer. Because I'm not sure that I can point to any one thing. (*laughs*) I would have to say I think the legacy probably is content expertise applied in a collaborative way for the greater institutional good. And I think that would sum it up. It's not that I feel that I've been a major leader in any one particular area, because I've always been interested in working together, and largely behind the scenes, for mission success, in essence. When I was a kid growing up, my focus was on team sports where I was a member of a team and had, of course, focus on my own individual skill development, but in the context of working synergistically with other individuals. So, I was a baseball player, I was a catcher. And so, in one sense in that position, I had the ability to control part of the game. On the other hand, clearly to be part of a larger team effort to win games. And that has always been sort of my perspective going forward. I'm still an avid baseball fan. I still appreciate strategy. I still appreciate the teamwork that goes into working toward a common goal. And it's not difficult for me to apply the lessons I learned to what I do with respect to now administrative work. And hopefully bringing people together so that they can achieve their own objectives for the greater good of the institution.

HWT: And if you could talk directly to the public about clinical research, what would you say? What is important to know?

RL: Yeah, so, I would say that it really does need to be supported. And we're not just talking about financial support here. We're talking about the concept. And I do think that COVID to me was both an inspiring but a disappointing period of time. It was inspiring because of the rate at which advancements were translated into meaningful interventions. It was disappointing to see the public response to established disease mitigation approaches and to vaccination development, and in some situations the public's rejection of all of this. And skepticism about how clinical research advances knowledge. Knowledge is not fixed. It gets advanced. And it has to be supported, and it has to be understood as an area that evolves.

And it seems to me that not many people really understand that. It's more in the realm of, "Well, why wasn't X done at Y time?" When X didn't exist and there wasn't enough time for that to happen. (*laughs*) So I think the whole concept of educating the public with respect to, number one, the value of research in advancing clinical care, the process of clinical research, the ins and outs of clinical research is important. Not everybody has to be an expert in this, obviously. But understanding the evolutionary process of knowledge acquisition and implementation, I think, is critical. And unfortunately, I think we've got a long way to go with respect to that aspect of what we do.

The other issue is the interplay between advancement in science and public health. And here again, the response was double-edged. The attempt to mitigate the COVID pandemic was initially embraced, but then running up against the realities of everyday life and tough decisions that had to be made about what to do to reduce the impact of the pandemic in the context of a situation that was potentially not only life-threatening, but could overwhelm the resources to provide care. And the unfortunate societal divisions that have occurred in that context has been disappointing, yes. But also eye-opening as an opportunity for an area that we probably need to investigate further. And how to work better in order to ensure the public health by allowing the advances in research to be appropriately placed in populations. And that of course is a collaborative effort not only on the part of the NIH, which focuses on research and research advancement, but also on the public health infrastructure in the United States that needs to be able to deliver the message and ultimately to promote the care going forward.

HWT: So, let's focus on COVID. I have just a handful of questions. And I know we've gone overtime. Do you have some more time? I promise it won't take too long.

RL: Yeah.

HWT: So, going back to March 2020, can you describe the first month of shutdown at the Clinical Center? And what the response of the Clinical Center was?

RL: Well, it certainly was a period of uncertainty with respect to, well, how are we going to go about our business? And clearly, the decision was made to protect our patients by eliminating elective surgeries and restricting admissions to the Clinical Center for individuals who were not really in need of immediate evaluation or interventions. Now, having done that, of course, one then decreases the patient population available for our clinical trainees to work with. And for us in graduate medical education, the issue was well, wait a minute. What are we going to do with respect to supporting our trainees who are dependent on a volume of patients to allow them to acquire the appropriate knowledge and to acquire the appropriate skills with respect to becoming competent in clinical medicine, number one. But number two, folks who were already in their research training years, if protocols were completely shut down, what were they going to do, because there was no research activity.

And so, we did have to have a number of discussions about how to mitigate these downsides. I think the good thing for us was that we were able to work with our extramural training partners in the greater metropolitan DC area continuing the ability of our clinical fellows to rotate outside the NIH, to work with patients, of course assuring that the environments were as safe as they possibly could be before the vaccines were rolled out for our trainees. So, making sure that the appropriate procedures were in place, the appropriate protective equipment was available to them so they could rotate out and continue direct engagement in patient care and clinical training. And we also had to think about other ways to teach about patient care.

And that's where telemedicine really came into play early in the process, whereby we could really have visits for protocol patients through the use of long-distance communication technologies that would allow clinical fellows to have patient interactions. I mean, obviously not hands-on patient interactions, but patient interactions, to get involved or to engage the patients in discussions about their clinical course of disease. But also, to continue to make sure that patients enrolled in protocols were a part of the ongoing research process that they were engaged in.

So, the pivot to telehealth was important in that regard. But the technology was also instructionally important. Whereby we could have either didactic conferences and patient management rounds through, again, use of long-distance technologies. We could also use other institutions' educational activities and include our clinical fellows in teleconference discussions and other learning activities where in-person presence, direct in-person presence, was not necessary. But whereby knowledge could be advanced through a collective discussion.

So, the Clinical Center was able to ramp up those processes to permit telehealth visits as well as teleconferencing. And that was an extremely important aspect of our adjustment to the COVID mitigation strategies that had to be in place early on.

HWT: And I wanted to ask you specifically to discuss the impact of COVID and the lockdown particularly on internships, postbaccalaureates, the medical research scholarship program,

as well as on lectures and continuing medical education opportunities. What trends did you notice?

RL: So, we've been able to preserve the Medical Research Scholars Program [MRSP] largely as designed. And that program was not substantially interfered with because you're probably aware that the MRSP is a residential program on the NIH campus. We were able to have the students on campus with the appropriate mitigation strategies in place. So that was not interfered with. The Clinical Electives Program where visiting medical students from other institutions came for short term clinically-oriented elective rotations had to be suspended. There really was no way around that decision in order to protect our patients and staff. Could not have individuals coming to the Clinical Center when in fact they could be vectors for spread of COVID. So that had to be suspended. It has since started to open up in a limited way. But that was certainly something that visiting medical students were disappointed with. But I have to say, because travel was restricted from their own medical school sites, this was not a huge issue from their perspective in terms of decreasing interest in our training programs. So, the important thing that we saw was that for our graduate medical education programs, there was continued interest in coming to the NIH for training during the pandemic.

And then the other thing, of course, that we had to shift was our focus with continuing medical education. As you know, we previously would be inviting guest speakers to come and spend some time visiting with us as well as give in-person lectures. And then we had to convert that essentially into a series of live virtual Zoom presentations. But,

interestingly enough, the audience for those Zoom presentations expanded tremendously both within the confines of the NIH and extramurally. And the number of viewers to NIH Clinical Center weekly grand rounds presentations increased spectacularly. As did the number of trainees who were able to participate in teleconference learning, as well as the number of faculty members who were able to provide that education. So, I guess as we're probably all familiar in life, when one door closes, another door opens. And interestingly enough, I think we are going to incorporate, continue to incorporate, either telemedicine and/or teleconferencing in our graduate medical education programs and, perhaps, our continuing medical education offerings. Telemedicine engagement is also going to have to be thought of in terms of what the ACGME is going to permit us to do for training purposes, because for the most part, and appropriately so, the ACGME is committed to hands-on training for individuals engaged in graduate medical education training programs. But on the other hand, there is benefit, and I think we have understood the benefit, for long-distance care provided through telecommunication technology. And that mitigates several issues that relate to challenges with bringing patients to us on campus, connecting with them on a regular basis, making life a lot easier for patients, our investigators, and our clinical fellows, and also enhancing supervision in the learning environment. I mean, you can supervise telehealth visits in real time with the appropriate faculty resources. So, I do think there's a role for that going forward.

HWT: It's true in pretty much any field I've noticed that Zoom has that double edge today because of COVID. So unfortunate things because of lockdown. But on the other hand, an expanded audience. So, you mentioned that you had created a subcommittee focused

on wellbeing and wellness at the Clinical Center during COVID. Is there anything else you want to add in terms of COVID's effect on the staff or during the first couple months of lockdown what the atmosphere was like?

RL: Yeah, I think it was a huge stressor. For both our clinical fellows as well as our staff clinicians. Because some of them had to work as scheduled teams. They couldn't all be in the building at the same time given COVID mitigation strategies in the work environment. It was certainly a challenge for nursing staff. So those were tough times. And I do think that individuals were under significant personal and professional stress during those times. Some of our senior-level clinical trainees were in the process of trying to get a job as their time in training at NIH was coming to a close. And all of a sudden, the world changed for them. Which was, well, who was offering jobs in the midst of the pandemic, and what sort of jobs were available when academic medical centers were trying to deal with the influx of COVID patients? And could they finish their research at NIH in appropriate time and publish their results prior to completing their training here? So, it was certainly stressful based on our assessment of clinical fellows through surveys and direct discussions. It was a tough time for many of them. Also, some of them were parents. And they couldn't send their kids to school. So, what were they going to do as physicians with children at home? Poignantly, one of our clinical fellows had to cancel her marriage ceremony, their wedding, because it couldn't be hosted during COVID.

So, these sorts of things, I think, took a toll. But the good news is that I think resilience is hard baked into physicians. And I do think that individuals were able to adapt. Not always easily, but they were able to adapt and continue to move forward.

HWT: Is there anything else that you think is important about the COVID experience to mention now?

RL: Well, I do think that it appropriately raised the larger issue of awareness on wellbeing. Not that there wasn't concern about issues like physician burnout and suicide before. That happened. But certainly, I think COVID focused the minds of many individuals about the health and the welfare of healthcare providers. So, I think that that is a good thing. And I do think that NIH has done a really good job in recognizing the need for support and being able to provide that support to its trainees and staff.

Now as we slowly exit the pandemic, I think that the issues continue to revolve around how are we going to get back to normal, and what is the new normal here? What are we going to get back into with respect to what we can provide and what can we support for our clinical fellows and staff clinicians? With respect to our patient care activities as well as our training resources?

What we saw this past year was a fall-off in the number of applications to our graduate medical education programs. And I think that reflects the fact that there is uncertainty from people about changing location in the midst of a COVID-uncertain world and

changing venues for training in the short term. And so, I think we have to be prepared to deal with that with respect to making sure that the high-quality clinical research training programs that we have on the campus continue. Making sure that our focus on risk mitigation continues. That providing the appropriate resources for learning including the patient population remains intact. So, I do think we still have to be vigilant, and we still have to be focused in making sure that we're able to get back to where we were pre-pandemic and hopefully expand on that vision post-pandemic. Not only for training purposes, but for ensuring the highest quality of care our patient care going forward.

HWT: And then as we wrap up, I wanted to ask you a couple of questions about mentoring, which we've spoken about a little bit. You've mentioned your parents. I know you won in 2014 what you mentioned was the very meaningful mentoring award. And I want to just know what is important to know about mentoring in your field? Why does it play such an active role?

RL: Well, I think it, not only in our field, but I think in every field. It's important for people to have a trusted individual, or a set of trusted individuals who are there for them and who are there to work with them so that they can achieve their potential. My sort of operational definition of a mentor is someone who permits his or her protegee to eclipse them in terms of accomplishments. And I think if the mentor is able to facilitate that process, then the mentor has done his or her job.

I think where we come into a little bit of a conflict is when the mentor sort of thinks that his or her career is the model for the protegee, that the protegee has to follow that model, as opposed to delving into and working with the strengths, the weaknesses, the potential for an individual to advance in his/her career, and thinking of ways, strategies, resources to mine that potential so that individual achieves the most in his or her life. And that could be personal life or professional life. In fact, I think it has to be both. And so, I do think that the mentor has to be an individual who has insight, who has flexibility, who has a high level of altruism and who's willing to give back, but not necessarily to be prescriptive.

HWT: Wonderful. I don't know if we have enough time, I wanted to ask you about early capture, which you mentioned for your Medical Research Scholars Program, which is your flagship, and has an intake generally of 50 students a year. Do you have time to discuss that program briefly?

RL: Well, I can to a limited extent, because I don't direct the program. When I was director of the Office of Clinical Research Training and Medical Education, I had oversight, but Dr. Tom Burklow was and still is directing the MRSP program. So, I can provide some information. I don't know that I can provide all the detailed information.

HWT: No worries. I know we have limited time. So, I just wanted to ask you one or two final questions. With regard to mentoring and just addressing young people in general, what would you say to them to encourage them, especially young scientists, to continue to

pursue their goals or seek out necessary resources? Especially sometimes in spite of setbacks or barriers that they might face.

RL: Yeah, so I think the primary characteristic is persistence. And that can be tough. Because we're well aware, through psychology research, that the concept of the imposter syndrome exists. Individuals who have self-doubts that they don't deserve to be in a place or deserve to be engaging in certain things. They tend to not appreciate their inherent potential, their accomplishments, etc. And so, I think we have to guard against that. Because that certainly feeds into undermining persistence. Failure is going to happen. We understand that. But dealing with failure, trying to provide the appropriate perspective for revising and reattacking an issue is extremely important. So, thinking about strategies, thinking about the mindset for that, and providing the encouragement. But also, being realistic with young trainees. And to allow them to have a focus, to be a sounding board for realistic approaches to certain things is important.

And that's where I'm saying that the quality of the mentor here is really, really important. Because it can be easy sometimes to basically say to somebody, "Don't go there. Don't really do that." But we've learned, the road less traveled sometimes is the pathway to success. And sometimes taking the road less traveled is pretty intimidating, not so easy, and takes time and effort to navigate.

So, I think it is important in a program like the MRSP program to have the appropriate mentors in place. The appropriate perspective being provided by individuals who've had

successes and failures and can share their experiences. So having a program of shared discussions with individuals who are accomplished, but yet faced barriers is also an important part of the process.

And then lastly, trying to have successes. And those can be small successes. But small successes tend to breed additional successes, which can be larger successes. So, creating a track record of success is also important. And again, I mean, yes, it involves the mentor. But in the end, it's really up to the student to put the sweat equity into the process and to achieve the outcome.

HWT: Wonderful. Well, before we sign off, I want to ask you if there's anything that we haven't discussed about the Clinical Center and your time there in particular that you feel is important to add.

RL: Well, I would just say it's been probably the best experience, professional experience of my life. And I am very grateful to those who made it happen. Michael Gottesman, John Gallin, Fred Ognibene, Jim Gilman. And I really appreciate all of their support for allowing me to essentially "do my thing." And hopefully I've provided them with outcomes that they're pleased with, also.

HWT: Thank you so much for your time. I've really enjoyed it and I appreciate your going over.

RL: You're welcome.

HWT: Okay. Have a good day.

RL: Bye bye.

HWT: Bye.

[End Interview.]