NIDCR Oral History Project

Interview with Dr. Lois Cohen

Conducted on August 30, 2023 by Kenneth Durr

KD: This is an interview with Dr. Lois Cohen for the NIDCR Oral History Project. Today is August 30, 2023, and I'm Kenneth Durr. Dr. Cohen, so good to talk to you today.

LC: Thank you for this opportunity to get to know you and to talk about the Institute's history.

KD: Since we're doing the history, let's go back a bit in your history and sort of lay the groundwork. You did your undergrad at Penn, is that correct?

LC: Yes, the University of Pennsylvania. In those days, it was the College for Women and I finished in 1960 with a bachelor's degree that had a major in sociology.

KD What got you interested in sociology deep down?

LC: Well, it was a bit accidental in the sense that when I started out I was in a liberal arts curriculum and took a little bit of this and a little of that. But in my sophomore year, I had the opportunity to study abroad in Israel when the country was only nine years old. Had extraordinary experiences there working and studying. It was a work-study kind of curriculum, and I was exposed to the absorption of new immigrants into that state in its early history.

And in fact, I was assigned as part of my work program to an absorption village near the Negev of a community of Jewish people who came from the island of Djerba, off Tunisia, and I became acquainted with their culture, sometimes in very startling ways that I was not sort of used to at all and so became curious.

The whole experience during that year in most situations that I worked on a kibbutz or in a moshav or new immigrant village, or even in the university in the department of social psychology, they gave me insights into some interests. And it turns out when I returned to Penn, they returned me as a junior, but at that time you're supposed to declare a major and in my absence they decided—in my freshman year I had Sociology 100 and Sociology 101 and so they just gave me a major—and I went along with it.

KD: So Penn made you a sociologist.

LC: Penn made me a budding sociologist. But then I couldn't get a job with a bachelor's degree, and I had married at that point to someone who was in a PhD program (in immunology, not in the social sciences) at Purdue University, and in West Lafayette, Indiana, I certainly couldn't get a job with a bachelor's, so I went on and got my master's and then my PhD.

KD: Where did you do your PhD work?

LC: I did my PhD at Purdue University, my master's and PhD were at Purdue. And it was a wonderful program, a very broad-brush program. But interestingly, I hadn't done any work in medical sociology. I actually did more work in the field of demography, since as an undergraduate I had a work experience with Dorothy Swain Thomas, who was long gone but a well-known demographer.

So I finished my master's, again building on a bachelor's dissertation which we had to do to obtain an honors degree at the University of Pennsylvania, so I built on demography skills. And then even in my PhD I dealt more as a demographer.

But when my husband was offered a job at National Institutes of Health, I began looking. And it was then that one of my professors had a connection to the National Institute of Mental Health,

where they had a unit on sociomedical sciences. And they didn't have an opening. I interviewed there, and they didn't have a vacancy, but they said part of their unit was absorbed by the division of dental public health down the street in the Bureau of State Services in a different arm, a different agency of the Department of Health, Education and Welfare, as we were known in those days.

So I went to interview over there because they had a vacancy, and they were interested in me even without health sociology in my background. But they also—it took about four months to get my papers processed, and they said to me would I mind going over to Howard University Department of Sociology and Anthropology for that semester. They had an emergency. Someone became ill in the middle, two weeks into the semester, and would I take over those classes.

This was the spring of 1964, a very historic time for Howard and the whole civil rights movement, and I was fortunate enough to be asked to take over the class, two classes in Introductory Sociology. But two sections of a class called Collective Behavior, which is another name for Social Movements. So that was a rather exciting time for me.

And interestingly enough, as a sideline, Stokley Carmichael, who was then the head of the Student Non-Violent Coordinating Committee, he was a graduating senior in one of those sections in Collective Behavior.

KD: Hmm. The guy who coined the term "black power."

LC: Yes, I learned a lot in that one-semester experience while I was waiting for my job in the Public Health Service to open up.

KD: One of the early projects you did for the PHS was a fluoridation study on reception to fluoridation. Tell me about that.

LC: Well actually, the very first studies were more in early detection of oral cancer. Those were the first studies, and I wanted to start with that because the government had, in that division in particular, in the Bureau of State Services, that was a predecessor organization that doesn't exist today, but they had spent a great deal of money with the state health departments to try to get dentists to look at the soft tissue of the mouth.

And they had used a cytology technique developed by the Veterans Administration to take those smears in the soft tissue in the hopes that they could detect early stage oral cancer before they saw a lesion that needed biopsy. Because by the time they saw the lesion visibly, it was too late to do anything.

So they needed social scientists to deal with this problem because they spent a great deal of money. They paid for the cytology tests to go through the pathology labs and the biopsies to go through the ... But they found when they withdrew the money from the states, not intentionally but the money ran out, and they looked to see the uptake, it fell way off. Dentists weren't doing this anymore. They did it while they were being paid, but didn't retain or sustain that behavior.

So it took some social scientists to do the research to find out what were the issues involved. So some of the things that we learned in the process of doing this kind of research, and I can go into that if you want to know what kinds we did, but basically we learned that dentists at the time were not trained to look at soft tissue at all; they were, indeed, afraid to do it.

KD: Why?

LC: Because a lot of them were recruited into the dental field because they had this notion that dentistry was a 9 to 5 occupation that you did not deal with life/death issues. You could go in, fix the hard tissue, go home to your family and lead your personal life. You didn't have to worry

about those life/death issues hanging over you. And they much preferred to see something, they would refer it for biopsy, to a physician to do the biopsy.

So that was part of the problem. The kinds of people that they recruited to the profession did not feel comfortable with the life/death issues. They were not taught soft tissue in school. So really in the Sixties we were faced with a workforce who had been educated earlier in the Sixties even, and they were taught hard tissue primarily.

And then we learned a lot about how they get information. They get information from their study club colleagues, or primarily through dental detail people that visit their offices—much like academics I knew at the time who get information from book salesmen who come to your office. They sort of relay information that they find in other universities, in this case, other dental offices that they sell. And so we, in fact, initiated a study simulating dental supply people to "sell information," quote, to dentists to try to get them to adopt new innovations and to use colleagues to help them reinforce new innovation adoptions.

So that was my first exposure, early detection of oral cancer. And today it's very interesting because we still have some of those same issues, quite not the same at all because the detection technology has improved, and also the curriculum has improved. But there are always new variations. Like there's HPV-associated oral cancers that people have to look for and hadn't looked for before. So there are still issues in detection of oral cancer.

But then when that innovation dried up, that's when we looked at other issues related to the community adoption of water fluoridation, and that's what you started to ask me. And that also was a local issue, not a ... Well, the implementation of community water fluoridation is still to

this day an issue of local implementation, either by the local water-supply companies or the local jurisdiction, city/town jurisdiction, but not so much a national issue.

KD: Did you do questionnaires, that kind of thing?

LC: Well, we did lots of things. We had, in those days, done a lot of public opinion surveying. We used to work with the National Opinion Research Center out of the University of Chicago. And would buy segments of national public opinion surveys of adults, area probability samples, and we'd buy, say, ten minutes' worth and we'd try to survey the public on issues that had a national significance.

And of course, we would ask about water fluoridation. What did the public know about it? Because there was lots of misinformation just like today there's misinformation about COVID and vaccines and that type of thing and even today about community water fluoridation.

And interestingly, they'd say, "Oh yeah" ... if they ticked off "yes, they knew about it," we'd ask, "Well, what about it?" And it turned out, for example, surprisingly, that a lot of people thought it was like Florient. Florient at the time was a room deodorizer. They heard "flor" and they associated the room deodorizer with water fluoridation. So they had no real understanding of what water fluoridation was all about.

So those kinds of public opinion surveys revealed information about even gender and dentistry. For example, a lot of them never saw a woman dentist, and if they did, we wanted to know what they thought about the care they received. It turns out if they happened to have had a woman provide dental care, then they were more likely to accept it. So it was a lot of this knowledge and attitude that we were trying to delve into in those public opinion surveys on a variety of issues that our division had responsibility for.

We were sitting in a division that had responsibility for the workforce because there was a national shortage of all kinds of health professionals at that time—physicians and dentists and pharmacists and auxiliary personnel, nurses, everybody—so they were investing in building new schools for the health professionals as well, so we were delving into public opinion that dealt with workforce issues as well as the specific issues about community-based prevention modalities, like community water fluoridation.

KD: What kind of recommendations were you able to make? Let's talk about the workforce issue you raised. You're providing the information that people need to say that there's a workforce shortage, I guess. What kind of recommendations could you follow up with?

LC: We were looking at gender, for example, since dentistry was, you could say almost totally—just a tiny, tiny percentage of women in the workforce. There were lots of women in auxiliary personnel, but we also found out that their half life there was about seven years. They were recruited, trained as hygienists or assistants, and then sort of left the workforce with marriage. High turnover. Constantly having to recruit.

I'm not sure that has changed all that much with the support personnel, but we have been able to change the workforce with respect to gender in dentistry; it's really amazing. And we were able to make those suggestions, and it really reverberated with the American Dental Education Association. We worked closely with them, and they've done a terrific job, particularly with the help of at the time the only woman dental dean in the United States, Dr. Jeanne Sinkford, who was dean at Howard University for about 16, 17 years.

And when she stepped down from her deanship, she was recruited by the Dental Education Association and continued that work to build gender equity in the health professions education

space. And really we owe her so much because during her tenure, not only were women recruited to the dental schools but we have had women in leadership positions in dental education—chairmen of departments, deans of dental schools. Many also went further into health professions and then general education administration and became university presidents and that type of thing.

So that group, and also a group out of Drexel University called ELAM, which trains women in leadership in academic medicine, executive leadership in academic medicine. They were a major force too. So you have to really make these recommendations, then that leads them to sit; you have to work with outside groups to make things happen.

You have to partner with entities. The government itself cannot act alone and was powerless, really, with water fluoridation because, as I said, decision making is at the local level, and they can't mandate anything like that. They can do incentives; they can be a provider of information; they can set up clearinghouses; they can do census; but they can't make things happen all the time, nor should they. You decentralized and partnered with the entities that can make these things happen.

KD: Speaking of partnering, you were involved somewhere in here with an international collaborative study on dental manpower.

LC: Yes, that was very pivotal in my own growth and also I think in our institutional history of global health research, global oral health research. It was during the Nixon administration, interestingly enough. President Nixon opened up China with Henry Kissinger and others, but also opened up our opportunities to work globally. Before that time, we were really primarily focused nationally on what we did in the research space.

But when he proposed that the U.S. have a national health program, he wasn't necessarily the first to propose it, but it was quite serious. He had a proposal that was much aligned with what Japan had operationally. And then Ted Kennedy, Congressman Ted Kennedy, had a proposal that was much aligned with say the British system. And we knew that we were going to be asked in the dental area what did we propose for national health? How were we envisioning this?

Well, this was quite startling from our perspective, because we had fee-for-service only. We had such a minimal amount of dental insurance in the United States. We had one person assigned to it in our division to monitor how much dental insurance: who was doing what, how many people were covered. One person, that's all there was. So we had to think of models outside the United States.

There were countries outside the United States, and Japan and the UK were examples, but there were many others that we had to look at, that could give us some clues about what were the structural characteristics of those systems that had been in existence and arbitrarily we said let's look at systems that had been there at least 25 years so we could get a notion about impact and affect on health outcomes, and specifically oral health outcomes. What systems existed that had a dental component embedded in their national health program?

And how could we do that? Well, we approached our partner—that is, since the partner of the U.S. government was none other than the World Health Organization. We had a dental component in the World Health Organization since the World Health Organization and NIDR at the time first developed in 1948. Both organizations were founded post-World War II to recoup from the war effort. So we had helped, apparently—this was before my time, I was only 10 years old then—to have oral health embedded in WHO. So we helped them with their indicators that

they could measure dental caries and oral hygiene and periodontal disease incidence and prevalence worldwide, so we had sent consultants to WHO to start that effort.

Well, when I came along and we were faced with this in the late Sixties, my director had connections to WHO. I didn't have those directly, but John Green, who was eventually our Chief Dental Officer and Assistant Surgeon General, he had connections with his counterpart at WHO. And this was during the Cold War, and interestingly, that connection was Vladimir Rudko, a Russian national who was head of oral health at WHO in Geneva.

So John Green approached his counterpart during the Cold War with this idea that we had to launch an international collaborative study of oral healthcare systems that looked at the structural characteristics of these systems and measured the oral health outcomes. And the Russian, Vladimir Rudko, was very enthusiastic about it, and we were delighted because some of the systems that we were interested in were behind the Iron Curtain. Why? Because they had poly clinics, which resembled our neighborhood health centers, where everybody was in one place. Physicians and dentists and pharmacists, nurses, they were all in one place and they were providing health care like neighborhood health centers did at that time.

So we were delighted. There was an okay, we were cleared by the White House and we were cleared through WHO channels, and we could begin with a 2 and 1/2 year planning exercise where we could bring together ... Well, we had to site visit, of course, more than a dozen countries where we thought this existed and try to get their interest and okay. They had to say yes, they were interested.

And we also, interestingly enough, not only had to get permission from governments, we had to get permission from their national dental associations. So the International Dental Federation,

known as the FDI, the Federation Dentaire Internationale, became a partner also in this exercise, as did the International Association for Dental Research and WHO. We all partnered, and we all tried to figure out how to do this. And we visited these systems and came eventually to ten countries that agreed and the systems ranged from private practice fee-for-service systems like our own.

We participated, as did Australia. And the New South Wales area of Australia and the Baltimore Metropolitan and non-metropolitan area were sampling areas in the U.S. And we included all the way to the Eastern European models. At the time, we had Bulgaria, but in the end, Bulgaria had to drop out for some political internal reasons, but we did have Poland and East Germany.

And at the time, the German Democratic Republic and West Germany, they were two separate countries. So that was very interesting, because we also had West Germany. West Germany, it turns out, is the oldest health insurance system in the world from Bismark's time, and it was just fascinating to look at both the West German model and the East German model. So we had Poland and East Germany.

We had New Zealand, which was a famous model that had two-year trained dental nurses that populated every school in New Zealand, and that system existed since World War I because the soldiers couldn't bite the bullet in World War I and they realized they had to find out how to strengthen this structure here and they started a two-year trained nurse program, and they put it in every elementary school in New Zealand. It was quite famous. It was replicated in some of the South Pacific islands and was promoted actually for this country in the L.A. area. One of the deans nearly got fired for promoting it in the Southern California area.

KD: So this is a very large all-encompassing study. Did you end up with a report and recommendations?

LC: Yes. We had two such studies, believe it or not. We started planning in 1970, roughly, and we had two huge studies and reported out into the Eighties. We had two monographs that reported, the first one published by the World Health Organization and Quintessence published it, the first ten countries. And then we had a second follow-up study on some of the same countries and some new ones, and that was published by the Center for Health Administration Studies out of the University of Chicago

KD: When you were doing all of this, at the same time you were publishing and doing academic-type publications. I noticed one which was intriguing. It seems like you came up with this concept of socio-dental indicators. Tell me about those.

LC: That was fascinating. One of our training grants ... In those days in the Division of Dental Public Health, we also had the responsibility for research grants and research training grants, just the way the National Institute of Dental Research at the time they started out, NIDR was strictly biomedical research and the division that I was in was doing the epidemiology and the health services research, behavioral, social science research that I described before. So we were doing the other part of it.

Later on, we were amalgamated with the NIDCR—and I'll get to that in a minute—but while we were still in the Bureau of State Services and later moved into the Health Resources Administration, we were responsible for research training. And one of the research training grants was at the School of Public Health at Columbia University in New York.

And professor, the late Jack Ellinson, was head of the Socio-Medical Sciences program that received that grant. He was the principal investigator. And he trained a number of investigators who later came to work with us. One of them was Jim Lipton, a dentist PhD in sociology, and the other was Jackson Brown, an economist joint PhD. These people were training people who had two hats. They had dental expertise (they could be hygienists, too, he trained) but then they also got a doctoral degree in the social sciences.

One of Jack's Ellinson's efforts at Columbia was in sociomedical indicators. And he had a person from Queensland, Australia, by the name of John Jago, training with him at Columbia, and Jack asked me to work with John Jago in the dental area, because he needed some more dental expertise and in particular another sociologist to work with him.

So John Jago and I did sort of a systematic analysis: are there dental indicators that are akin to socio-medical indicators? The only indicators that we came up with were strictly what they called epidemiological indicators, how many holes in the mouth are there—holes in the teeth there are, and how much debris and calculus there is in the mouth—but nothing that would measure what the impact of that is. In other words, what medical indicators were beginning to explore.

What Jack was trying to explore in the medical area was function. You can't measure headaches so well, but you can measure whether those headaches are having an effect on your daily work and daily function. Can you eat? Can you talk? Can you go to school? Can you go to work? Or is that medical condition or dental condition causing you some disabling function?

So that early work on sociomedical indicators started us to think about socio-dental indicators. So that early paper that John Jago did stimulated our investment in research grants that looked at

the quality of daily life indicators in the dental area. They became known as oral health-related quality of life measures, and we have quite a large literature now that looks at interventions more in terms of functional outcome.

And why is that important? Because policymakers, they don't care about holes in the teeth and debris and calculus; they want to know whether it's going to impact the days lost from school for the children and consequently days lost from work for economic productivity. So if you talk to a policymaker about what poor oral health means, it means productivity to the workforce. They care about issues like that and they care about whether kids die or adults die.

And yes, you can die from oral disease. We found out in Baltimore that Diamonte Driver died because an oral infection went to his brain and he died. And a health journalist wrote it up and followed it in the "Washington Post." And Elijah Cummings, who represented us in Congress, was able to do something about that and led to oral health being covered for children under Medicaid. That's an example of if you drive home what matters to the policymaker, eventually the research that you can do will facilitate other people—not necessarily you personally or the researcher personally—but you grow a partnership and you grow that body of knowledge, that evidence base, so that impacts policymakers' decisions.

KD: This is fascinating stuff. You accomplished a lot. You clearly came to some important realizations that had big implications, and all before you came to NIDR. So let's get you there. Did David Scott ask you to come?

LC: Yes, very much. Because remember I was talking about the bolus of research that was applied research was happening outside of NIDR? And this is true of a lot of the institutes at NIH. They started out basically in the biomedical area but increasingly became more applied and widened

their portfolios to include more translational, applied, and implementation science. And dental was no different.

And in 1976, when parts of the Public Health Service arm of HEW were being reorganized, there was much discussion between Seymour Kreshover, the then-Director, before Dave Scott, and our Director of the division, Byron Diefenbach, I believe, was that last Director, about the amalgamation and which aspects of our portfolio could be absorbed by the NIH.

Prior to absorbing the behavioral and social sciences, they already had absorbed materials, restorative materials and epidemiology. The Division of Dental Health at the time had a dental health center out in San Francisco on the grounds of the Presidio, over 100 people. We were doing education research as well as materials science, epidemiology, all sorts of things. We also had a unit in Louisville, Kentucky, doing manpower development and four-handed dentistry, experimenting with auxiliary team science, using auxiliaries. At that time early on there was solo dentistry without teams. Then we were experimenting with teams.

And we had people in ten regional offices, so it was quite a large operation. But NIH started to absorb the research components and then finally in 1976 they asked me to come. Actually, Sy Kreshover asked me to come and work with the National Caries Program early on, and they did recruit Hersh Horowitz and Alice Horowitz and Ruth Nowjack-Raymer earlier into the National Caries Program.

And then Sy retired, and Dave Scott came back from his deanship from Case Western. He came back. He was originally intramural NIDR. He started his career there in caries and water fluoridation. And he, at the suggestion of John Green, who was then Chief Dental Officer and Assistant Surgeon General—

Dave was interested in expanding into the social sciences. John said, "Well, you should recruit Lois Cohen, who's over there." And we met and Dave asked me to make a presentation before the National Advisory Dental Research Council that was advising him, and the Council unanimously wanted to include the behavioral and social sciences in the portfolio, so I was recruited as Dave's special assistant.

I didn't start out with the behavioral hat, so to speak. He had Aaron Ganz, and then we recruited Patricia Bryant, psychologist. Aaron was already working on pain management; Pat was recruited for social psychology in extramural program. And we had Ron Dubner in intramural, who was doing some basic science and neuroscience in intramural, so it was a natural that they grow the extramural portion with the intramural compatible.

So I didn't go to extramural, I went to be Dave Scott's special assistant so I could look at the total investment of the Institute in the behavioral, across all parts, and pain was just one of them, and we started to build a broader portfolio across all our interest areas. So I started out basically helping him in the area of planning, strategic planning, and evaluation in addition to putting behavioral social science and planting the seeds across the Institute.

KD: Am I right in hearing you say that when we talk about social science in NIDR that the beachhead was in the pain management with Ron Dubner?

LC: Well, it was I'd say extramurally. We had most of our money, over 80-some percent ... Even now, our budget is extramural investments. So when we talk about NIDR's impact, most of it is extramural, say 11, 12 percent is done inside and then the rest is administrative costs. But extramurally, what Aaron Ganz and Pat Bryant did, really seeded this across the country.

And a lot of the portfolio that we had seeded already, the research training investment in particular that we had seeded from the other part of the government, was very important in informing the bolus of new investments from the NIH. So we didn't start totally from scratch. We had the existing—

In universities, we had investments at Harvard in the School of Public Health. We had investment at Columbia, which I mentioned, at their School of Public Health. State University of New York at Buffalo had, in their dental school, had a bolus of support. A lot in pain, but also social psychology and behavioral change. At the University of Pittsburgh we had an investment in education research, and at Texas we had more social psychology.

So we had bits and pieces already there to stimulate, and we had also started a group within the International Association of Dental Research of behavioral scientists in dental research, the second or third interest group of that association, which was also very important because you have to network those people.

It's an interdisciplinary area to start out with. If you think of it, we had medical anthropology, a little bit of that. We had social psychology and psychology, a lot more of that. Education research, sociologists, political scientists, economists, even some social geographers at times. We had all of that. And health services researchers. We had operations system researchers, as I recall.

We had all of those people and they had to be networked because they collaborate together to do this. They're not like lab scientists in those days, you sit with your microscope and you do your research by yourself. It's a team science, much of it, because you have to network. It's a different kind of science, so that's why it was important for us to set that up at the International Association of Dental Research. And today it's one of the larger groups of the IADR.

KD: Within the Institute, you compared and contrasted with medical researchers, more biology-based researchers. You said the Council was fully behind this, but were there issues regarding budget? Was the budget growing at this time? Were you able to build that way, or were there contests over resources with the more established researchers?

LC: That's a wonderful question, because that continues till this day. Yes, it's a matter ... it's always a balancing act, it's true. Everybody's afraid of losing resources. The budget never increases to the extent that you need it. We think of today, with COVID, and how fast we were able, NIH, the institutional we, with the COVID vaccine. But we need to have enough money also to have invested in science communications. We had a wonderful spokesman in Tony Fauci. But when talking about the whole notion of science communication and vaccine hesitancy and vaccine literacy and health literacy in general, yes, we had some investment, but nowhere near the investment needed.

So we're always having this discussion. Yes, we have to increase your investment. And even today, as helping the Institute today in our investments with regard to global health research investment, we still have this undercurrent of people who are afraid it's going to take away from our national investment. We have that same discussion of getting some kind of balance, and it's never exactly right.

KD: Let's shift a little bit and talk about the planning and evaluation function that you were also doing for David Scott. You're essentially looking at how to shape NIDR, how to move it forward in various ways. Talk about some of the initiatives you undertook.

LC: Well, one of the first he asked me to do was one that was under scrutiny by the General Accounting Office and by other entities at the behest of the constituency and the Congress was

the National Caries Program. Under Sy Kreshover—he asked Congress and got $5 million, at that time $5 million was a big bolus increase in our budget—to target the national caries situation. He felt like in ten years' time we could deal with this situation and eradicate caries. We still haven't, but he thought.

So a lot of people were looking at us, and Dave Scott was astute enough to know we should be doing our own evaluation. So not only should we always be doing strategic planning for the Institute, and this is true NIH-wide and any agency has to do it, but at the very same time we need to evaluate and set in motion an evaluation to see if we're meeting our goals.

So as a sociologist, I come with evaluation research skills, and so he asked me to use those skills to evaluate the National Caries Program. and it was a good match in the sense that the National Caries Program was tasked to develop research, all the way from the bench to the population. Were we investing in bench research? And what kind of research was it yielding? And what kind of translational research were we investing in and what benefits was that, community-based, what kind of benefits?

So I had to look across the whole portfolio, and used panels of outside experts who would, project by project, look at all our investments, develop some criteria and look at the outcomes and say whether we were on track or not.

KD: What did you find?

LC: So we were looking at our investments and we were probably sort of not there yet. I remember looking at the research investments on vaccines because there was a portion of the budget focused on vaccines and whether that was judicious or not. But it turned out that there was evidence that the public, even at that point, had some views about vaccine hesitancy, and this

was not a life/death for the majority of population. Would they take a caries vaccine? So this was one of the balancing acts, and I must say, in the beginning there were panels convened of people to say whether we should continue investing in that area.

Sugar was another area, because sugar is a major contributor to caries. And there were panels looking at how we dealt with sugar. And the American Dental Association had convened a panel on nutrition, diet, and oral health, and was involved with us, too, because we were working with the manufacturers and the sugar industry in kind of a partnership with the neutral body of the American Dental Association being involved.

And they were very influential in developing noncariogenic sugar substitutes. And at the time, that was viewed as perhaps the way to go because they didn't feel like the caries program was resourced enough to work on doing away with sugar, nor was it feasible, because sugar is endemic so much not only as what you eat but it's an ingredient that goes into the manufacturing process of a lot of products besides food in any culture.

The direction the caries program took was to work with the American Dental Association on the development of noncariogenic sugar substitutes as a potential avenue either to decrease the bad effects from sugar.

And then on the disease prevention/health promotion side, to beef up what was going on in that element of caries prevention, that is, the fluorides, and by hiring Hersh Horowitz and his team, and Alice Horowitz, who was health education, health promotion person. What they were doing, which promotes use of sealants at the time and various vehicles of fluoride varnish to promote that side of it was equally important. So it was suggestions of how to fine tune the portfolio.

KD: I know the GAO had some reservations. Did your study find some of those same problems with the National Caries Program?

LC: We were focused on how to refine the research investments. We didn't interact with GAO. They are independent, and as an employee, that wasn't my role to interact with them. They had to do an independent side. But they knew that we were fine-tuning as we were going along. And we took the same approach when we looked at periodontal disease investment.

That evaluation happened before I was responsible, that preceded me, but after I came on board, we did an evaluation of our craniofacial anomalies research portfolio, Dushanka Kleinman headed that up. And we did our restorative materials research investment. That was terribly important as well for fine-tuning what we were doing.

And Jim Lipton, remember I told you he was one of those trained in our research training in our Columbia, he came on as our evaluation lead/head at NIDR and he headed up the restorative materials research evaluation. And that was so important because that revealed to us how tied we are, and should be tied, to what was happening globally.

And it turns out today the global investment in alternative restorative materials is very important as the U.N. environmental program and the Minamata Convention has us reducing and phasing down on amalgam to be used in restorative materials. So we need to find alternatives that are as long lasting but don't contain mercury. Even though mercury in amalgam is not harmful, the supply of mercury is being diminished and we won't have access to that, so we must use alternative materials. But that also shed a light on why we have to invest in global.

KD: Let's broaden out just a bit and talk about NIDR sort of generally, the culture. Maybe we could start with talking about David Scott. He'd been there since the beginning. He worked with Trendley Dean. What kind of leader was he?

LC: He was marvelous, I loved working with him. He's just a down-to-earth human being who really felt, listened, he was a good manager. He listened to other employees, put you on an equal footing. Never demeaned anybody. I really enjoyed him. He was a listener and a quiet actor, took actions but quietly. Not a grandstander. I really had a great respect for him. I owe him a great deal because he taught me a lot about leading in a bureaucracy.

He was a lab leader years ago, but he obviously had leadership skills, because he was recruited to go to Case Western and then quickly rose to become dean of that dental school. So it's no surprise why the search committee at the time selected him to succeed Sy Kreshover.

But he comes not only as a wonderful collaborative-style leader, but he came with a history in caries prevention, dental caries prevention and fluoride from the Trendley Dean training and that was important because he had a sincere interest in furthering what Sy Kreshover started, you know, the fluoride. Let's promote what we know, what the evidence shows, and do it from a population basis, and that was very important.

KD: Now how about Harald Löe. The historical record suggests that he was a bit more of a public figure. He put himself out to a greater extent than David Scott would.

LC: Yes. And he, too, was important and a person of his time from many points of view. He was a personal friend before he became Director. I knew him as a colleague and he was a leader in the periodontal research field and oral hygiene, and testing and promoting chlorhexidine, and so I became friendly with him. And he also was a leader in dental education.

Now, you have to realize, too, that there was a period in dental education where when we were building new schools and enhancing these schools that we had during that shortage area, we had a shortage of dental faculty in this country, so we recruited faculty from overseas. And a lot of Scandinavian dentist scientists were recruited, and Harald Löe was one of those. We didn't have so many dental scientists.

Dave Scott was one of those, Trendley Dean, but we had a lot of work to do to build our capacity, to build dental scientists, clinicians, trained dental clinicians who had degrees and competencies in dental science. So we took them from Scandinavia, put them in our dental schools, and that's how it came.

So know that about Harald. He came with that in his background, and he comes to NIDR and he sees that we're very caries-focused. We're very accomplished. We've done a lot. Why not expand that to include the periodontal tissue? After all, that's the other big area of dental science and we need to expand that.

Yes, we had some periodontal research here, sure. We were already investing in it. But he took the National Caries Program and he expanded it. He changed the name to Epidemiology, Oral Disease—E-O-D-P—and Prevention program.

KD: I thought that was the termination of the caries program, but you're saying that he just blew it up.

LC: He blew it up. He didn't destroy anything. He blew it up and expanded. He saw that as a budget-building exercise because ... And you'll see later on that subsequent Directors also built upon the base. They didn't blow it up; they built upon a secure base to build into other areas of science.

KD: Did you retain your planning function under Dr. Löe?

LC: Yes, I did for a while. I helped him as he was getting to know the Institute, because he didn't have federal government experience—in fact, he became a citizen immediately before he became Director. So he didn't come with that experience. He had lots of connections to the research community. He had been president, I believe, of the International Association of Dental Research, too, besides in dental education. So he certainly was well known on the global scene and the national scene.

KD: We were talking about where Dr. Löe was taking NIDR. And since you're in the planning function, you're helping him.

LC: I was helping him get the feel for the whole thing. And then what happened was that Marie Nylen retired and there was an opening in the Division of Extramural Research. Now that was I'd say the second most important job in the Institute because of what I said before. It was responsible for that 82 percent of the total appropriation. And in those days, which is not true today for the Division of Extramural Research because we have a flatter organization now, but in those days, that job entailed programming all the research grants, research training, scientific review, grants management, and all of contracts management—five entities.

And I forgot to say one other thing. When I took it over from Marie, I also had a sixth area that she didn't have, and that was international health. Remember, when I was moved from the other part of the Public Health Service to NIDR, I had international health. I was the only one doing that. So I had that as a second hat. All the time I was doing other things, I was doing international health.

When Harald Löe became Director, He asked me to officially assume the international health in addition to everything I was doing in the Office of Planning, Evaluation, and Communications.

He had me reorganize the front office, and we set up this OPEC, it was called, Office of Planning, Evaluation, and Communications. Everything in the front office except budget and administrative services. That was separated out. But planning, evaluation, all the communications functions, health education and health promotion and international health. That was all in OPEC.

So that's what I had first. And when Marie retired, that was a vacancy. It happened to be a senior executive position, and there were only two in the Institute at that time, so I competed for that because I had been at the top of my regular civil service rank, so I competed and then I got that position and so I had six functions in that role. From 1989 to 1998 I had those functions.

KD: You talked about NIDR being a flatter organization today. Can you explain what you mean by that?

LC: Yes. It means that there were few executive-level positions. It was kind of a triangle, and now we're a triangle, so it was much more hierarchical, as most bureaucracies are. And in line with the way the government was moving, we were trying to flatten out and make the leadership more collaborative. In order to do that, you have to flatten the bureaucracy a little more, make more people have responsible jobs where they partner with each other in a more collaborative—

So it means that you have more people in leadership jobs, but you're giving them more responsibility. You're delegating out. Not having a person like me have six roles. That's a lot. It was seven days, 24/7. Believe me, it was a lot of work.

So in line with what was happening in the whole Senior Executive Service of the whole government, we flattened the organization and delegate more to those. And that's what we have now more in all of the NIH institutes.

So in the Division of Extramural Research, they're responsible for programming, mostly, research grants. We have somebody separate programming and responsible for training. Somebody separate for grants management. Somebody separate for scientific review. And we had separated out international health before I retired. Harald Löe, who started that flattening process, he had taken that international function and moved it up to his office and created an Office of International Health so that it could have arms out to all, a total institute. It wasn't just in our extramural grants.

KD: This is fascinating, actually. So there was a big reorganization for the extramural program. It was thorough. It was about a year or two before ... it would have been '96, '97, something like that.

LC: '98. We began planning for it before that, but in '98, I moved out with the Office of International Health and moved to Hal Slavkin, back to the Office of Director directly, and they recruited somebody else for my old position, but then started separating out the functions, gradually. It was gradual. So during his tenure, and then continued under Larry Tabak when he came in 2000. So its was a gradual process. As people vacated, they got new people who were responsible and developed their—The job would be advertised at a Grade 15 level, whereas before it might have been at a 14 level.

KD: When you were running the extramural program and all this other stuff, what were some of the challenges as far as the type of grants you were making? You were talking before about how you were always thinking about which areas you're promoting and making sure you cover things. What were some of those top priorities at that point?

LC: One of the big challenges as soon as I got there was a budget problem. The budget got stuck a few times, and it wasn't growing. In fact, in terms of real operating money it was decreasing.

And I remember Harald Löe saying to me, at the next meeting of the International Association of Dental Research, where most of our grantees came, I needed to talk to them about this problem.

And I told them what I felt needed to be done about it, which was a little bit revolutionary. If we were stuck and had—I'd just come off strategic planning function in the Office of Director and I knew what the strategic plan was supposed to be for 1990 to 1995, a five-year plan, but we didn't have enough money to cover it. What were we going to do? And my thought was that we have to do collaborative funding.

Now up until this point, and this is NIH-wide, if you had an NIH grant, that was beautiful in terms of academia, they loved that, and it helped your tenure quest. If you had a grant from another source, it was considered lesser. If you had a commercial grant, it was not so good in terms of academic tenure. So if you had one from a private foundation, maybe it was okay. In many cases Howard Hughes, if you had one of those, that was a great bonus.

But if we had stagnant funding and we are interested in our grantee community and keeping them alive and growing them, the only way I saw it was going to happen is if we leveraged each others' support, leveraged collaborative funding. I had to bring this up not just to Harald Löe, but I went every week to my meeting of other Directors of Extramural Research with all the institute centers across NIH, and we reported to a Deputy Director for Extramural Research. I had to discuss it at that level.

They were all suffering the same thing, so they asked us to do a committee. We formed a committee across the NIH, a working group as I recall (it was called Models for Collaborative Funding) and tried to figure out how we were going to do this. First of all, we thought it hadn't been done before, and lo and behold, we developed a framework of what we were looking for.

We looked for examples of funding where federal agencies collaborated with each other—that's one kind. Where federal agencies collaborated with the not-for-profits, the foundations like the Cystic Fibrosis Foundation or Juvenile Diabetes Foundation.

Or where they collaborated with the for-profits—with big pharma, with giant foods, with the food industry. And we thought we wouldn't find examples. They were sort of low-profile examples. They were all legal, but we didn't know about them. We thought—in fact, some of our administrators thought, oh, that must not be possible. You can't collaborate with the food industry. You can't collaborate with big pharma.

But we found that we had models scattered throughout the agency where we were collaborating with the National Science Foundation, we were collaborating with Cystic Fibrosis, we were collaborating with giant foods. And we took those and we formed a working group. We had a framework where we had the models described and we put them into a compendium and we had some seminars—they were all in person at the time; we didn't have Zoom. We had all these opportunities for us to learn from each other just how you do collaborative funding.

And then I could go to my constituents at IADR and say, "Look, this is what we could do to collaborate. And maybe if we have two grants come in at the same priority score, maybe we should leverage our money and give the grant to the one who's collaboratively funding, who can leverage more money."

KD: How was that received?

LC: With shock. Because I thought they were going to react. There was some silence in the room, as I remember, and I was really a little shocked and taken aback. What did I say? Did I really offend some people? There were some people from industry in the room, too. They didn't expect it. And

I think it took people a while to understand what I was trying to say, but I think eventually they got it.

And also, I had the same approach with respect to funding international research, that it needed to be collaboratively funded. We were not going to totally fund, we were going to collaboratively fund. So when we did the international collaborative study, I learned this then, years before, that each country, even if they couldn't give the same amount, they gave in-kind support. We never fully funded that study. And even WHO, they don't fund. They have to give in-kind support too. Each entity has a different way of giving in-kind support. You could have the personnel but not the money to give. So that's the way we viewed it, as a collaboratively funded, collaboratively sponsored endeavor.

And so we started planning grants for international collaborative research to help people go through the process that it took us 2 and 1/2 years to do ourselves, but to help the grantees also plan protocols that have the same protocol but you have to have multiple players involved. It takes a lot more planning and resource allocation and resource designation in order to get that done.

KD: So would NIDR have been helping potential grantees find other sources of funding? Is that what you were doing?

LC: They were doing most of it themselves. We gave staff support as we knew, but our staff didn't necessarily know all the sources of support. It's like a grantee has an idea for a project. They have their sources of support. Maybe it's a foundation where they're working or maybe it's their university research foundation that can help. Maybe they have a partner in another country, and that country has their own funding source for their national research—sometimes it's

government, sometimes it's a private entity or a not-for-profit entity that funds their research. They know. But they know that they have to, if they're proposing a project, they don't ask us for the total amount. They have to show that in their budget they have other sources of support. And that helps with sustainability.

KD: And they can put the NIDR/NIH label on what they're doing as well, which helps them academically.

LC: Exactly. And it helps them also gain the support of other sponsors. Other sponsors seem to respect NIH because we are still probably the world's largest supporter of biomedical and behavioral research. They recognize that and if somebody is trying to gain our support, they'd like to partner, and we try to use that as an incentive, a carrot.

KD: How has that collaborative funding model gone? Has it worked and grown over the years?

LC: The planning grant has faded away because the subsequent Director, Dr. Tabak, wanted the global research to be embedded in all of the portfolios, and so he left it up to the individual Program Managers to stimulate that research. And there were some global initiatives in other parts of the NIH that we could partner. So those planning grants, as a mechanism, I don't think exist today. They could be revived if we need it, but that mechanism was started at that time when we were just seeding the program.

KD: Is NIDR, NIDCR, funding collaborative grants at this point?

LC: We are doing an assessment right now. Dr. D'Souza is very enthusiastic in terms of revitalizing our global impact. In fact, right before our meeting today, we had another meeting with one of our colleagues in the UK who is heading up a *Lancet* commission of global oral health in terms of getting some ideas about collaborative global oral health opportunities.

KD: What about beyond global, just in the extramural program generally? Does the collaborative model work?

LC: Yes, I think the collaborative model works nationally and globally. And also there's a fine line these days between global and local. It's much more reciprocal than it has been in the past. Years ago we talked about the global north and the global south, and today we talk about de-colonization where we don't necessarily impose the global north's views on the global south, and they're not really appropriate.

We want more equity in our portfolio, and we equity in learning, more reciprocal learning. Because we have much to learn from other countries, not only the highly industrialized countries, but what we call the lower- and middle-income countries often have situations and disease prevalence that we need to know, whether it's Ebola or HIV or COVID, whatever. They have, often, situations, too, where they use low-resource technologies that are simpler and easier when we use high-cost high technology. So we have a lot to learn in a reciprocal fashion, and there has to be, especially post-COVID, and I think Dr. D'Souza is the leader post-COVID in this sense, even though she came in during COVID, to lead a new view for global/local, global/national.

We have a reciprocal responsibility. And investment in global health research benefits both national and global actors and stakeholders. It's not one or the other anymore; it's all equal. That's what we're striving for, and not one or the other.

KD: Let's go back into the Nineties. In an interview Dr. Slavkin talked about the fact that shortly before he was coming in or as he was coming in there was some concern about the future of NIDR. Congress has it in its sights or something like that. Funding was threatened. Do you remember that?

LC: Oh yes, when I came in in ’89 to the job at Extramural, it was already beginning to happen. He came in ’95, I believe. So it was in the middle of it. It was a critical time where we’re thinking ... You heard talk at the NIH about condensing. We have too many institutes and centers. We have 27, maybe we don’t need so much. They are interrelated, the body is all together. We talk about systemic health and the mouth is part of that. So yes, we were very much afraid of being amalgamated. Sorry to use the term amalgam in that respect, double meaning, but we were concerned about that.

But he also, coming from the craniofacial portfolio as a grantee in that area and a leader in that area, and a former president of IADR also, he saw the possibility of building upon the base—not contracting but building. Not blowing up or being integrated and pushed together with another institute or center, but enlarging our scope and making sure ... You know craniofacial anomalies, whether they’re genetic, inherited, or acquired disabilities in the craniofacial complex, this belongs, and from the very beginning of our history they belonged to it. But it wasn’t reflected in our name, so other people, in that label, didn't see us that way. Labeling often has a lot to do with perception.

KD: Did you consult with Dr. Slavkin when he was thinking about this renaming? I would think it was a pretty big deal to say we’re going to do this.

LC: Yes, it was. We had, even from the social/behavioral science literature, evidence about the studies that were done about the face and the stigmatization that goes on. If something is wrong with your body, it turns out you could have a broken limb, but people are still focused on the face. They go to the face first, and then they look at other parts of the body. The stigma associated with disfigurement in the face is, in a way, more salient in people’s minds.

And using that kind of thing, stigmatization and the whole craniofacial complex ... You know years ago we did a lot more work than we do today probably (I'm just guessing) but we did a lot more years ago with the Department of Defense collaborating with them on acquired facial disfigurement because of war injuries out of the military.

KD: Was it controversial changing the name? Were there people pushing against it, or was it universally accepted as a good idea?

LC: I don't remember that much controversy, to tell you the truth. I thought it seemed like a logical thing since we were doing it already, and why hadn't somebody thought of that before, except Hal's leadership, because that's the area he was in, just like Harald Löe was in perio. Each person builds on their own skill strength and their own network. And he had good relationships with people in the health area outside dentistry because he'd worked with these people.

KD: Dr. Slavkin seems like a pretty enthusiastic individual. Tell me about his leadership style.

LC: Yes, he's a very charismatic personality, and a wonderful person. And also somebody who is interested in other people and used to keep up with the latest in leadership techniques and management styles and bring in outside consultants in this area. I personally respected that very much. It's an interest I had as well in management styles and collaborative.

He came from academia, again without federal experience, so as most everybody who comes without federal experience, you learn. It takes a while to learn the bureaucracy. I remember my own beginnings. In 1964, I was called on the carpet soon after I got there for being late for lunch, coming back from lunch, because you're only allowed 30 minutes for lunch and I took an hour. Yes, you have to learn the bureaucracy, working for this kind of organization with a lot of rules, and it takes getting used to. So there's a learning curve for everybody; we all go through it. But

his intentions certainly were well meaning, and he took us in great new directions and I think we're all better for it.

KD: Speaking of new directions. There was some attention to disparities, both research and in hiring and training. Talk about that in the context of the last decade or so of your time at NDCR.

LC: And also, I think Hal should be mentioned in that regard. One of his interests was in science education, and he was quite aware of the inequities and was very supportive and promoted Dushanka Kleinman's work. Dushanka, of course, was his Deputy. She later was promoted to Chief Dental Officer of the U.S. Public Health Service, and she was the one who did the heavy lifting on the Surgeon General's report on oral health, the first report we ever had on oral health. That was released in the year 2000.

So yes, Hal was very supportive. He recognized the work that was uncovered by that Surgeon General's report. And one of the special interests was science education in schools that were disadvantaged, and he moved in that direction and had set up a way in which Isabel Garcia, who was charged and tasked with leading our effort in science education in conjunction with the science and education efforts of other institutes and centers in the Office of Director of the NIH. Later, NIH cut back on that because of budget constraints, but Hal jumped onto that, "This is very important," and he did that.

Now we move to the Surgeon General's report got released. We had exposure to oral health disparities in our country, and of course, that became part of the strategic planning subsequently, after the year 2000. So all future strategic planning post-2000 emphasized health disparities, and we even had, in our Extramural program, a staff person focused on oral health disparities to drive up that part of our investment.

KD: Were you heading up the Office of International Health at this point?

LC: Yes, up until the year 2006, before my retirement. And health disparities was also on the global oral heath research agenda. We had developed a research agenda back in the Eighties in conjunction with the Fogarty International Center and with the World Health Organization and the International Association of Dental Research.

We collaborated, we drafted a research agenda. We had priorities, and those priorities included oral health disparities, certainly on global agenda they are even more severe than they are nationally. They take a different form because some countries don't have a dental school at all. They don't have anything, so they are much more extreme. They're more akin to some of our shortage areas where we don't have any health manpower or health workforce at all—have to get used to the word manpower, get rid of it; it's workforce.

KD: Why did you decide to retire in 2006?

LC: I was part of the Civil Service personnel system, and the old CSRS, Civil Service Retirement System, which got phased out in the early Eighties into another system, but I was recruited in the Sixties under the old system. You maxed out your retirement at 41 years and 11 months. If you worked more than that, you would wind up paying the government to work in taxes.

We have personnel offices that give us advice on this, and we have retirement courses. I remember taking it with Harald Löw at the same time. We took it twice because it's so complicated. But yes, they recommend if you're under that old system that you actually retire and step down because you're going to wind up paying too much in taxes.

Well, in 2006, Larry Tabak was the Director, and he knew I wasn't really anxious to retire. I didn't really want to, but I did it because financially I would lose money. So he offered me a

consultantship on a contract, part time, and I was glad to do that and help out. And primarily I was helping him with the global side because by that time my colleagues in that office, one of the most famous, David Barmes, who we have an NIH global health lecture series in his name. It's the first global health lecture series of NIH, and he had passed away. When he passed away in January 2001, we made that lecture series with Fogarty International Center, in the name of NIH.

He passed away, and then my colleague Kevin Hardwick, who was invaluable to me in that office, he eventually retired from the Commissioned Corps and went to Texas with his family. So my key people left and we didn't have backup, so Larry Tabak asked me to help out in that area. And I've been doing that ever since. And Rena continues that and Martha in between did. And now Rena, thank goodness, is hoping, because I'm getting older now, it's about time they started to backfill these positions, and I think Rena is willing to entertain that. But I'm willing to help out as I can.

KD: So you're looking to continue to develop and build up the international capability.

LC: Yeah, I think Rena will do that and I'll just help, but I hope that others will carry the heavy load. I can't do it anyway as a consultant. Only federal employees can really do the heavy lifting.

KD: Some other things you've been up to, though, which are really related to NIDCR. This Paul Rogers Society for Global Health Research. Tell me about that.

LC: When I retired, it just so happens it was a coincidence that in 2006, Paul Rogers was still alive, he was the former head of the Health Appropriations Committee, and he was a wonderful advocate for the NIH in general and a believer in global health and why this country needed to invest in global health. This business of it's taking away from our national investment, he just didn't get it. He saw it as our national interest.

Anyway, the Bill and Melinda Gates Foundation had the idea of giving to Research America, which is a major health research advocacy group in the United States across all of the health areas. Bill and Melinda Gates Foundation gave Research America a bolus of money to set up this Paul Rogers Global Health Research Society, and they had a solicitation of who should be ambassadors. The idea was that you couldn't do it all by yourself, you needed people to sell this notion to the American public that you had to invest in global health in order to strengthen our national health and our own national capacity.

So they needed ambassadors across the country to do that. They needed senior people who knew what they were talking about, who had the expertise from having done the research themselves. So they had a broad solicitation and I was nominated to be that representative from the dental side. I was the first one. Subsequently there were two other ambassadors named, Cyril Enwonwu from the University of Maryland School of Dental Medicine and Deborah Greenspan, University of California San Francisco, people who had done research. Cyril, had actually once been heard of the National Institute for Medical Research in Lagos, Nigeria, and was a really strong researcher, a dentist with a PhD in nutritional biochemistry from MIT. But had done a lot of research in Nigeria. He was originally a Nigerian national but had come to the United States also to do research. So he was the perfect spokesperson.

And Deborah Greenspan, who's worked with her husband John in the area of HIV and who is a previous IADR president, was also a good spokesperson for this area.

So I was one of the first, so it was a natural for me to do this when I retired. I was happy to do it. And even when the Gates grant expired, Research American said, yes, continue to do this and use that because that is what needs to be done because we've a lot of work to do to convince the American public that this is necessary and in our self-interest.

KD: Speaking of convincing the American public, I also notice you were involved with Friends of NIDCR, which is something that I didn't even know about until fairly late in my research. Tell me about that organization.

LC: Yes, this is another very important development that has shaped a lot of my own thinking about a lot of areas of public policy. I learned from a previous Surgeon General and former boss of mine, Dr. Julius Richmond, who is an advocate in the tobacco cessation area, that public policy depends on a few essential components. You need a research evidence base, and you need political will as a second component, but the third and essential component is social will. You cannot get to that politician unless he has a constituency who is pressing on him or her.

Just like I said that Diamonte Driver case, it was Mary Otto, a health journalist from the *Washington Post*, mobilizing the public voice about the Diamonte Driver case and got to Elijah Cummings, who got to his political decision makers and then you have public policy. The same principle. You need social will.

How do you get social will? It's not often that the dental research community has a public voice, but we do have a public voice if we look at the people who live with oral diseases and disabilities. We have people who are born without teeth, ectodermal dysplasia. We have people who have Sjogren's syndrome and dry mouth disabilities, difficult to talk, to chew, to eat. We have diabetics who have rampant periodontal disease, causing all sorts of pain and disability in the mouth and loss of teeth. Juvenile Diabetic Association, National Diabetes Association, ectodermal dysplasia, all these constituent groups and AARP, others, senior who may have tooth loss as a major issues. Children's health groups. So we can tap on a public voice. And those are the people who show up to Congress and say, "The dental institute has to continue because they're doing this essential work that we need to get relief from this problem."

KD: And those are the people with the stories that resonate. Who was behind that? What was the driver? This was created in ’98, I believe.

LC: Yes. A lot of things came together with the American Association of Dental Research, as it was then known. And the fact that we were having a major anniversary in 1998 and were planning this big celebration with all our constituent associations. And Hal was interested in trying to give a platform to this group of patient advocacy groups. It was all coming together. And they were advising us on our research agenda, having input into our research agenda, so it was developed with that idea in mind that we needed a friends organization.

It turns out that there were at least two or three other groups on the NIH campus that also had friends organizations, and Don Lindberg, who was then head of the National Library of Medicine, he unfortunately has passed away, Don was very helpful in sharing what he knew about how do you do a Friends of the National Library of Medicine. And there was a Friends of the National Institute of Nursing Research. And I think there was one also associated with heart, lung and blood.

But we wound up working with the same support contractor—we didn't pay for it, but the coalition of patient groups got together, and they paid for some time from the same support contractor that the Friends of the Library of Medicine, so we shared their expertise and it grew from there.

And these days, it has been absorbed by the American Association of Oral Craniofacial Research and is part of their advocacy arm. But it was very important, and I tell you that it informs what I do in other spheres because since my retirement, I’m able to do some things I couldn’t do as a

federal employee. I'm part of boards of other NGOs and things like that, which I wasn't allowed to do because of potential conflicts of interest.

But with a group called the Alliance for Oral Health Across Borders, I am working with them to try to focus in on an empty area on the global scene. We have global organizations that represent governments. We have a global organization in the dental area that represents researchers and some movements and networks that relate to dental education and health professions education. But we have nothing in the whole area of civil society, public voices.

So with the Alliance for Oral Health, I hope we will be able to provide a platform for those voices that come from civil society and working with such groups as the Noncommunicable Diseases Alliance, NCD Alliance, at the global level to work with them as they work with civil society. So the Alliance has become a member of the NCD Alliance and there are various ways in which we can activate civil society voices to reach public policy and to bring evidence-based findings to the platform that policymakers need.

KD: You were more recently involved in the La Cascada Report.

LC: La Cascada. Again, that was an interesting development that came about because some senior people like myself who were retired or were on the verge of retirement were having some thoughts that were very disturbing thoughts about what's happening to this area that we've been so involved in? They're sort of going in the wrong direction. And it's not happening just in one country but it's happening in a lot of countries.

Building dental schools like they were going out of vogue, just building. One country has built 300 schools in no time; another country added 200 schools. We're going to soon go to about 80. We're getting bigger by the minute too. And yet, if you measure oral health indicators, some of

these population health indicators we talked about earlier, no, they're going in the wrong direction. We're getting more disparities, not fewer disparities. They are going at it ... why? If we're turning out so much workforce, why are the indicators going in the wrong direction? And some of us have been working not in one country but across countries, so we see it happening and we got worried.

So one of our colleagues in Colombia, the country of Columbia, who is in Medellin, Alfonso Escobar, whom I met years ago through Harald Löe—Harald Löe knew him first in pediatric dentistry and worked with him at Southern Illinois, I believe, or University of Illinois. Anyway, Alfonso said he has a problem in Colombia that they are growing dental schools, and yet the indicators are going in the wrong direction. What are people doing about the curriculum and what should he be doing?

So he called upon the people he knew, and he knew me and he knew Ole Fejerskov, a caries researcher, well known in Denmark. And he knew Gunnar Dahlen, a well-known perio researcher from Sweden and Newell Johnson, a renowned oral pathologist from UK and Australia and Aubrey Sheiham from the UK, who has since passed away, but we're now working with his protégé, Richard Watt from the UK, and Firoze Maji from Africa, from Kenya, who is now in Canada.

And he asked us would we come to his farm in La Cascada. We'd fly to Medellin, meet at his school, go to La Cascada, his farm two hours away from Medellin, and brainstorm what are our experiences and what can we do about it? But before we'd come, he wanted us to write up some papers, independently. We all come from different areas of disciplines. I was the only non-dentist, by the way. To write up our careers and what we learned as a result of our research in our careers and how we view the future. What's happening and what could we do about it.

So we did that independently, and then we came together on his farm and sort of shared notes and brainstormed. And at the end of this we were asked to do a symposium in Medellin, and he brought together all the deans and faculty from the dental schools and dental therapy and nurse schools and auxiliary schools in Colombia who were also worried. They honestly wanted us, "What did you think?" They wanted to hear from us.

Not that we knew what the answers were going to be for Colombia, but we shared our thinking with them and then we had this declaration, and it was published and it was then reproduced in the *Australian Dental Journal*, and then the Indian dental journal picked it up and they wrote an editorial, and it was picked up in other places and online mainly, and people have been talking about it.

Well, what is it? It's basically very simple. Governments and countries are producing workforce and it's not aligned with the indicators, with population health. Something is wrong and we have to figure out changes that have to be done, and who we recruit to the profession. What happens when we get them in an educational environment? What do we teach them? Who pays for their education? Is there a debt involved? Because that's one of the big things in the United States is student debt drives them in the wrong direction, and I'll get into that.

But in some countries they graduate with no debt, the graduates, no debt and they still go in the wrong direction. What do we do about deployment and what they do when they practice? And licensure and accreditation and all these things that feed into this situation, how do we change it? How do we shift it, refine it, so it meets the needs of the population?

That's what La Cascada is about. It's raising the problem to a visibility level where people are now worried about it. So now people are worried about it, they are. And now we have major

bodies, not that we're the only ones that mentioned it. We have WHO that passed a major resolution on oral health in General Assembly. Just May approved the first WHO global oral health action plan for 2023 to 2030. We have the Lancet Commission from the major journal *The Lancet* having been formed before the pandemic, going to come out early in 2024 with their report. and we have a lot of thinktank centers, academic centers, that are talking about it and making recommendations, so there's movement now.

KD: You've been able to continue planning and setting agendas beyond NIDCR here.

LC: Yes, right. But it's also it depends on what NIDCR supports. NIDCR, what they do in generating the research evidence is so critically central to what anybody else can do. Without that, it doesn't happen, it really doesn't happen. People can see the problem, but they need to get the research evidence or they can't persuade the people that need to be persuaded. Research evidence is so, so critical.

KD: Terrific. I can't think of a better way to summarize what NIDCR needs to be about. This has been fascinating. I've taken more than two hours of your time.

LC: Oh, it just flew by!

KD: Yes! Anything else that we should talk about. Any really important issues that have been left out here?

LC: I think you've covered those very well, but I want to emphasize this public voice side and the research that we also need to do. I don't know that NIDCR is the only place that it can be done. It needs to be done in many different places. But research underlying advocacy and science communication. And enabling people to have power to see for themselves what's good for themselves.

It's not a top-down thing; it's something that starts with the people, with society in general, and we need more research on how to activate that public voice. And it's neglected across all of the areas, but I think Research America and the Gates Foundation and Paul Rogers Society was a good beginning, but we really have to do this in a broader way. That's something I see in the future that we need to build.

KD: Right well thank you so much. This has been a great discussion, I really appreciate it.

LC: Thank you for allowing me this opportunity. And you're a great questioner.

KD: Thanks.