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Road Less Traveled

Thomas Sequist on finding his path in medicine—and guiding others along their own

Guest: Thomas Sequist **Host:** Stephanie Dutchen

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Dutchen: Hello and welcome to the Harvard Medical Labcast, brought to you by the Harvard Medical School Office of Communications. I'm your host, Stephanie Dutchen.

With us today is Thomas Sequist, professor of medicine and health care policy at HMS and chief quality and safety officer at Brigham and Women's Hospital.

A major focus of Dr. Sequist's research and clinical work is to improve health care quality for all patients, with special emphasis on reducing racial disparities. That includes a lot of collaboration with Native American communities, from patient care to physician education to student programs designed to increase Native American representation in medicine. Tom, welcome.

Sequist: Thank you.

Dutchen: Glad to have you on our show. Excited to talk with you about all of this and probably more.

Our unofficial theme this season is journeys: the paths that people have taken to get where they are now. So maybe we could start with what you thought you were going to be when you were a kid?

Sequist: I would say ... That's an interesting question. I don't think I had a good idea of what I wanted to be when I was growing up. I think going through school I was generally more drawn towards science and math, so when I was in high school I started to think about what types of careers I want, and actually went towards engineering, which is what I went to college for at Cornell.

Dutchen: So you grew up in New York, right?

Sequist: Yeah. So that's interesting. My family ... My mother's from a reservation in northern New Mexico, Taos Pueblo, but I did grow up in New York. We spent a lot of time going back and forth between those two places. I grew up just outside New York City.

Dutchen: So you were traveling, what, like, in the summers and then doing school in New York?

Sequist: Yeah. Then, during college, my parents moved back to New Mexico. So then I would intermittently live out in New Mexico.

Dutchen: What was it like when you would go out to visit?

Sequist: Growing up, we would spend time between Albuquerque, which is a big city, and Taos Pueblo, which is a very small community in the southern tip of the Rocky Mountains, so in the mountains. Taos Pueblo, like many other reservation communities, is a very beautiful area, also very poor. So I had a lot of different experiences growing up between New York and then Albuquerque and then Taos.

Dutchen: So did those experiences or just the general heritage of your mom's side of the family eventually play a role in what you ended up studying or your decision to go into medicine?

Sequist: Oh, absolutely. I should say one thing about my background also: My mother was a nurse. She's passed away. But she was a nurse. So she worked as a nurse outside of New York City as I was growing up, and then worked in the Indian Health Service as a nurse. So my exposure to health care was actually not through knowing many physicians—I don't think I actually knew any physicians—but was through going to work with my mom and seeing patient care through the eyes of a nurse.

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Dutchen: So how did you find your way from engineering at Cornell to medical school at Harvard?

Sequist: I did chemical engineering at Cornell University and specifically was interested in biochemical engineering. I've always had this sort of slant towards being interested in health in general. I did a program at Cornell where you don't take summers off, so that you can take about a year off and work before you graduate to get an idea of what kind of career you want.

I spent that time and worked at Intel, which at the time was one of its big fabrication plants, a factory essentially, that was making semiconductor processor chips, was located out in Albuquerque. So I lived down in Albuquerque again for about a little less than a year. And it was real exciting. There was a lot of innovation going on.

But I just realized that kind of work wasn't really getting at everything that I wanted to do, which is then what made me start to think about other careers. And I had this exposure to hospitals just growing up through my mom, and so started to think more about medicine at that point. I was probably in my junior year of college at that point.

Dutchen: I can't imagine that a lot of medical school applicants had a background in chip production.

Sequist: Probably not. There were some that were interested in computer science. I had had a lot more applied experience at that point. It's different today with medical students. Back then in the early '90s, most of the students were biology, chemistry majors. It's much more varied now.

Dutchen: So you applied, you got in, you came here?

Sequist: Yeah, I applied. I mean, I've always had a very interesting sort of pathway in terms of finding my way. I often feel like the best way that I'd describe it is that I stumbled along and got lucky. There weren't a lot of other people in my family that had gone to college, and no one had really finished four-year degrees or no one had gone on to medical school or other advanced degrees.

So, I didn't have a lot of people that had the pathway that I wanted to go down. So when I applied to college, I applied to ... I often joke, but it's totally true that I applied to a lot of colleges that I saw in the March Madness tournaments, like colleges that I had seen. Then I applied to colleges that were physically near me in towns, because I had heard of them, which is where Cornell came about, because it's close to New York City.

When I applied to medical school, I still didn't have the ... I guess folks would describe it as the social capital of sort of this broad network of support. So my process of applying to medical school was also less than ideal. I didn't apply to many, what would be considered top medical schools, because I simply hadn't heard of them. I didn't really have a very systemic approach to the whole process.

I was lucky enough to get in here at Harvard Medical School, and ultimately decided to come here. But I would say that it wasn't the most well-thought-out or planned process.

Dutchen: But you turned out okay.

Sequist: Yeah.

Dutchen: So you said March-

Sequist: But I point that out because I think a lot of people, particularly underrepresented minority students, have a very similar experience, where it's a complicated process to go through college and medical school, let alone the finances, which are daunting, but just the process of navigating through this experience that takes several years is really challenging. And when you don't have someone guiding you through and there's no laid-out rulebook for how you do this, it's really hard. You can buy books, you know, *How to Get Into Medical School*. I'm sure there are hundreds of books on this. But the books don't tell you everything about what the process is really like.

Dutchen: And in a minute we're going to come back to how you're trying to help next generations of students with that. To backtrack for a sec, you said you were applying to March Madness schools. Do you play basketball?

Sequist: I didn't, but I liked basketball and I watched. I still watch a lot of basketball.

Dutchen: What was it like when you were coming to school here?

Sequist: I think it was a whole bunch of different experiences. One, is what was my move to Boston like. The, the other is what was my experience in coming to Harvard. So, two different but connected experiences.

Coming to Boston, I thought it was going to be bigger than it was. Just to be also transparent, I was also surprised at how segregated it was and how less diverse it was than New York, which was my reference city at the time.

My experience with Harvard is a very warm, open and welcoming place. You have lots of stereotypes in your mind about, "What's it going to be like at Harvard? Is everyone wearing a bow tie and is over age 70 and, you know, not very racially or socioeconomically diverse?" That was not my experience when I got here. There are lots of bow ties, but it doesn't actually give the rest of the stereotype around what you think around bow ties.

Dutchen: For the record, you are not wearing a bow tie today.

Sequist: I am not. I don't think ... Also, for the record, I don't know how to tie a bow tie, which is one of my problems with not wearing them, aside from—

Dutchen: They make clip-ons though, right?

Sequist: They do. Those are frowned upon at Harvard. But I found it to be a very welcoming place. I always tell people that the best part of my time as a medical student at Harvard were the people that I met. I think you can learn medicine at all the medical schools across the country. I think that the experiences you get from the people here are truly special.

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Dutchen: How did you find your way into health care policy?

Sequist: So I wasn't really sure what I wanted to do. I thought I wanted to practice medicine on an American Indian reservation. In my third year of medical school when I was thinking about what specialty to go into, I had a long conversation with David Potter, who was a professor here at Harvard, he recently passed away, but he was a mentor to a lot of underrepresented minority students at the time. We talked a lot about where could I have the biggest impact. I started to feel like there were lots of other ways that I could have an impact on American Indian health other than moving back to New Mexico and practicing medicine on a reservation, which is quite impactful. And started to think about, well, maybe there are some broader kind of health care system things that I could do.

I sort of left it at that at the time though as a third-year medical student and figured out that I wanted to go into internal medicine and primary care.

So to answer your question though, I didn't start to get engaged in health policy research until my third year of residency, so it was quite a while. This is seven years after coming to Harvard. How that happened was it went back to my interest in computers.

Dutchen: Really?

Sequist: So at the time, people were starting to build and implement electronic medical records, what are called electronic health record systems now. So this is late '90s. And I met a mentor at the Brigham, David Bates, who was one of, early on, people who were interested in computers and how they could be used in our hospitals. Because in the mid-'90s, early '90s, people were using paper charts, and so there was a slow transition to using computers. So I sort of full circle got to use my interest in computers. So that was my first entry into doing work in health policy.

Sequist: Yeah. Then, I subsequently got involved in thinking about American Indian health policy and how I could apply the field of health policy research to American Indians.

Dutchen: Right. So things started to converge?

Sequist: Yeah.

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Dutchen: All right. Well, so where should we go from here? There's so many things we could talk about chronologically or thematically, like...

Sequist: Yeah, I have such a weird ... My research career had two pieces to it: the American Indian health work, and then the other half of my research was always in quality and safety, and how large organizations implement change, and how we improve care and outcomes.

Dutchen: What do you like about doing this kind of work about quality assessment and trying to improve systems?

Sequist: I was always really interested in this concept of evidence-based medicine, that we do all this science and studies to figure out what's the best thing for us to do for our patients, but that there was always a gap between what we knew was best to do and what we did in the hospitals. I was just always very intrigued at, "How can we close that gap?"

So I was initially working with my mentors around using computers to help close that gap, like decision support tools, like popup alerts to recommend to doctors, "You should use this medication," or, "You should order this radiologic study in this scenario."

When I got more into this field, I realized that there's much more to it than just using computers, and that you can use patients as our biggest advocate for doing the right thing. You can educate physicians and use other incentive programs, you can use financial incentive programs, you can use care team redesign, you can restructure physically how the clinics are organized, you can do all kinds of things to make sure that our patients get the best care that they can.

So I really directed my research portfolio towards trying to answer those questions. I've always been a primary care doctor and had a panel of patients, but aside from that, I spent the first five or a little more years of my faculty career being a traditional faculty investigator, writing grants, to answer these questions around how do we close that gap between what we know is right to do and what we actually do.

Dutchen: Seeing patients firsthand must give you good insight into what isn't working well.

Sequist: It's a really important part of my job. I still do it today, is seeing patients. Because you have to be there in the trenches, so to speak, to understand what are the challenges that patients are facing, what are the challenges that physicians, that nurses, that pharmacists are facing.

I would say that after doing it for about five-plus years, the traditional academic role, there are aspects of it I really loved. I loved the ability to be freethinking, and to have a research team around you, and you can sort of brainstorm.

There were parts of it that I didn't love. I was never fully into the writing of the papers and the interviews with the reporters and the visiting professor... Partly because what I really loved was to see in action the programs that I was developing and implementing, to see the clinics change in real time, and to see the outcomes get better.

I also, something we haven't talked about before, but I have a family. I married my wife, who, we met in medical school here at Harvard. We couples-matched, and we had two kids, two little kids, and I didn't like to travel. Part of getting good at your academic role is a lot of travel to disseminate your research, and it wasn't my favorite thing to do.

All of those things together started to help me to think through what did I want to do for the next 5 to 10 years of my career. So that led me down the track of where I am right now, which is really overseeing quality and safety activities for our system.

Dutchen: So just for people who aren't super familiar with how medical school and residency and everything works, couples matching means that you and your partner were able to do your residency in the same area?

Sequist: Yes, correct. And she is a thoracic oncologist at Mass General Hospital right now.

[MUSIC PLAYING]

Dutchen: So now, as chief quality and safety officer, I mean, that sounds like a lot of pressure to be in charge of safety for a whole health care system.

Sequist: It's a lot of pressure. It's fun. It's never boring, and it's quite varied in terms of the work that I get to do. I can work on everything from safety of our care, medical errors and prevention of harm, to primary care and cancer screening and immunizations, to the ICU and what is our best way to do assisted breathing and ventilator protocols, to health care equity and, how do I measure how we are providing care for our poorest patients, for our underserved

minority patients? So it allows me a lot of flexibility as well in terms of how we set our strategic priorities.

Dutchen: Are there projects that you've worked on at that hospital or in that system or papers that you've published more broadly that you're most proud of in that space?

Sequist: Oh, that's interesting. I would say in terms of publishing papers on quality improvement and interventions, the work that I found the most fulfilling and that I think has had pretty good impact is the work that we did on studying how a health system engages in improving care to address inequity.

We did a lot of work, going back several years, on looking at health care inequity in diabetes outcomes. So if we look in the Boston area for our white patients and our black patients with diabetes, we know that their outcomes for diabetes are not equal, and that white patients have better outcomes than black patients.

We did a big program where we actually, in a randomized way, randomized several hundred clinicians to either intensive cultural competency training, followed by performance reporting that was addressing the poor outcomes for their black patients, compared to a group that didn't get those interventions. Over time, we were able to really rigorously, for the first time, evaluate the impact of cultural competency training and these race-stratified performance reports.

What we found was that physicians who go through this program are much more willing to be aware of the existence and importance of racial inequity and much more willing to engage in it. Now, it's a different thing on how do you then actually change the outcomes, because we have to have a different set of interventions for that. But that's the kind of work that I like to think has been the most impactful over time.

Dutchen: Great. Sounds useful, it's helpful.

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That could be a nice segue also into talking about the nature of health disparities with American Indian communities and all the multiple different ways that you're trying to address that. What is the extent and the nature of some of these issues?

Sequist: I could start from a sort of global policy level. American Indians are a small but important minority group in our country. It depends on how you count it, but there are around 5 million American Indians in this country. They largely are located to the west of the Mississippi in our country.

They are a very segregated, concentrated population. Now, that's not by accident. There's a reason why this population is segregated and concentrated, because of forced relocation and the creation of reservations. But that being what it is, more than 50 percent of the American Indian population is located in just about 10 or 12 states, so it's very, very concentrated.

We know that this population has a shorter life expectancy than the general U.S. population by almost five years.

Dutchen: Yikes.

Sequist: So that's a really big deal. Then, that disparity can be even bigger depending on the community that you're looking at. They have a high burden of many diseases, chronic diseases that many people have heard of like diabetes, lots of challenges with substance use disorders, alcohol abuse. There are also many public health issues in these communities, so anything from lots of firearm accidents, to motor vehicle accidents which relate to the road infrastructure and our inability to provide good road infrastructure in these communities.

So I saw a lot of these health disparities firsthand growing up. Myself and my family has received care from the Indian Health Service, which is a branch of the federal government that provides health care on or near reservations. And as I said earlier, my mother worked as a nurse in the Indian Health Service. So I'd always had a personal interest in a lot of these issues, in a lot of these global American Indian policy issues.

When I came to Harvard, there were a group of medical students who had just been starting out a program, which became the Four Directions Summer Research Program. The idea of that program was to provide an experience to American Indian students who were interested in going into careers in medicine and health care that prepared them for that kind of a career. Because when you look at the data for American Indian students who enter medical school, a much lower percentage of them have participated in any kind of summer enrichment program, compared to other underrepresented minority students.

A lot of that relates to where do these types of programs recruit from. If you recruit from big cities, especially in the east, you will find no American Indian students, or very low numbers of American Indian students, so you have to recruit in specific areas: small state schools, rural areas, all west of the Mississippi.

So these students had started to build out this program, and the whole goal as I see it, having led this program for 25 years now, is ... I have this very personal connection to it in that I designed the program around what I feel like I could have used when I was a college student and I was applying to medical school. And I told you my story of how it felt like I sort of bumbled along and got lucky a lot. Well, I don't want these students to feel like they got lucky. I want them to feel very well prepared.

So we really have two really simple goals with that program. The one is that we build your confidence as a student, confidence in your ability to succeed in whatever health professional career that you're choosing, whether that's being a doctor, a dentist, a pharmacist, a public health practitioner or a basic scientist.

Then, the second goal that we have is that we give you the practical tool set to succeed. What is that tool set? Understanding the application process, understanding the financing of graduate

school, the very sort of hands-on information that you need. Those are the really two basic goals that we have of our program. We built everything around those two goals.

Dutchen: That is a program that reaches out to undergraduates then across the country?

Sequist: Correct.

Dutchen: How do you recruit? What are you looking for?

Sequist: We have a very targeted recruitment strategy that we built op over decades, really, which is identifying American Indian student programs at colleges across the country, identifying our contacts there and having regular communication with them. Reaching out specifically to tribal colleges which have a network of student alumni as well that they can reach out to.

Then, at this point we've had hundreds of people—students—come through our program, our alumni network, and they are a great resource for reaching out to American Indian college students across the country.

Dutchen: About how many do you bring in per summer?

Sequist: We bring in ... we get around 60 or so applications every year for eight slots.

Dutchen: Wow. That's got to be a hard choice.

Sequist: Yes, it is. And I always tell folks that we have also an unusual admissions process, which is we are not looking for the student with the highest GPA or the student who's at the most competitive college. We are actually looking for the sweet spot of a student who is prepared enough to gain from our experience here over the summer, but not overly prepared. That means that we don't frequently have students who come from Harvard College, let's say, or from any of the other top Ivy League schools or other top academic schools.

We also tend not to take students from junior colleges, because we feel like those students aren't prepared quite enough yet for the experience that we're offering here. So we're looking for that sweet spot right in the middle.

Dutchen: So this is a significant way that you're working to help, I guess the jargon is, like, improve the pipeline to bring more American Indian students into the practice of medicine. Have you been able to measure whether that's been successful?

Sequist: Sure. So we measure every year where our students are. About two-thirds of our students in any given year have either entered medical school or graduate school in the health sciences. Those graduate programs either include PhD programs in bench research or PhD programs or master's programs in public health.

I always tell people, also, remember, that the remaining one-third, some of them are still in college, so they're not really eligible to have gone to medical school. And I would say, one other important fact is that about three-quarters or more of our students who have finished school and are working are engaged in careers that directly impact American Indian communities.

The important thing to remember about our fact of two-thirds of our students have gone on to medical school or graduate school, that's a marker of the success of our program, but that's a very malleable marker, meaning that I can change that number just by our admissions process. So if I wanted 90 percent of our students to enter medical school, then I would go over to Harvard College and get eight students from there and bring them here and I would get to 90 percent. So in some ways, I tell people, it's like innovation. If you're running an innovation lab and 90 percent of your innovation projects work, you are not being innovative enough. You're not challenging yourself enough.

Dutchen: You're not taking risks.

Sequist: So our 65 percent number is where I want it to be, because it means that we're taking enough risks on students who deserve to be given a chance.

Dutchen: Fascinating.

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Another thing that you do is this sort of physician exchange program almost, between the Harvard Medical community and Navajo Nation. So how did that come about?

Sequist: I would say that it started with my research. When I came onto faculty at Harvard, I was very interested in American Indian health policy research. I developed a relationship with the leadership of the Indian Health Service during that time, and we embarked on about a five-year journey of doing a lot of research to understand the Indian Health Service, to understand the quality of care that's delivered within that organization. We came up with a bunch of interesting findings and we published a lot of papers together, "together" meaning between Brigham and Women's Hospital, Harvard Medical School and the federal government.

One of the things that we've always found was that one of the biggest challenges to providing good care in these reservation communities is access to care, and in particular access to physicians, and in particular within that, access to specialist physicians. So most reservation communities in Indian Health Service facilities have primary care clinicians practicing there. That includes general internists, general pediatricians, general gynecologists and sometimes general surgeons. But if you wanted to see a rheumatologist or a dermatologist, those are very hard to come by in these communities.

So the Brigham and Women's Hospital back 10 years ago was looking to launch a hospital-wide physician volunteer program, and they were looking for ideas around, "What communities should we direct our volunteer activities at?" And a physician at the time named Phyllis Jen, who

has since passed away, had a specific interest in the Navajo community out in Arizona and New Mexico.

So we designed a program around this idea that the Brigham and Women's Hospital and the Brigham and Women's physician organization has a lot of specialists. Actually, we have way more specialists than we do primary care doctors, which is the opposite of this scenario on a reservation.

So we built this program to have really three arms. One is to send these specialist physicians to go and stay and live on the reservation for a week at a time and understand the climate there, the culture there, the resources that are available there and the patient needs that are there, and really train the physicians that work in the Indian Health Service to broaden their capacity to provide specialty care. So rather than just go out there and see as many patients as they can, the idea is you train the doctors who are out there.

Dutchen: Right.

Sequist: That's step one of our program. Step two of our program is that we run an active telemedicine program. So twice a month from the basement of Brigham we, at this point, work with about four or five hospitals and satellite clinics across the Navajo reservation. We do everything from CME educational lectures to—

Dutchen: That's continual medical education, CME?

Sequist: Yeah, continuing medical education—to patient consults, actually just reviewing patient cases with our specialists here and their doctors out there.

Then, the third thing that we do is the thing that you're referring to, is the clinical exchange program. Sometimes there are areas that we need to train their physicians, "their" being the Indian Health Service physicians, but the volume of that particular clinical care is not very high on the reservation. So let's say it's an intubated patient, a patient who has a breathing machine or a ventilator. That may happen only once every couple of weeks in some of these smaller reservation hospitals. So if we send one of our intensive care doctors out there and they happen not to have a case that week, it's very hard to do the training and the teaching out there.

Dutchen: Right.

Sequist: So we developed this model where instead, we bring the Indian Health Service doctors here to Boston, and we always have lots of patients in our critical care units and we can do the training here in Boston. So we have that third aspect of our program, which is the clinical exchange program.

Over time, we've had hundreds of Brigham and Women's Hospital physicians volunteer in this program, make trips out there, engaged in our telemedicine program, serve as host to the clinicians, Indian Health Service clinicians who come out here.

Dutchen: That's great. Is any of the learning what we call bidirectional? Like, not just teaching, but also learning from communities?

Sequist: Absolutely. We benefit just as much here in Boston as the Indian Health Service does out in New Mexico and Arizona, and I would say in two important ways. First, we have found that sending physicians out to the Navajo reservation and engaging in this volunteerism really is a very good antidote or a very good treatment for physician wellbeing. They come back and they tell us that they're refreshed, that they now feel reengaged in their work here. Some of the quotes are around the idea that they now remember why it is that they went into medicine; for the wellbeing of patients and to treat patients who are most at need.

The second big benefit that we get is our physicians find it to be a really enriching cultural experience for them and their families; they often bring their families out there, to be able to engage with the American Indian community on the Navajo reservation.

Then, I would say the third benefit that we find is that they learn to practice medicine in a resource-constrained environment.

Dutchen: Unlike Harvard.

Sequist: We have almost all the resources we could imagine here in Boston at our disposal. I know we often talk about the fact that we have limited resources in our hospitals, but we don't really have limited resources compared to these reservation communities. So our physicians come back and they tell us that they learned a lot about how do you deliver care, the types of care that they deliver here in Boston, how do you do that in a resource-constrained environment.

[MUSIC PLAYING]

Dutchen: So we talked before about what some of your favorite projects were in the health care quality space. Are there projects you've been involved in here with health equity and physician exchange and the Four Directions Summer Research Program that have meant the most to you or you've seen the most impact?

Sequist: I wouldn't say a specific project. What I would say is I look back over the past 25 years and who knows what my track would have been like if I'd moved back to New Mexico?

But I'm really proud of the work that we were all able to do as a community here in Boston to advance the health of the American Indian communities. We've done it through student pipeline programs and taking advantage of the resources of Harvard Medical School in our educational programs. We've done it through our research programs, and again, the support of Harvard and Brigham and Women's Hospital in bringing in grant funding and helping the government in these American Indian communities understand how to better provide care. Then, we've done it literally through volunteerism and having our physician faculty here at Harvard and Brigham donate their time and go out to the reservation and actually directly provide care and training. I couldn't have envisioned a better outcome for what we've been able to accomplish over the past couple of decades.

Dutchen: That's really great to hear.

I know that you couldn't have foreseen the path that you ended up treading, but I'm going to ask anyway, do you know what's coming in the future? Where do you want to go?

Sequist: Oh, that's a great question. One of the things that I've not been good at in my career is being very thoughtful about my five-year plan. I have been fortunate to be given great opportunities over time. I don't have a plan for what I'm going to be doing next, but I'm hopeful that it will be in our system still and that I'll continue to be able to lead both in quality and in health care equity.

Dutchen: Well, we're all looking forward to seeing what happens.

Sequist: Thank you.

Dutchen: Thank you so much for being our guest today.

Sequist: My pleasure.

Dutchen: It's been a great conversation.

And thank you all for listening. This podcast is a production of Harvard Medical School's Office of Communications. To learn more about the research discussed in this episode, to suggest topics for future episodes, or to let us know what you think, visit hms.harvard.edu/podcasts. You can also follow us on Twitter or Facebook, where our handle is @HarvardMed.

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