Hugh Musick and Lauren Castro Interview

Hugh Musick - Associate Director, Population Health Sciences Program; Co-Director, Institute for Healthcare Delivery Design

Lauren Castro - Nurse Practitioner, Pulmonary Health

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SPEAKERS

Jessie Knoles, Hugh Musick, Lauren Castro

Jessie Knoles 00:00

I'm in. Recording? Great, okay. Hello. My name is Jessie Knoles, and I'm a Project Research Associate with the University Archives. We will be conducting this oral history interview in junction with the University of Illinois System to talk about the Population Health Sciences program's responses to the COVID 19 pandemic, for inclusion in the University of Illinois COVID-19 documentation project. Today's date is Wednesday, October 26, 2022. And I will let my interviewees introduce themselves, stating their name and professional title. Hugh, would you like to start?

Hugh Musick 00:45

Hugh Musick, Director of the Institute for Healthcare Delivery Design.

Jessie Knoles 00:52

And Lauren.

Lauren Castro 00:52

My name is Lauren Castro, and I'm the Director of Clinical Research for the Population Health Sciences and Breathe Chicago Center.

Jessie Knoles 01:00

Great. All right. And to get started, I'll just ask some basic questions, just get familiar with the program you both work for. So, you both work for the UIC's Population Health Sciences program within the Office of the Vice Chancellor for Health Affairs. Can you briefly talk about UIC's Population Health Sciences program, including maybe its primary responsibilities, functions and goals?

Lauren Castro 01:28

Go for it Hugh.

Hugh Musick 01:30

Thanks. So, the Population Health Sciences Program was established in 2011. Population Health Sciences as a field has been around for maybe 20 years. And the aim of Population Health Sciences is to align what healthcare systems can do with the needs of communities. So, it was given great fuel or impetus with the arrival of the Affordable Care Act, also known as Obamacare. And basically, from that point forward, any not-for-profit health care system was required every three years to go into communities to survey members within those communities to find out what their health priorities are. And then to align what healthcare systems do. So, at the most fundamental level, that's what the Population Health Sciences program does. It's really a bridge between healthcare needs, and how the healthcare system can best meet those particular needs. So, it's a mechanism for both dialogue with community but also opportunities for innovation, because you're stepping outside of the four walls of the healthcare system. And you're trying to figure out how to best serve those communities.

Lauren Castro 03:04

And maybe Hugh just to add to that, I think that where the program sits, I think is also unique, and that we're kind of at the cross between the health system and all of the academic medical colleges. And as we all know, UIC has seven of those, so quite a full complement. And so, I think often these departments are in one or the other. But I think the fact that we sit kind of between those, and that's how the structure was set up here, has really leveraged in general the innovation and the other work that the program has done. And I think really had us in a position that we were able to contribute during COVID.

Hugh Musick 03:49

Thank you remembering that Lauren. I mean, that's the majority of the work that we do is much more across the University and its functional systems, and also the University of Illinois system to be a strategy and innovation capability in service of the goals of the university.

Jessie Knoles 04:13

Great. So, you are working with all seven of the colleges and schools that make up UI Health?

Hugh Musick 04:20

Yeah, and we can get into that later.

Jessie Knoles 04:23

Great. Thank you. And then, let's see. So, within the Population Health Sciences Program, there's a few programs underneath that. One is the Institute for Healthcare Delivery Design, which I'll probably start referring to as IHDD. And that is something Hugh, that you direct. Could you talk about that briefly just to summarize and get us started?

Hugh Musick 04:52

Sure. So, Jerry Krishnan -- Dr. Jerry Krishnan, who serves as the Associate Vice Chancellor for Population Health Sciences -- and I met back in 2012. I come from the world of human centered design, and through our work together -- I was with a different university at the time -- he came to realize this great complementarity between the aims of both clinical research and population health sciences, and what human centered design does, which is really tries to understand the needs of people and understand the contexts in which a problem might exist, and then align different perspectives in terms of all the stakeholders represented, to work towards shared goals. So, you can think about it more broadly, in a world that you've grown up with, in terms of digital devices, in this notion of usability. So, our function is primarily how to make healthcare delivery more usable for everyone. So not just patients, not just clinicians, but administrators, also members of the community, etc.

Jessie Knoles 06:20

Great, thank you. And Lauren, you are working with IHDD in some capacity as a partner, correct?

Lauren Castro 06:30

We do cross on several paths. And the IHDD has several different pillars, and one of those is research. So, Hugh and my team cross on that, and they bring that layer that he mentioned, of sort of what actually works for real people, comes in handy in almost all parts of life, including running research studies. So, our teams cross on that way.

Jessie Knoles 06:54

Great, and is your primary team Breathe Center Chicago, or Breathe Chicago Center?

Lauren Castro 07:00

So, I think it probably depends on the day. I wear many hats, but my primary role is overseeing our clinical research portfolio. So, as Hugh mentioned, our director is Dr. Jerry Krishnan, and he's a pulmonologist, as well as the other leadership roles he has at the institution. So, for many

years, 10 plus years, we've had a portfolio of NIH and PCORI [Patient-Centered Outcomes Research Institute] funded lung studies, so primarily in COPD [Chronic obstructive pulmonary disease] and asthma, but also a few other things. So, we're significant contributors to national studies that are happening in those disease areas. And it grew significantly, since the time that Jerry, Dr. Krishnan joined the institution several years back. And so, I think that really laid the foundation of being able to pivot and kind of rise to the occasion of everything that needed to happen when COVID hit, we had a team and lots of infrastructure and all of that already in place.

Jessie Knoles 08:06

So, with IHDD, there are three areas of focus: advising, research and education. Could you talk about, who IHDD works for? You briefly mentioned, administrators, clinicians, patients. Is there any direct relation between the Institute and healthcare patients? Are you working on studies to see how patients are using these healthcare design systems?

Hugh Musick 08:39

Maybe I should take a step back. Our advising work is both internal to the University and then we also have external clients with whom we work, the largest being in the state of Illinois. So, advisory work that we will do within our own healthcare system will address things like patient experience when they come in for outpatient visits. One of the things that IHDD was asked to do that was directly tied with the pandemic was because people couldn't come in for outpatient appointments, there was a surge in use, both at UI Hospital and Clinics, of telehealth, and that was true nationally. And as a result of that, the chief ambulatory services officer within UI Hospital and Clinics, asked IHDD to think more broadly about developing a telehealth strategy for the health care system. So how might we go from something that's an emergency measure to now think thinking about new ways of delivering and providing access to people who might have difficulty getting into an appointment. So that's one way in which we work internally. We've worked with different departments to think about patient experience at every step along the way. So, calling to schedule an appointment, what it's like when they arrive, how they park, where they go, how they're treated, and what that experience is like from beginning to end. Human Centered Design has some standard frameworks. So, we use something called the compelling experiences framework that says that every experience has five distinct phases. There's an enticement or something that draws you into the experience, which might be you don't feel well. Then you enter the experience, which might be calling to schedule an appointment. There's the actual engagement, which is what happens when you actually arrive there. And then on the other side of that are other dimensions of experience, which is, when you complete your appointment, what do you do on completion or exit? And then extension is how does that experience extend back into your life? So that might be picking up prescriptions, or if you might need some form of rehabilitation, you might need to schedule another appointment. So, we think very systematically, and that's the work we do within our own healthcare system. More broadly, we work with the state of Illinois. And most recently, IHDD was asked by the State Director of Medicaid to re envision how Medicaid might engage with people across the state of Illinois. That work led to the creation of something called the Health Care Transformation bill, that the

governor signed into law in March of 2021. It is an appropriation of $150 million a year over seven years, designed to have communities and healthcare systems work more closely, to address the most frequent and resource intensive hospitalizations that are occurring in their communities.

Jessie Knoles 12:41

And then, as far as the Population Health Sciences Program and the COVID-19 pandemic, at what point did COVID-19 come onto the radar of the Population Health Sciences program?

Lauren Castro 12:56

I think almost immediately, right Hugh? I think our team along with everyone else, a few days before it was mandated, we sent everyone home and said, “we don't know what's happening but we'll figure it out together.” I think there was a little bit of pause, while everybody was sorting things out. We have several clinicians on our team -- I'm a nurse practitioner by training -- and we have several others as well. I think that sort of figuring out -- did we need to go and be a hospital nurse, which I haven't done for more than a decade -- but did our physicians need to serve in other capacities? And I think what really came to light pretty quickly is that there were many other people that could pivot from different clinical areas to do that. But I think the skill set that sets our Population Health team apart is that we already were in the business of being a liaison and building bridges, leading teams in difficult situations, finding solutions, as Hugh mentioned, that work for all people, and doing that in a systematic way without judgment or bias to do that. I think that comes with some practical things that we had at the ready, right? We know how to run projects; we know how to organize people. We had folks that knew how to do all of those things. I think initially we helped with some boots on the ground things. Employee health -- if we can remember back then, or student health, if you all are students -- was completely overwhelmed. They went from doing minor things to being the center of a lot. So, our team kind of jumped in and helped them with their workflows. And so, some folks from Hugh's team helped with that. We tried to take out the barriers and the pain points there so that their team could do the work with the least amount of stress possible. And again, that had IT that had people, that had volunteers, that had systems that needed to be built or needed to be significantly modified. And so, we helped them early on with that. I think while all of that was happening, I don't know Hugh if you want to speak to the work that Jennifer Peterson did also … I'm forgetting ... with the city, right?

Hugh Musick 15:27

Yeah. There was --

Lauren Castro 15:32

I think those were the initial, “Oh, my God, there's a pandemic. This is not what we normally do, right? We don't normally project manage for random offices on campus. Nor does Hugh send us

people to basically work for the city for a few months. That's not our normal thing. But we were responding to those initial calls. And so, I think these are a few of those very initial things.

Hugh Musick 15:55

So, I'm trying to reconstruct the timeline.

Lauren Castro 16:02

I was thinking about that when I was driving this morning,

Hugh Musick 16:05

What I would say is I think it was as early as December of 2019, in which stories were coming about what was happening in China. And so it was on our radar, it was being discussed, it was being monitored. And then late January, early February, we started to see significant surge. And then, very vividly, I remember, it was Friday, the 13th of March 2020, when everyone was sent home. And we were in triage mode, which Lauren knows better than me, being an APN [Advanced Practice Nurse]. But we were trying to figure out what to do. And I know that the hospital moved very quickly to set up a testing site and was figuring out about doing that. So very early on, maybe a week or two into it, Dr. Krishnan gave me a call and said, “we should go out and just photograph and see the way that things are getting set up.” So that period was characterized by a lot of uncertainty. The thing that was really interesting was, Dr. Krishnan was involved very early on in a clinical trial. Because our healthcare infrastructure was throwing everything at the problem trying to discover things. So, Lauren, maybe you can talk about Active because I think of that as something that started to occur early in the pandemic.

Lauren Castro 17:52

Yeah, and I think even before Active, there was sort of the initial -- obviously, there's lots of people on campus that do clinical trials all of the time. So initially, nobody in the whole world knew what to do. I think early on we have to try something right? And so, there were very early, let's start trying new therapeutics, studies were put together -- studies that normally would take two or three or more years to plan were put together in record time in a number of months. As I mentioned, Dr. Krishnan is a pulmonologist. And so we now know that COVID effects, basically all parts of our body, but early on, there was a lot of focus, especially on the respiratory piece of that. And so early on we participated in some industry studies that were on the inpatient side. We partnered with Verily, which is Google's research arm, on a study that they were doing very early on. And these were kind of everybody's initial like, wow, what are we going to do? So those were some of the early projects that we did. And again, because we had the team already intact, I think we were able to respond and say yes, and there was a lot of strategy and conversation with Dr. Krishnan and the other leaders of the health system and Health Science colleges to say, “which of these things can UIC contribute to meaningfully?” And we really gave a lot of focus to the ones that we said yes to, to make sure that our community was represented.

Most of the folks that we were able to enroll in those trials were minorities. That was really important to us that if we were going to contribute to answering important scientific questions, in those very early days of COVID, that we wanted our patients to be represented so that those answers would be representative of them. Those were hard, those first studies -- I've been a research nurse for a long time and those first studies were hard. Half of the people that were in our first study died. It was hard, hard work. You were mostly consenting and speaking with family members, because the patients couldn't speak for themselves. Normally, to give context, clinical research is us trying to be a little bit of salespeople and convince people why being a part of our project is a good idea. Dr. Krishnan had people calling him at all hours of the day clinicians, because family members were begging for anything to have any sense of hope to have their family members be a part of a study, because maybe it would help, right? So, we just did as much as we could in the hours of each day, right? It's unlike any studies and those that I've ever done, where you just were like, how many infusions can we give in one day, that was basically our limiting factor. Normally, you're not begging, but you're really working to get the people involved in our normal projects. So, this was a very different sort of tenure. The hospital, at that time was a very different environment than normal. Nobody was allowed in. We're an academic medical institution. So, there's usually students everywhere, family members, all sorts of support people. There were nurses, attending doctors and fellows, and nobody else. It was full. The patients were overflowing, everyone was overwhelmed. And it was silent at the same time in the hospital scene. Definitely a feeling that I personally hope we never experience again, but one that I will never forget. At some points, when we were going to do those study treatments for those patients, none of the nurses were even our nurses, because so many people were out sick, that a lot of the staff were sort of agency people. So, it was really a very -- like I'm sure you've heard from many others, people rallied. I think it really was a time that that kind of research was supported really significantly. So that was great. But I think those were sort of the early days, and our team doesn't generally do a lot of inpatient work. Currently, that's not where we normally spend a lot of time. So that was a little bit different from us. But again, that's what the institution needed at that time. We did our best to rise to the occasion. And then I think people had had a few months. So, they were starting to be able to spend a little bit more time. NIH had put together their plan of what the research infrastructure was going to look like around COVID, and set up funding and everything that would go along with that. As Hugh mentioned, we would become a big part of the Active Four. One of the early scientific areas of interest was how blood clots are related and coagulation is related to COVID. There were many sister studies that all went together around the country on those, and UIC had a unique role in that the patients -- the studies were all a little bit different. So, some people were enrolled while they were in the hospital, others in the emergency room, and so on. But they all needed to be followed up by phone, of course, we couldn't bring them in, it was COVID, everything was closed. UIC actually served as the communication center nationwide for those projects. So, all the patients that were enrolled into those NIH studies. The timeline is tricky. I don't know if you remember the dates, Hugh. But over those months and years, more followed up. And that effort was led by our team. To me, this was a big growth point. And I think a point of pride for what we were able to do. This was really a merger of folks from Hugh's team and my team. I think we took the approach of, you got to get the job done, you got to get the surveys completed, that was really the bottom line. But we really were able to bring to the forefront, a human centered design layer. And I think that's what made it so successful. A study only as good as the follow up data that you're able to collect when you're doing that sort of work. I think because we really

put, we took a people first approach, the retention ended up being pretty amazing, and really put UIC on the map in terms of being able to be a leader at that time of pretty significant crisis.

Hugh Musick 24:35

So, there were other things happening in parallel while these activities were going on, because this was without precedent. There were people thinking in new and novel ways. One of the people I would call out is Dr. Terry Vanden Hoek, who was the Chief Medical Officer of the hospital at the time. He's still the Chair of the Department of Emergency Medicine. And what was happening is a lot of frontline staff in the hospital were contracting COVID. And we wanted to make sure that when they were sent home, that we would be able to monitor how well they were doing. He engaged in conversations with a Chicago startup, called physIQ, p-h-y-s-i-q to do remote monitoring. So physIQ had developed a technology for remote monitoring and basically looks like an oversized band aid that a patient would put on their chest, they would go home and, a couple of times a day, all they would have to do is hold a dedicated flip phone up to that monitor, and it would upload their vital statistics into the cloud, which would then be monitored by a nurse who they had brought in. The standing up of that was very innovative. It was in the spirit of how we best protect our frontline staff, and also really trying to think that technology has some potential solutions here that we should really look into. If you spoke to Dr. Vanden Hoek, I'm sure he could talk much more about the research that went along with that. But physIQ was a remarkable partner in that. The other thing -- and I think that this is just more reflection of Dr. Vanden Hoek's extraordinary compassion -- was nationally, there were a lot of news stories going on. And because, to Lauren's point, there were restrictions on people who could come in and visit in hospitals. And we weren't unique in this. I mean, this was true and happening nationally. Dr. Vanden Hoek was seeing on the news how people in other hospitals around the country were dying alone. He was very concerned about that. So, he asked, IHDD to think about what they might do. And at the same time, he was working with Cubs Care, the philanthropic arm of the Ricketts family. And we were able to get a donation -- I believe it was 50 iPads. So that people could be in communication if they didn't have their own devices. Since the UI hospital actually serves an underserved population, there were plenty of people who didn't have those devices. So, to make them available. Then IHDD was asked to think about what is really the protocol in which the technology would be deployed? And what would the experience be like? So, we did work early on with that. So, this is all March, April 2020. And because of Dr. Krishnan's, early engagement in the clinical trials to address what was known about the disease at that time, he was party to a number of conversations that were happening at the national level. And fairly early on, he knew that vaccines were going to be available probably before the end of the year. We started conversations, saying, well -- he had put forth the idea that because the communities that we serve tend to be underserved, there will probably be vaccine hesitancy and skepticism, and that we should probably start to work on that as soon as possible. So, something that we did, that extended beyond the university in the healthcare system was to convene -- within the Chicago metro area -- leadership from the Chicago Department of Public Health, the Cook County Department of Public Health, the Illinois Department of Public Health, along with civic leaders, philanthropic organizations, and community organizations. What we put forth was an articulation of this hesitancy that we anticipated and because underserved communities' relationships with the health care system have been fraught and has a long history, that messengers within the health care system writ

large would likely not be well received within communities, and instead needed to come from trusted messengers. So, we brought that message very early in the pandemic, to all of these organizations in Chicago and said, “we need to mobilize and start working now on this issue, so that when vaccines do become available, people are willing and able to receive the vaccines.” So, in those conversations, we were very much engaged with the Michael Reese Health Trust. We came up with an entire vision for them about what the situation was and what the plan needed to be. We brought all the parties together; we sort of gave them a North Star. And then the Michael Reese Health Trust found funding, because we were doing other things to actually then take what we had articulated as a strategy and a vision, and brought in then, an organization, which is globally known, called Partners In Health that to operationalize that. At the same time, we were we waging communications campaigns, so we were speaking with the press, there were appearances on television to talk about what was going on, what was known, what wasn’t known, efforts to do outreach into communities. And to as great an extent as possible, help people stay safe. In those early days, remember, since there were no vaccines, everything was masks and hand sanitizers and things like that. So just making sure that people were connected with resources to get those sorts of things to help keep them safe.

Jessie Knoles 32:43

It just seemed like vaccine hesitancy was a nationwide thing amongst several different communities, philosophies, backgrounds. How did IHDD figure out the most successful ways to tackle vaccine hesitancy or even combat vaccine misinformation? What do you think was -- because it is such a human centered, people first approach, was actually going out and talking face to face with community members about vaccines? What do you think was the most successful strategy that you prioritized?

Hugh Musick 33:35

Remember, this is before vaccines were even available. We are six months ahead of this. There was limited information, vaccines weren't available. So, our approach was, what do we know about the disease? What can we share about this? What can we share about who it's affecting? Who it’s affecting disproportionately? What we outlined and what others ran with them were, what are the key messages that people in the community need to know about what's going on? Because remember, this was at a time when people were trying horse medicine. We had a president who was proposing to inject bleach into ourselves. We wanted to actually let people know how to distinguish between what was evidence based -- what is actually known from the scientific community -- and just provide the facts as they were known at that time.

Jessie Knoles 34:49

Okay let's see. Lauren with these clinical trials, were there clinical trials in the beginning -- there were trials to simply figure out what COVID is, and what was doing to the body -- but were you also working with trials for testing or vaccines? Or even now, are there still trials for long term COVID on patients?

Lauren Castro 35:31

Sure. Yep. You're exactly right. The first different studies, we're really just trying to understand what was happening. And so, there was a lot of what we call observational studies, where you're just sort of following people as to what naturally happens. The project that we did with Verily, the research arm of Google, earlier on, was an example of that. There were no treatments, but rather, we were just collecting survey information and collecting biological specimens from people over that time: when they were sick in the hospital, and then following them around afterwards. Those obviously expanded. Our team was not involved in the vaccine trials, although hopefully your team is also talking to somebody from Dr. Novak's team. And they're the key folks that led the vaccine efforts. Dr. Novak is a pretty renowned expert in that area. We actually collaborated our teams on a few different things. Sometimes studies work pretty synergistically that if you are in one study, it might make sense to be in another or sometimes they wouldn't qualify for his studies. And so, then he would send them to us, or vice versa. We did work pretty closely: Dr. Krishnan and Dr. Novak are close colleagues. But I think the treatment trials that we participated in, or the one that I already mentioned, the active one where we were doing all of the follow up nationwide, those patients were receiving an anticoagulation medication or the placebo. That was a treatment trial. And then some of the earlier ones that we did in the hospital were also treatment trials, the industry studies. Those were in the inpatient setting with infusions. The most recent effort that we have, is actually also observational, but we are the -- UIC and our team -- with our team at the lead, were selected as the hub in Illinois, for the recover study, which is NIH's response to long COVID. They kind of centralized the research and funding into a large national cohort study that will have about 17,000 people in it nationwide. And we were chosen to be that representative for this area. We have in addition to here at UIC, we also have a site in Peoria, so the College of Medicine, Peoria is collaborating with us so that we have representation from both urban and a little bit more rural area. This is a cohort project right now. The base of it is to build a foundation of patients that both have had COVID and have not had COVID. In about the past eight or nine months, we've enrolled more than 750 people into that project. We'll have about 1000, when we're complete. This was really meant to be a foundation -- that's the kind of the strategy and overall approach from NIH -- and then already in the process are clinical trials that will come on top of that. We will then be able to offer those to the patients that we've enrolled in the observational study to say, "Mr. So and so thank you for being a part of the observational study, we also have this treatment study that you might be eligible for, would you be interested in participating?" We're doing that because we think that the science and knowledge that's going to come out of this will be really informative to the future of clinical care and how we treat and prevent long COVID. I think we also came in with a very sort of community engaged and people first approach to this. And I really think that's why we were chosen to lead this project as opposed to others in the Chicago area. We've taken very close relationships with community partners, ensuring that we have trusted messengers in the community. We really want the people in this cohort to be representative of the folks in the surrounding community to UIC so that they're represented period and also so that when the clinical trials are coming along -- which sounds like they're close in the next few months is what we're hearing -- that we'll have that diversity and representation there. That's kind of the big project. I don't know Hugh if you remember the dollars, but I think it was like more than $20 million of a project. Yeah, pretty big one.

Jessie Knoles 40:00

And Hugh, you're also working with recovery COVID, correct?

Hugh Musick 40:05

Yeah. But my role was really more early on helping Dr. Krishnan message about community engagement and doing some initial outreach to find those partners, having some initial conversations, but now, there's all apparatus within Population Health Sciences. So, I'm more of counsel.

Jessie Knoles 40:39

Okay. So, is that how you two on projects that might have overlapped or work together? Is that sort of how the relationship goes? Hugh, you tackle early stages of community outreach and engagement. Then Lauren does the physical research or, how is that relationship between information education, and then scientific research working within the Population Health Sciences program?

Hugh Musick 41:11

Well, I think it depends. We have dedicated designers who continue to work on a daily basis with Lauren on this work, and that's what they do. My particular role is really more in strategy and laying out who are all the players? What is it that we're trying to achieve? And in that way, I serve as a sounding board and a thought partner for Dr. Krishnan.

Jessie Knoles 41:54

Okay. Okay. Has the COVID 19 pandemic affected the way in which you think about human centered design?

Hugh Musick 42:04

That's a really good question. No, it just calls for more of it. I think one of the things that we didn't anticipate is certain assumptions about behavior, and that you could make a compelling case based on facts and information. And that that would be persuasive. I think that what we've discovered -- and this now extends beyond just COVID -- is that pointing people to the veracity of information doesn't necessarily compel them to change their behavior and work in their best particular interests. I think what is interesting, and what distinguishes HDD among practitioners of human centered design, is most of the design community comes up with the idea and leaves it at that. But because of the pragmatic nature of the Population Health Sciences program, we get very much involved in implementation. As we follow the timeline, I can tell you stories in

which we are much more directly involved in logistics and things like that. It has changed for me, where I think design can add value within healthcare broadly, and more specifically, within the delivery of healthcare.

Lauren Castro 44:03

I think too, to have at least on the research side of design, I think actually -- what's that saying, never let a crisis go to waste or some such thing. I think it really provided an opportunity when it was needed most for the principles of design to shine, and often in the very academic rigors of clinical research. And it's like, well, this is how we've always done it and so, this is how we're going to do it again on this project and breaking through that to say like, “are you sure we can't think about how we're going to communicate the purpose of the study, or how we're going to prepare recruitment materials,” or all of the things that are very common in the research process. That's often an uphill battle. I think Hugh, and myself and others, we continue to advocate for that, and I think we've made progress, but the COVID projects needed to move at a pace that was unlike anything the research community has really ever seen, or maybe at least since the AIDS epidemic. I think for that reason, when we came in those -- just like when you're in crisis in the hospital, and you got to come and make a plan and do it, and there's not a lot of time for discussion -- I think we came, we knew how we could help, and we offered it and there wasn't a lot of, “oh, no, we don't want it that way or whatever.” We just kind of did it. And people were like, wow, this is different. And this is going to be really helpful. I think they offered a little bit of an entree to let others see. And now they're coming back and asking for more on things, even though we're not in crisis mode, right? I think that way it was hard, but it was helpful.

Hugh Musick 45:43

I think it's important to understand that the pandemic -- even while the surge may be over -- this is still the largest investment that -- that's correct, Lauren -- NIH has ever made, in tackling any sort of condition that exists out there. The emphasis now is in these forthcoming clinical trials, but more importantly -- and with if we’re covering the work that Lauren is leading -- is this issue long COVID. A new issue that's not well understood, it has lots of dimensions with regard to people's experiences, because they are going to their doctors saying I'm feeling this way, and there's just not a body of evidence that exists right now. So early on, we conducted conversations with people who have experienced long COVID. They're not necessarily our patients, these were patients from all over the country. But one of the things that they spoke of -- and is a common theme -- is one of feeling like they were not being taken seriously by their providers, who would dismiss what it is that they were having as either psychosomatic or not really characterizing what they had as something that patients thought it was. So, brain fog was something or things that manifest chronic fatigue, were sort of dismissed, but now, the community is becoming much more... That wasn't very articulate. So, Lauren, do you want to say that better than me?

Lauren Castro 47:54

No. I think that's fine. I'm happy to have a follow up. I'm happy to add on.

Jessie Knoles 48:04

So, Lauren going forward, do you think that thinking about research how you did during the height of COVID-19, is that going to affect research, unrelated to COVID-19 moving forward, but immediacy of a people first approach?

Lauren Castro 48:22

I think people first, I think the use of technology, I think the flexibility and research design and how projects are set up. I think all of those things were pushed to the limit, and clinical research, like a lot of things in healthcare and really the world at large, they move slowly. Change happens very slowly. I think a cornerstone of the research process is that everyone signs a consent form, it's really long, it is not people first, longer than what you signed to buy a house often, right? It's essentially a legal document. That has to be signed and traditionally, it had to be signed on paper with a physical signature. And that is just how it's always been up until a little bit before the pandemic, but very kind of hit and miss. I think those of us that were boots on the ground, were kind of like, well, this is crazy, I just bought a house and I signed online, why can't I join a research study and sign online or other big momentous things in our lives. I think examples like that were pushed, it was no longer a choice. We couldn't get a physical signature, right, everyone was stuck in their homes. It forced projects to make those pivots. I think some of them push the system a little bit too much and were not comfortable either for the participants or the staff or others, but I think many of them are here to stay. So many of our projects now, for example, are continuing to use an electronic option to let people sign consent forms. Most of our projects previously, had a series of in person visits. That was the bread and butter of how projects were set up. Many of those pivoted during the pandemic. They said, they got creative. They said, let's mail kits to people's houses, let's do surveys by phone, let's send people emails with links. And pieces of those were there before COVID, but I think the whole shift of taking an entire project and doing that pivot, not a lot of people were doing that. I think now that the pendulum had to swing really far, in order to accommodate for everything that was happening during the height of the pandemic -- and I think it's come back a little bit -- but I don't think it's going to go back to where it was. I'm somebody that's always liked to push the limits and innovate in our world. For me, I think that's exciting, I think accelerated a lot of things that were ripe to happen. There's always a little bit of backpedaling when things are built and done quickly and under pressure, and sometimes you need to pause and reflect and refine a little bit. I think there'll be some of that in the coming years. But largely, I think it kind of pushed things that were on the brink over the edge in a positive way.

Hugh Musick 51:25

So, the other thing that -- no, I want to go back to the story of the logistics. One of the things that we were asked to do, beginning in July – well, the conversations began really in June of 2020 -- there was an assumption that people were going to be coming back to school. And how we were going to keep people well. So, I have to assume you've had conversations about the SHIELD program, and the saliva-based testing. IHDD was asked to implement saliva-based

testing at UIC. There was no plan. No sort of roadmap. All we knew was what the objective was, was to set up sites where people could get screened. That was a very intense, seven to eight weeks. I think it's a testament to how a university can work well as a system. You had leaders from the administration, from student affairs, from the healthcare system. You have people who've been long serving employees here who really know the ins and outs of everything that goes on behind the scenes to keep the university well running functional. That all came together to set up the apparatus that would allow for high volume screening, while keeping people very safe. It was exhausting. Those were 80, 90-hour weeks for two months to get that up and running. But then it worked and it -- I mean, they've administered, I have to imagine just in Chicago, a million or more tests. They're the individual heroics of people, ordinary people, was extraordinary. And in your project, I think it would be really important to capture the contributions of people who are involved in that.

Jessie Knoles 54:13

How many testing sites were implemented at the beginning of June, July 2020?

Hugh Musick 54:23

So, this was all in preparation for students returning in August. The major site was at the Dorian Forum. Okay. There was a second site that was stood up in Student Center West for the Health Sciences colleges. Those were the two main sites, but a week in there was also a plan to have a third site set up right in the middle of the East Campus quad. And that was a remarkable day because we had about four or five days to put that whole thing together. And it coincided with a day that was over 100 degrees. Everybody who was involved in that, it's very memorable, because how quickly everything had to be set up, and then also just the additional stress of it being remarkably hot.

Jessie Knoles 55:23

So, this was the COVID SHIELD tests that that the University created?

Hugh Musick 55:35

Yeah.

Jessie Knoles 55:36

Were you working, or did you have any partnership with -- oh, I don't, I don't remember what it was called. But it was the app that students used to track their test results and basically show a pass that they've --

Hugh Musick 55:51

That was being developed. That was all part of the same team that was working on this. IHDD was more designing the workflow of getting students in and getting them out and the way that that would work in the way that information would follow the saliva samples that were collected.

Jessie Knoles 56:14

Okay. Great. In terms of testing, did IHDD work? Because there's such an emphasis on underrepresented communities, how did that testing look for those communities, the communities who aren't students or faculty of the university?

Hugh Musick 56:37

This was only within UIC. So, we did nothing in the community with regard to that.

Jessie Knoles 56:43

Okay. Great. Thank you.

Hugh Musick 56:49

One of the other things that happened that summer that I'm recalling is there's a family medicine doctor, Dr. Brandon Harris, who took on a group of medical students to do follow up calls with patients who had been hospitalized at UI hospital and check in on them. In one case, they actually had someone who they could very clearly hear but was beginning to go downhill. And as a result of that, was able to get that person back into the hospital for care. So, if you want to talk to Dr. Harris about that, I will strongly recommend that.

Jessie Knoles 57:49

Great. Just for the sake of clarifying here, which specific projects did you Hugh and Lauren work directly together on?

Lauren Castro 58:03

I think our teams interact, right? Like Hugh is the director of IHDD. He is just that, he's not like boots on the ground for other projects. But the people that are on his team, that report up to him, I think are interworking on almost all of the COVID projects. We have human centered designers that work, I think on almost everything, right Hugh?

Hugh Musick 58:25

Yeah.

Jessie Knoles 58:23

Okay. Great. And is the project vaccine core, was that part of IHDD's project?

Hugh Musick 58:38

That was an initiative of Dr. Krishnan and me.

Jessie Knoles 58:41

Okay. Separate from I --

Hugh Musick 58:44

No, but he and I are the co-founders of IHDD. So, whether you want to call it IHDD or Population Health Sciences, we're all the same thing. It was UI Health taking a leadership position in the Chicago metro area. Really sort of setting the agenda.

Jessie Knoles 59:08

Okay. Could you talk about vaccine core and what its responsibilities were?

Hugh Musick 59:18

It was about engaging communities and overcoming issues of skepticism and vaccine hesitancy and to mobilize them and it was also to get out and promote available information on it. You can probably follow up with -- I would talk to Rachel Reichlin at the Michael Reese Health Trust, who was the funder of all of this and brought in Partners in Health who could tell you more specifically. If you give me a second, I might be able to pull up some slides.

Jessie Knoles 1:00:07

Okay. So, in the meantime, once students had returned to campus, what did the operations look like for both of you? Were you working directly with students and faculty? Or were you still pretty focused on -- at least with your research Lauren -- community members who had COVID 19?

Lauren Castro 1:00:34

Yeah, I think students we usually work with in a more of a one on one or mentoring role. So, we almost always have students that are a part of our team in one way or another. But not large scale, we're not teaching courses and we don't have those sorts of things. We're also on the medical side of campus, not the other side of campus. So there obviously are students on this side, but less so. I think it's brought the life back, right? I spent a lot of days in this building, being the only person here and you could just walk across Roosevelt, because there were no cars, and nobody was here. So, I think in that way, it was an eerie time to be on campus when no one was here. Largely, I think we both, Hugh and I's teams, we decided, obviously following the university guidelines, but how we decided to bring our team back, be physically on campus, and we did that over time. Most of us are still in a hybrid sort of remote in the office situation.

Hugh Musick 1:01:53

So, I can just share with you one slide. I'll find it's going to take me a second.

Jessie Knoles 1:02:16

You could also, if you're willing, you could also email it to our project email, so that we can look at it.

Hugh Musick 1:02:25

I have it right now. There's the whole slide deck that we presented to all 110 people who showed up for the original vaccine core partnership slide deck that I can share with you. It's just showing that screensharing has been disabled.

Jessie Knoles 1:03:01

I think Inbar is the host now, can you? Can you get it now Hugh?

Hugh Musick 1:03:20

Yep. So just on a single slide, I can just show you some of the stuff that we did. What you see right here was the architecture that became the surveillance testing. What you see here on the right was a protocol for student outreach for patients that Dr. Harris lead. This is some of the work that we did, and then down here was for Dr. Vanden Hoek about making technology available for people who are hospitalized who might end up dying alone, how we could provide them with its services to be very attentive to what their needs are.

Jessie Knoles 1:04:31

Okay, great. And this was created January?

Hugh Musick 1:04:36

So, this was in July, August of 2020. Is that right? Is that when students came back or did students not come back until -- was it the following year was 2021?

Jessie Knoles 1:04:50

We came back 2020.

Hugh Musick 1:04:53

Yeah. So, this is 2020 that this was also probably summer, early fall of 2020. This was -- I want to say -- maybe April. This was very early in the pandemic that we did that. The other thing is that -- I don't know if I can -- was some of the stuff that we were more broadly involved with. I think I've talked a lot about most of these. Yeah, I'll just send you the vaccine core partnership stuff.

Jessie Knoles 1:05:37

Okay. Yeah, this would be great. Our project is also collecting documents for ingest in this work. So, if either of you have PowerPoints, emails, correspondence, anything that might contribute to this project, that would be great as well.

Lauren Castro 1:05:57

Hugh, the one that's coming to mind that I had -- COVID is such a bad search term in my email, I have to think a little bit harder. But at one point we did -- it was fairly early on -- one of our team meetings. It was all of us on Zoom, everybody was still at home. I think Hugh put together a deck, I think Jerry gave you all those goofy pictures of Lourdes and I suited up. I think you added some IHDD stuff, and I think there might have been some art things or something.

Hugh Musick 1:06:30

Oh yeah no it was all the posters that I had done, as my little side --

Lauren Castro 1:06:34

The whole deck was great. We should find that. And look --

Hugh Musick 1:06:37

I have no idea where that is. I think Jerry put it together.

Lauren Castro 1:06:42

I don't know where that is.

Hugh Musick 1:06:45

Yeah, it was things like wash your hands.

Jessie Knoles 1:06:49

That would be great. We would love to collect anything that you all are willing to give us just to document this strange time for everyone. So, I think at this point in the interview, I'm just going to ask a few closing questions to sort of wind down. Overall, has the pandemic affected the greater operations or objectives of the Population Health Sciences program? If it's affected it. If not, that's fine.

Hugh Musick 1:07:28

Lauren, do you want to take that one?

Lauren Musick 1:07:31

Sure. I think we already spoke to this sort of broadly speaking, but I think the short answer is yes, I don't think that you can have such a shared national, international crisis without it affecting operations. But I think due to the strong leadership, and the great team that we have, that we came out ahead on the other end. I think it has brought new and different kinds of work to our team, which has allowed us to expand our team and gain new team members. I think the opportunity to have a remote and in office hybrid work option has really been beneficial, especially in the current hiring situation, which is really difficult. I think a lot of it we kept on keeping on with the work that we were doing. But I think it's definitely a shared experience. And I think we all have the way that we experienced it at home on the homefront. We are also all experienced it here, together in a very real way, right in the workspace. So, I think it will be as you all are working to preserve that. I think it's kind of collectively with all of us and that way as well.

Hugh Musick 1:08:48

And I would just take the more macro picture is that what COVID accentuated were the health disparities that already exist within Chicago and exist nationally. And the urgent need for

functions like population health, to work for years ahead and strive for health equity, and really what that means, which is the things are not instrumented in a fair way, right now. So, the US healthcare system has a long way to go. I would say that the extraordinary thing about UIC as an institution, is its commitment to social justice. And certainly UI Health, its commitment to health equity. There are a lot have academic medical centers that focus on raising the ceiling. But this institution is really focused on raising the floor. I think that has informed everything, I think that it has pointed to how great the needs are. And we know, also at a macro level, that the gap between people of means and people without means has only grown greater. And that creates an imperative to try to do something about this because everybody should have an equal chance of having a healthy productive life.

Jessie Knoles 1:10:51

Did the pandemic affect your personal career? Focus or goals?

Lauren Castro 1:11:05

It's good question. I don't think so. I think it lended sort of the opportunity to network and collaborate and have the opportunity to work with folks on a stage that maybe professionally I hadn't, yet. So, I think being able to be at the at certain virtual tables to plan such large initiatives, is something that I had very small roles in before and ended up having a much larger role in on several of these projects. And so, in that way, it's opened doors that maybe hadn't gotten to that point. But I think in terms of the actual day-to-day work didn’t change significantly for me, just more of it.

Hugh Musick 1:11:59

I would say the same thing.

Jessie Knoles 1:12:02

If you could have done anything differently, would you have done something differently? And what would that have been?

Lauren Castro 1:12:17

What do you think, Hugh? I don’t think I have any serious regrets about anything.

Hugh Musick 1:12:26

I don't think I have any serious regrets. I do think that the pandemic pressure tested all of our systems, not just within the university, but across the nation, in our health care infrastructure. I

think it's been a wakeup call nationally, about the need to be more prepared. I think one of the real things that has affected everybody across the board is fatigue. There's especially for frontline people, there's been a lot of trauma that they've experienced, especially people early in the pandemic, where there was such high rates of death. Those images of the trucks parked outside of hospitals in New York that were temporary morgues are haunting. I think we need to recognize that our healthcare workers come in every day. They're confronted with this, and then they're just expected to show up and continue to go on. So what it makes me hope for is that we can build healthcare system infrastructures that are more empathic and recognize that people on the front lines have faced a lot of trauma and that they need support in order for us to function and thrive. I would say the other key lesson is, this is a wakeup call for our healthcare systems to be more agile and adaptive. Because inevitably, there's going to be something like this again in the near future. Instead of being blindsided by this we should have a way to stabilize more quickly.

Jessie Knoles 1:14:40

And kind of going off of that, is there one specific lesson either professionally or personally, that you've learned over the past two years?

Lauren Castro 1:14:59

I think there's probably many if we pondered long enough to be philosophical. What I want to think was my goal as a leader, but I think really became so vital during the pandemic is that what makes things move forward and makes progress happen is the people that do it. And so, I think as a leader on our team, I leaned really hard on several folks on our team, and they all really rose to the occasion. I think like Hugh saying, with health care workers, and I think that is true. Of course, I'm a little biased being one, but I think it's not just healthcare workers, right, it's everybody. I think that's something that I'm trying to carry forward. Every day, there's deadlines that need -- or things that need to be done. You're always needing things done yesterday. But I think that people are really at the core of what's happening. I really try hard to have that be the North Star of everything that we're doing. I think without that some of the work might get done, but eventually it'll fizzle. I think that COVID really -- I spent a lot more hours in these four walls than I care to admit during COVID. I think with those few people, and I think without them, I think we almost all went crazy together. But we didn't because of one another.

Hugh Musick 1:16:35

I don't know if I've any particular lessons.

Jessie Knoles 1:16:41

What permanent changes do you think COVID has left us with in terms of how we operate in our workplaces?

Hugh Musick 1:16:56

I think virtual office and what we're doing right now is here to stay.

Jessie Knoles 1:17:03

So, your hybrid model right now is an indefinite hybrid at this point?

Hugh Musick 1:17:07

I think everybody has realized benefits of it, which is if you're not spending two hours plus commuting can actually be pretty productive. Also, in my mind it has accentuated the value of in person meetings, because there are times when it really benefits to get everybody in the same room. I think everybody appreciates it more, in some ways.

Lauren Castro 1:17:37

Like the family reunion effect, right? For better or worse. Also I mean, really pragmatically speaking, I think for both Hugh and I's team, it's opened up opportunities of somebody doesn't have to live in Chicagoland to necessarily be on your team. And I think we had a few very exception examples of that in the past, but, and obviously, it doesn't work for every role, right? The person I have doing my study visits can't be working remotely, because they need to be with the patient in front of them. But if we need our project manager to oversee a project, maybe that person can live in Seattle or Vermont. It doesn't necessarily matter. So, I think our team still trying to figure out what the right balance of that is. But it can be hard to find the right fit for our team. And so, it's been nice to have those doors open a little bit more.

Jessie Knoles 1:18:30

Okay, with the pandemic's various waves, variants, constantly changing guidelines, what do you think about the University System's responses as a whole to the evolution of the pandemic?

Lauren Castro 1:18:52

I think largely speaking might be a challenge. I'm not a UIC alumni. I have not been a student for a long time. So, I guess I can't really speak from that perspective. I think from the University perspective, in terms of how it took a stance on research, I think it was a little bit slow. We were kind of left to our own vices at the beginning. And even when guidance did come out, it's hard to create guidance for every possible kind of research, right? That's why they don't normally make those kinds of mandates. I think that especially those of us that were doing work where we needed to, for example, do pulmonary function tests, where somebody is going to forcefully breathe right into your face, what PPE does that require? So, there was mixed signals at some

points of, that health system says this, the University says that or doesn't say anything at all. And so, I think that took a little bit more cognitive load then for our team to figure out and sort through and do our best to make a plan on what was available at the time. But I think largely speaking in terms of everybody being back on campus and being able to get tested for COVID regularly and get fitted for n95s. And having all of those sorts of things available worked really well. I think from the health system side alone, the command central assists that was put into place with Dr. Janet Lin and others I have the utmost respect for that team. I think they did incredible work during that really difficult time.

Jessie Knoles 1:20:37

And is there anything else that either of you would like to add or talk about before we wrap up?

Lauren Castro 1:20:45

No, I think I'm good. Thank you.

Jessie Knoles 1:20:47

Thank you very much for speaking with me.

Lauren Castro 1:20:50

Yeah, absolutely.

Hugh Musick 1:20:52

Thank you. Good questions.

Jessie Knoles 1:20:56

Thanks. I felt a little scrambled but yeah, I really appreciate talking with you both and it's definitely helped me understand Population Health Sciences program and how it fits into the UIC greater community. So, thank you very much.

Lauren Castro 1:21:12

When you graduate and you're looking for a job you know where to find us now.

Hugh Musick 1:21:16

You should come over.

Lauren Castro 1:21:17

Yeah, come see us, we have a cool space.

Jessie Knoles 1:21:19

I think before I had spoken with both of you, I'd spoken with Dr. Robert Barish. And he invited our team to Chicago. So, we're in the works of getting out --