[SQUEAKING]

[RUSTLING]

[CLICKING]

PROFESSOR: Hello, everyone. Here we are in the fourth session of this amazing program that's coming up closer. In this case today, we have Suzanne Mitchell. She will be talking about health research into health entrepreneurship. And I'll pass it to her and let her introduce herself. Please remember, we want to hear from you. So feel free to ask questions. You can put them in. If you don't want to interrupt, you can put it in the chat and I'll read them to Suzanne. So ready for you.

SUZANNE MITCHELL: Good morning. I'm really happy to be here on this side of the boot camp. I was, I think, in the second MIT bootcamp, entrepreneur bootcamp cohort, and it was an intense experience. It wasn't health care specific, but it was very formative for me and began my journey as an entrepreneur.

I'm going to tell you my story and the story of my company throughout this session. So I'm going to not do a formal introduction right now at this moment, but I want to first say hello to everybody I got to meet in the interview process. It's good to see all of you again. And Gefti? say hi to you, shout out.

And I'm going to just start out by throwing out a question, because I think it's important to root ourselves in what my intention was in transitioning or just embarking on the work that I do. And so I'm just going to ask anybody here ever have the opportunity or try to stay on an exercise program, floss your teeth every day, change your eating habits, wear a condom every time? Anybody here have an experience like that? Pretty much everybody.

And tell me in one word what that experience was like for you. And just shout it out or put it in the chat. But I'd really love for us to be interactive and conversational. So feel free to just open up your mic and say-- I see Valeria, you have your hand up. What was it like for you to try to embark on something new, like a behavior change?

AUDIENCE: Well, in the beginning, it's hard to keep up with the habit, especially if you're trying to with something about your daily life. I guess once you're able to [INAUDIBLE]

SUZANNE MITCHELL: I saw somebody put life changing, which means that it was probably--

AUDIENCE: [INAUDIBLE]

SUZANNE MITCHELL: All right. We'll come back to you. Anybody else have a one word story for a lifestyle change? Painful. I see painful. I mean, in general, it's hard work and full of ups and downs.

And for those of us who are in pretty good health, I mean, that can feel just like a thing that maybe we keep coming back to and trying. It raises its level of importance when it becomes a matter of life and death or even harder if it becomes a matter of consequence, but you're not really feeling any of the negative consequences in the moment of opportunity to make a difference in your future health.

I would add the additional complication or complexity that when you are not able to meet your basic needs in life, or if you have a complex comorbidity like mental health or other issues, getting it together is really difficult. And in my experience, taking care of people and working with people in that situation, it was both difficult as a clinician to feel unsuccessful, not able to provide people with the kind of support that they needed, and to watch people face the consequences.

And so my story is really about how I was trying to help myself while also trying to help my patients, because I was starting to feel burned out by the lack of progress that I was making with people. And I just felt like I couldn't have another conversation about quitting smoking without better tools. And so I started to, out of my own drive, to try to make my patients-- better serve my patients, trying to find better ways to deliver health care.

I also have a personal story with my husband, who experienced a very serious brush with cancer and thankfully had a very good outcome, but a very difficult experience. And those experiences informed my journey from being a primary care doctor to a palliative care doctor, health services researcher, to ultimately what I spent most of my time doing today, which is trying to deliver better health care through as an entrepreneur.

So I'm going to try to use some slides to tell my story, but I really would like this to be interactive. So please, if you have something to share, you can just raise your hand or shout out or you can write a comment in the chat. We're going to be monitoring the chat. But feel free to share your comments or stories.

OK, I'm going to screen share. Can you see my slides? I can see my slides, but I cannot see you. So I'm going to stop again and see if--

PROFESSOR: Can't see your slides.

SUZANNE MITCHELL: You can't?

PROFESSOR: No.

SUZANNE MITCHELL: OK, let me try this again. I'm going to try to do it so that I can see you and still see my slides. All right, now I lost my slides. Hang on a sec. All right. Sorry, hang on one second. I thought I had them ready. OK, there we go. Share. All right. And then slide show.

PROFESSOR: We can see them.

SUZANNE MITCHELL: How's that? Now I can see you and I can see my slides. Sorry about that.

All right, so we're going to talk today about translating health services research into health care entrepreneurship. And in my experience as a researcher, most of the time research questions or people pursue research questions or pathways that really have something to do with their own passion or curiosity. So my story began that way as well.

So I'll tell you, I started out, I'm from the area here. I grew up in Arlington, Massachusetts. I went to Bentley College to study business. And after spending a couple of years working for a think tank that was working on the internet for the military, I made the decision to go to medical school. And I changed gears, went to Wake Forest University Medical School in North Carolina.

And from Wake Forest, I went to California to study family medicine at Adventist Health, primarily because I thought, oh, I'm going to go in the Peace Corps, and I want to deliver a lot of babies and take care of people from cradle to grave and learn Spanish. And so I ended up in California for 10 years.

And in East Los Angeles, where my practice was, I was experiencing a lot of difficulties delivering care to my patients. And I couldn't figure out-- I didn't understand why it was so difficult to get services for my patients at that time, and why they were experiencing poor health outcomes. And so I kind of embarked on a journey through epidemiology. I wanted to build up my skills to understand and study what I was seeing in my practice.

And so I got a master's in clinical research at UCLA, and I started studying childhood obesity of all things. Because at the time, I did a lot of maternal child health, and I just started to see very, very young children, infants, toddlers, preschoolers with obesity. And it was the very beginning of the obesity epidemic in childhood. And when I went to the library to get the answers, where I always went to get answers, there was no literature about obesity in children at that age level.

And I started going and looking for people who were experts in the area, and they would tell me, oh, they're just chubby babies. They grow out of it. And fast forward 20 years later, we know that children, there is an epidemic in very young children and even in infants and toddlers, of being overweight and that those have consequences, lifelong consequences. But at the time, I was just starting to understand how to translate what I was seeing in my practice in a population level way.

And that became a fascination for me, because I was talking to patients, and they were telling me how difficult it was to manage their child's diet. And I thought that daycare programs were the problem. And I went and talked to a woman who studied early childhood education, and she basically laughed me out of the room and told me I had it all wrong, and that it was actually structured daycare that was helping children stay healthy.

And I started to realize that there was a process to understanding, one, how to translate a question that I was experiencing in clinic into a researchable question that would then turn into a solution. Because what I didn't want was to just understand a problem. I wanted to find a solution. And that is really the story of my journey from becoming a researcher to going into entrepreneurship.

I ended up coming back to Massachusetts, and I joined the faculty at Boston University, at Boston Medical Center, where I was for 16 years doing health services research. And that was really a formative experience, because my very first research project was called Project Red, the re-engineered discharge. And it went viral while I was on that study. It was one of three studies that came out at the same time that the federal government started issuing penalties for hospital readmissions.

And so immediately, there was an unbelievable demand for Project Red implementation. And I became an implementation specialist without really even planning to, because there was such a demand for an evidence based solution to avoid penalties. And so my experience told me that good research should go out into the world and make a difference. Today Project Red is one of the top 50 research studies ever disseminated around the world, really.

And so that was my first insight about research, and it really informed my next important study, which I'm going to share with you, called Women in Control. So designing research that solves a real problem with potential real solutions. That was what I really wanted to do.

So when you do research, I'm sure some of you out there are researchers and know how this process works, you have to start with a researchable question. And for clinicians, a lot of times, you understand the problem, but you don't know how to formulate it into a researchable question so that you can develop evidence around it. And what's been very interesting for me in going from a research environment to a entrepreneur environment is what I think of as an artificial line between what is rigorous research evidence and what's considered real world evidence.

And I would love to have a conversation about that while we are here today, which is to me, evidence is evidence. It's got to be rigorously gathered, interpreted, and analyzed in order to be informative. And what I think of as an artificial distinction between research and real world evidence is something that I encountered in my life and my journey from research to entrepreneurship.

So the research question, what happened was I started working on Project Red and we started working on chatbot systems, now called embodied conversational agents, to fill the role of educating people at the point of hospital discharge. And that introduced me to this human computer interaction that was a device, a human character teaching people their discharge education. And from there, I started to study technology to fill gaps in health services.

And in that process, I was introduced to immersive technology, virtual world gaming systems. And we wanted to see if we could use that system to address gaps in care delivery models that were unscalable but effective. So that led to my work called Women in Control.

So the Women in Control study was designed to look at a model of care called group based medical care visits, and whether we could make that model of care scalable with the use of technology. Now, you have to put yourself in the mindset of prepandemic, like 2010, before technology was really as ubiquitous as it is today or even in the five years following.

So we were really looking at using really innovative but really unfamiliar technology in a group of patients that were facing significant barriers to health care, but also had digital barriers to accessing health care as well. So they weren't familiar with technology and they didn't have good access to care. And as a result, had poor health outcomes.

Does anybody have any questions or comments up until this point about the research process? Any comments? Anybody here familiar with research? Just so I know who my audience is. I don't want to over share my research on expertise here, but I'll keep going.

OK. So we did this study called Women in Control. We wanted to look at diabetes. We were looking at an important medical condition that had been studied up to that moment, a model of care for chronic disease management that was effective, was a population level solution, but was unscalable in its implementation in real world settings. So in in-person settings. And so that study was called Women in Control.

And our question-- let me just minimize this here. So what did the evidence show us? The evidence showed us that-- and in research generally, when you're developing a research question, like in entrepreneurship, you do your customer discovery process. In research, we usually look at what is the evidence already available to answer this question and what are the gaps? And then the research should address the gaps.

And so what the evidence showed us was that there was poor access to effective chronic disease management among underserved populations that were leading to poor health outcomes and health disparities. There was a model of care with a lot of evidence called medical group visits, where instead of having one on one appointments, people come together for a two hour appointment in groups of about 10 with a clinician and an educator.

They get self-management education to teach them how to manage the disease. They get peer support, which teaches them strategies for implementing those care programs in their home life. They get medical management counseling. And it's a tremendously satisfying model of care for patients and clinicians.

The problem is the typical, barriers to cost effectiveness and efficiency. No shows, transportation, child care responsibilities, managing group infrastructure in primary care settings, and billing issues. So here's a great model of care. It works for population health. But there's significant barriers to implementation.

And so we wanted to ask, can technology make this model of care more scalable and efficient? So we're asking, can we offer diabetes group visits in a technology based environment that will increase patient engagement, increase efficiency and cost effectiveness, and will it be as effective as in-person classes or standard of care, which is one on one?

So that's how you create a research question. It's not that different from how you start thinking about how to build a product, but usually with the product you start with the customer interviews. So we're starting with a problem that we have, which is how do we use this medical group visit model of care in a way that's more effective and efficient.

And so the Women in Control study was a comparative effectiveness study. We had two active arms. One was usual care, which is in-person group visits, and the other was an immersive world translated curriculum where the women came together as avatars, went through 12 weeks of educational programming and medical management as a cohort.

And we looked at whether technology would deliver results that were as good as in-person. We call that non-inferiority. And that means it doesn't have to be better. It just has to be as good. Because in-person is good but not scalable. And so we needed it to be cost effective, efficient, and equally as effective clinically. And so we looked at physical activity, we looked at glucose control, and we looked at engagement.

And the most important thing in the pivotal moment for me thinking like an implementation specialist was engagement. So if you don't know anything about lifestyle products, research that looks at lifestyle change and lifestyle management usually has extremely high dropout rates. We had 77% of our participants complete our program, our study, which is exceptional. It's very exceptional to have that many people stick with the program. And for me, that turned on a light bulb that this is good research. It's solving a big problem with patient engagement, access to care, health disparities. We should be trying to find ways to bring that to the real world.

We showed improvements in A1C for a very high risk population. The mean A1C was 10, which if you're a clinician, you know that's very high at baseline. And we had a group of women who were not necessarily sedentary, but were needing to be a little bit more physically active.

And so what happens after you do a successful research study is you publish. You publish your results. You publish a bunch of papers. You present at research meetings, and you share your success. And then you try to build on that success or disseminate that success. And so my experience as an implementation specialist was I'm going to try to disseminate this.

But at the time, I was starting to get a lot of visits from entrepreneurs like you asking me to give my opinion about their ideas about new products. And I started to get curious about what is the entrepreneurial process. What are people doing? And it seemed like they were moving a lot faster than I could move as a health services researcher.

And so I started to wonder, how do I get into that lane? What does it take to start to do dissemination through that pathway? And that's when--

PROFESSOR: Suzanne, sorry to interrupt. Before you go into the next step, there's a question on can you elaborate more on the billing issues?

SUZANNE MITCHELL: On the billing issue? Yes, on the billing issue. So the issue with medical billing is that the insurance companies have rates for how much they would bill for a group visit versus how much they would bill for a one on one encounter. And so the group visit model, reimbursement was much less than the one on one encounter.

And so the people in the group visit movement have managed to figure out how to circumvent that, although it still remains an issue. Because as you may know, there's two models of reimbursement from insurance companies. There's value based compensation, where you get a monthly subscription or you bill fee for service, which is as people come, you can bill.

Now, if you're billing and you have everybody show up, then you might be able to cover your costs for implementing a group visit. But if enough people don't show up, then you can't cover your cost, and then your model becomes a problem for cost effectiveness. And so if your major barrier is getting people there and you can't bill unless they come, then your model starts to become weaker. And so group visits at that time had faced the barriers of transportation and no shows that made the model problematic for the most part. Engagement was part of the issue as well. Does that answer the question, I think?

PROFESSOR: I guess. And there's another question. How do you engage those with limited digital literacy?

SUZANNE MITCHELL: Exactly. So that was actually one of the most illuminating aspects of my very first-- so the paper-- my very first-- we did a feasibility study, and that was my introduction to this work. And I did the qualitative assessment of the women who did participate in the feasibility study. And in that moment, we enrolled 89 women. Half of them had never even sent an email. The average age was 60 years old. They had not just low health literacy, they had low digital literacy and poor diabetes control.

And so I was extremely skeptical that they would be able to participate in this program, because the gaming platform was complex. We had to give them computers that would run the application and they had to learn how to use a laptop. At that time, many people didn't have smartphones. They had flip phones. So the whole aspect of teaching people how to navigate the technology was part of the development of agency towards the disease.

And that was what really captured my attention was that teaching people how to successfully use the technology was actually giving them more confidence to deal with the issues that they were facing with the disease management. And there's interesting literature about that in education as well, that using technology to help people build not just digital literacy, but literacy about a subject matter like health actually makes their confidence in dealing with their health stronger and more actionable.

And so we had to create an instructional design that integrated learning digital skills with learning health management skills. And that's how we delivered our platform. And so we had people from 40 to 82 in Women in Control. And some of them, it took them longer, but they had a lot of perseverance. And we gave them training sessions. And if they needed extra training sessions, we would give them individualized attention.

We also have the ability, because we were in control of the laptops, we could remote into their laptop if they got stuck and help them get unstuck. So those tools helped us navigate large groups of people at the same time with different levels of digital literacy. And we still use those skills today in See Yourself Help's program HOPE App to help people with digital literacy barriers. Does that help?

PROFESSOR: I think that answers the question. Yeah.

SUZANNE MITCHELL: Great. All right. So after we published, I started doing talks and sharing the results about our success. And I met through one of my presentations, I met the CEO at Geisinger Health Plan in Pennsylvania, which is known to be a very innovative health system in terms of designing health service models. And Dr. Feinberg invited us to implement women in control in Pennsylvania and gave us our first contract. And with that funding, I established See Yourself Health and became an entrepreneur.

It took me a long time. I really, for the most part, would consider myself a founder. It took me a long time to really feel like an entrepreneur. But I decided to take that opportunity to go on that journey. And it's been a life changing experience to both try something new that was really not in my wheelhouse and to learn the skills that it takes to be an entrepreneur.

And I would love to ask another question to the group and just say, who here woke up one day at five years old and said, I want to be an entrepreneur? I'm guessing that most of you thought, I want to have a lemonade stand. Maybe I want to be a fireman or a princess. But most people don't wake up and say, I want to be an entrepreneur when I grow up.

And yet my greatest obstacle was I'm not an entrepreneur. I thought to be a doctor, you had to know you wanted to be a doctor when you were born. And I learned that you could become a doctor. And so I kind of used that idea to allow myself to take the journey to become an entrepreneur. And it really was the MIT program that showed me that I could do that.

Up until that time, I thought entrepreneurs were born and that you really had to have that-- and you do have to have a certain disposition to be an entrepreneur, but you can learn what it takes to be an entrepreneur. And I think that was something that I really contributed to the MIT program and my experiences in the bootcamp that taught me, you can become an entrepreneur. But you can't do it alone. It's definitely not something you do alone, and I think that is important.

So we used the funding from Geisinger to set up See Yourself Health, which is our early stage startup that we're still building and we're still growing and still launching. And our platform is called the HOPE App, the HOPE Platform is really modeled on Healthy Opportunities and Personal Empowerment. And what we're doing is delivering group based care with an immersive technology platform that we call an immersive telehealth platform.

And what I had to learn going from a health services research, because as a researcher, your story's kind of done a lot of times once the research is done. And you either get an implementation grant and you study implementation, or you go on to do something different and your work is done. But my experience was good research should go out into the world and serve.

And so I started to try to find how do you take something out into the world and sustain it outside of a research environment? And there was a lot I had to learn along the way. And I think the first thing is one way to do that is to get people on your team that have experience doing that and know how to do it. But most entrepreneurs are highly motivated, mission driven people with a vision but don't know all the steps it takes to be successful. That's my experience. And I think that it's a very steep learning curve, but it's a very exciting journey. And I think if you have the people to do it that inspire you along the way, then it can be a very positive experience.

So one of the questions that was asked of me was what was the problem that you were trying to solve? And we focused on diabetes because Women in Control, we were resting our success on Women in Control. And at that time, one of the questions I was asked was, what assumptions did you make along the way that might have been incorrect?

And one of them was that my research was enough, that my successful research program was going to be enough to be convincing, to get people to partner with me, that people would just be dying to partner with me. Kind of like what happened with Project Red, because that's what my experience was.

What I didn't realize was that, one, and this is something you should be aware of, the argument that people want to reduce readmissions isn't the same for all stakeholders in the health ecosystem. Two, that different stakeholders in the health care ecosystem might need to be served at the same time, which is something new about health care. If you're an entrepreneur in another area, you might have one stakeholder that's your decision maker. In health care, it's multiple. Your success depends on patients adopting or providers adopting your solution and health plans being willing to pay for it. Or somebody has to be willing to pay for it.

And so one of my assumptions going into this was my research success outcomes were going to be enough to get me on the path to success. And it wasn't. It got me to the first step, which was with Geisinger. I was extremely fortunate that Dr. Feinberg was really driven by patient engagement. And our success with patient engagement was the thing that got us started, but it didn't get us all the way there.

So why did we start diabetes? Because diabetes group visits was the most established evidence based group visit, but there are other group visit models that you can translate to. And that's one of the advantages of doing a platform that can be translated to other verticals. But the other thing that I learned early in my entrepreneur journey was stay focused. Don't try to solve all the problems. Stay focused.

And so today I'm still working on diabetes, because one, it's not solved. And two, there's a huge business case study in trying to solve problems with diabetes. And three, it's because that's where I have the most experience. But translating it, now we have enough expertise that we can start talking to people about translating what we do for people with substance use disorders, for caregivers. I have a group with autism that's interested in our platform and our instructional design. So that's another lesson that I had to learn was the discipline of staying focused.

And so the problem we were solving is-- and this is something as an entrepreneur, I don't know how long-- I can't tell you how many times I had to iterate on the problem statement. And so if you find yourself a year from now still trying to refine your problem statement, you're not alone. This is a hard thing to define. It's very hard to be able to say your problem statement in a way that makes sense.

And so our problem statement is living with diabetes is a full time job. That's what our patients told us. We've talked to hundreds of patients and many health system leaders and health plan leaders. We did participate in the NIH C3I program and did all the whole customer discovery process. And at this point, what was really informing me was my patient input.

And so diabetes is a full time job. 2/3 of 37 million people living with diabetes struggle to manage their care. And as a result, almost half have poorly controlled diabetes, which leads to complications, unnecessary hospital visits, consequences, long term consequences, and higher costs.

And the hard part about diabetes is what you see in front of you. There's four stakeholders. There's people who are working as care managers, there's health plan executives, there's providers, and there's patients all in the stakeholder chain of people that could be impacted by your product. And so understanding where is your entryway into the market, which one of these stakeholders is going to get you there, is important to your success in going to market.

So 7% of people with get the self-management education they need to actually be successful in managing it. As a result, health plans pay 2 and 1/2 to 3 times more for a diabetes patient than they do for a person with well-controlled diabetes or no diabetes. There's high rates of ER use because of that, and half of people end up facing consequences.

So as you go on your entrepreneur journey, you'll become familiar with the idea of having a persona. So Martha is our persona. Meet Martha. Martha is a composite of all the patients I've ever met with diabetes. And this, living with diabetes a full time job, is a quote from one of my patients.

Martha has probably been living with diabetes for five years or more. She has had her ups and downs most of her life, managing weight and then managing prediabetes, and then ultimately being diagnosed with diabetes. She is feeling exhausted and burned out with her attempts to get her diabetes under control, and is starting to experience a phenomenon known as burnout, diabetes burnout. And she is not taking her medicines and she's in a place of giving up.

And as a result, her risk for complications is increased fourfold. Her cost of care is going up because she's facing acute complications. She's disengaged, not showing up for appointments, and she has poor control. And this person is experiencing what we call diabetes distress. And it's an actual marker that we monitor our patients for and is an indicator of, one, who is our target patient? It's a person with a high diabetes distress score. And we've confirmed that with our research data. And it's a person who's most likely to improve quickly with our support.

And so when you're thinking about who is your persona, that's the kind of person you want to identify to that level of specificity. And I would add, Martha has a smartphone and she's comfortable using a tablet, but she doesn't really use computers. And so she has a little bit of a digital barrier to using our tablet. But she's open to learning. And that is our persona.

So what is the problem with self-management? If you're not familiar with self-management, substance use disorder requires a tremendous amount of self-management. All chronic diseases require patients to manage complex medications, diet, exercise, stress, and navigating the health care system. There's eight pillars that people need to master in over a lifetime in order to live well with a chronic disease.

And what we know is what I've told you. Self-management training in its form has been successful, but unscalable. And so what you see is low engagement, limited access. The benefits wane because Medicare only pays for eight sessions in a patient's lifetime. There's difficult workflow in primary care settings, low reimbursement, and as a result, costly consequences.

So this is the problem that we were really trying to solve is, how do we help people become high performing partners in chronic disease management that meets the needs at the population level so that we can actually serve the epidemic of people every year being diagnosed with diabetes?

I want to pause for a second. I saw a couple of hands go up, and I just want to see if there are questions coming through that we can address before we go further. Anybody want to ask a question?

PROFESSOR: There are some. I'll read them, because I think you may mention it as you go ahead and you can choose how to answer them. So one is from Mark is that this is a huge market with large numbers of competitors. From a market segmentation point of view, what angle did you decide to follow and why?

From Roger, how pivotal was it to have your clinical trial published and then to fund you and launch your company? Maybe you want to answer that.

SUZANNE MITCHELL: How long was it?

PROFESSOR: How pivotal was it?

SUZANNE MITCHELL: Oh, how pivotal?

PROFESSOR: How key?

SUZANNE MITCHELL: Yeah, yeah. OK. So I'm going to talk about the competitors and the intense competition in diabetes in a couple of more slides. So I'll hold off on that one.

I actually started trying to disseminate Women in Control before I published my findings. And so in the middle of the pandemic, which was really, it was very challenging. That was another assumption that I had to face, which was that, one having the CEO's support was critical, but it wasn't enough. That I had to have the support of other people in the system.

And there were people that were not in support of us, and we ended up having significant challenges staying in the system and getting the support that we needed to actually recruit people to the program. I would say be very careful in that environment. And I can talk to you a little bit more about how you navigate those relationships. Because even if the CEO says, good, come and bring your platform to my huge company, there's a whole infrastructure of people that have to support that in order for you to be successful. And if you don't navigate it carefully, you'll find yourself in hot political water with people. I learned that lesson early.

The other piece was, so I had evidence. It hadn't been published. It is important, depending on who you're talking to. Doctors love evidence. Health system leaders appreciate it. But then the health plans really want to see results, what they call real world results, which I couldn't really understand, because I felt like I had real world results. I still feel like I have.

And what you really need is a network and connections. Results are not enough. You need a network of advisors to help you enter the ecosystem, because if you don't, it's going to be impossible to compete. And those relationships take a long time to forge. So it's a cautionary tale, but people do it. People are successful. But it takes a lot of perseverance to do it. So use your literature, use your evidence to get people's attention. But be aware that it won't be enough.

And one thing I would mention is we were in Geisinger implementing, and it seemed like a natural fit for a telehealth platform serving diabetes patients to be promoted. But when an epidemic is coming that nobody knows how to manage, everything else is extraneous. And so were we. And so we were sunsetted. We kept all the patients that we had, but we were sunsetted because they really started to just focus on ICU beds and ventilators. And that was a surprise to me as well.

So health systems, health plans, they have priorities that may not make sense to you. But the more you can understand what it feels like to be in that position, the better you can anticipate potential bumps in the road. So we managed to do our demonstration. We managed to get our company funded. But then we had to figure out a way forward after that. So our solution-- yes, go ahead.

PROFESSOR: Thank you so much. I think that addresses how did you commercialize your research idea. And also if later you can talk a little more about how hard it is in corporate. And another question is, was your focus only in the Medicare population or did you also have the commercial population? The diabetes epidemiology is pretty broad, especially in employee population [INAUDIBLE].

SUZANNE MITCHELL: Yeah. So we were looking for the unserved population. So if you've read Clayton Christensen and the disruptors dilemma, we knew this was a crowded space. And I felt at the time that we were going to need to find a way to differentiate ourselves. And one of the ways that we differentiated ourselves was by working with a Medicaid population.

So even though we were working with middle and older aged adults, Medicaid was really, at the time, untapped. And also trying to work with an older adult population with that technology platform. So our niche was to look at Medicaid, which at that time, now Medicaid has become incredibly fashionable and there's a lot of people trying to get into Medicaid managed care plan programs.

But at that time, Medicaid was not and people weren't really looking at Medicaid. They were looking more at employers and commercial plans where there seemed to be more money and maybe more patients where technology was more familiar. So we were trying to really serve the unserved, where there was no alternative.

And even today, I can tell you, I'm working in a market where the alternative to us is nothing. And so that's an advantage. If you're thinking about how to go to market, find a place where the alternative is nothing, because then people have nothing to lose by working with you and everything to gain. And so we've used that advantage. Our advantage is being able to highly engage. I use patient engagement as a differentiator, our ability to engage Medicaid populations.

And I can talk more about that business model in a couple of slides. If you want to differentiate yourself, you need to find a way into the market that isn't crowded. And that at least was my experience. And so we differentiate ourselves that way and have really tried to work with health care providers that are serving Medicaid populations. I can talk more about that as we go along.

Just quickly, our solution to the problem was to develop a technology platform that wasn't just Zoom. This was one of our big challenges was why not Zoom? Because now we're facing the pandemic and everybody is getting on Zoom calls. And why would they need to go into a gamified platform? And so it was a big challenge for us.

And this is another thing about entrepreneurship. You never know when the playing field is going to change on you. And so we had to be agile and pivot and really face the threat that Zoom was going to take us out. And what happened, and I just was like, OK, well, now we just have to embrace the challenge. And Zoom was really pivotal.

But at some point, people were like, I don't want to look at Hollywood Squares anymore. I need something engaging and interactive. And so it really helped us understand what we were bringing to the table, which was an environment that was interactive, that was engaging and whimsical, with an instructional design that helped people not only connect to others, but to master the complex skills they needed to implement every day that would be available to them all the time, not just eight sessions in a lifetime. And that is our value proposition.

What we've been trying to prove to health plans is that this is more cost effective than fee for service once in a lifetime trying to get people to be effective partners in care and deliver these complex plans. And that is how we're going to market.

So our platform is an immersive platform. People get an avatar. They navigate it with an avatar. They engage in health behaviors that are designed to prime their real life behavior change. And there's neuroscience that supports this. And our experience working with patients shows if we engage them this way, engaging them in yoga, dance, physical activity, calisthenics, as well as teaching them other key actionable behaviors, we see behavior change improvements in disease control and long term engagement.

And so our platform uses VoIP for speech and text chatting, as well as 3D interactive exhibits to teach them how things work, like how does a CGM work and those kind of things. Our outcomes showed that we can improve our health system costs, improve glycemic control. Interestingly, emotional distress, that diabetes distress aspect also improves while improving patient engagement and adherence to self-management.

This is all based on a scientific foundation that I won't go into unless you want to ask questions about it. But we use the experience of presence, self presence, physical presence, and social presence, in our instructional design to engage people in a highly immersive experience.

Our patients do not use headsets. They don't like headsets. We had a lot of negative feedback with headsets. And also just access to this technology. People in our target population don't even have a tablet. So we are partnered with a company called PCs For People that help us get refurbished devices that people can have to participate in our program.

So these are the study-- these are the results from Women in Control. These are my proof points that we get 70% engagement, significant improvements in glucose control in a short period of time, reduced cost, and reduced mental health distress. And that's our value proposition in a population that's very high risk and difficult to access.

And people always want to know how do your patients feel about the experience. And so we have tons of documentation about patient focus groups in key informant interviews about how the experience helps them improve their lifestyle management.

And so the story about going from a research project to scale really comes from going from a research environment to a real world environment. The biggest lesson is how do you navigate that real world environment? How do you engage clinicians? How do you engage health plan leaders? How do you engage health system leaders so that they support your implementation? After Geisinger, we needed to find additional funding so we could continue to make our platform scalable.

One key thing that happened to us. We learned that when we went to Geisinger, people wanted to participate and they couldn't download the application. All they had were tablets or work computers. They couldn't download it. And so we had to figure out how to create a cloud gaming solution. And today it seems so yesterday, but at that time, nobody could answer my question about how to do this.

And so my partner, Oscar Cortes helped us create a cloud gaming solution. So that people could access our platform on a tablet or a Chromebook. And that was a very important step forward for us. Otherwise, we would never have been able to succeed at Geisinger. So a technology glitch that really pushed us to make a more scalable platform happened. It happened in our experience in trying to go to market.

After the pandemic hit and our program was sunsetted, we needed to figure out how to get additional funding to continue to make our platform scalable from all the lessons we learned at Geisinger, and we turned to the SBIR program at the NIH. We successfully won phase I and phase II funding, and that has allowed us to advance our platform.

So it's integratable with an EMR system to help us track patient reported outcomes and risk scores, and to make a scalable, immersive environment that actually can be navigated easily by patients of all levels of digital literacy. So that's where we are right now. And we're implementing with the health plan partner, Molina HealthPlan, a national Medicaid managed care plan in the state of Kentucky, to demonstrate that, we can once again build traction with our newly designed platform in this population.

So just in terms of competitor, I know people asked about competitors. It's important to know who your competitors are. They haven't remarkably changed very much. So the gold standard was in-person self-management education, nine hours in a lifetime. Other digital health competitors have come in the market, are really well established, is Omada and Livongo. But the thing they don't bring is the live peer action experience, the immersive experience that we think makes a really important difference in our demographic.

And in addition, tracking apps that track people's behaviors are also things that people use to manage their self-management needs. Our vision is a platform that integrates data from different sources to create a living, breathing experience for people similar to what would be called digital twinning.

Just looking at See Yourself Health's HOPE Platform versus Omada, Noom, Weight Watchers, Lark. These are our major competitors. I think our main thing is the immersive live action programming, our expertise with Medicaid populations, and our NIH research backed evidence.

So the market, if you really look at the market, the diabetes market in and of itself is enormous and it's incredibly competitive. If you span out to prediabetes and even the weight loss market, it's even a richer environment. The number of potential people to serve is enormous. 96 million people living with prediabetes and are at risk at least.

And 37 million with type 2 diabetes. I mean, just the numbers are staggering. And you don't have to touch every life to be successful. That's the good part about a problem like diabetes. But the competition is stiff and it's very difficult to partner with health plans. So I can talk more about that.

The business model that we use is a value based reimbursement model. So we are partnering with Molina on a per member per month subscription. And we get paid based on patient engagement and enrollment. And then we hope that with that initial success, with just based on traction, that we will negotiate a bonus pay for performance shared savings kind of bonus where we are responsible for a population and the cost of that population. We're not responsible for their costs, but if we can show an impact on the cost, then we get a cost share. And that can be a significant additional source of revenue.

So just this per member per month reimbursement is about $800 per person if you can keep them engaged for the year. And we have people in our program who've been with us for five years. So we're showing some good numbers for long term use. But even short term use, the market is so big, you can have a sustainable business even just getting somebody engaged for a year.

And then there's also fee for service options as well as direct to consumer. But right now, we're really trying to demonstrate that we can work with health plans, because they just have control of a lot of the market.

This is my team. And I can tell you more about them. But I can tell you right now, you can't do it without a team, and you can't do it without a good team with diverse skills that can tolerate the uncertainty and the difficulties that it takes to endure this experience. So it's worth finding people that you can work with that can endure the challenges and the ups and downs.

So a couple of other questions that were asked. What regulatory stuff have we encountered? The biggest one is HIPAA. We haven't tried to get FDA approval as a medical therapeutic at this point. We are trying to go to market without that. But HIPAA is a huge obstacle with technology platforms.

Anything about working with partners, providers, and payers, it's hard. It's really hard to work with them. It takes years to develop real partnerships with them. They are running the ship. They have control of the lives. They get to decide what people have access to. They can decide what they want to reimburse people for. And the only leverage you have is with the government. The government, they have to honor what the government requires from them. So in our case, the government requires them to provide self-management education and support. So that's something they need to deliver and we leverage that.

Also, Molina worked with us because of a health equity initiative that they are trying to implement in Kentucky. There's significant and published disparities in outcomes among minority populations. And so they brought us in as a health equity initiative. So you can find ways to partner if you can understand what the health plans, needs, and priorities are.

And I think I mentioned most of these assumptions that proved to be wrong. One is you definitely need lawyers and good ones, because the further you get down the road, the bumpier it will be and the more legal advice you need to get. And I had to learn that if you don't skin your knees, you're not playing hard enough. It's scary. It's scary when you get into legal contention with somebody, but it's important and navigable. But you just got to have good lawyers.

Making mistakes is not the end of the world. I almost think you have to make mistakes, but you feel kind of bad when you do. But it's inevitable that you'll make mistakes and learn from them. So you can get the best advice you can get. And that's what you can do proactively is try to have good advisors. But don't beat yourself up if you're making mistakes. And the most important thing is to be educatable, coachable, and to learn from them.

So I'm going to stop sharing and open up the floor for questions. And thank you very much from the bottom of my heart for listening to my story. And I hope that you find some benefit in it. So what other questions do you have?

PROFESSOR: I think it would be great if you can talk a little more about selling to these big organizations and also why did you decide to go for target audiences? You could have chosen one or two.

SUZANNE MITCHELL: Yeah, for sure. Yes. So I would say that we learned this-- we're still learning it to some extent. So I didn't realize that we would have so much trouble getting partnered with health plans. I really thought that it would be-- my experience with Project Red was, in some ways, it was kind of a fairy tale of something happened once in a lifetime. And the demand for our product just took off with a life of its own in a unicorn kind of way, I guess. But the real world is that those relationships are hard to forge and even harder to keep. And so sometimes that's important role for an advisor or an investor, if you're working with investors.

Now, I'll tell you, my very first group of advisors sat me down and told me to build my company with non-diluted funding for as long as I could. And there's pros and cons to that. The road is slower for sure with non-diluted funding. But you remain in control of your destiny. And I think that in some ways, that is important that you are able to fulfill your vision without the pressure of generating revenue when you're not ready for it.

And so I think that's an important thing to consider. If you find the right investment partner, that can be a dream come true. A group of people that are so committed and generous and can wait it out. But at an early stage startup, making money is not going to happen for a very long time. And so you've gotta find a way to find partners that can stick it out with you.

I saw a question about diluted and non-diluted funding. And so when you take on an investor, usually there's a cost. The investor wants a piece of equity in the company for the money that they give you. And depending on how much value you have in the company at the time that the investor makes the commitment, they will be able to request more of your company. And eventually, as your company and your success grows, you can diminish your ownership and your control over your vision to the point where some people lose their company entirely and get displaced. And that's a true story. Sometimes it's not entirely negative, but it's a true story.

And so we kind of decided that once we-- because of our first contract with Geisinger, we really were able to go into our first preseed round without giving up any equity. And we got a half a million dollars in that contract. But from there, I was kind of trying to figure out where are we going to go from here.

And going to the NIH just felt familiar to me, to be perfectly honest. I knew how to navigate the NIH. I wasn't that familiar navigating investors. And my advisors really pushed the idea of not engaging an investor partner until we were further along, where we would have more leverage to negotiate a better agreement. And so we went for the SBIR funding. And I'm a good writer. I'm a good researcher, and I'm a good grant writer. And so we have been very successful with the SBIR program.

If you don't know about SBIR, I'm happy to talk to you at length about it and how you can be successful with that funding. You can get up to $4 or $5 million on a single idea. And there's people whose companies just keep putting in SBIRs and getting more funding, doing different types of projects. And so you can have as many SBIRs as you want. At some point, you have to demonstrate that you're getting commercial success. But it's a great way to get non-diluted funding.

You also have to realize, though, working with the government is also a pain in the neck. And there's a lot of things you have to abide by working with the government. But that's my bread and butter. I know it really well. So that has worked out well for us, and we've gone a long way in getting to our go to market strategy, working with a national health plan partner, and getting traction in a Medicaid market. So I'm happy to tell you more about that if you're interested. I see a couple of hands up in grid. Where should I go?

PROFESSOR: We can talk with Evan at Donica.

AUDIENCE: Hi. So, firstly, I wanted to just thank you for sharing your journey. I have a women's femme health startup called Wing Women. We do virtual and in person gynecology, family planning, coaching, and doula care. We're also in Massachusetts serving the Medicare and Medicaid patient populations.

So I appreciate meeting and running into another founder that has navigated that, because with startups, it's not always common that people will go after that patient population because of the complexity. And then to your point around dealing with investors, a lot of them don't want to deal with the government. So again, I appreciate your honesty about that piece as well as trying to wait as long as possible before taking investor money.

My question was at this point, have you taken any investor money? And then for those of us, because our company has already taken a bit of venture, when you've hit periods where you just need to-- I'm just going to do air quotes-- grind and grow where there's not a lot of revenue coming in, how to position those milestones and those wins when it's not translating into dollars?

And then for those of you guys who haven't taken investor money or don't know, if you take it, usually you have to give them a monthly and/or quarterly snapshot of how much money is in your bank account, what your burn rate is, anything you have coming up. So they have constant access to how much money you have at any given time, the moment you take it. So yeah, with that in mind, how to position those milestones and those wins when it doesn't translate into dollars.

SUZANNE MITCHELL: Yeah. So I had one period where we were running on fumes and interns were helping. So thank you, Gefti? And we were waiting for our phase II, and we were running out of our phase I, and we weren't generating revenue. We were generating a little bit of revenue doing side gigs with our platform. But we still needed to do more development on the platform in order to be able to partner around cybersecurity.

So if you're going to work in health care, don't wait till the last minute to think about cybersecurity and HIPAA, because when that's another piece of-- if you want to partner with a large health plan, you need to be able to play at that level of security. And that means having insurance--

AUDIENCE: [INAUDIBLE]

SUZANNE MITCHELL: I hear somebody. Do you hear that?

So you have to be able to show that you can deliver secure data sharing. You have to have a significant amount of insurance that secures you. You have to accept a significant amount of risk for data sharing. So if you want to play ball with payers and big employers, you have to be able to reassure them that you have the ability to manage the data, because that's their biggest risk.

And we failed our first security audit, which that was another eye opening experience. I had no idea. And the guy practically laughed us out of the Zoom room, because we were so poorly prepared. And we learned quickly what you needed to be able to partner with a large health plan, and that was a growing pain.

And so we were in that window of needing to develop that cybersecurity. And I honestly, I played poker. Adonica, I played some poker there where I didn't have enough money to do what I needed to do and I was trying to build it. And that's the entrepreneur's journey. You're playing poker a little bit. Because those contracts take two years to get a signature on a contract.

And you can't believe the way the lawyers will talk about it. What you're going to do, you're trying to serve patients, and they are just layering on all these other complexities. And so it takes a long time. If you sit around and wait for that ink to dry, you will not be prepared when the time comes to hit go. So you have to deal with that timeline.

We were in that donut hole where we were waiting for our phase Ii funding. Our phase I was going. We're barely kind of keeping the lights on. And we did take on an investor with a safe note. And it was a small amount of money. And we don't give him any kind of reports. But he is still a good friend to us. He's somebody I met on an airplane. You never know who's sitting next to you on an airplane. And he's a good friend to us, and we are still in debt to him for that funding. But it got us through to our phase II funding.

So sometimes if you can find that, I would say, don't wait to develop your partner or your relationship network with investors while you're using non-diluted funding, because you never know when you might need that investor to step in and help you out. But just know that when you do it, there will be some-- you'll be giving up some of your freedom, some of your equity. But for some people, that actually helped them get to win. So I don't judge either way as better. I think it's very dependent on who you are, what you're doing, and the kind of investment partners you're able to work with.

Any other questions specifically? I can talk more about working with big health glands, or what it means to work with a Medicaid managed care plan or the business model. Anybody have any? I see a hand up. Roger?

AUDIENCE: Yeah. I wanted to ask you if you-- so with the SBIR business program, NIH, when you read that proposal, is it something you were leading the company, or you were partnering with the company while you kept your academic position? Or how did you navigate that process? Any conflict of interest or just curious.

SUZANNE MITCHELL: So sorry. So when you develop something in an academic environment, usually the academic institution will have intellectual property rights. I went to BU and I told them I wanted to do this and they had no interest. And I was like, so I can just go do this by myself? And they're like, yeah, we're not interested. And I was like, OK.

First of all, I was devastated because I was just devastated. How could they not want to do this with me? But I also felt freedom to go do it on my own. But that was not easy. And also again, I would say the point in time, BU wasn't really on the-- they were looking at patents and engineering, but what software would bring wasn't really on their radar. And so because this was a software type of innovation, they weren't that interested.

And so initially, this was like a plant on my windowsill. That's what I say. It's like a little plant on my windowsill that I was trying to see if it was going to grow. And the critical thing was when I met Dr. Feinberg and he gave me that opportunity to implement in Pennsylvania. I kept my day job, I kept my research job. And I brought people along that helped me do that implementation and were co-founders really at that time. And that my team has had some turnover in the last five years that was also difficult.

But you really need, if you're going from a research to a entrepreneurship, you need to understand what tech transfer means and go to your tech transfer office. Because it's not the end of the world if they have some equity. You just have to put it in writing so you know. Basically, if you develop something at an institution, like an academic institution, wherever the product is at that time is what they own.

And if you take it out of the institution, then they own at least some of the intellectual property of where it was then. But you're going to build on it, grow it, change it, do things with it, maybe make it a lot better. Their rights are limited to what was available at the time of the tech transfer, depending on the institution and how they deal with tech transfers. So be sure you clear those kind of regulatory barriers if you're working in a research environment. That's important.

AUDIENCE: Thank you.

SUZANNE MITCHELL: Yeah, sure.

PROFESSOR: And do we have one final question? Or I will sum up.

AUDIENCE: Well, I was going to ask if it's-- I don't see any other hands, but I'm going to ask it again. This is Adonica again. Sorry, I'm just really excited to hear from you. I would just say from experience, there are some harsh realities around being a female founder and the navigating in this space that don't often come up until you learned a hard lesson. Can you share maybe a hard lesson you learned and just a piece of practical advice for all of us?

I know it doesn't have to be specific to being a female founder. I call it out because you're a female founder, and it's sometimes rare to engage with a female founder in the space because it can be really difficult to navigate, especially if you don't have an advanced degree or certain partnerships in place. And I would just kind of love to hear something practical that you learned, even if it was a really, really harsh lesson.

I know you shared the example about being laughed off of the phone for not being prepared, and I'm listening to you. I have such a hard time believing that. But I've also been in those situations. You can be brilliant and noteworthy and all of the things and still be unprepared for what actually happens in those meetings. But I would just love to hear another like story. If you had one to share.

SUZANNE MITCHELL: I have a lot of them, actually. I mean, thank you for bringing it up. Because I don't like to lead with that. I was part of the Mass life sciences NextGen program. I was in the second cohort of women entrepreneurs. And at first I wasn't-- in my entire career in medicine, I never felt treated differently because of being a woman. I felt like it was all really based on your academic and your skill as a physician. And I felt always evaluated based on my ability or accomplishments until I started trying to navigate the entrepreneur field.

And initially, I thought I was crazy. I was like, this is weird. I'm having this really challenging time connecting or making connections or competing. And then I went to a program that Babson I think hosted and they had five investors. And the theme was about disparities against women founders.

And it was profound. I mean, first I felt validated. I felt like something I was experiencing and couldn't name and label, I guess what we would call a microaggression, was real, that I wasn't crazy. I also think there's some ageism. It's not just about gender. There's some ageism.

I had a woman who was a mentor and an investor in a seed group, invest angel group, say, Suzanne, what are you going to do? You're a doctor, a woman, and a scientist. She named three things. She's like, you're never going to make it. And I was like, I can't believe that someone had-- I think she thought she was letting me down easy. And I couldn't believe that she even said it to me as a woman.

And I was like, I thought those were going to be advantages. I thought being a physician with research and a research track record and implementation expertise was going to be enough. And it definitely was not just not enough, sometimes it was a red flag. People are like, oh, doctors are terrible business people. Doctors are terrible managers.

And I mean, I stood up at one of the Mass Challenge, this entrepreneur program for women, to pitch. And we were supposed to be getting practice pitching from a group of 30 people in health sciences, pharma, all these things. So you're totally vulnerable. You're standing up there. And it was almost all men in the room.

And this one guy who knew me from BU just started railing on me. And it wasn't even about my pitch. It was just about my presence, my tone of voice. It wasn't even about you should have brought the content from the end up front. And I walked out of there. Thank goodness I had a strong mentor network, because they picked me up. That was a very difficult experience.

First of all, it was very difficult to have that happen to me in front of an audience. And here I was, I was used to public speaking in front of very elite scientists. I was used to being in front of people. It wasn't that. It was the way I was treated in that environment as somebody who didn't warrant respect. And it took me a long time to digest that and finally write a letter. Because this was supposed to be a program to lift up woman entrepreneurs. And it reminded me a lot of experiences I had in medical school that were harsh and toxic.

And so I feel learning experiences are meant to help people grow. And I felt like I was treated that way because of all the stereotypes that I represented. And I do this mentoring. And I mentor women in my company, because I don't want them to have that experience. And if they do, I don't want them to be without a network to support them.

And so I would just say that you are not immune to having that happen to you, no matter who you are. I think you're not immune to having that experience. You'll need to have people that can help you navigate it and make some meaning out of it, and move forward and know that next time it happens, you won't be taken down as harshly. And I tried to turn it into an experience where I could grow.

So I feel like this entrepreneur experience, the startup world, can be harsh. It can be full of the hard knocks kind of philosophy, but it doesn't have to be, and it really shouldn't be. So don't take it if you're facing it. But try to handle it with grace and dignity. That's my advice.

AUDIENCE: Thank you.

SUZANNE MITCHELL: And I'm looking forward to working with all of you in person. And I'm happy to connect with you offline. If you're interested, please feel free to reach out to me. I'd be happy to share whatever I've learned. And I'm very excited to meet all of you in person. So thank you so much and happy holidays.

PROFESSOR: Thank you, everyone.

SUZANNE MITCHELL: Bye Bye. See you soon.