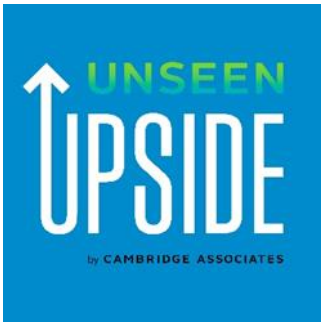

Season Five: Episode Four
Digital Health: Transforming Care, Improving Access
Launch Date: November 19, 2024

[MUSIC]

Hillary Ribaudo: Take a moment to think about your morning routine. Maybe your phone gently nudged you awake, maybe it tracked your night's sleep, or even reminded you about that upcoming doctor's appointment.

And it's not just smartphones. Watches, rings, and other devices now track everything from heart rate and steps to even menstrual cycles. Apps also help manage prescriptions, and home gadgets make it easy to check your blood pressure with the simple push of a button. These are all examples of how healthcare has become increasingly digital—a shift that was accelerated by the COVID-19 pandemic.

[MUSIC]

Lynne Chou O'Keefe: The healthcare system went to almost 80 percent virtual care, especially when primary care overnight, and that was a medical necessity given people did not want to go to the hospital systems, it fundamentally changed how consumers experienced healthcare, but also changed how providers are comfortable delivering healthcare.

Hillary: With national healthcare spending in the trillions digital technologies have the potential to increase access and make a real impact on the future of healthcare.

[MUSIC]

Chavon Sutton: Digital access is the new super social determinant of health, which is really cool to think of.

Hillary: From telemedicine to AI-driven innovations, these tools are not only changing how fast we receive and deliver healthcare, but they can also make it more equitable.

Chavon: Digital health can play a major role in equity, if we wield it intentionally. We already know that it can address barriers to access and reduce costs. It has the potential to improve quality of care.

Hillary: This is Unseen Upside by Cambridge Associates, where we explore investments beyond their returns. In this episode, we sat down with some of the people who are leveraging digital health solutions to drive better health outcomes. I'm Hillary Ribuado.

[MUSIC]

Chavon: In the case of my caregiving for my mom, especially during COVID, we were able to take some of her doctor's appointments via iPad, which made a huge difference: huge reduction in transportation costs, ease of not traveling to be exposed to COVID

Hillary: Meet Chavon Sutton. She's a Senior Investment Director on the Sustainable and Impact Investing Research team at Cambridge Associates.

Chavon drives efforts to align investments with equity. And one of the areas she pays close attention to is healthcare, including digital health.

Chavon: When I think about my personal experience: I use the heck out of my Apple watch. I can track my oxygen levels. I can get a sense of how I'm sleeping. Personally, you know, I am not an early adopter of these things, but I believe in their efficacy.

[MUSIC]

Hillary: Digital health is all about using technology to make healthcare better. It includes anything that uses electronic tools or devices to process and share data.

Think of smartphones, computers, apps, and the internet—the everyday tech that helps us communicate, work, and access information.

Wearables, telehealth, mHealth, or mobile health... all of these solutions rely on software, sensors, and connectivity to improve everything from making a doctor's appointment to cutting-edge medical treatments.

Chavon: The global digital health market was estimated at 241 billion in 2023.

Hillary: This number was reported from a few different sources last year, including the "Digital Health Market Size & Share Growth Report, 2030" from Grandview Research. The report says the market is expected to grow around 22% each year.

Chavon: Massive opportunity. But the three trends that I see have the greatest opportunity for impact… one is telemedicine.

Hillary: You might have heard of terms like telemedicine, telehealth, and telecare. According to the FCC, each supports remote healthcare but with a slightly different scope. Telemedicine focuses on doctor-patient services, while telehealth includes broader services like health education, social support, medication management, and is often provided by nurses, pharmacists, or social workers. And telecare uses tech to help people stay safe and independent at home with tools like health apps, wearables, and medication reminders.

Chavon: If done right, it can improve access to health, reduce cost frictions, provide opportunity to over 60 million Americans living in rural areas.

Second is AI and predictive analytics, really helping to understand and identify health disparities and target solutions that are very tailored to underserved communities. I have to underscore, that's if it's done intentionally and equitably.

And third, it's really the interoperability of health information systems, really helping improve the way systems talk to each other so that data can be shared in different settings. You reduce gaps for those in undeserved communities and really reduce waste in the system.

Hillary: The Deloitte's 2024 Health Equity Outlook reports that health inequities cost Americans around $320 billion each year in extra healthcare expenses.

Chavon: Health inequity costs money. And we, as investors care about that. When we think about health inequity, we think about higher healthcare costs. We think about loss of life and loss of a use of wider swaths of talent, less productivity, and that has economic impact that invariably flows through and poses risks to portfolios.

So, to ignore it, you're actually losing from a portfolio standpoint, but also from just a social good standpoint.

[MUSIC]

Hillary: Of the many avenues digital health has opened, one of the most important is advancing the way information flows. A major bottleneck in healthcare is something called "prior authorization". It takes place when doctors need approval from insurance companies before providing certain treatments or medications.

It was originally designed as a cost-control tool for expensive treatments, but prior authorization is now required for even basic medications, causing harmful delays in patient care. In a 2023 survey, the American Medical Association, or AMA, found that nearly 25% of physicians reported prior authorization resulting in serious adverse events for patients, with 7% reporting cases of disability, birth defects, and even death.

And this process also creates extra work for providers and can be very frustrating for patients waiting on care or prescriptions.

But with help from Artificial Intelligence and Machine Learning, companies like Cohere Health are trying to solve this problem.

Siva Namasivayam: The idea for Cohere actually came from a large health insurance company: Humana.

Hillary: Siva Namasivayam is the co-founder and CEO of Cohere Health. He holds a master's in computer science from the University of Pittsburgh and an MBA from the University of Michigan. He also has over 20 years of experience in the healthcare industry.

Siva: Humana have been looking at the prior authorization process, and it was taking anywhere between two days and 14 days because the insurance company will ask for information. The physician might not have all the information. Then they will send it, then it will come to the insurance company. They will say that, no, I need more. So, then there is all this back and forth fax and everything else happens.

So, the idea was how can the whole thing be compressed into one day or within 24 hours. Why can't somebody just come up with a much better process to do it? And it's all possible with the technology today.

Hillary: And often prior authorization doesn't mean just one thing... Take a knee surgery for example:

Siva: When a surgery is requested, you still have to go through physical therapy. You need to go through MRI. Then you need to go through some physical tests. Then, you go into the hospital. Then, you get your surgery. Then after surgery, you need to be there for a day or two. Then, you need to go home. Then, you need to get crutches. Believe it or not, each one of the steps, there is a prior authorization. So instead of that, if the physician knows that a patient is going to go through surgery, why don't you just complete all the eight steps and approve all the eight steps immediately so that the patient doesn't have to go through care delays.

Hillary: Siva has experienced firsthand just how frustrating and inefficient this process can be.

[MUSIC]

Siva: I went for a hiking trip to Patagonia about four years back.

Hillary: Patagonia, as in Argentina.

Siva: I slipped in one of the glaciers when I was walking, and my knee hurt, and I just couldn't walk. But I was okay enough to be able to take the plane and come back to my hometown here in Connecticut.

Hillary: Siva went straight to the doctor, and they took an X-Ray right away.

Siva: And they said that you need to go through six weeks of physical therapy. We will see if you can get an MRI or not.

Hillary: Siva went to his first session of physical therapy, but his pain started to increase!

Siva: Nevertheless, I was asked to just get physical therapy done.

Hillary: So after 6 weeks of painful therapy, he had to go back to the doctor.

Siva: They said, okay, now I can actually ask the insurance company to give an MRI. They took an MRI, and they found that I did have a meniscal tear, which then they had to repair through arthroscopy. So, I was just wondering, why didn't the MD first take the MRI and immediately determine, and they let it go on for six weeks through a very conservative therapy. And it probably cost them more, and it cost me a lot, and it probably actually worsen.

Hillary: So, I wonder, statistically does PT fix, let's say, most of the issues and what was happening is that too many MRIs were being prescribed when in reality all of these people needed PT.

Siva: Exactly. Some of it is going to be okay after I would say three weeks or four weeks. An MRI costs something like $2,000. Lot of times people don't need MRI. They can live with x-rays, for example, which cost like $300. Why waste money on the MRI, which is not going to show anything?

Hillary: Siva says that prior authorization is basically a byproduct of how the U.S. healthcare system works, with employers and the government paying for health insurance premiums.

Siva: The insurance companies, being the agents of the people that pay, they want to make sure that appropriate care is provided by the physicians. They want to make sure that the spending is somewhat controlled.

So prior authorization, while it's got started as a cost control mechanism, it has expanded to include other patient's safety checks, appropriate care, et cetera, and also to make sure that the appropriate location, where the surgery can be performed is also determined.

Hillary: Now, back to the digital health solution: Cohere helps doctors and insurers to share patient information in real-time, reducing delays, improving patient outcomes, and easing the administrative burden on both health plans and providers.

Siva: In its simplest form, when a patient goes to a physician, and the physician says this patient needs an MRI. As soon as they enter the information of the patient, and if they can send the clinical note to Cohere, in the background, we are able to interpret

the clinical note, and we are able to determine through algorithms that what is requested is MRI, and this patient is fit to get that MRI, and we will immediately approve. In fact, by the time that the patient goes from the back where they're getting examined to the front, we can approve that.

Hillary: And here's the cool part—while AI and machine learning are doing the heavy lifting, there's a whole team of nurses and doctors behind the scenes training the system to make sure that it's both accurate and effective.

Siva: We have actually 30 to 35 MDs in the company who specialize in various areas: orthopedics, cardiology, oncology, internal medicine, GI, etc. They work with technology people, as well as AI technologies.

Hillary: So, the team takes doctors' notes, turns them into digital data, and then uses that to help the algorithm make the prior authorization process faster and smoother.

Siva: If different nurses do the same thing, then it will say that, oh, ha ha, this is something that can be repeated, but that still won't be perfect. So, we need to make sure that we run it on thousands and thousands of such cases before we can say that, okay, this is accurate. And we are able to then put it into the production environment.

Hillary: They also work with places like the American Association of Orthopedics and the American College of Cardiology to integrate their recommendations into algorithms and practices.

Siva: It's learning along the way, through various sources. So, whenever the note comes from the physician, if through our algorithm, we are able to find out it matches, these particular indications, for example, this person's weight, height, and some other conditions, and it all matches, then the machine can approve it. So, we don't have to have humans approving it because we want to make sure that there is no delay for the patient. And also, the fact that we are just approving what the physician has already determined.

Hillary: According to Siva, Cohere Health has a success rate of 98% in prior authorization, but the system isn't perfect.

Siva: Most of the time the clinical note is good enough. If not, we need to ask follow on questions.

Hillary: Before denying an authorization, Cohere can ask the physician for additional documents or information to ensure they make a well-informed decision.

Siva: When we determine that this particular MRI or surgery is not required, we send it to a physician. We have our own staff of physicians who then go through the information, and if they find that the procedure needs to be changed or denied, then

they even call the other physician…explain things to them. Denial is always done by highly qualified specialist in the same field as the ordering physician.

Hillary: And because this is a highly specialized process, Cohere is considered a delegate by insurance companies. This means, Cohere has the last word if they are involved in the process.

Siva: We are accredited by various organizations. We have to go through certification.

Hillary: Even the Centers for Medicare & Medicaid Services, or CMS, which is the federal agency that oversees Medicare, audits the company.

Siva: It's all done by physicians on our side, so we are highly qualified to make the determination.

Hillary: The service is paid for by the insurance companies. But it's still a work in progress and there are challenges that arise.

Siva: Issues happen, so we need to go and fix it. We need to make sure that we retrain the model, and there are hundreds and hundreds of thousands of procedures and treatments. We have to get it right. We need to train the machine for it. It is a very long, painstaking process. It continues to grow, and we haven't even probably got into more than 10 or 15 percent of the procedures, so there's still a long way to go.

Hillary: And another challenge of the digital age is privacy.

Siva: It is probably one of the areas where we spend most of the dollars in terms of protection of the system. We actually try to anonymize the patient information. Everyone that is joining Cohere, they go through extensive background check. Even within the organization, only few people have access to the information.

Hillary: That’s why investing matters. It powers projects like Cohere, making healthcare faster, more accessible, and more affordable for everyone. Cohere is already partnering with 10 insurance companies, and it’s growing quickly, showing just how much potential digital health solutions hold for better patient care and a more efficient system.

[MUSIC]

Lynne: There's nothing more complex than the healthcare system.

Hillary: Lynne Chou O'Keefe is the founder and managing partner of Define Ventures, one of the largest early-stage funds focused on digital health.

Lynne: When we think about all the different payers, providers, life science, PBMs, employers, the government…there's so many areas of health care that I fundamentally

believe after a long career, the ability to move the needle in this space is immense, and that's what drives many of us at Define.

Hillary: Fixing healthcare's fragmentation is not only important for our care, but also for our economy.

Lynne: When I think about diabetes, hypertension, mental behavioral health, these are diseases that cost the system over $300 billion a year. And as you can imagine, as we have older populations, as baby boomers continue to age, and we have this silver wave, this is going to just increase.

Hillary: According to the CMS, U.S. healthcare spending grew by 4.1% in 2022, hitting $4.5 trillion dollars.

Siva: It is the single largest spend in our economy right now. More than defense, more than financial services, more than anything else. And digital health is definitely one of the better ways, where the cost can be controlled to some extent.

[MUSIC]

Hillary: Tech companies have been propelling healthcare through innovation for decades. From early electronic medical records in the 1960s to medical imaging breakthroughs in the 70s, and now through wearables and AI.

By 2016, when Lynne first started thinking about Define, healthcare was evolving with trends like machine learning. Then COVID hit, accelerating those changes even more.

Lynne: We went from what I call an "evolutionary pace" to a "revolutionary pace" on many of these trend lines. And we had seen the specialization. I believe in the VC market has become more mature.

Hillary: Lynne says that when Define started, startups in healthcare were stuck choosing between two options: tech-focused funds with a Silicon Valley mindset but little healthcare experience, or traditional healthcare investors who didn't have that innovative, tech-driven approach. That's why Define Ventures was created, to bring together the best of both worlds.

Lynne: We're very pointed that we don't talk about portfolio companies. We talk about partner companies. It's never them or us. It's really "we" because we are building together with them.

Hillary: And for entrepreneurs, it's not only about the capital.

Lynne: It's about who we are as a partner and building your companies. We know fundamentally what that means, to start from nothing and build that vision and to do it in a healthcare ecosystem context.

We've all been operators, and that was very purposeful in various parts of healthcare. Mine was more on the life science. We have people who have been more in payer provider. We've had others that are employer, so that we have that multifaceted team and can help from an operational level.

Hillary: Lynne compares Define's investment strategy to rebuilding a house.

Lynne: And it starts with the front door of the house.

Hillary: They call this the “consumer gateways,” where companies are shaping how people access and experience the healthcare system.

Lynne: As an example, We've partnered with the company FOLX health, which we actually incubated, which is an LGBTQ front door DTC solution.

You know, it's really important to understand different demographics. When we intake a patient through the ED or through a primary care doctor, we're never really asking ourselves, like - Hey, we should actually ask different questions. These people are different, and how do we blend that in into a personalized care model?

And so, we thought about that very much for the LGBTQ population, in that over 50 percent of the population have been discriminated against or lack access to care providers that really understand their concerns their conditions in a differential way and can build trust. We think that's incredibly important in health equity is building trust.

And that really means having clinicians that are of your community as a first starting point. And not only that, have personalized clinical protocols for the community.

Hillary: Next in Lynne's house analogy, Define focuses on the foundation: these are companies harnessing data liquidity and analytics. And one of their partners in this effort is Cohere Health.

Siva: Lynn and her organization were chosen by Humana to incubate this idea.

Hillary: Siva Namasivayam, Cohere’s CEO again.

Siva: So, she has been instrumental in giving us funds and also ideas around the product, pretty much from day one.

Hillary: And at Define they also consider the infrastructure of the house.

Lynne: We do think is technology enablement, which obviously today is AI, and how we can make all of the experiences, the data liquidity and analytics, the rooms of the house, which I'll mention in a bit, drive faster, further and be better, more efficient. Be more personalized.

And then another area is the rooms of the house. This is where we say you receive health care, which is tech-enabled services and digital therapeutics.

Hillary: Lynne says tech-enabled services like telehealth are essential for hybrid care environments, as they combine virtual and in-person care. And digital therapeutics are finding new ways to enhance treatments.

Lynne: We do have companies like 9amHealth that do wrap around around GLP-1s. We believe GLP-1s in and of itself are not the solution. We need fundamental change around coaching, dietitians, et cetera, to supplement the effects of these groundbreaking therapeutics to go forward.

Hillary: And there's another area of investing called “vertical reimaginations.”

Lynne: Full stack houses that use new front doors, new data liquidity and analytics, are natively tech enabled services and digital therapeutic wraparounds, but our new entrance to intact the incumbents in a more full stack solution.

Hillary: Earlier in her career, Lynne served on the board of Livongo, a digital health company acquired by Teladoc in 2020. Livongo takes a "full stack" approach to managing chronic conditions like diabetes—it combines smart devices, real-time feedback, and personalized coaching to empower its users. Their smart glucose meters automatically log readings, and users also have easy access to health supplies and one-on-one support. When Livongo went public, it reached an impressive $18 billion valuation.

Lynne: So not only having the data of your A1C and having your glucometer connected then to a data lake and layer, an analytical layer, say, when are you trending high or low, and then delivering services to you virtually wherever and whenever you need them, if you are trending hyper or hypoglycemic, and giving you that almost On Star experience of clinical care to manage your disease.

And so, when you think of that, that was hardware, software, analytics, service layers coming together in a full stack solution to truly be able to help this population.

[MUSIC]

Hillary: Every day, millions of health data points are collected from personal devices, doctor visits, and public health sources, but not all of these systems can communicate with one another.

Siva: Most of the systems are not integrated, and they are not interoperable. So, for example, you might go to your PCP. They might ask you to go to some other hospital for something. Many times, those systems are not connected. So, a historical patient record is not available.

Hillary: Imagine companies like Cohere having access to a complete health record from childhood all the way to adulthood. With that data, Cohere could analyze it to offer more personalized and more precise care recommendations throughout a patient's life.

Siva: Right now, that type of information is not available. Apple and some of the companies are coming up with a way that when you go to a physician, they want to be able to get that record and give it to you, so that you can store it like your passport, digital passport, that when you're traveling somewhere, it's available in your phone. That type of interoperability and data portability and things like that is a big trend.

It's going to take five to 10 years, but we are slowly starting to get there and imagine if you can then integrate that with all the other new types of sensors and others. If all of them can be integrated, you can get a holistic information about a patient. It's going to be able to solve a lot of issues for the patient and make them live longer.

Lynne: While the digital health landscape is undergoing that tech enablement change, the business change, the consumerization change. The industry of digital health and venture investing is relatively on a newer scale.

Hillary: Lynne Chou O'Keefe again.

Lynne: When we really think about when is this become a true sector in venture capital?

And we said, at 10 percent of venture dollars. And that really just happened in 2019. So this is an era of Intense change.

Hillary: As digital health grows, it brings both the opportunity for positive impact and significant market value. This rapid change opens doors for innovation across and beyond the healthcare system, enabling solutions that reach broader populations and fundamentally reshape how we care for people.

[MUSIC]

Chavon: It's important for people to understand that equality and equity are not the same.

Hillary: Cambridge Associate's Chavon Sutton.

Chavon: When we talk about health equity, focusing on individual needs of a community, for example, whereas equality is just giving everyone the same solution.

Hillary: I always think of that image of the people standing on risers who are different heights. I think that's such a powerful visual.

Chavon: You have to remove certain barriers, and it requires a lot more stakeholders than just us as investors or communities. Everyone has to be involved.

Siva: Remember, we cannot provide care to the patient. We are here to help the physician make the right decision.

Hillary: **Cohere Health's CEO, Siva Namasivayam.**

Siva: Through digital health, we can make available to the physician that... for this particular patient, when they are walking in, based on the information, et cetera, we can bring together the history of the patient, what are the various barriers that the patient encountered before, and also what are the resources and community facilities and things like that available for this particular individual, so that when the physician is looking at the patient, and they are actually prescribing a treatment, they can ensure that all of this are taken into account, and the patient is getting the best care possible. For example, getting access to healthy food, getting transportation, and getting home help if they are alone, et cetera.

Hillary: Chavon says that investing in digital health solutions with a focus on health equity offers the potential for portfolio performance. The Deloitte's Health Equity Report says that "Improving health equity can add $2.8 trillion to US GDP by 2040 and boost corporate profits by $763 billion"

Chavon: There's value in solving for these inequities because of the sheer size of healthcare spending in the U.S. alone. Seeking out ways to find these underserved markets is an opportunity, and those companies and managers who go seek it out first and try to scale this equitably are going to benefit from that.

Hillary: At Cambridge Associates, many of our clients are investing through an equity lens.

Chavon: The connective tissue that I'm seeing right now is that clients really want to walk the talk. They're being pushed by program staff, constituents, donors, boards. Everyone's more vocal and demanding greater alignment.

But I also think there's a recognition that greater clarity and greater alignment produces better outcomes. And so, they want to create this sort of virtuous cycle that feeds on itself.

Hillary: And the idea of investing with equity in mind is not new.

Chavon: There are plenty of social movements dating back to the fifties and sixties that were talking about equity. But if we think about where it started to sprinkle into investing, maybe the 1970s, where the field of social responsibility investing started to percolate and folks were approaching investing with an exclusionary lens.

Removing tobacco and firearms and things like that. But it evolved as larger foundations started to advocate for social determinants of health and using that lens to fund research and initiatives around healthcare equity and healthcare disparities. But I would say the application to market rate investments at scale is still very new.

Hillary: We mentioned the COVID-19 pandemic, but it was also the social unrest of 2020 that highlighted inequities everywhere. This sparked a renewed focus on solving those disparities.

Chavon: You saw an explosion of investment products. Some good and others not so good, really attempting to integrate this lens. So, if I were to think about the trajectory of health equity, it's a long history of ebbs and flows alongside the broader focus on sustainability.

My hope is that we're now in a phase where it's a bit stickier. You know, with more new eyes on this issue, I'm hoping that we can bring some lasting solutions.

Hillary: And Chavon says it's important to understand why diversity matters in this work.

Chavon: Health Disparities don't happen in a vacuum. They don't happen in a silo. It's interconnected with economic disparity, educational disparities, housing.

And so, we need multiple lenses, interdisciplinary expertise in the room, a stakeholder view, if you will, to understand the complexity of this issue and to create viable solutions.

I think of involving people on the ground, nurses and doctors and administrators, social scientists, and patients, in the conversation around developing these tools.

We already see the dangers of not having an inclusive group of people training AI solutions, for example, in sectors like education and healthcare and housing and criminal justice.

Hillary: Chavon says equity is a long-term play that involves everyone.

Chavon: Investors can't solve for that alone. We have to get involved more widely in the ecosystem and at a policy level to really influence change.

Hillary: But the full impact of digital health is still unfolding.

Chavon: The outcomes really remain to be seen. Data suggests that even with all of this proliferation, disparities are still very well entrenched, which is why this discussion around equity is so important.

My better self believes that investors are beginning to understand and appreciate the interconnectedness between social, environmental and economic systems that can

clearly benefit some and harm others and gaining a sense of clarity around the innovations that we can invest in to solve these problems.

So, when I think about demand, it's a demand from investors who want to generate returns. It's a demand from consumers who want to see more in folks that they buy products from, and moreover, I think it's a recognition that all businesses, all economies are made up of human beings. So, a focus on equity decidedly centers people.

Lynne: I think that there is in digital health… the combination of various attributes is to impact all of our lives but also be able to build scaled companies that change healthcare that also can drive returns.

Hillary: Lynne Chou O'Keefe again.

Lynne: My ideal vision is that we don't recognize digital health. It will look so fundamentally different. It will look personalized. It will be with you when you need it. It will be preventative that we don't go down into the hospital. And it will look and feel like every other vertical that you have as a consumer.

We have the honor of reimagining human life, and we will do so at the highest of standards.

Hillary: If you want to learn more, please visit us at cambridgeassociates.com/unseenupside **or check out the show notes. If you like what you're hearing, leave us a review and tell your friends and colleagues.**

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