Precision Medicine Podcast, Season 4, Episode 52

Then and Now: The Progress of Precision Medicine Diagnostics with Hannah Mamuszka and Lena Chaihorsky

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Karan Cushman, Producer:

Welcome to Season Four of the Precision Medicine Podcast sponsored by Trapelo. This is the podcast where experts come to discuss the problems oncologists, reference labs and payers face as precision medicine grows, and consider solutions for advancing the quality of patient-centered cancer care. Be sure to subscribe at precisionmedicinepodcast.com to get the latest episodes delivered straight to your inbox.

Jerome Madison:

Welcome to the Precision Medicine Podcast. I'm Jerome Madison, and Karan, let's take a pause here, because we absolutely have to thank our subscribers, our loyal listeners and our fabulous guests for helping us reach the three-year milestone here in the Precision Medicine Podcast.

Karan Cushman:

For sure, Jerome, we absolutely want to recognize the thousands of listeners all around the world, so I thought we'd do a quick shout out to our top ten countries, which actually might be kind of surprising. Of course, the US tops the list, and right behind is the UK. But we have listeners as far-reaching as Australia, Israel, Japan, Taiwan with France, Switzerland and our neighbors in Canada rounding out the Top 10. We also want to make sure we thank our amazing guests who have enabled us to cover a lot of subject matter territory within the field of precision medicine over these past 50+ episodes. So, as a testament to you, we found that nearly 92% of listeners finish the entire podcast. So, as some of you may know, that's where the real meat of the podcast comes is at the end when we ask our guest about their real talent which is, I'm not going to give anything away but there's definitely one leading factor there. So, thanks to all of our listeners, our guests and sponsor, Trapelo, for helping us create this platform. As you know, collectively, we aim to make a real difference in the field of precision medicine with the hope of bringing to it more patients.

Jerome Madison:

Absolutely. So, we wanted to kind of do a look back here and when we set out to do the podcast, we wanted to lead the conversation on addressing the challenges associated with accelerating the scale and patient access to precision medicine. And way back in 2018, we had my good friend who I've known in the industry for a while, Hannah Mamuszka from ALVA10, on. She was episode 3. Man, episode three, and we asked Hannah and her colleague Lena Chaihorsky of ALVA10 to talk about how the landscape has changed for the better for patients and providers. Hannah and Lena, thank you for being guest on the Precision Medicine Podcast.

Hannah Mamuszka:

Jerome, thank you so much for having us. And Karan, we're so excited to be here. I love the podcast. I think you've created such an incredible vehicle for so many thought leaders in this space to start really the conversation around the potential of how precision medicine can change patient care.

Karan Cushman

Thanks, Hannah, for being one of our original champions.

Jerome Madison:

For sure. I think it's important, before we dive into some of the questions I've got for you taking a look back on the changes that have happened. Hannah, if you could, describe for our audience, the work that you're doing at ALVA10.

Hannah Mamuszka:

Sure, absolutely. By training, I'm a molecular biologist, and I've spent a good part of my career on the bench side of the diagnostics industry. But I realized about a decade ago that the majority of the decisions made in our healthcare system are really economic decisions and that the diagnostics industry has done a terrible job of communicating the value and the potential value of the impact of diagnostics on downstream healthcare costs. So, Lena and I started ALVA10, almost 6 years ago now, to really reformat that conversation and really help payers, payers being commercial payers, but also employers and Medicare and retiree benefit groups and employer benefit groups, all different manner of payer within our complex healthcare system in the US really help them understand the potential of diagnostic tools to really impact downstream healthcare costs. Instead of thinking them as just discreet, expensive tests that spit out information that they didn't really understand.

Jerome Madison:

Yeah. One of the things that I've heard you say in, in some of the lectures that you've given, even some of your writings, and you said it in the podcast when you were on three years ago and it always stuck with me. You said, "Payers don't value a $250 diagnostic test that guards access to a drug that costs $250,000." How are payers now viewing coverage for NGS testing versus this time maybe three years ago?

Hannah Mamuszka:

Yeah, it's interesting. I mean the companion diagnostic space itself is really confusing from an economic perspective because you do have diagnostics that go through the same regulatory pathway, require the same amount of data in terms of performance. Usually, actually, better performance data than the drug that they enjoined through the FDA. Yet the diagnostic is paid at a fraction compared to the drug, but the diagnostic is the gating tool that is being used to determine if a patient should have access to that drug. And so intrinsically there has to be value with that diagnostic. I think that there's two separate buckets when we think about diagnostic tools that can be used to stratify patients for response.

On the companion diagnostic side, which is when the diagnostic company and the pharma company are joined together generally because the pharma company has had an early meeting with the FDA and has understood that a drug is not going to get approval without a diagnostic. Or

the population that responds to the drug is too small to get approved without the diagnostic. Generally, in a companion diagnostic, the diagnostic is required to be paid and is paid at a particular level based on the technology. What we're seeing more and more of though is companies like Foundation Medicine, companies like Guardant Health that are developing larger panels of diagnostic tools that may or may not be actual companions. And we have seen increasing coverage and reimbursement as payers have started to appreciate that those diagnostics can be valuable in informing later stage oncology care.

Jerome Madison:

Lena we've seen the attitudes of changes evolve, where they are granting more coverage and reimbursement for clinical diagnostics. But do you think that payers are starting to evolve in their perceived value of clinical diagnostics?

Lena Chaihorsky:

I do. Yes. I think to echo some of Hannah's comments on the NGS and the panel side, we still see some coverage issues with large panels in the US. We still have large commercial payers that don't see the clinical utility of these large panels, but the one area where I think Jerome kind of echoing your, what's really changed in the last three years? One thing I think has really changed is the coverage policies that are now available in liquid biopsy in oncology. That has dramatically changed. The science, the evidence has really come a long way over these past three years. And as a result, more payers are covering liquid biopsy in oncology now than were covering three years ago. And the reason that is so important is because we know from oncologists that some of the hesitancy around tumor profiling does come from the turnaround time of tissue biopsy, which is what has classically been covered in oncology for tumor profiling, is using the tissue as a sample. And, also, the insufficient amount of tissue available for a large portion of these patients, actually for about 30% of these patients in lung cancer.

And so, the availability and the coverage of liquid biopsy and oncology actually enables an additional lever. And I think enables much broader access to tumor profiling in oncology. So that's an example of how the payer positions have shifted over the past couple of years. And you can draw a direct line between the access to technology we now have through those coverage policies and the decision making of oncologists to offer these kinds of tests to their patients.

Jerome Madison:

We spoke in our last conversation Hannah, around how payer policy affects innovation in the diagnostic space, whether it's good or bad. And you mentioned that investors don't value diagnostic companies because the reimbursement system is so broken, and payers don't consider a company's cost to develop an assay as they would a pharmaceutical company's cost to develop a drug. And as a result, they set prices that allow them to recoup the investment in R&D and pharma, but not with diagnostic companies. In your conversations, does this at all resonate with payers?

Hannah Mamuszka:

So, I think it is starting to. As we've been talking intensely with payers over the past five and a half or six years and starting to explain to them the real differences between the pharmaceutical and the diagnostics industry, and the fact that a diagnostic company can go through the same clinical and regulatory pathways, go all the way through FDA approval as a drug can. And when a

pharmaceutical company does that, it ensures a certain amount of coverage and payment for that drug with very few exceptions.

On the diagnostic side, it ensures none. There's currently no clear method, no clear process, no governmental agency, that if you jump through a certain number of hoops, that you are guaranteed to get reimbursement. And so that's really led investors to question the ability to get return on their investment in the diagnostic space. And because of that lack of investment in the space, diagnostic companies have historically generated the bare minimum of data because that's all they can afford to, which has taught payers to take a look and say, there's not really enough here for me to take the risk. But they haven't, up until recently, really considered themselves as part of both the problem and the solution because they hadn't appreciated the fact that when they said no to covering a diagnostic, that that actually might mean that that diagnostic would never get to the market. They had always, I think, been under the impression that as in the pharma model, if you say no, they go back to the drawing board, they get more money from investors because investors know that it's a pretty good bet.

In the diagnostics industry, when diagnostics struggle to get coverage, for the most part, those companies go under. And even if that diagnostic is something that the payers actually want to see, they'd actually economically benefit, their patients would clinically benefit. That diagnostic, that company, that tool may just go away permanently. And we have heard medical directors now make that comment that they realize that they need to be part of the solution. They need to give both feedback in terms of what their expectations are and not just saying, well, we need you to prove clinical utility, of course. We need to define what clinical utility for a diagnostic is. We need to jointly understand how much data is going to be acceptable in order to garner reimbursement. And maybe most importantly, how valuable is a test to you because making sure that the diagnostic can be commercially available, meaning that the diagnostic company can produce it in a way that allows the diagnostic to exist in the market. Those are all fundamental questions that payers in the market are really at the heart of and can really enable in our industry if we work together.

Lena Chaihorsky:

And Hannah, to that point, and Jerome to your question, where payers are seeing value in diagnostics today… Hannah, when you say that the diagnostic company might go away, the thing that we say to the payer now is if this diagnostic company goes away, you are never going to have a solution to this cost problem that you have in your membership right now. And that is really resonating with payers, particularly in the area of specialty drug spend. They are starting to understand, and we have spent a lot of time engaging and educating them on this topic, that diagnostics are the solution to your drug problem. Diagnostics provide that compass of understanding. They can tell you in advance whether or not a patient is going to respond to a drug. And if you don't engage, you will not obtain the financial benefits of that information and you will continue to overspend and overutilize these drugs in this constant cycle of trial and error, waiting for this patient to finally find a drug that's going to work for them. And that has really been resonating.

I don't think that anybody has drawn that line so directly to them before. And this is where they're really starting to look at their drug spend, they're starting to understand that very few of those

drugs have stratifying tools to determine response beforehand, particularly outside of oncology, and a massive amount of specialty spending today is outside of cancer. It's an autoimmune, it's in musculoskeletal diseases. And they're looking at the diagnostic industry and they are finally starting to connect. If I engage with this industry, and I help them understand the level of evidence they need to develop and bring me tests I'm going to pay for, I can unlock the solution to my drug spend.

Karan Cushman:

Wow. It's powerful stuff. Now you see why we asked Hannah and Lena to come back and talk about the changes that have happened just over these last three years.

Lena Chaihorsky:

There's a lot going on.

Jerome Madison:

Yeah, well, even in the area of patient access, there is one big thing that has recently happened in the State of California. SB 535 was signed into law in October of 2021. And the purpose of that is it amends California's insurance code related to healthcare coverage and prohibits insurers from requiring prior authorization for biomarker testing for patients with advanced disease, metastatic stage three or four cancer, including when their cancers recur or progress. It's worth noting that similar bills have been introduced in other states and laws have also been passed in the State of Illinois and in Louisiana in 2021. But interestingly, the other states ensure coverage, but they don't, in my opinion go the extra step as California did to prohibit obstacles to patient access like prior authorization. I'll ask you both, like how big of a win is this for patients, but also for the diagnostics industry?

Lena Chaihorsky:

This is a win undoubtedly, but there is some nuance to this win. So when we think about this at large, what this is really doing, it's removing prior auth for biomarker testing. So for tumor more profiling in stage three and four lung cancer. The vast majority of the time the tumor profiling would occur if it was ordered, the prior auth would get accepted by the insurance company. But there is a little bit of time to that. So on average, 64% of physicians we know would wait at least 1 day for prior authorization, about 16% of physicians wait more than 5 days. So the question is really, is it the presence or absence of the prior auth itself that is the reason that physicians don't order more tumor profiling for their patients?

And that's a complicated question to answer. We know that prior auth is an administrative of burden for physicians. On average, it takes about 16 hours a week, man hours a week for physicians to file all the paperwork required for prior auth each week. So there is an administrative burden. Part of that would be taken away by this bill. But what I think is kind of like this bill has done everything that it needs to do to remove the prior auth burden. The next onus I would say is actually on the diagnostic industry to ensure that it's enabling quick turnaround times for tumor profiling. Because the next question we run into in this industry is how long is it going to take once the physician orders the tumor profiling, is that information going to come back in a quick enough time period to make the physician and the patient comfortable to make a decision?

We've removed the prior auth and that's fantastic. But if we have to wait a very long time for this information to come back, upwards of four weeks for this information to come back, the physician may still not order the tumor profiling because they don't want to wait that long to treat the patient. So this is again where I think liquid biopsy and tumor profiling from blood samples is such a huge leap for the diagnostic industry because that dramatically reduces turnaround times. And it enables the physician to be more comfortable that they're going to get the information back more quickly and thus they'll be able to treat the patient more quickly.

One other piece of this that I think is going to be really important to watch is what the insurance industry does with premiums related to this. Because the more tumor profiling we have, the more we're going to be putting patients on precision medicine therapies and that's fantastic. We need to study what the progression free survival and the overall survival benefit is of that action, because we're going to need that data to position against any premium increases that could occur on the side of the insurance companies, because now they are paying out more drug. Insurance companies are actuaries, their business models and actuarial model. So when the costs go up on the drug side, they could go up on the premium side and I think we'll all be watching very carefully for that.

Jerome Madison:

Yeah. You echo some of the comments that Dr. Jack West of City of Hope made in episode 19, when he talked about the administrative and financial burden that prior authorization presents treating physicians. And as a result, many times, they won't do a diagnostic test or a tumor profile and start that patient on immunotherapy or chemo because they know that there's immediate access there. For those of you who haven't listened, please go check it out, precisionmedicinepodcast.com, episode 19. It's excellent stuff.

Lena Chaihorsky:

Jerome, I will make one more comment on this bill because I think that there's another angle here that could be very interesting for the diagnostic industry. And that's the opportunity in the future for diagnostics to increasingly become so-called clinical edits on prior authorizations. In other words, having the diagnostic be that …the thing that ultimately guards as Hannah once said, "Whether or not the drug gets assigned to the patient." Today, we see this a little bit in oncology because we see that the prior auths that that do exist for cancer drugs, they do ask at the bottom, has this patient been tested for Weils type K, right? Has the diagnostic test that indicates whether or not the patient will respond, has that test been run?

There's an issue with that in that insurance companies don't always see the results of those tests. They often don't. But again, the opportunity there is when we take that system outside of oncology, and we think about the incredible opportunity to apply diagnostics to all of the other drugs out there that create very high spending, and currently don't have stratifying tools. Now we're using our prior auth as a really powerful clinical tool to make sure that the right diagnostic is going to the right patient. And that I think is an intersection between the diagnostics and the prior auth we haven't yet seen, but that is a potential and opportunity for the future.

Jerome Madison:

Yeah. To your point, actually, you're talking about the context that the payer has to understand like how the diagnostic is being used. Is it being ordered for the right patient? These bills address

coverage, but treating physicians also point out that utilization management policies also need to be addressed to improve test access for patients. Hannah, even with these changes, you mentioned three concerns from our last podcast conversation that payers still have. Do you remember those three points that you gave us?

Hannah Mamuszka:

Yeah. I mean, they want to make sure that the test that the physician is using meets evidence standards. A lot of the time, payers really don't Don understand the difference between an LDT and an IVD, and they may make an assumption that since the IVD goes through the FDA process, that that is the best test. When in reality, a lot of the IVD tests that we have in oncology today are years outdated. And the ability for LDTs to add on new biomarkers as they're discovered, and they come into guidelines actually makes LDTs the better, more relevant, more appropriate test to use. They want to make sure that the test is used in the right context of the disease in terms of where the patient is in their treatment cycle, that the test is being used ahead of when the drug is prescribed. And if the test is ordered, if the correct test is ordered, that the physician waits until the results come back and then correctly applies the right drug based on the results, which sounds like something that should happen.

But we did a claims analysis with one of our payer partners and found a really disappointing statistic, depending on which group we were looking at that only 11% of patients in 1 group and only, I think 32% of patients in another group were actually treated that way in terms of the correct test was ordered at the correct time, the patient, the physician waited until they had the results back. And then they correctly used the test to assign therapy. And that's, I think really the third question that payers want to know is, is this the right drug based on the test that I just paid for? They don't have the ability to track that certainly in the way that I would've thought that they would be tracking that with everything else that's tracked in our healthcare system in 2021.

Jerome Madison:

Yeah. What are some potential solutions here to mitigate these concerns for payers?

Hannah Mamuszka:

Well, I mean, not to directly plug Trapelo too much, but I do think a solution like Trapelo, which is a software tool that allows either payers or physicians to come to consensus around what best practices are. And then through the software, ensure that physicians are really following the agreed upon best practices set up by clinical guidelines to say, if this is a patient with metastatic colorectal cancer, before they go on to a particular type of therapy, they need to be tested with certain biomarkers that would suggest both that they are good candidates for therapy and they're likely to tolerate it.

I think that the other piece that is really emerging, you think about patient centered apps like Rabble. Rabble is an app that is being developed initially with applications in breast cancer to really enable patients to be at the center of their care and a member in the contact chain of their team, because that enables the patient to actually ask the question of, “Hey, what was my result on this test? What is my next step? What is a nutrition component that I should be thinking about? What is my next stage of therapy?” Enabling the patient to really have access to the information and to be able to ask those questions, I think is also going to be fundamental in moving patient care along and optimizing the use of technology.

Jerome Madison:

On the topic of digital tools. Luba Greenwood was our guest for episode 9, and she talked to us about digital health tools and how they're disrupting precision medicine. Shout out to Luba Greenwood by the way, who just became the CEO of Kojin Therapeutics. But she talked about the importance of disruptive diagnostic tools or and disruptive the tools specifically as it pertains to creating value-based care models between insurance companies and provider networks. And the goal of these programs is essentially to improve patient outcomes by reducing cost and we do that by keeping them out of the hospital. You say that diagnostics needs to be at the front of these conversations. Hannah, Lena, can you explain how you think this would make a difference?

Hannah Mamuszka:

Yeah, I mean, I think diagnostics are the key to value-based care because first and foremost, we need tools to accurately diagnose people. When people are not appropriately diagnosed or when it takes a long time to diagnose them, their diseases tend to get worse, and they get more expensive as they get worse. They don't get cheaper. Using diagnostics to figure out which therapies to put patients on saves hospitalization, saves cost on adverse events, saves time to disease progression. If we just start with thinking about diagnosis. In oncology, we know early diagnosis leads to better outcomes for patients, leads to less cost in the system. There's a lot of noise in the early cancer diagnosis, early screening space right now, there's been a lot of money put into Grail. I think there's a lot of confusion in the space because there's this hesitancy, particularly from the payer market of, we don't want to screen every healthy 35-year-old with cancer or for cancer.

But the fact is we actually have this rising rate of some cancers in the United States. And those patients tend to be younger. It's related to our obesity crisis and our elevated levels of type two diabetes in the country. And what happens is that means that we have more patients who should be getting screened for cancer, but either because they're at the very early end of the screening guidelines, or they're not quite in the screening guidelines, they're not. Some cancers, we do have screening tools for already like colon cancer and breast cancer, and to a far lesser extent, lung cancer. And some, we really don't have screening tools for. But if we think about the ones that we do, that does encompass the majority of cancers diagnosed in the US today. And so we need to figure out ways to encourage people to get screened.

One of the ways that we can think about doing that from a data focus perspective is to use software, disruptive software. For example, there's a company out of Chicago, CancerIQ that can mine EHR and EMR data and figure out from that data, looking family history of cancer, genetic risk of cancer, and a variety of lifestyle factors that can lead to an elevated risk of cancer. Using the CancerIQ software, you can actually create a system where you can prompt the physician's office to reach out to the patient and say, hey, you're due for your breast cancer screening. You need to come in for a colorectal cancer screening. You need to make sure you're following up on your screening that's due. And CancerIQ has actually shown that implementation of their software and using it to establish a higher risk program leads to a full stage shift in cancer diagnosis.

What that means is that when you implement CancerIQ in your healthcare system, 78% of new diagnoses were stage 0 or stage 1. And just think about that. What that would do in terms of how we actually, really create value in our healthcare system. And then if you couple that with new blood-based screening tests that are targeted to patients that are more likely to have a higher risk

at a younger age of cancer, we can really create value by driving the average age of diagnosis way back. When you drive the average age of diagnosis back in cancer, you reduce the need for expensive therapies. You reduce the need for hospitalizations, you make cancer disease that is much more curable on the surgical side than requiring a lot of expensive therapy.

Jerome Madison:

All this is really important. All these concepts that we've talked about in this podcast, the value of diagnostics, leading policy change at the state legislature, and, also at the individual payer policy level on utilization management, digital tools. All this is very important because as you guys have talked about repeatedly, precision medicine is quickly finding utility in other disease states. So outside of oncology, what are you guys most passionate about? I know that you guys at ALVA10 are really on the cutting edge of leading diagnostics, leading the conversation around the utilization around diagnostics. What are you most passionate about?

Hannah Mamuszka:

Every drug that's been developed in the past 30 to 40 years is a rationally designed target therapy. But outside of oncology, we are mostly just practicing trial in our medicine. And that has become more and more apparent what a problem that is as we work more and more with large employers. Just in the past couple of weeks, I've been having conversations around benefit strategy with some large employers and benefit managers that we work with. And we're hearing a trend that is really surprising and gets to the heart of what the problem with this trial-and-error medicine is. And the fact that the average response rate for drugs approved by the FDA is only about 35%. What that translates to in real terms for employers is that employees ask for time off of work, ask for short term disability time when they're switching medications. Because they know that they may have an adverse event that makes some unable to work, that they may not feel well, that their disease may flare. Think about these diseases like psoriasis, multiple sclerosis, depression, a whole variety of different diseases in the musculoskeletal, autoimmune, mental health space.

And so employers are being proactive and saying to their employers, I'm switching drugs, so I need to take four to six weeks off of work, because I don't know if this next drug is going to work for me. The last one didn't work so I'm going to take some time off. That is extraordinarily expensive for our healthcare system and for our employers. And it's unnecessary because we can develop, and we are developing diagnostic tools that allow patients and allow their physicians to know before they are treated, whether or not they're likely to respond to a drug and then make sure to give them the best possible chance. You look at a company like [Mendera 00:31:12], which is developing a diagnostic that predicts response to the three classes of drugs that are used in psoriasis. Those drugs can cost anywhere from 56 to $100,000 a year and have response rates that vary from 40 to 65% in the advanced population, in the moderate to severe population.

If you're able to tell a patient ahead of time, which drug they're most likely to respond to and make sure that they get on that therapy first, that is a cost saver for their payer. But it's also an enormous cost saver for their employer because that employee remains productive and able to work. You can look at the same examples with Scipher Medicine in rheumatoid arthritis, with a variety of companies developing pharmacogenomic tests in the mental health space, including

many that have been out there for a long time. I think that this is really going to be a paradigm shift that we'll see over the next five years or so.

Karan Cushman:

Wow. Hannah, that sounds like we've got another podcast to start.

Hannah Mamuszka:

We just might Karan. We may or may not have something in the work. Please stay tuned.

Karan Cushman:

Yeah. I don't think we're going to cover all of that in one episode.

Jerome Madison:

Definitely, a much needed solution in the marketplace. Hannah Mamuszka and Lena Chaihorsky of ALVA10, Thank you for being guests on the Precision Medicine Podcast. Before we get out of here, how can people get connected to you? Do you have Twitter handles or your LinkedIn platforms that people can connect with you?

Hannah Mamuszka:

Yes, you can search both of us on LinkedIn and Twitter by our full names, or you can find us online on our website at alva10dx.com.

Jerome Madison:

And you can also get to their social media platforms on the landing page at precisionmedicinepodcast.com. Hannah Mamuszka, Lena Chaihorsky of ALVA10, thank you for being guests on the Precision Medicine Podcast.

Lena Chaihorsky:

Thank you so much Jerome and Karan.

Karan Cushman:

Thanks ladies.

Hannah Mamuszka:

Thank you so much.

Karan Cushman:

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Precision Medicine Podcast, please share it. They'll thank you and so will we. We hope you'll tune in for the next episode.

About Our Guests

Hannah Mamuszka

Founder and CEO
ALVA10

Hannah Mamuszka is Founder and Chief Executive Officer at Alva10, which she founded in 2015 to address the 'vicious cycle' of diagnostics- inadequate reimbursement leading to inadequate investment preventing promising diagnostic technology from impacting patient care. Alva10 partners with payers, employers, and diagnostic developers to develop diagnostic tools to address major areas of healthcare need, inefficient spending and poor patient outcomes.

Prior to Alva10, Hannah was VP of Exosome Diagnostics (acquired by BioTechne), where she led some of the earliest deals in the liquid biopsy diagnostic space. Earlier in her career, she was Global Director of Pharmaceuticals Services for Oncotech, and then by acquisition, Exiqon (acquired by QIAGEN). Prior to her time in diagnostics, she worked in drug development on Velcade™ at Millennium Pharmaceuticals (acquired by Takeda). She started her laboratory career at the National Institutes of Health, holding laboratory positions in both the National Cancer Institute (NCI) and the National Institute of Allergy and Infectious Disease (NIAID). She earned a BS from the University of Maryland, College Park in Neurobiology and Physiology, and an MS in Biological Sciences from Harvard University.

Hannah is a speaker and writer on healthcare technology and writes a regular column for the Journal of Precision Medicine on the challenges of implementing change in healthcare. Hannah serves on the Board of Directors for Bionano Genomics (BNGO) and Circle Cardiovascular, as well as on the Advisory Board for the Carolina Health Informatics Program (CHIP), a graduate program in health informatics at the University of Carolina at Chapel Hill.

Lena Chaihorsky

Co-Founder and VP of Payer Innovation
ALVA10

Lena is the co-founder and Vice President of Payer Innovation at Alva10. With a background in biology and mathematics from Tufts, she is a skilled healthcare executive with a proven track record of developing and executing value based reimbursement strategies for diagnostics companies. Lena has extensive leadership experience in sales, national contracting, and all aspects of reimbursement within start-up and global companies, most recently AmniSure and QIAGEN. Lena also contributes to Alva10's public speaking and writing efforts, leveraging her unique perspective on payer business and innovation models and their intersections with the diagnostics industry. Her work on commercial approaches to health economics data analysis led to her appointment as co-chair of the World Economic Forum's workgroup dedicated to the

economics of rare disease data federations in 2019. She is active within the Tufts Alumni Career Networking Community, and both a mentor and mentee within the HLTH Foundation's CSweetener , a 501(c) 3 charity working toward healthcare equality, diversity and access by empowering women to seek and obtain mentorship from industry leaders.