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In this episode, Taren Grom, Editor-in-Chief of PharmaVOICE magazine meets with Tzvia Bader, CEO of TrialJectory.

Taren: Tzvia, thank you, and welcome to the PharmaVOICE WoW podcast program.

Tzvia: Thank you so much for having me today.

Taren: We're especially happy to have you joint us because you have a very personal story to share. I understand you are a cancer survivor and a three-time clinical trial participant. Can you talk about some of those lessons you learned first-hand about the importance for all patients to have access to the best treatments possible for their individual needs? And I know that was a springboard for you to your company, and we'll get into that a little bit later as well.

Tzvia: Yeah, absolutely. My journey actually started December 2013. I'm a techie. I was in the tech business all my life, tech executive. And then I went to the doctor to check something I was concerned about. I had a little spot on the bottom of my foot leading a little bit. I didn't think that much of it.

And when I was sitting at the doctor's office. She took one look at me and basically said, "I think you have melanoma." I can't even biopsy at this point. She was amazing because she didn't hesitate. She didn't say I need to do additional testing. She was like, "It is what it is. I'm not letting you leave my office because I cannot even biopsy this at this point. I need to get you to a surgeon."

It was a shock. I went to see her expecting a small checkup, "Give me a cream or something and I'll move on," right? At the point I already had three girls but my baby was one year old. I did not expect that hearing the word that you have cancer. I remember even my husband was on a business trip and I called him and said, "You're not going to believe what the doctor just said. I'm not sure she's absolutely right but she wants me to see a surgeon." And he said, "Okay, you better make sure you're going to see him and quickly. Let's not drag it. Let's see what it is."

Yes, that's how my journey started. And pretty quickly I was diagnosed with advanced metastatic melanoma. It was like I had mentioned, it was a big shock to me although it was the second time I came across cancer. I lost my mom 20 years before to cancer.

When my mom was diagnosed we basically followed her oncologist's guidelines. We didn't know much about the disease. We didn't know much what to do, but we followed what the doctor said, she needs to get through chemo, then another round of chemo. And as her disease progressed and treatment started to fail you sort of start questioning, is there an additional treatment out there? Does our doctor all the options, and do we need to do something about it? We're not really sure what to do.

And then at a certain point I sat with her oncologist and she basically said at that point, "Listen, at this point we need to look at clinical trials. Maybe there is a better option out there for her." Think about it, it was 20 years ago. I was a young computer geek. I asked her, "Okay. Where do I go about finding clinical trials? What do we do about it?"

She said, "Well, this is the tricky part. I'll ask my colleague but you have this internet, maybe you can look online and find something." It's the early days, the AOL days, the day you get connected and it was actually making a noise." That tells your audience how old I am, but let's ignore that part.

Basically I went online and I searched. It took me two weeks of digging and digging. I ended up finding few options that I didn't know if it even made sense. By the time our doctor reviewed those options and we kind of agreed on something that made sense it was too late for my mom.

Fast forward 20 years, I'm still a techie, more than a techie. I've been part of this digital revolution. Getting this diagnosis was not the best of outcome. I go online. I read. I see the bad statistic of survivorship and I'm telling to myself they don't know me. This does not apply to me. I will beat it but obviously I need to know how to beat it.

I went and met this oncologist. And I waited three hours, he spent the whole of five minutes with me. And I sincerely don't blame him because he had a waiting room filled with patients. And he basically told me, listen, you're not doing that great. We need to do additional brain MRI and then maybe I have one clinical trial for you. And I was just looking at him and saying, "Whoa, wait a second. Clinical trial, why clinical trial? Why only one? Don't I have more options? Where am I heading from here?"

And he basically brushed me off and said, "I don't have time for this now. Do the additional test. We'll talk about it and we'll see." That was the last time he saw me obviously.

Taren: Oh I believe it.

Tzvia: Exactly. But that's like kind of hit home really strongly. It was just like why am I not presented with options, and B, how can I trust one source of information. When I want to book a flight or a vacation I don't just call an agent and say book me a flight these days. I go to Kayak. I look at all my options. I see what's cheaper. I want to buy a house I'll go to Zillow. Even though I have a realtor I work with I still want to see my options. If I want to beat this I need to do something different.

I went online and I kind of thought I would find my Zillow or TripAdvisor that can tell me what are my options, then I can decide where do I go to treatment. If you think about a very logical expectation for us as patients these days, but that was not the case and it home hard.

I read a lot about options. I found out that there's clinical trials and they're the most advanced and better option for me. And I found that clinicaltrials.gov has a database but I really couldn't get the dots connected because I'm not an oncologist, so I really didn't understand the medical jargon. And I didn't understand all this eligibility criteria. And I couldn't really tell what's right for me and what's wrong for me, and where do I fit and what doesn't fit.

As you can imagine I was a little bit frustrated, if you can tell by personality by this point. I continued with my journey. I basically moved to a larger center, not that far from home, a bigger center, an oncology-focused center where I met an amazing oncologist.

I met with him for the first time and he offered me, I think it was two optional clinical trials. And I already said I doubled my odds. And I asked him a simple question. I said, "What you're presenting to me right now is the best of out of everything out there, or am I supposed to now go and shop around in other centers and see what they have to offer? And then again, how am I going to make a decision?"

He was honest as he can be and basically told me, "Listen. What I can offer you is only the things that are running in this center, and even then it's like a subset of what I'm involved with and aware of. You see that you're getting a limited access to information, which is not the best of places to be." I said, "Okay, I'll start my journey."

I started with the first clinical trial. It was a targeted drug. That's after my three surgeries obviously. And then that ran for a period of seven months, which was great. And then the disease came back. And then I said, I need to look at my options again. I ended up saying I need to make sure that I'm being offered more than a limited viewpoint. Then I got introduced to Avital via friend which she is a cancer researcher in NYU that did her PhD and a postdoc. She's now a great friend of mine and also my partner in TrialJectory.

I basically told her, "Can you help me understand this database? Can you help me look around and see what my options are?" Because if the first one failed I want to make sure that the second one will do better. Or I want to make sure that what I'm choosing is not as a default because that's what my doctor offered me, but actually the one that makes most sense for me at this point.

That's what we've done. She actually helped me and reviewed clinicaltrials.gov, and we looked at different options. And I chose number two that was a combination of a vaccine with immunotherapy. And that worked for a year. And then it just came back as it happened. And then we went through the entire process again, and hence clinical trial number three, which was a combination of chemo with immunotherapy. And that did great for me. I've been at it for three and a half years now.

Taren: Congratulations.

Tzvia: Thank you.

Taren: What a journey. Wow.

Tzvia: I know. I went through the different... Also I think the drug's development is a significant point throughout my own personal journey if you think about it.

Taren: Sure. It just goes to show as much progress is being made, where there still so many significant gaps in treatment options.

Tzvia: Exactly. The more progress we make, A, there are more options, B, there are more variation, and the impact is different. I think the old understanding of the personalized medicine is the fact that the art of matching a patient to a treatment is a complex one. And there's a lot of attributes that need to come into play, and it's also not a one time thing, it's a journey until you find the right fit there.

And it's not simple. Every time there's this big hype and a promise like there was on the targeted there's a standalone, and immunotherapy standalone, and you see the reality is more complex than that. From a patient perspective I can tell you that every time I got a few more months or a year it's a victory. Because the more time passed along more options also arrive. As long as the development... which shapes into what's going on with COVID-19. But as long as there's investment in R&D, and there are clinical trials running, and there's innovation and development there's hope.

Taren: Your optimism, resilience, and determination are quite laudable. I am so inspired by your path and your journey and to where you've come to today. Other folks may have just said, "No, I'll just listen to my oncologist." And you had the vision, and we call it the feistiness to go and say, "No, this is not right for me. It's not right for my life. It's not right for my family." You really are a voice for so many patients who just don't have that inner determination.

Tzvia: Thank you. I think a lot of patients unfortunately in this process become voiceless. Whether because they're overwhelmed from the disease, whether they're overwhelmed, they're so scared, and whether it's because having the dialogue also of challenging an authority like your oncologist, it's a scary step to take. And you're like, "What do I know? He studies all those years. What do I know? I don't even understand half the words that he used."

But it's wrong because we put the oncologist in an impossible position. How can we expect them to know everything? How can we expect them to be familiar with all the different drugs that are out there, with all the different clinical trials that are out there? Not only to be familiar, also remember in real-time that this is this trial, and that's the patient eligibility criteria, and connect it to the patient that is in front of them when they meet the patient for five minutes, and they have 200 active patients.

How would they know what is a patient's tolerance to pain? Can he take something that has significant side effects, or does he need something that might take longer but with less side effects? Or is it someone that is actually a single mom that cannot afford treatment that will take her off work for a long period of time because she does need to provide for her family.

There are so many attributes that come into play both medical and personality and attributes are in a mindset that comes into play in this art of matching a patient to a treatment that we cannot expect the oncologist to do it all for us. We need to find a way to own it and we need to remove barriers to patients if we want them to own it.

Taren: Amazing. It almost makes you wonder if there's not some form of intermediary that needs to be... the oncologist is there but he needs a researcher on staff to help them or her make these decisions in terms of that patient, and matching the right patient to the treatment. I love that you said it's the art. It needs to take in all these other considerations. But that seems to be that there's a big gap there in the treatment journey.

Tzvia: Exactly. And I think there could be another function but actually my belief that lets us... TrialJectory as the technology can also play a role here. Because if you think about another clinical trial coordinator, again it's another resource, they have to comb through a large set of data, a large set of information. That will take time. It's not scalable. Can you do it for the whole 200 patients that he's treating right now? Probably not.

We need something that is much more scalable, that also, like you said, it mitigates and removes the barriers. And I think technology has a role. When you look at different use cases of technology in other industries, like the example I've mentioned before, Kayak or Zillow, what they've done is exactly that. They took a large set of data, they analyzed it quickly, they filter through it and they match it to a pre-set condition or attributes of people.

The best use case for artificial intelligence, people are not aware of it, is actually personalized marketing. People like you bought this, people like you watched this. And if you think about it it's exactly the same. It's looking at a lot of attributes of data and matching it to an individual.

None of those tools have been used unfortunately still in healthcare, especially on the oncology and for the patient side. We take what technology can do which is analyze large sets of information quickly and actually match different data states of information.

And then leave the decision making to what humans can do. And then a doctor can have this dialogue, and his clinical trial supporter can have additional deep diving and help in the decision making. The decision can only be made by a human, but bringing in the relevant information to the table, that's where technology can help.

Taren: That leads us right to TrialJectory, right?

Tzvia: Exactly.

Taren: Talk to me about your company and how your mission is... and it's obvious from what you've just said, to democratize cancer care and expand access to new treatments. What a worthy mission. Talk to me a little bit about the company.

Tzvia: Thank you so much for that. Based exactly on what we said, when I got my med news, and I knew that I'm up and capable again to tackle the world, I wanted to make my journey, make some sense out of it. And I want it to be meaningful.

What I wanted basically to do is help other patients find access to advance treatment. I was lucky. I found this friend who's a cancer researcher who could assist me. I was even lucky by having access to one of the best cancer centers in the world, others don't. And I wanted to use my background in technology and make this accessible to all.

I grabbed this cancer researcher and I got another friend who's a doctor scientist and machine learning, artificial intelligence expert, and another one was a product, and I basically said let's build a platform for patients that will help them in a matter of minutes see all their relevant options. Basically mimic the mind of an oncologist by reading all those treatment information and giving patients access to that.

That's what we've done. We've build TrialJectory exactly with that mission, so a patient can come in and have the Zillow-like experience. He can tell us about his disease, his diagnosis, his mutation if he had a biopsy, what treatment he received, what was the outcome for him, overall health issues. And then in a matter of minutes he gets matched with all the different clinical trials that he meets the eligibility criteria.

First of all, we remove the question of what's out there. You immediately see what's out there. Those are just treatments that are right for him. And the other thing that we wanted to show him is all these different variation of options. If I'm collecting all this information about their journey, patients that are like him, so not just patients who are breast cancer, but I actually can show a triple negative breast cancer with PD-L1 positive, what other treatment the patient has received and what was the outcome for them.

In a matter of minutes you can actually see all your different options. You can see clinical trials that are right for you. You can see other treatment options and you can see what was the outcome for other patients exactly like you. That's where the discussion starts. That's where your decision making starts.

Now you can go to your oncologist and say, "Let's review the options and let's decide. This one has more side effects. This one is longer than this trial. It actually takes the approved chemo and combine with immunotherapy so that makes a lot of sense. It's worth looking into." That is the type of discussion that should take place in the oncologist's room and that should be the starting point.

In order to develop this type of platform we had to invest a lot of time in developing the technology. What we've done is we developed an artificial intelligence engine that can read through treatment protocol. And it might sound simplistic but it's a hell of a task. Trust me about it.

When I recruited our CTO, the artificial intelligence expert, initially he told me, "Listen, I don't think it'll be such a complex task. It might not be techie and challenging for me. But I'll do it because I believe it's for doing good." Two years later he lost a lot of hair. What he's got became white, and he doesn't think that anymore, because it's a huge task if you think about it.

We have to train the machine to understand treatment protocol, to read through eligibility criteria, to read through description, and extract from it all those different terms and understanding of all those different combinations, drug names, genetic mutations, biomarkers, overall health condition. There's a lot of attributes that come into play and we need a machine that is able to read them and understand the relationship between them.

And a lot of this time they're asking for we're looking for patient naïve, unless received PD-L1 inhibitors. There's a complexity there that a machine needs to be trained to understand in order to then match it to a patient.

And that's what we've done. We developed this smart engine that can read through it and we train them. We're oncology focused only, we train it indication by indication. And then when it's ready we take it to the next level. Then it can read through those protocols. We're creating our own database of attributes of patients that are required for a trial.

One of the challenges for a patient, "How do I know if those list of attributes is right for me?" That's problem number one. And as I described we solve it by curating those attributes into questions. It's a dynamic question, so I'm not going to ask you a hundred questions like in a form.

Actually, every patient almost gets a different questionnaire based on his input. Did he have a biopsy? He didn't. Is he BRAF positive? He's not. He received the Keytruda. He didn't. Everyone gets their own little pack and provide their medical information in a kind of friendly and intuitive way. That's the first part. And then they get matched.

I removed this first barrier of knowing what's right for me. And then the second barrier that we mentioned, how do I read it? How do I understand it? The second part of our engine is we actually automatically curate the information to make it accessible for patients. What do I mean by that?

If you'll take some of the titles or description of the trials it's still in a language that doesn't necessarily mean a lot to patients. But we can easily, and that's our program does, curate it and basically say, "This is a combination of a PD-L1 with chemotherapy protocol for advanced melanoma patient." That's something a patient understands.

All of a sudden it's not foreign. "Now, I understand what this trial is about." Now we basically present them the other information that he basically wonders about, how the treatment is being given. Is it an IV? Is it a shot? Is it a pill? What is the study goal? Are they looking to stop disease progression? Are they looking to extend life? Are they just testing reduce side effects? Let's see that. What is the phase of the trial? Is it blinded or not blinded? What is the category of this drug? Is it targeted? Is it immunotherapy? Where does it all fall in?

The machine curates the information. And it acts as a translator to the patient language. So not only can it sees options it can also understand them. That's our story.

Taren: It's fascinating. My question is once you get through all of this and you come out and you have to go back into the oncologist's office and you say, "Here's the information." What is that level of receptivity from the oncologists? Are they happy to have that information or do they feel threatened?

Tzvia: That's a very good question Taren, and I think it depends on the oncologist. The more advanced one are really happy about it because they know it saves them the leg work, and it provides them with the right context to have a meaningful conversation about treatment options. Not only did he save them time and leg work, presented them with options that otherwise they might not even be aware of or think of, so it definitely give them the option to provide better care to their patients with the most advanced option that's not easily accessible, not even to them.

Also, we know from research, the more active part the patient is taking in this journey, the better the outcome is for a patient. Not only are we giving him the better option with more advanced treatment options, by giving him a role in it he probably will have a better outcome. That's part of it.

Others actually prefer them to come with this type of result because they understand the patients are active anyway. And patients are Dr. Google anyway. But coming from Dr. Google they come with a lot of noise, with a lot of information that is irrelevant. And then as one oncologist told me, "I'm spending the 5-10 minutes we have together basically saying why this is not relevant and this is not relevant." It's leaving both the patient and the oncologist frustrated and a little bit defeated because they didn't make any progress. Even those who doesn't necessarily would think about choosing the most advanced option prefer that to happen now in this context rather than just Google nonsense.

And like always in life there's one that still doesn't understand the winds of change and might still resist it and say, "No, I want to put you on chemo like I did on this chemo protocol. I've been doing it for the last 15-20 years. This is what I'm used to doing. This is what I do with my patient at this point." That's fair enough as well.

And then it's up to the patient. If he feels comfortable going through this route at least he knows what the other options are. He made a conscious, educated decision to go with this route. And if he doesn't feel comfortable at least he knows that he has options. His oncologist are not offering him. Then he should go to another clinic and have a second opinion. And continue exploring the more advanced option that he has. I think it's all about visibility and transparency. Whatever route you end up taking you have the options.

Taren: Absolutely. Fascinating about this whole process for you in starting up the company working through all this with your disease. And at the end of the day where do you see the company going? What is your ultimate goal for TrialJectory?

Tzvia: My ultimate goal for TrialJectory is like I said, I want it to be the Zillow for all chronic diseases. I want it to be the place where a patient gets the diagnosis and go to and see his options. I want it to be the place that actually the oncologist before the meeting go to to see the options, where they can review it together and spend their time analyzing the different options. And making a decision that is based on data and information.

I would like it to be the place that actually bring also the patient voice and data back into the pharma. There's a lot of discussion in the pharma industry about patients and patient voice, and bringing the patient into it. But the only way to bring patients into it is if you understand the patient and you see his journey, and you see who they are. Not just the patient who are in the large centers but actually the patients that are in the community center, that are all over the country from diverse race and demographic.

And have that voice and that profile and data reflected also in the decisions, the decision about eligibility criteria, participating in the trial, approval drugs when we know the different side effects on truer presentation of the population.

I think there is a long way to go where the pharma sees the patient as an integral part of their processes where the patient play an integral role in this making this health decision for themselves and team with their oncologists on this journey.

Taren: It's amazing. And I was going to ask you, have you had any conversations with pharmaceutical companies or even contract research organizations, the folks that implement clinical trials?

Tzvia: Our main focus at the beginning was just of course the patient and we work with them and community oncologists. We now do have relationships with some of the pharmaceutical companies. And like you they find it a very intriguing and different model. All of a sudden the patient is the one that's driving the decision, the ones who's initiating the whole process.

And also they love the fact that via this engine I can actually unbox the whole pre-qualification process for them. Because the way the engine works we pre-qualify them and we see which eligibility criteria exclude which patient population at any given point in this engine, and sharing this information with the pharma.

In addition to the information why a patient chose not to apply even though they matched, whether there was too many visits to the clinic that he was concerned about, not enough testing, whether the location because patients are in the Midwest and there is a new site close by. All of that insightful information that can really help remove some of what we talked about, the barriers for a patient to understand trial and apply to trial or remove the barriers for pharma to understand the barriers for our patient to actually participate in the trial.

Taren: Excellent. One of our questions that we ask everybody for our WoW podcast program is to describe an event or accomplishment that has changed the trajectory of their career and/or their life. I'm going to ask you the same question just so that we have you on the record. What would you consider to be your wow moment?

Tzvia: I think I've gone through that a little bit at the beginning, my entire journey throughout it. But I think my moment throughout it was when I went online after my diagnosis and saw that nothing changed since the day that I was searching for options for my mom.

On the one hand I'll correct myself, a lot of change. There's so many more options out there. There's so many advancement out there. There's so many different treatments that never existed before. And there was a lot of content out there. I can be more educated and reading and understanding. But there's nothing out there that is practical, that is really a decision support that can tell me what's relevant for me. And that moment that I realize that the help industry have not released the patient to be empowered and did not democratize access to information.

When I read through it and I remember going for reading and reading, and I keep telling my husband, but I can't find the platform, I can't find the tools. What are you looking for? I'm looking for the tools to tell me that this is the trial for me, those are drugs for me, something simple that will help me understand.

And he said maybe there isn't anything like that out there. And that was the aha moment that was just like, wow, it still doesn't exist. I need to develop it. I need to build it so it will be for the next patient to get diagnosed.

The other side of this aha moment is we had a patient a couple of months ago, the metastatic breast cancer with recurrence that basically told us that she just came back from her doctor after a check-up to learn that her disease came back with a vengeance metastatic. And her doctor said I'm going to put you in chemo. And she said, "I felt like I don't want to do the chemo again. It didn't work the first time. Why would it work again? I needed to do something different.

And she told that to her friends and her friends told her about TrialJectory. And she said I sat on the coach. I did TrialJectory, in five minutes I saw four different trial options for me. And the next day I already explored it with the representative of TrialJectory. I went to the oncologist the next week when I was supposed to start chemo.

We showed him the list and said, “Look, what do you think about those options.” And he told me, “You know what, that makes a whole lot of sense. Let’s not start chemo. Go explore this trial.” And she said, “All of a sudden I had hope.” That evening in front of the TV, having those conversations for our oncologists, we gave her hope that she didn’t have before. And it kind of closed the loop for me because this is what I wanted. I wanted the next one to have a tool to have option and hope.

Taren: Amazing. I can’t thank you enough for sharing your story with us and with our audience. And hopefully people who are listening to this who know somebody who needs hope they’ll come to you and they can find a potential solution. I want to wish you continued good health and success.

Tzvia: Thank you so much. Thank you for having me today. Absolutely anyone who needs help and hope come talk to us. And anyone from the pharma who would like to get the barriers removed and get closer to your patients we’re here to help. It’s truly a life mission. It’s not a job. It’s not a company. It’s about fulfilling missions in life I think.

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