“Helping Patients Navigate Cancer” (Manta Cares) [#93]

Brad Power
April 17, 2024

“Medical information is now doubling every 73 days, which means that we're now sitting in a world where we just have information overload constantly and everywhere.” – Samira Daswani

“The amount of distrust in the healthcare system is unprecedented.” – Samira Daswani

“The question is, ‘Who do you trust?’ Do you trust your clinician, who at some point, may or may not have read the paper? Do you trust a fellow survivor who's gone through it, who may or may not have the specific type of cancer you have? Do you trust Google, where you have to actualize yourself? Do you trust your interpretation of a PubMed article or a Google Scholar article?” – Samira Daswani

Meeting Summary

About 70% of cancer patients and caregivers are educating themselves about their disease and engaging in their medical decisions, but they are confronted with many challenges as they try to navigate their care:

- **An increasingly complex cancer landscape**: With a 94% increase in the number of cancer treatments available over the last five years, it is becoming more difficult for both patients and providers to stay up-to-date on rapidly evolving guidelines. The continuous approval of new tests and therapies means that what you know becomes obsolete every six months or so.
- **Information overload**: Patients and families have unprecedented access to information (97% of patients use Google), yet are overwhelmed due to the lack of information curation and medical education to interpret complex test results, treatment options, and molecular biology.
- **Limited time with doctors**: Cancer patients have on average only 23 minutes with their oncologist, and healthcare providers are seeing an increased number of cancer patients. Tools for shared-decision making are essential to make that limited time as efficient as possible.

Samira Daswani is uniquely qualified to help cancer patients and caregivers understand their disease and navigate testing and treatment. Samira has designed, launched, and taken multiple products through the FDA regulatory process. She was diagnosed with breast cancer a week after turning 30. She decided to channel her personal cancer experience into a mission to help patients, survivors, and caregivers thrive during their own cancer experiences by founding "Manta Cares". Manta Cares helps make navigating the cancer experience a little easier by creating resources and tools to help patients, survivors, and their care partners. Manta Cares offers a bi-weekly podcast, "Patient from Hell", and a newsletter that features cancer education and resources. The "Manta Planner", a science-backed paper planner for cancer caregivers and patients, helps them make informed treatment decisions, track symptoms, and organize appointment notes.

What are the challenges you find as a patient or caregiver in navigating your cancer care?

- **Demystify cancer:** Enabling you to know what to expect
- **Trustworthy sources**: Finding clear and accurate information, avoiding disinformation; overcoming distrust of the healthcare system, research, AI, and social media; knowing who to trust
- **Interpretation**: Interpreting marketing, test results, treatment options, clinical practice, and other information, avoiding misinterpretation
- **Information obsolescence**: Keeping up with continuous innovation in testing and treatment options and information; for example, the number of cancer treatments have doubled in the last five years, and medical information is doubling every 73 days (Clinicians face a similar challenge – only 1% of oncologists are clinician scientists, while the rest rely on the evidence-based guidelines to quickly access information for treatment decisions.)
- **Personalization**: The complexity of interpreting multiple test results, including transcriptomics, proteomics, and longitudinal data → translating that into a personalized model of your disease → developing your treatment strategy
- **Digital tool selection**: Most patients and caregivers use more than 15 digital tools to manage the many aspects of their care, while 25% don’t use any digital tools.
- **Using mental health services**: 53% of cancer patients are lonely and depressed, yet there is low utilization of support programs.
- **Time and attention**: Up and down demand for information as your medical situation changes, emotions change (e.g., denial), and other demands compete for your time and attention

What help do patients and caregivers need to navigate their cancer care?

- **User-centered design**: Services based on your decisions and needs, prioritizing empathy, design, and collaboration (not your role in others’ clinical processes or drug discovery)
- **Trustworthy information**: A trustworthy, evidence-based source of reliable information to guide decision-making
- **Continuously updated information**: Continuous scanning to reflect the rapid innovation in cancer tests and treatments
- **Digital tools**: Intuitive digital tools to enable a more active role in your care
- **Personalization**: Information, matching, and presentation, customized to you

What are Manta Cares’ services?

- **A notebook** (available now): a personal cancer appointment planner designed for patients and families, including templates for tracking symptoms, medication, and nutrition, as well as space for customization
- **Navigation maps** (in development): Maps to help patients navigate cancer treatment in specific diseases, like lung cancer, which bridge clinical guidelines, patient preferences, and support resources for equitable care

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

How will Manta Cares’ navigation maps be different from other sources, such as the guidelines?

- **Ease of use**: Draws inspiration from everyday life and design principles, more than a flowchart; designed from the ground up on patient and caregiver decisions and needs (not just a simplified version of clinician guidelines)
- **Survivorship**: Emphasizes the importance of living with a condition (not just a specific treatment decision)
- **Biology perspective**: Bases guidance on disease biology, allowing for more accurate diagnosis and treatment (not just clinician guidelines)
- **Services direction**: Pointers to service providers, e.g., for financial management (not just medical care)

How can you support the development of Manta Care’s navigation services?

- **Learn** more about the new maps product and help in development; request a demo and give feedback
- **Listen** to the "Patient from Hell" podcast
- **Buy** the Manta Cares notebook

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

Meeting Notes

KEYWORDS

patient, cancer, guidelines, clinician, map, disease, tools, oncologist, oncology, treatment, learned, information, prostate cancer, breast cancer, experience, good, point, Samira

SPEAKERS

Samira Daswani (58%), Brad Power (16%), Brian McCloskey (8%), Allen Morris (8%), Molly Lindquist (3%), Rick Stanton (3%), David Plunkett (2%), Mark Stoner (1%), Jeff Krolick (1%)

OUTLINE

1. Cancer patient experiences and entrepreneurship. (0:04)
2. Cancer patients' self-education and digital tool usage. (6:38)
3. Healthcare trends, patient education, and the role of AI in healthcare. (12:33)
4. Trust in medical information and the role of AI in interpreting patient data. (17:50)
5. Cancer research and treatment, with a focus on prostate cancer. (25:46)
6. Cancer treatment guidelines and their limitations. (28:48)
7. Creating a cancer care planner for patients and families, emphasizing personalization and equity. (34:59)
8. Creating a patient-facing tool for cancer treatment with a focus on usability and accessibility. (40:24)
9. Challenges in bioinformatics and clinical practice, including limited access to tissue analysis and difficulty in interpreting multi-omics data. (46:52)
10. Personalized medicine, drug development, and mapping for cancer treatment. (52:27)

SUMMARY

During the conversation, patients and caregivers shared their questions on enhancing their experiences in cancer care. Brad Power emphasized the importance of patient-led initiatives, while Samira Daswani highlighted the need for a human-centered approach. Patients discussed the challenges they and their families face during treatment, and agreed on the need for a more patient-centered approach prioritizing empathy, design, and collaboration. They also discussed the complexities of cancer diagnosis and treatment, including the need for a trustworthy, evidence-based platform to provide patients with reliable information. The speakers also discussed the development of a personalized cancer navigation and support tool, and the importance of creating a comprehensive platform that integrates guidelines, clinical practice, and patient preferences. Finally, they acknowledged the limitations of their product in solving financial toxicity and emphasized the importance of highlighting areas of potential problems and partnering with organizations that can provide expertise.

Cancer patient experiences and entrepreneurship.

- Brad and Samira connected through mutual friends in cancer advocacy work.
- Molly: Met friend Bryce after breast cancer diagnosis, joined forces to improve patient experience.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

- Samira: Learned the hard way that designing healthcare products in the US is tough, got a degree in design and led product management at a medical diagnostic company.
- She shares her personal experiences with breast cancer, emphasizing the importance of patient input in cancer research.

Cancer patients' self-education and digital tool usage.

- Samira Daswani highlights the importance of addressing the business of oncology, citing the rapid growth of cancer drugs and treatments.
- Patients and families are taking a more active role in managing their care, with many using DIY tools and facing challenges in finding adequate support.
- Brad Power expresses surprise at 70% of people self-educating and making decisions, while Molly and Samira Daswani share similar findings on the breakdown of patient behavior.
- 97% of cancer patients and families use Google for self-education and care management, while only 25% do not use digital tools.

Healthcare trends, patient education, and the role of AI in healthcare.

- Samira Daswani discuss trends in healthcare, including self-education and AI's impact on decision-making.
- She discusses the drastic change in marketing efforts for oncology, driven by patient distrust of the healthcare system.
- She mentions the challenge of providing clear and accurate information to patients through patient portals, with potential for misinterpretation or incorrect information.

Trust in medical information and the role of AI in interpreting patient data.

- Brad Power highlights the value of medical experts in interpreting complex medical reports.
- Samira Daswani shares their experience with PubMed and Google Scholar, mentioning the rapid pace of medical information and the challenge of keeping up.
- She questions the role of clinicians in staying up-to-date with medical research, suggesting that a new layer of value may be needed to help them keep pace.
- Jeff Krolick and others express concern about data manipulation in well-respected research institutions, leading to distrust among patients and lack of trust in AI tools.
- David Plunkett and others share experiences of patients seeking help and advice on social media platforms, but facing challenges in evaluating the credibility of information and sources.

Cancer research and treatment for breast and prostate cancer.

- Allen Morris compares breast and prostate cancer, highlighting similarities and historical parallels.
- He notes that the guidelines are now exclusively online and nobody can keep up with the rapidly evolving cancer research.

Cancer treatment guidelines and their limitations.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

- Allen Morris acknowledges that only 1% of oncologists are clinician scientists, while the rest rely on guidelines for treatment decisions.
- Samira Daswani agrees that clinicians use tools like the app to quickly access guidelines for patient care.
- She emphasizes the importance of guidelines in evidence-based care, but acknowledges limitations in areas with limited evidence.
- She discusses the challenges of navigating cancer treatment without support, and highlights the importance of family and community.

Creating a cancer care planner for patients and families, emphasizing personalization and equity.

- Samira Daswani describes the Manta Cares cancer planner designed for patients and families.
- The planner includes templates for tracking symptoms, medication, and nutrition, as well as space for patients to make it their own.
- She describes maps being developed to help patients navigate cancer treatment, emphasizing personalized support.
- The maps aim to bridge clinical guidelines, patient preferences, and support resources for equitable care.

Creating a patient-facing tool for cancer treatment with a focus on usability and accessibility.

- Samira Daswani discusses the "Patient from Hell" podcast.
- She invites listeners to learn more about the digital product and potential collaboration opportunities.
- She explains how their maps differ from guidelines, emphasizing the importance of living with a condition.
- She emphasizes the importance of making patient-facing guidelines easy to use and understand, drawing inspiration from everyday life and design principles.
- She highlights the unique value of their product in adding more value than just presenting guidelines in a flowchart format.

Challenges in bioinformatics and clinical practice, including limited access to tissue analysis and difficulty in interpreting multi-omics data.

- Brian McCloskey shares his personal experience with bioinformatics analysis, highlighting the gap between clinicians and the information provided.
- Samira Daswani confirms the commonality of this issue, with multiple patients facing similar challenges in various types of oncology.
- She highlights challenges in integrating guideline science, clinical practice, and operationalization of NGS in cancer treatment.
- Brian McCloskey notes limitations of tissue availability and evolving cancer diagnosis, emphasizing need for solutions to address these challenges.

Personalized medicine, drug development, and mapping for cancer treatment.

- Brad Power highlights the complexity of analyzing multiple variables in cancer diagnosis, including transcriptomics, proteomics, and longitudinal data.
- Samira Daswani explains that their matchmaking approach is based on disease biology rather than clinical guidelines, allowing for more accurate diagnosis and treatment.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

- She discusses the complexity of breast cancer, mentioning differences between early stage and metastatic disease.
- Mark Stoner shares his personal experience with cancer treatment costs, highlighting a $76,000 bill for a 6.5-hour infusion.
- Samira Daswani acknowledges limitations of their product in addressing financial toxicity, but aims to highlight areas of potential problems and partner with experts.
- Rick Stanton requests a demonstration of the product to better understand its value and how it can benefit patients.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

TRANSCRIPT

Brad Power
This is the Cancer Patient Lab.

For those of you who don't know about the Cancer Patient Lab, we are a learning community of advanced cancer patients trying to educate ourselves about our disease. We exist through the kindness of contributors, so we look for contributions. We are patient-led, all volunteer, and so we would appreciate it if you could donate.

I'd like to introduce Samira Daswani. I met Samira through Molly Lindquist, who's Samira’s partner at Manta Cares. Molly was a good friend of Bryce Olson in Portland, Oregon. We had that connection among many others. We connected through CancerX.

Samira is a quintessential serial entrepreneur. She got breast cancer, and in managing her disease, she developed some tools that she made available through Manta Cares.

Samira Daswani 1:57
Thank you so much for having us.

Molly Lindquist 2:05
As Brad mentioned, we met and had all these wonderful connections. My favorite of course, being Bryce, who was a dear friend of mine, and one of my inspirations. I met him soon after I went through breast cancer treatment about 12 years ago. Two bald heads meeting in a park is how we used to joke when we met and then became very good friends.

My professional background is in finance and strategy. I was diagnosed with breast cancer and that kind of rejiggered my professional and personal trajectory. I ended up creating a nonprofit crowdfunding platform that I ran for about a decade, and then joined forces with Samira, who I met also through a longtime dear friend. It was one of those, “I've just met this amazing breast cancer survivor. You two should talk.” The rest is history, so to speak. I've joined forces with her to help improve the patient experience.

Samira Daswani 3:04
I'm a bio-engineer. I'm an art historian by training, and then ended up at McKinsey and Company for a handful of years in their global health practice, then switched to startup land. I've been in startups for a very long period of time now, almost all in healthcare, with the one tiny exception of a fashion AI company in the middle there, which I don't think is pertinent to this conversation at all.

I learned the hard way that designing in healthcare is really tough, because healthcare is a business in the US. Very often the business takes over. A lot of times, companies, nonprofits, all of the people who want to do good, really struggle, because we don't have the space to build good products. I wanted to learn how to do that. So I got a graduate degree in design, at the intersection of human-centered design and healthcare. I then took a job as the head of product at a medical diagnostic company, where I took a couple of products to the FDA. That's when I got diagnosed with breast cancer.

Molly and I are about 12 years out. I was a couple of weeks out of being 30 when I got diagnosed. I found the lump myself. I went through a lot of the similar things where I got dismissed by the clinicians, eventually got the diagnosis, and then ended up in 18 months of active treatment. For early stage breast cancer, knock on wood, the prognosis is good, but I skew younger, and the data goes out only so far. So in terms of what that means for the future, who knows?

A lot of the work we do at Manta Cares comes initially from my own experiences, then Molly's experiences, and the experience of honestly a lot of the team that works on Manta Cares, and then all of the individuals we've had the fortune of intersecting with because we constantly learn from other patients and family members who are going through their experiences and try and make sure that what we're building is truly in service of them. So that's the background.

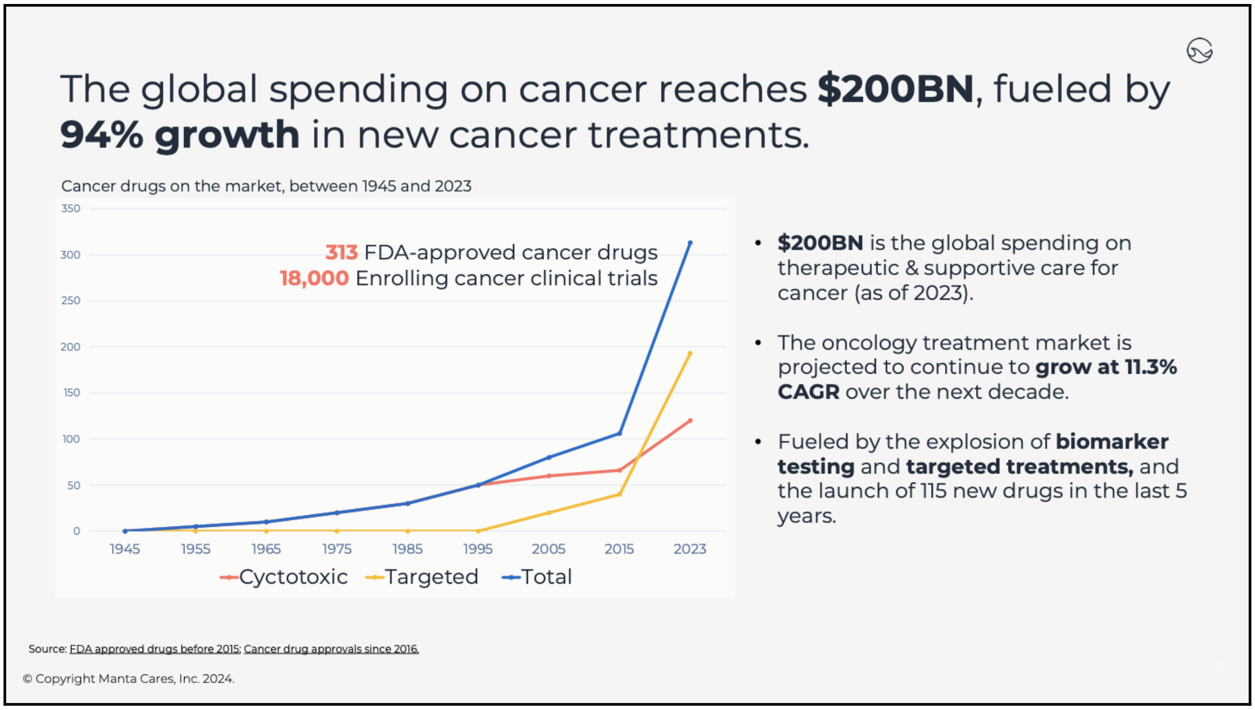
I do not like talking about my story. You guys may have to nudge me a little bit. That's one fear. My second fear is that I don't think we've ever presented to a group that skews mostly male, and for prostate cancer. A lot of what we learn from has been very heavily influenced by the breast cancer community. Of course, we serve other cancer types. So if we show anything, and you're like, “Hey, that makes no sense. Why would you guys do that?” Please let us know. Because we're always soliciting your opinion, your feedback, and your thoughts. We just believe that we're better with each other's opinions. Anything we show today, feel free to give us feedback.

Manta Cares

Demystifying cancer.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

Our mission is to demystify cancer. We were playing with the true mission statement here. And we sort of stumbled across this one, partly because we began to realize that what we've been building has been truly in the service of enabling patients and family members to know what to expect. That's the overarching goal of our company, the products we build, and of the community we serve.



The global spending on cancer reaches **$200BN**, fueled by **94% growth** in new cancer treatments.

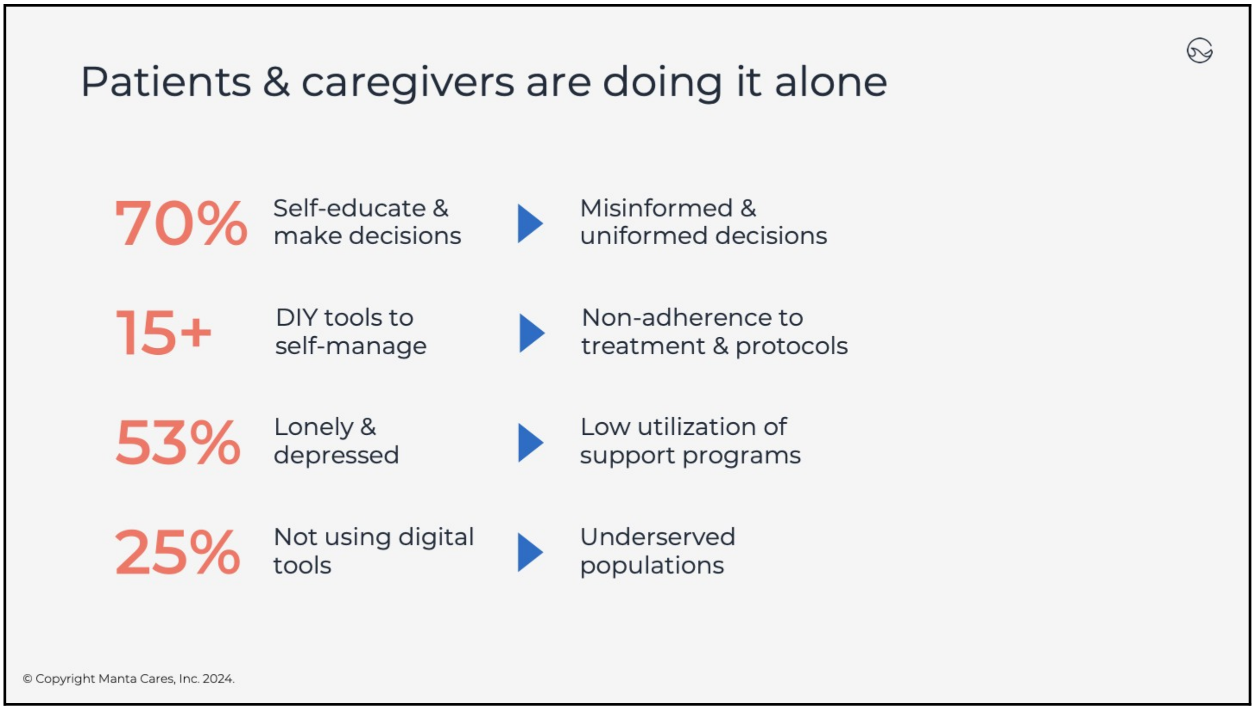
Cancer drugs on the market, between 1945 and 2023

- **$200BN** is the global spending on therapeutic & supportive care for cancer (as of 2023).
- The oncology treatment market is projected to continue to **grow at 11.3% CAGR** over the next decade.
- Fueled by the explosion of **biomarker testing** and **targeted treatments,** and the launch of 115 new drugs in the last 5 years.

Source: FDA approved drugs before 2015; Cancer drug approvals since 2016.

I want to start, firstly, with the macroenvironment of the business of oncology, because very often in patient groups, we don't talk about the business of oncology enough. And sadly, it affects a lot of our day-to-day lives, whether or not we realize it. So let's maybe spend a couple of minutes on that, and then we can talk about how we bring the patient perspective into it.

If you look at the last five years, it's a pretty fascinating time to be a patient because we have access today to a large number of cancer drugs. We've doubled the number of cancer treatments available to the patient community in the last five years, which I feel very fortunate about. But it can also be incredibly overwhelming to make sure that we're getting the right treatment at the right time. You're seeing that across the board, where medical information is now doubling every 73 days, which means that we're now sitting in a world where we just have information overload constantly and everywhere.



Patients & caregivers are doing it alone

70%	Self-educate & make decisions	▶	Misinformed & uniformed decisions
15+	DIY tools to self-manage	▶	Non-adherence to treatment & protocols
53%	Lonely & depressed	▶	Low utilization of support programs
25%	Not using digital tools	▶	Underserved populations

The patient and family are having to truly take a different approach than we have in the past. About 70% of patients and family members are self-educating and driving decisions today in oncology.

But sadly, the tools we have access to are not the best, which sometimes leads to misinformed or uninformed decisions. When we've spoken to the community, we've learned that patients and families come up with their own tools. We use north of 15 DIY tools to self manage the many, many aspects of the experience. And sometimes that leads to non adherence to treatment, the wrong protocol for the trial. It's because we're building our own tools. We don't have the right tooling to help us across the many aspects of the experience.

53% are lonely and depressed. Yet we see some low utilization or support programs that do exist is this mismatch of support programs exists, and we can't find them at the right time.

Lastly, in the world of AI and ChatGPT, 25% of the community doesn't use digital tools. So we have a large number of individuals in our community who are still largely underserved, because in the world of AI and ChatGPT, if they're not on the internet, that doesn't really matter very much.

I'm assuming this resonates to some extent with this group. Does it, or does it not? Any thoughts?

Brad Power 9:19
I'm surprised that 70% of people self-educate and make decisions because in my rough feeling, this is not based on any data, it feels like 50% of people are in denial. They pretend they don't

have the disease or don't want to let it define their life, or they minimize it. Then of those 50% remaining, 50%, or 25% overall, are just following their doctor's directions. They're “good patients”, meaning they do what their doctor says. That only leaves 5% or 10% who are like the community that we have, which is people that are trying to self-educate and come up to speed so that they can be actively engaged in their care.

What's been your experience on my take versus the 70% who are self-educating?

Samira Daswani 10:17
Molly and I had a very similar discussion when we found this paper because it's coming from a shared decision-making paper that was published, I want to say a couple of years ago. The breakdown here is 20% to 30%, the same number that you're talking about, where patients are “good patients” and rely fully on the clinician to make the decision and follow suit. The 70% breakdown is about 20% to 25% and are truly like, “I make my own calls. This is my body. I'm driving the decisions, full stop.” The rest are in the world of “shared decision-making”. To be in the shared decision-making world you do need to do some amount of self-education.

The number that blew my mind, though, was not published. It was spoken about at ASCO last year. There is a shared decision-making doctor, Dr. Mark Lewis, who had a presentation at ASCO at the main ASCO Congress. He shared a number that truly blew my mind. He said 97% of cancer patients and families are using Google to help educate and self-manage their care. 97%. That number threw me off a little bit because that's basically everybody. If you look at the last number we have here, which is that 25% don't use digital tools. The reality is, that while you may not be using digital tools, you still have access to some amount of the internet today. It's this discrepancy we're sitting in where that's where our work comes in. Very often we meet patients and families at one point in the experience.

At some point that may be denial. I can promise you, I've been there. I definitely had denial. I needed someone who sat me down. I remember this moment. I was with my professor. I had just gotten diagnosed. I was like, “*If* I have breast cancer.” He looked at me said, “It's not “*if*” you have breast cancer. You have breast cancer. You have a diagnosis.” I remember sitting there going like, “Oh my God. He's right.” There is denial, but I suspect that it's transitory. We may not be catching everyone at the points where they are coming to realizations that they need to do something about it. We capture them in one moment, and then assume we know the full experience. That's the way I rationalize the numbers anyway.

Brad Power 12:43
I heard somewhere that between 10% and 20% of Google searches are on health-related information, which is also mind blowing, considering the huge volume that they have of searches. I was talking with Frank Nothalf this week about what would generative AI do to those searches. You're not searching for answers to questions, you're just asking a question of a chatbot. That's tied to something. Related to that are misinformed or uninformed sources.

I talked to someone at Google about curating information on YouTube. YouTube is having to delete all of this misinformation. By the time they deleted it all, it's a desert, because the majority of stuff that's posted is bad. So YouTube is really struggling to find reliable content. That's where we feel like we could make a contribution with some of the sessions like this by posting them.

Brian McCloskey 14:06
My question revolves around the trajectory of these numbers, and how the typical patriarchal decision-making is changing. So 70% are self-educated and make decisions.

What did that look like 10 years ago or five years ago?

Because that's important in terms of how we think about our community, and helping to educate them, and the reception on the other side of the clinician to accept that collaborative type of relationship with the patient.

Samira Daswani 14:49
I don't know if I have a good answer for you. I can only give you anecdotes on it, Brian, because I'm with you on the trendline, and the trendline matters probably more than the static case today.

We were in conversation with the founder of a very, very successful consumer-facing healthcare brand. This individual was telling me that they do a lot of direct-to-consumer services, not in oncology, but direct-to-consumer work with patients. This individual told me that today, their marketing efforts have completely changed. About seven years ago there was a drastic change. The drastic change is primarily being driven by an immense amount of distrust of the system. We're sitting in a world where the amount of distrust in the healthcare system is unprecedented.

When we look at it, I don't know if oncology is different. The relationship with a cancer specialist is different than with a primary care doc. I don't know if we should take that as a fact. But I suspect that some amount of that is true, because the first thing I do when I get a report back is I go to Google immediately. That is the very first thing I do. If I get my malware results back, the very first thing I'm doing is scanning, looking into pirates and going straight to Google.

Because the reality is when you get your report before you talk to the oncologist, the odds are your oncologist meeting is two weeks out. There's a lot of anxiety. There's a moment of panic like, “What does this mean?” Sadly, the reality of healthcare is that we don't have that many oncologists. I'm forgetting what the number is – don't quote me on this – but it's like a double digit number of oncologists retiring. When you look at the demand for oncology, the projected demand is supposed to rise by 40% in the next five years, and we already are in a short supply of oncologists. That number is going to keep growing. So the demand/supply curve, and this is just, unfortunately, not skewed to enable patients and families to get more time with the people who know this the best.

Brian McCloskey 17:05
Results of tests, for example, and imaging, all pathology, these can be published on a patient portal, and there could be absolutely no explanation. So of course, it forces the patient, or encourages the patient, to do their own level of self-educating. That information can be widely misinterpreted, or the information that's actually presented on the report can be wrong, which just happened to me. We'll save it for another time.

Brad Power 17:50
I will add two examples in this space that I've just seen recently.

One is a great use case for ChatGPT. If you take a pathology report, which is inscrutable to humans, except for Allen (Morris, a pathologist), it's got a whole bunch of medical terms. I don't even know what some of these anatomical names are, where things are lining up. They're explaining things, but if you run it through ChatGPT, and say, “Put it in eighth grade English.” It all becomes interpretable.

But even beyond that, there's an interpretation level, which many people on this call have taken advantage of, which is, “How does this relate to expectations? Is this good or bad?” That's really what you want to know: “Is this something I should be worried about or not?” ChatGPT and tests are never going to tell you that. That's what you get from your doctor. But again, you're waiting for your meeting with your doctor. So we have taken advantage of Cancer Commons. We have a direct line to Emma Shtivelman, who's a goddess. On two occasions she told me that this report tells me that you're on track. That was huge.

In another case – I haven't told Brian and others about this – I got a proteomics report, which we can get through mProbe. The report said there are three chemotherapies that were indicated for me to get. I said, “Well, that's interesting.” Emma looked at it and said, “It turns out proteomics is great in solid tumors, but it has no experience in liquid tumors. Disregard all of that.” It's amazing. There still is a value-added layer that you need from the people that have seen 100 cases and can tell you, “Is this good, is this bad, or is it wrong?”

Samira Daswani 19:59
I am completely with you. I spend a lot of time on PubMed and Google Scholar. I backed out of Google search very quickly. Most of my time was in the rabbit holes of PubMed and Google Scholar. The big thing I have learned, and I did not learn this when I was in active treatment. I have learned this recently, because in our podcast, “The Patient from Hell.” We've gotten a grant from the Patient-Centered Outcomes Research Institute (PCORI), and part of that grant is to have researchers and clinicians come on and talk about research that has been funded and sponsored in oncology by PCORI. In the process of doing that, what we do for the podcast is we go through papers. We look at a paper, prepare it, I ask a bunch of questions, the clinician or the researcher will respond. My big big learning has been: I'm a scientist working in healthcare. I can read papers. I can, of course. I feel comfortable. The big thing I've learned is medicine and information is moving so quickly. That research published five years ago may be completely irrelevant today. And in conversation with these researchers, it blows my mind, because we're

looking at studies that were done in 2020 or 2019, and in conversations, the results of this are basically irrelevant. We did the study. Since that study was published, we've done all this other work that has either proven or disproven it. It missed the contextualization of it.

It's been this fascinating shift. The question is: “Who is the one to get the value-added layer right? Is it really a clinician? Is it a scientist? Is it a researcher?” I'm not sure it's the clinician. Because I'm not sure the clinicians are able to keep up to speed with the change of information. I'm not sure. I want them to trust them. I want my oncologist to hear about every single paper that came out in my case. But if I look at their schedule, my heart goes out to them. Their schedules are really bad. They barely manage to keep up with their schedules. The expectation that they have kept up to speed with it is maybe too great an expectation. But anyway, that's my take on it.

Jeff Krolick 22:25
Unfortunately, as people are looking for more widespread evidence of data manipulation, in very well-respected research institutions by some teams. There's no way, for us anyway, to know that.

Molly Lindquist 22:49
To the earlier point, that just feeds the distrust. Because you don't know who to turn to. You don't even know if these published statistics are accurate. It's this constant chicken vs. the egg situation of: where do you turn?

David Plunkett 23:15
I'm a member of several different prostate cancer support groups on Facebook. I'm seeing a real increase in the number of people, especially new patients, who are posting screenshots of reports from their patient portal, with really plaintive questions of: “What does this mean? Is this good? Is this bad?” They don't know who to ask. They don't know where to ask. So they're asking in a forum where they're getting a lot of poorly presented ideas and opinions and sometimes some actual information, but there's no way to filter it or judge it. So they're getting overwhelmed with what could be good advice or could be bad advice, and they don't know where to go.

Samira Daswani 24:12
I was part of a young breast cancer community in the Bay Area. It was exactly the same thing there. It hit a point where as a patient, the question is, “Who do you trust?” Do you trust your clinician, who at some point, may or may not have read the paper? Do you trust a fellow survivor who's gone through it, who may or may not have the specific type of cancer you have? Do you trust Google, where you have to actualize yourself? Do you trust your interpretation of a PubMed article or a Google Scholar article? I don't know. I don't think I have a good answer yet. But that's a problem for yourself.

David Plunkett 25:02

I haven't reached the point where I trust the AI interpretations yet. So I'm always looking for the sources. But I have the time and the interest to go look at the various sources. A lot of people, who are no more sophisticated in their technical skills than looking at Facebook, they just don't know how to do that.

Samira Daswani 25:28
You and I are on the same page on that one. I'm completely with you on the trust or lack thereof on AI tools.

Allen Morris 25:45
You're talking to a prostate cancer group, and you thought that that may be alien to you since you are breast cancer. I just wanted to tell you that of all the solid cancers, breast cancer and prostate cancer are the most similar.

This is a tangential history factoid, but breast cancer research probably antedated prostate cancer research by about three decades. It inspired a guy named Michael Milken to develop the Prostate Cancer Foundation. He looked to breast cancer as his yellow brick road to how to do things. He was doing this in the 1990s when prostate cancer only had one tool in the toolbox, which was Lupron, luteinizing hormone releasing hormone agonist, and now there are at least seven different classes.

On keeping up: you are absolutely right, that it is going exponential like I've never seen. The guidelines are the Bible. I have the book right here. It's my Bible. It's the eighth edition. They would publish it maybe when I started every five years, then it got to every four years, then it was every three years, then it was every two years. This eighth edition was after the seventh edition two years. I'm pounding the table to my people, “Hey, we need to get the ninth edition.” They keep saying it's there. There is no ninth edition anymore. It's online, and anybody can get to it. It's exponential, and a testament to it is that there's no longer a book published. It's called the AJCC Cancer Staging Manual. It's right in front of me because it's always at arm's length for me, because I cannot memorize all the different stuff that goes into each cancer.

Nobody can keep up with the frontier. Certainly nobody can keep up with phase 2 studies that are promising. Nobody can keep up with that, except for the specialist in the particular area. For example, if you're a triple negative breast cancer expert at Stanford University, and you're designing the studies, you can keep up with that phase 2 stuff because you're the one designing those studies. But for the 99% of physicians, and I'm talking about oncologists who are not clinician scientists, they can keep up, but just with phase 3 stuff, and phase 3 stuff per what's in the guidelines. Everybody, including us, can look up the guidelines, and they're updated on a continuous basis.

Samira Daswani 29:15
I have read the full guidelines for my type of cancer. You're completely right. I want a world in which clinicians are able to do that all the time.

My question is, “How often in the community setting is the oncologist actually looking up the guidelines?”

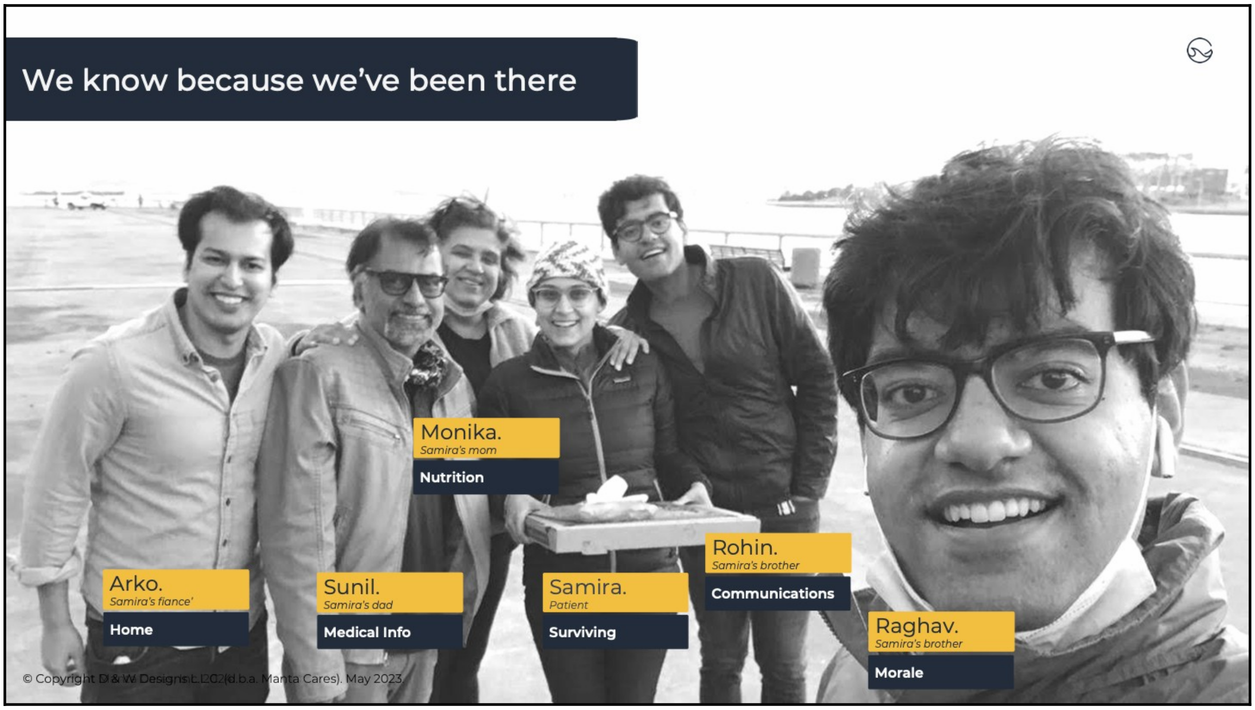
Allen Morris 29:37
They're looking it up all the time. They'll admit that for all these cancers like myeloma, it would take forever to memorize them, but they don't have to memorize them. All they have to do is say, “Oh, this is my myeloma patient. They have these adverse factors, like they're anemic, they have a high beta globulin, or they have this or that.” Then they look it up, and they see what the branch points are in the guidelines. They walk around with their computers. When I'm talking to all the clinicians, now they have their laptop right in their hands.

Samira Daswani 30:15
They use their app as well. I have seen clinicians pull up the app and look it up as well, because there is an app. If you have a number, you can log in and do it. I'm completely sold. I'm not suggesting that there are no tools available to clinicians. We are in a world where we have to rely on tools.

Allen Morris 30:35
This crew is interested in what's immediately on the frontier, which is within six months, and that would be Fast Track phase 2 stuff. They're also interested in what's intermediate, all that stuff. 99% of clinicians who are not clinician scientists are going to know nothing about that because it's hard enough to keep up with the phase 3 stuff. I make that admission to you. But as far as the phase 3 stuff, they can type it in their computers and get it up like that.

Samira Daswani 31:15
You said something that is really important. This is an opinion and not necessarily a fact. We've learned from the patient community is that we fall into two very different camps: (1) there is the early stage camp, where guidelines really are the Bible, where guidelines have enough of a confidence level, there's enough of a data set there, that getting treated by guidelines, by standard of care, is what you need to do. Then (2) we have the subset of patients where that necessarily may not be what you should be doing, for example in rare types of cancers, where the body of evidence is still small, where – to the point you're making – trials that we are looking at maybe in phase 2 trials may not have had phase 3 trials, where guidelines are not there yet, because the body of evidence is still being generated.

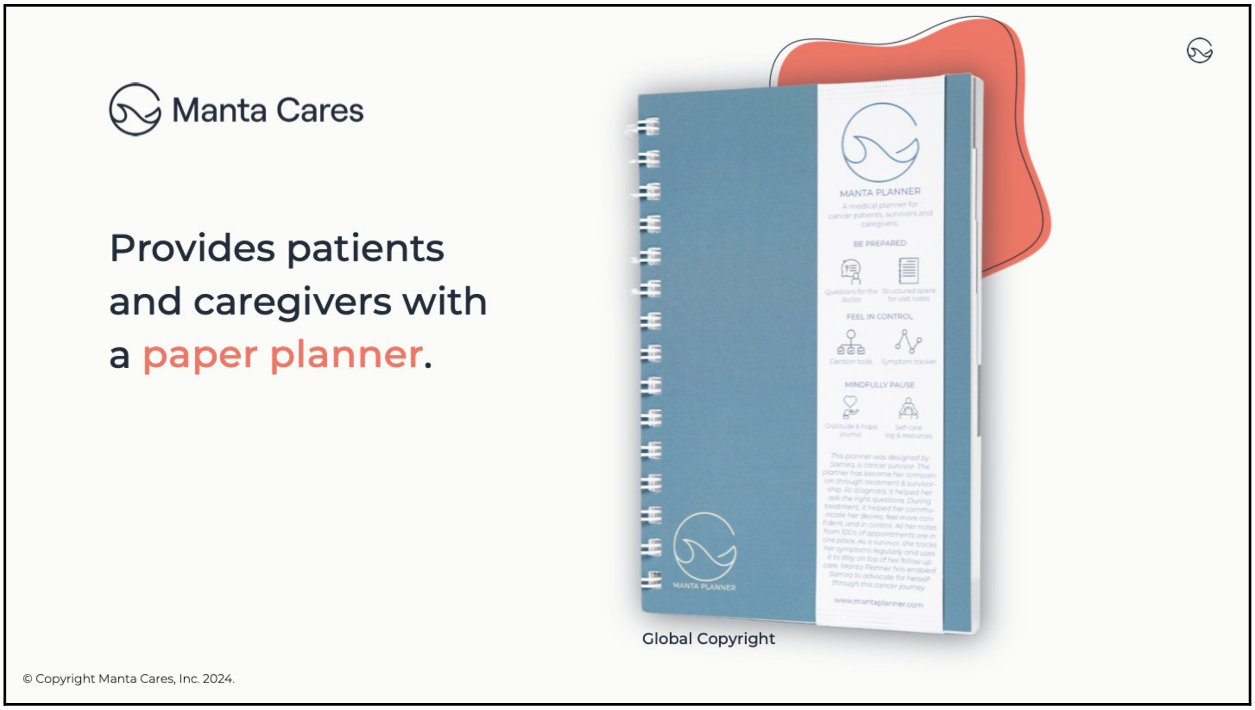
The tools we need for those two sets of patients and clinicians are different. We need to enable both sides to get to what they need to get to, because of the point you're making, like guidelines are super important. Guideline-based care is essential for us to get anywhere for outcomes across different populations. I am a full believer in that in the settings where the evidence exists. It's the the context of the evidence that exists. What I'm hearing from you is where evidence is being generated, guidelines have a natural limitation because a guideline doesn't come into existence unless there is an evidence body. As a patient, you sometimes are in one group, and sometimes you're in the other group. You're fluctuating, especially in the advanced settings, or anytime you're an outlier. Anytime the study wasn't done to include your type of cancer, or your type of demographic, or your type of sub-molecular type. Anytime you're an outlier, it becomes a much, much harder experience to navigate, to some extent, because guidelines simply don't support that.



We know because we’ve been there

You guys know my story already. This is a picture from May of 2020. My family shows up. I am eternally grateful for my family to come and take care of me. Honestly, without them, I don't think I would have had the prognosis I had, nor would I have had the support I had. So a lot of the work is not just about us. It's about the family members that surround us, the community that surrounds us, and the friends that surround us. Very often in the patient community, we get locked into “patient first”. This slide is mostly to say that it's not just about us.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]



Manta Cares

Provides patients and caregivers with a paper planner.

Global Copyright

The company started in a very non-tech place, given all the conversation we've had about apps and AI and tools. We started with a paper product. Most often women buy it. 70% of our population that buys the paper product is female. I'm happy to talk to you guys and see if it's of any value to you at all.

It came from a lot of the firsthand experiences that I had when going through treatment. I got pretty frustrated because there weren't tools for patients. There are tools for clinicians, but there aren't that many tools for patients. I can't remember the last time I had been in a meeting when I didn't have an a note-taking tool except in my healthcare appointments. Part of this was just trying to get some control back for myself.

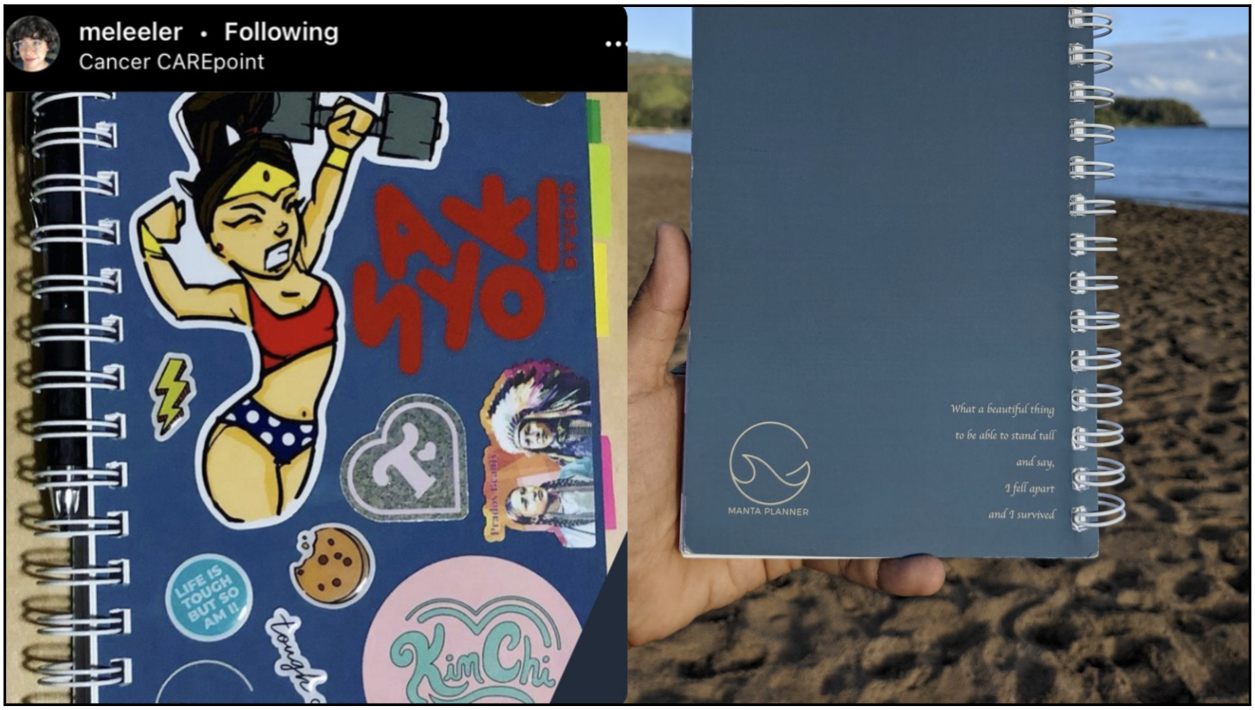
“Helping Patients Navigate Cancer” (Manta Cares) [#93]

It's a small product. It has all kinds of branding on it. It can fit in your bag or purse.

It's very lightweight. It is a structured appointment notebook. It's not a ruled notebook. It has structure that reminds you to write your symptoms down, note your questions for your doctor, what is the motivation for the appointment? What's the goal you're trying to get to? This template of ours gets a lot of positive feedback from both patients and families. We've come up with a two-panel template for the capture of everything that might happen in the course of the day. All of the emotional stuff. There's tons of data around blogs as a way to ground people on the emotional side. All the obvious things to track. I know that is a lot of type one exercise following, which has obviously been fixed in the print version, but you will see it in my slideshow here. Then on the right side that actually comes from a lot of Dr. Ethan Bash’s work and borrows from symptom tracking. Sometimes, paper still works. We've created a simple tool to help patients keep track of their symptoms, and then medications and nutrition.

The book is pretty lightweight in content. It goes back to the point where there's a lot of information out there. We're not trying to recreate the wheel in any way, shape, or form. But sometimes when you're in the appointment, you have a “deer in headlights” moment. We've created one or two pages of content in the planner itself to rescue you if you end up in a “deer in headlights” moment.

From a branding perspective, the cancer word is almost never used because it allows patients and families using the product to take it with them and not have to reveal or disclose that they are going through cancer, which we learned from experimentation was really important. Because very often – this is where I don't know the prostate cancer community – in the breast cancer community, the tools you get, or the support you get, has a pink ribbon on it that has the bald head on it. All good, but when you carry it around, it's a public disclosure of your disease, which we believe should be optional and not mandatory. So that's why the product is branded the way it’s branded.



If you did want to brand it with whatever motivates you, you'll see that we have users who color it, sticker it, make it their own, because there's plenty of space to make it your own. We learned from the beta product, which came out in 2021. We've helped a couple of 1000 patients with it. It is possible to buy it from us. Patient advocacy communities buy it from us and give it away to patients. It is available for sale on Amazon and our website.

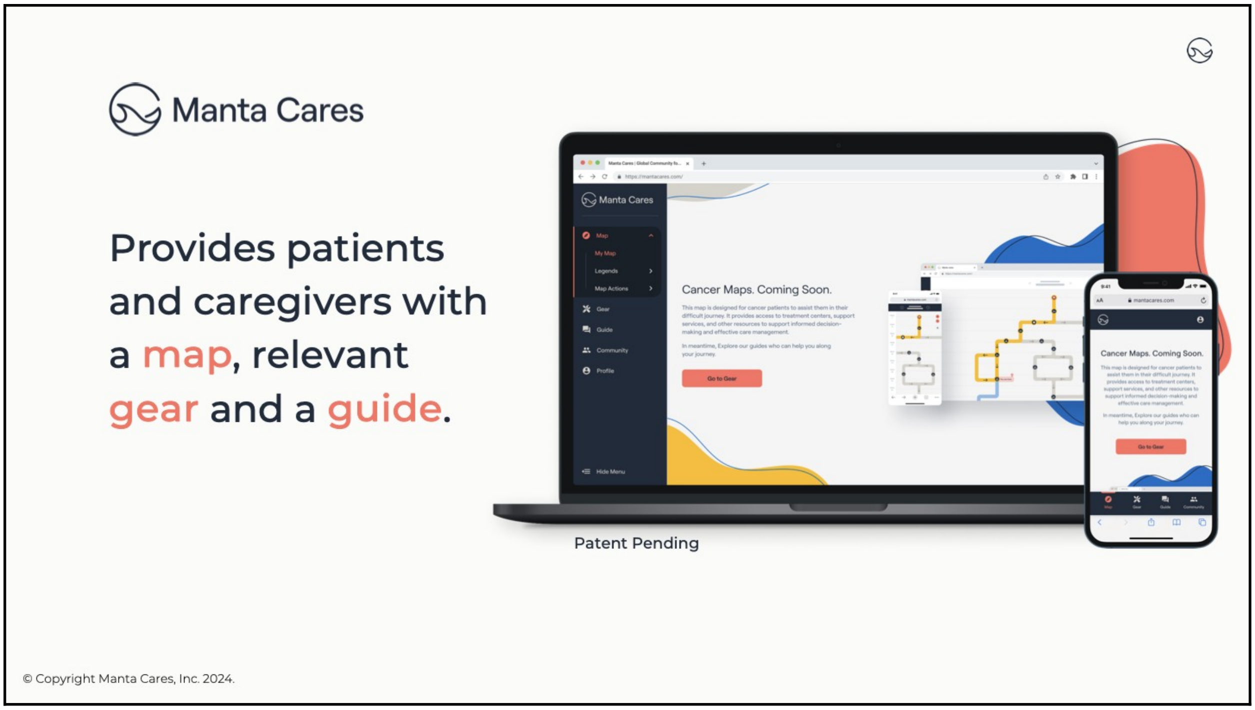
We've learned from the paper product that patients and families describe the experience in a very similar fashion across cancer types.

I'm going to leave the breast cancer world and go to lung cancer for a second.

We have learned that patients and families describe navigating cancer as being like a treacherous hike, where you do not get access to a map. You don't get access to relevant gear, and you don't get access to a guide. A key part of that statement is you don't get access to a map.

A few years ago, we found a cartographer. Doug Blaney is now our chief medical officer. He's a former ASCO president, and he's been on multiple guidelines committees. He was a Stanford breast oncologist. He ran the cancer center for a while. He's our CMO. In partnership with him, we've been building maps. We started with breast; we're working on lung; and we've started a prostate cancer map. I am not familiar with advanced stage prostate cancer, but I'm getting familiar with early stage prostate cancer right now, through our process of making maps.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]



Provides patients and caregivers with a map, relevant gear and a guide.

Cancer Maps. Coming Soon.

This map is designed for cancer patients to assist them in their difficult journey. It provides access to treatment centers, support services, and other resources to support informed decision-making and effective care management.

In meantime, Explore our guides who can help you along your journey.

Patent Pending

Our digital tool has not been launched yet. The goal is launch in the back half of this year. When we say “map”, we quite literally mean a map. By the way, think of a New York City subway map for your disease. It reflects guidelines, clinical practice, especially when they do not align, because there are moments in time where they don't align, and the patient and family experience. Because very often, patient preference and family preferences sometimes won't show up in the guidelines. We make sure that our maps are bridging all three worlds and merging them into one interface.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]

Lost navigators

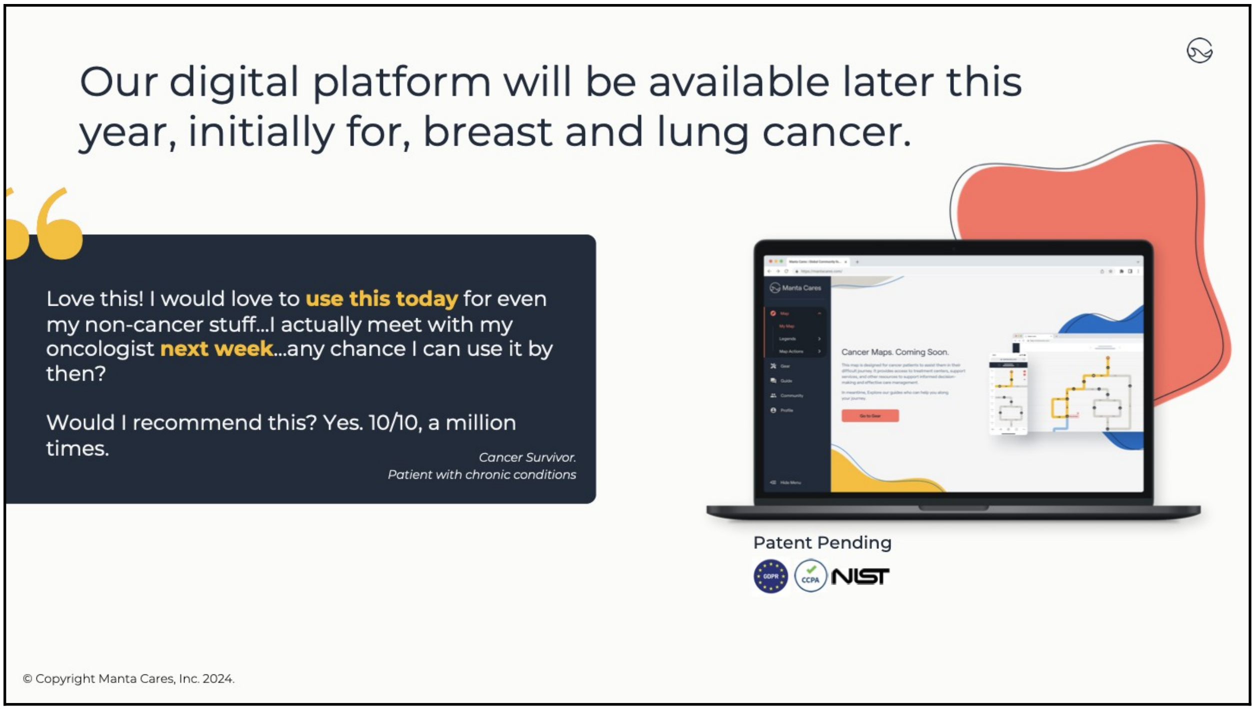
to

Co-navigators

- Right information at the right times
- Self-management templates and tools
- On-demand support
- Increases health equity

The goal of our map is to give you the right information at the right times to enable you to get to the self-management tools and templates, to access on-demand support, and by “support”, we don't mean clinician support. We believe very strongly that decision-making needs to stay between the clinician and the patient and the family. What we mean here is all the ancillary support that goes around the clinician. We provide access to qualified nutritionists, lymphodema specialists, mental health experts, peer navigators, groups like yourself. Creating a place where we can connect the patient with the right support at the right time. And then of course the paper product to make sure that all the tools that we provide to meet any patient, anywhere in the country, where they are, with access to clincal resources.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]



Our digital platform will be available later this year, initially for, breast and lung cancer.

> Love this! I would love to **use this today** for even my non-cancer stuff...I actually meet with my oncologist **next week**...any chance I can use it by then?
>
> Would I recommend this? Yes. 10/10, a million times.
>
> *Cancer Survivor.*
> *Patient with chronic conditions*

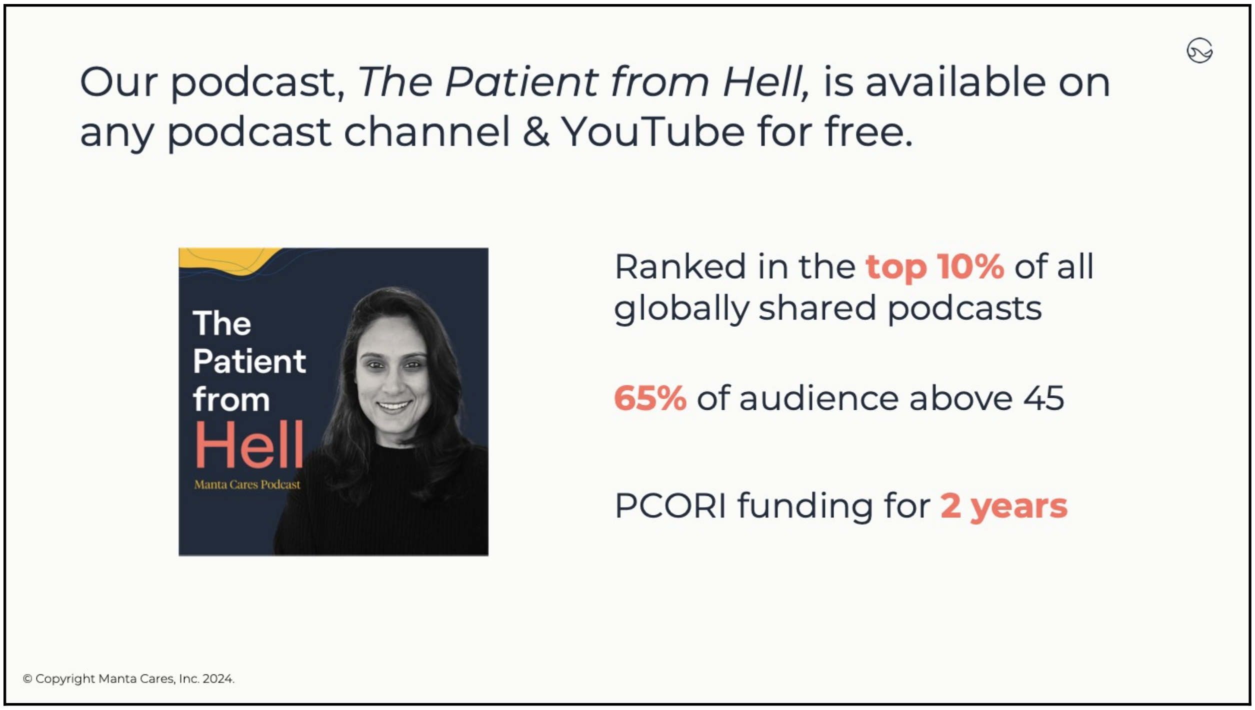
Patent Pending

Our digital product is not, as I mentioned, available yet, which is why we're giving you a very lightweight version of it. We have been testing it a lot. We have seen is that both oncologists, nurses, really want to use it. They want to recommend it. They believe it'll keep people from spiraling out of control on Google, which is part of the conversation we just had.

More importantly, patients and survivors really love it. We've had plenty of patients who have looked at it and asked us, “Can I get access by next week, please? I have an appointment coming up.” Our current answer is, “Well, yes, in a few months.”

We don't need a lot of information from you to give you a map. We're a funny little creature, in that we don't need medical record information. We don't need EMR integration. We do need you to know what your diagnosis is, which we believe will skew to patients who know their diagnosis. But if you know your diagnosis, we can give you a representative map that is accurate for your diagnosis.

“Helping Patients Navigate Cancer” (Manta Cares) [#93]



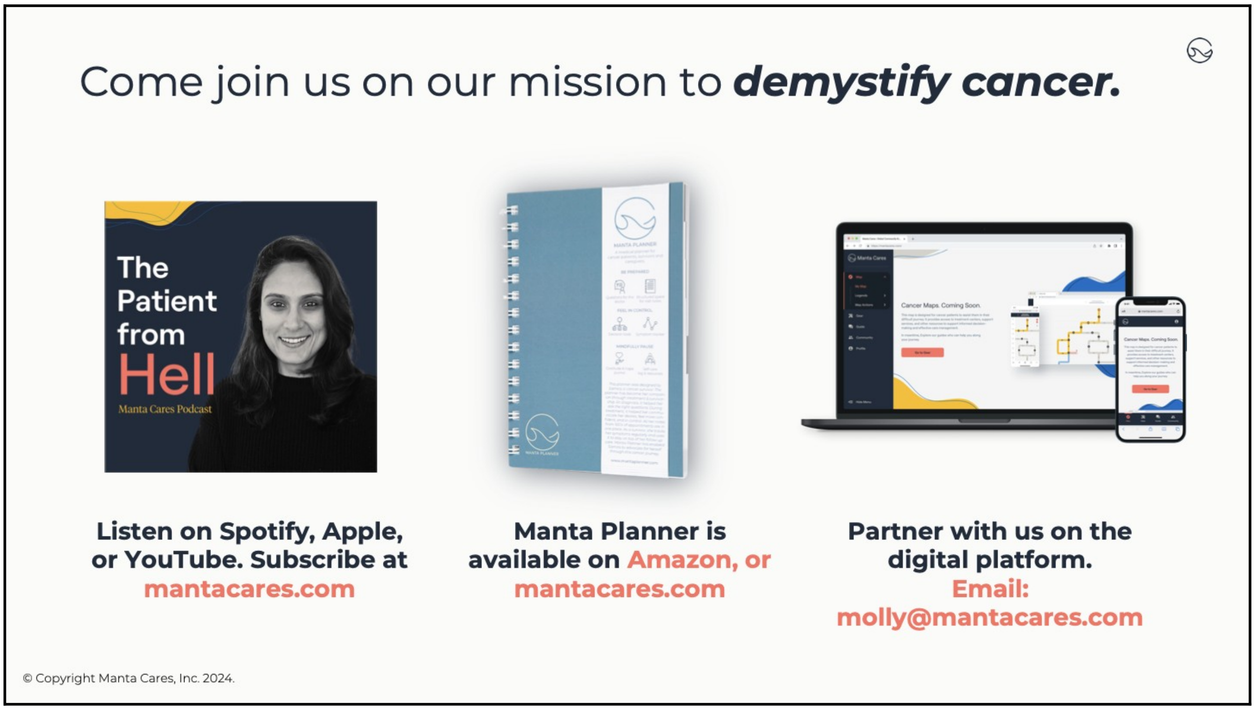
Our podcast, *The Patient from Hell*, is available on any podcast channel & YouTube for free.

Ranked in the **top 10%** of all globally shared podcasts

65% of audience above 45

PCORI funding for **2 years**

We have a podcast. It's called “The Patient from Hell”. You can listen to it on any podcasting channel. A subset of episodes are funded by a PCORI Foundation grant. The nice thing is about 65% of our audience skews to an older demographic. I only say that because most podcasts don't have that. It's an indication that we are reaching the audiences that we want to reach.



Come join us on our mission to ***demystify cancer.***

Listen on Spotify, Apple, or YouTube. Subscribe at mantacares.com

Manta Planner is available on Amazon, or mantacares.com

Partner with us on the digital platform. Email: molly@mantacares.com

You can learn more about us on our website. Our website is only reflective of the work that we are public about today, which is the podcast and the planner. If you're interested in learning more about the digital product, we're happy to show it to you and learn from you and see if there are opportunities to collaborate.

Brad Power 42:25
We spoke about the mapping before. I'd mentioned to you that Rick Stanton did some work with turning the guidelines into a decision tree. Allen Morris had mentioned something similar. They don't naturally lay out like, “Here's a fork in the road, and here's how you decide on which fork to take.” It's not really mapped out that way.

Can you say how your maps are different from what you might see in the guidelines?

There's that dimension of making it a map. Then you're including quality of life and other factors, while the guidelines are only going to be medical. I'm guessing you would be including a lot of other questions and things that people would be worried about.

Samira Daswani 43:22
Let's talk a bit about our maps, and then I can come back to the guidelines and how they're different.

All of our maps typically have three zones: there is a zone for diagnosis, a zone for treatment, and a zone for living with a condition. If you look at the guidelines, they create a diagnosis and treatment. On living with the condition, they tend to be pretty light. For us, living with the condition is really dependent on the condition. If you look at breast cancer, if you have a DCIS diagnosis versus a metastatic breast cancer diagnosis, what you're living with is very different. Because in one type of cancer you're dealing with: you're exploring palliative care, you're exploring hospice care, you might be thinking about end-of-life stuff, whereas in the early states, maybe you are not. Our “living with” zone is also disease dependent, and that is probably where we add more value than in the clinician-facing guidelines.

The second area is with the patient-facing guidelines. I'm a huge fan of the patient-facing guidelines. I've used them as I mentioned. I've read every paragraph on them and reread them many times for my own care. They aren’t written at a seventh grade reading level. Going back I think something you said, Brad, where you're using ChatGPT to put in your path report and get an eighth grade level reading assessment of it, all of our content that we curate is at the seventh grade reading level. That's a very, very important point, because going back to one of the things we spoke about early, contextualized information is really essential.

The third area where we're a little different than guidelines and clinical pathways – from a clinician perspective there are also clinical pathways – if you're in a system that uses clinical pathways, we're not talking about training the clinician. It's not a clinician-facing tool. It's a patient-facing tool and a caregiver-facing tool. Ensuring that it's easy to use is very important.

We've tested flowcharts. You could just do a flowchart and be like, “Here's a flowchart.” We have learned that flowcharts are great for engineers like me. I love flowcharts. I'll have a look at a flowchart any day, anytime. But that doesn't necessarily translate to everybody who's going through it. If you're not an engineer, or if you're not a scientist, flowcharts can be really intimidating. We've tried to find design principles that come from closer to tools in everyday life that we are used to using. If you look at navigation systems, Google Maps, subway system apps, things that most of us have used at some point in our lives. We're getting a lot of design inspiration from there, because making sure it's truly usable is a very important feature, at least for our product.

That's where we are trying to add more value than just taking guidelines and making it a flowchart.

Brian McCloskey 46:52
I want to get back to something that you said earlier, and just provide a case study on this, which is like, “Who do you trust?” Do you trust the clinician? Do you trust the scientist? The bioinformatician? Or fellow patients? I'm seeing that as the pace of bioinformatics is accelerating, that a person with a limited gene panel, DNA, then you're getting into transcriptomics. We talked about proteomics. I had spatial phenotyping done. There are a lot of things that are coming our way. In my case through a really extensive multi-omics analysis that Boston Gene did, where they did DNA, they did all these things, it has redefined by disease, which is really what we want. I don't just have prostate cancer, and I don't just have these three gene mutations, I have my transcriptomics which show that I've potentially got subclones that are neuroendocrine. When validating that information, which I did through a really talented bioinformatician at UC San Diego, a scientist who's a friend of Cancer Patient Lab. Their advice was to stay away from treatments that are going to fuel the fire of neuroendocrine disease. But when I spoke to two clinicians, they were reticent to simply say, “Your disease is now neuroendocrine, and we're going to treat it as such.”

This is an example of this probably growing trend of distance between what's happening with bioinformatics, and what clinicians can keep up with, and the patient is stuck in the middle. Who do we believe? How do we treat that? My guess is that as more patients get access to this type of information, that these types of problems will become more commonplace.

Samira Daswani 49:34
Brian, I can't tell you how often we hear the story you just gave, or a variation thereof. Just in the last week, I probably had four or five patients with that. And not just in prostate cancer. I'm talking about every flavor of oncology. I'm completely with you, which is why we are trying to bridge the gap between guideline science, clinical practice, and practical experience. Because if you look at those three things independently, they're actually very different.

For example, let's take lung cancer. In lung cancer, we're living in a world where we have 45 targeted therapies today. 45. They're all contingent on you having done next generation sequencing (NGS). For all them, you have to have done next gen for you to get the report, which would then drive a decision. The question is, “How often are clinicians ordering NGS? How often are they using what they have ordered at the right time to drive the treatment?” Clinicians know about NGS, of course, and this has been around for a long time. But part of the issue is the operationalization of it. NGS takes 10 days to four weeks to come back. If a patient shows up, and they have a high symptom burden, and the patient is saying, “I want to start treatment ASAP.” Maybe the clinician is going to start doing chemo, and not wait for NGS. That's an example where we have guidelines that say, “Do NGS first.” The clinician may be following guidelines, but clinical practice patterns and operations may not have kept up to speed with it. Now it's in a world where the treatment you've gotten may not be the right treatment for your actual disease. It's just so complicated. We try with our maps to merge those things and show the branch points because the reality is that sometimes decisions are being made, because there are trade-offs that are happening, even if the clinician has ordered the test, and the lab is backed up, or prior auth hasn't come in, or the appointment got moved.

Brian McCloskey 51:47
There are a lot of challenges. Tissue is a big issue. How readily available is it? Some of the analysis that was done on me was based on tissue from November 2022. I've had several different systemic therapies since then. My cancer has changed. Does it even look more like neuroendocrine? Or does it look less? I don't know.

Anyway, it's a fascinating time to be in this space. These are great problems to solve. I’m glad you're on it. But they're really important challenges that we've got to get addressed.

Brad Power 52:27
What Brian's pointing out is an order of magnitude more complex than the example you gave, which is that he has gotten transcriptomics and proteomics, and he's got longitudinal multiple NGSs. Those things can be concordant, or they can be conflicting. He's also got heterogeneity, which is another variable. The combinations and permutations are going to blow your attempt to put it in a mpa. The example you were giving: if you have ALK positive in lung cancer, then here's the drug for you. That is binary. What he's getting at is like, “No, I do have that. I also have BRCA. I’ve got HER2. I’ve got this, and I’ve got that.” Now what do you do? “I got a little bit of disagreement between some of the tests.”

At a population health level, which is where the guidelines live, you can make a logical rational “if then else” algorithm. You can go down the whole chain. But what he's getting at is like N-of-1. Now it's like, “I'm starting with Brian, and I'm trying to decipher that riddle.” It's an order of magnitude more complex. For those kinds of cases, it's going to make your mapping very much like that old map, which said “There be dragons.” It's going to be like, “Okay, in this zone, you have to go to a completely different logic.”

Samira Daswani 54:05
What you just added is super important, and it's exactly what we do. I'm going to stick with the annual exam. The reason I went there is because the most common scenario is that you have one mutation. But in the outlier scenario, you may have multiple. You may have started with

EGFR19, and that's now changed to an ALK rearrangement, or ROS1 and HER2. From a clinical guideline perspective, it doesn't capture the nuance, but that's where our matchmaking actually tries to catch the disease biology. The principles of matchmaking we've come up with are closer to the biology of the disease versus guidelines, and that's how we're able to merge them. Otherwise, we wouldn't be able to.

To be clear, our maps are at the disease level, not at the Brian level. We have a saying, “Here's a disease map. Here's a tool for you. You will need to figure out which path you're going on. Because there's no way we will be able to tell you your map.” Maybe, at some point in the future we can get there, but not not right now. Right now, I am mostly just humbled by the complexity of these diseases. Our early stage breast cancer map and our metastatic breast cancer map look completely different. They are totally different diseases. Because in all these states, you're not dealing with heterogeneity. You're not dealing with mutagenic shifts. You're not dealing with which tumor sample did you use, and how long ago your test was done. Because to the point I made, if Brian’s tumor sample is from 2020, and since then he’s had systemic treatment, and now we're using that report today, that has its own drawbacks.

Mark Stoner 56:25
Outside the discussion of what was just covered, 10 days ago I had my fifth treatment and infusion at UCSF in San Francisco. I have great health insurance, but I saw the bill was for $76,000. It was for six-and-a-half hours of treatment, and it lists all the drugs that were given to me. They rotate the bags, the pills, et cetera. The cost of $76,000 for the treatment is just incredible.

Brad Power 57:09
Samira, how do you incorporate those sorts of considerations in your maps?

Samira Daswani 57:16
We do that at maybe three levels. When we're building a map, we a priori know, because we're closely partnering with the key clinicians and opinion leaders in that specific disease area to build a map, from their experiences we know where the big trip wires come, for example with prior authorization, where insurance may or may not cover it. Genetic testing is a great example in breast cancer. Sometimes based on your plan, it might not be covered. The full panel may or may not be covered, and a subpanel may be covered, etc. We call that out on the map so that you could conform to it. If it is not covered, then you should be reaching out to the diagnostic test provider because very often they have financial support programs in place. We do the same thing on the drug side. We try our best. The reality is we're not going to be able to solve financial toxicity through our product, at least not today. But we try our best to highlight areas where we know a priori that there are going to be problems.

Molly Lindquist 58:38
I would just tag onto that: then we partner with organizations that are experts in it so that we can at least get people to places that can potentially help them. That's part of it too. Our goal is never to recreate the wheel if there are organizations doing really great work in areas. We want

people to know about them. Because often I know for myself personally, I'm like, “Oh. I would have loved to have known about this when I was going through chemo.” You often are finding out the information too late. So again, just getting it in front of people and making them aware of the questions to ask is really one of the key goals of the map.

Rick Stanton 59:27
A suggestion for next time: Please show an example of what your value is. I've heard the description of your value, and I understand that description. But showing an example of your value. I don't know what this map looks like. How would I use it? How would I benefit from it? I've created maps. Of course, I'm an electrical engineer, then I went into bioinformatics. So, of course, I'm interested in what your map looks like. I still don't know. You can accommodate trajectories from snapshots of maps that will change the trajectory of where your disease is going. I don't think it is unsolvable. We can do it. Please show an example like, “Here's an example of this patient. Boom. Here's where they are. Here's where they benefited.” That would be super helpful for next time.

Samira Daswani 1:01:05
We will happily do that next time, if you guys want us back.

Brad Power 1:01:11
That's a good idea. A demo of the product when it’s ready in the fall will be valuable.

Samira Daswani 1:01:19
We have demonstrated it just because we're publicly recording it. We're not inclined to show it to the full extent since we're still in the testing phase. That's the only reason why you have not seen the demo yet. But, Rick, if you want to get a sneak peek, let us know. We're happy to show it to you and learn from you, by the way, because I think I can sense a fellow cartographer in the room. I'm not a cartographer, but we have a cartographer.

Brad Power 1:01:42
Thanks very much.