"An MD PhD Navigates Breast Cancer" (Catalina Lopez-Correa, MD, PhD) [#155]

Brad Power
August 6, 2025

“There are lots of things that could be improved. Every step of the way I'm thinking, this is me that knows about genomics, and I was trained as a medical doctor. I cannot imagine a person that doesn't have this information, that is not trained as a genomicist. How will they navigate this journey without that knowledge? How would they read and digest all the informed consents? Even me, and I have been working for years with informed consents, when I had to sign my own informed consent, it was a whole different perspective. I was scared. I didn't feel equipped. I didn't feel I had all the information. I also thought I needed more time to discuss my results, and the 15 minutes I have with my oncologist is never enough. We need other spaces, other forums, other specialists in the healthcare system that could cover that: nurses, genetic counselors, other specialists, that could help the patient navigate that to have detailed discussions about the results of the genomic testing.” – Catalina Lopez-Correa, MD, PhD

Meeting Summary

Cancer care is often hard for patients and caregivers to navigate. Breast cancer care presents its own unique challenges, especially understanding new technologies and approaches that guide and inform diagnosis and treatment. It can be hard even for those with knowledge, strong support systems, and good access to healthcare.

Here are some key challenges:

- **Complexity of the disease**: Breast cancer isn’t one disease — it includes various subtypes (like HER2-positive, triple-negative, hormone receptor-positive) with different prognoses and treatment options. Each subtype may require different tests, treatments, and specialists.
- **Overwhelming information**: You are often given a flood of medical and scientific information, test results, and treatment choices in a short time. Medical jargon can be difficult to understand without guidance, making informed decision-making challenging.
- **Multiple treatment modalities**: Treatment plans can involve surgery, chemotherapy, radiation, hormone therapy, targeted therapy, or immunotherapy — sometimes in combinations or sequences. Deciding between options (like lumpectomy vs mastectomy, or clinical trials vs standard care) adds pressure.
- **Coordination among providers**: Care often involves a multidisciplinary team: oncologists, radiologists, surgeons, genetic counselors, and more. Communication between providers isn’t always seamless, leaving patients to bridge gaps in their own care.
- **Emotional and psychological stress**: The emotional toll of a cancer diagnosis can cloud judgment, memory, and decision-making. Patients and care givers may not retain or fully process information given during appointments.

- **Insurance and financial barriers**: Coverage for tests, treatments, or second opinions can vary. Out-of-pocket costs, even with insurance, are often high and unpredictable. Navigating approvals, referrals, and claims can be time-consuming and stressful.
- **Access to personalized options**: Access to second opinions, genetic testing, tumor sequencing, hereditary cancer testing or clinical trials can be limited by geography, cost, or lack of awareness. Not all providers present or explain emerging options beyond the standard of care.
- **Cultural, language, and socioeconomic factors**: Language barriers, cultural beliefs and differences, or lack of advocacy can impede understanding or trust in care recommendations. Patients with lower health literacy are particularly vulnerable to misinformation or under-informed decisions.
- **Lack of navigation support**: Many patients don't have access to dedicated nurse navigators or patient advocates. Without someone to coordinate care, explain steps, and offer emotional support, patients are left to piece together the puzzle themselves.

Dr. Catalina Lopez-Correa, MD, PhD, Chief Global Strategy Officer at Genome Canada, is uniquely qualified to discuss a breast cancer journey. She is in charge of advancing the use and applications of genomics in different sectors that are key for the economy of Canada, setting up strategic collaborations with the private sector and government as well as academics leaders at a national and international level. Dr. Lopez-Correa holds a Medical degree from the UPB in Colombia, a Master's degree in Human Genetics from Paris V University in France, a PhD in Medical Biosciences from the KULeuven in Belgium, a mini MBA from McGill University in Canada, and has trained in innovation leadership at Singularity University. She was diagnosed with breast cancer in 2023.

How does cancer change your identity?

For Dr. Lopez-Correa, her cancer journey changed her professional perspective and personal mission. She became more vocal about patient advocacy, started documenting her experience publicly, and shifted her scientific leadership to focus more on patient-centered genomic research. Her cancer experience made her more empathetic, strategic about healthcare access, and committed to helping other patients navigate complex medical systems. She's even writing a book about her journey to share insights about how genomics can inform cancer care. The experience moved her from being a scientific leader to also becoming a patient advocate, fundamentally expanding her identity beyond her professional role.

What should you know early in your cancer journey, especially about advocating for yourself?

- Ask questions about genomic testing and precision medicine options
- Seek comprehensive genomic analysis of your tumor to inform treatment decisions
- Be prepared to navigate a complex healthcare system
- Know that not all tests are standard of care, so you may need to challenge healthcare providers and push for additional testing

- Seek genetic counseling to help interpret test results and understand their implications
- Recognize that early detection and prevention are crucial, so be proactive about screenings and testing
- Understand that your cancer journey is unique, and personalized genomic information can help tailor your treatment
- Stay informed about the latest research and treatment technologies; be aware of potential clinical trials or emerging treatments that might be suitable for your specific cancer profile
- Connect with patient advocacy groups for support, information, and resources
- Learn about genomics and available tests specific to your cancer type
- Request comprehensive genomic analysis and detailed reports
- Don't be afraid to pay out-of-pocket for critical tests if necessary
- Understand your specific cancer's molecular profile
- Request time to discuss test results thoroughly with healthcare providers

What diagnostic tests should you get for breast cancer?

The specific tests recommended depend on your individual factors like age, cancer stage, family history, and molecular characteristics of the tumor. Consulting with an oncologist to determine the most appropriate testing strategy is crucial.

Here are tests to consider:

- Oncotype DX test - analyzes tumor tissue to help determine your need for chemotherapy
- Germline genetic testing (BRCA1/BRCA2) - Identifies potential genetic mutations that may impact cancer risk and treatment - especially recommended for:
  - Patients diagnosed before age 50
  - Triple negative patients under 60
  - Those with family history of breast/ovarian/pancreatic/prostate cancer
  - Ashkenazi Jewish patients
  - Male breast cancer patients
  - Metastatic breast cancer patients
- Whole genome sequencing of tumor tissue - provides comprehensive analysis of tumor and constitutional genome
- Ki-67 test to assess tumor proliferation rate
- Hormone receptor status (ER/PR) and HER2 testing
- Circulating tumor DNA (liquid biopsy) tests like Signatera for monitoring minimal residual disease

How can you access testing to help refine your diagnosis and guide your treatment?

Key challenges include:

- Cost of testing

- Limited insurance coverage
- Lack of awareness among healthcare providers
- Unequal access across different regions and populations

You should:

- Be an active advocate for yourself
- Ask questions about available tests
- Seek genetic counseling
- Push for comprehensive genomic analysis

How can you monitor your disease progression?

Liquid biopsy tests have advantages in monitoring your disease:

- Semi-quantitative measure of tumor burden
- Increased vigilance for potential cancer recurrence
- Ability to monitor tumor progression through doubling time
- Potential to inform imaging frequency and follow-up care

However, there are also limitations:

- Tests may not always lead to immediate treatment changes
- Not all oncologists see actionable value in the results
- Potential for patient anxiety from test results
- Limited evidence of overall survival advantage

How can you learn more about navigating your cancer journey, especially for breast cancer?

- Join the breast cancer community (and other communities) on the Cancer Patient Lab discussion hub.
- See other stories of engaged patients and how they advocated for themselves:
    - "From My Breast Cancer to Enabling Genetic Testing Access" (Sandra Balladares, PhD, MSc) [#145]
    - "Navigating Cancer Survivorship" (Caroline Knudsen and Chasse Bailey-Dorton, MD) [#140]
    - "What I Learned from Navigating Three Cancers" (Ert Dredge) [#139]
    - "A Rogue Cancer Patient Gets Better Outcomes" (Ari Akerstein) [#109]
    - "A Guy with Two Cancers Explores Treatments and Life" (Burt Rosen) [#112]

specific situation before pursuing any health care program, treatment, product or other course of action that might affect your health.

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Meeting Notes

KEYWORDS

breast cancer, genomic testing, precision oncology, genomics integration, patient advocacy, liquid biopsy, circulating tumor DNA, AI in cancer detection, healthcare equity, genetic counseling, oncotype DX, CDK4/6 inhibitors, patient journey, cancer patient lab, Marathon of Hope.

SPEAKERS

Catalina Lopez-Correa (61%), Allen Morris (23%), Sandra Balladares (8%), Brad Power (4%), Chris Apfel (4%)

CHAT CONTRIBUTORS

Brad Power, Roger Royse, Egle Bubelis, Chris Apfel

SUMMARY

Catalina Lopez-Correa, Chief Scientific Officer at Genome Canada, shared her journey with breast cancer, emphasizing the importance of genomics in cancer care. Diagnosed in April 2023, she underwent chemotherapy and advocated for additional tests like Oncotype DX and germline testing. Her tumor's AKT1 mutation and ERBB2 amplification guided her treatment. She highlighted barriers in genomics, including cost and equity, and advocated for more inclusive patient involvement. She also discussed the potential of AI in early detection and the need for better representation of diverse genomes in databases. She stressed the importance of patient advocacy and education in shaping genomic policies.

OUTLINE

Dr. Lopez-Correa's Career and Personal Journey

- Sandra Balladares introduced Dr. Catalina Lopez-Correa, highlighting her extensive experience in genomics and her role as Chief Scientific Officer at Genome Canada.
- Dr. Lopez-Correa has done advocacy work for precision oncology and genomic testing, with an added dimension after her breast cancer diagnosis.
- She has had a 25-year career in genomics.
- She moved to Canada in 2008.
- She has led various genomic initiatives.
- She was diagnosed with breast cancer in April 2023, six months after speaking at a major genomics meeting in San Diego.
- Her father was diagnosed with glioblastoma in 2016. There was a lack of genetic testing and clinical trial options available at the time.
- She described her own breast cancer journey, including her initial Oncotype DX test results indicating a need for chemotherapy and her subsequent treatment.

Challenges and Advocacy in Cancer Care

- Dr. Lopez-Correa discussed the challenges she faced in advocating for herself in the Canadian healthcare system, including the need for additional tests and the lack of representation of Latino genomes in international databases.
- Comprehensive genomic analysis is important.
- Genetic counselors have an important role in interpreting test results.
- There is a need for more diverse representation in genomic data sets.
- There is an ongoing battle to access certain tests, such as circulating tumor DNA testing.
- Being part of the personalized oncogenomics program in Vancouver has informed her treatment and provided new treatment options.

Barriers and Opportunities in Genomics

- Sandra Balladares asked Dr. Lopez-Correa about the barriers to implementing genomics at scale in clinical settings and how they can be overcome.
- Dr. Lopez-Correa identified education of healthcare providers and the high cost of genomics tests as significant barriers.
- There is an equity challenge in accessing genomics, particularly for patients in rural and underserved areas. It is important to empower patients to advocate for themselves.
- AI has a role in early detection and potential to improve cancer care and reduce costs.

Discussion on Genomic Testing and Treatment

- Allen Morris discussed the importance of germline testing for breast cancer patients and the potential yield of pathogenic mutations.
- He questioned the cost-effectiveness of widespread germline testing and the potential for shotgun testing to lead to unnecessary expenses.
- Dr. Lopez-Correa agrees that widespread testing is not currently feasible but advocates for high-risk groups to have access to germline testing.
- She discussed the potential for future advancements in genomics, including whole genome sequencing at birth, and the importance of prevention and early detection.

Patient Advocacy and Inclusivity

- Sandra Balladares asked about the role of patient advocacy in shaping inclusive genomic policies.
- Dr. Lopez-Correa emphasized the need for meaningful patient involvement in research and the challenges of including patient voices in the scientific community.
- Education and awareness in overcoming barriers to genomics are important. Patient advocacy groups can help in promoting equitable access to new technologies.
- Dr. Lopez-Correa shared her personal experience of being open about her cancer journey and the impact it has had on her leadership and advocacy efforts.

Future of Liquid Biopsies and Patient Decision-Making

- Allen Morris and Chris Apfel discussed the potential and limitations of liquid biopsies, such as Natera's Signatera test, for monitoring minimal residual disease.
- Dr. Lopez-Correa expressed her excitement about the test but also her concerns about the potential emotional and physical toll of a positive result.
- Chris Apfel highlighted the importance of understanding tumor burden and the potential for liquid biopsies to inform treatment decisions and monitoring strategies.

- The discussion touched on the balance between the clinical utility of tests and the patient's need for peace of mind and informed decision-making.

Closing Remarks and Future Directions

- Dr. Lopez-Correa reiterates her commitment to advocating for cancer patients and working towards more equitable access to genomics and new technologies.
- The meeting concluded with a focus on continued collaboration and efforts to improve cancer care through genomics and patient advocacy.

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[This transcript has been edited for clarity and flow. Repetitions and filler words have been removed, and technical terms have been clarified.]

Brad Power
This is the Cancer Patient Lab.

We're honored today to have with us, Catalina Lopez-Correa of Genome Canada and a breast cancer survivor.

This is for information purposes only. We try to arm our patients with information they can take to their medical team. This is not medical advice.

We are a nonprofit, 501, c3, and we depend on the kindness of donors who provide funding for the services like this webinar.

Sandra Balladares 1:01
My name is Sandra Balladares. I'm the breast cancer community leader at Cancer Patient Lab, and it is my great pleasure and great honor to introduce Dr. Catalina Lopez-Correa, who is the core who is currently the Chief Scientific Officer at Genome Canada. Dr Lopez-Correa is a globally recognized leader in genomics with a distinguished career advancing the application of genomic science across Canada and internationally. She has healthy leadership roles at genome Quebec, Genome British Columbia, and most recently, she led the Canadian covid 19 genomics network, which is a 40 million national initiative to harness genomics in the fight against the pandemic. Now, as CSO of Genome Canada, she's championing the integration of genomic technologies into healthcare research and innovation on both a national and a global scale, Catalina's contributions have been widely recognized, earning her the Canadian Senate's 150th anniversary medal and Colombia's national order of merit in 2023 following her arm breast cancer diagnosis, Catalina became a powerful advocate for patients working to expand access to precision oncology and genomic testing and sharing her experience to drive awareness and Change today, Catalina will share how a genetics expert navigates a breast cancer diagnosis and what the journey looks like through her unique perspective. Catalina, thank you very much again for joining us today. We are truly honored to have you here. Welcome.

Catalina Lopez-Correa 2:57
Thanks Sandra for the introduction, and Brad for the invitation.

I have been working in the field of genomics for the last 25 years. I came to Canada in 2008 and have been leading initiatives in precision medicine and basically using genomics on prevention, diagnosis, treatment and prognosis of diseases, including cancer. I will say one of the highlights of my career is that I'm very proud I was in this meeting. And Mario, I think, knows about this meeting Illumina organized in San Diego and I had the privilege to speak right after President Obama, and had the opportunity to have this beautiful photo taken with President Obama and so, so just this was an October 2022, so all go, go, go in my career, really advancing, having

nice positions, and having the opportunity in particular to really lead the use and implementation of genomics in Canada. And in a way, I will say I knew about this quote by Susan Santa, but I never fully integrated this quote that says everyone is born who has dual citizenship in the kingdom of the well and the kingdom of the sick. And little I knew when, of course, in April 2023 so almost six months just after that meeting in San Diego with Obama, I was diagnosed, and I made it very public. I was diagnosed April 11, and. In 2023 with breast cancer. And it was a shock. It was well, something that, of course, none of us is expecting to get that, to get their lives in a way, on hold and to have this really super, huge challenge in front of us, you know, train as a medical doctor, train as a genomicist. I was not prepared for that, and I didn't really feel equipped. And I will share, you know, some of the experience along the journey facing this, you know, challenge of having this breast cancer diagnosis. But I have to say that this was not my first encounter with cancer. In 2016 my dad was diagnosed with glioblastoma, a very aggressive brain tumor. He was diagnosed in February 2016 he died in May 2016 so three months after a really huge decline, and he died, and at the time, there were no biomarkers, no sequencing, no genetic testing, no way for him, a possibility to enter into any clinical trials. And I have to say that for me as a genomicist, as a scientist, as a medical doctor, that left me paralyzed. It was, well, horrible, like, you know, I've been talking for 20 years about genomics, the power of this technology, and here I was my dad. I could not give him the opportunity to do a genetic testing to try and get new medications to enter into clinical trials. It was, it was really hard. And then seven years later, I got the diagnosis of breast cancer, and I started to try the best I could to advocate for myself in the healthcare system in Canada. I'm based in Vancouver, and so trying to get different tests. And the first one that I could get was this test called Oncotype DX that is done in the tumoral tissue. So part of the biopsy that is taken, either when they are doing their biopsy, or tissue that is taken during surgery, is used for this test. And this test, the results are from one to 25 in principle, the scores are one to 25 you don't need chemotherapy. More than 25 you need chemotherapy. And guess how much I have. My beautiful score was 26. 26 is a very challenging score, I would say almost borderline. But also, I have a clinical presentation with lymph nodes in a tumor that was early, detected, but detected very early, but growing very, very fast. So all that indicated that indeed, I needed chemotherapy. And I was reassured by seeing that the genetics and the genomics of my tumor was indicating that score that says, “Yes, you need chemotherapy.” And here I went through the whole eight sessions of chemotherapy, the standard treatment for breast cancer. I went through all the terrible side effects of chemotherapy. I continued in my journey advocating for more testing and the other tests that I wanted to get. Of course, we all know Angelina Jolie's story that was published in the New York Times in May 2013 where she was public about the tests she made, you know, the germline test, just to figure out if she had any susceptibility to cancer. And that led to the decision to have a double mastectomy. So I requested several times for that test, they told me I was not eligible because I was 55 years old at diagnosis. I had no family history. My cancer was very early, so I was not eligible. The system in Canada will not pay for that. I decided to pay myself for these but the oncologist was kind enough to still keep me in the system. So they ordered the test. I paid for the test, and as soon as the results came back, they entered into the system so that I could get a genetic counselor to talk to me about the results. And they did all this analysis of, you know, 81 different genes to see if you have susceptibility to cancer. And the only thing that came positive was this gene, CDH, one. It's not relevant for

today, but what is relevant here is this sentence there that says a variant of uncertain significance. So basically what it means is we don't need to really know you have a variant, you have a mutation in this gene, but we have no clue what it is, and we have no idea. And the reality is that these variants of unknown significance, as we know very well in genetics V us, are very common. In Hispanic populations, they are more common. Hispanic populations, why? And Latino in particular, because our genomes are not represented in international databases. That my genome, my Latino Colombian genome, is not there, so they don't know this violence what they mean, because only most of those genomes in the international databases are white Caucasian populations, 85% of international databases and mutations that are reported publicly are from white Caucasian individuals, so Latinos are not represented there. We don't know what it means. Now I continue advocating for myself, and now I'm part of this personalized oncogenomics, which is a program in Vancouver, in British Columbia, that is sequencing the whole genome of the tumor, and also the whole genome the constitution of that basically from a blood sample, just to see what mutations, what other changes, molecular changes, are in the tumor and how this could help guide your treatment. And this is actually, this was a critical component to help me and my oncologist get a new treatment that is a CDK four, CDK six inhibitor that is done after is prescribed after the chemotherapy, and is really helping, hopefully reduce the possibilities of recurrence of the tumor. So all my journey has been really informed by genomics, but has not been an easy task, because, well, I have to say, I am a genomicist. I have 20 years of experience. I know the questions. I know what to ask, I know how to ask, and I'm persistent, and I ask until I get the test I need.

Some initial observations before we go into questions and comments as well. For me, I'm very pleased that I have been able to get a comprehensive genomic analysis, including whole genome sequence of my tumor, I got detailed reports, and I got the opportunity to work with a genetic counselor regarding my variant of unknown significance. All the medical decisions along my journey have been informed by genomic data from chemotherapy now to the prescription of CDK4 inhibitors, and is, for me, a unique opportunity to really understand the genome of my tumor.

There are lots of things that could be improved. Every step of the way I'm thinking, this is me that knows about genomics, and I was trained as a medical doctor. I cannot imagine a person that doesn't have this information, that is not trained as a genomicist. How will they navigate this journey without that knowledge? How would they read and digest all the informed consents? Even me, and I have been working for years with informed consent, when I had to sign my own informed consent, it was a whole different perspective. I was scared. I didn't feel equipped. I didn't feel I had all the information. I also thought I needed more time to discuss my results, and the 15 minutes I have with my oncologist is never enough. We need other spaces, other forums, other specialists in the healthcare system that could cover that: nurses, genetic counselors, other specialists, that could help the patient navigate that again, to have detailed discussions about the results of the genomic testing.

The challenge we have with the lack of diversity in these genomic data sets. My Latino genome is not represented, and I'm still fighting the system here, so I got a lot already, but I haven't been

able to get circulating tumor DNA testing that is a very important test to see if my tumor really has disappeared completely, or if I still have tumor or tumor cells circulating in my body, the system in Canada is not covering it. I'm fighting with my insurance, with the system, with everybody I've been fighting. I'm trying to make a case for that. But is it continuous? Is a continuous battle. I tried to make it short so that we can open it for more discussions. But bottom line, my journey, I feel honestly privileged to have the knowledge I have and to be able to navigate now in the process of writing a book about this journey and how genomics is informing your care and how important it is for patients to know about I mean, I we don't. I don't pretend that every patient or every clinical doctor, or every or every doctor, every oncologist, will become a genomicist, but to have at least some basic understanding that this science is critical. Well for cancer patients, and that genetic testing is critical to inform our medical journey when we have cancer.

Sandra Balladares 15:20
That was an amazing story.

You have been living as a patient with all the barriers, all the challenges out there. Would you mind sharing those? Like, what are the biggest barriers to implementing genomics at scale in clinical settings, and how do you think that we can overcome them?

Catalina Lopez-Correa 15:51
Yes. Sandra, well, many barriers, and that's going to be part of of the book I'm writing now, because there's great opportunities, like we saw in my case, opportunities to clearly inform the care of patients, of cancer patients, all the way from prevention to diagnosis to treatment to prognosis, and the entire health continuum. Genomics has a role to play. And there is an opportunity now in terms of the barriers, I will say the first one is education, and I will say education of healthcare providers in general. Believe it or not, for me, it's still a surprise, but there are still oncologists that don't use these tests. They're not prescribing these tests for the patients. And I'm not talking about oncologists in Latin America or in Africa. I'm talking about oncologists in Canada, here in rural regions of Canada, there are not prescribing, or are not even informing the patients that there is a possibility to get a more refined treatment based on the molecular profile of the tumor. So education of healthcare providers is critical. The cost is still high, like I pay $450 for the germline test, the one I call the Angelina Jolie test, the one for cancer susceptibility. Now the circulating tumor DNA is $6,000 per test, and you need to do it every six months. So the cost, even though we say a genome now, is less than $1,000 the reality is that when you add the analysis and all the processing of the samples and everything is is still expensive. I think we have an equity challenge for the use of genomics. My experience in Vancouver, where we have cutting edge technology oncologist centers, is whole different experience from a breast cancer patient that lives up north in Canada and is part of an indigenous community, is a whole different experience, and a whole different experience from a patient that is located in Colombia, or that is located in Nigeria, or, you know, a patient that might not have the same access and the same opportunities, even for the basic treatments. I'm not even thinking about the complete, you know, the CtDNA, the circulating tumor DNA test, or anything more complex, but just the basic, basic, even the basic test in genomics. So I think

equity and access, an equitable access of genomics at a global level, is a critical barrier. We don't have that, and there are many, many, you know, also the education of patients, so the more empowered the patients are, and if they can ask, and I think the cancer patient lab has a critical role to play there, to empower the patients to ask the questions. Sometimes the oncologist might not be aware, might not be ready, but if the patient is asking, if the patient is aware, I think that that could be a real game changer for cancer patients. So I think that awareness of the power of these new technologies is also critical.

Allen Morris 19:25
I think you showed your germline and your germline popped a variant of uncertain significance, and I appreciate your conveying that various populations aren't studied. So basically, there's a future and a promise of a larger data set to look at in the future. Most of the people in cancer patient lab are mainly interested in not only the hair here and now, but admittedly, maybe something that's available within the next six months. So yeah, we. We love to hear about futuristic promise stuff now, now just ask. I'm going to now segue into asking you questions. So you told us what your your germline stuff was, was there? Did you get your somatic tissue tested? And you didn't reveal it? Was there anything? Well, obviously, if you get somatic mutation on a cancer you're going to get findings. But my first question is, how many findings did you have, and how many of those were actionable?

Catalina Lopez-Correa 20:30
Yeah, this is a very good question, and on the whole genome sequence. So then the Oncotype DX test that looks at, I believe, 24 genes, is not coming with a detailed description of the specific mutations. It just comes down as a report with the score, which also is somewhat problematic. You know, if you want to see your mutations, if you want to have more granularity, if you haven't had the raw data, there's no way, like you get a PDF report. Thank you very much. You have nothing so that,

Allen Morris 21:08
I'm trying to educate the rest of everybody. I'm in practice, and I see Oncotype DX all the time. There's tremendous penetrance, also, also mama Prince agenda, and they both are largely used by our oncologist to decide whether or not somebody is going to benefit from chemotherapy, adjuvant chemotherapy or not, which segues into from hearing your story, you were a localized breast cancer patient, I presume your ERP are positive and her two negative, and you're now no evidence of disease. Is that right? And your you arelymph node negative as well?

Catalina Lopez-Correa 21:46
No, lymph node positive. And that's why, with a score of 26, I needed to have the chemotherapy.

Allen Morris 21:56
The genomic testing you're talking about is not some sort of six month in the future or futuristic thing. My print and Oncotype DX has tremendous penetrance. My question to you is this lab's

always interested in getting and pushing patients and thinking doctors are behind the times by not getting whole exome NGS on the somatic tissue. Did you get whole exome, ng X on NGS on the somatic tissue?

Catalina Lopez-Correa 22:25
Yes, I did. The report came back with two findings for that, one, which are quite interesting. And the first is that I have an AK, t1, mutation that was detected, it was not reported as part of the genome, Gene dx, but it was reported as part of my whole genome, next generation sequencing analysis of my tumor. So the AK, t1 is the mutation that was critical for the decision to prescribe CDK for CDK six inhibitors, because that shows, you, know, activates a pathway in the cell that indicates this tumor is replicating fast. This tumor has potentially the possibility for recurrence, because it's an aggressive tumor. The other interesting thing that came back in my report was the ER, BB two amplification, which basically is her two amplification that, as you were right, Alan, my tumor, initially on his top pathology was reported as estrogen positive, progesterone positive, so hormone sensitive, and her Two negative. What

Allen Morris 23:41
Was it one plus or two plus?

Catalina Lopez-Correa 23:43
I don't know exactly whether it was one plus or two plus, but I know that my oncologist at one point said to me, clearly, that is not completely negative. Is low HER2, and that was picked up by the sequencing. The sequencing picked up on the small amplification.

Allen Morris 24:03
The old fashioned dinosaur IHC also picked it up as probably a one plus or two plus.

Catalina Lopez-Correa 24:10
Exactly. I think maybe a one plus. That also illustrates the complexity, which is not black and white. Oh, Are you positive? Are you negative? Like, I'm not positive, I'm not negative, I'm low.

Allen Morris 24:24
So do you think, without knowing your AKT status, which increased your risk in your mind, as far as proliferative activity, which is also measured by key 67 Do you think that was a tipping point for deciding to do the cyclin dependent kinase inhibitors. Or, do you think that your doctor would have offered that anyway, with all the data that your cancer had?

Catalina Lopez-Correa 24:49
Well, the Ki 67 mine is about 28% which is high. Yes. So those that's high. Thanks. Exactly so. So those two things were critical for my oncologist to make a case. Because also I have to say that when I started now, it's a different story. But a year ago, when I started the CDK four, CDK six treatment, it was not approved for reimbursement by Health Canada, so I had to make a strong case with my oncologist to get my insurance paying the 10,000 $11,000 every month for that medication. Now, everything has changed. There is more evidence, and I'm getting the

medication for free as part of my you know, healthcare system in Canada. But to your point, AK, t1, mutation detected with the whole genome sequence, plus the classic ki 67 with a 28% were the two critical items, or critical points, that were used to prescribe that medication. I have to say also that I don't know how it's in the US, but in Canada, Ki 67 is not done systematically. It was on my tumor because I was part of a clinical trial. When they enrolled me to get their oncotyx, they enrolled me in this trial, and part of the requirement was to do the Ki 67 but that's not standard of practice here.

Allen Morris 26:18
Historically it wasn't standard. It actually came in there's pendulum swings in pathology. 20 years ago, key 67 was routine, and then it went by the wayside because it was considered an unnecessary test, because they largely could decide on other risk factor determinations. In fact, like honestly, the Mammo print, Oncotype DX, you can largely get all that data just by routine pathology. In other words, if your ER, I'm going to give you the extremes. If your ER, 100% PR, 100% her, two negative lymph node, negative key, 67 which we used to do low, you were going to be a low mammoprint risk, and you were going to be a low oncotype. Oh, yeah. But admittedly, it's not, it's not completely concordance, completely different methodology, so there's some non overlap, and that actually speaks to if just one side thing, it turns out there's decipher, which has a similar reason for use in the initial diagnosis of prostate cancer. And it turns out some people that are Gleason nine, which is a really bad cancer, it would be like a triple negative breast with a high mitotic rate. Some of those people were actually discordant on decipher and are very low risk. And I guess you never mind that that's, I'm sorry, that's a tangent,

Catalina Lopez-Correa 27:51
but Alan, maybe you know two things I wanted to point out, because you were thinking you were mentioning when you started your comment and your question you were mentioning about, you know, the cancer lab interested in, in looking at the future. And so definitely, I think circulating tumor DNA is, is, is a test that you know should be the future, and not just for cancer patients, but almost for everyone. But imagine if we could have each of us, each individual, every six months their CtDNA to see if there's any tumor DNA circulating in your blood. So that's one. And the other thing, I will say, that is not genomics, and that is critical. And you as a pathologist, you know, I think you will, you know, see the dimensions of these, of course, is AI, artificial intelligence, artificial intelligence. And I will give you the specific example. My mammogram that was done in October 2022, came back as normal. They reported a calcification in my breast, in my right breast, but they say, yeah, there's a classification. They didn't even ask for an ultrasound. They say in their report, and it's written there, there is a classification. When I detected a lump in my breast in February, and I managed to get my mammogram diagnostic mammogram in March 2023, so six months after the initial report came back as, oh, we saw the same exact calcifications that were present in October 2022, we think this is normal, but since now you have a lump, we will ask for a magnification, and we will ask for an ultrasound, And then off we go. Ultrasound. You know everything, biopsy, cancer, I argue that if we could, if we have used AI in October 2022, AI will have detected these, not just as a normal classification, but something to be concerned and will immediately refer me. I also. Of the other component, I

have a dense breast. I have a D, C actually in the scale of density, going from a being not very dense to D being the most dense. C is my score or my type of breast, so meaning that any finding should be taken more seriously because we don't have the equipment that is needed to fully interpret those. And I argue here that if we think about the future, AI, in my case, could have, you know, saved me from chemotherapy, because I'm sure at that time, I didn't have a lymph node yet, my tumor was not as big. I will be stage one. The healthcare system will save a lot of money. I will save a lot of pain with chemotherapy and other treatments. So So I think, you know, again, AI combined with genomics at early stages, thinking about prevention and thinking about super early detection, I think this is really the future.

Sandra Balladares 30:59
Did you have any change in your treatment once you learned that from your whole genome sequencing, you were here too low?

The second question is super important, what you are sharing about artificial intelligence and the mammograms, is that something that is implemented already in Canada?

Catalina Lopez-Correa 31:28
yeah, on the first one, the way my oncologist is describing this to me Sandra, is that she says we're Keeping these too low as a finding that we could use to access potentially other treatments. Let's say, if there is a recurrence of, there is anything like, we're not gonna kind of use everything right now. We're not going to use the full battery of things. So I got the CDK four, and then, we'll wait and we will monitor, and if something comes then we can potentially use that air too low to get access to other treatments. So that's on the air too low. So the short answer is, I think yes, is going to be used potentially at one point. Hopefully I will not need it. Hopefully I will never have a recurrence. But is there to be able to inform new medications and on the AI, we have few groups in Canada that are doing mostly research. There is a super large clinical trial going on in the UK, where there are taking mammograms from the past, and it's mostly a retrospective study, they're looking at people that got like my case, say, you know a person that got six months before a mammogram that was normal looking with AI. I think their diagnosis like they are increasing like by 80% 90% the possibility of diagnosis by using AI as compared to the just eye of the most qualified radiologist. So I, for sure, think that AI is the future for, you know, to make, to make sure we're focusing on early detection of breast cancer.

Brad Power 33:23
Catalina, I don't know if you're aware of Alex Rolland and his group, CTOAM – Cancer Treatment Options and Management. Coincidentally, they're in British Columbia. They offer advice on liquid biopsies. They have a lab that offers RNA testing from liquid biopsies. So that's for your information, to just talk about some of the additional tests that might be interesting for you.

But in addition, Michelle Morand, who presented with Alex, said that when you're encountering a new test – she spends all of her time advocating for patients to get new tests – she has a way of arguing with the prescribing doctor, to say it is malpractice not to give this test. So she goes on

the offensive, in a way, and says, based on the profile of this patient, they need this test, and it's medically justified, and if you as a doctor don't request it, you are committing malpractice, which is sort of a flip, instead of the doctor who's saying, well, it's not in the standard of care. So why would I do that? I'm curious what you experience in Canada, working against the payers for reimbursement, and this authorization of getting tests and what are those dynamics like for you, which I assume that you, since you're in a more nationalized health system, are as bad or worse than what we experience in the United States.

Catalina Lopez-Correa 34:59
For us it is interesting. Like, you know, all the basic treatments and everything gets covered in intense like, I get MRIs, CT scans, everything cover 100% the Oncotype DX was covered 100% i There's no copayment. There's nothing like, you go to the healthcare system, and you get everything, 100% cover. Now when it comes to specialized tests like these, the liquid biopsy or CT, circulating tumor DNA, is more challenging because it is your employer insurance. So that's you have to deal with, that ensure, and you have to send your request. We did send one with my oncologist A while ago, and they declined. Now there's more evidence there had they have, I think, at the last ASCO meeting in Chicago, there were more talks, and there are more articles and more evidence for early breast cancer and patients like me with my, you know, age and er, PR positive or two negative, and again, the Akt one mutation and all that that that could benefit and will absolutely benefit from circulating tumor DNA. So we're going to submit again, but is, and you know, Brad, I have here, I did pay out of pocket the in vita test, and I'm okay with that here. I could have paid out of pocket the CtDNA and the liquid biopsy, but I don't want to pay it out of pocket, because I want to set the precedent with insurance. I want to open the path for all the patients. I want to build the case. I want to go through all the hassle, all the pain of educating insurer, educating our healthcare providers, on the importance of these tests. And I'm advocating. I'm vocal about it. And every single panel I'm participating, I'm talking about that. So I think again, part of it is education, and part of it is creating awareness in Health Canada. What is interesting in Canada also is that, you know, we have these dual approvals. We have Health Canada, that is the federal entity that approves by principle, or more, like the technical aspects of a medication. Okay, let's say the CDK four, CDK six inhibitors, Health Canada will have to go every one of these new medications will have to go through a Health Canada approval, like a technical approval at a federal level. But then when it comes to reimbursement, those decisions are made at a provincial level. So you have another layer of technical and I would say economical approval that happens at each of the provinces. And all the provinces are at different speeds. So in some provinces now, like in Ontario, they have a program where every single woman that is after 50 years of age, or actually, I think, is every single woman that is diagnosed with breast cancer, gets a germline test, all of them. That's not the case in BC. In BC, you need to be part of that. You know, you need to fulfill the requirements. So that shows also that, as you know, some of the battles we have in Canada is that your diagnosis, your treatment, the test you're having, depend on your postcode, on your postal code, which is terrible. But this is a reality, not just for Canada. Is the reality for the world depends on, depends, really, on where you live. If you live in a remote town in Africa. I'm in contact with a breast cancer patient in Nigeria now that they have to co-pay for their chemotherapy. Every time they get the chemotherapy, they have to bring a box with gloves, with just mask they have to

pay, actually out of pocket, for the for the gloves, for the tubes, the actual government offers the medication, just the drug, but the Rent the patient have have to co pay. So our global reality is very, very different, depending, depending when you where we are, and that's one of the things we're working on. I don't know if you're familiar, we have in Canada an initiative called the Marathon of Hope. Has any of you heard of that? We had osteosarcoma patient here. His name was Terry Fox, and Terry Fox was a young boy in his 20s, was diagnosed with osteosarcoma, and he decided to do a run, the run of hope, running across Canada. And even after his amputation of one leg, he continued running, running, and he got a lot of media attention. He died many years ago, and he there is now the Terry Fox Foundation that is supporting this initiative, this large scale initiative that's called the Marathon of Hope. And what the Marathon of Hope is doing is that they're supporting and advancing whole genome sequencing for cancer patients across Canada. So it's about whole genome sequencing and getting access to new technologies. And the Marathon of Hope has a patient working group that advises the scientists, advises the, you know, the whole science and leaders of the Marathon of Hope, and lucky now to be the co chair of that patient working group, and that's again, advancing technologies and promoting the use of genomics in a more equitable way across Canada, including communities up In the north of Canada, indigenous communities.

Sandra Balladares 41:01
That sounds amazing Catalina. And actually, that's a very sideway, very good sideway. I have another question related to patient advocacy. Do you see any other way where the scientific community could leverage or collaborate with patients and advocates to shape more inclusive genomic policies.

Catalina Lopez-Correa 41:25
Oh, Sandra, well, this is, this is one of my, you know, areas of concern. I think we're so far away the scientific community from really hearing and understanding the voice of patients and really including them in a meaningful way. And I actually have to say, as an executive and as a leader at Genome Canada, which is a funding organization that is supporting genomics across Canada, we still having challenges to include patients in a meaningful way. That's not happening, and initiatives, like all of us in the US and others are trying, you know, baby steps into including patients. But it is not an easy path, and has not, I don't think being done in the right way. Lots of the organizations do it as a check box. Oh yeah, we have a patient, whatever patient, we have a patient voice there, but it's not really a patient that is informing the science, that is actively involved in informing the research and the science. I think there is a lot to do, and part of these, I think, is the spaces like the cancer lab, or spaces like the patient Working Group at the Marathon of Hope, or other advocating groups that have, you know, strong voice and can start to inform the science. You know, have this patient perspective, like, you know, I'm really surprised always to see how little some of the scientists and, yeah, the genomic scientists are working with genomes from patients every single day. They know nothing about these cancer journeys. They are managing cancer samples every single day, and they have no clue what a cancer journey means, and what are the challenges in terms of access to medication, access to new tests, access to clinical trials, that's another challenge we have, and I'm sure in the US too,

is accessing these clinical trials and matching you to a new clinical trial is a real challenge. So lots of lots of challenges to cover.

Sandra Balladares 43:39
Yeah, thank you, Catalina and Alan, before I pass the ball to you, one more question related to this last part, how has your experience with cancer changed the way that you approach your leadership in and to prioritize your different scientific goals? Did you see any change?

Catalina Lopez-Correa 44:01
Oh, yeah, totally, oh, my goodness, totally, totally, totally. The first thing I will say is, you know that I made, as you showing my PowerPoint. April 11, I was diagnosed. April 24 I put, I made a posting in social media and Twitter. At the time, Twitter was, you know, I had a lot of followers in Twitter and LinkedIn and different platforms. So I ought to say that I decided to be very open about this, because I I figured that when I was diagnosed, I started to think, who do I know with breast cancer? What are the women I know that have been diagnosed and have been gone through this journey, and I could count at the time, maybe four, five that I knew openly have been talking about breast cancer. And. Yeah, and I was like, like, who can I go and ask about this? Like, what's going to happen with, like, chemo? What's going to happen when I'm going to lose my hair? Like, all these little things that you know you like, patience. And I felt so vulnerable. So I decided to open and capture my journey, and I start writing blogs in LinkedIn and short articles about, you know, the treatment, about the genetic test, about, in particular, genomics, because and that Sandra has completely transformed me and transformed the way I see genomics and the way leading the use and implementation of genomics in Canada and around the world. I'm working now more and more, also for more equitable access in Latin America, in Africa. I see big challenges around that. So, yeah, it has been some people, you know, we have this cliche that some people will say at the end of the day, cancer is a gift. I'm not sure if it's a gift as a very badly wrapped gift, but, but it certainly has really transformed me and transformed the way thinking, leading and working and you know, I'm approaching and interacting with people

Sandra Balladares 46:24
very good. Thank you. Alan,

Allen Morris 46:30
You're making a case for more inclusiveness in genetic testing that the words not out, and somehow doctors, the penetrants, there on doctors, is not there. And we need to end education and be a proponent for that. With that said, I want to list for everybody the more limited restricted, which is an indication for breast cancer. Germline testing is indicated for anybody with breast cancer diagnosed before the age of 50, triple negative patients when they're less than 60, male male breast cancer, personal or family history of breast, ovarian, pancreatic or prostate cancer, Ashkenazi, Jewish and sad Street and metastatic breast cancer. So that's a more restrictive list. I just, I just, I'm stupid, and I'm using AI more and more. I just looked it up, and according to chat GBT, 9% there's a 9% yield on that of having a pathogenic mutation with that restricted subset. Now let me then just count. I'm being a naysayer. I'm admitting I'm being

a naysayer. There's another fact, there's three plus million in the United States. I don't know what it is. In Canada, it's probably 1/10 but there's 3 million breast cancer survivors, if every single one of them, we got the word out, and they got germline testing. First off, it would be 3 million times. Let's just call it. It's $100, which it's not. That would be a $300 million expenditure to the healthcare system that, if you believe that we have limited resources, could be allocated in something that's more fruitful. I'm being a naysayer. If this restricted category of patients only gives a 9% yield, I'm going to guess that if we did it to all the people that didn't have that the yield would be way less than 1% and one of the lines and there's, there's, there's a one of the dogmas in clinical medicine, which is completely opposed to the cancer patient lab pushing us into the future is doing shotgun testing. Shotgun testing is basically anathema to doctors, because what that means is there's going to be, there's going to be an abnormal result. If you do shotgun, the more and more bigger your shotgun, there's going to be a positive result. And a doctor is obligated to pursue a positive result. They have to pursue it. So you're going to have all this, you're going to have all this other unintended expenses, etc, etc, etc. So I guess that was very long winded, but I'm based I basically made a case against what you were saying, that we shouldn't do shotgun genomic testing on all breast cancer patients, because the I don't know if you looked did, this is another question. Did the doctors ever tell you what your prognosis is? And I can tell you what your prognosis is just by looking at the mamma print or the Oncotype DX, despite the fact you having what you think is a high risk, and everybody classifies it as high risk because your lymph node positive and your key 67 is 28% each. Even though you use that semantic high risk, your actually risk of death from breast cancer is only about 10 or 15% which is actually, unbelievably, the same data for prostate cancer. So people, people get in the initial this is, I'm sorry, this is an editorial, because there's a whole prostate cancer crew here that thinks when they're labeled very high risk at the beginning of their journey, there are some very high risk of dying of prostate cancer when their risk is actually only about 10 or 15% at best, and they're going to die of something else. Wait, okay, that I'm sorry for going on that tangent. So taking it back to you, I am being a devil's advocate. I'm being a naysayer. To you. What's your commentary about how I'm wrong and we should spend, let's say it's $100 on the 3 million survivors. They get the word out, they educate, they advocate for themselves. They push their doctors to get a genomic, whole genome sequencing on their, on their or whatever, I'm sorry, on the germline. What do you say about that expense and how it takes it away from other lower hanging fruit in the medical economic system?

Catalina Lopez-Correa 51:13
Yes, so I two answers or two points answering that question. First one, I fully agree. I think, like Ontario, they're gonna, they're gonna, I mentioned that they're doing a test for every single breast cancer woman. I don't think that's affordable, and that's possible in our current healthcare system. That's that's a waste. I agree with you. It's a waste of resources. Is a waste of money. What I argue now is that you should at least offer these to the high risk group that you mentioned. You know, deskenazi, Jewish. If you are asking Jewish, they said you should get the test. If you have a bilateral, you have a metastatic, if you are younger than 50, you should get the test. So let's, I think what I'm trying to argue now is for the people in that high risk group to get access to the test. And that's not happening systematically across the across Canada, for sure, not systematically across the world. Now let's kind of leave that. That's our healthcare

system for today, and this is how we see the healthcare system and how, you know, much cost and everything. But I say one of the barriers for genomics is cost. So imagine 10 years from now. 20 years from now, we have a genome at $10 a genome, or something like really, really cheap. And we have now programs in the UK, the US, Canada, that are doing new born whole genome sequence. So imagine that you, as soon as you're born, everyone gets their genome, whole genome sequence. So as soon as you're born, you get your navigation card. You are gonna you are. BRCA, one positive you're born, you know that since you're born, you know you have this risk, you know you have to start to mammograms early on, because you might develop a breast cancer at 30. That that's going to be a whole new world. That's but. But then cost and the system hopefully, is going to be set up in a way that can afford this, and we will be, hopefully, with that, focusing more on prevention and just avoiding you getting to the healthcare system, as opposed to detecting early or, you know, treating with so. So it's a whole new paradigm, and we're not there yet, and I'm not advocating for that yet, but I think that for sure, is going to be the future in 1020,

Sandra Balladares 53:42
years. I love that vision for the future, Catalina. Hopefully it comes soon. And actually, you know, I was looking for a paper. There is a beautiful paper that actually was published, like eight years ago about the evaluation of the economical impact of doing population studies for detecting pathogenic mutations, it was in general population, so and they evaluated what would be the cost if you do this population study in different populations, like low income, medium income, high income, and what would be the cost for doing those studies? I think that during in that time, it was Bradford testing, and if you do that, versus if you don't do it and you just let perhaps the 10% of the breast cancer cases to be a cold once they are advanced, what would be the cause if that happens, versus what would be the cost if you are able to do a screening and prevention and actually, the result came back that is a economically advantageous to do population study. And again, I'm just putting this in the context of braca. I'm going to find the publication and share with you. I was actually quite excited, motivated. That was a study in UK, and it was amazing, no, because I do agree that prevention is going to be key in order to impact the cancer rights that we have. And is there any other we have two minutes, any more questions or comments from the participants?

Brad Power 55:20
Yes, yes, I have a question and maybe a comment. In the US, we have the NCCN guidelines, and that's the sort of definition of the standard of care. You mentioned that Health Canada sounds like reviews. What is standard of care? So you talked a bit about what gets reimbursed. Can you talk about efforts you make as an advocate to change the standard of care, and is that something in Canada that's different than the MCC and guidelines, or is it the same?

Catalina Lopez-Correa 55:48
I think that they, I don't know exactly how they compare our guidelines and our standard of care with the with the US. I think they will be very similar. From what I see from breast cancer patients, is very, similar, so no, no big differences. As an advocate now really working hard, in particular genomics, because that's my field, and in just helping patients get more access. And

to your point, also, Dr Apfel, that I would love to hear your your question, but a bit on, on the advocacy and in the role of the patients, I think what I'm trying also to bring front and center is, is the voice of the patient, and what, what is, you know, one thing is a policy, and one thing is us changing The policy. Another one is thinking and trying to understand what the patients want and but I also think that what the patients want is shape, but what the patient knows, and if they don't know about genomics, if they don't know what this how this journey could transform their care. That that might be, that might be a bit of a challenge. And before, I will give here an example, in particular, BRCA one, BRC, two tests. Like we have cases where the BRCA one, BRCA two tests are, you know, a patient is eligible because of the family history, because of and but they're coming maybe from indigenous communities, or they're coming from trans sexual community, and they don't want to have the test. The indigenous in some cases, have say that they don't want the test. Some indigenous patients have said they don't want the test because they are afraid that ancestry information will be gathered through that genetic test. People that are trans might be afraid that their gender will be disclosed through a test. So, so there's a lot of personal beliefs and personal there's also, I have, actually close friends that are educated understand the power of genomics. They don't want to do the test because they are afraid to tell their daughters that they have maybe the mutation, and they're transferring, transmitting this mutation to their daughters, and they don't want to, whereas, in my head, it's like, is the biggest gift you can give to your daughter, in a way, to tell them early on that they have this mutation and they can start early detection, as opposed to, I don't want to tell them that they have these, like, if you don't tell them they're not going to develop the cancer, which you know, for me, in my mind, is difficult, but again, that patient preference, sometimes, you know, could be, again, influenced by the education, The knowledge and awareness.

Sandra Balladares 59:01
Thank you. I see Alan has a question,

Allen Morris 59:04
hi, I want to think about you as a patient, as opposed to a professor, and I'm thinking about your case and correct me if I'm wrong as I go in your case, you're no evidence of disease right now. Is that right? Okay, so you're in the space. And we brought up the concept of liquid biopsies, so you're in the space that's caught in for for the promise. I want to use the word promise because I still view this as futuristic, even though everybody would be patient advocates and say, No, it's ready for prime time now you, you are in the promise area of minimal residual disease. MRD, okay, yeah, it turns out. It turns out that in my community, not following standard of care, not waiting for the research to evolve and mature, people are ordering the Terra signate test, which is a liquid body. Biopsy test. My question to you is, you brought up the future of liquid biopsies. We've had talks about liquid biopsies. My side editorial is it's still at the promise future stage. It really is not prime time. As far as you know, any studies that show overall survival advantage, for example. Now my question to you, I'm thinking about you as a patient. I'm going to now, I'm going to talk out of the other side of my mouth that you should get signatera. No,

Catalina Lopez-Correa 1:00:35

I should get and I'm working with my doctor in making that case to get the signature. We're filling the forms to get it, I have to say also Alan, you know, I will remove my science hat and I'll keep only my patient heart. I'm excited about that test, but I'm also so afraid of getting that test. Like, what will happen if, now, after, you know, chemotherapy, radiotherapy, CDK, for inhibitors are killing me. I'm taking that medication every day. Has the most terrible side effects. I don't want to take it every day I wake up, it's like, I don't want to take this medication. And what happens is, after all this, my signature comes back positive, and I still have circulating tumor DNA. You know, it's going to be that's going to be hard,

Allen Morris 1:01:28
yeah? That's interesting, because I'm going to wear my patient hat in prostate cancer. It's called PSA anxiety. So PSA is a molecule, yeah, every time I stick out my arm, every three months, I'm, you know, it's, it's, it's, it's anxiety provoking. And I mean, but on the flip side of the philosophy of cancer patient lab, it's better to know than not to know. And you know, the theoretic thing is that that you will have lead time advantage, and you'll, at least, I'll tell you how our people use it. They don't use it necessarily to treat they use it to maybe increase imaging, which is the standard of care to pick to confirm it. So, geez, I got a positive signal from signatera. I'm going to increase the frequency of CT scans and breast exams, and when I do get that, that gold standard confirmation, I am then going to treat, or alternatively, leave it to the patient and say, Hey, according to signatera, you have like, a 97% chance that you're going to recur with this positive signal. You may, you may use the intuition, and it's strictly intuition that if you treat earlier, you're going to have a better chance. And I mean, I wouldn't they hit you again? Actually, I'm not familiar with super familiar with breast oncology treatment, but wouldn't they hit you again with the same adjuvant therapy? In other words, in other words, if you, if you, you did adjuvant cyclin dependent kinase therapy, right? But you stopped it, so it was a finite amount of time they would just restart that, right? And you

Catalina Lopez-Correa 1:03:10
already know that, no, I'm not sure, because I think with the CDK for CDK six, we're covering some of that. So I you know my initial answer with my from my doctor. And the reason why, at the beginning, she didn't want to prescribe or try to advocate for for the signaling tumor DNA test or the signature, was because she said to me, bluntly and directly, she say, you know, I'm not going to change your treatment if this comes positive, so we're going to pay $6,000 for nothing because your treatment is going to be the same. We don't have any protocols right now that will indicate a change of treatment for what you're having and what you had based on that signature result. So it's like is a knowledge that is great to have, but if it's not actionable. It's like you having a diagnosis. You know, a whole genome sequence. Now, when they sequence my, my whole genome, and they tell me, I'm going to have Alzheimer's, I have the variant. I have the APOE four. Let's an example. I didn't get that, but, you know, let's put it as an example. What can I do with that information today? I can do nothing like, you know, I can play Sudoku, and I can try and be active with my brain, but, so, yeah,

Allen Morris 1:04:27
no, but one thing your doctor can do is increase vigilance for her gold standard pickups,

Catalina Lopez-Correa 1:04:33
absolutely, yes, yeah, and that absolutely, and I think Doctor AFL, you will have a question or A comment,

Chris Apfel 1:04:39
yes, yes, I have a comment. So this argument, while the signal terror, doesn't make sense because we wouldn't change our treatment, I strongly would disagree with that, because it's correct if you say you get treated according to guideline, the standard of care and your opinion. Indian and your preference is not relevant. Number one, then, then it's then it's a fair statement. Only. Then if you say the patient's desire and wishes are not relevant, then it's a fair statement. The next thing is, I agree with with Alan, it actually increases your vigilance and understands on whether you actually need to do some more imaging and to whether there's something going on. The other part that I think one can consider, especially for breast cancer, is the signatera gives you a semi quantitative measure. With a semi quantitative measure, you have an understanding of your tumor burden. It doesn't mean that you have to treat Yes. Could very well mean that you can monitor it, and you can say my volume doubling time of this undetectable tumor is one and a half years or two years. I watch it every year, and unless it really explodes, there's nothing I need to do. Yeah, okay, exactly. But if suddenly there is a tumor progression, and you suddenly have 10 times the tumor burden after a year, you knew two to the power. Then, then you have to then, you know your tumor volume doubling time is four months, and you know, you need to react.

Allen Morris 1:06:22
I agree completely with Chris. We use the same logic with prostate cancer with PSA doubling time, and actually he chose numbers that coincide with my idea of what a benign recurrence is. There is no such term. I use the term benign recurrence. But if somebody it doesn't matter what solid cancer you have, if it's doubling time is one and a half to two years and you're 50 years old, you're not going to die of that cancer, assuming it stays genomically stable. Genomically stable. As far as doubling time goes, obviously it's going to as it's doubling, it can pick up more bad mutations. And then you can see that absolutely with PSA, it's not studied in the Tara at all. That would be the future. But it's absolutely true in prostate cancer, that when the PSA actually, the natural history is unbelievable. The majority of patients have a very stable PSA doubling time. And then it then it can change. And some doctors will then treat its observation, observation for a recurrence, which is kind of a thing that is not, not something that patients wanted, you know, oh, geez, I've recurrence. I need treatment. Oh, I have cancer. It recurred. It's stage four. It's bad. There is the concept, especially in prostate cancer, and should be in breast cancer for observation, which the other word would be, act. The correct semantic right now is active surveillance. And as you know, especially, you know, I mean, Olivia Newton, John is a case in point. She died of breast cancer, but it took her 40 it's something like 35 to 40 years from diagnosis at a very young age till she she died of breast cancer, which speaks to her doubling time was very low, and it was probably good to wait till you see the the you know, you know, the Revolutionary War metaphor. Wait till you see the you know, their eyes before you shoot. You know. Wait, wait for that doubling time to increase and show that it's it's more

aggressive, and it's a cancer that's changed. And I think Natera or something semi quantitative might show that promise, it probably will never be as good as PSA doubling time. I mean, that's just my opinion for the future.

Sandra Balladares 1:08:52
Also, what Chris said, I think that is important to also consider the patient like needs beyond the clinical utility is also planning your life as a patient as well, right? That is super important about what is that you are going to do today, tomorrow and in some months, so which is super critical, yeah,

Allen Morris 1:09:16
if I could, if I could add on this, this is, again, a naysayer, devil's advocate on the shared decision making. When you use shared decision making, and I'm doing historically with prostate cancer, nobody wanted to do active surveillance when they were told they have prostate cancer, let alone now there's this new thing. I'm talking about it, but I'm calling it a benign recurrence. Nobody wants to do nothing. They're going to be pushing their doctor. Oh, this treatment, I'm er PR negative and ERP are positive, and her two negative and cyclin dependent kinase is have shown this tremendous promise to prevent recurrence. And I picked it up in this, this molecular I want that I want to be treated. And. And the patient has to be talked into hey, let's hold our fire until we see the enemy. In other words, let's hold off and do active surveillance first. And that's all that was. That was such a hard sell in prostate cancer that initially the uptake of active surveillance was only five or 10% and today, the uptake it for it is 60% when, in fact, the science shows that it should be 100% and that actually segues into why, believe it or not, it's convoluted, but it segues into why the the preventive forces recommended not doing PSA screening. And I can tell you the math on it will be, if there's 100% penetration on those people that should be getting active surveillance, there will be a stronger case for doing PSA screening on people. And right now it's we're not sure we should do it, you know, is the recommendation.

Catalina Lopez-Correa 1:11:03
I wanted to address a comment in the chat that was asking about the CTC (circulating tumor cell) test. Basically the CTC is the same as the one we have been talking about from Natera, or the circulating tumor DNA test of the liquid biopsy. We're here talking about tests that can detect the tumor DNA in your blood. This is, hopefully, informing and answering that question. What we're saying here is that yes, they are reliable, and that can absolutely inform your care.

Chris Apfel 1:11:45
CTCs are very often negative, even in metastatic breast cancer, and therefore are not always very useful for really understanding what mutations I have, or whether the mutation has changed. Often, therefore, they only show up in a fraction of the patients when they're very late stage and metastatic. So CTC generally for genomic testing are not really very good to do this. Secondly, they're not all the same. There is a huge difference. If you do normal ctDNA testing and you look for a genomic marker that's different. It doesn't give you an idea of the tumor burden. So that's very different to the Signaterra, which gives you an idea of the tumor burden.

For me, it would be important to understand if it's a doubling time of one or two years, or is it a doubling time of three or four months? Therefore CTC and other genomic testing all in the blood is the same.

Sandra Balladares 1:12:52
Catalina, any closing statement that you want to share with the group?

Catalina Lopez-Correa 1:12:57
I would say thank you for the time, thank you for listening, thank you for all your comments today. It has been really, really an incredible time here, and I hope I can continue working with you to help future cancer patients. That's my goal, and I think that's also your goal. So hopefully we can align efforts in the US and in Canada to help more cancer patients access new technologies.

Sandra Balladares 1:13:30
Yes, absolutely.

"An MD PhD Navigates Breast Cancer" (Catalina Lopez-Correa, MD, PhD) [#155]

CHAT CONVERSATION

00:37:12 Brad Power: Regarding accessing liquid biopsies, especially in BC, please see “Testing Your RNA with Liquid Biopsies” (Alex Rolland) [#116]
00:43:54 Roger Royse: Alex rolland at ctoam in canada has a system for evaluating variants of unknown significance
01:11:41 Dr. Chris Apfel: Catalina, I understand your interest for general testing. I also agree with Dr. Morris that general testing policies might be problematic from a health economic perspective (and potential complications of downstream diagnostics).
Of course, considering the patient risk makes generally a lot of sense. But how about moving the discussion away from a policy decision and make it more about a patient preference?

01:14:38 Egle Bubelis: Catalina, what's your opinion about CTC tests? Are they reliable?
01:17:47 Dr. Chris Apfel: Replying to "Catalina, what's you..."

For genomics, especially for detecting mutations that should be fine but I don't know how much more information we would get compared to cfDNA.
CTCs are pretty rare, but for metastatic breast cancer they are prognostic (CellSearch). There is a company that claims chemosensitivity on such cells, but it defy scientific rationals/principles.
01:19:05 Dr. Chris Apfel: Replying to "Catalina, what's you..."

And yes, when it comes to MRD, you should definitively consider Signatera.