

Precision Medicine Podcast, Season 5 Episode 59

From Access to AI – Cancer in America with Dr. Douglas Flora

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Karan Cushman, Host

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

Welcome to the Precision Medicine Podcast. I'm Karan Cushman, your host and producer, and today we're going to do a little time traveling. Our guest began his journey with cancer as a young man when he lost his mother, in her late 30s, to breast cancer. At an early age, both he and his brother were driven to become doctors, a goal he not only accomplished but surpassed. Today—20-plus years later—he is a community medical oncologist practicing in the epicenter of cancer in America. He is also responsible for publishing the only peer-reviewed research journal dedicated to the advancement of artificial intelligence (AI) in clinical and precision oncology. This is a category that he sees, "If we are responsible about putting up the right guardrails, will afford us a future where we have significantly reduced the burden of cancer on society."

Our guest is Dr. Douglas Flora, Executive Medical Director of Oncology Services at St. Elizabeth Healthcare and Editor-in-Chief of AI in Precision Oncology. Dr. Flora, thank you for being a guest today on the Precision Medicine Podcast. We're honored to have you here.

Dr. Douglas Flora:

Thanks for having me. This is fun.

Karan Cushman:

Let's dive right in on that journey. One of the elements that is a favorite of our listeners is getting to learn about our guest's journey. So, I want to take us back to the beginning and ask, if you wouldn't mind, going back to your childhood, and share with our listeners your personal experience with cancer and how that shaped your career path.

Dr. Douglas Flora:

Absolutely. Well, it was a circuitous path. My mom got sick early. She was in her late 30's and had all the appropriate treatments and unfortunately did recur and didn't fare very well. So, we lost her probably as I was a young college kid, and my younger brothers were even younger. Obviously, those were inflection points in anyone's lives, and it was quite difficult, we were very close. I avoided cancer medicine for the next 10 years on purpose because it was probably too close to home. So, as I meandered through medical school and internship, it was well into my residency as a future cardiologist to be, that I changed paths, and I'm so glad I did. I landed exactly where I needed to.



Karan Cushman:

So, we're going to move forward pretty quickly here. We've got a lot of territory to cover. In fact, we've been discussing that this episode could easily turn into two. We'll see what we're able to do today, but let's move forward to around 2015, and you're working as a community oncologist now at St. Elizabeth Healthcare, which is in northern Kentucky. Again, like I said earlier, this is really the epicenter of in America. And what we mean by that is, the high incidence of cancer in northern Kentucky is really next level. It's number one for colon cancer and lung cancer, in both deaths and late-stage presentations. We know you're from Cincinnati, we didn't introduce that yet, but I know that you came from that part of the country, but what made you decide to work at what you call ground zero for cancer in America in northern Kentucky?

Dr. Douglas Flora:

Certainly need, this place is desperate for help, and it's the whole commonwealth of Kentucky. We are in that Appalachian belt that you see on any heat map for cancer that is in the USA today or elsewhere. Unfortunately, it's a region that's still a few years behind in terms of health literacy, it's still heavy smoking, lots of alcohol, lots of obesity, as you would often have in some of the poorer states. So, there's a whole stripe cutting through the United States right now of really, really poor cancer control that's due to all of those factors. It's been a privilege here to try and help start the reboot. Kentucky's making great strides, and I'm proud to be part of it, but it's a whole team that's working together across our state.

Karan Cushman:

So, on that note of 2015, I believe that's when the center that you helped create, the Lung Cancer Screening Center of Excellence, when that launched. I would like it if you could just talk to us about what that meant at that time. It's nearly, almost 10 years ago, to create a center of excellence like that, and then talk about what it is today, almost 10 years later. There are more of them around the country, but certainly in the world of precision medicine and precision oncology, lung cancer is a huge focus, and with your dedication to health equity, the screening portion of that is really critical from the start.

Dr. Douglas Flora:

I appreciate you pointing this out, it's so critical. So, we're all well availed as to the benefits of mammography and colonoscopies and those sorts of things but when I got here, we found pretty stark data for lung cancer diagnosis, and the majority of people who came, came through an emergency room with symptoms, and it was really an incurable disease at this point. I spent the better part of 15 years of my career chasing a ghost that I could not get rid of.

And so, when I assumed this role, the leadership position here at St. Elizabeth, I found a team of people that were dedicated to changing that and maybe going upstream to find out where the bodies are coming from, rather than waiting for them to show up in the ER. We put a lot of money into that, we put a lot of effort, we put a lot of teamwork into it, and we have a very large, very dedicated team that's now screening almost half of the eligible lung cancer patients who would meet criteria for screening. The national average is still somewhere around 4% to 6%, so we're doing great. There's still lots of work to be done, though.

Karan Cushman:

So, for communities that maybe don't have this yet, what advice would you give to them about how to go about creating one?



Dr. Douglas Flora:

I would say first off, reach out. Our team would be happy to help. If you're out there, and you're trying to figure this out, we've had great success. But we've also taken our lumps, and so we'd love to share some of those things with other people who are trying to build similar. These are lives saved everywhere.

I would say from our perspective, what we knew worked was having a physician champion, having a strong physician champion. That's my partner, Dr. Gieske, who's out all over the country right now talking about the importance of this test at every possible meeting. And then having a team of dedicated people. We've got just fantastic nurse navigators that call these folks and say, you had a test ordered, you've got to come in, or you're due for year two or year three. Then we've got a whole health population team through our physician practice, and they are literally knocking on doors with their telephones to say it is time, you must come in, we need to help you. And it's worked so beautifully. It's a team sport.

Karan Cushman:

Great. Well, so building on that, the idea of starting from ground zero. You've built the Lung Cancer Screening Center of Excellence. If we continue moving forward, 2019, 2020, COVID hits, and you're in the middle of still being that champion of healthcare equity. You oversaw the development of a state-of-the-art cancer center in your region. I believe \$140 million project, where you also received a Healthcare Hero Award for that work. Can you talk about what it was like to imagine that building, that center, and then launching it in the middle of COVID? What inspired you to think so big with the creation of that effort? And just talk a little bit about the story through it.

Dr. Douglas Flora:

You know, I will say for honest purposes, it is a team sport, and I am surrounded by brilliant administrators who had a vision even before we were brought aboard as providers, as doctors here. And so, this was a grand strategic plan that our board and our CEO and our COO were dreaming about, and they missed the puzzle pieces that were aligned physicians who cared about the same things they did. I'm lucky I'm in healthcare systems that's very nimble. It loves to invest in its community, and it cares about the patients in its charge. That was step one.

Dr. Douglas Flora:

When I got here and COVID was arriving, it was right about the time that we took possession of this building. So, even at our grand opening, we were outside and masked and socially distanced. It turned out to be really, really a good time for that because we had space. We had a big new shiny building, and we'd built it to be hermetically sealed from germs, and the floors were treated appropriately so you couldn't spread things. And we had tracking systems on our jackets that were brand new that would tell us if we got within six feet of somebody who'd had a COVID-positive test and so on. So, actually, I think we were probably in better shape than most when it came to the physical plan.

What it really did though, is it called out disparities of care for us because we saw again and again our patients, especially the immunosuppressed cancer patients, taking huge hits. You and I might've had significant symptoms that were troublesome, but our patients were dropping like flies, and it was just devastating to see that happen. So, that was probably the hardest part for us, is knowing that we couldn't protect these patients who were at grave risk.



Karan Cushman:

Well, and so, going back to the screening component. You know, we talked with Dr. Luis Reyes down at Memorial Cancer maybe shortly after and still in COVID, and he said one of the biggest challenges was just getting folks to come back in the hospital for their regular appointments. Obviously, we're leaning back towards the idea of screening. What did you experience there at your center and did you see that drop off of people just coming in for regular routine care, and then as a result, maybe a higher instance of cancer in the years to follow?

Dr. Douglas Flora:

Absolutely, and it took about six to nine months after we cleared, I guess spike number three from COVID, before we started to get back to pre-pandemic levels of screening. And it's a pretty significant concern. There's been a lot written about it from the National Cancer Institute, and we've done estimates thinking that just breast and colon missed screenings during the pandemic may end up costing 8 to 10,000 people their lives for those two diseases, because of delays in presentation and late diagnoses that we used to capture before people were hunkered down at home. So, we haven't seen the full impact of this yet, and unfortunately, I'm sure there will still be some people who recur because we found them as a stage three instead of a stage one. It's just another lingering tragedy of what we all went through as a community.

Karan Cushman:

Sure. Well, so if you don't mind, I'd love to get into a little bit more of your own personal story, because during this time you had your own personal experience with cancer in around 2017. And we happen to be in National Kidney Cancer Awareness Month. So, I would love it if you, Dr. Flora, wouldn't mind talking about your own diagnosis and experience at that same time.

Dr. Douglas Flora:

Yeah, sure. I mean, you know I talked about going behind the curtain, right? I was always, and have always considered myself a deeply empathetic physician, I probably wouldn't have chosen oncology otherwise. Little did I know exactly how dark it feels.

For those of you who've had cancer in our audience, I think you probably understand, and it's hard to articulate to people. Imagine if you spent your entire life taking care of patients who were dying of that disease, and it put me in a pretty dark place. I would say I had typical UTI symptoms, which I knew were unusual for a boy. Saw my own doctor like we all do and got an ultrasound, and it showed a giant mass on my kidney.

Subsequently, went through the same things that you all would go through with a nurse calling me on a Friday night saying the doctor wants to rule out metastasis or spread of cancer, which that was a weird call to take as a cancer doctor. The tumor came out, then the healing began, and I'm now happy to say I'm about six-and-a-half, almost seven years out removed. And I probably should be okay now, you never completely relax, but I'm probably through the statistically highest risk zone. So, starting to feel like a regular person again.

Karan Cushman:

Well, it's a silly thing to say, but congratulations, and I'm sure that is what obviously made you feel like you could take on this second career, if you will. Just transitioning over to the future of cancer care. So, you've already got more than a full career working as a community oncologist. Something sparks for you, part of what sparks are just statistics. So, this year we'll reach a new



major milestone of two million new cancer cases that are projected to be diagnosed in 2024. That's a pretty amazing statistic. So, I think as you think about your impact, we were talking about this in the green room a little bit earlier, and feel free to go into that a little bit, but we were talking in a sense about having sort of two parts of your life. And being in that second part, especially when you have cancer, you get launched into kind of that of thinking about how can I make a bigger impact?

Well, the second part of our conversation here today is really on AI and precision oncology. To the point that Dr. Flora felt compelled to go into a new industry, if you will, of publishing as Editor-in-Chief of **AI in Precision Oncology**, start a new publication—again, with a fabulous team, no doubt. But I'm wondering if you can just take us into that a little bit and how you feel AI will play a role in cancer going forward.

Dr. Douglas Flora:

It's a really good question. I know people are approaching this with some trepidation now. I'm not naive to that, it's somewhere between Siri and SkyNet, but to lay out the problem for cancer doctors, for us. So, think about this in terms of baby boomers, right? They're graying out. The baby boomer generation is entering this high-risk window for cancer, right? New diagnoses are expected to climb to two-and-a-half million cancer patients by the end of the decade, despite the fact that we're doing better at earlier diagnosis, just based on the age of the population. Same time, we're curing many more than we've ever cured in history. So, we're going to have 22 million survivors by 2030. Where do we go with that? There's only 19,000 cancer doctors and fewer radiation oncologists. So, I just started to think about, the math doesn't work. If I want to spend 45 minutes with each of my patients, and there are more patients than I can ever get to, that's not going to be a long-term solution.

Dr. Douglas Flora:

So, I started to look into technology solutions that would maybe help extend me so that I could find another hour or two or three a day. And then I started to realize that everybody needs that same help. And so, as I've gotten facile with these new technologies, I'm trying to spread the word with a scientifically rigorous journal so the clinicians in the field like me can understand, hey, this is a validated, proven thing, not just what a vendor's telling you this tool can do.

Karan Cushman:

So, I want to talk more about the journal, but before we do, I'd love to just break this down a little bit. Obviously, the journal is geared towards clinicians to help them keep pace with this fast-moving world of oncology, all the data that's coming at us. But if we just take a step back, just for a moment, I'd love to see if we could just define precision oncology from a patient perspective. I think a lot of folks that maybe are newly diagnosed or have family members, it can be an unfamiliar term. And so, just quickly, the US National Cancer Institute defines precision medicine as a form of medicine that uses information about a person's genes, proteins, and environment to prevent, diagnose, and treat disease. Dr. Flora, do you want to add anything to that? How you think about precision medicine and precision oncology specifically when you speak with patients?

Dr. Douglas Flora:

It's just been such a nice part of our journey as cancer doctors. So, think back maybe 10, 12 years ago, I would see 22 patients a day in clinic, and I'd probably give 20 of them chemotherapy drugs. And just think, old bunker busters. Everybody loses hair, people get sores in their mouth, they have low blood counts, they have low energy, they lose their hair. And that was really tough



to do professionally, knowing that maybe 5% or 10% or 12% of people are going to benefit from the drug and the other 87% are going to be harmed.

Fast forward five years and we started to unravel the human genome, and we started to understand the real biology of cancers and why they mutate and how they grow and why these cells become immortal. And along with that deeper biochemical or molecular chemistry understanding came the idea that they've got Achilles' heels, they've got tendencies towards things that if we interrupt that process, just like the spike protein for the COVID stuff that we've talked about earlier, we can design a smart bomb. And maybe, instead of blowing up a whole building to get to one person, maybe we can just go into one room with one laser-guided weapon and take out the offender or the terrorist or whomever or whatever analogy you want to use. And so, with precision oncology, it's more targeted smart bombs going after these Achilles' heels of each individual patient's cancer.

Karan Cushman:

Awesome. Thank you for that. Okay, so layering on another maybe complex term, artificial intelligence. It's complex, but it's now being kind of thrown around in households every day and simplified down to, as I was joking in the green room, you know, to robots running around our house vacuuming for us. But we talk about deep learning, machine learning, you know, and there's just this disconnect between these maybe scientific terms or computer technology terms to folks who aren't in that space, to the things that we're starting to see around our household. So, in the context of cancer and healthcare, can you explain what we mean by artificial intelligence?

Dr. Douglas Flora:

This is next generation. We've all gotten used to this without even knowing it, it's been infiltrative. So, think about all these GPT models, and that just means generative pre-trained transformers. We all say GPT all day long. You've been using GPT equivalents with Alexa or with Siri or Cortana or Google Digital Assistant for five years now. And you don't really think that it's a big thing that it can finish your sentences, it can predict the words you were about to type. That's all AI. It's not daunting when you think of it in those terms. And maybe those are like GPT-2 and we're now at GPT-4 plus and other, but really, I think about AI as a tool that we can use with human beings in charge at the wheel to let computers go beyond just following directions or instructions.

So, right, we do a Google search, it gives us the algorithm of, these were the most common 10 pages that people searching for similar terms came up with. The next level is when the artificial intelligence can sort of read your mind and say, this is what you're really looking for. I'm going to give you the single best answer. These computers can now train themselves to do so, rather than having an individual coding them for each individual decision. We give them decision trees, and they're able to guide themselves down that pathway without hourly or daily reintroductions.

Karan Cushman:

The Precision Medicine Podcast will return right after this.

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Karan Cushman:

So, transitioning into the journal a little bit more. I want to just read a quote that you offered when you were talking about the journal, because I think it really sets up the purpose behind this. So, "AI in precision oncology is more than a scientific or medical journal. It's a mission-driven initiative to harness the power of AI in improving oncology care. We aim to shape an AI-enabled healthcare system that is equitable, efficient and patient-centered, making healthcare more human." I love that. I think there's a lot packed into that. And, obviously, a lot of the issues that we deal with in America right now, which is the healthcare equity aspect, we talk about that a lot on the podcast—efficiency, right? I mean, patients maybe don't want to spend any more time than they have to in the hospital. But when they do, they want more time with their physicians, which leads us right into the patient-centered aspect of all of this and making healthcare more human. So, how do we use technology and things like artificial intelligence as humans to make that human care more real?

And so, when you thought about creating a journal. You know, obviously the drive, your personal connection with cancer, both from your mother having it to yourself going through it, you had plenty of motivation. But it's a huge thing to take on another career that maybe you don't know a lot about. How do you get that team together? How did you justify creating an entire journal with such a narrow focus of AI and precision oncology?

Dr. Douglas Flora:

I think I was trying to solve a problem, first off. So here I am, that quintessential community doctor, and we're overwhelmed with the number of patients we're asked to see. I've talked about the unsustainable rise in demand. We're in this world of rapid innovation and unsustainable costs, and I knew that wasn't going to be a long-term solution for me to just continue to wake up two-and-a-half hours behind a day for the rest of my life and feel like I was going to battle. So, I started to learn about it selfishly because I knew that I needed to find efficiencies in my own life, and I've found those now. And all of these GPT models—and I might use 20 a day—to handle just about everything that I can automate in my life, and it's been life-altering for that.

But I know my partners don't have time to do that. I'm a part-time administrator, part-time doctor, so I have more free time than my partners who are taking weekend call, etc. And I have the advantage of my kids are out of the house now, so I have time to study and read like I used to in the old days before club soccer. So, I tackled the journal saying, I want to deliver something that's super-digestible, manageable, short, readable articles that were practical for my partners across the country who don't have time to read two hours of AI a night. I just want them to tear out this two-page article or three-page article saying, this is how you design a prompt, or this is a tool that can save you four hours of typing a day, etc.

Karan Cushman:

Amazing. One question. How do you pull a team together that is committed to doing—you have a commitment when you do a publication to producing every so often. And it's not just an article, it's a whole journal. How long did that take you from the point that you and a few folks were envisioning this idea, to actually being able to do it? When did you first start thinking about it?

Dr. Douglas Flora:

It's been almost a year to the week. We were at a conference, two of my colleagues who are partners of mine in this adventure and editors for our journal. We're talking over a beer after an evening, after a full day of sessions. And this came up as a, why isn't there something like this out there? There are good journals that cover things like AI, but they're very, very broad, and they're not necessarily practical applications. They're still more theory. And I wanted something that was hands-on—a tool.

And so, we started talking, then we approached a publisher, it's Marianne Liebert, and they're fantastic to work with, and they also move quickly. Shoot, in about three months we had a formal team, and I spent the next couple months meeting with people that I thought were luminaries in this field for an hour each, and we've signed up now 38 international experts from places as reputed as Harvard and Massachusetts General, chairs at Stanford and Temple and Fox Chase and other places. Heavy, heavy academic hitters. And they all had the same frustration I had when I met them, which was, why is this not in the clinics? Why are people so nervous about this? Because they're all working in that world, too and see the promise. I was hoping that they could be our army to try and get the word out with me.

Karan Cushman:

Amazing, I think that is just really great. It's very similar to how the Precision Medicine Podcast got started. You know, a few of us said, wow, this is a real problem. And then having my background obviously, is marketing, branding, communications, and I had been in podcasts enough to know how to go about it. The intent of bringing folks together through a media platform, that's what it's going to take because it's, what we're trying to do here from whatever perspective you sit, whether you're in a payer or a lab or an oncologist or someone like myself out in the communications world, this is an enormous mountain that we're trying to climb.

The more that we can easily bring folks together, the better, but... So, just moving into technology a little bit, we're both proponents of AI, machine learning, and technology, precision oncology. But, specifically with technology, how do you see AI helping scale the quality of care and centers like yours, centers of excellence around the country? How will technology change, and AI as an element of that, help scale quality care?

Dr. Douglas Flora:

There are a lot of ways, and obviously that's a whole hour by itself, but I'll give you some high points here. Let's talk equity, right? We know that if you are a middle-aged white guy that wears a bow tie and a white coat, you're probably getting cancer screening. I'm 52, and I'm all over that stuff because I have resources.

Let's talk about other populations that don't have the same access to care. Cancer mortality rates are 13% higher for Black versus White patients. Uninsured women are 33% less likely to have routine breast screening. Even today in 2024, Black and Hispanic patients are 3.4 times less represented in clinical trials. How are we going to get better care to them? We have to meet them where they are, and that means we have to provide access to care. We can do that with technology solutions that remove barriers like transportation or using AI to diagnose cancers from blood tests someday, and they're coming close.

We're not quite there for everything yet, but for people who don't have access to a CAT scanner

or can't get a day off of work to do that, wouldn't it be nice to swab your cheek and find out how you metabolize all of your drugs or if you have a cancer gene?

So, I think one of the things I'm most excited about is this might equalize the playing field for a patient who's seen an hour south of my building in Appalachia, versus somebody who has the opportunity to go to MD Anderson Cancer Center or Dana-Farber in Boston, because both doctors will have access to the same decision-making fund of knowledge because AI is supplying it.

Karan Cushman:

Well, so you took me right into what I was thinking about next is, so moving from the patient's perspective to the clinician's perspective and that point of care, clinical decision-making, what role and how do you see technology changing as a way of bringing together perhaps disparate systems and some of those stakeholders that I just mentioned like payers, pathologists, oncologists. How can technology, and specifically AI, bring some of those folks together to help decision-making happen more efficiently at the point of care?

Dr. Douglas Flora:

I'll say it's mission-critical first, for all of us to figure this out. There are 4,000 new articles published daily, 28,000 a week. For us as oncologists, that means there's 400 new articles coming out in journals every single day. How can I keep up with that and still do 12 hours' worth of work with my patients and my office and other? So, I guess I'm looking forward to these clinical decision-making tools, helping guide us to have all of the information we need available in one fell swoop in front of our patients so that I have all the MRI results, all the CT results, pathology results, family history, social history, sexual history, all accumulated for me. And then the AI assistant can help advise me based upon the data that came out that day, that this is the current standard of care. Rather than waiting six months for guidelines to reflect that. I think that's a very powerful example of how it might propel us into better care so that every patient, wherever they're seen, has access to an up-to-date doctor with a million reps.

Karan Cushman:

That's just one of the technology solutions that a healthcare center is looking for. As you look at your bottom line, putting your administrative hat on for a moment, how do you prioritize clinical decision-making solutions and lots of the other challenges that you might have to make decisions around, even when it just comes to technology? How do you prioritize perhaps that clinical decision-making tool, integrating it into your EMR? It's a complex workflow. So, there's not an easy button for sometimes integrating and making budget decisions about these. So, I'm just curious from the administrative level, how do you prioritize some of these newer things and prove the value when there's not a use case before?

Dr. Douglas Flora:

My gosh, the billion-dollar question. We just spent an hour talking about it with my leadership team here, and I can tell you what we're doing. We're forming AI task forces to take a lay of the land and see, what problems do we need to solve as our highest priority? And then laying out a roadmap after we've done that to identify the opportunities that would be lowest risk, least frightening for the system, least risky for the patients. So, we might start with simpler things just to show proof of principle in healthcare systems like ours like. Instead of going straight into life and death clinical decision-making, which is probably still five years away, how about medical documentation? How about instead of my brother, who's also an oncologist downstairs, typing every night until 11:45 at night. Can we use this natural language processing? And we can we



are, to capture the nuance of that visit with the patient so he's not typing in the room, and he can look at his patient's daughter in the eye when she asks a question, he can see if the patient's husband is tearing up, and he's delivering too much bad information in one delivery system.

So, I'm excited about that part. The governance is going to be tough. Data has to be maintained, safety, there has to be security of patient health information, etc., but there are lots of companies that are diving into this, this year. AI and healthcare market alone, I'll say by 2030, we think it's going to be \$194 billion in investment. That's pretty close to what Google makes in a year. And that's just in healthcare AI. So, I think there are lots of clever people, lots of programmers trying to solve these problems. It'll be up to healthcare leaders to educate themselves about this technology so they can make the appropriate decisions for their patients and their clinicians.

Karan Cushman:

So, we talked a little bit about putting up those guardrails, right? Because there is the, I don't know if I want to call it a negative impact of AI. What are some of the obstacles that we're facing as you look at putting together that AI strategy that you just alluded to? What are the obstacles maybe that are coming up that you want your group to be mindful of and that you think others should be as well?

Dr. Douglas Flora:

Well, I'd say how the machines are trained is still a big question mark for most of us. So, if you are, again, going back to the middle-aged white guy in a bow tie, if all of these AI machine learning modules are trained on data of middle-aged white guys, then it's going to pump out great answers for people who look like me. But we know that people of color, uninsured or underinsured patients, Appalachian patients who are two hours from healthcare systems, may have different diseases and certainly have different barriers to care. So, I don't want the AI tool to spit out something that would make sense for one population, but discounts something else that's equally important for another population.

I guess I'll talk about facial recognition. Right now, everybody's doing facial recognition. Google, Amazon, Facebook, others, and there've been reports in the last couple of years of facial recognition, missing iconic black women's faces with a high degree of misses. Michelle Obama or Oprah or Serena Williams, who are beautiful, iconic people in our world that are universally recognizable, and Facebook will mischaracterize them as a man or as a different person altogether, where it'll nail me in a crowd at a baseball game in 40,000 people, it'll find me. I think that shows some of the inherent bias in the programming, and we have to be conscious of that. And the companies that are training these devices, they have to be transparent with what data sets they use before they start spitting answers out.

Karan Cushman:

It's very true. So same note with pattern recognition. AI, we know the things that AI is really good at. Right now, so many companies are in the midst of reading slides, pathology slides, and you alluded to the amount of publications that are coming out, just data in general or getting an enormous amount of data, collecting it, putting it into libraries, trying to understand it. It's all coming at us very fast. Image recognition for CT scans, chest x-rays, so there's a lot of visualization and all of that data that's coming in and getting put in, how we use it and how we put it back out. So, just thinking ahead a little bit, three to five, ten years from now—what is your hope for AI and how it can impact cancer care? I know I'm asking you to think a little bit bigger, but

obviously it's a huge initiative to take on the task of writing a journal, let's think big. What does that look like for a cancer patient five, ten years from now, the impact of this?

Dr. Douglas Flora:

Joyous, hopeful, and I'm not exaggerating hyperbole wise. I think that when the world sees where we are in two years, it will be a Gutenberg moment. When they see what happened when GPT was released in November of 2022, and they finally understand how this is going to affect their life, 40% of work that we do as knowledge workers is going to go away and we're going to be retraining whole workforces. Marketing, legal, people that do forms for a living, pattern recognition, doctors will all be augmented and much more efficient than we are today. So that's exciting to me to think that the patients will have all of those free hours for us to improve ourself, improve our craft.

Karan Cushman:

No, I love it, improve our craft, because it definitely is. I think that's the thing I really want to drive home here, is that we talk about artificial intelligence, and we're never going to lose sight of the human factor in one person, a physician caring for another person, a patient. There is no replacement for that and making those decisions.

Karan Cushman:

So, Dr. Flora, we talked earlier in the episode about the high instance of cancer in your part of the country, but specifically around colorectal and lung cancer. But can you talk a little bit about what's happening in the world of colorectal cancer? Why the rate is increasing so much for folks under 50, and what you're most nervous about there and how AI can have an impact?

Dr. Douglas Flora:

Gosh, yeah, it's devastating. We're seeing all other cancers that we're hoping are declining in number, and instead the incidence rate of young, onset colorectal cancer is going up. Say in people under 55 years of age, the incidence rate is going up about 1% to 2% per year. So much so now that colorectal cancer, not lung cancer, is the leading cause of cancer death among men under 50, and it's the second leading cause of cancer death in women of the same age group. So, we've got to be smarter about screening. These are devastating losses. When you meet a 45-year-old man, and he's a father of four, you can't fix that.

So, AI is helping improve cancer screening. It's improving our ability to reach those patients in disparate areas or disadvantaged areas. I would say that for that population, screening is the number one way to prevent colorectal cancer. We're still missing about 80% of patients in that age group. So, I'd ask your listeners, please, poke your spouse or your loved one. If you are over the age of 45, you're already overdue.

Karan Cushman:

So, I'm going to get you out of here very shortly, Dr. Flora, if folks want to connect with you about anything that we've talked today about, which is a lot, from screening to creating an entire center of excellence. How can folks get in touch with you, your social media channels, maybe where you're most active?

Dr. Douglas Flora:

I do a lot on LinkedIn. I think it's a professional education site, and so I post at least once a day, some tool that I came across that I thought was remarkable. I will often share other people that I

think are doing remarkable stuff on that site as well, and say, you must follow Ali Miller. You must follow Bertalan Mesko. These people are a year ahead. I think it's very gratifying to read the papers and the articles that they publish, because it's highly instructive, very targeted to this audience. And so, that's what I try and do on that site. I will share things that I write myself but just as often I'm sharing things that I came across that I just thought were world beaters and big changers.

Karan Cushman:

Wonderful. What is your LinkedIn handle?

Dr. Douglas Flora:

Doug Flora MD, OSSBB. I think just Doug Flora MD, you'll get there.

Karan Cushman:

Something like that. Yeah, perfect. So, we just talked about a joyous moment. I've heard that you have a passion for international travel, so I'm just curious, in five to ten years when you have officially added to the Global Happiness Index like you hope, and we've reduced the burden of cancer on society, where in the world would we find you? Where do you want to go next?

Dr. Douglas Flora:

Oh, gosh. You're going to find me in a bar that was constructed in the 1300s with a pint of ale or a pint of beer or a glass of red wine, it depends upon the country. I guess I love the context of being in a place that thousands of generations have sat in and watched the people walk by, and I try and imagine each of their backstories. If I do really somehow have that dent in the universe that I'm hoping to in my second half of my career, and I get to make that difference for these cancer patients, I hope that there are more people walking around having moments like that.

Karan Cushman:

For sure, for sure. Well, Dr. Douglas Flora, Executive Medical Director of Oncology Services at St. Elizabeth Healthcare and Editor-in-Chief of **AI in Precision Oncology**. We really appreciate you for being a guest with us and taking the time to share so much with our listeners today. Thank you.

Dr. Douglas Flora:

It's been my pleasure, thank you.

Karan Cushman:

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