MY WEIRD PROMPTS

Podcast Transcript

EPISODE #359

From Symptoms to Signatures: AI’s Medical Revolution

Published January 29, 2026 • Runtime: 20:39

https://myweirdprompts.com/episode/personalized-medicine-ai-future/

EPISODE SYNOPSIS

In this episode, Herman and Corn explore the revolutionary shift from traditional symptom-based diagnosis to a new era of AI-driven personalized medicine, moving beyond the "one-size-fits-all" model that has dominated healthcare for decades. They discuss how "multi-omics" data and "digital twins" are allowing doctors to treat the specific biological signatures of conditions like diagnosis-heavy conditions such as depression and asthma rather than just their outward symptoms, effectively turning medicine into a precision engineering discipline. From the plummeting cost of genomic sequencing to the futuristic potential of "pharmacy-in-a-box" manufacturing, this conversation reveals how AI-designed drugs and real-time biometric monitoring are redrawing the map of human health and finally bringing the long-held promise of customized care to the average patient.

DANIEL'S PROMPT

Daniel

Hi Herman and Corin. We've chatted before about emerging and promising applications for AI in medicine, including drug discovery. Another thing we've been hearing about for many years is personalized medicine. It seems to have made its impression most keenly in cancer treatment, but there's this idea that everything we know by a name—like depression, asthma, or diabetes—is a common grouping for disease processes that might be as unique as the individual. I'd love to know your thoughts on the evolution of medicine as we move from treating constellations of symptoms bundled under a common name to truly personalized treatments—not just for life-threatening and rare conditions, but for everyday conditions that affect many people. Currently, getting personalized drugs is prohibitively expensive and not really available in the system. What do you think the future will look like in ten years? Are we going to continue diagnosing conditions with these collective names, or will we move toward a system where everyone has a unique diagnosis and treatment based on their specific combination of genetics and symptoms? Much as AI is disrupting software by moving from broad products to personalized software at scale, are we going to see that happen in medicine? Is personalized medicine for everyday conditions still a far-off dream, or is it just around the corner?

TRANSCRIPT

Corn

Hey everyone, welcome back to My Weird Prompts. I am Corn, and I am sitting here in our living room in Jerusalem with my brother, the man who probably has more tabs open about molecular biology than anyone else in this city.

Herman

Herman Poppleberry, at your service. And you are not wrong, Corn. My browser is currently crying for mercy. I have been deep-diving into the latest benchmarks for AlphaFold three and some new multi-omics integration papers that just dropped. But honestly, after listening to the prompt our housemate Daniel sent us today, I think I might need to open a few more. Daniel was asking about something that feels like it has been ten years away for the last thirty years.

Corn

Right, the promise of personalized medicine. It is one of those terms that sounds like it belongs in a science fiction novel from the nineteen nineties, yet here we are in January of two thousand twenty six, and for most people, medicine still feels very... well, one size fits all. You go to the doctor, you say your head hurts, and they give you the same white pill they give to everyone else.

Herman

Exactly. And Daniel really hit on the core of the issue. We tend to name diseases based on a constellation of symptoms. We call it asthma, we call it depression, we call it type two diabetes. But those names are really just descriptions of what we can see on the surface. It is like calling every car that does not start a broken car. One might be out of gas, another might have a dead battery, and a third might have a completely melted engine block. Treating them all the same way is just not efficient.

Corn

That is such a great analogy. And it makes me think about how we have approached this in the past. If you look back at episode three hundred fifty, when we were talking about the new science of alcohol use disorder, we touched on this idea that addiction is not just one thing. It is a massive variety of biological and psychological paths that all lead to the same behavior. And Daniel is asking if we are finally at the point where AI can help us stop treating the behavior or the symptom and start treating the specific biological broken part.

Herman

We are getting there, Corn. We are finally moving from the era of medicine as an art of observation to medicine as an engineering discipline. And the catalyst is data. Specifically, what we call multi-omics. That is genomics, proteomics, metabolomics... basically all the different layers of information that make up your biology. In the past, a doctor might look at five or ten variables. An AI can look at five million. In fact, just this year, we are seeing the first fully AI-designed drugs moving toward final regulatory approval. It is a complete shift in the timeline.

Corn

So, let us dig into that bundle idea. Daniel mentioned that things like depression or diabetes might be as unique as the individual. If I have depression and you have depression, but our biological triggers are totally different, are we even having the same disease?

Herman

Scientifically? Probably not. We are starting to use a term called biotypes. For major depressive disorder, researchers have identified at least six distinct biotypes based on brain connectivity and genetic markers. For one person, it might be a neuro-inflammatory issue. For another, it might be a specific neurotransmitter receptor sensitivity. For a third, it could be a metabolic dysfunction in the brain. If you give all three of them the same standard selective serotonin reuptake inhibitor, maybe only one of them gets better. The other two just get side effects because their biotype does not match that specific chemical pathway.

Corn

And that is where the frustration lies for so many people. It is a trial and error process that can take years. But Herman, you mentioned that personalized medicine has mostly been for cancer or rare diseases. Why has it been stuck there? Why can I not get a personalized inhaler for my seasonal allergies or a custom-tailored blood pressure medication?

Herman

It mostly comes down to the economics of scale and the complexity of the data. In cancer, the stakes are so high and the genetic mutations are so obvious that we could justify spending one hundred thousand dollars to sequence a tumor and find a specific targeted therapy. But for everyday conditions, the signal is much noisier. It is not just one mutation; it is the interaction of hundreds of genes with your diet, your sleep, and your environment.

Corn

So, what has changed? Is it just that the AI has gotten better at finding those patterns?

Herman

It is the combination of the AI and the plummeting cost of the data. Sequencing a human genome used to cost one hundred million dollars. Now, we are approaching the one hundred dollar genome. We have these massive biobanks now with millions of people's genetic data linked to their medical records. AI models, like the descendants of the original AlphaFold that we have seen evolve over the last few years, can now predict how a specific protein in your body will react to a specific molecule before we even make the drug. We are moving from testing drugs on a thousand people to simulating how a drug works on a digital twin of you.

Corn

A digital twin. That sounds like a big leap. Are you saying that in ten years, my doctor will have a virtual version of my biology sitting on their computer?

Herman

In some form, yes. We are already seeing this with organ-specific models. There are digital twins of the human heart and even the bone marrow being used right now to predict how a patient will react to chemotherapy. By two thousand thirty six, your doctor might have a high-fidelity model of your key biological pathways. Think about what Daniel said regarding software. In the early days of computers, you bought a piece of software in a box, and it was the same for everyone. Now, your social media feed, your search results, even the way your operating system manages power is personalized to you in real-time by AI. Medicine is just the most complex form of software there is.

Corn

But software is easy to replicate. If I want to change a line of code for you, it costs me nothing. If I want to manufacture a custom pill that only works for your specific version of asthma, that sounds like a manufacturing nightmare. How do we get past the cost of actually making the stuff?

Herman

That is the trillion dollar question. But we are seeing the beginnings of the answer in things like messenger RNA technology and decentralized manufacturing. We have seen how fast we can pivot with mRNA—it is basically a digital platform. You just change the sequence. We are starting to see small scale, automated labs—what some people call a pharmacy in a box—that can compound specific formulations on site. Instead of a factory making ten million identical pills, you have a local facility that can print a custom dose or a custom combination of ingredients. We are even seeing the first personalized cancer vaccines showing incredible results—reducing recurrence by nearly fifty percent over five years because they are tailored to the individual's tumor.

Corn

So, instead of a pharmacy having a wall of pre-made bottles, they have the raw ingredients and a very high-tech printer?

Herman

Precisely. And the AI is the one writing the recipe. It looks at your latest blood work, your genetic predispositions, and even your wearable data from your watch or your ring, and it says, okay, for Corn today, we need fifteen milligrams of this, but only two milligrams of that because his cortisol levels are high and his heart rate variability is low.

Corn

Okay, I can see the vision. But let us talk about the diagnostic names. Daniel asked if we will still call things by these collective names like asthma or diabetes. If I go to the doctor in ten years, do I still get diagnosed with asthma?

Herman

I think the names will stick around as a sort of shorthand for patients, but in the medical record, it will look very different. Instead of asthma, your chart might say Type Two High Eosinophilic Airway Inflammation, Subtype Gamma. It is a move toward precision phenotyping. We will still need the old names to talk to each other, but the treatment plan will be based on the biological signature.

Corn

It feels like this could lead to a bit of an identity crisis for some people. We often find community in our diagnoses. If you have Crohn's disease, you find other people with Crohn's. If everyone has a unique diagnosis, does that community disappear?

Herman

That is an insightful point, Corn. But I think it actually makes the community stronger because you find people who share your specific biological struggles. You might find a group of people who all have the same rare metabolic quirk that causes their fatigue, even if one of them was originally told they had depression and the other was told they had chronic fatigue syndrome. The AI helps us find our real biological kin.

Corn

That is a fascinating way to look at it. It is like we are redrawing the map of human health. We used to draw the borders based on what we could see—this person is coughing, this person is sad. Now we are drawing the borders based on the actual terrain of the DNA.

Herman

Exactly. And let us talk about the everyday conditions Daniel mentioned. Think about something as simple as a headache. Right now, you take ibuprofen or paracetamol. But for some people, those drugs do nothing, or worse, they cause stomach issues. An AI-driven system would know exactly which pathway is causing your pain. Is it vascular? Is it neurological? Is it related to a specific food sensitivity? It turns the medicine cabinet from a guessing game into a precision tool.

Corn

I wonder about the transition period, though. Right now, if I want a personalized cancer drug, it is prohibitively expensive, like Daniel said. In the next ten years, how do we bridge that gap for the average person? Does it start with the wealthy and then trickle down, or is there a way to make it democratic from the start?

Herman

It is already starting with something called pharmacogenomics. This is actually something our listeners can look into right now. It is the study of how your genes affect your response to drugs. There are already tests available that can tell you, for example, that your liver processes certain antidepressants too quickly for them to work, or that a common blood thinner could be dangerous for you. Many insurance companies, including Medicare, are now covering these tests because it saves them money in the long run. It is cheaper to pay for one genetic test than to pay for three years of the wrong medication and a hospital visit.

Corn

That makes total sense. It is the classic preventative versus reactive medicine argument. But what about the data privacy aspect? If I am giving an AI my entire genetic code and my real-time biometrics just to get a better headache pill, that feels like a huge risk. We have talked about the ethics of data in previous episodes, like when we discussed the art of the leak in episode three hundred forty eight. Is there a danger of this data being used against us?

Herman

It is a massive risk, Corn. If an insurance company knows you have a ninety percent chance of developing a specific condition because of your unique biological signature, they might try to charge you more. We are seeing new regulations, like the European Union AI Act and updates to the Genetic Information Nondiscrimination Act, trying to keep up. The data needs to be encrypted and owned by the individual, not the corporation. But the potential benefit is so high that I think we will find a way to navigate those waters.

Corn

I hope so. Because the idea of moving away from the trial and error of medicine is so compelling. Think about the mental health crisis. If we could cut out the six months of testing different medications that do not work, we could save so many lives.

Herman

That is the area where I am most optimistic. Psychopharmacology has been a bit of a black box for a long time. We know these drugs work for some people, but we do not always know why. AI is helping us peer into that box. We are seeing researchers use AI to analyze brain scans and genetic data to predict with high accuracy which treatment will work for which patient. It is moving from a shot in the dark to a guided missile.

Corn

So, to Daniel's question about the ten-year horizon. Are we looking at a world where the collective names are gone?

Herman

I think in ten years, we will be in a hybrid state. The common names will exist, but the first thing your doctor does—or your AI health assistant does—is run a panel to see where you fit in that spectrum. I think we will see the end of the blockbuster drug. You know, those drugs that are marketed to millions of people. Instead, we will see families of drugs that are tailored to specific biological profiles.

Corn

It reminds me of how we moved from network television, where everyone watched the same thing at eight p.m., to streaming services where everyone has their own unique library. It is the fragmentation of the medical experience, but in a way that actually serves the individual better.

Herman

That is a perfect comparison. And just like streaming, it requires a lot of infrastructure. We need better ways to share data between doctors, better ways to monitor ourselves at home, and better AI models that can make sense of it all without hallucinating. But the momentum is unstoppable.

Corn

You mentioned wearables earlier. How much of this future depends on us being constantly monitored? Do I need to be wearing a ring and a watch and maybe an under-the-skin sensor for this to work?

Herman

For the truly everyday conditions, yes, real-time data is the key. Your genetics tell us the deck of cards you were dealt, but your lifestyle and environment tell us how you are playing the hand. An AI can see that your blood sugar spikes more when you are stressed than when you eat sugar. That is a personalized insight that a once-a-year doctor's visit would never catch.

Corn

It feels like the role of the doctor changes completely in this scenario. They become more of a data interpreter or a coach than a diagnostic engine.

Herman

Exactly. The AI handles the pattern recognition and the massive data processing, which humans are not great at anyway. The doctor focuses on the human element—the empathy, the complex decision making, and the ethical considerations. It frees them up to be more human because the AI is being more computational.

Corn

I like that vision. It is not about replacing the human touch; it is about grounding it in better information. So, Herman, if you had to give Daniel a straight answer: is this just around the corner, or is it a far-off dream?

Herman

I would say it is in the process of turning the corner. For rare diseases and cancer, it is here. For things like cardiovascular health and certain types of diabetes, it is starting to arrive. For everyday things like the common cold or general anxiety, we are probably five to seven years away from seeing it become a standard part of the healthcare system. The technology exists; the challenge now is the implementation and the cost.

Corn

And the regulatory side. I can only imagine how hard it is for the authorities to approve a drug that is meant to be customized for every person.

Herman

Oh, the regulatory hurdles are massive. Our current system is built on the idea of a randomized controlled trial with thousands of identical people. How do you do a clinical trial for a drug that is only meant for one person? We are seeing the rise of what are called N-of-one trials, where the individual is the entire study. AI helps us validate those results by comparing them to thousands of similar digital twins. It is a complete paradigm shift for how we think about safety and efficacy.

Corn

It is almost like we are moving back to the era of the village apothecary who knew your family and your history, but instead of just a memory, they have a supercomputer.

Herman

I love that. The high-tech village apothecary. It is a return to personalized care, but at a global scale.

Corn

Well, I think that gives us a lot to chew on. Before we wrap up, Herman, do you have any practical takeaways for people who are listening and wondering how they can prepare for this shift?

Herman

First, I would say do not be afraid of the data. If your doctor offers genetic testing or if you have the chance to participate in a biobank, consider it. The more diverse data we have, the better these AI models become for everyone, not just the people who were in the original studies. Second, start paying attention to your own data. Even a simple wearable can give you insights into your own patterns that can help you have a better conversation with your doctor. And third, stay curious. The field is moving so fast that what was true two years ago might not be true today.

Corn

Great advice. And I would add, be an advocate for your own data privacy. Ask how your information is being used and stored. We are the pioneers of this new era, and the rules we set now will govern how our children and grandchildren experience health.

Herman

Well said, Corn. And thanks to Daniel for the prompt. It is always a pleasure to dive into these rabbit holes with you.

Corn

Likewise, Herman Poppleberry. And hey, to all of our regular listeners, if you have been enjoying our deep dives into these weird and wonderful topics, we would really appreciate it if you could leave us a review on your podcast app or on Spotify. It genuinely helps other curious minds find the show.

Herman

It really does. And remember, you can find all our past episodes and a way to get in touch with us at our website, myweirdprompts.com. We love hearing your thoughts on these discussions.

Corn

We really do. This has been My Weird Prompts. We will be back next week with another exploration of the questions that keep us up at night.

Herman

Until then, keep asking those weird questions.

Corn

Thanks for listening. We will talk to you soon.

Herman

Bye everyone!

Corn

Goodbye!