

## ARTIFICIAL INTELLIGENCE & YOU



**BOB BRISCO**  
IS THE CHIEF EXECUTIVE  
OFFICER OF WEBMD.

## EDITOR'S NOTE

WebMD CEO Bob Brisco spoke with Daniel Kraft, MD, the Stanford- and Harvard-trained doctor, scientist, and inventor whose research has focused on stem cell and regenerative medicine. He's also the Faculty Chair for Medicine at Singularity University, a collaborative educational program that helps organizations and individuals innovate with the help of breakthrough technologies like AI and robotics.

# Q&A INTO THE FUTURE

REVIEWED BY  
BRUNO NICZARO, MD  
WEBMD SENIOR MEDICAL EDITOR

DANIEL  
KRAFT, MD

**Many people ponder the future, but few can truly envision it—and even fewer have the ingenuity to turn their visions into reality. Daniel Kraft, MD, is one of them. His is a truly pioneering voice in medicine. I've known his colleagues at Singularity University—Ray Kurzweil and Peter Diamandis—for many years, and it was my absolute pleasure to chat with Kraft about the astonishingly rapid pace of technological change underway in all aspects of medicine.**

**Q: What do you think the relationship between doctors and AI might become?**

**A:** The relationship is going to be more synergistic and complementary. The radiologist of the future is not going to be replaced by AI, but the radiologist who uses AI may replace the radiologist who doesn't. The power of the blend of AI, machine learning, or whatever you want to call this convergence, is to narrow the gap and to upskill anybody—the consumer, the patient, the doctor—in a much more personalized, proactive, and, hopefully, preventive manner.

**Q: How do you envision our health data will be collected and used in the future?**

**A:** I think we'll have more and more seamless ways to collect data, so we won't even have to think about it. For example, our sensorized mattress will track our sleep in detail. And from that we'll gain, hopefully, very actionable insights. Think about having your own personal check-engine light. A modern car has 300 or 400 sensors. When your check engine light goes on, which is driven by software, it gives you an early warning to take your car to the mechanic. If my resting heart rate when I'm asleep is normally 56, but it starts climbing to 76, maybe that triggers a little alarm for both me and my primary care doctor to take a look at what's going on with my cardiovascular status.

**Q: How can data improve health care not just individually, but for everyone?**

**A:** We now have a standard of care for

the general population. The average colonoscopy is at age 50. You start someone on a statin at 40 milligrams. But in reality, we want the data about patients like us. If I'm seeing you as a patient, I can pull up data on patients like you. And I think the potential is that we'll use this crowdsourced health care information for the doctor and individual and we'll enter a true era of precision medicine.

**“WE CAN BE MORE EMPOWERED AS PATIENTS.”**

**Q: In an AI-driven health care world, how does the patient's role change?**

**A:** We're going to move from the world of quantified self, where some of us use our wearable watches or Fitbits to track our sleep and our steps, to the world of quantified health, where the meaningful information like the synthesis of your sleep score or your cardiovascular fitness or your mental health score might flow to your doctor. I like to think of it almost like a FICO score for your wellness. We can be more empowered as patients using this information and be partners in our care with our clinical team.

**Q: How might AI help broaden access to health care?**

**A:** As technology gets exponentially cheaper, I think it can dramatically improve access to health care. I think it also democratizes access to information. In the near future, when you ask WebMD or Google a question about your abdominal pain, it knows whether you're a 65-year-old man who's already had an appendectomy or a 32-year-old woman who happens to be pregnant. It also knows your genomics and pharmacogenetics and behaviors. The answers are very different when it is given context.

**Q: What kind of future applications do you foresee using AI in day-to-day medicine?**

**A:** Instead of prescribing a patient a blood pressure regimen, we'll send them home with an app and a set of medications. And eventually, an AI-driven prescription system will help fine-tune the selection of blood pressure medicines to match what the patient needs (using a cuff-less blood pressure monitor that can fit in their watch). Taking it further, you'll even be printing personalized medications at home. Let's say you're on three blood pressure medications and a statin and a diuretic. You'll be able to literally print a combination pill at home that matches what you need that day based on your data. Your doctor will prescribe the actual medicines, but an algorithm will adjust them. ■

**Q: How might the power of prediction reshape preventive medicine?**

**A:** Given that roughly 80% of health care outcomes are driven by our behaviors, we can shift from this reactive sick-care model—where we tend to wait for patients who show up in the ER with a heart attack, stroke, or stage 3 or 4 cancer—to being continuous and proactive. We'll start to take some of these new data points and use that as a continuous personalized coach to guide us across the health care journey.

**Q: Could data also give us insights into treatment pathways that weren't available before?**

**A:** We're still in the fax-machine era of medicine, where diseases are broadly categorized—for example, by high blood sugar in type 2 diabetes. I think we're going to start to understand disease at a much more personalized level. You can think about type 2 diabetes as subtypes 1 to 100, which means we'll be able to fine-tune the individualized diet for someone based on their microbiome, genome, and real-time blood-sugar response to diet.

PHOTOS PROVIDED