

Personalizing healthcare through technology

How unique insights about individual patients can be turned into life-transforming outcomes

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In healthcare, change is a constant. But there are a few truths that remain – first, that healthcare is highly personal. And second, that personalized care paves the way for better care.

Rapid advancements in data and AI, combined with scientific breakthroughs in neuroscience, are driving a personalized approach to diagnosing and treating a growing number of conditions. This can lead to more effective treatment and enable more predictable outcomes.

We're now finding ways to put "only for you" technology to work – at a scale that was until now thought to be impossible. I see some of the most exciting potential within emerging technologies for spine surgery and in the fields of neuroscience and bioelectrical engineering for Parkinson's patients. Let's explore.

Transforming treatment through personalization

Personalization can fundamentally improve patients' quality of life. While I focus on spine surgery and deep brain stimulation (DBS), these are hardly the only two areas where we're personalizing healthcare technology. Our sensing technology and algorithms are used in several other devices designed to adapt to individual patient needs.

When it comes to the spine surgery ecosystem, I've been fascinated by how personalization can enable physicians to do more, at scale, to reduce variability and produce more predictable outcomes. With a personalized approach, they can determine the right surgeries for the right people at the right time, including whether surgical intervention is needed at all.

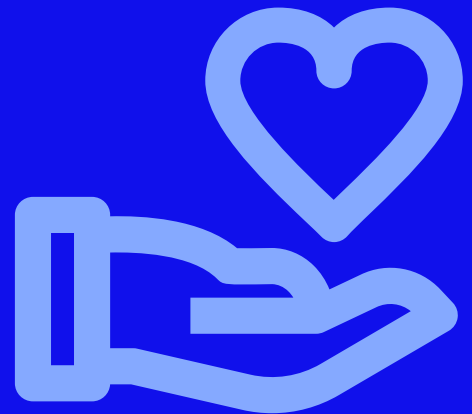
I'm also heartened by the extraordinary promise that bioelectric medicine and neuroscience hold for personalizing the care of patients with Parkinson's disease. Let's take a look at DBS. With these systems, electrodes are permanently implanted into certain areas of the brain, making it possible to stimulate those structures and regulate abnormal impulses.

The goal is to deliver targeted therapy to alleviate and improve patient symptoms. And today's DBS therapies can listen to very faint signals inside the brain to see how the

patient is responding when stimulation is happening.

Personalized healthcare technology like this puts people at the center. It empowers physicians to help people live longer, fuller lives. And it helps patients enjoy the best possible quality of life.

This type of stimulation technology holds many possibilities for future applications. We're looking at it for pain management and overactive bladder. We may also be able to use it to disrupt cellular patterns in tumors so that you can tune the energy across a patient's tumor without disrupting the good cells.



Patients and clinicians both benefit from personalized care. It can **help people live longer, fuller lives.**



The future for personalization

Personalization has the potential to improve lives and outcomes in exciting ways we cannot yet imagine. I see it allowing us to do things like forestall disease progression, reduce inequities, and enable health systems to focus on preventive measures versus emergency procedures.

To create an environment that's ripe for these kinds of life-changing advances, those of us in healthcare technology have to remain in a state of constant learning. We have to welcome competition and criticism and become comfortable with being uncomfortable.

True courage and vision require us to swim past the horizon, to a place where the potential of healthcare technology to be both personal and highly accessible is endless.

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