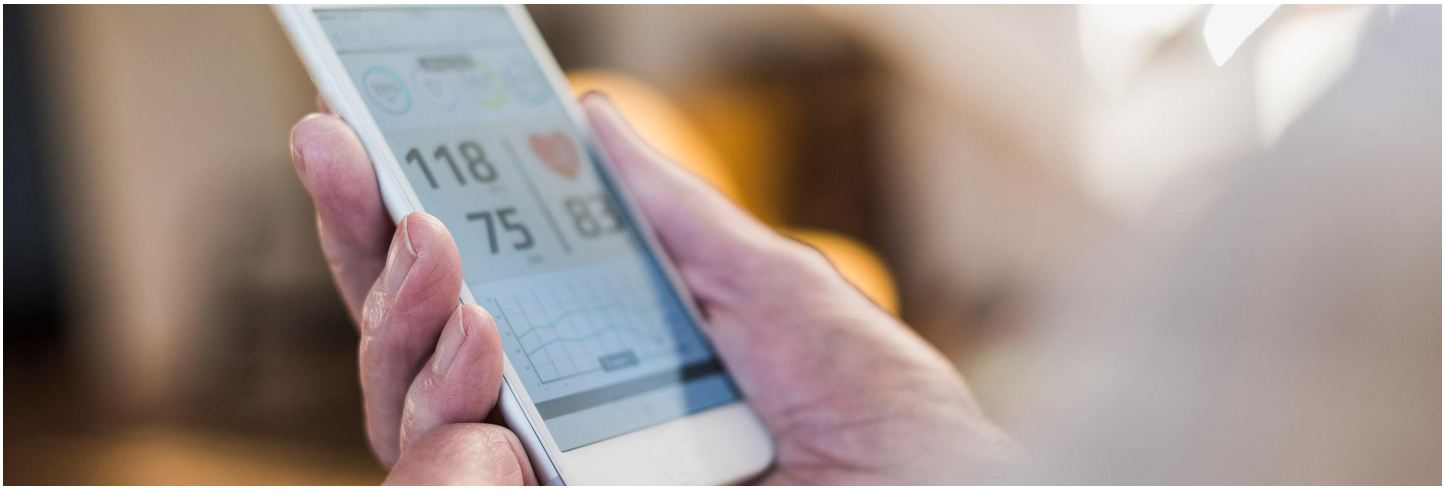

Healthcare's high-tech future is closer than we think

By Stephen Klasko | April 11, 2019

"Wake up everybody, no more sleepin' in bed/ No more backward thinkin' time for thinkin' ahead"

– Harold Melvin & the Blue Notes (Philly soul at its best), singing "Wake Up Everybody"

Earlier this year, I was invited to the World Economic Forum in Davos, Switzerland, to speak on a panel about the future of hospitals around the world. After a couple of intense days listening to experts weigh in on the future of business, education, and the environment, it struck me that the real way to change the future of healthcare is to start with patients themselves. As I said then, we need a Davos devoted less to self-driving cars, and more to self-healing humans.

What better way to disrupt healthcare than self-healing humans? Here are a few key elements for the patient of the future – and how technology can make easy what is difficult today.

• **A true OnStar system for humans.** Why do cars have alert systems that call when something's wrong but people don't? Wearables that communicate vital, real-time information could become the equivalent of an OnStar system. We need technology to give us those seamless solutions.

• **The marriage of precision medicine and population health.** Precision medicine, using all the genomic data we can gather and understand, will become the ultimate population health tool. Instead of looking at giant categories of risk, we can begin to create precise determinations of cause and effect, both for individuals and groups.

• **Electronic health records at your fingertips.** If your phone can hold gigabytes of pet photos, surely it can keep track of your medical history.

• **The merger of retail medicine and community health.** As convenient walk-in clinics become the sites of primary care, the health care industry must adapt and make these an integral part of how we help communities get and stay healthy.

• **Doctors, not robots.** We don't need clinicians trained to attempt to remember more than a computer. The clinical workforce of the future should enjoy helping people stay healthy, while providing wise counsel to those in need — they should be the humans in the room. Patients need physicians who answer the question, "What does this mean, doctor?"

We always overestimate technology in the short run, which leads to a cycle of hype, and yet we underestimate it in the long run. Over time, technology transforms lives, creates new opportunities and radically changes professional careers. But it's not going to do so with the latest trendy smartwatch.

The burgeoning hemp industry is one example of how technology can start from the ground up. At Jefferson University, we've been working with Ecofibre's Hemp Black, which uses carbonized hemp fibers to create clothing and other wearables that carry signals to help us monitor the wearer's vitals. For example, Hemp Black clothing can communicate whether someone is hydrated or what their heart rate is. In addition, hemp is a plant that is easy to grow and harvest, unlike cotton, which needs enormous amounts of water; environmental sustainability helps our goal of health. Unlike smartwatches, this is a healthcare solution grounded in what patients actually need, not just what tech companies want to sell them.

At the World Economic Forum, Shobana Kamineni, the executive vice chairperson of Apollo Hospitals in India, discussed the future of health care vis-à-vis telehealth. As it currently stands, it's not financially feasible to extend the legacy structures of hospitals in India, nor would it be possible to build enough new hospitals to provide traditional in-bed care to all the people who need it. As Apple CEO John Sculley said, it's time to stop talking about "telehealth." We don't talk about telebanking; we just use the bank on our phones. The future of health for billions of people will be on a mobile, digital device.

The most pivotal development in 20th-century medicine was the ascent of the hospital for public health. The innovations in technology were astounding. Countless people are alive today because of the science, the curiosity, and the dedication of the nurses, doctors, specialists, and researchers who changed how patients were treated. Today, scientists are hard at work on the most pressing issues we face in modern medicine, like cancer, rare diseases, and inflammation. At the bedside, physicians and surgeons are endlessly inventive. However, we've placed our "Star Trek" medicine on top of a Fred Flintstone delivery system, desperately pedaling with our feet to keep the stone wheels turning.

It's time to reimagine healthcare technology as an organic, interconnected network, using the best of unscaled, agile, mobile business models, and supported by government funding to boost innovation. Together, we can give patients a seamless experience of care without getting stuck in the self-driving mud.

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