New Tech: Doing The Right Thing In Healthcare

New technologies driven by artificial intelligence and big data are encroaching farther and farther into the work of humans. That puts leaders in the healthcare industry under increasing pressure to do the right thing for both people and their business.

As far back as 2005, futurist Ray Kurzweil was writing about the Singularity, the impending convergence of technology with human intelligence that will forever change life on earth.[1] This unique event, with its singular implications, is not so far from reality today. A mere seven years later, the keynote speaker at the Health Innovation Summit in San Francisco, Vinod Khosla, Silicon Valley investor and co-founder of Sun Microsystems, challenged attendees to disagree with his premise that, "...machines will replace 80% of doctors in a healthcare future that will be driven by entrepreneurs, not medical professionals." The room, which included Intel's former CEO Andy Grove, was silent. Small wonder.

Humans have limitations on how much data we can integrate, retain or manipulate. **Artificial intelligence** (AI) does not and it processes data and learns much faster. Just look at how the use of AI has swept into the field of healthcare in the last few years. In August 2016, IBM Watson™ made news by correctly diagnosing and inventing

an effective treatment plan in a mere 10 minutes that worked for a leukemia patient whose case had stumped doctors.[2] Currently, 60 hospitals in 13 countries deploy Watson: IBM has 42 experts working on the Watson Health™ advisory team to help shape how AI will benefit patients and physicians.[3]

COGNITIVE ANALYTICS ARE REINVENTING ONCOLOGY, CARE MANAGEMENT, DRUG TREATMENTS, AND GENOMICS. MEANWHILE, EXISTING AND EMERGING TECHNOLOGIES CONTINUE TO CONVERGE ON OUR SMART DEVICES. WHAT'S NEXT?

THE AI-ASSISTED HUMAN TOUCH

Dr. Algorithm, my healthcare tech, scans my abdomen again with the ultrasound app on her smart phone. Her human voice reassures me, "No more kidney stones...and your stent is more than 50% dissolved."

She looks at my wearable sensor to compare the "sick" data of the last two weeks (sleep patterns, heart rate, respiration, blood pressure, metabolic rate) with my complete history of "well" data. "Your blood pressure is elevated slightly...anything worrying you?"

Her confident bedside manner makes even this question reassuring. I grimace in response, "No, just wondering how to catch up at work. I'm experiencing less and less pain from the surgery...."

Within minutes, Dr. A, with Watson's help, has adjusted my drug therapy and a new short-term prescription is waiting at my local pharmacy for pick-up.

[1] Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (New York, NY: Penguin Books, 2005).
[2] Alfred Ng, "IBM's Watson gives proper diagnosis for Japanese leukemia patient after doctors were stumped for months", *New York Daily News*, August 7, 2016. Accessed January 3, 2018 at http://nydn.us/2azlTzS.
[3] Kyu Rhee, "Do Doctors fear AI? Not the hundreds I work with around the world", IBM Watson Health Perspectives Blog, August 8, 2017, Accessed January 3, 2018 at https://ibm.co/2hFAQsD.

THE RIGHT TECHNOLOGICAL SOLUTION(S)

When you consider that we have a shortage of physicians and the burnout rate for the ones we do have jumped from 50% to 60% in just three years (2013 to 2016), the idea of integrating our current diagnostic tools and devices with AI makes sense.[4] In addition to taking care of patients, we've been asking our doctors to computerize their practices, do more patient charting online, keep up with the latest research in their specialty all so they can make good healthcare decisions. Physician burnout is not confined to the individual GP: it is a systemic issue and, therefore, something we must look to address at the systemic level.

AI is not the only technology that can help us here. We can also use **remote monitoring** to help us perform telehealth patient transactions; **data analytics** to improve clinical trials, billing and patient care; and **blockchain** to make patient records more secure and efficient. A lot of our clients are experimenting with these already: many have realized that none of these changes happen in isolation. We have to think in terms of integrating tech into the whole medical ecosystem to optimize the value to patient outcomes, while unburdening our already overwhelmed healthcare practitioners.

WILL WE HAVE TO SACRIFICE PATIENT CARE FOR EFFICIENCY? NOT AT ALL. IN FACT, JUST THE OPPOSITE. NONE OF THESE EMERGING TECHNOLOGIES WILL OVERTAKE THE NEED FOR HUMAN INTERACTIONS.

Technologies — even if they are well integrated — do not provide the whole healthcare solution. Technologies plus people do.

Healthcare practitioners must be on board with the implementation of any and all new tech. For it will be the *capacity of these individuals to care for human beings* in their roles combined with their *capability to work with new tech* that will make a more humane healthcare system come to life.

THE RIGHT HUMAN SKILLS

Doctors and caregivers will soon have an excess of data in their hands and a plethora of algorithms telling them what to do in each health situation.

WHAT SKILLS SETS CAN HUMAN BEINGS BRING TO HEALTHCARE THAT WILL ADD VALUE?

WHAT CAPABILITIES WILL ER TEAM MEMBERS NEED TO THRIVE?

HOW CAN PRIMARY AND SECONDARY CAREGIVERS NURTURE THE "HUMAN" CONNECTION WITH THEIR PATIENTS AS THEY PROACTIVELY MONITOR AND REMOTELY TREAT PATIENTS, ESPECIALLY WHEN OUR CULTURAL NORM IS TO INTERACT MORE WITH OUR DEVICES THAN WITH EACH OTHER?

As AI, data analytics and blockchain continue converging with the realm of human work, doing the right thing as we consider these questions becomes a matter of making sure we don't inadvertently create a society without feeling.

Our aging global population is creating not only more demand for medical care, but also an expectation of higher standards of care. According to Davis Liu, a US-based MD who attended Vinod Khosla's 2012 keynote speech, "Care must be incredibly simple-to-access, extremely convenient and *intensely personal*."[5] [our emphasis]

In our work with clients in the healthcare industry, we're finding that the skills that got us to where we are today won't get us where we're going tomorrow. We're observing a set of skills that appear to be exactly right for providing simple, convenient and personal care.

1. People-Centric Sensitivity

Humans are not proverbial cogs in a machine waiting to be 'fixed'. They are organic, living beings with needs and wants, feelings and moods.

[4] Troy Parks, "Report reveals severity of burnout by specialty", American Medical Association AMA Wire®, January 31, 2017. Accessed January 3, 2018 at http://bit.ly/2kz5UrH.

[5] Davis Liu, "Vinod Khosla: Technology Will Replace 80 Percent of Docs", The Health Care Blog, August 31, 2012. Accessed January 3, 2018 at http://bit.ly/2CkTk7u. The "AI-assisted Human Touch" story was inspired by:
  • Vinod Khosla, "Do We Need Doctors Or Algorithms?", TechCrunch, January 10, 2012. Accessed January 3, 2018 at http://tcrn.ch/2CCsZX2 .
  • Ron Waksman, "Dissolvable Stent could be a boon for treating blocked heart arteries", STAT, July 8, 2016. Accessed January 3, 2018 at http://bit.ly/29zcJVh.
  • Ezra Greenberg, Martin Hirt, and Sven Smit. "The global forces inspiring a new narrative of progress", McKinsey Quarterly, April 2017. Accessed January 3, 2018 at http://bit.ly/2ChWHMv.
  • 21 Jobs of the Future: A Guide to Getting□And Staying Employed Over the Next 10 Years, Cognizant Center for the Future of Work, November 2017. Accessed January 3, 2018 at http://cogniz.at/2hJtNjj.

2. Curiosity

Healthcare practitioners learn from their patients by asking questions; they learn from each other by sharing their cases, test results and ideas to come up with innovative approaches.

3. Pattern Recognition & Decision Making

Above and beyond what machines can do to crunch big data sets, people interpret the patterns they see in the analytics and make the final decisions about how to improve clinical care while controlling costs. Adherence to a definable set of steps that are universally relevant and enduring also improves the quality and relevance of decisions.

4. Creativity

Wicked healthcare problems that have contradictory or changing requirements for care or service call for innovative, agile responses and, sometimes, breakthrough change.

5. Critical & Strategic Thinking

Corporate offices and frontline nurses, clinicians and physicians alike need to think clearly, rationally and strategically about the choices they are making on behalf of their patients, including ensuring people get the right mix of pathologies and care processes.

IT'S BEEN PROVEN THAT A COMPUTER CAN NOW MAKE A BETTER DIAGNOSIS AND A MORE EFFECTIVE TREATMENT PLAN THAN HUMANS. BUT HUMAN BEINGS STILL PROVIDE THE "CARE" IN HEALTHCARE.

A MATTER OF TRANSFORMATION

Technology can make us ever more efficient—but we can't let that efficiency be achieved at the cost of our humanity. Strategizing and planning this transformation to what you need to be doing tomorrow is the challenge. Healthcare enterprises, more so than others, have to line up things up to support their people so they can go about their jobs and keep the 'heart' of care at the forefront of everything they do. That shared vision of a caring culture has to stay intact as you go about changing the strategies and interdisciplinary processes of the organization.

HUMANS ARE REQUIRED TO BRING THE "HEART" TO YOUR BUSINESS.

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