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The Convergence of Technology and Health

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John Nosta is the founder of NostaLab, a digital health think tank. Ranked as the #1 global influencer in digital health, he is regarded as one of the top global strategic and creative thinkers in this important and expanding area. He is also one of the most popular speakers around the globe presenting his vibrant and insightful perspective on the future of health innovation. His focus is on guiding companies, NGOs, and governments through the dynamics of exponential change in the health/tech marketplaces. HealthManagement.org spoke to him about the future of digital health and how he thinks the convergence of technology and health will play out.

We keep hearing that the future of healthcare is digital. The term digital health is being tossed right, left, and centre. What does it really mean? What does digital health really entail?

Simply put, digital health is the application of technology to health and wellness. Now, if we unpack this a bit, we see this have rather broad implications—from technology itself to consumer empowerment. But the first work of this construct is digital. And that’s the domain of science, medicine, and technology. It’s been my contention that digital health isn’t a social science, but a technological initiative that supports and even transforms some of the aspects of health and wellness.

You’ve been called many things - an innovator, a top disruptor, a creative thinker, an influencer, a digital health evangelist. What drove you to become all these things? What made you work towards this convergence of technology and health?

I’ve always enjoyed thinking. Thought experiments were always part of my imagination as both a child and an adult. Perhaps added to that, an intrinsic sense of curiosity makes for a formula of innovation.
“What if” is always a key aspect of discovery.

But I don’t really see my interests exclusively in the “health tech” area. My curiosity extends to other topics such as art and literature. It’s my contention that innovation and creativity borrow from each other. Science, art, mathematics, and many other disciplines can open the door to eclectic thinking that can offer direct solutions or more abstract paths of inquiry. That’s part of the magic of digital health. We can have various voices—from patients to engineers—we can look at problems and break free of the “conventional wisdom” of the medical hierarchy.

The World Health Organization has also established a Digital Health Department, which is working towards harnessing the power of digital health technologies. You were named one of WHO’s Digital Health Roster of Experts. What does this Department hope to achieve? What will be your part in this?

The WHO has recently made a commitment to drive the role of digital health with a singular focus on improving health. The intent is to drive innovation around the world by fostering a commitment of countries and partners to a unified strategy. Also, the WHO’s vision is to catalyse these actions in a collaborative manner that is both monitored and measured to optimise initiatives and outcomes. Perhaps one of the most important points of focus for the WHO is to provide a diverse, yet unified perspective to help digital health evolve in key areas that are focused on improving health. This initial plan, rolling out now, is a 5-year initiative.

You are the founder of NostaLab. What do you envision for this company?

NostaLab is a think tank that focuses on the convergence of technology and medicine. But there’s a keen difference in what we do. The mission of the lab is to “drive the diffusion of innovation into the complex healthcare marketplace.” For many, the notion of “build it, and they will come” is simply false. The power of an idea is also the ability for it to be assimilated into clinical or social practice. Awareness, engagement and finally, building a habit (for both clinician and consumer) is difficult and encumbered by a host of issues ranging from cost to treatment guidelines. NostaLab helps companies and organisations focus their thinking to optimise market position, brand expression and personality, as well as strategy and tactics. Our unique history and focus add a digital health perspective that many companies just can’t match.

You say that the digital health system will be run by citizen scientists and empowered patients. What do you exactly mean by that?

I believe that’s part of the emerging equation for healthcare. I don’t think that citizens and patients will directly drive all care, but we will see the emergence of a broader collaborative engagement where patients and clinicians will work together to optimise care. This is a fundamental change difference from just a few short years ago. Traditionally, the physician was the gatekeeper. Control was vested to the MD. We now see multiple stakeholders in the care path. These include various healthcare professionals, such as the nurse and various technicians, to patients and caregivers. Putting the complexities of reimbursement aside, we now see a “collaboratory of care” where medicine can be personalised and optimised.

When electronic health record (EHR) was developed and introduced, it was believed to be a time-saving tool for clinicians, and a better way to manage patient records. However, it did not work out that way. Why do you think that is? What could make this concept better?

The path of the EHR and the adoption of many other tech innovations are complicated. On the one hand, we have the habits of clinicians—focused on patient care. On the other, we have the workflow dynamic—focused on optimising time and effort (usually around billing and profit). these are typically antithetical.

But beyond this human/tech conflict is the evolution of technology itself. Connectivity, storage, processing speeds, cybersecurity, and a host of other key considerations were also being developed at the same time as the EHR “intruded” into the clinical space. The resulting battle for care, content, and control resulted in the current problems. Simply put, technology wasn’t ready for the doctor, and the doctor wasn’t ready for this technology.

It’s a bit like the early days of the internet, cell phone, and even Apple’s Newton. The technological infrastructure and device hardware were too primitive and required a “human effort” that exceed the practical benefit. I believe that’s at the heart of the EHR issues.
The solution will be found in the amazing advances we see in technology. The role of AI, voice applications, and the improved user experience will make the EHR more “clinically appropriate” for today’s clinician and add such significant value that it will be seen less as an obstacle and more of an imperative. Interestingly, the EHR today is often cited as a driver of diminished patient engagement. Tomorrow’s EHR (combined with advanced analytics) will carry some of the cognitive burden of medicine and allow newfound clinician freedom that will drive a superior human experience.

While we keep saying technology will change the face of healthcare, we also see fears within the healthcare community - fears of being replaced, fears of increased workload - an overall fear of change. Do you think this will be a hurdle to the actual realisation of digital health?

Fear is a natural human emotion - fight or flight. It follows innovation like a shadow that never leaves. But let’s take a step back and consider mankind’s first innovation: fire. Consider the dawn of man as a group of early humans sitting in front of a nurturing fire. It’s this very relationship with “technology” that drove humanity’s transformation. It wasn’t an option; it was a necessity that facilitated everything from travel, safety and cooking. In fact, the simple task of cooking food added the component of enhanced digestion and protein consumption that played a central role in physical strength and brain development.

Today’s technology is humanity’s fire, empowering a fundamental transformation that will directly impact human evolution. But just as fire is an essential tool of our society, it also represents one of the biggest dangers to life and property. Fire, in the context of its importance, is also one of our biggest fears. Perhaps we can even consider the fundamental value of cars in our society and how we “accept” the tens of thousands of lives lost each year in the USA alone. We’ve just accommodated and managed those fears - perhaps even rationalised them away. For me, I believe that the power of technology - particularly AI - will always carry with it an intrinsic risk. I guess it comes down to the idea of risk and reward. The potential of technology is vast and dwarfs almost any of mankind’s inventions. The risks will always come along. And we have to understand and manage that.

While we all agree that the future of healthcare is digital, in your opinion, what do healthcare leaders and specialists need to do to successfully embrace the paradigm of digitalisation?

Many of us have learned in biology class the notion of structure and function. In some ways, medicine itself is defined by both structure and function. The hegemony of our hierarchical medical system drives behaviour that creates the system. The chief of medicine, the senior attending, the fellow, the intern, and the medical student all have a place in this structure—this human structure. The question is how to move beyond this paradigm and drive adoption of technology that augments and may even replace the human players in this drama.

Automation, robotics, and cognitive tasks are transforming the workplace as we speak. These changes are also happening in medicine. Beyond the simple adoption of a new amplified stethoscope or advanced imaging technology, the question is more fundamental: How can clinicians establish a new perspective and relationship with technology where it becomes almost a partnership? AI offers the ability for clinicians to assimilate and process information that, in certain instances, the human brain cannot. There’s just too much data coming out of the clinical fire hose.

The paradigm of digitalisation is forged out of necessity. Technological adoption is emerging as an imperative that will transform medicine and clinical practice. But as we know, adoption varies with individual and circumstance. To borrow that fearful phrase from the exam room, “this won’t hurt a bit.”

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