IS THERE AN AVATAR IN THE HOUSE?
CHANGING THE DNA OF HEALTH CARE IN THE AGE OF ARTIFICIAL INTELLIGENCE

By: Stephen K. Klasko

Summary: Health care is going through a once-in-a-lifetime change that presents an opportunity to make it friendly, equitable and focused on health assurance – if the industry and its leaders embrace transformation. With his extensive experience in medical education, universities and hospital system management, Stephen Klasko has written about change as a good thing for the consumers of care. Transformation can bring “understanding,” not just transparency – understanding both potential costs, and potential outcomes. The author argues that inequities in care apply across numerous nations, where access to care remains difficult despite national differences in payment systems.

Keywords: Artificial Intelligence, Disruption, Health Disparities, Social Determinants of Health, Patient Experience

Background

In 1978, when I was a senior medical student, I was asked to lead a panel about what concerned me regarding the future of medicine, as someone who was just starting my career. There were three issues that I highlighted through my oblivious, naïve, and idealistic lens, but remember, this was 1978:

1) There seems to be a huge issue with health inequities globally, whether that is by zip code in Philadelphia, or between socioeconomic classes in Asia or southern Africa. Why can’t we address them?

2) Doctors seem to not do well with change and often seem to “want to leave the status quo as it is.” How do we get physicians to be more optimistic about the future?

3) My bank just got an ATM. Why can’t health care do cool consumer things like that?

Forty-one years later, after delivering over 2000 babies and countless numbers of surgeries, and having been the dean of two different medical schools and now leading one of the fastest growing academic medical centres in the United States, I am sad to say that on the panels I am asked to serve, the same questions come up when
I’m asked: As a CEO, what concerns you about the future of health? I am sadder to say that these would be my three answers:

1) There seems to be a huge issue with health inequities globally, whether that is by zip code in Philadelphia, or between socioeconomic classes in Asia or southern Africa. Why can’t we address them?

2) Doctors seem to not do well with change and burnout is a huge issue globally as physicians feel “incapable” of doing the work they set out to do. How do we get physicians to be more optimistic about the future?

3) Why can I do my holiday shopping in my pajamas binge-watching Netflix, but if I have a stomach ache I still have to get on the phone and listen to 11 options to get an appointment three days from now?

The reason we haven’t solved any of these three concerns may not be as elusive as you think. One of my mentors when I was receiving my MBA at the Wharton School was William Kissick, MD, DrPH. He wrote a book 25 years ago that spelled it out. The book was called Medicine’s Dilemmas: Infinite Needs, Finite Resources. My interpretation of his book is summed up by his view of the “iron triangle” of access, quality and cost. If you remember your ninth-grade geometry classes, you can only increase one angle if you decrease another. So, if you want to increase access, you have to increase cost or decrease quality, etc. You can change the geometry only if you are willing to disrupt the system, and disruption is painful. He once told me, “if anyone says they are going to expand access to all and it’s not going to be disruptive or painful, they are inadvertently or inadvertently skirting the truth.” So, in my country, the landmark Affordable Care Act (ACA) bill, was heralded with this quote, “We are going to increase access for all, increase quality and decrease cost … and it’s not going to be painful.”

Our current President has promised that his alternative plan will provide “health care for everyone and take care of everybody much better than they’re taken care of now; it will be a beautiful picture” and again it won’t be painful. And this is not just an American problem. I was honoured to serve as the American representative for the Centre for Progressive Policy evaluating the current and future state of the National Health Service in the United Kingdom. Some of the same geometric limitations were exhibited there: Access is guaranteed, but quality, cost, social determinants and patient experience are in need of a healthy dose of disruption.

Is this an insolvable problem? Is health care doomed to be the global exception to the consumer revolution? I don’t think so, and I believe that we can look to other industries to chart a global path.

Disruption in practice

The answer became clearer to me as I presided over my last commencement where John Sculley, former CEO of Apple, received an honorary degree from Thomas Jefferson University. He talked about the “business plan” that Steve Jobs set for Apple at a time when the computer industry was stagnating. While Sculley was expecting a consultant-driven, glossy 60 page strategic and financial plan, the entire three-year blueprint for strategic action was on a single page … actually half a page:

Year 1: We change
Year 2: We change the industry
Year 3: We change the world

Steve Jobs recognised that the consumer computer world was going through a once in a lifetime change from a desktop/laptop industry to a digital lifestyle industry. He disrupted how the company selected, paid and motivated their employees (we change), he diverted dollars from development of PowerBooks and desktop computers to iPods and digital instruments (we change the industry) and, with the iPhone and iTunes store, he started the global mobile revolution (we change the world).

Not everyone understood the strategy both within and outside the company. Much has been written about Gateway (missing the digital computer revolution), Blockbuster (missing the streaming revolution even though they initiated it), Kodak (missing the digital camera revolution because they wanted to sell film), or traditional retail megastores underestimating the Amazon revolution.

Which brings us to health care. I believe we are going through a once in a lifetime disruption from a business-to-business model to a business-to-consumer model. From physician and administrator as the boss to the person-patient as the boss. In other words, a radically new kind of health experience that actually works as simply and easily as most of our other consumer experiences. And this new model is so different from the old one, we can’t even call it health care. That label is too tied to the past, and isn’t even correct in the first place. Anyone in the health care industry will tell you that we’re really in a “sick care” industry designed primarily to take care of people only after they develop health problems.

I propose a new term that captures the spirit of what’s developing: health assurance. It is being developed further in a book I am writing with Hemant Taneja, one of the leading entrepreneurs in Silicon Valley, who had previously written a book called “Unscaled.” That book highlighted companies that disrupted otherwise stale industries: AirBNB, Stripe and Livongo. In our new book we reference easy access to services and technology aimed at ensuring we stay well, so we need as little “sick care” as possible.

In my role at Jefferson Health, which now encompasses more than 30,000 colleagues, 14 hospitals, multiple urgent care centres, 100,000 virtual patient visits, we have a simple mission: We improve lives. Our vision calls for us to meet the needs of patients to consume their health care in the flexible manner in which they
by 2027, for the first time, the majority of care will be delivered virtually, and management. By 2025, 40% of all health will be relying solely or in large part on the population with chronic conditions.

I further believe that by 2022, 20% of support at the time of prescription writing. By 2020, it will be commonplace to consume every other consumer good, and to redefine Jefferson Health based on our care and caring rather than our location.

So how do we get from here to there … and yes it will be disruptive … and it may be painful (for some). Or to put it another way “What would Steve Jobs do?” in an industry where technology has advanced light years for individual patients, but health care delivery, patient experience and social determinants are still in the pre-computer age. Well let’s go back to his simple business plan.

Figure 1: The patient diamond

**THE PATIENT DIAMOND OF HEALTHCARE**
- Ability to thrive and not have health get in the way
- Ability to connect and have human relationships
- Ability to easily navigate on their own terms
- Ability to understand what they need to do

Source: authors’ own

What about the human health care provider in the middle of all this? Just as Steve Jobs recognised he could not rebuild Apple with IBM designers, we cannot continue to select medical students based on science GPA (Grade Point Average) scores, multiple choice tests and organic chemistry grades and “hope” that physicians will become more empathetic, communicative and creative. The ability to choose students based on self-awareness, empathy, cultural competence and communication skills is the only way to ensure that the “human in the middle” (provider) is providing value to the “human at the centre” of their health care, the person/patient. It also means we need to fundamentally transform the medical school experience with a heavy dose of humanities, population health, quality improvement, communication skills, collaborative negotiations and social determinants becoming a much larger part of the curriculum.

At Jefferson, we are moving from a two-tiered system (basic and clinical science) to a four-tiered curriculum (basic science, clinical science, health systems/ population health science and innovation/ creativity). Also, we have to recognise that even though it took us many years to think about interprofessional education between doctors and nurses, soon we will need to develop “inter-sentient education” models between humans and non-sentient AI robots!

YEAR 2: WE CHANGE THE INDUSTRY

It’s fair to assume that in the next few years, the “Category Five” disruption leading to these changes will be the ever-rising global cost of health care, the unsustainability of health care inequities and policies that do not address those issues, and the ageing of the millennial generation. Why millennials? Because there is little chance that in the one-click world in which they were born and grew up, that they will accept the archaic service we provide in health care. There is even less chance they will deal with long waits in the waiting room, non-transparent costs and outcomes and the inability to track and manage their own health in the way they have taken over their own shopping, travel and every other aspect of their consumer life. That consumer driven disruption will accelerate the pace of change in how health is delivered globally to the point where our current hospital centric construct will seem as archaic as having to get money by going to a bank. The result of this revolution was highlighted in my 2018 book, *Bless This Mess: A Picture Story of Healthcare*.

“Changing the industry” starts to look like this: Jefferson will offer a subscription service to a technology-plus-human combo package that becomes a new first layer of health care, a kind of pre-primary care. You sign up with Jefferson’s service and give it access to your data, both static data (DNA) and real-time data (heart rate from your Apple Watch, sleep patterns from an app, etc.). The AI gets a baseline of your health and then watches and learns from your patterns. The technology is running in the background, constantly keeping an eye on your health. If the AI spots something unusual, you’re not sleeping, your heart rate is up, or some other combination of events, it might send a text asking some basic questions. Your answers at first go to an AI bot, and perhaps you figure out that not much is wrong, you’re just stressed about a big decision at work. But if the AI suspects something more, it sends the dialogue to a human doctor at Jefferson, a doctor who has enough time to talk to you because the AI is taking over some of the low-level work that used to suck up the doctor’s day. The doctor can then get on a video call and do a deeper exploration.

What that means to us in the health care ecosystem is as big a change as moving from being a computer engineer to creating digital solutions to complex problems. For one, payment models will become a two-tiered system (basic and clinical science). The iron triangle of cost, access and quality (hospital/physician centric) will be replaced by a patient diamond of health assurance: namely an ability to thrive and not have health get in the way, to connect and have human health relationships when needed, to easily navigate one’s own health care on their own terms, and the ability to understand options, cost and outcomes (see Figure 1).

Source: authors’ own

YEAR 1: WE CHANGE

Technology, AI and genomics will fundamentally transform how and where health care is provided. I believe that by 2020, it will be commonplace to provide real time genomic-based decision support at the time of prescription writing. I further believe that by 2022, 20% of the population with chronic conditions will be relying solely or in large part on virtual health assistants for wellness and management. By 2025, 40% of all health care will be delivered virtually, and by 2027, for the first time, the majority of health care interactions will be at home or remote, involving AI or machine cognition applications.

The iron triangle of cost, access and quality (hospital/physician centric) will be replaced by a patient diamond of health assurance: namely an ability to thrive and not have health get in the way, to connect and have human health relationships when needed, to easily navigate one’s own health care on their own terms, and the ability to understand options, cost and outcomes (see Figure 1).
reflect these disruptions. The writer Upton Sinclair once said, “It’s hard to get someone to understand something when their salary depends upon them not understanding it.”[1] In this very near future, we will be paid based on quality, cost, patient experience and outcomes; hospital stays will be commoditised; our doctors and nurses will coexist (hopefully cooperate) with deep learning, machine cognition entities; we will select and educate humans to be better humans than the robots, not better robots than the robots; and population health, predictive analytics and social determinants will move to the mainstream of medical education and clinical care.

And it will not be one technology. We have to stop talking about “telehealth,” for example. We don’t get up in the morning and say “I think I’m going to telebank!” It’s just that banking has moved from 90% being in the bank to 90% happening at home. At Jefferson, we call this disruption, “health care with no address.”

YEAR 3: WE CHANGE THE WORLD

This is the most important part of the strategic plan and the one that will require the most innovation and discussion. I was incredibly encouraged as a participant in the World Economic Forum at Davos this year by how much attention is being paid to technology as a solution for the social and economic determinants of health. It is unacceptable, based on our understanding of social determinants, that all the money we spend on medical care only accounts for 20% of a person’s health outcomes.[2] Food, education, housing, prevention of chronic conditions, climate change ARE health care! They were only an academic exercise in our former “sick-care” model where the centre of the universe was the hospital. In the new “health assurance model” they become THE most important determinant for the team, patients and providers. Health care policy, health care incentives and salaries are tied to creating an environment that works to prevent chronic conditions starting at home.

This will be the real test for AI engineers, technology entrepreneurs and the health care ecosystem. Can we marshal the trillions of dollars spent in health care not just to develop the new MRI or robotic surgical arm, but to understand what populations need to prevent childhood obesity, eradicate smoking, prevent drug abuse and overdose of opioids, create a clean environment and in essence take no limits approach to noncommunicable diseases? It is a future where health policy, population health and personalised medicine converge, a future I wrote about in my 2017 book, We CAN Fix Healthcare, the Future Is Now! [3]

The answer is difficult but not impossible. Take food deserts for example. In the past, in low socioeconomic areas in many countries, food choice meant a market within walking distance, which often offered highly processed, high sodium, unhealthy products. But today, with drone shipping technology and healthy food being farmed and cultivated, a combination of forward-thinking health policy and mega-company philanthropy could change that. What if those in government assistance food programs could receive significantly more dollars if they agreed to serve their family healthy food? What if the big tech companies pooled their philanthropic efforts for those programs to provide free or near-free delivery? The return on investment from the decrease of noncommunicable diseases alone could easily eclipse the initial cost and would lead to population health moving from an academic exercise to a health policy reality.

The future is bright and limitless

As an obstetrician, every baby I deliver should have unlimited potential. That hope depends on a revolution, not from health care reform to health care transformation, but to non-incremental health care disruption. When the ACA was becoming law in the US, I had an opportunity to meet with one of its architects. He asked me what I thought about health care reform in America. I answered the way I answer any expectant mother that asks me what to expect in labour and the birth of their baby. I say, “It’s going to be long, it’s going to be painful … and you probably really won’t know how well you did for about 21 years.” What is true, in both cases, is the result is game-changing and the future is bright and limitless! In order to spark this revolution, we need a call to action, not dissimilar to that of climate change. The future demands that we take a no-limits approach to ensuring that every individual on the planet has an opportunity to enjoy a healthy life. And those of us choosing health care as a profession need a new Hippocratic oath that our role is to work with each individual and population as a team to ensure a healthy life for all.

References

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