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Going from ‘Sickcare’ to ‘Healthcare’

Author: Dr Rafael Grossmann | Healthcare Futurist, Technology Innovator, Surgeon & Educator | USA

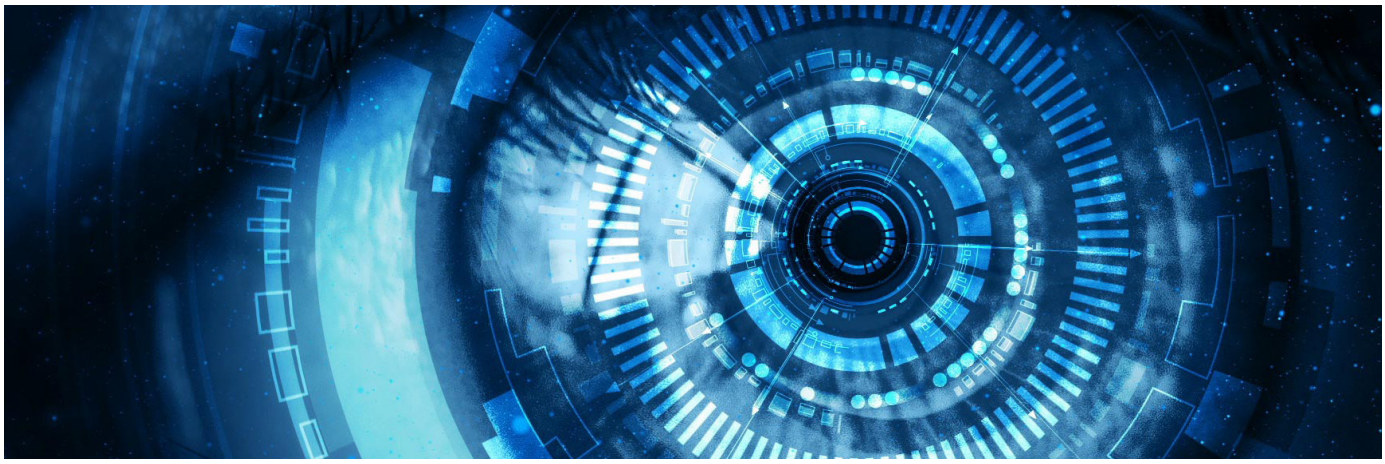
If there is a person who knows all about being at the forefront of health innovation, that would be Dr Rafael Grossmann. Since becoming the first surgeon in the world to use Google Glass during an operation, he has been an avid advocate of digital health technologies. HealthManagement.org talks to Dr Grossmann about the challenges of being a disruptor in healthcare and the prospects of embracing the inevitable progress.

Speaking of introducing something new in your work, what is the most vivid episode that comes to mind?

Every time there is a paradigm change, or you try to introduce new ways of doing or approaching things, there is some resistance. It’s hard to change the traditional way of acting and behaving, and that is normal. But sometimes, the reaction that we see doesn’t seem to make much sense.

I’ve tried many times to change people’s behaviours. I’m a full-time trauma surgeon. On the side, I try to be an evangelist of digital health, especially of using technology in a smart way to connect and communicate better, augment and enhance how we do healthcare. One example that comes to mind is my experience with Google Glass.

In 2011, when the iPhone4 came out with FaceTime, with the ability to do video right from a smartphone, that was revolutionary. I thought it was an ideal way to connect to other physicians who required expertise with trauma patients. I had that ‘Aha!’ moment when I saw that app.



When Google Glass came, I had another 'Aha!' moment, as that could be a revolutionary tool to connect and communicate. A couple of months later, I did the first operation with it in my hospital. I asked permission from the patient and the team, and I planned to use the device to stream what I was doing to a group of students rather than them being behind me trying to see what I was seeing. That was using the technology in a smart way.

It went very well. My good friend John Nosta wrote a piece about that, which went viral. That gave me a push to become a preacher, an evangelist of digital health all over the world. For the next several days, I had calls from Italy, Argentina, China, etc. It was phenomenal! I ended up doing four TEDx Talks about similar topics. All was good, except that I could not convince my hospital to change their ways and engage in the use of this technology, or any other technology that was not 'traditional'. I almost got fired because I did this operation with Google Glass. This is how it turned out for an idea that went viral and almost became the first step in the use of any head-mounted display (HMD) in the operating room or in healthcare, for that matter.

I always say that Google Glass is the Model T of this HMD revolution. We have gone very far since then, and that would probably be my legacy, having that first operation with Google Glass while locally I couldn't use any technology. That operation with Google Glass started a movement regarding how we use HMD – there are so many devices today, and back then, there were none. So the very act of doing that created a snowball effect that is still growing. A year after I did that operation with one patient and two students, some of my colleagues had thousands of students connected via Google Glass to an operation and made it a tool to improve access to global health education. The potential here is unlimited.

What innovative projects are you following?

There are many projects right now. Some of the technologies out there are still in their early stages and NDA-bound, but projects in AI algorithms are really taking off, the use of natural language processing, machine learning, robotic assistance platforms – all those things are becoming more and more important in healthcare as we speak. There is also a lot of interest in the brain-computer interfaces and in how we can integrate devices and algorithms to have a better symbiotic equilibrium with how we communicate and connect. There are projects with wearable devices that are not the simple devices that measure the heart rate or temperature, but devices that track many physiological variables, such as galvanic skin resistance.

The important thing is not just getting the data but also analysing them; such AI analysis can bring much predictive information that is very useful to preserve or regain health. All those things are growing and obviously the pandemic has accelerated the development of many of these projects because now everyone is thinking of how we control this difficult problem that we have in our hands.

What 'next big thing' are you anticipating in the near future?

The use of AI in a more visible way is going to be very critical. There is no limit to what AI can be tasked with. At the same time, the virtual, augmented and mixed reality will have a tremendous impact not only on education and diagnostics, but even on treatment of diseases. As the problems with mental health and well-being are being increasingly recognised, and they will be getting worse, especially due to the pandemic, these tools will become more and more important to prevent, re-establish, or heal mental health issues. We've only touched the tip of the iceberg, and we'll be seeing more and more of these technologies in the future.

Has the pandemic boosted innovation in healthcare?

Absolutely. The 20th-century economist, Milton Friedman said that if there was a cataclysmic event happening, the solutions that we used to get better from it involved the use of technologies that we already had had in the past, before the cataclysmic event happened. This is exactly what we see today.

Look at telemedicine or telehealth, for example. We have been trying to do telehealth for many decades, and there were all sorts of obstacles and hurdles coming from every party, from the government, the local government, the hospital administration to the physicians, the patients, the users. Everyone always saw the negative side of it, like how I get paid for this, how I protect the patient's privacy when I do it. Everyone was looking at those instead of using this technology to connect and communicate better, save resources and prevent that old lady from coming from far away for a 10-minute visit in the hospital.

The pandemic has forced us to use these tools. We have all heard about necessity being the mother of invention. I say that sometimes desperation is the mother of invention, and that's what happened with COVID-19. Within a week of the pandemic, everything had gone remote. Healthcare, education, retail – everything, even tourism, is being done remotely now. It's ridiculous, in a way, but it's a way to make us wake up.

In healthcare we were very slow to adapt this technology and now we are using it in ways that we could not predict before the pandemic. We're still slow in many regards, but because of the pandemic everything is now focussed on healthcare – because of this desperation that we have for doing things that we cannot do in any other way.

Who is driving innovation in healthcare now? The providers? The patients? The industry?

I don't think there is a main driver. Innovation comes from many different perspectives. To innovate you need to have a problem, and the perspective to solve that problem may come from the person who's directly suffering from it, or the person who's treating someone who's suffering – many different perspectives are needed. As much as I hate to say it, even the administrations and the governments are innovating. It's coming from everywhere, not from a specific segment.

That would probably be my legacy, having that first operation with Google Glass while locally I couldn't use any technology

Saying that the pandemic has prevented us from innovating, I just don't see how one can argue in favour of that. From the development of vaccines to how we do genetic analysis and contact tracing, how we innovate the ventilation systems in buildings – all this has been accelerated because of the desperate need to have a solution for whatever problem we are trying to solve. In every aspect of communication, connectivity, innovation what we are seeing is just unbelievable.

It is often said that healthcare is slow to change. Does the above mean this is no more relevant?

It still is, but it's less relevant than it used to be. We have accelerated a lot of things. Think, for example, about virtual meetings. We've been doing those for a number of years through companies like WebEx, Cisco and Skype. It wasn't uncommon that you connected with someone via Zoom to have a meeting or an interview. We did it for business meetings in my hospital but very rarely with patients. I kept telling for years and years that telemedicine is not telemedicine, it's just medicine. We can connect with patients by mail, email, phone calls, texts, chatbots, video, or we can bring them to the office. These technologies are not exclusive of each other, they are complementary. At some point I might need to send a patient a letter, at another point I send them a text, or at still another point I'll have to bring them to the office and examine them, but also, sometimes it may be better to connect through a video call so that they don't have to waste their whole day on a visit to the clinic.

You see the things patients are doing to protect themselves, or how hospitals are creating these different ways of connecting with patients, or protecting their staff, or rearranging the surgical schedule. And obviously, the industry. A company used to make boxes that sterilised HMDs for VR. Then the pandemic came and what did they do? They almost flipped around and started making these machines that would sterilise many headsets, hundreds of N95 masks. They started thinking differently and innovating because of the desperation, because people needed those tools. At the same time, they thought of different ways in which they could be useful. That is a clear example of how industry innovates. So it comes from every angle.

What is your take on the 'uberisation of healthcare' that many are afraid may cause a decline in the quality of care?

I often say that we do 'sickcare', not 'healthcare', that is, we only treat patients who are sick, sometimes so sick that it's almost too late. The best way to use technology would be to have all these ways of measuring ourselves, keeping the data with ourselves and make sure we protect the privacy of our own health data. And those data are not just one-time, obtained as you go to the doctor once a year; they are from every single minute of every single day. You have all those data, which are being monitored and analysed by an AI algorithm, and whenever something is going into the wrong direction you might

get advice about what to do to restore and keep your health where it should be, rather than wait till the last minute.

Therefore, 'uberisation' of healthcare is probably just a fancy term that has a lot of negative connotations, but in a way it's a good thing because it will make our jobs easier when you only have the patients who are sick because they have a genetic problem or an infection. Those patients need to be treated, but you are going to do, in a way, more selective healthcare, and 'healthcare' indeed, not 'sickcare' like we do all the time for most of the population. I think that's the right way to approach that term.

What has the pandemic changed in your area of work? In healthcare in general?

I am a trauma surgeon, so for us things kept going in the same way, it just was more cumbersome and difficult because you had to protect yourself, don the PPE and be very careful about not becoming infected or infecting others. But the routine was pretty much the same because of the nature of my work, which is emergency surgeries and trauma surgeries. Everything else at the hospital, the way we move around, the emphasis on preventing infection like washing our hands or covering our face and eyes – that is all now a routine that we couldn't even imagine 10-11 months ago. Even at home I sometimes think, where's my mask?!

There's still a tremendous opportunity in healthcare to rethink how we design the brick-and-mortar hospitals. For example, we have an ER in the hospital with 80 people, and of those 60 may not need to be there, they could be seen by telehealth, talk to a provider or AI-enabled digital human over a computer. That would prevent them from going to the ER. In how we communicate and connect with patients, there is much room for improvement. The pandemic is showing us this is possible, and it's not only about connecting two humans via a camera, but connecting a human who needs an answer to where they can get it. There are not enough humans on the provider side; the resource balance, the supply and demand is completely out of synch. There are many more patients than providers, experts meaning nurses, or technicians, or physicians. And digital humans that are enabled by AI algorithms to give a simple advice, to guide a patient through a disease process is an opportunity that many people are seeing – and that would be a future. We're going to have a digital human chatbot that is smart and can answer any question with regard to your health problem or health condition preventing you from seeing the one human in the hospital who is very busy and whom you might not need to see. Communication and connectivity is the main area that we need to continue to innovate, and there's a lot of opportunities there.

In view of healthcare being 'invaded' by many non-healthcare companies, what challenges do you see in preserving patient data privacy?

I definitely support patient privacy. This is a very important issue. What I don't support is making patient privacy an insurmountable obstacle to progress. We need to try and protect patient's privacy as much as we can with the tools that we have to prevent any invasion of that privacy and dissemination of that private information. This is very important, not just for regulatory but for ethical reasons as well. That is part of the core doctor-patient relationship.

At the same time, it cannot be an obstacle to progress. There are many ways in which we can protect privacy and still progress, and telemedicine is a good example here. The use of data, any data that come from a patient, is theirs. It's their right to give those data to anyone they want. It doesn't mean that they just agree to the microscopic print on a digital page when they click 'Agree'; what they are sharing has to be explained more clearly. This is not what companies like Facebook, or, back in the day, Cambridge Analytica, or Walmart, or Amazon are doing. Unfortunately, there is always a business gain that they are looking for. At the same time, with companies like Google, Amazon and Apple, in their healthcare divisions, there is a lot of good intention, I think. But where is the line?

It's a difficult question – good intention vs. profit. Data, especially health data, are like oil was in the 20th century; it's very valuable. It is important that we protect those data by any means – without interfering with progress. Data could help medicine progress to what it should be, which is 'healthcare' and not 'sickcare'. Furthermore, if there's any profit from a patient's data, that patient should be compensated. Some companies are doing that, for example, paying trial participants. That's a very good way to advance science. We can do a trial with hundreds of thousands of patients very quickly and get very good results that would help medicine and help fight disease very quickly. But it really has to be up to the patient. Insurance companies is another topic here, they thrive on that. But can your data be used to prevent you from being covered for a disease that you might have in 10 years from now? That's a very delicate matter. This is again about how we use technology, in a good way or in a bad way. There has to be a very ethical balance out there.

When pushing some innovative solutions that you are fascinated with but your environment not so much, what do you do to succeed? What would be your advice to someone who is similarly struggling?

The best way to make an idea prosper is to try and crowdsource many minds to see if you're really on the right path. And if you are, use the technology to spread the message and pull people into your team. The power of technology helps connect and communicate with others, correct you if needed, or back you up if you are going in the right direction. That's crucial.

Teamwork is essential. If you are in a team or an environment that does not seem receptive to your ideas or potential, then probably you need to move forward and try to find a place that will embrace that. You need to be in a place that doesn't keep you down but elevates you, so that you can really bloom as a dreamer, or a thinker, or a creative disruptor and innovator. It's important not to get stuck in the present but reach out.

What role do the hospital management and the leadership play here?

It depends on where you are. Certain places are innovative to the core. They have that atmosphere of teamwork and innovation, and they care for people, not just say that they do. Some places are not like that, unfortunately. The problems in healthcare are created or exacerbated by the hospital administration, and you see, especially in healthcare, how doctors, nurses, technologists are burned out, or have issues with mental health, drug or alcohol abuse, or even suicide. The rate of suicide in doctors in the U.S is twice the average, and that is unacceptable in healthcare that is about protecting health and well-being. Much of this comes from the bad use of technology. We're separating ourselves from the patients who are the core of our passion. We're separated from the patients by the forced use of digital health technologies in the wrong way, by the work environment, by the administration that is just putting the billing, or documentation, or their own agenda above the well-being of their employees or even their patients. That's very dangerous and unfortunately all too common, probably in the whole world, but especially in the U.S.

Is there anything that is being neglected in terms of innovations and technology? Where should we look deeper?

Not that it's been neglected, but I think we must push for whatever innovation in healthcare to have a focus on global access to whatever solution we are planning. We need to make solutions that are inclusive, not just for healthcare but also for education technologies out there. Every time people are trying to innovate, they are looking for a business solution that will grow into an Apple or an Amazon. But any solution has to improve the lives of the populations that don't have access to all the things that we have and take for granted. That is very important and I don't think there is enough happening in this regard. It's unacceptable in a world that has so many possibilities and fascinating technologies and at the same time, where most of the population do not have access to those blessings. That is probably something that we all need to be doing, thinking about our friend and neighbour more.

Conflict of Interest

Dr Grossmann reported to have compensated advisory roles with NanoxVision, MagicLeap, FundamentalVR. ■

Watch the full interview here.