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Novelty vs. Legacy

The Importance of Technology and Novel Solutions in Healthcare

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The COVID-19 pandemic has taken the world by storm. In particular, the crisis has revealed different aspects of healthcare that need to change and improve. HealthManagement.org spoke to Sourabh Pagaria, Head of the Southern European business of Siemens Healthineers. He is also a thought leader on how Data, Artificial Intelligence and joint public-private approach can reshape the future of healthcare. In this discussion, Sourabh talks about technology and novel digital health solutions and how they can help the healthcare sector improve its response to a similar crisis in future.

Key Points

- COVID-19 made the healthcare world do a 180° shift on the adoption of telemedicine.
- In the new normal, teleconsulting and virtual care will become part of healthcare delivery.
- Stakeholders in healthcare need to go beyond digitalising existing physical processes and start thinking digital-first.
- Technology alone cannot cure all the ills of current healthcare systems. It will also require new leadership thinking and patient-centred health systems.

In your opinion, what weaknesses in healthcare were revealed during the pandemic?

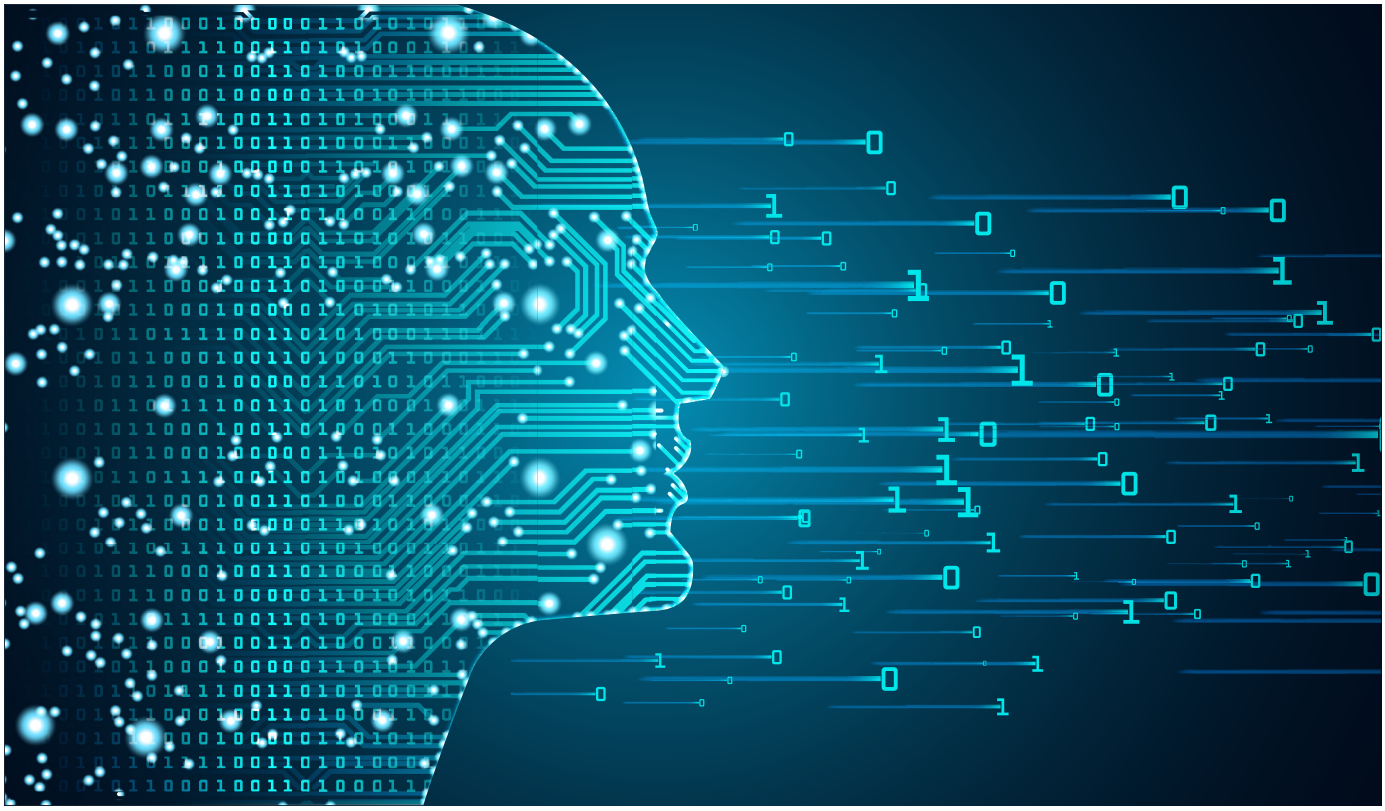
This pandemic has exposed many systemic weaknesses in our healthcare systems. The most important ones are:

1. **Weak primary healthcare infrastructure:** In the past, GP offices and clinics played a big role in providing primary healthcare support to communities. However, in the last few years, we have seen a shift in primary healthcare into hospital settings, which is understandable given the drive to have infrastructure efficiencies and synergies. However, in pandemic situations like the one we are in now, this represents a major challenge as large healthcare facilities like hospitals themselves become the source of infections in the initial phases of the spread of infections.

2. **Underequipped public healthcare systems:** Over the last few years, government investment in public healthcare systems has seen a decline in Europe and healthcare was often seen as a cost factor rather than as a key component to keep the economy productive and growing. As a result, those factions of the society that most depend on the affordable public healthcare systems are often unable to gain equal access to healthcare facilities. The elderly population is heavily impacted, as are the people inflicted with chronic sicknesses. Thus, when the pandemic hit, many public healthcare systems found themselves ill-prepared to face it from a technology, infrastructure and staff point of view.

3. **Lack of disease surveillance infrastructure:** Pandemics have happened before, but what is different this time is that our world today is deeply interconnected. Hence, the speed at which this pandemic spread through the globe was extremely fast. On top of that, in most parts of the world, there is no disease surveillance infrastructure which can monitor the spread of such an infection in the communities in real-time.

4. **Lack of capability and coordination among healthcare service providers to manage a crisis of this scale:** Healthcare service organisations are complex and have typically firmly structured hierarchies and silos of information. This hinders cooperation and collaboration even within one system, let alone the ability to do cross-system collaboration across public and private institutions. Moreover, most healthcare administrations never trained themselves for such a crisis through systematic processes like conducting disaster management drills regularly and having rapid action plans to respond to emergencies like this. Hence, when the pandemic hit, the local healthcare systems found themselves ill-prepared and uncoordinated.



5. **Interdependency in the healthcare supply chain:** In this truly interconnected and interdependent world, COVID-19 exposed the key vulnerabilities that a global supply chain can create. At the beginning of the pandemic, many European countries struggled to provide basic PPEs and life support equipment like ventilators because sources of such critical supplies were located outside Europe. This doesn't mean that we dial the clock back on globalisation, but in the context of healthcare, we certainly need to take a hard look at the supply chains of critical materials and technologies.

We have seen a rapid increase in the use of virtual care and telemedicine during the pandemic. Why do you think telemedicine wasn't appropriately utilised before COVID-19? What future do you foresee for virtual care now that we have seen its many benefits?

Telemedicine and virtual care are not new concepts. They've existed for at least the last two decades. Before COVID-19, many aspects prevented virtual care telemedicine from becoming a mainstream alternative to physical interactions between doctors and patients. These include a lack of proper infrastructure and devices globally, lack of adoption by physicians and patients alike because of the fear of losing a personal relationship and even doubts about the reliability and effectiveness of telemedicine interventions.

However, COVID-19 made the healthcare world do a 180° shift on the adoption of telemedicine because this was the only way patients could access care during the lockdown. Additionally, as people got used to remote work and education, the idea of talking to your doctor over video consultation and sharing data over the internet started to not sound alien to patients and consumers of health. One of our customers reported an increase in the share of telehealth visits from <1% of total visits to 70% of total visits, reaching more than 1000 video visits per day in just four weeks.

If you think about the effectiveness in the environment where you need to manage a patient continuously, especially patients who have gone through recent episodes of surgery or who are chronically ill, telemedicine provides an efficient way for physicians to get this data and use various telemedicine platforms to remain more connected to the patients rather, than being episodically connected. This is also what the pandemic really helped people to discover.

As the world slowly recovers from the pandemic and settles into the 'new normal', I expect teleconsulting and virtual care to become part of healthcare delivery mainstream with applications like remote care, home monitoring, enabling more real-time and continuous collaboration between patients and caregivers and virtual visits combined with AI-powered triaging solutions helping to provide fast triaging and timely care to critical patients.

However, challenges around the adoption of these technologies by elderly patients and data security concerns of patients and healthcare consumers' needs would still need to be overcome.

Technology is being hailed as the saviour for all our problems in healthcare. What is your opinion?

If we examine what role technology plays today in healthcare, it is mainly employed to digitalise the analogue processes, which were done before with pen and paper. This is how technology started to get adopted in healthcare. However, as I mentioned, even before the COVID-19 pandemic, global health spending was around $7.0 trillion a year, but out of that, only 1% is spent on technologies that boost the overall efficiency and productivity of healthcare systems. Clearly, we are not leveraging technology enough in making our healthcare processes more efficient, agile and less labour intensive like many other industries are doing.

If you think about the major trends which are impacting the quality of healthcare globally, we can see we have a shortage of skilled resources both from technician level all the way to physician level and specialist level; we have an ageing population that requires more care and all of that care cannot be provided inside a hospital because this becomes too expensive. There are also chronically-ill patients who require timely intervention to prevent increasing the burden on healthcare systems. All these things require healthcare providers to leverage technology. Technologies like virtual consultation and robotics-assisted procedures can help improve access to higher quality healthcare to a large population across the globe. Remote monitoring can make healthcare more continuous, and last but not least, technologies like AI could drive triaging, and AI-powered clinical decision support systems could help free up precious physician and specialist time which could then be used by them to provide more emphatic and personalised care to the patients as comprehensively and productively as possible.

Having said this, technology alone cannot cure all the ills of current healthcare systems. It will also require new leadership thinking among healthcare leaders to create more agile, more integrated and patient-centred health systems. Technology is a tool to assist a physician in doing their work more effectively so that they can spend less time with machines and computers and more time with patients. This is one way, more patients get access to quality care. The human aspect and the technology aspect need to work together if we have to bring a new healthcare system across the world.

Out of this $7.0 trillion, where do you see saving potential in order to put more money into technology?

There are three main areas where we can actually create efficiencies and redirect resources for this amount into building better technology backbones for healthcare infrastructure. The first category is waste removal. The biggest waste that comes in healthcare today is because of duplication of effort. For example, a patient goes into one healthcare system and undergoes a certain set of exams. A few months later, the same patient goes into another healthcare system, and another set of exams is performed on the same patient. Most often than not, the clinical value of repeating that is not so high, and hence, we have created waste in the system. There is a large amount of waste created only because of duplication of such efforts, which can be streamlined if we leverage technology to make patient data available and interoperable between healthcare systems.

As the world recovers from the pandemic and settles into the new normal, I expect teleconsulting and virtual care to become part of healthcare delivery mainstream

The second area with great potential for improvements and savings is to provide more timely diagnosis to every patient or every prospective patient. Most of the money that healthcare ends up spending is typically on people who were diagnosed quite late. This often may result in terminal patients who need to be managed with expensive therapies. If we work together with the governments to implement early detection programmes, especially in the area of oncology, we can find a huge amount of savings which can trickle down because we would be detecting early and hence those patients could be managed with less costly interventions, while providing a better quality of life to them.

The third area is digitalisation, as it can provide efficiencies in our processes. For example, improper triaging results in 20 to 30% more cost on the patients arriving in the emergency room. Here, artificial intelligence-based algorithms have enormous potential to enable proper triaging of patients and direct them to the right specialties so that they could be properly treated and then further directed in their care journey. Another example would be using AI-aided clinical diagnostic support tools to accelerate readings of radiology images and interpretation. This way, radiologists wouldn't have to spend too much time reading imaging data of a broken hand or a broken leg which could easily be read by an algorithm. Instead,

they could do a quality check and approval in a fraction of the time that they would have taken. Hence, by driving efficiency, health systems can create more savings downstream and allow this money to go back into the system for further technology investments.

What is the future of digital health? What novel solutions can change the way we provide care?

Digital will be the 'new normal'. The experiences of this pandemic have inspired many stakeholders in healthcare to go beyond digitalising existing physical processes to start to think digital-first. I clearly identify four main areas where digital health will continue to shape healthcare in the 'new normal':

1. **Tools for increasing efficiency of medical processes:** for e.g. screening and triaging supported by AI-based screening tools. Many countries, at the peak of the pandemic, deployed AI-based screening tools to help identify high-risk patients of COVID-19 and provide timely care. Similarly, new AI-driven solutions are being introduced to improve administrative processes like coding and billing.
2. **Tools for improving access to care:** Virtual doctor visits to avoid unnecessary travel to and wait at doctor offices and remote monitoring solutions which help caregivers & doctors to be close to the patients round the clock. Similarly, remote-controlled robotic surgery systems could provide patients in remote areas access to expert surgeons.
3. **Tools for improving clinical outcomes and reduce unwarranted variations:** AI-based algorithms will increasingly help physicians identify, characterise and diagnose ailments much faster. It will also speed up workflows by automating time-consuming manual tasks, thereby allowing physicians and caregivers to focus on tasks AI cannot take care of and establish a trust-based relationship with the patient and make better-informed clinical decisions.
4. **Accelerating innovation cycles in drug discovery and diagnostic test development:** A great deal of pre-clinical work for new drug discovery or lab test development is being done using AI algorithms that are potentially able to reduce the cost and time of pre-clinical work to a fraction as compared to traditional methods.

The vaccination rollout is in process across the globe. What is your opinion about the way things are being done? What has been done well, and what could have been done better?

It is important to acknowledge that this is the first time as we know in human history that we were able to leverage science and bring a vaccination for a viral disease in record time. We should not underestimate the efforts that went in there and the achievement that we as a human society got out of it. The difficult part was that we were all pressed to get the vaccine out in time and have enough doses ready to vaccinate seven billion people on this planet who are logistically dispersed across the globe. This is a mammoth task that has never been done and challenges are inevitable. We see that some countries are doing better while others are struggling, and there are many factors influencing this.

We must understand that vaccination is to be done with the objective of stopping the spread of the virus in the communities which are most affected. That is how governments have categorised people. If I were to do it differently, I would also categorise them by geographical area and by their disposition towards such an infectious disease. This would allow to target more crowded and more densely populated areas first where the incidence rate can be high. This might not be an easy approach to take, but if local, national, and global governments work together, they can identify certain communities which need to be vaccinated irrespective of age group and then move to the other ones.

Also, if you think of countries that have developed their own vaccines, many of them are stepping up to support other countries. The question is, again, where do we direct those programmes? Do we direct them to the at-risk communities effectively, or do we actually do them based on diplomatic relations? There is no easy answer to it. But we need to be patient enough to let governments do their job, join the dialogue, and when the time comes, to come forward and get vaccinated because this is also an important issue. 100% of the population is not ready to take the vaccine, but it is important that each of us makes a conscious decision around this. We are responsible not just for our own health but also for the health of the community around us.

How do you see the growth opportunities in your region and beyond?

When you talk about growth opportunities in, for example, Southern Europe, the region I'm currently working in, there are a lot of opportunities where we can make an impact through our portfolio. If we look into the big task of building and rebuilding certain healthcare systems, it is important for us to be ready when the new programmes from national governments or from the EU will come in. We should be able to step up as the key strategic partner to help them build infrastructure that is efficient and effective and designed for the future, which leverages technology to extend access to care and improve the quality of care and the patient experience. It's not about selling more equipment because the equipment is a means to an end, and the end is providing better care at an affordable cost at the access point.

The biggest growth opportunity and challenge for our industry is to work collaboratively with our customers and co-create solutions that can help them step into the future and into this new normal with solutions that are not just a copy-paste of what we did in the past but something which takes them into the future. The opportunity for companies like us is to be the partner to realise those visions. We want to work, not with a product mindset, but instead, with a solution and co-creating a future mindset. ■