



# The Digital Transformation of Prevention

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RAPID digital transformation as a result of the COVID-19 pandemic has led to the increased use of telehealth, although it has been long-established, dating back to the use of television and radio for patient care delivery.

More recently, healthcare institutions have been compelled to advance greatly in digital interactions, using them for improved digital engagement with patients and communities and for monitoring patient health. Many patient-facing digital health products assist patients to improve outcomes through behaviour and lifestyle changes, either on their own or in conjunction with existing treatments. In a session titled 'The Digital Transformation of Prevention' at the World Health Summit 2022, which was opened in Berlin, Germany, held both in person and virtually, experts in digital health and innovation came together to discuss the shift of powerful digital transformation towards improving prevention and supporting wellbeing. This means using digital tools not only for monitoring patient health but also for predictive purposes.

The meeting was chaired by Heyo Kroemer, CEO of Charité – Universitätsmedizin Berlin, Germany, who endorsed the combination of prevention and digital health to strengthen prevention and support wellbeing, support population-level disease prevention, and improve broader preventative health and lifestyle change efforts. The speakers discussed how to make prevention more effective using digital tools and how such change can be initiated. Kroemer suggested the need for a trust architecture, a framework that enables trusted data to flow through a service-oriented system, so that patient data is held safely and securely.

## **The Why and How of Digital Prevention**

Molly Biber, Chair of Brand Strategy at the Mayo Clinic, Rochester, Minnesota, USA, presented 'Bold. Forward.', which is a new venture from the Mayo

Clinic that underscores how "the field should spark revolutionary advances in our ability to cure, connect, and transform healthcare." Biber described how the Mayo Clinic continues to transform healthcare by leveraging data technology and artificial innovation expertise to change how care is provided. The purpose of their work is to "create a world where the best possible care, which isn't always in the hospital, is available to everyone, everywhere." The Mayo Clinic Platform is another technology venture from the institution with the aim to gather medical records from everybody in the world to start to predict diseases and conditions before they occur and enable the work of clinicians to cure diseases.

Shobana Kamineni, Executive Vice Chairperson of Apollo Hospitals Enterprise Ltd., New Delhi, India, joined the session virtually, attributing this to the benefits of digital access. She began by addressing the shortage of healthcare workers, which is one of the biggest

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challenges faced by those working in healthcare, whether it is in the curative or preventative field. There is a projected global shortage of 18 million healthcare workers by 2030,<sup>1</sup> a staggering statistic emphasising the opportunity for digital healthcare to optimise processes and to help make individuals more productive. Kamineni's secondary reasoning for the benefits of digital prevention includes remote access to healthcare, which has already removed many of the boundaries impacting patient access to healthcare. In many ways, COVID-19 has accelerated or exacerbated the way healthcare is accessed. In some countries across the world, we are seeing a K-shaped recovery of people who cannot afford proper healthcare, for example, the 40 million people in India who live below the poverty line. Kamineni explained the need to combine digital care with prevention as we are otherwise at risk of facing an increase in mortality and morbidity from non-communicable diseases. The World Economic Forum has stated that we will be spending almost 47 trillion USD on prevention of chronic diseases in the next 20 years, leading Kamineni to urge big organisations with large data to join forces in a case for digital prevention for the world.

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**“The field should spark revolutionary advances in our ability to cure, connect, and transform healthcare.”**

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Tim Ferris, the inaugural National Director of Transformation at NHS England, London, UK, was the next speaker to be introduced. Kroemer commended NHS England for implementing efficient systems of information and surveying during the pandemic, which other European countries tried to emulate in the midst of the crisis. Ferris explained that the infrastructure put in place is a lasting benefit from COVID-19 because the data flow within the NHS is significantly better than before the pandemic. COVID-19 also demonstrated that when we deploy digital solutions to providers, they can be deployed at pace, and the opportunity to use adaptive design techniques has allowed for practices to be fixed after trialling. COVID-19 has taught that digital delivery solutions can speed up dissemination of information but also have the potential to increase health inequalities due to the disparate uptake by some populations. Digital transformation may be the solution to the challenge, since information collection enables you to build more targeted and more specific solutions for populations that are not getting the benefit of a new programme or roll-out. During the pandemic, Ferris explained, this was an important learning point for the NHS as the organisation constantly had to hyper-segment different populations that were not getting adequate vaccination coverage with personalised approaches. Ferris vouched that digitalisation of prevention is key in tackling health inequalities, and a personalised, adaptive approach is the optimal strategy for disease prevention.

Ran Balicer, Chief Innovation Officer at Clalit Health Services, Tel Aviv, Israel, was invited to introduce the digital health infrastructure in Israel. Israel has a health system comprising four large integrated care providers that usually take lifelong responsibility over the patients and rely on national capitation budgets. Years of investment in digital health infrastructure and harnessing digital innovation for proactive population health visibly paid off during the pandemic. This type of universal system makes long-term prevention a priority not only clinically for the individual but financially for the payers. This has been a key driver for the system's involvement in preventative health and in using digital transformation to drive preventative medicine. The country has over 20 years of individual level integrated data health, which enables innovative approaches of population health and proactive prevention. Balicer gave an example of how Clalit Health Services made predictions on individuals they did not have data for during the pandemic. Israeli healthcare services wanted to introduce a predictive, proactive approach to highest risk patients for severe COVID-19 at a time when there were no cases of COVID-19. They took an old model for predicting influenza complications and data that came from China and Italy on the relative mortality between different age groups. The model was statistically 'nudged' to fit to the new and rising situation. Based on this, they approached a significant number of individuals, advising that new data suggest they would be at highest risk for COVID-19 and to stay at home and receive online care. This model was

assessed later and was found to be accurate within 7% of the population.

Elisabeth Staudinger, a Member of the Managing Board at Siemens Healthineers AG, Erlangen, Germany, shared the mission of the organisation; they are a company that enables care and that wants to reach patients regardless of where they are. They work to leverage possibilities to pioneer breakthroughs in healthcare and maintain a strong focus on diagnostics. Digitalisation of prevention is an ideal approach to healthcare if it means an individual never becomes ill, and healthcare providers are effective in managing the health of a population. Companies such as Siemens Healthineers are vital in picking things up as early as possible, playing to their key strengths in diagnostics, and optimising their vast collection of data to centre information around the individual.

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## "Digitalisation of prevention is key in tackling health inequalities."

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The opportunities for digital transformation to be a central enabler for prevention are vast and have the support of key influencers in healthcare. Prevention as a way to reduce the incidence of disease within the population is key, and discussions such as these allow us to consider whether the combination of prevention and digital transformation is the key approach to solving some crises many of our healthcare systems are facing. ●

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### References

1. World Health Organisation (WHO). Addressing the 18 million health worker shortfall - 35 concrete actions and 6 key messages. Available at: <https://www.who.int/news/item/28-05-2019-addressing-the-18-million-health-worker-shortfall-35-concrete-actions-and-6-key-messages>. Last accessed: 19 January 2023.