Digital HealthCare, Big Data, and AI

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Healthcare is one of the most pertinent topics in the world that has an inelastic bearing on human needs. For years now, proponents of the internet have permeated the social scenes and become a part of the modern lifestyle. Modern civilization has also found footing in creating different iterations of web 2.0 technology to serve various socio-economic needs such as Zoom classes for online education and Uber for digital transport. In the healthcare sector, the provision of care has also shifted hook to serve patients through the digital space. In that regard, this paper scours through five global health care providers that have implemented the use of digital experience as part of their service delivery, the personalization models they use, and the role of big data and AI in digital healthcare.

First and foremost, it is important to have an understanding of what digital customer experience in health care is. Digital customer experience is a blend of technologies, tools, and practices that work to transform the health care experience for patients and doctors. This digital platform for health care can be applied across the board to help patients, the medical sector, and health insurance companies. This digitization of the health care sector is especially relevant in developing countries where there are limited resources and a small population of health providers. Digital health care can also help reduce treatment costs (Shaw et al., 2018). Therefore, this form of care has several advantages. It is easy to access anytime and anywhere, and it also has the potential to integrate several types of health data that can help with personalized treatment. Digital health care can be applied in various areas such as medication management, doctor and hospital communication, and telehealth services.

One of the healthcare companies delving into digital health care is American Well. American Well is a health care tech company that connects physicians with patients through

video visits. The company was founded in 2013 by Dr. Errol Kersting, who is also the CEO. American Well offers a virtual care platform that makes use of bi-directional audio and video to let patients speak with their doctors online (Manocchia, 2020). The platform also lets patients remotely monitor their health and track their progress, while physicians can use AI-assisted tools to make diagnoses and prescribe medications. American Well's virtual care platform is used by health care organizations such as Walgreens, Humana, Aetna, and Blue Cross Blue Shield.

Google Authentic Care is also a personalized customer service solution designed to help health care providers make online services more efficient. This digital platform ensures a seamless experience for patients by letting them book appointments, access their medical records, and communicate directly with doctors (Manocchia, 2020). Authentic Care uses AI and machine learning to recognize when patients are at risk of a condition, suggest preventive care, and provide patients with treatment recommendations. Google Authentic Care has been implemented in health care providers such as Dignity Health, Sutter Health, and Stanford Health Care.

Next up is Kaiser Permanente, a health care system based in the West Coast of the United States. It is one of the largest not-for-profit health care companies in the world. Kaiser Permanente uses artificial intelligence and data analytics to improve the health care system and deliver personalized care to patients. The company is currently using machine learning and deep learning technologies to analyze images, genomic data, and medical records. Kaiser Permanente's digital health platform also enables health care providers to reach patients remotely. This platform is currently used by 19,000 physicians and 10 million patients across California (Rompen et al., 2020). With this magnitude of reach, Kaiser is serving populations with different health dexterities whilst maintaining a relationship with each of its patients.

Similar to Kaiser, Microsoft Healthcare uses AI and data analytics to support health care providers in delivering personalized care to patients. The digital health platform analyzes data across various platforms to identify patterns and anomalies in the patient's health. Microsoft Healthcare also has an integrated chat-bot solution to help patients manage their health by providing personalized recommendations and suggestions (Agarwal et al., 2020). The company has partnered with health care providers such as Dignity Health and Ascension to offer a custom-built digital health platform.

Daiichi Sankyo Company Limited is a health care company headquartered in Japan. It offers a digital health platform that uses AI to provide personalized health recommendations to patients. Patients can use the Daiichi Sankyo app to track their health and manage their prescriptions (Maruyama et al., 2017). The company's digital health platform is used by health care providers such as Aetna, Blue Cross Blue Shield, Kaiser Permanente, and United Healthcare.

Across all these healthcare brands, it is clear that digital healthcare provision goes hand in hand with data management. These companies basically have a set-up that allows for data collection, data storage, data learning, and analytics to take place simultaneously. All these inputs give the providers a good grasp of the changes and needs of each patient while maintaining communication (Felt, Ochsner & Rae, 2020). What stands out most in this setup is the level of ascertained confidentiality that each patient has a private course of engagement with their physicians to express their state of health backed by the data and devices used to collect patient bio-stats. It is a marvel of trust and a good network.

In that regard, it is easier to outline the role of big data and AI in the digital health care experience. The primary role of big data is to consolidate patient records as an aid to future

medical interventions. In this case, patient information is gathered progressively, including the general stuff such as height, weight, and biomass. This data is then fed into the system together with the medical records, mostly tabled in numerals to capture accurate levels or stages of diseases (Thomason, 2021). As years go by, the data account expands with more consultations and treatment interventions. At this point, big data tools are applied in the form of storage, sorting, and analysis – all accustomed to functioning as part of the Electronic Health Records (EHR).

The advanced part of big data entries is the ability to provide real-time information to health officers from patients. Notably, admission of patients in the hospital requires constant monitoring, a daunting task for mankind in as much as there are shifts in place. To avert such a cumbersome duty, gadgets are instead used to monitor patient progress and offer real-time information about their heart rates, breath cycles, neural frequencies, and so on. The gadgets are then connected to the central nodes of the hospital, whereby nurses on duty can receive alerts on any eventualities (Kalid et al., 2018). By doing so, nurses can be directed to patients with specific predetermined tools for stabilizing the patient as the feeds show and interpret the patient's actual problems.

The same system also works for those who rely on medical services from the comfort of their homes. It is common these days for patients to have preferences in terms of where to receive treatment. In such scenarios, the health care provider can have a simple diagnostic tool monitoring the patient's vitals, pegged to software on their mobile devices (Classen et al., 2018). Being the most accessible and popular device, patients are able to access their progress reports and get updated instructions, or developments on prescriptions. Doctors on the other side also

view the patient's tendencies while seeing to it they are doing better. All this is made possible by instantaneous connections to the internet.

Besides this, there is the amalgamation of big data and artificial intelligence. AI has the capacity to filter complex information and deduce the data into logical comprehension. With advancements such as the GPT-3, AI can work as a data analyst and render enforceable instruction for patients, with detailed prescriptions and viable forms of intervention against any patient emergencies (Muruganantham et al., 2019). In other words, machine learning can serve as an output for health information on patients.

As the world leaps more into AI, more possibilities for digital healthcare will take hold. One of the possibilities that may be universalized is the access of AI bio-chips made using nanotech to repair cells and tissues. These chips can have a greater effect on human longevity and offer greater chances of resistance to diseases. The Nano-particle chips can also be fitted to suit various functions such as extrication of harmful cells and antibodies from the human physiological form (Rong et al., 2020). A great application of this creation would be destroying cancer cells from the body, and having the body feeds sent directly to the patients and their respective clinicians.

In conclusion, it is clear that digital healthcare is scaling as a preferred form of treatment criteria in the modern age. Health care being a key area of focus for digital transformation across the globe, it is no doubt that data and AI are progressively involved. The sector is highly regulated and comes with the challenge of engaging patients in their own care. Digital health care solutions can be used to engage patients, promote self-management, and improve outcomes through remote monitoring and timely intervention. Successful digital health care transformation requires alignment across multiple stakeholders, including patients, providers, and IT teams.

Digital health care companies should focus on adopting a customer-centric approach, embracing continuous innovation, and leveraging emerging technologies such as AI, Nano-tech, and blockchain.

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