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## PERSPECTIVES


### A perspective of technology among healthcare provider after the pandemic


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#### Abstract

The rapid spread of the COVID-19 virus has brought about a serious public health emergency on a global scale. There is a considerable need for essential digitally-enabled medical equipment and accessories, as well as for quarantine facilities, surveillance systems, and other related digital technologies. In the fields of healthcare, manufacturing, and education, technologies that facilitate working remotely from safe areas are absolutely necessary. It is possible that digital technology and the tools of Industry 4.0 will be able to satisfy these specific requirements both during and after the COVID-19 crisis. The experts in the healthcare industry can use this perspective to better cope with the difficult times that follow a pandemic.

**Keywords:** Virus infection; COVID-19; Industry development; digital technology; medical care

Health information technology (HIT) comprises computer hardware, software, and systems. HIT is used in the healthcare industry for various purposes, including data collection, transmission, usage, extraction, and analysis (Aickelin, Chapman & Hart, 2019). Patients, doctors, and other frontline healthcare workers are not the only people who will reap the benefits of this technology. Medical researchers, healthcare insurers, public health agencies, regulatory and quality assurance entities, pharmaceutical and medical device corporations, and various governmental bodies will also use it (Alotaibi & Federico, 2017). At the level of society, the fundamental technology and systems of HIT are essential to delivering healthcare and enhancing its quality since the various entities involved play a diverse set of roles and have a variety of objectives and goals (Yogesh & Karthikeyan, 2022). The rapid spread of the COVID-19 virus has brought about a severe public health emergency on a global scale. There is a considerable need for essential digitally-enabled medical equipment and accessories, as well as for quarantine facilities, surveillance systems, and other related digital technologies. Technologies that facilitate working remotely from safe areas are necessary for healthcare, manufacturing, and education. During and after the crisis brought on by COVID-19, digital technologies and the tools of Industry 4.0 may be able to cater to the specific requirements of each individual (Chandra et al., 2022).

In the past, physicians had to make informed estimates based on limited resources. Still, they had access to a growing corpus of experience and knowledge that spanned generations. Since the beginning of the modern era of medicine in the 18th century, applying technology to clinical practice has become an increasingly important component. The first stethoscope was crafted from hollow wood, and X-rays were developed shortly after. Now we have virtual reality and cloud-based algorithms. As the 20th century concluded and the new millennium began, there was a transition in the medical industry from one based on science to one found in technology. Without it, a physician cannot keep up with current medical practices, formulate sound judgments, or legally practice medicine. Technology has also been integrated into medical treatment (Veinot, Ancker & Bakken, 2019). As a result of patients being given access to materials previously only available in the "ivory tower" of medicine, a new era of patient empowerment has begun. Because of this, patients were motivated to take the initiative and look for a connection with their doctors based on a collaborative power dynamic rather than one based on a hierarchical power dynamic (Feldman, Buchalter & Hayes, 2018). They want to have a say in choices that pertain to their health, and they want the data obtained from their houses to be used in research (Mesko, 2018).

The challenges posed by digital health are one of a kind. Patients want their physicians and nurses to answer their technical and medical questions, and they frequently bring sensor data to their appointments that they've collected about their health or medical state. Patients want their doctors and nurses to answer technical and medical questions (Jen, Kerndt & Korvek, 2022). A medical robot might be a beneficial addition to the staff in a healthcare facility, particularly during the overnight hours when there are fewer people on duty. Even though the robot will make the caretakers' jobs easier overall, they still need to try to become used to working alongside it (Li et al., 2009). Technology plays an increasingly important role in the daily work that doctors and other medical professionals conduct due to the widespread movement toward digitising medical records and the general availability of smartphone apps connected to healthcare (Sheikh et al., 2021). Traditional medical practitioners have been pushed to make place for remote health monitoring and other services offered via the Internet ever since the introduction of e-healthcare. As a result of the collaborative nature of digital health, the era of the lone-wolf physician is quickly coming to an end. To provide high-quality treatment, working together, demonstrating compassion for patients, and making choices jointly is essential. To offer care in the modern day, it is necessary to rethink the relationship between patients and the people who give medical care to make room for developing technologies (Topaz et al., 2021). However, a strong relationship between the patient and the physician will always be essential to successful treatment. The ability of physicians to empathize with their patients was found to affect the patients' objective clinical chemistry results, the frequency of difficulties, and the patients' opinions of their health.

After the epidemic, professionals in the healthcare industry are feeling hopeful about the potential of e-health. People with prior experience working with the technology are more inclined to accept it and believe its merits are more significant than any disadvantages it may have. The medical community has been vocal about its need for projects to be provided with sufficient funds and equipment, as well as specific training to assist physicians in better use of the technology (Sittig et al., 2020). The users' opinions on technology shift following the context in which they employ it, whether for personal or professional reasons. Even while the 2.0 way of thinking has permeated many different aspects of our lives, there is still a long way to go before healthcare systems can catch up to the new way individuals are expected to take responsibility for their health. The impact that the covid epidemic's effects on other countries health systems has been tremendous. Both public and private healthcare systems were unprepared for the repercussions of the epidemic, and this lack of readiness persists even today. In this fight, it is not only essential to revisit and reopen the realm of "digital health" in the policy and public discourse, but it is also essential to adopt diverse healthcare responses in terms of cutting-edge technological tools and innovations in the areas of public health, medicine, and wellness to make prompt decisions to address the pandemic by flattening the disease curve (Nair, 2022). Creating a genuine transformation toward all-encompassing technology and data-driven digital tools is imperative while keeping in mind short-, medium-, and long-term response strategies. Involving public and private healthcare systems across the country can be made more accessible by facilitating policy debate and providing technical assistance and training on specialized policy and response activities at both the regional and national levels (El Akoum & El Achi, 2021). It is also true that there is already in place well-tested hardware and that quite a few experiments have been carried out; however, this hardware is not being put to good use, especially in developing nations, due to a lack of political will, financial resources, and a well-thought-out strategy to reach those who need it the most.

During the pandemic, digital technologies were established in Indonesia, which directly assisted with COVID-19 management, detection, response, and treatment. They targeted varying portions of the technical spectrum and were concerned with varying degrees of adoption, which ranged from the local to the regional to the national level. This wave of technological innovation and use has had an indirect impact in the form of the establishment of a solid basis for the promotion of future multisectoral collaboration within the Indonesian national health care system. History lessons have taught us that massive catastrophes are frequently the impetus for brand-new ideas and discoveries. When viewed in this light, the digital technologies developed for COVID-19 in Indonesia and highlighted in this research represent a significant step forward for Indonesian digital health innovation. As a result of the epidemic, the Indonesian healthcare ecosystem has seen the introduction of the most important number of health innovations in its history—nearly fifty different technologies, to be exact.

The outbreak of MERS-CoV in South Korea in 2015 was a turning point for the government's efforts to expand digital health use and innovation within its healthcare services. As a developing country, Indonesia may learn more from other established countries in Asia, such as South Korea, which used this outbreak as its turning point. Our research has shown that these technologies have the potential to influence a wide variety of aspects of Indonesia's healthcare services. This is because the digital health technologies that have recently been developed cover a vast array of application areas, ranging from decision-making support to technologies that encompass entire health

systems, from robotics to individual patient monitoring and tracing (Wimble & Leroy, 2018). Given the gaps in research and innovation in digital health, particularly in promoting learning systems that foster ongoing collaborations between government, industry (private sector), academia, and community, several international studies have also highlighted the need for developing countries to accelerate digital innovation. This is particularly important in promoting learning systems that foster ongoing collaborations between government, industry (private sector), academia, and community. International health organisations have taken several initiatives, including the WHO Access to COVID-19 Tools (ACT) Accelerator Diagnostics Partnership. This effort focuses on providing quick, high-quality tests to low- and middle-income nations, educating specialists, and establishing testing for over 500 million individuals in those countries. This evaluation reveals that most healthcare technologies introduced were multisectoral and had a broad potential reach. The only exceptions were three local provincial apps and one institutional app (BPJS), all with more limited offerings than the others. Therefore, due to the pandemic, a precedent has been established for the continued multisectoral development of healthcare innovation, with the possibility of a national rollout.

It is anticipated that digital health will play an increasingly significant role in the future, even in the era following a pandemic, as a result of the availability of a variety of technologies and the pressing need for health care for treatment and prevention (Huat, Juhari & Rahman, 2019; Taylor et al., 2022). This rapid adaptation has revolutionized the methods by which clinicians and patients interact; for example, the now commonplace usage of telehealth appointments rather than face-to-face appointments. The disease caused widespread and rapid adaptation to previously limited or underutilized kinds of technology. Indeed, healthcare organizations are devoting a significant amount of time, energy, and attention to the development of long-term plans with the goals of incorporating digital health care models into normal operations and providing clinical practitioners with the knowledge and expertise necessary to make effective use of digital technologies.

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