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Perspectives

Using IT system to improve public communication in the post-epidemic era

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The COVID-19 pandemic severely impacted the world since its outbreak in 2020 and placed a huge burden on the health systems. During this period, various application systems have been developed rapidly in formats such as keeping track of close contact with Bluetooth,¹ identifying healthy people through blockchain, reading medical image with the assistance of artificial intelligence, delivering health care services with robots, and monitoring patients remotely by Internet of Things. The U.S. government expanded the scope of telehealth services provided in Medicare and relaxed eligibility for the elderly population.² From March to April 2020, the daily telemedicine visits of major health care providers in the United States increased by 683%.³ The application of information technology (IT) systems not only solves the dilemma caused by the epidemic but connects information from different sectors of the public health system to coping the epidemic.⁴

The National Health Insurance (NHI) provides comprehensive medical services to citizens in Taiwan and establishes the “NHI MediCloud System” to assist health care providers in obtaining patients’ medication records. To provide medical staff with patients’ travel and contact history, the National Health Insurance Administration (NHIA) integrated information from several sources and added reminder functions of “travel, occupation, contact and cluster histories” to the NHI MediCloud System. In this

way, providers can assess if a patient is at risk of COVID-19 infection in real-time. As the epidemic developed, Taiwan’s NHIA approved telemedicine not only for patients in home isolation and home quarantine but also for chronic patients who require regular follow-up visits. At present, at least 9000 hospitals provide telemedicine services to reduce the risk of medical-associated exposure.

Wearing masks can efficaciously reduce one’s possibility of contracting COVID-19 through respiratory droplets. In Taiwan, to ensure access to acquiring masks by the general public, the government established the “Name-Based Mask Distribution System”. This system, based on the existing “NHI information network service system”, serves as a distribution platform and management system so people can buy masks at NHI-contracted pharmacies, public health centers, health service centers, and airport duty-free shops using their NHI cards as a certificate. One can also pre-order masks through the online platform or “NHI App” after identity authentication. To provide the general population more comprehensive information when buying masks, the NHIA also released the data of the remaining quantity of masks in NHIA-contracted institutions. Applications such as maps, mobile apps, Line and voice assistants are developed through public-private cooperation, so people are able to purchase masks efficiently.

For further strengthening preventive measures, the government digitized health declaration to accelerate custom checking, quarantine management, and compliance monitoring. By scanning the QR codes of the venue visited, citizens can send a text message to a centralized database without any charge to document their footprints for contact tracing purposes. Furthermore, to safeguard disease

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prevention efforts in the country, the “Taiwan Social Distancing App” was developed to keep track of close contacts of its users via Bluetooth. The most noteworthy strategy is linking the databases of NHIA and Taiwan Centers for Disease Control, so people can conveniently inquire their COVID-19 vaccination records and COVID-19 screening results through the “NHI App” to manage their health accordingly.

The proliferation of health-related technology applications reflects how people are paying more attention to their health. In Taiwan, it is estimated that the “NHI App” was downloaded more than 7.3 million times in 2020. Moreover, citizens have become more concerned about health policies and COVID-19 information, so the NHI customer service received nearly 300,000 calls in March 2020, showing a nearly 50% increase. To improve efficiency, the NHIA established the “smart customer service” to provide the general public with 24-h real-time services through online text robots and answers to frequently asked COVID-19 related questions via various channels such as official websites, Facebook, and Line official account of NHIA. In 2020, the Facebook and Line followers of the NHIA had grown by 125% and 280% respectively.

IT systems have been widely adopted to combat the epidemic around the world. Taking advantage of technology, we can break the limitations of time and space and accelerate the introduction of a “contactless lifestyle.” Technology has drastically changed people’s lifestyles and people also recognize the benefits of IT systems. At the same time, the IT systems foster the integration of disease-preventing habits into people’s daily life thereby raising crisis awareness during the epidemic. Taiwan has

successfully applied technology to improve the efficiency of data connection, integrate the resources from all departments, and maximize the benefits of data. The utilization of technology optimizes the process of public service and enables more convenient and efficient service models. It is hoped that through the application of IT systems, strong support from the citizens and public-private cooperation, we can work together to face the challenges in the future and create a new and safer lifestyle.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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