DIGITAL TECHNOLOGY COMES ALIVE DURING COVID

Digital health technology use exploded during the COVID-19 pandemic as existing applications became the only way that some people could get the care and the support they needed. New applications surfaced to keep us in touch with friends and family. The availability of our **digital health records**, and **patient portals** enabled many of us to easily communicate with new health providers or doctors we had not seen for a long time. Digital health records now ensure that an accurate summary of our health history, conditions, medications and test results are available to patients and providers, anywhere, anytime. Portals, which are secure online websites, house our data in one central location, and are accessed with an Internet connection. When COVID made it impossible for many of us to see our physician in a live setting, portals made it possible to have remote visits, and truly feel confident that all parties had full information at the point of care. Several other digital technologies have enabled important communication and connections. among patients and healthcare professionals including:

Telemedicine, the use of digital communication technology to provide and support clinical healthcare when distance separates the participants has become a feasible alternative to the more traditional face-to-face visit with a physician, which was not safe during the pandemic. Telemedicine eliminates distance barriers by providing access to medical services, particularly for underserved, elderly and rural communities. A combination of mobile technology. video, and remote patient monitoring tools, used on a telemedicine platform, enables doctors and patients to work together as long as they have a broadband connection.

Telehealth is similar to telemedicine, but where telemedicine focuses specifically on remote clinical services, telehealth includes a wider variety of non-clinical services and remote healthcare beyond the clinician-patient relationship, including: long-distance clinical health

care, patient and professional health-related education, and public health and health administration. Telehealth uses electronic information and telecommunication technology, such as: videoconferencing, Internet, store-and-forward, imaging, streaming media, landline, and wireless communication. The legal barriers to the use of telehealth were lifted by the Centers for Medicare and Medicaid Services, during the pandemic and the resulting expanded use of telehealth became an important way that critical healthcare services could be available to patients.

During COVID-19, **social networking** became one of the standard ways that many people remained in touch, to talk about feelings and exchange opinions. People accessed social networks to connect with friends, family, even business associates, while remaining socially distanced. Over 85% of Americans say that they are online frequently throughout the day, according to a survey conducted by PEW, (PEW Research Services is a nonpartisan fact tank that informs the public about the issues, attitudes and trends shaping the world.). A recent PEW survey that interviewed 1,500 adults in America, conducted between January and February 2021, found that nearly 100 percent of adults who are online use social networks, and over 50% are registered with several. Although social networks have initiated much controversy recently, they are a force in the world of Internet communication and in interaction among patients and healthcare organizations.

Remote patient monitoring (RPM) is a broad term that refers to the use of a variety of medical devices, used at home by patients to monitor and manage chronic conditions. These devices include wearable clothing and jewelry, portable home health monitors and online apps. RPM technology electronically tracks and transmits real-time information from the patients to clinicians, seamlessly, on multiple platforms, collecting information such as weight, blood pressure, and heart rate using an external cuff, a special scale, or a camera connected to an iPhone, iPad, or laptop. RPM have become smarter and more affordable over A survey by Insider Intelligence indicated

that 23.4 million patients used remote patient monitoring services and tools in 2020. They predict that by 2024 they expect RPM tools to be used by more than 30 million patients. Interestingly, more than 80% of patients, when asked, indicate they are favorable toward incorporating RPM into their medical care. They report that they love the convenience but have concerns about reliability and accuracy as well as potential complications that might not be identified using RPM.

Robotics in Health

Robotics has become mainstream in healthcare with robots used to carry out tasks that have traditionally been handled solely by humans. During the pandemic, robots helped compensate for staff shortages among first responders, by doing routine tasks. They were used for patient monitoring and evaluation, the delivery of medical supplies, prescription disbursement from the pharmacy to patients, and more. Specialized robots roamed hospital corridors and disinfected rooms, delivered meals, transported infectious materials to laboratories. Many hospitals assigned robots to greet and register patients, send them to testing sites and admit them, to keep front line workers away from initial contact. Cylindrical shaped robots were rolled into patient rooms to remotely take temperatures, measure blood pressure and oxygen saturation of patients who were connected to a ventilator, again, keeping the human front line workers at a distance. A robot, designed as a pair of large blue fluorescent lights mounted on a machine that rotates vertically was used to travel throughout the hospital and disinfected patient rooms, waiting areas, labs, ERs and ORs These robots continue to be used in supermarkets, laboratories and factories. Robots in the shape of a cart, equipped with maps, roamed freely to pick up trash and laundry, and even bring food to healthcare workers during their break. Outside the hospital, quadcopter drones ferried test samples to laboratories..

Small, cuddly robots no more than two feet tall have been used successfully with young children, to improve their hospital

experience or an office visit with a pediatrician.by, providing comfort and assurance as the young patient undergoes blood tests, removal of casts, insertion of IVs, injections inductions, and more.

In another example of robotic use, when doctors could not be physically present to visit their patients, telepresence robots, who directed a television screen an iPad or iPhone mounted on a moving base rolled from room to room and beamed in the face and the voice of the clinician, who had been videotaped. They became particularly useful in remote areas where there is a shortage of clinicians. The telepresence robot can also connect to a doctor remotely who wants a detailed, real-time look at a patient to evaluate their condition. They are interactive and carry on an actual conversation with the patient. They are also used to oversee patients in intensive care units, to monitor changes in a patient's behavior, and send signals to alert nurses.

Online Meeting Technolog

During COVID-19, people became hungry for the opportunity to visually connect with friends and family. Company, employees who were working at home, found it vital to conduct virtual business meetings. Popular virtual meeting platforms, using video conferencing, include: Go to Meeting, Skype, Google Meet, ClickMeeting, Buzz, and Zoom. provide a simple interface and useability, specifically targeted to a non-technical individual Zoom became the popular choice, because with a user name and password for access, zoom filled a need and zooming became a part of the common lexicon. People even complained about being zoomed out. Zoom allowed anyone who registered to hold or access a meeting with a 40- minute limit and up to 100 participants, free of charge. For a fee, businesses could opt to have more extensive features and extended times that enabled them to hold longer meetings and conferences. Healthcare institutions used this technology for remote screening of symptomatic patients before they would be granted access to the

ER or a clinical test site. Consumers are zooming everything from funeral services, and religious services to wedding celebrations and "happy hours," and to simple visits among families and friends. The concern going forward is finding ways to ensure that privacy and security, is prioritized over ease of use,

Digital Tools for Mental Health

According to Kaiser Family Foundation, about half of adults (47%) nationwide have reported negative mental health impact during the pandemic — a significant increase from pre-pandemic levels.

Technology has opened a new frontier in mental health support and data collection that can help to address some of the impact of increasing mental health support needed. For example, telemedicine has opened up a new avenue for persons with mental health concerns stay in touch with their mental health counsellors on a regular basis, without leaving their home. Using telemedicine, treatment can take place anytime and from anywhere and can help mental health providers offer treatment to people in remote areas or at a time when someone has a sudden need. This approach could become more appealing to people than traditional in-person treatment protocols.

Mobile devices like cell phones, smartphones, and tablets are giving the public, doctors, and researchers new ways to access help, monitor progress, and increase understanding of mental health and well-being. These apps are often free or cost less than traditional care. Mobile mental health support can be very simple but effective. For example, anyone with the ability to send a text message can contact a crisis center.. There also new sensor apps built into mobile devices that are able to collect information on a user's typical behavior patterns. If the app detects a change in behavior, it can provide a signal that help is needed and connect the person to the nearest crisis center. The jury is still out on the effectiveness of using apps to trace mental health

issues, and regulation is clearly needed, but the promise of new adaptations of our always ready mobile devices has much potential for help.

As we continue to address variants and ongoing COVID health issues both physical and mental health issues, technology makes it easier and safer for us to stay in touch with our healthcare providers, care-takers, family and friends and feel safer and more secure. This is critical to a sustained healthy environment that will promote the well-being for public health throughout the nation,