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Need for Technology in Improving Healthcare

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Singapore: The use of smartphones, smart watches, tablets, laptops, and other such information technology (IT)-enabled devices has become an integral part of our daily lives. Apart from keeping a track of the current affairs, we use technology to keep a tab on critical wellness statistics (number of steps walked, calories burnt,and others), set e-reminders for medicine, book an appointment with a doctor with just a click, and so forth.With growing digitalization, healthcare professionals (HCPs) now prefer reviewing patients'electronic health record (EHR) data on their IT-enabled devices before prescribing any medicine to patients, as well as use the technology to constantlymonitorpatients' daily vitals sothat HCPs are well informed of the patients' current health status to devise the most suitable therapy accordingly. Notably, not only do patients and HCPs benefit from technology.In recent times, we see technology improving the administrative side of healthcare delivery, such as hospitals using programs that alert nurses when a room is available for a new patient or when a patient needs to be seen by a doctor.

The current status-quo of technology in healthcare

In the last few years, advancement in technology has been a catalyst to change the healthcare industry and has directly improved both the patient and caregiver experience. From remote patient monitoring devices to health apps and from EHRs to glucose monitoring, technology has played a significant role in creating the new digital health ecosystem. Some of the advancements in clinical technology that are developed/being developedduring the recent past are as follows:

Ã?Â¢Ã¢â??Â¬Ã?Â¢ Surgical procedure simulation: The Roswell Park Cancer Institute has partnered with the University at Buffalo School of Engineering and Applied Sciences to create the robotic surgery simulator (RoSS). This innovation makes it possible for real-world views of surgical procedures at the same time, eliminating the necessity for live training to aspiring surgeons. It offers space to experiment in a simulated environment, instead of risking errors on real patients.
Ã?Â¢Ã¢â??Â¬Ã?Â¢ Mitochondrial DNA transfer:The first mitochondrial DNA transplantation was performed in the late-90s.This procedure is now becoming a more viable option for the prevention of gene-related diseases. The procedure, wherein 2 parents contribute to in-vitro fertilization and a third party contributes the mitochondrial DNA, is being perfected so that its usefulness will be undeniable.
Ã?Â¢Ã¢â??Â¬Ã?Â¢ Technology in laboratories: The use of IT has made testing more efficient and automated. IT has revolutionized data transfer by decreasing the time it takes to order and receive test results and has also created opportunities for research on large test result datasets.
Ã?Â¢Ã¢â??Â¬Ã?Â¢ Cloud-based software and knowledge management: Platformssuch asreferralMDhelp providers create the referral letters digitally and allows the organization to promote themselves to millions of patients and other providers looking for treatment options.In the current scenario, 50% of patient referrals never result in practitioner visits.

To mitigate this gap in care, which causes patients to lose treatmentand money, IT innovation could be leveraged by presenting patient's health information in a digital format.
a. Platforms and apps of WebMD, Sugarsense, AppleHealth, and so forth help patients and caregivers to take care of themselves and their loved ones. Starting from the diagnosis stage to care management, these apps provide features such as symptom checker, scheduling doctor appointments, reminders to take medicines, and keeping a check on calorie intake. Technology has made people more aware about diseases and how to manage them effectively.
b. Mobile apps such as AirStrip OB have made it possible for obstetricians to remotely access real-time/historic data of the mother and baby, including heart tracing and contraction patterns. The days are not far, when irrespective of the geographic location where patients are, physicians can keep track of patients remotely, without patientsever mentioning any symptoms.
Ã?Â¢Ã¢â??Â¬Ã?Â¢ Wireless technologies, which use Wi-Fi and Bluetooth, allow monitoring and transmission of data, including heart rate and blood pressure. CardiNet, a wireless medical device, automatically transmits arrhythmic signals to specified monitoring center. In 2001, a surgery was performed wherein 2 doctors sittingin New York removed the gallbladder of a woman in France, by using the Zeus Telesurgical Robotic System. This technology is not only useful for people who live far away from hospitals but the system is foreseen to aid soldiers in the battlefield, by making use of the skills of remotely located medical personnel.

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The way forward...

The three key technology implementation that might revolutionize the way forward for healthcare are EHRs,exchange of health information, and ICD-10:

Ã?Â¢Ã¢â??Â¬Ã?Â¢ Electronic health records (EHRs): Both medical billing and coding have switched from being paper-based to computerized layout. EHRs offerhuge benefits to the medical field. These records help in making healthcare more effective and less expensive, and help improve the quality of service by making patient's medical history readily accessible to all who are involved in the treatment.
In the US, EHRs have won the federal funding, and the government has provided with $6.5 B in incentives. EHRs have access to the entire care a patient has had ever received and can assessthe drug-disease interplay in the past for that patient, while streamlining the cure process and alleviating unnecessary costs involved in the treatment.

Ã?Â¢Ã¢â??Â¬Ã?Â¢ Health information exchange (HIE):This technology allows for the secure sharing of patient clinical history among physicians of all specialties, while at the same time allowing patients to access information about their own well-being. This sharing creates improved healthcare services and communication, leading to safer and effective care based on the needs of an individual patient.

Ã?Â¢Ã¢â??Â¬Ã?Â¢ ICD-10 and clinical billing:The latest innovation in diagnostic tools is the International Statistical Classification of Diseases, or ICD-10. It is an improved scientific coding approach that entails over 14,000 exceptional codes globally, along with additional subcategories. Insurance companies and patients are billed for services in a precise method. In the US, ICD-10 classification is much more vast and extensive, which entails additional codes that push the whole to 76,000 ways by which medical procedure claims can be processed and paid for. This beneficial instrument allows nations to retrieve, manage, and store all diagnostic information in an efficient way. Nonetheless, healthcare facilities have to set up new software and educate employees to comply with ICD-10 recommendations. This is another area where trained health informatics professionals are invaluable.

To conclude,the technology is changing all aspects of healthcare. Technological innovations in the healthcare industry continue to provide better approaches for physicians to provide theirpatientswith modified and effective ways to improve their health, thereby leading to improved state of global healthcare. In the current scenario, integration of technology in the areas of disease prevention, access to medical information,and complex surgical procedures alludes the fact that technology is the best friend of healthcare and it is here to stay.