Editorial

Smart Hospitals … Gen Next

Healthcare in India is undergoing paradigm shift. Globalization and shrinking of the world has necessitated the way to rethink and re-engineer how healthcare is delivered. Today the need is of instant updates and quick solutions. Technology is surging ahead by leaps and bounds and hospitals are also metamorphosing into technology embedded organizations. Facing increased competition, tighter spaces, staff retention and reduced reimbursement, today's hospitals are looking at strategic ways to use technology to manage their deliverables. This is where a system called smart hospital steps in. Concept of the smart hospital is about adding intelligence to the traditional hospital system by covering all resources and locations with patient information. Patient is the defining factor for all the hospital's performance criteria, earlier hospitals used to be oriented around the specialties and the beds therein, but now hospitals are no more a conglomeration of infrastructure and trained personnel, it is more about re-engineering the patient comfort and providing him personalized treatment. Patient's information is an important component of the patient privacy in any healthcare system that is based on the overall quality of each patient in the healthcare system. The main stakeholders in the healthcare process are healthcare consumers (patients). Consumer-oriented care, where patients are directly involved in the process of care, will greatly improve the healthcare process. Today, there is a need of such computer environment where treatment to patients can be given on the basis of his/her previous medical history at the time of emergency at any time, on any place and anywhere. Portable and wireless mobile information communication technologies (MICTs), such as computers on wheels (COWs) or workstations on wheels (WOWs) are used in some healthcare setup to further facilitate access to information technologies at the point of care.

The concept of smart hospital has been designed from the ground up to achieve safety and clinical quality, productivity, ease of use for patients, doctors, families and caregivers, service excellence, optimal use of technologies. Today, hospital executives have to look closer at their work flow processes earlier in the game, in order to capitalize on the latest technology to optimize clinical, financial and administrative processes. It involves more than advanced healthcare information systems. It also includes ancillary technology, such as medical-device integration, advanced nurse call and advanced patient tracking.

Technology is the major driver of all facets of healthcare delivery. Hospitals have introduced the advanced information and communication technologies to improve the processes and outcomes of medical care, improve efficiency and reduce waste in the processes of medical services. This can happen by enhancing the teamwork and multidisciplinary care.

Technology can play key roles in consumer-oriented healthcare (e.g. making information accessible to consumers, integrating consumers preferences into hospital information systems (HISs), remote monitoring, communication, etc. internet of things (IOTs), the fourth dimensional technological revolution of world information, following technological revolution of computer, internet and mobile communication network, is a network connecting any items with internet to implement information exchange and communication, furthermore to implement intelligent recognition, positioning, tracking, monitoring and management, by means of radio-frequency identification (RFID), infrared sensors, GPS, laser scanners and other information sensing equipment, according to conventional protocol. Internet of thing is through wireless communication technology that it automatically transmits the information stored in RFID tag to central information system, so wireless communication technology is core technology in IOT and several common wireless communication technologies mainly include Bluetooth, wireless fidelity (WiFi), ultra wide band (UWB), Zigbee, infrared data association (IrDA), etc. Healthcare applications open up new possibilities for supporting diagnosis and therapy, by bridging temporal and spatial gaps between patients and physicians. Smart hospitals are based on technology of IOT and are embedding newer applications which has integrated the function of diagnosis, treatment, management and decision. The features of IOT, such as comprehensive perception, reliable transmission, intelligent processing and so on provides technique support platform for the construction and implementation of smart hospital. In essence, IOT is an embedded system based on internet. As more and more intelligent terminal products have the requirements to network, it hasten the production of IOT concept, so IOT is the inevitable outcome of embedded technology development.

The smart hospitals also build in the intelligent hospitals which have high hospital safety index, and aims to bridge the gap between environmental performance or climate-proofing and hazard resilience and disaster risk reduction in health facilities. It is necessary to develop higher design and construction standards for new hospitals, incorporating lower energy

and water use to help withstand expected climate variability and change. Energy efficiency must be combined with disaster resiliency. Countries need to be smart about what is useful, needed and cost-effective.

It is time to realize the importance of technology and understand that technology helps to reduce patient visits to hospital, thus, decreasing the footfall and also reducing the hospital infection drastically. Personal mobile devices enable autonomous and unobtrusive collection of clinical data and support the continuous transmission of physiological information between patients and remote healthcare provider. For patients with chronic diseases, like chronic heart failure diabetes, mobile e-health systems help to minimize hospital stays and in doing so enable an independent life in a domestic environment. In order to meet the needs of future user groups, an integrative and multidisciplinary approach is required, which combines engineering and medical knowledge with theoretical and methodological contributions of the humanities. Various hospitals like Winthrop University Hospital Research and Academic Centre, New York and Cleveland Clinics have showcased the value of technology in healthcare. Smart hospitals are gradually making headway to stay and coexist, implementation of technolgy-based changes will surely help the overall healthcare indices and patient satisfaction level.

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