

## **Technology and healthcare**

### **Introductions**

One of the greatest benefactors of technology usage has been the healthcare sector and we often take this for granted. It is interesting to walk through how in recent times people have realized great benefits from technology applied to simple tasks across the healthcare domain. This article discusses some of the more visible applications in detail and what the future trends.

### **Overview of technology**

Technology in healthcare is generally grouped into solutions for payers (patients), providers (hospitals, labs, biomedical companies and research institutions), insurers (insurance providers) and compliance/governance. Let us take a look at some common examples across these groups and look at what binds these groups in technology terms to provide better quality of healthcare using technology. We will look at web services and self help, patient education and triage, elder care, insurance settlement networks, medical devices and other similar recent service innovations using technology in this article.

### **Leveraging the internet**

Internet usage prompted healthcare institutions to come online and communicate very effectively. The web is used to disseminate patient education especially since patient advocacy is lot more prominent. It has also brought transparency to how services are clearly listed for people to look at including cost information before they come in. The web is also a powerful medium to promote wellness and fitness programs including using online sales channels for off the shelf products for wellness. One of the most visible uses today is telemedicine which is used by large hospitals even across geographies. Sites such as [www.telemedicine.com](http://www.telemedicine.com), [astp.org](http://astp.org) and [tie.telemed.org](http://tie.telemed.org) are good sites

### **Leveraging communications technology**

Conventional and mobile telephony has also transformed the way patients can use triaging services to find out the right hospital or service and also for hospitals themselves to provide locator or referral services in cases of emergency. Technology therefore, allows hospitals, ambulances and allied services to share information and leverage mobile / RF technology for alerts during emergencies. Triage services are often provided by contact centers that extend the hospital's capability to help patients quickly and also provide nursing services, psychiatric help etc (e.g. [www.cpnonline.org](http://www.cpnonline.org), [www.bendigohealth.org.au](http://www.bendigohealth.org.au)). 3G wireless cellular systems also provide telemedicine with video capability that facilitates transfer of real time images from remote areas. Other technology leverage is RFID and fleet management solutions that are effectively used by hospitals or their service providers to track material and fleet movement.

### **Improving hospital work efficiency**

A lot of conventional technology solutions from industry are now used by hospitals – e.g. CRM for reducing wait time, queuing and better patient management / personalization, healthcare specific ERP/HIS solutions. A good example is Emedsys which has converted its HIS platform into a service model which comes with trained IT professionals to run the software. The same company has also built an insurance settlement network that reduces significantly the time for insurance settlements between payers, hospitals and insurance providers. Other areas of productivity improvement include workflow automation and networked storage of patient records that can be accessed by PDAs using technologies such as UWB that are built for media rich campus networks. Patient records on smart cards also eliminate the need for extensive records and facilitate easy updating of the same.

### **Medical devices**

This segment has traditionally had large players like GE, Siemens and Philips and with new generation software players pitching in, allows for online capture and storage of images for quick and easy retrieval and referencing. HL7 is an industry specific protocol that is used to connect medical devices onto standard data capture systems. With significant improvement in medical imaging and conventional multimedia, the physician is today empowered to take better decisions whatever be the super specialty area. Another innovation is online remote capture and review of ECGs and other patient data that is captured real time with compatible communication technology allowing for better remote diagnostics and care. Medical robotics and lasers are other interesting areas that is all set to transform routine surgeries.

### **Elder care**

Developed countries have leveraged this aspect very well using remote monitoring which makes it possible for long term care patients to be monitored remotely and dispatch emergency services when needed. Normal home telephone networks are extended to service this need and relevant medical devices are used to monitor and report vital statistics for the patient. Cisco is one of the key players in this space. Other companies such as Awaretechs have come out with innovative devices for elder care such as the motion pendant.

### **In summary....**

Healthcare is a topic too close to our daily lives and technology has really started making a difference. While the early movers were diagnostics equipment providers, it is the software, media and devices which is now the focus as well as extending the reach of technology into viable healthcare services. Technology in healthcare is still a little expensive though and needs a lot of effort to make it more pervasive and user friendly.