

Cover Story **Vision 2020**

ICT in Healthcare: Falling Behind or Leap-frogging?

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Healthcare as an industry is beginning to realize the needs and the benefits of embracing technology. With the challenge to support an aging and remote population with limited number of clinicians at specialized centers of excellence, technology is the only hope. Like the mobile phone and Web 2.0 are 2 leap-frog technologies that have changed the definition of communication, there is also a need of a 'Doctor Anywhere', that understands the needs of customer. This 'Doctor Anywhere' then can also reach our remote population at a nominal cost.

IT Infrastructure in Place

We have already created the required IT infrastructure backbone for our hospitals. Dell Services is our chosen partner for IT support and development, both for infrastructure and application. We have created redundancy in our network infrastructure to enable higher reliability and moved our servers to Dell data center where they are monitored and supported 24x7x365. We are ready with systems for disaster recovery and have created processes for business continuity.

We have implemented Picture Archival & Communication Systems (PACS) across all our hospitals which capture the images from various modalities of the hospital. This along with our high-speed network

enables us to effectively use our domain specialist clinicians across for collaboration and second opinion on patient. Although in early stage, we have also started using video conferences and relay of live telecast of operations for continued medical education (CMEs) across our hospitals. Healthcare traditionally has high data volumes along with high transaction volumes. Although the concepts of telemedicine, tele-radiology and telepathology always existed, they never became fully operational because of the extensive need of strong IT backbone, bandwidth, and associated reliability of service.

With the new technologies such as 'Cloud, 3G, lower transmission and storage costs coupled with the new generation Electronic Health Records (EHR) systems, all these technologies are again becoming usable at affordable delta costs. In our hospitals, today we are already equipped to support remote second opinion from a specialist, with the help of technology. Within the organization, we have created an environment of Health Information Exchange, which ensures that the patient related information is available at the point of care, regardless of the location the patient may choose to visit. Looking at it as a microcosm of a region or country, it is a proof of concept of what is possible. The next leap for us is going to be the capture and retrieval of electronic clinical data, bringing in much needed standardization, practice and monitoring of evidence based medicine, cul-

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ture of safety and improvements and preparing a ground for the next set of tools to build on.

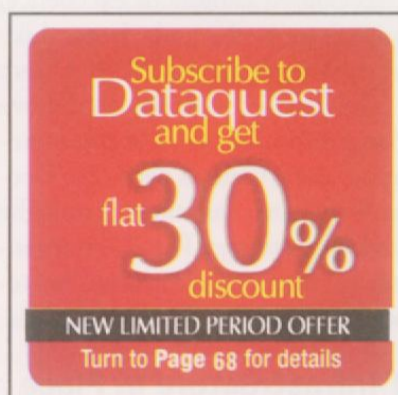
Aiding Patient Care

Within our organization we have leveraged technology to support economies of scale. Our practices ensure that expert talent is available across locations to benefit the patient care regardless of physical distances between the doctor and the patient. A patient undergoing radiotherapy gets the advantage of an expert team of physicist and radiation oncologist at every location of Max using specialized Treatment Planning Systems and dedicated broadband connectivity, ensuring optimum levels of radiation to the patient.

The healthcare consumer of today, together with insurance partners prefers to choose a clinical provider, where the outcomes are measurable, reportable and reproducible. As the industry matures in India and we plan to move forward towards disease management, where the focus of care would be the patient, the requirement for adequate information would be immense and that is not possible without an EHR. We are currently in the process of implementation of a system for (EHR), which is aiming at improving the quality of patient care to the best in class standards at our hospitals. We are using an Open Source product, so that the burden of this product does not increase the cost of healthcare delivery. Other than enabling complete patient data across all our locations, it aims at reducing medication errors by providing alerts for allergies and bar code medical administration. The product additionally should reduce the billing errors and help in faster approvals from TPA's with the build-in standardization to the disease specific cases. In an environment of Health Information Exchange it would be a seamless sharing of clinical records with insurance providers for payments and bring in an element of transparency to the process.

Data Enabled Medicare

Business Analytics currently is limited to only MIS and financial reports in healthcare as clean analyzable clinical data is still not available in significant volumes. As we move towards evidence based medicine, a natural next step of our EHR journey is health informatics. We want to use patient data to provide the relevant alerts to support wellness. This will enable us to move from reactive treatment to preventive healthcare. We would be able to capture meaningful clinical data, which can aid in the analytics and research. Most medical research publications rely on clinical data for analysis of the current healthcare trends and guide to formulating newer preventive and therapeutic approach-



es to keep the population healthier and stronger. Published analytics are mostly from areas where they already have mature EHRs. Our EHR will also give us a unique opportunity to create a framework for our regional population which in turn would help us in defining population specific markers and interventions. We want to create decision support systems on top of our EHR to further improve patient care, which then can be possible with the knowledge that we are currently creating in the system.

In an innovative initiative, Max is also trying to bring mobility to its physician community as well as spawn an environment of connected providers across the levels of care. A patient visiting his family physician followed by a

referral visit to Max Hospital should allow the family physician to access diagnostic reports from his data enabled mobile. Soon this scenario would be rolled out in Max community which promises continuity of care to its patients across a wider spectrum of providers.

The Way Forward

Although a lot of work has been done in IT for healthcare, I think the following may need to be addressed to enable the next leap:

- We still have a large number of standards across hospitals. There is need to be able to come up with 1 set of standards which can be followed across all hospitals in India. We see a lot of innovative devices coming to market for supporting healthcare. However, there is a need for enforcing a process of standardization for these devices.

- For a doctor to reach a remote patient with support of IT, we need to be able to support the creating of a legal framework.

- Supported with Unique Identification as part of UID project, there is need for Health Information Exchange to enable a consumer of healthcare to see his data, irrespective of the hospital he goes to.

- Although the current generation doctors are extremely IT savvy, there still is a need for tools to enable faster patient data capture.

With the aging population, wellness and home care are 2 areas which have to be addressed as part of all the healthcare initiatives today. Technology supported by the right legal infrastructure is the only way to enable this. The future is not far when the consumers will be able to make a video call to us at the hospital, with EHR in hospitals and home support equipment transmitting their healthcare vitals enabling our doctors to provide them immediate support from a distance and if need be, ensure a speedy evacuation to the hospital.

—Pervez Ahmed

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