Technology as an Enabler

A Vision of the Future of Healthcare in Asia

Technology has entered every aspect of our lives today and we have embraced its use and even taken it for granted. Asian countries such as Hong Kong, Singapore, South Korea, Thailand and Taiwan have ushered significant technological advancement in healthcare. While we have made tremendous progress in using technology to improving healthcare outcomes, we have still to walk that last mile where all aspects of the healthcare continuum are integrated. This would mean using technology not only for efficient delivery but also to improve lifestyle and promote healthy living.

In the last few decades, we have enhanced patient care experience through many technology-based innovations

- **Patient care applications and telemedicine:** Patient care and ward management applications in hospitals have eliminated multiple points of entry of the same data as the patient moves between different hospital departments. The Hospital Authority of Hong Kong has been developing a comprehensive integrated patient record system (the Clinical Management System) since 1995. This system is an integral part of care delivery in all 43 public hospitals and 120 clinics. It is one of the world’s largest single healthcare databases that is shared between all hospitals and clinics operated by the Hospital Authority. Telemedicine has helped optimize the workflow by transmitting test results through phone lines, using video technology for long distance consultations and in educating patients on their medical condition. In India Telemedicine initiatives have penetrated even the district hospital level in certain states.

- **Telephone help lines:** Twenty-four-hour call centers manned by customer service agents or even paramedical personnel can help users in obtaining clarification regarding health plans or even assistance in case of medical emergencies. Call centers simplify the complexities involved in medical and insurance jargon and ease the healthcare experience of users. In India several third-party administrators offer this service to their corporate clients. In Singapore, initial offerings include help lines for medical referrals, managed healthcare service, medical assistance and appointments.

- **Smart cards:** Today, countries such as Taiwan use smart card technology for healthcare. Taiwan launched its National Health Insurance Card in 2002, and 24 million patient cards and 150,000 cards for professionals are in circulation today. The card stores information such as medical records, treatment, visit records, and administrative data. The smart card is especially useful in case of emergency as it carries critical health related data and surpasses the language barrier.

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• **Health information:** The Internet has made healthcare-related searches available to every home. The information that is available is vast, confusing, and ranges from information on simple procedures to information on life threatening diseases. In order to make this more scientific, many stakeholders (medical providers, insurers and third party intermediaries) offer customized websites that have scientifically researched information available to its clients. Aon Consulting, for example, has introduced a wellness portal that aims to educate its users on living better lifestyles and has several interactive tools that make it easy to navigate through the vast world of healthcare information. In Asia, countries such as Hong Kong, Singapore, South Korea, Thailand and Taiwan are developing and implementing e-Health policies. The Philippine Council for Health Research and Development has initiated the Health Research and Development Information Network (HERDIN), which facilitates online information and serves as a knowledge repository on healthcare topics3.

• **Data analysis tools:** Since information is available electronically, data collection, collation and comparison can be done accurately and quickly when buying a health plan. For instance, Aon Consulting uses an electronic sheet to gather information on defined parameters from various insurers. The insurers’ responses are electronically compared, which are simultaneously matched with client requirements to determine an optimum plan for the client. It also uses simulation tools to predict financial trends of groups based on past utilization.

• **Electronic medical record:** Electronic medical records and patient care applications make medical history available at the click of a few keys. This ensures that care decisions are made quickly and are especially useful in emergencies. Hospitals and polyclinics under Singapore’s public health-care groups and a number of community hospitals share some of their patients’ electronic medical records. In Thailand Ministry of Public Health plans for a national healthcare infrastructure incorporating e-referrals, tele-consultations, telemedicine, electronic personal health care records and electronic health cards4.

• **On line appointments / automated reminders:** Seemingly simple technological advances such as online appointment systems email and cell phone reminders, provide significant benefit in terms of faster appointment scheduling, and reduced wait time.

• **e-Enrollment:** Health Insurance plans are now using web based e-enrolment services to allow employees to input their data online through a web based portal which saves time and ensures accuracy.

• **On line claims submission and claims management applications** have assured speedy healthcare cost reimbursements.

Most of these advances impact the user in a focused manner but where we fail is the integration of all these technologies for a seamless consumer experience. For example, while hospitals use an electronic system for patient records, an electronic system is unavailable to other providers or to the patient him or herself for future reference. This leads to duplication of effort when storing medical records that are accessible to an individual at a later date. Similarly, medical records from hospitals are not automatically shared with payer systems, leading to inefficiencies and delays in the process.

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4. Open Clinical, Health Information Technology adoption, programmes and plans: South-East Asia [http://www.openclinical.org/hitGlobalAsiaSE.html](http://www.openclinical.org/hitGlobalAsiaSE.html)
The Ideal Healthcare Ecosystem

In an ideal healthcare ecosystem, technology should be used early in an individual’s life, before the onset of an adverse event (of sickness or injury). Imagine this:

At the age of 25, you perform a **Health Risk Appraisal** that evaluates your risk factors to developing health issues in the future. An Appraisal is more powerful than a simple biometric screening since it assesses risk factors before the onset of chronic disease. Your central health record is available for your personal physician to view and guide you accordingly. All your reports are stored in your central health record while your key biometrics are in a smart card that you carry with you like a social security card.

Say that your Health Risk Appraisal report raises several areas for improvement. Interactive tools and programs will help with risk mitigation techniques. If it is obesity, you can enroll into a weight loss and get fit program, if it family history of heart disease, managing your risk factors and periodic screening guidance is given.

In the event of an illness, you are given a choice of medical practitioners under a directory available in the wellness database that helps make a good decision on whom to approach for treatment based on availability, proximity and services offered. Decision assist tools help with understanding procedures and its alternative. You can call a 24-hour hot line or use the Internet.

Once you arrive, your medical history is read through the central health record that the medical provider also has access to. In case of emergency, your smart card becomes particularly useful as it gives key information on pre-existing conditions, which could help emergency staff if they need to revive you quickly.

Smart cards also carry data on your healthcare financing arrangements. The healthcare financing is done through an insurance plan, or by employer or even a “health savings account” in a bank, which finances only healthcare expenses and is available under the funding link of the patient’s portal for direct debit. If pre-financing is inadequate, you can pay through on line automatic debit from your healthcare funds and the healthcare limits are readjusted.

While you are being treated, your entire treatment and medication data is updated in the hospital system connected to your central health record. An option allows each stakeholder to view only relevant data on your central health record through their portals. If you are covered under an insurance plan, data necessary for claims adjudication is automatically available to the insurer or the funding organization on their portal.

The health record triggers an sms when medication is required and emails or sms for follow up check-ups. Renewal of healthcare funding plan is also triggered by sms / email to the buyer.
In Conclusion

The opportunity lies in piecing together the two ends of the healthcare continuum:

1. Staying healthy; and
2. Recovering from acute and catastrophic illness.

Focusing on one and ignoring the other is like running a one legged race. Needless to say, it will change the individual’s healthcare experience dramatically, but it will also have significant benefits for stakeholders. Medical providers and healthcare funding organizations will save time and costs. Such a system will achieve better resource utilization resulting in higher efficiency and profitability; however, this scale of initiative requires a consortium of representatives from among medical providers, insurers, banks and government who can champion such a project. And technology is the cornerstone of making this our new reality.