

PREVENTION IS BETTER THAN CURE

Despite some technological leaps in recent years, healthcare in Asia is in dire need of reform. Jiangan Li looks at how the sector is embracing technology in the name of progress

Facing mounting challenges, healthcare needs reform. This is no longer open for debate.

China recently announced plans to spend more than US\$120 billion on reforming its ailing healthcare system within the next three years. The aim, according to the State Council, is for most of the population to be covered by basic health insurance, for the cost of services to fall and quality to be improved.

"In a healthy nation, every citizen must have access to high quality healthcare," says Tan Sri Dato Seri Dr Haji Mohd. Ismail Bin Merican, Director General, Ministry of Health, Malaysia.

His country is planning infrastructural reform to improve its healthcare system. There are many challenges. Among them are rising consumer expectation and the demand for equitable access to high quality healthcare based on needs rather than the ability to pay.

The economic downturn and the shortage of healthcare staff compounds these issues, which are global. When he was on the campaign trail, Barack Obama put healthcare reform as one of his key policies, with an estimated cost of US\$50-65 billion a year when fully phased. The goal - very similar to

China's - is to provide quality, affordable and portable health coverage for all.

Part of the action plan is health IT investment. In Obama's stimulus plan US\$20 billion has been allocated for computerised medical records.

MINISTRY OF INNOVATION

Dr Ismail Merican believes that to address these challenges, technology together with an integrated care strategy is critical.

"Malaysia is committed to the development of healthcare informatics," he says. A task force was formed in 2001 to develop health informatics standards covering various aspects of the country's healthcare system.

To encourage innovation in HIT, the Ministry of Health holds an annual telehealth interoperability testing event, which it launched last year. The event is a platform for vendors to test their products' compliance to healthcare standards - called integration profiles.

So far six integration profiles have been tested: electronic guarantee letters, clinical summaries, enterprise healthcare scheduling, access to radiology information, scheduled workflow and consistent time implementation. A

company is required to test against at least three integration profiles for the product to be certified.

"The economic downturn is bound to inspire creativity among the management of both hospitals and solution providers. It will lead to innovative ways of improving patient care with technology while reducing cost, reckons Adam Chee, Ambassador for the Committee of HealthCare Informatics Users and a specialist in cardiology information at Agfa Healthcare. The government also provides full funding for TelePrimary project, a telehealth initiative that aims to provide equitable specialist care to remote areas. While witnessing amazing results, the government has to do it in stages because it is very expensive.

But the biggest challenge, he says, lies within the political environment. "An enormous investment is needed, which doesn't produce immediate tangible benefits," he says. "We are working on educating the public to accept long term ROI."

REFORM IN SINGAPORE

Singapore's healthcare system is often ranked as the best in Asia. But it is also in the process of reform. Ministry of Health



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Holdings (MOHH), the holding company for all of the city-state's public healthcare providers, was recently restructured to address systems-level gaps in the public healthcare system.

One of the mandates of the MOHH is to develop a national IT framework for the public healthcare system. In 2008, the national health informatics strategy was endorsed by the Minister for Health to realise the 'one patient, one electronic record' vision.

Sarah Muttitt, Chief Information Officer of the MOHH, explains that the foundational elements include enterprise architecture to guide health IT; the introduction of data standards such as HL7 and SNOMED, policy and architecture to balance access and privacy, and identity management.

"All of these things are pivotal in building and supporting the systems to support the exchange of information," she says. "It is very challenging to fit all these pieces together."

Another important activity in 2008 was the consolidation of IT governance. "Over the last decade or so, since the health sector went through a clustering phase, people have been on divergent IT paths," Muttitt explains. "Now, MOHH has general oversight for health IT over the whole health sector."

Although hospitals are still looking at what their IT requirements are, MOHH's mission is to bring those requirements together. It also aims to find ways to make its systems interoperable and ensure they adhere to national standards. Which isn't easy. Hospital systems became more complicated when hospital were clustered a few years ago.

TOO FEW STAFF, TOO MANY VENDORS

Muttitt complains that while there is a shortage of healthcare professionals, especially in health informatics, the HIT market is overpopulated with vendor solutions. "We have to be very mindful that there will be consolidation – mergers and acquisitions," she says. "It is long overdue."

The need for more qualified staff is also felt by Gabe Rijpma, Microsoft's Regional Director for Health & Social Services. "Governments need to make stronger investments to ensure we have the people that are capable and experienced in delivering systems to health," he says.

In Singapore, while the public sector takes care of 80 cent of acute care, private practitioners occupy the same proportion of the primary care market. MOHH's strategy is to include the private sector as part of the national EHR, with data shared to and from private practices and hospitals.

"That is why there is the issue of privacy, security and identity management," she says. "We want the information to flow more seamlessly across the organisation."

Muttitt says the vision for personal EHR is very patient centric. Information follows the patient wherever he goes. But the electronic medical records in hospitals currently are very facility

centric and provider centric. Reform to better integrate health systems is a step towards more patient centric healthcare.

PUTTING IT INTO PRACTISE

To implement the national masterplan, MOHH has brought all IT resources together in a subsidiary company called the 'Integrated Health Information Systems' (IHIS).

Dr Chong Yoke Sin, previously CIO of SingHealth, was appointed as the CEO of IHIS when the unit was formed in September 2008. All 600 staff in different IT departments cross over in terms of domain knowledge and now work under a new contract.

"She can build teams of varying expertise. And she can restructure project teams in a different way," Muttitt notes. "Staff won't be as site specific. This fits our vision for breaking down the cluster barrier."

As patients are more IT savvy and health conscious, Dr Chong sees a future where patients communicate frequently with their doctors. "People should live longer, even if they have chronic diseases," she says. "These diseases should be better managed and prevented because of better



Andre Greyling,
Chief Information Officer
of the Hong Kong Hospital
Authority

information, better detection and better awareness."

HONG KONG

IHIS's model is very similar to that of Hong Kong's Hospital Authority, custodian of the territory's public hospitals.

The agency, which runs 93 per cent of the acute care as well as 24 per cent of outpatient treatment, has successfully implemented an EMR system across all of its institutions [FutureGov Mar/Apr 2008]. Now it is actively engaging the private sector to realise a true community-wide EHR shared infrastructure, under the support of the Hong Kong Government.

Andre Greyling, Chief Information Officer of the HA, says that a lot of the agency's achievements, its high efficiency in particular, could not have been made without IT. "IT has been a strategic priority since 1991, and has been well invested in," he says. "The OECD countries' outpatient session lasts for 20 minutes on average. It is seven minutes for us."



Dr NT Cheung,
Hong Kong Hospital
Authority's Chief Medical
Information Officer

Together with Dr NT Cheung, HA's Chief Medical Information Officer, Greyling manages a workforce of 750 people and serves over 30,000 clinicians.

Hong Kong's public healthcare system is heavily subsidised by the government. With mounting costs, the Government plans to re-adjust the balance between public and private hospitals so that citizens can still enjoy the good quality healthcare.

Dr Cheung says while the HA is ready to electronically code all of its records, computerisation has not been prevalent within the private sector, so GPs cannot share much information.

However, an initiative called PPIEPR Sharing (Public Private Interface EPR Sharing) aims to change that. It is a web based system that allows GPs to view records hosted by the HA with the patient's consent. Of the 5000 practices that are active within the territory, about 1000 GPs have signed up for the programme. But unfortunately, as

CONSOLIDATING CLINICAL DATA

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patients in Hong Kong are very mobile between public and private providers, a lot of the data is lost.

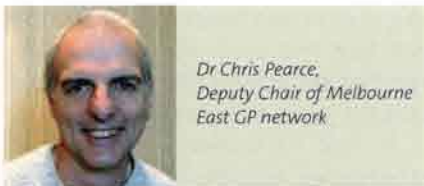
Similar to MOHH in Singapore, the HA is working with various GP groups to promote computerisation within general practices. A similar partnership has been established at the Private Hospital Association for private hospitals to upgrade their systems.

Talking about the incentive for GPs to enrol in the programme, Dr Cheung says that he will be able to see all of a patient's results, so will be able to deliver better care. However, he warns that it will be hard to sell as many GPs have no experience using electronic systems.

IN THE PUBLIC EYE

In Hong Kong, people are getting increasingly concerned about healthcare. Public scrutiny over the Caritas Medical Centre incident last December is evidence of this. A patient died after collapsing in front of the hospital and his son was told to call 999 by the hospital receptionist.

When asked about the biggest challenge the HA faced in 2008, Dr Cheung is unequivocal: privacy. He is, of course, referring to when the Prince of Wales Hospital reported the loss of



*Dr Chris Pearce,
Deputy Chair of Melbourne
East GP network*

a USB flash drive with patient records on it.

Although nothing leaked into the public domain, the reaction from the general public gave the hospital lots to think about. A task force was established to inspect HA institutions' practices in dealing with data. "This was a wakeup call for us," Dr Cheung says.

The biggest project HA is planning to run in 2009 is the revamp of its Clinical Management System (CMS) – phase three of the CMS is being launched this year and full implementation is expected by 2011.

Based on SOA, CMS3's web-based nature means that it is not only easily adjustable and upgradable, but also makes the private sector adoption much simpler.

More advanced features such as decision support will better support the workflow of clinicians. Some of the functionalities have already been added



*A/Prof Lim Swee Hia,
Group Director,
Nursing Singapore Health
Services*

to the CMS phase two, which clinicians across the HA are now using.

Dr Cheung explains that the reason for the revamp is that the architecture and technology of CMS phase two "reaches the limit of how much we can push for efficiency and quality gains".

A GP'S PERSPECTIVE

In Australia, the largest and most reliable patient information database resides in the servers of the country's 10,000-plus practices.

Dr Chris Pearce, Deputy Chair of Melbourne East GP network, says this has come about because of a combination of targeted government incentives, and the support of the general practice networks. So to establish a shared EHR (called the 'individual electronic health record' in Australia) both have to be appropriately targeted.

Commenting on the fact that in many countries, general practice

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computerisation is sporadic with small projects here and there, Dr Pearce, says that there is a need to strike a balance between the bottom up approach (which has worked very well in primary care) and the top down approach (spectacularly unsuccessful in the hospital sector).

"That balance is between what the community needs versus what the users of the system will accept," he says. "The key is to find drivers that will make the complex system change."

One example is e-referral. Dr Pearce believes that a centralised approach to e-referral would be widely adopted by health users, and benefit patients.

Though currently not a problem, Dr Pearce believes standardisation will become a big issue soon. Despite the government mandating SNOMED CT in the country, ICPC and an Australian standard called DOCLE are still widely used by many GPs. "Throw in ICD-9 and ICD-10 in many hospital systems and this will create a lot of problems in the very near future," he warns.

Dr Pearce believes that while the focus has been enabling clinicians, the biggest benefit of computerisation in the long run is in giving patients

greater control over their medical information and care in general.

The availability of internet-oriented tools such as Microsoft HealthVault and Google Health is expected to play an important role in this.

Although not as often as they used to, many GPs in Australia still visit homes, as well as aged care facilities and other hostels. "With the health system structured around the elderly spending more time at home, home visits are likely to increase," says Dr Pearce.

A NURSE'S PERSPECTIVE

Such a system has been implemented as a pilot at a few wards within SingHealth, one of Singapore's public healthcare clusters comprising of three hospitals, five specialty centres and nine polyclinics.

Associate Professor Lim Swee Hia, Group Director, Nursing of SingHealth, says the organisation is also promoting the vision of self care, as described by Dr Pearce above. "Wherever the patient goes, he can access his profile to monitor his condition," she notes. "The information is transmitted to a GP or polyclinic so that doctors and nurses can track the conditions and intervene if necessary."

The Healthphone implementation allows monitoring outside of wards. It is a PDA type device which nurses can bring along with them when visiting patients in the community to gather information.

If a patient doesn't turn up for a scheduled check up, the nurse will be able to call to find out why. "If medication and checkups are not done, the next time we see the patient, he might already be in the emergency department," Prof Lim says. "Active follow-up enabled by technology cuts down patient re-admissions."

Over a career that spans over four decades, Professor Lim has witnessed dramatic changes within the healthcare sector, including those brought about by information technology. For many tasks, nurses no longer have to run up and down corridors as documents and prescriptions can be transmitted electronically.

Now when a patient goes to a clinic, he can take a queue number from a machine and know instantly how long he is going to have to wait. "Most of the hard work used to be done by nurses," recalls Prof Lim, who says that technology has not only improved patient safety, it has also made hospitals more satisfying work places for staff.

The big challenge for nurses, she says, is how to implement different systems in silos within the same organisation. An example is the different human resource related applications that Prof Lim's organisation uses. "When we adopt a new technology which doesn't match existing ones, there is always a learning curve."

"If we were to 'bundle' wireless technology with workflow solutions to help caregivers in day-to-day

operation, they will be more receptive to the Technology," agrees Zenton Goh, CEO of Cadi Scientific.

Prof Lim says she is proud of the wireless technologies used in SingHealth's wards, in particular the 'Wireless Patient Temperature Monitoring System', which is able to detect the temperature of multiple patients in the ward simultaneously, and wirelessly send the information to a central monitoring unit.

This not only means that nurses do not have to circulate wards taking temperatures once every few hours, but also allows nurses to intervene quickly in an emergency.

WPTMS is yet another example of how technology is saving time, resources and, ultimately, lives in healthcare. It gives a glimpse at a brighter future for the sector. But it is also a reminder that more reform is needed if the sector is to keep on top of new challenges ahead.

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Ron Emerson, Global Director for Healthcare, Polycom

We need to let applications drive the technology we put in place. The systems we implement need not have too many or too few features, but are based on the needs of the environment that doctors and nurses are working in. And we want to make the technology very easy to use.

Standard-based technologies are needed to make sure that different systems talk to each other and seamlessly orchestrated to a clinician's workflow. Hospitals in Asia have this unique opportunity to avoid making the same costly mistakes that their counterparts did in the US, where

lots of systems remain in silos within their field or jurisdiction.

This may sound like an old problem, but it remains a huge issue. The barriers, both technological and geographical, need to be broken down.