

3rd Aug 2010

Tele-Medical Imaging in Asia

A raising need?

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Tele-Imaging, the sub discipline of Tele-Medicine where medical images are transferred via telecommunication technologies like telephone lines or the Internet for remote examinations for consultation purposes is not a new concept, however, raising affordability of telecommunications and increasing utilization of medical imaging services in modern healthcare practices is shifting the significances of Tele-Imaging to a higher plane.

Tele-Imaging in Rural Settings

Tele-Imaging plays an important role in regions of large geographical distances as it enables the transmission of a patient's medical images in real time from remotely locations for specialized medical diagnosis or consultation. This eliminates the need for patients seeking treatment to travel for long distances over days, effectively increasing the level of patient care and drastically reducing the turnaround, which may at times be a matter of life and death.

While the benefits of Tele-Medicine are aplenty, it is the rise in lifestyle diseases (Obesity, diabetes, hypertension, poor diet and lack of exercise) and increasingly reduction in the cost of ownership of medical imaging modalities that is fueling the demands for imaging modalities and related health information systems like Hospital Information System (HIS), Clinical Information System (CIS) including Radiology IT and Cardiology IT.

'Shortage' of Physicians

While the technology and availability gaps have been bridged, the most important aspect of the equation still lacking – the interpreting physicians (radiologist, cardiologists etc).

As with any cosmopolitan cities in emerging countries, hospitals with proper or 'cutting edge' facilities are usually found only in major cities. These facilities naturally attract aspiring and qualified physicians from the rest of the country, such situations result in the shortage of qualified manpower in rural areas (since they are all practicing medicine in the major cities). In addition, the lure of better remuneration and career opportunities has led to an exodus of qualified physicians to overseas countries, sometimes for good in bid for a better lifestyle.

Irregularities in the distribution of the already scarce pool of qualified physician translates to an overburdening of public healthcare facilities located in these major cities and patients in the rural areas with little or no access to quality healthcare.

In face of the increasing demands for medical imaging services, centralization of (insufficient) medical physicians and a rugged terrain spanning vast geographical distances, Tele-Imaging seems to be the answer to all these woes, given that a proper implementation of such solution will result in (but not limited to);

- Provision of medical imaging services to remote areas without qualified interpreting physicians
- Reduction in the burden of medical facilities located in the major cities
- Utilization of the medical facilities in the remote area
- Improvements in patient care due to elimination of traveling time, resulting in a much faster turn-around time for diagnosis

The 'Ingredients' for Success

As good as it seems, Tele-Imaging solutions, is not all fulfilling or without limitations. For starters, it still requires physical involvement of a skilled technologist, (be in radiology, cardiology or any medical imaging discipline) in the remote location to facilitate the medical image acquisition process, having said that, technologists are far easier (and cheaper) to train than physicians.

Once the relevant medical images are acquired, it must be transmitted properly – this requires the availability of a seemingly robust data network. While this might come across as

'trivial', the lack of proper telecommunication infrastructure has proved historically to be the 'Achilles Heels' of successful Tele-Medicine implementation. The comforting side is that both cost and complexity of telecommunication has reduced tremendously over the years and no longer pose the magnitude of obstruction as it used to.

Types of Tele-Imaging

Medical Imaging is a wide discipline and some sub-disciplines makes better candidate for Tele-Imaging than others. For example, a typical x-ray (e.g. Chest, hip etc) would be far easier to transmit then a 16 slice CT scan due to the sheer volume of data.

While both the Radiology and Cardiology discipline can take advantage of Tele-Imaging, it is important to take note of the nature of the imaging discipline. For example, Radiology focuses on static images (with high granularity for details) while Cardiology focuses on moving images (to demonstrate the functionalities aspects). In the implementation of Tele-Imaging for the Cardiology discipline, it might be worthwhile to consider implementing a Tele-ECG solution to compliment the adoption.

Cost effective, fuss free yet effective characteristics of ECG (Electrocardiography) for early detection of cardiac condition has made it an extremely viable option to be implemented as part of a Telemedicine initiative.

Note: To read more about Tele-ECG, please read the article "**So you want to buy an ECG Management System**"

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