

Moving on to TeleRadiology

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Synopsis

Adoption of TeleRadiology is a natural extension of a PACS implementation especially in large medical facilities where these institutes can expand the benefits and advantages of filmless imaging further. While such implementation has already gain acceptance in the US with these "nighthawk" radiology services, TeleRadiology is fast gaining momentum in Asia Pacific where adoption and spending of technology is fast growing.

The implementation of PACS in the world of radiology is no longer something that will raise an eyebrow, while the levels of PACS adoption has not reach 'world domination', it is definitely a matter of time before PACS truly becomes an integrated part of any imaging department.

While most tertiary and major hospitals are already on the track towards achieving a fimless environment, a few took it further with Teleradiology, enhancing patients' benefits by enabling inter-hospital distribution of medical images.

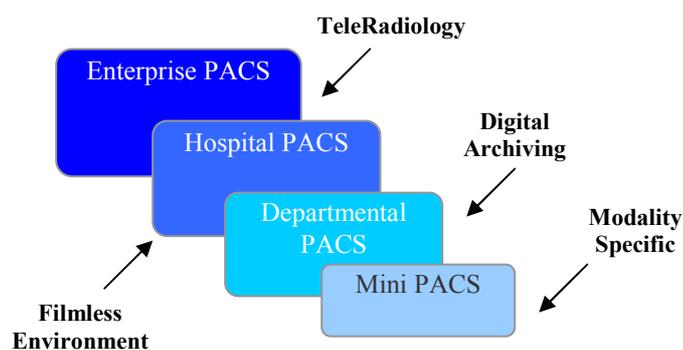


Figure 1: Levels of PACS Adoption

Extending the Investment

TeleRadiology is a sub-discipline of Telemedicine, which involves the use of telecommunications technology to deliver healthcare services to patients and providers at a distance. Approved by the World Health Organization (WHO), Telemedicine is a cost effective and practical method for healthcare delivery, if implemented efficiently.

Implementations of TeleRadiology are usually done for the following reasons;

1. Remote / Offsite Access

- Allows radiologists direct access to images from home, this reduce the needs for off-hours trip to a imaging facility
- Allows referring physicians access to relevant patient's images

2. Outsourcing

- Outsourcing of primary reporting to another institute located in another state or country to reduce turnaround time and cost

Now all the above reasons make sense, implementations of TeleRadiology fundamentally address the reasons why PACS are rapidly adopted in radiology practices worldwide;

- Lower costs of radiology operations
- Improve and expedite communication of images and interpretations to the relevant staff (including a 3rd party expert opinion)
- Improve efficiency of radiologist, technologists and co-workers
- Eliminated situations where medical images become 'unavailable'

Factors of Consideration

A TelerRadiology solution consists of three fundamental components;

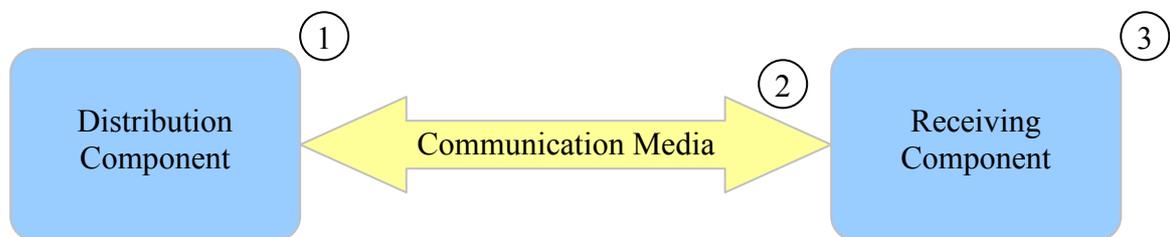


Figure 2: Basic Components of TeleRadiology

The complexity of the described components largely depends on the requirements or “comfort zone” of the participating institutes; it is of paramount importance for interested institutes to question potential vendors on the following aspects of their offerings;

1. **Quality of the images**
2. **Availability of images**
3. **Promptness in access the images**

The above three factors are interlink, the **Resolution** and **Compression** level of the medical images determines the image quality and transmission speed, proper solution architecture should also cater for **High Availability** to ensure that images are available when needed.

The ideal solution should cater for images to be of high resolution with little or no compression while being delivered at high transmission speeds but it is important to set the expectations right 'high transmission speeds' is sometimes difficult to achieve over WAN, especially with large dataset like medical images.

Barriers to Adoption

The touted benefits of TeleRadiology as the miracle solution towards resolving shortage of Radiologists, reducing cost while improving turnaround time might seem too good to be true. While the benefits are bona fide, there are some barriers towards implementing TeleRadiology;

1. Resistance to Change

One of the main drivers of TeleRadiology is the outsourcing of preliminary reads (although final reads are possible too) to another state or country, this practice raises huge concerns as sending radiology work offshore can lead to a loss of income as well as further dearth of radiologist (why take up the discipline if the jobs are starting to go elsewhere).

2. Accreditation of the Reading Radiologist

The outsourcing of primary reads to another country raises an important question - Are the radiologist accredited accordingly to the local requirements?

A system must be established to ensure relevant credentials and quality of work provided by outsourced radiologists. In addition, the institute must ensure that medico-legal issues are addressed prior attempting such outsourcing as the prevailing laws of each state and country differs.

3. Security & Privacy Issues

Medical images send over the internet (or any communication media) must be encrypted to ensure security and privacy of patients; similarly, the outsourced party must also abide to the same privacy act as the sender in order to prevent arguments.

It might also be prudent to inform patients that their images are being read offshore as it may be in their rights to know.

Moving on to TeleRadiology

Although there are issues pertaining to TeleRadiology that are yet resolved, the adoption is inevitable and with the rapid adoption of PACS, having already gain acceptance in both the US and Europe, TeleRadiology is also fast gaining momentum in Asia Pacific, within both private and public sector as both the governments and business leaders look at technology to improve healthcare while maintaining cost efficiency.

The shortage of Radiologist is translated to exciting opportunities for TeleRadiology.

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