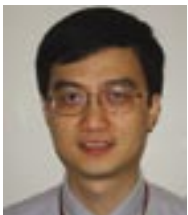


By Dr Jeffrey Goh

# Teleradiology Outsourcing – Rumblings from the Ground



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The topic of teleradiology outsourcing has been the biggest issue of concern for the radiology community since the announcement of the tie-up between NHG Diagnostics (NHGD) and a teleradiology outsource provider in Bangalore, India for the reporting of plain films that are performed at several of NHG polyclinics.

There have been voices raised both in the forum page of *The Straits Times* and in a previous issue of the *SMA News* both from radiologists and non-radiologists.

I would like to share my concerns regarding this issue, its implications for the local radiological community and how it will impact our non-radiological colleagues and the management of their patients.

## DIGITAL IMAGES – A DOUBLE-EDGED SWORD

The technology that allows teleradiology is becoming more and more widespread in imaging centres across Singapore, both in the public and private sector. Images in digital

format are now the norm, and networks and hardware have been set up to handle and store these data electronically in Picture Archival and Communications Systems (PACS). At the same time, cheaper and more reliable networking technology, driven by the Internet revolution, has made it possible to send large volumes of data quickly and reliably across the globe. PACS implementations have resulted in high availability, film cost savings and better productivity.

With PACS, the pressure on radiologists to become more efficient is great, since images are now available faster and more easily. Reports are also correspondingly expected to be churned out faster, with the result that reporting rooms can sometimes appear like factories, producing results faster and faster to meet the demands of clinicians and patients. The report turnaround time (TAT) has become an important determinant of how efficient an imaging centre is and can be a powerful marketing tool for private centres to their customers, both clinicians and patients alike.

**WORKLOAD IN HOSPITALS – THE STRAIN IS SHOWING**

At the same time, the increasing complexity of advanced studies, such as multi-slice CT and MRI, with one-stop 3D reconstruction, angiographic and functional capabilities has also increased the time necessary to report an individual patient. There is also an increasing demand for sub-specialty input in all reporting, and not just in the specialty hospitals but also the general hospitals.

This places a dilemma on the radiologist. In most restructured hospitals, they are routinely reporting far more than the 12,000 studies a year that is recommended as the average workload per radiologist. Added to the “measurable” work done is the often unappreciated fact that radiologists are part of a clinical team that looks after the patient. They perform diagnostic and interventional procedures, form part of the multidisciplinary team (at tumour boards and clinical rounds spanning all clinical specialties), being available for formal and “kerbside” consults, and providing ubiquitous and important input that affects patient management. These activities require time, which means less time is available to spend on reporting of studies, without even considering other administrative, teaching and research responsibilities.

The excessive workload means that more mundane and less clinically critical studies, such as plain radiography tends to be sidelined while attention is concentrated on advanced imaging. This is one of the main reasons that teleradiology now becomes so attractive, as the “lower end” and less “value added” studies can be outsourced so that time can be focused on the more complex CT and MRIs.

**LOCAL OUTSOURCING – A NEW OPPORTUNITY TO BALANCE WORKLOAD WITHIN SINGAPORE**

The above situation, while common across restructured hospitals, is not necessarily the situation in private practice radiology. There exists the opportunity to balance this workload by contracting some studies out to local private sector radiologists, particularly the more senior, semi-retired radiologists as well as the part-time female radiologists, who form a pool of experienced doctors who, for various reasons, do not work in a hospital setting and form a ready talent pool for this initiative. The ability to report from home with teleradiology would

immediately increase the availability and productivity of radiologists in Singapore.

Use of local radiologists to handle the excess workload in hospitals would also alleviate many of the concerns so far expressed about reports produced overseas. All local doctors would be registered by the Singapore Medical Council (SMC), have specialist accreditation from the Ministry of Health already, as well as the College of Radiologists, Singapore. Accountability, qualification and maintenance of certification would not be obstacles as medical liability would be covered by existing local medical insurance companies. Continual medical education and skills upgrading would already be compulsory and well monitored by the SMC using a proven and familiar mechanism. Any consults needed can easily be handled by a simple phone call with local and not long-distance toll charges and with no language problems. Physical participation at conferences would also be possible. Local radiologists would also be more cognisant of the social and situational issues of patients and the disease pattern in the local context. Such a competitive alternative should be (but to the knowledge of this author, has not been) explored.

**TRAINING FUTURE GENERATIONS – WILL THERE BE ANY?**

The plain x-ray radiography studies that are being outsourced form the basis for all basic radiology training, as the fundamental principles of radiation usage and interpretation of images are taught through these examinations. Our young trainees need to build up a mental image library of normal and abnormal images, which will allow them to report studies confidently and accurately.

This fact is recognised by the Graduate School of Medical Studies, NUS, which requires trainees to have reported and logged a substantial number of plain film studies as part of their training. With local teleradiology outsourcing, arrangements can easily be made for trainee attachments to these reporting sites, where these aspiring radiologists can draw from the accumulated wisdom in the intricacies of plain radiographs (far more nuanced and subtle than CT or MRI) from their seniors.



The fear among young doctors contemplating radiology as a career has become so acute that applications have apparently dropped by a substantial number. If this trend continues, there will not be sufficient bodies to replace radiologists from the current generation, let alone attempt to relieve the current shortage and provide excellence in high-end imaging. The ability to develop sub-specialty skills and advance research in radiology will also be critically hampered by a potential vicious cycle.

### **FROM OUTSOURCING TO IN-SOURCING – SUPPORTING SINGAPORE MEDICINE**

Singapore currently has a pool of radiologists with sub-specialty interests, serving in the various centres of clinical excellence. We can leverage on the Singapore brand and the recognition of Singapore as a centre of medical excellence both regionally and internationally to source for imaging studies from abroad. These should be higher end advanced imaging studies like CT and MRI, where a focused sub-specialty input or second opinion is desired for proper diagnosis.

The value of our reporting would attract international institutions of excellence to locate in Singapore, bringing their international patients, as well as persuade patients to come to Singapore for treatment of their medical conditions in local hospitals. As an example of this, the Johns Hopkins Singapore International Medical Centre refers studies of their Middle East patients to the relevant sub-specialty radiologists in Tan Tock Seng Hospital for a second formal report, as the local radiologist input is valued.

### **CONCLUSION**

Teleradiology outsourcing presents new opportunities and challenges. Outsourcing can potentially relieve “low-end” pressures on our radiologists and enable them to provide quality reports both for local patients as well as cases in-sourced from overseas.

However, unintended consequences and risks in training and recruitment need to be addressed. Outsourcing locally would be easier, less plagued by medico-legal and regulatory issues and will allay the concerns of both our clinical colleagues as well as the public about the quality of the reports. ■