

# Hi-tech scans for remote hospitals

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Low-cost bandwidth and tech-savvy manpower available in India are making possible several seamless services round the clock in the US and many other rich countries. Bangalore-based Telerad Solutions, started by a husband and wife team of doctors, is just the tip of the iceberg. It was five years ago that Arjun Kalyanpur, Telerad's CEO and chief radiologist, began the company from one room in his apartment.

He began by reading radiology scans that were sent to him by the Yale University hospital from where he had graduated and taught. The hospital sent him images of emergency care patients who were arriving at the hospital at night. He was reading these images and sending the report simultaneously with a radiologist who was at the site in the hospital and awake at 3 am. The hospital found that these reports were arriving at the same time as those done by the residential radiologist, and were marginally more accurate because they were being done in the day.

Since then the pioneering company has come a long way. They have a swank three-storey office in Whitefield, in Bangalore and employ 100 people, including 25 radiologists who are stationed in Bangalore, Delhi, Mumbai, the US and the Netherlands. Most of these radiologists are subspecialists in a particular part of the body.

Telerad Solutions has reports coming in from 60 US hospitals. Singapore, which has just 125 radiologists, sends its backlogs to Bangalore. Telerad has an in-house team of software technologists who have developed a Radiology Information system (RIS) which tracks the workflow within the company. The software measures productivity and indicates reports that are urgent and overdue. Kalyanpur, however, says being doctors they do not over emphasise on productivity at the cost of quality. The company has not raised any external funds either through equity or debt, and allows the doctors a lot of flexibility.

How does this help India, the country which subsidised Kalyanpur's graduate medical education at the All India Institute of Medical Sciences (AIIMS)? This is a question one may well ask. Kalyanpur and his wife Sunita Maheshwari, a paediatric cardiologist, who works at Narayana Hrudayalaya, had a prenuptial agreement that they would return to India once they completed their education. "I wanted my daughter to be brought up here, and my wife did not want to be a cog in the wheel of a large system. She wanted to work here where it would make a difference," says Kalyanpur.

Telerad Solutions services two hospitals in Bangalore. It has two radiologists stationed at Narayana Hrudayalaya, and the images from the hospital are interpreted at Telerad. The other hospital in Bangalore that utilises its services is Columbia Asia. "Radiology is changing at a rapid pace. Medical diagnosis is increasingly dependent on more and more imaging. For example, a 64-slice CT scanner can now take a still image of a rapidly pumping heart. An image can now detect a coronary blockage that had earlier to be diagnosed by an angiogram. A patient had to be fitted with a catheter and an imaging device sent up to take a series of images. This was invasive and a day-long procedure. There is also a 2 to 3 per cent chance of a serious stroke during the angiogram. The scan now requires very little preparation and takes just five seconds. But the training of radiologists has

not kept pace with technology," explains Kalyanpur.

While an angiogram would cost around Rs 8,000 to 10,000 and a CT scan between Rs 12,000 to Rs 15,000 at Narayana Hrudayalaya, elsewhere it could cost as much as Rs 25,000. The Indian hospitals are charged lower rates. Kalyanpur points out that costs could be lowered if radiologists were utilised better instead of a hospital hiring one to read just a few images a day.



Arjun Kalyanpur and Sunita Maheshwari of Telerad

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India faces a shortage of radiologists. There are 5,000 radiologists in all, and about 250 train every year. Telerad doctors also teach radiologists who are doing their fellowship at Narayana Hrudayalaya.

What excites the couple is the possibility of using this remote technology that helps rich communities across the world, for small community hospitals across India. "Many of these hospitals have medical diagnostic machines but do not have radiologists. Many have technicians and some have general radiologists who have not updated their skills. Radiology training across the world has not kept pace with the revolution in technology," says Kalyanpur. Over the past 18 months, Telerad has worked with small hospitals in some districts of Karnataka like Bijapur, Raichur and Hassan. The company has also been approached by a hospital in Nasik and a remote hospital in Kerala.

Maheshwari, a director at Telerad, who works three days a week at Narayana Hrudayalaya looks at tele-echocardiograms and ultrasounds of babies. "A paediatrician has started Ashwini Clinic, a small

hospital in Bijapur. He sends ultrasounds for a second opinion," says Maheshwari. But the experience of working over the last 18 months has taught them that there are problems. They have been working with these hospitals intermittently. The hospital in Hassan sent them three or four scans in quick successions and wanted emergency services, but after a while there was silence.

The doctors then realised that there were problems of connectivity, lack of electricity and trained

technicians. They have now put together a foundation with their own funds. The foundation will support IT staff that will maintain connectivity and create low-cost connectivity solutions. Maheshwari points out that their server is currently in the US, and it would cost Rs 100 a case just to upload the images. The foundation will also train technicians who can operate medical diagnostics machines and place them at different hospitals.

"We trained girls from villages at the Karunashreya hospice. After six months, these girls go and take care of elders in their houses or at the hospice. Training makes a tremendous difference to their lives and the quality of care. That has inspired me to take up training in a big way here at Telerad," says Maheshwari, who is on the board of Karunashreya.

Telerad has already got donations of machines from companies and customers who have bought into their idea of training technicians. Siemens has donated an echocardiogram and an ultrasound machine. A colleague from Greenwich hospital in the US, which is a client, has donated a HP ultrasound machine.

The question that lingers after listening to the couple is whether they can meet the need if the demand for free teleradiology picks up from across the country. "We think so," says Maheshwari, adding that they will raise the resources. She is already a member of several groups that raise resources in Bangalore for different causes, such as setting up play areas in government schools.

Clearly, Bangalore's IT companies that are tax exempt could take a cue from the couple, and work on technologies that could make a difference.