

Teleradiology Without Borders Success Story

Organization adds PACS to enhance interpretation of medical images for developing countries

Buoyed by determination, a Luxembourg-based enterprise with expert radiologists and high-end technology is significantly improving diagnostic imaging in developing countries.

That enterprise is Téléradiologie Sans Frontières (TSF), known as Teleradiology Without Borders. Key to its success has been implementation of a PowerServer PACS system developed and donated by RamSoft. The system is rapidly transforming the process of interpreting x-rays and CT images.

Téléradiologie Sans Frontières
Teleradiology Without Borders A.s.b.l.



The effort began in 2007 when TSF was established by Jean-Baptiste Niedercorn, M.D., of Brussels, Belgium, and Gérald Wajnapel M.D, of Paris, France. Recognizing the lack of sub-specialized radiologists in developing countries, including Afghanistan, Cameroon, Burkina Faso, and the Democratic Republic of the Congo, the physicians decided to bridge the gap.

Their solution was TSF, a volunteer organization whose radiologists review images transmitted to them via the PACS and its sister technology, the Gateway Router, which also was developed and donated by RamSoft, of Toronto, Ontario, Canada. The result has been dramatic.

No longer must medical personnel in developing countries, largely those in Africa, transmit x-rays in e-mail attachments. Instead, PACS software donated by the company is enabling them to quickly transmit digitized x-rays, images photographed using high-megapixel digital cameras, and CT images recorded to CD. The bottom line is enhanced diagnostic capabilities, faster care and improved outcomes.

TSF's mission includes:

- Deployment and management of a secure teleradiology system that enables remote reading by experts.
- Development of a cooperative international network of expert radiologists.
- Provision of continuing medical education tools, accessible online, that develop and improve radiology skills in medically deficient areas.
- Organization of radiology and medical imaging training missions where teleradiology equipment is introduced.

"The idea originated three years ago when the chief of radiology where I worked completed a short teaching mission to Afghanistan, which had no radiologists," Niedercorn said. "After she returned home, the Afghan surgeon who was interpreting the x-rays there needed some backup, and he began sending her images in e-mails. The problem with that is you can only send about 10 megabytes in an attachment." A better system, one that also enabled organized reporting of results, was needed. TSF was born.

Today, TSF uses four readers based in three countries—France, Luxembourg and Belgium—to evaluate x-ray and CT images, eventually, MRI images may be added to the mix. The process is highly organized, with reports submitted automatically.

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Doctor Niedercorn

TSF is largely a word-of-mouth solution. Users have learned of the service through visits to Europe for study or training, from radiologists who visited their countries on training missions, or through other means. There is no charge for reading services.

“Our service is very different from a conventional teleradiology service, where pictures and studies come from many hospitals to a central point,” Niedercorn said. “In a conventional teleradiology service studies are blindly dispatched to the most appropriate radiology specialist: for instance, brain, abdomen or musculoskeletal experts.

“TSF users in most cases send their studies specifically to the reader who trained them in radiology. In each of these “buddy groups”, sender and reader know each other, are used to working with each other, but are separated by the different radiology facilities in which they work.”

Using a standard PC, users simply log on to the WEB-PACS on the internet. Images are transmitted to the central data center with the push of a button. Radiologists interpret images sent to them from a specific reader and automatically placed in their worklist. Thus, a sense of cooperation and understanding exists; there is no need for a dispatcher, as those sending the images serve that purpose.

“In developing countries there are lots of problems with hardware maintenance,” Niedercorn said. “The nice thing about the online WEB-PACS is that all you need is a computer, internet access and a login capability. Everything is stored online. If a computer is lost or damaged, it is easy to recover the images from any other computer running Internet Explorer.”

Thanks to TSF’s WEB-PACS, large files need no longer be divided into 10 or 20 smaller ones, requiring readers to piece them together. The PACS enables the smooth transmission of large files that upload in the background—often while readers are completing their normal workload.

One key to the PACS is its ability to transform JPEG images into DICOM format. Because x-rays are photographed and recreated as JPEG files, a PACS with a conversion capability was essential. Niedercorn also wanted a system with dictation and automated reporting capabilities.

What he got was a RamSoft PowerServer package that has given users a radiology capability they couldn’t have acquired any other way—moving them into the 21st century with relative swiftness and little cost and offering users in any developing country the same opportunity.

. As a result of the organization’s efforts, needless surgeries are being prevented, necessary surgeries are being confirmed, and patients are being treated with speed and efficacy.

“The PACS is very important to us,” Niedercorn said. “If we didn’t have it, it would be like writing an e-mail using a piece of paper. This really makes our work possible.”

“We like to believe that in some measure we’re giving these countries the tools to practice better medicine. And, our technology gives us the capacity to receive many more images. With more readers, who knows what we might be able to accomplish?”