HealthManagement
Promoting Management and Leadership

Volume 1 / Issue 2 2005 - Investing in IT

Deciding for PACS

Author

Ing. Ruud J. van der Marel

Business Manager Radiology

St Franciscus Gasthuis

Rotterdam, The Netherlands

E-Mail: r.vandermarel@sfg.nl

The Sint Franciscus Gasthuis (SFG) is a 600-bed, general hospital in the north of the city of Rotterdam, Netherlands. Two years ago the hospital decided to 'tool up' for the electronic age. We were facing increased competition from surrounding hospitals – the nearby university clinical departments and even more private practices. Our goal was to reengineer the entire work process, replacing old modalities for new digital ones, or, at very least to digitally upgrade the systems that did not need to be replaced and start the activities for the choice for a new Radiology Information System including speech recognition and a PACS.

Our approach was doctor-centred; our aim to reduce the direct costs of using and processing film, and the indirect costs of distributing, finding, filing and retrieving it. Above all we wanted to ensure that everybody interested in an examination could access images easily and quickly, thereby advancing effective treatment and increasing patient throughput. Clinical time should be spent on diagnosis and therapy, not trying to decipher multiple tabs and buttons. All our images should be immediately available with the click of the mouse.

After reviewing the packages available we first installed a radiology information system (RIS), followed by updating the speech recognition system (SRS) for handling reports, and simultaneously started the preparations for the choice, buying and installing of the CR-and DR-systems. Only then we installed a PACS.

Getting the Process Started

The process was phased over several months, starting in June 2005, with the whole system finally going live at the beginning of 2006.

In the beginning, a steering committee, made up of radiologists, referring doctors and different levels of hospital management, divided the renewal of the radiology department in 2005 into four parts. Apart from the PACS, we also installed two digital radiography systems, moved to a new radiology information system (RIS), updated various modalities, and changed from film to full-field digital mammography (FFDM). We worked with different workgroups made up of technicians, radiologists and management. The workgroup for each part produced a requirements document and used this to score different aspects of the solutions from different suppliers. By weighting the different factors, we could evaluate the different possibilities against each other to select a shortlist of solutions. Then we sent the shortlist to the purchasing department for the final selection.

Though the PACS-product finally chosen was already on the shortlist, we originally ordered a different PACS in July 2005. The PACS-system finally chosen was popular with the radiologists, but there were some aspects that did not fit their way of working. For example, it could not scan the order forms into the archive. We were also not confident that the small presence of the supplying company in Europe could support it adequately. When the acquisition of this company by a large well-known market player was announced in August 2005, the support organization was no longer a problem, and a solution was found for the other open issues. The order was changed consequently.

The Decision Process Between Different Products

During the decision process, we actually compared our product choice to typical PACS solutions from European suppliers by noting that these suppliers tend to focus on optimizing the radiologist's workflow. We agreed that our choice, an embedded web application, was the better way to tackle the needs of the SFG. It is oriented to satisfying IT requirements. This includes having a remote backup, 99.99% contractual uptime guarantee, and a low need for specialized expertise on-site. That is quite a relief for us, because we don't need to have expensive technicians to run the system. But most importantly, its transparent architecture makes it easy to connect to other systems in the hospital. This benefits the

workflow not just in the radiology department, but also across the whole hospital.

Implementation Phase

Despite the large number of new and varied interfaces with the product, from the time the PACS contract was signed to clinical operation only took four months. This included interfacing with imaging modalities, the RIS, the speech processing application and the Electronic Patient Record (EPR). The demanding phase, when all four parts of the renewal went live at once (during full production) was in November 2005. We planned the changeovers like this to ensure a short period when work was disturbed, rather than an extended period with a series of different changes. We stopped most film printing early in December 2005. In March 2006, when we integrated the templating application for the orthopedic doctors, we stopped all routine printing of film.

Results: Less Waiting Times, Better Workflow

After the big changeover, the department is now more relaxed. Better planning and faster examinations mean the waiting room is rarely busy. For example, the patient used to wait while the radiographer developed and inspected the film before they could go. Working digitally, particularly on either of the two, new digital diagnostic systems, the radiographer can check image quality immediately, and even improve problem images using post processing. There are no more bad images. This means the patient can leave immediately. As soon as the radiographer has annotated the images, they transfer them to the PACS for reporting and for preliminary viewing in the EPR. The radiologists chose to work from a single worklist and do all their reporting in a single, common room. The single room makes it simple and quick to confer with colleagues with specific expertise or experience. A single click is all it takes to load the current study for the next patient and get access to all the previous studies. For CT or MR images, our product also lets the radiologist link studies to scroll them simultaneously. From this point of view we emphasize the fact that minimizing the menus and mouse operations is very important for the radiologists. With between 300 and 350 examinations a day, even two unnecessary mouse clicks for each patient would quickly add up. With easy and just-in-time access to previous examinations – something that used to up to two days before – we report every examination on the day it is performed. The radiologists dictate their reports using the speech recognition application. With interruptions and other commitments, we manage to report every examination within four hours. For onestop care we need to diagnose quickly and we now have the tools we need to do that. For even faster reaction times for emergency cases, the radiologists on call have a Citrix connection to our PACS from home.

With implementing the whole system we improved the patient throughput because the big advantage is the workflow. Reporting is more comfortable and gone are the days of carrying around folders of film, of waiting for old images to be delivered from the archive, of organizing and hanging everything on the roloscope, and of tracking down films that were not returned. Our product organizes a patient’s images on a timeline and according to whether they are relevant to the current examination. The radiologists also have a scan of the paper examination request, and full access to the EPR for further background information, such as histological findings or lab results. They are better informed, and this improves the medical quality.

Looking Ahead…

Finally we want to point out that PACS is only part of the process of installing a complete e-Health solution, which will include an electronic patient record (EPR) system. Looking ahead, we are working towards eliminating the reception in the radiology department altogether. With electronic ordering integrated into the EPR, there would be no need to enter any further data, and the patient could register at the main hospital reception. A second stage of the PACS project is to expand the product for all image-producing disciplines, such as cardiology, rheumatology and dermatology which we started at the end of last year.

Published on : Sun, 20 Mar 2005