



# A radiology solution for the whole enterprise

## Philips iSite PACS with 3D

### Who/where

Ospedale di Cremona  
(Cremona Hospital)  
Cremona, Italy

Dr. Michele Arisi  
Head of the Corporate Information  
Systems Service

Dr. Lucio Olivetti  
Director of the Laboratory,  
Image Diagnostics and Advanced  
Technology Department

### Challenge

Migrate as quickly as possible toward filmless radiology, to reduce the costs of using film, and improve the management efficiency of two radiology departments and the whole medical organization.

### Solution

The Philips iSite Radiology PACS was rolled out to the whole corporation making reports and images available in real time. PACS images can now be readily accessed even in all the operating theatres. The iSite PACS system has improved workflow, communication, and synergies between the two hospitals with obvious operational advantages regarding quick decision-making.

### Cremona Hospital at a glance

Based in the south of the Lombardy region of Italy, Cremona Hospital Corporation is central to the most heavily populated and industrialized region of Italy. Serving roughly 400,000 residents with a local specialist outpatient unit and two hospitals approximately 25 miles (40 km) apart in Cremona (Cremona Hospital) and Casalmaggiore (Oglio Po Hospital), the combined hospitals provide approximately 1,000 -1,100 beds in total.



With a million outpatient services provided each year, the hospitals' two radiology departments annually carry out approximately 200,000 examinations. They are equipped with the most up-to-date diagnostic systems, including CT and MRI, as well as a nuclear medicine service. Overall the corporation employs approximately 2,500 people, including approximately 450 doctors and 700 nurses.

### Making a difference for a region

In 2007, when the management team was assessing the need for a PACS project, the team members had very specific objectives in mind, says Dr. Michele Arisi, Head of Corporate Information Systems Services. "We wanted to migrate as quickly as possible toward filmless radiology, to reduce the costs of using film, and improve the management efficiency of two radiology departments and the whole medical organization.

"Philips has met the requirements demanded by our corporation and offered us maximum possible flexibility."

*Dr. Michele Arisi  
Head of the Corporate Information  
Systems Service*

Our ambition was to have as little impact as possible on the corporate organization and its technological infrastructure by providing a solution which is easy to distribute, light on network resources and capable of producing full-resolution images."

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The Philips iSite PACS was the solution chosen for fulfilling these requirements. “We needed to implement a PACS solution which delivered on all of our objectives,” Dr. Arisi explains. “It needed to be easy to use, with minimum investment in training and infrastructure. It also needed to extend throughout the hospital and allow us to quickly reach a filmless situation. We needed a flexible solution, not requiring any particular resources, replacement of workstations, PCs or hardware and complete compatibility with all software in the hospital. We are satisfied and have achieved all the objectives we set.”

“Philips also supported us very well at the design stage.” Dr. Arisi continues. “The interface with the world outside the PACS went well and the RIS/PACS interface works brilliantly. The work environment is unique and everything is well coordinated.”

### Among the first of its kind in Italy

The entire project boasts some very original features when compared to industry standards. First of all, although the existing RIS system was provided by a company other than Philips, there were no interface or compatibility problems. The PACS was not designed as a radiology tool, but as a management system for all the hospital's imaging services. Finally, the service works on-demand to provide the hospital corporation with the necessary services, both today and in the future.

“If we acquire a third hospital because the region is changing its infrastructure, changing strategy, it will not be a problem for us and so this type of management (service) doesn't create difficulties for us (if the PACS solution needs to be expanded in the future)... so we can successfully manage any variations in structure and production at the hospital. We pay for what we produce and this solution is really... almost an obvious, simple solution.” says Dr Arisi. This is one of the first times this has been achieved with a PACS solution in Italy.

According to Dr Arisi, “The cost (fee per service) is important, because it makes it possible at any moment to fit the size of the service to the requirements of the hospital. So we don't have any problems with scalability, or find ourselves in difficulty with lower potential than requested. It is perfectly scalable, both up and down, in line with the corporation's requirements at a given moment. So I would say that in terms of flexibility... of the project, of the settings, it's as flexible as it can be!”

### Eliminating film X-rays

“From a financial point of view, the objective we gave ourselves was that within the year we had to reduce the use of X-rays (film) by 90%, and to almost eliminate them entirely in 2009,” says Dr Arisi. “At the end of 2009... the use of x-rays was at 7%, so we went to 93%! And we're still seeing a margin of improvement of around 5%.”

The reduction in management costs (mainly savings on buying film) has also been significant and has been evaluated at around 25%.

“We see a return in approximately 2.5 years, because we're saving €200,000 per year!”

### Real-time changes

Philips iSite Radiology PACS was rolled out to the whole corporation right from the start, and led to a small revolution in working methods as reports and images became available in real time. PACS images can now be readily accessed even in all the operating theatres.

“We introduced the PACS... and it has changed the way we work,” says Dr Lucio Olivetti, Director of the Laboratory, Image Diagnostics and Advanced Technology Department. We had anticipated far more problems with the move from traditional radiology to a PACS. But the first thing I noticed was that there were no difficulties... the wards and clinicians immediately accepted the new way of working! It was thought that there would be bigger resistance, especially



from orthopaedics, but there wasn't, and so working on the PACS was introduced overnight and it was a revolution”.

Considerable reductions have been recorded in hospitalization times, use of personnel, and intervention times on patients. The iSite PACS system has improved workflow, communication, and synergies between the two hospitals making up the corporation, with obvious operational advantages regarding quick decision-making. Teleconsultation between the two hospitals allows the relevant doctor to be asked for an opinion without having to wait or transport the patient from one hospital to the other. There is more interaction between personnel at the two hospitals and it is easier to cope with any temporary staff shortages.

“In the past, when we had a staff shortage in one of the two radiology units, we would have to go and help at that unit because they were still doing examinations,” says Dr. Olivetti. “But the images are available here at Cremona, where we have doctors, so the report can be written, and workflow and patients are not affected. Otherwise, we would have a situation where we had to decide to cut back on examinations because there was no radiologist available to write the report. This is a good example of the synergies which have been created within the hospital, or simply of the fact that teleconsultation is possible between radiologists and clinicians 40 km away from each other.”

### Clinicians and patient care results

After iSite PACS was introduced, clinicians at Cremona experienced minimal problems adjusting in part because the user interface is so user friendly. The rapid availability of the images also offers radiologists and clinicians definite advantages compared with the previous system.

“The clinician has the images and report more quickly,” says Dr. Olivetti. “It used to be that after the examination was done, the report was put in an envelope, the envelope was put in a dispensary, then the staff had to go and get the images in order to compare them, even if the images were in the ward. Today, a clinical/radiology history is rapidly available in electronic format and consequently referrals can be much quicker. This means we can make therapeutic decisions more quickly and patients benefit from a faster clinical assessment.”

Patients receive the appropriate treatment more quickly, with a significant reduction in the time between examination and treatment. To compare images acquired at different times, for example, markers can be placed on lesions to make the comparison process easier, particularly for oncology examinations.

The Philips Volume Vision package (3D image manipulation and review software) provides “a series of possibilities, which allow me to reconstruct and manage the images more quickly...as if I were at a dedicated MRI or CT workstation,” says Dr Olivetti. “The advantage is that working on the PACS, I complete the reconstruction, but at the same time I can see the patient’s medical/radiological history, something that would not be possible if I was working just on the modality workstation.”

Patient histories are readily available to clinicians, who can now see examinations that were carried out in different operational units. “We have eliminated the archive. Having all the information we need for a patient at

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*Dr Lucio Olivetti, Director of the Laboratory, Image Diagnostics and Advanced Technology Department*



a single click is an enormous step forward,” notes Dr. Giancarlo Bosio, Director of the Pneumology Operational Division.

“With iSite PACS we now have the opportunity to assess radiographic developments over time, ‘following’ them with a single action on the computer. We can easily trace the clinical development of an illness.”

According to Dr Bosio, iSite PACS has also “made things easier, more convenient. For example, today the chief physician from infectious diseases telephones at 8.30 a.m. and says: ‘I have a young HIV-positive woman with an X-ray. What do we do?’



“So using iSite PACS made the consultation and decision easier. In the end it was the patient who benefited from this.”

*Dr. Giancarlo Bosio, Director of the Pneumology Operational Division*

Together we decided to do a bronchoscopy, so we had to organize a trans-tracheal biopsy to assess her lymph nodes. So using iSite PACS made the consultation and decision easier. She got the answer and the treatment. He telephoned me at 8.30 a.m. and it was done by the end of the morning. But if the results had arrived at 10 a.m. using our previous radiology working environment, then it would have waited until the next day. And in the end it was the patient who benefited from this.”

The Philips iSite PACS “also allows us to include a printout of the digital image in the discharge letter which often explains the causes of the problem. This allows us to explain to external clinicians after discharge why the person in question was admitted and why we made certain decisions,” Dr Bosio says.

The development prospects for the future are also very interesting. “Consistent with the basic aim of our project, we are seeking to use the PACS to manage all the corporation’s imaging services,” says Dr. Arisi.

With Philips iSite PACS the Cremona Hospital Corporation has achieved their major objectives in a short period of time, noticeably increasing the satisfaction levels of both doctors and patients.

“The advantage can be summed up in the fact that no one would dream of going back now,” concludes Dr Olivetti.

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