1,650 beds, 54,000 in-patients, 22,000 day hospital admissions and nearly 10 million medical examinations per year: these are only a few figures illustrating how the Italian Careggi University Hospital is one of Europe’s largest hospitals. Ever since its foundation in the early 20th century, Careggi University Hospital has been on a mission to “perform medical procedures at the highest level of specialization and act as a technology innovation leader”. The hospital’s step to a PACS system, prompted by a region-wide decision, perfectly underpins that mission statement. Since 2007, the hospital has a trusted solution to help it achieve its goal: a PACS system featuring nearly 120 Barco medical displays.

Each Coronis system comes with MediCal QAWeb, the first online service for high-grade Quality Assurance. The unique solution helps the radiology team save precious time, whilst guaranteeing the utmost diagnostic confidence.
MediCal QAWeb inspires diagnostic confidence in Tuscan hospitals

Located in Florence, the very heart of Tuscany, Careggi University Hospital is tightly integrated with the Florence university, thus maximizing the synergies between health care, research and teaching. The hospital is organized as a campus with different buildings, which together house over 5,800 employees. 80 radiologists work in the imaging diagnostic department, where they provide a complete range of radiology services - from MR, CT, ultrasound and X-Ray through to mammography, angiography, PET, SPECT, CT-PET and interventional radiology. Since 2007, they have a trusted solution to help them in their diagnoses: a PACS system featuring Barco medical displays, combined with an online software solution for Quality Assurance.

In 2007, Careggi University Hospital moved from screen/film imaging to the softcopy evaluation of medical images. The step to PACS was inspired by Tuscany’s regional healthcare authority. “Careggi University Hospital acts within the Italian National Health Service,” explained Dr. Giacomo Belli, Medical Physicist. “In line with the recent spread of more affordable, high-performance digital modalities and technologies like CR, flat panel detectors, digital mammography systems, etc. and, of course, the worldwide trend to switch to PACS, our regional government decided to eradicate all analog imaging technology in Tuscany’s NHS hospitals over the next few years. The result will be one of the biggest RIS-PACS networks in Europe, providing 3.4 million radiological examinations per year and serving 3.5 million inhabitants, of which 1.5 million within the Florence metropolitan area where Careggi University Hospital is the RIS-PACS implementation leader.

118 Barco medical displays

Since 2007, Barco’s medical displays have been gradually entering Careggi University Hospital’s diagnostic imaging departments. The hospital is currently equipped with a large number of Barco Coronis LCD medical displays: 24 Coronis 5MP grayscale, 30 Coronis 3MP grayscale, 60 Coronis 2MP color displays and 4 Coronis 5MP mammography displays. Every Coronis display comes as standard with the MediCal QAWeb service. The hospital’s Medical Physics department, which is responsible for acceptance tests and routine quality controls of all radiology equipment, including softcopy presentation devices, chose the ‘Premium level’. Besides intervention-free DICOM calibration, automated QA and reporting, the ‘Premium’ level includes extras like extended remote support, more tests, issue notifications and fleet management.

Unique QA management solution

Today, each diagnostic workstation, which controls two medical displays, is connected to the local QA management server (QAWeb Relay) by means of the dedicated RIS-PACS network. This setup ensures the permanent monitoring and calibration of the hospital’s medical displays. Dr. Simone Busoni, Dr. Belli’s colleague at the Medical Physics department, particularly praises the flexibility and the remote support of MediCal QAWeb. It allows him and his colleagues to centrally manage all calibration details and customize the central QA policy control for specific tests, for their frequencies and tolerances. “We chose to conduct a daily luminance as well as a weekly DICOM GSDF compliance test,” Dr. Busoni illustrated. If a certain workstation performs outside the predefined tolerances, the system sends real-time alerts to the physicist concerned, wherever he or she is. This ability to keep track of all displays and easily check their status in real time via the internet, is particularly useful for large hospitals such as Careggi University Hospital, with many displays scattered over several buildings.

With the PACS came the need for a high-end diagnostic display solution. Besides ensuring unsurpassed film-like images with high resolution, luminance and contrast, the solution had to be able to perform automatic, remote and intervention-free softcopy QA management. “At past radiological exhibitions in Chicago (RSNA), we had studied all the new softcopy technologies

Effortless asset management
Automated detailed reports
Results confirmed

To verify MediCal QAWeb’s performance, extra tests with independent instruments are carried out each year. “We conduct an acceptance test of the medical displays and an exhaustive test once a year, mainly for luminance uniformity check and to be sure the integrated luminance sensor solution (I-Guard) is working properly,” Dr. Busoni explained. “The manually measured physical parameters (luminance, uniformity, GSDF, chromaticity and veiling glare) all produce results that fall within the tolerance limits proposed by the major international protocols and show a very good stability over time.”

Saving 40 man-days

For Careggi University Hospital, these manual tests confirm how MediCal QAWeb is a trustworthy support tool, which helps them save time and, consequently, money, while ensuring optimal diagnostic procedures. Simone Busoni: “Barco’s online service saves us 60 minutes for each luminance and GSDF compliance test to be performed on a dual-head workstation. For a large facility like ours, this represents a saving of at least 40 man-days per year, in the context of our QA program. The possibility to remotely calibrate the displays and be alerted when parameters are exceeded saves additional manpower.” Equally appreciated is the system’s ability to maintain a global common QA policy for calibration and quality controls (QCs), thus making management of the entire system easier and smoother. “And the radiology workflow is never disturbed as the integrated luminance sensor solution (I-Guard) ensures that most of the QA tests are performed in the background,” says Dr. Busoni.

First-class solutions and customer service

In brief, the Coronis displays perfectly address Careggi University Hospital’s display needs, while the accurate QA program ensures that all PACS images are consistently visualized at any time on all softcopy display devices. “In addition, Barco delivers excellent customer support. Both commercial and R&D people have responded promptly to any question we’ve had since the start of our cooperation,” explains Simone Busoni.

“As a Medical Physics Department, we are always glad to test future technology improvements. So whenever an expansion of our medical display array would be needed, we might consider the latest wide-screen 6 MP Coronis devices, as we were most impressed by their physical performance during a recent trial in our labs,” Simone Busoni concluded.
Customer:
Careggi University Hospital, Italy
Approx. 5,800 employees
www.aou-careggi.toscana.it

Challenges and objectives:
• Reliable, high-quality imaging for one of the largest PACS projects in Europe
• Automatic, remote and intervention-free QA management

Barco solution and services:
• 114 Coronis display systems (2, 3 & 5MP; color & grayscale)
• 4 mammography display systems
• MediCal QAWeb service (Premium level)

Why Barco
• High-quality display and faultless image quality
• Unique online service to help manage the displays (remotely)
• Professional sales and support team

About Barco
Barco, a global market leader in visualization solutions for PACS, has been developing visionary medical imaging solutions for over twenty years. Driven by experience and innovation, Barco presents a full range of advanced display solutions for radiology, mammography, surgery and viewing DICOM images across the healthcare enterprise.

From acquisition to display, from image processing to quality assurance, Barco’s hardware and software solutions deliver the perfection patients deserve.

Request more information

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