



Comprehensive Medicine – Enhancing Radiology in Mexico

The Grupo Ángeles Servicios de Salud hospital network has chosen Siemens expertise for implementing the largest RIS/PACS installation in Mexico. With the help of *syngo Suite*, all 16 hospitals in the group are now connected and enjoy the benefits of digital radiology.

By Gabriela Castelo



When Carlos bent down to pick up the newspaper in his hotel room, he felt the strange dizzy sensation that had already sent him to the hospital once. Scared, he stood up fast and felt severe pain in his neck and temples, and his vision blurred. Also, his left forearm and hand all of a sudden felt numb. Raúl, an old friend and colleague who traveled with Carlos on this business trip, insisted on taking him to the hospital. As a regular patient at one of Grupo Ángeles' hospitals, Carlos asked his friend to take him to the nearest facility in the network, in Toluca, Mexico. Grupo Ángeles Servicios de Salud is part of the Ángeles' corporate group, which runs seven other companies. The hospital network opened its doors 1986 in the southern part of Mexico City after acquiring Humana Hospital. Grupo Ángeles has grown over the last 20 years to become the largest private hospital network in Mexico, and now comprises 16 hospitals throughout the country.

As Grupo Ángeles expanded beyond Mexico City, the hospital was confronted with a challenge: the limited number of specialists attending in hospitals outside the metropolitan area. Because radiologists were not available 24/7, it could take days for films to reach the specialists based in other hospitals, as well as for the results to come back. The organization quickly realized the need for an innovative IT solution that would support its objective of providing timely patient care.

Implementing a Radiology Information Network

Tension rose when Carlos was told that no specialist was available at the hospital that morning. He was concerned that he could be suffering from thrombosis, because he knew that he was a good candidate for such an attack. Recalling that all the information about his high blood pressure treatment was at the Hospital Ángeles del Pedregal building in Mexico City, he began to wonder whether he would have to endure the entire process again. 'If I just wouldn't have had that steak and wine for dinner,' he thought regretfully. At least the symptoms had vanished, only a headache was left of it.

In order to overcome the challenge – the lack of specialists – that affected ten of the 16 facilities, Jose Luis Ramirez Arias, Radiology Director in Hospital Ángeles de Pedregal, recognized the need for innovative healthcare solutions. "We are not only preparing for the future, but also for the present, because these technologies are already available in many countries," affirms Ramirez Arias, who is also Radiology Coordinator for the entire network and part of a team in charge of RIS/PACS (radiology information system/picture archiving and communication system) evaluation. Today, the secret of the group's success is based on the professional expertise of the medical staff, the high quality of care, and the innovative information technology (IT) systems. According to Mexican researchers, only two percent of public hospitals have a PACS, while among private hospitals with 50 beds or more, 36 percent use a PACS. Hospitals prefer to first invest in essential healthcare supplies because of limited



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financial resources. Once an institution decides to invest in a PACS, it has to be the best system according to its respective needs. Therefore, it was up to the RIS/PACS team at Grupo Ángeles to choose the right healthcare solutions in order to stay ahead of competition and offer the best quality of patient care.

Enhancing Radiology

After reviewing trends, best practices, and several different options, the team decided to implement *syngo*® Suite from Siemens Healthcare, including *syngo* Workflow (RIS) and *syngo* Imaging XS (PACS). Both solutions are tightly integrated into one application: While the RIS solution, *syngo* Workflow, enables an efficient exchange and distribution of patient information, the PACS software, *syngo* Imaging XS, allows the central storage of images and reports.

Grupo Ángeles Servicios de Salud holds 1,600 beds and performs over 500,000 examinations per year. For a hospital network this big, Siemens workflow concepts play a great role in enhancing radiology departments, while simultaneously reducing costs. "If we only consider the film cost, Grupo Ángeles will recover the investment in just five years," Ramirez Arias affirms. "For imaging operations, after equipment and its maintenance, the expenditures in film represent the highest costs." Furthermore, the implementation of digital radiology makes it possible to file complete records on a single CD. "This helps save on costs and the space of archiving, while observing regulation guidelines," states the Radiology Director, referring to federal laws in Mexico that demand the preservation of images for at least five years. The installation started at the beginning of 2006 and was extended over the last two years to all 16 sites comprised in the network. Currently, all facilities are up and running while final installations are being wrapped up. Since the project is the largest *syngo* Suite installation in Mexico, it required meticulous planning. "We are not improvising," explains Miguel Villafuerte, Grupo Ángeles Servicios de Salud's Chief Information Officer. "The project is ambitious and has been

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designed in four stages.” The first stage consisted of evaluating the existing process situation across the hospitals’ network. In a second phase, a digital image acquisition (RIS/PACS) plan was defined, which led to the third stage in which an image distribution system for the entire network was implemented. The last phase promised a significant reduction of the diagnostic time when generating radiological reports by tightly integrating *syngo* Voice, Siemens reliable online voice recognition software, with the RIS.

In the words of Grupo Ángeles’ executives, the entire project was excellently covered with the support from Siemens Healthcare. “Siemens has been helpful because they do not only sell solutions, they are experts with years of experience in the RIS/PACS field, something we didn’t find in other providers,” says Ramirez Arias, who considers Siemens to be more than just a provider, but a business collaborator and a strategic consultant. Another advantage was the flexibility of

the products and solutions to adapt to the specific needs of the customer. “This is important since we were not planning a short-term implementation, but a long-term solution, extended to every hospital in the network,” Villafuerte points out. He also acknowledges Siemens technical experience to be a key factor for successfully implementing a radiology information network which is to be available 24 hours a day, 365 days a year.

Versatile Medicine

After the implementation, further benefits became clear. “Siemens technology is helping to make Grupo Ángeles’ medicine ubiquitous,” stresses Villafuerte. The solutions have changed the way radiology works, adding greater efficiency and productivity, which, according to Grupo Ángeles’ executives, is a cultural rather than a technological benefit. With information available anytime and anywhere, doctors can now attend to any patient at any hospital within the network by

securely accessing a centralized database through a high-speed virtual private network (VPN). Furthermore, the digital archiving and the user-friendliness of the common *syngo* user-interface spares staff members time, enabling them to act and respond quicker. These advantages help Grupo Ángeles to offer the best care possible and give their patients the treatment they need as soon as possible.

“There are over 8,500 doctors throughout the Grupo Ángeles network who are experiencing the benefits of the new Siemens RIS/PACS system,” Ramirez Arias points out. The Emergency and Intensive Care Units are now able to access entire patient records and to respond quickly in urgent cases.

So, luckily for Carlos, he was treated at Grupo Ángeles Hospital Network. The attending physician was able to access the entire information regarding his chronic high blood pressure: how long he had been dealing with the illness,

The Mexican Healthcare System

In 2003, Mexico approved a major structure reform to improve the healthcare system founded in 1943, which led to the new System of Social Protection in Health (SPSS – Sistema de Protección Social en Salud). The most important innovation was the introduction of the Popular Health Insurance (SP – Seguro Popular) aiming to improve access to a better subsidized system for the underprivileged members of the population. This public insurance offers free healthcare funded mostly by federal taxes. The population pays a small premium subsidized inversely proportional to its income. The poorest families are exempt from any contribution. Of

the 107 million inhabitants, 50 percent are insured by public institutions, most of them by the Mexican Social Security Institute (IMSS – Instituto Mexicano del Seguro Social) and the Institute for Security and Social Services of State Employees (ISSSTE – Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado). The other 50 percent of the population comprises the uninsured population: the poorest, not affiliated to Seguro Popular, and the middle class targeted by the private sector. The latter offers hospitals, doctors operating their own private surgeries, and practitioners of traditional and alternative medicine. Most of the private

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which medicine he was taking, the doctor in charge, as well as further personal medical information were all available firsthand. Carlos was astonished and did not know how on earth the doctor knew all about his clinical record. His presentiment was confirmed: the doctor suspected a mini-stroke, a so-called Transient Ischemic Attack, and signed him up for cranial computed tomography. Blood pressure back to normal, anticoagulation medication in his pockets, and an appointment for a carotid exam and therapy adjustment at Hospital Ángeles de Pedregal planned for the next day, Carlos was pleased to know that his current data was going to be available at every hospital within the network. Moreover, he received a CD containing the radiological images and his reports, just in case he had to be treated by a physician outside the network. Thanks to digital imaging and archiving, Grupo Ángeles hospitals are now able to serve patients without the need to have

a specialist available 24 hours a day at every hospital. Radiologists at other sites are now able to interpret images even in the middle of the night in order to help during an emergency call – without delaying the diagnostic process. Raúl was glad to see his friend in better condition. Once they headed back to the hotel, he looked at the CD in his friend’s hands and decided that the first thing he was going to do back in Mexico City was switch to Grupo Ángeles Servicios de Salud Network.

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Further Information

www.siemens.com/syngo-suite

Summary

Challenge:

- Connecting all hospitals within Grupo Ángeles Network, making information available anytime and anywhere
- Making specialists available 24/7, even in hospitals outside the metropolitan area

Solution:

- Connection of all 16 hospitals of Grupo Ángeles Servicios de Salud’s network
- Filmless Radiology thanks to *syngo* Suite
- Flexible products that can be adapted to the special needs of every facility
- Siemens RIS/PACS expertise

Result:

- Cost reduction for film expenditure by implementing digital radiology
- Easy adaptation to the new system through user-friendly interface
- Digital archiving spares staff members time, allowing them to act quickly
- Doctors can attend to any patient at any hospital within the network without delaying the diagnostic process

healthcare services operate on a commercial basis, although there are some charitable organizations, such as the Red Cross. Mexico has 4,202 hospitals, of which around 30 percent are public. Health expenditure amounts to 6.6 percent of the gross domestic product (US\$57 billion or US\$525 per capita), which is the reason for the lack of medical equipment and its inequitable distribution in the public sector. According to a study published by the Organisation for Economic Co-operation and Development (OECD) in 2007, over half of the private hospitals do not have X-ray units, a third of the private hospitals do not have a full-time doctor, and

only few private hospitals have full-time nursing personnel. Because of the lack of funding, PACS adoption in the country is very limited. Only two percent of the public hospitals have implemented PACS, while in the private sector the rate amounts to 36 percent. Another reason for slow PACS growth is the aging infrastructure of hospitals constructed before 2001, which implicates an extra investment.

Source: *Mexico Background Data*, Espicom Business Intelligence 2007