The development of teleradiology is crucial for Latvia for several reasons. Firstly, the number of qualified medical experts in Latvia is decreasing. Secondly, specialists are not always available when needed. Thirdly, hospitals in Riga cannot ensure patient treatment without involving qualified external medical experts. Last, but not least, information exchange between Riga’s hospitals is practically non-existent.

Riga, the capital City of Latvia, has thus taken the initiative to establish a top-of-the-line telemicine and telecare system.

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The full project in the City of Riga will target not only teleradiology, but also telecardiology, teleconsultation of patients, teletraining, tele-emergency services, and telemedical anti-terror systems.

The programme aims to reach four objectives:
1. establish a communication channel to exchange information between the municipal authorities and the various medical institutions (in- and out-patient care);
2. develop centralised information aggregation capacities in hospitals and healthcare institutions;
3. establish a communication channel to exchange information and specialist consultations for the development of a medical home-care network;
4. organise training for practising family physicians in providing telemedicine services.

The Telemedicine and Videoconference Division of the Information Technologies Centre of Riga’s City Council is responsible for the implementation of the programme.

The current situation in Latvia

Patients are often transported from one hospital location to another in order to undergo the necessary radiology examinations. In general, the exams in the hospitals are carried out by middle-level medical staff. For the reading of the images and consultations, a radiologist needs to come from outside the hospital. Commuting from one hospital to another is a daily routine for radiologists in Latvia. Teleradiology will enable the electronic distribution and archiving of medical images, which will be available in digital format at any time and at any location. At the moment, no unified data archiving is possible in the Riga hospitals. Setting up competence centres, and attracting experts to these centres, will improve the quality of consultations and reduce time and financial resources spent on diagnosing.

Teleradiology and PACS project

The City Teleradiology and PACS Project initially concerns 2 major hospitals in Riga. This project was developed in cooperation with the Healthcare Division of Riga’s City Council Welfare Department. The objective is to install a RIS and a PACS, and set up a Videoconference Centre in the municipal Gaižekes Clinical Hospital and the municipal Riga City Hospital No.1. An ISDN and Internet network should interlink these hospitals with other Latvian hospitals and with radiology competence centres in the world.

The application of teleradiology and establishing the competence centre for remote consultations (X-rays of lungs, joints, etc.), CT and ultrasound examinations by highly qualified medical staff will become available to every resident of Riga. It will allow to receive a prompt expert response and when necessary, also highly qualified consultations by University specialists or experts from abroad. The gradual transition to filmless radiology will save approximately 80% of the resources for purchasing, developing and storing of X-ray films.

The project in the two hospitals will provide precise data on the effectiveness of the introduction of digital radiology.

Buying or renting? That’s the question

It has been decided to initiate the implementation in one of the two hospitals concerned. The hospital considered to be the foremost radiology competence centre in the city was selected.

The original plan was to finance the purchase of hardware and software through a municipal grant or a leasing arrangement. However, the idea of creating a new municipal company was also considered. This entity would then finance the project by using the grant, attracting additional investments, and then renting the teleradiology system to the various hospitals.

The rental solution will allow for implementation in the maximum number of healthcare institutions under supervision of the municipal department. The hospital would not be involved in system maintenance and service. A separate centre would carry out central data storage and technical support services. The rental contract covers a 7-year period, after which the ownership of the system will be transferred to the hospital, thus fulfilling the requirements for data archiving.

A 7-year business plan

The hospital is not ready to become entirely filmless, as only part of the equipment is DICOM compatible. Digital images can be produced in CT, angiography and NMR. Only one of four X-ray machines has DICOM output. No digital images can be produced in fluorography and ultrasound. However, the project will take off with the DICOM-compatible equipment, assuming that the other devices will be replaced in the future. The project will be implemented in stages. After delivery and installation of the hardware and software, all DICOM modalities will be connected to the system, and the output of digital images will begin. During the initial 6 months, all images will be duplicated on film. During the following 12 months, the duplication will be decreased to 50%, then to 20% for the subsequent year, and thereafter approximately 5% will be film duplicated for the rest of the 7-year period.

The benefits of the project are expected to emerge from the moment when duplication of digital images by film images will be reduced to 50%. Thereafter, the savings will increase in correlation with further decrease of film duplications. Overall, it is expected that the project will have losses during the first 6 months of exploitation, requiring some additional financing to balance the cash flow. During the second half of the first year, the results will already surpass the break-even point and show a profit. The initial investments of the hospital will be justified in 1.6 years, and the estimated IRR is about 102%.

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