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### EUROPACS News

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The history of Hospital Information Systems (HIS) and PACS in Poland is brief. HIS began in the early 1990's, and PACS about five years later. From a Polish perspective, it appears that the era of CRT monitors and MOD 'jukeboxes' has missed the country completely, and that digital imaging management has emerged in Poland as a fully mature facility.

Poland has developed its own PACS solutions. In addition to all commonly accepted PACS features and procedures, there are three aspects of the Polish experience of particular importance to physicians outside of conventional radiology departments.

First, PACS is linked to Hospital-Integrated Information Systems (HIIS) and, in this role, becomes another tier in the overall Electronic Patient Record (EPR). Clinicians do not perceive PACS as a separate system in spite of the fact that image icons are available at the EPR graphical interface. In practice, physicians access the image data by selecting a particular study. Image data is sent to the physician's office for reference or remote consultation. Consultants treating inpatients receive the data as part of the EPR, whereas in outpatient clinics, a CD, replacing the traditional film, is given direct to the patient. Second, PACS in Poland combines radiological and non-radiological image data arising from clinical procedures. To give just a few examples: radio graphical images can be combined with endoscopy videos, bronchoscopy videos, video sequences taken from general surgery/ neurosurgery/cardiosurgery and signal data (i.e. EKG), etc. This ability to store combined data fulfils the requirements of a multimedia EPR.

Third, the presence of the inter- and intranet in our professional live increases our expectations. Remote access to images and reports in both read-only and read/write mode has become available. Physicians and GPs now enjoy remote access to image data in their own consulting rooms. Radiologists may be requested to provide primary diagnoses and interpretation without ever leaving their home office. Imaging centers provide remote consultation for hospitals, which do not have a radiology department. Multimedia PACS also provides for image data conversion to formats which are readily compatible with web technology. Additionally, image archives are accessible to residents and medical students for educational purpose.

The Polish PACS solution has proved attractive to other European countries. The system has served German and Irish hospitals for the last 2 years.

Remote access to image data for consultation, reference, and education has required the use of reference quality images (JPEG compression of DICOM images at the rate of 20:1). Image data use has been investigated in a group of Polish and German hospitals for a period of 6 months, with special focus on the access to images from outside conventional imaging departments. The results (statistically significant) showed that reference quality images were selected by nonradiologists for 96% of all interrogations. Only in 4% of the cases were diagnostic quality images required. These results have shown that compilations of reference-quality images within the PACS archive would prove extremely useful.

Extensive use of diagnostic images would congest the hospital network. Moreover, reference quality workstations are less expensive and DICOM compliant software is not necessary to view images. One could say that the networks would become faster and the computers cheaper. However, at the same time, the amount of image data increases exponentially making the race both interesting, and, potentially, very expensive.



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