

Transforming the process of radiological image delivery - the experiences of an integrated PACS and EPR for secondary and primary care

Jarmo Reponen^{1,2}, Virpi Kansanoja¹, Eija Tapanainen¹, Anja Kettunen³,
Vesa Repo¹, Jari Tuunanen¹

¹Raahe Hospital, Raahe, Finland

²FinnTelemedicum, University of Oulu, Oulu, Finland

³Oulu Polytechnic, School of Health and Social Care, Oulu, Finland

Corresponding author: Jarmo Reponen, Dept. of Radiology, Raahe Hospital, P.O.Box 25, FIN-92101
Raahe, Finland, email: jarmo.Reponen@oulu.fi

Raahe district hospital started filmless radiology service in 2002 in a combination with an electronic patient record. The new service was well accepted, enabled more efficient use of resources and enhanced the role of radiographers.

INTRODUCTION

Raahe district hospital responsibility area consists of one hospital and 6 primary health care centres in four municipalities. Radiology modalities include MRI, CT, US, CR and mammography. The picture archiving and communication system (PACS) installation was taken into use at the same time with a comprehensive web-based electronic patient record (EPR). This region was the first in Finland to deliver same digital information both to the secondary and to the primary care. This study shows the results in reorganising the image services and reports user attitudes towards a new way of conducting services.

MATERIALS AND METHODS

During the earlier film and paper period radiological imaging was performed at the hospital and in two primary care units in the region. Prior to PACS and EPR installation the staff participated a comprehensive training program. The program consisted of basic training of computer programs and specific training for the EPR and PACS tools. Before entering the process changes, remote requesting and viewing were piloted and any occurred problems were recorded and corrected. Radiographers played a key role in the user training and quality assurance. The management designed changes in the care process and resource allocation. The installed software enabled information delivery through web-based tools in a safe intranet environment. The results were

investigated with a user study targeted to physicians, nurses and assistant staff after the full digital service was in production use.

RESULTS

After the installation of PACS and EPR the health care region was able to shut down two remote X-ray units and at the same time improve the availability of images and reports. The use of personnel was now more efficient. All the image information in the area was now available from one source and every computer terminal within the health care services was able to review it. Radiographers were in charge of the digital process. The respondents of the questionnaire were satisfied with the possibility to request and review the digital examinations and reports more quickly than with the earlier paper and film based system. Because of the carefully planned training, the system was considered easy to use. The quality of the images in the monitors was considered good enough. The older reports and images were easy to retrieve, although they were needed more rarely than expected¹.

CONCLUSIONS

Digital information delivery enabled major changes in infrastructure and radiographers' tasks. The collaboration between primary and secondary care was running smoothly. An integrated regional EPR system with image archiving and safe web-based image delivery helped to streamline the health care process and improved regional service.

References

1. A.Kettunen, J.Reponen, E. Tapanainen, J.Joensuu, J.Ervasti. From conventional to digital archive: The education process of the clinical staff. EPOS poster C-740 at ECR 2006.