

Introduction of information technology in Radiology. Impact on reading and reporting - preliminary results.

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Akershus University Hospital is in the process of introducing information technology to archive, process and communicate radiology images and reports. At present, a new RIS and a PACS system have been introduced, both integrated with the Electronic Patient Record, so that reports as well as images are available as part of the patient record. A voice recognition system and an electronic order entry system will be introduced shortly.

In order to aim for clinical benefits from this introduction, focus has been as much on the organisational aspects as on the technology itself. In addition, a research programme has been launched to monitor the impact on process and outcome. The first preliminary results from this research programme will be presented during the EuroPACS conference.

In a feasibility study, all examinations from week 7 of February 05, before PACS introduction, was compared with the same week one year later. Focus was set on availability of first and final reports. A first report is a written report from a radiologist recorded in the patient record. A final report is the final conclusion from a senior radiologist, after double reading of images if required, proof reading, etc.

The mean time from examination sign-off to first report was reduced from 5h 43m to 1h 49m, and mean time to final report reduced from 22h 36m to 12h 46m.

The percentage of X-ray images taken during ordinary office hours (8-14) that had a first report within 2 hours increased from 39% (144 of 369) to 77% (360 of 468), and within 4 hours from 67% to 85%.

The percentage of CT scans from the same period with a first report within 2 hours increased from 16% (18 of 112) to 50% (70 of 139), and within 4 hours from 57% to 92%. The number of radiologist has in the same time period increased by 5%.

The level of double reading was estimated to be 65% on the average for all examinations and 90% for CT examinations before technology introduction, but these estimates are yet to be confirmed by more detailed studies. At present, the numbers are 68% on the average and 80% for CT images.

The preliminary results suggest that both first and final reports are available to the clinicians significantly faster after the technology was introduced. However, the level of double reading may have been reduced. What impact this will have on clinical outcome will be the focus of our research programme.