
An economic analysis of the new teleradiology system, KAMEDIN

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Abstract:

The teleradiology system KAMEDIN (Kooperatives Arbeiten und rechnergestützte Medizinische Diagnostik auf innovativen Netzen der Deutschen Telekom) was evaluated in different scenarios and a cost-benefit analysis was performed. The new software version of KAMEDIN (Deutsche Telekom), installed on a Unix Workstation and a Windows-NT PC, was used for teleradiology. CT datasets were transferred from an Advantage Windows workstation (GE) to a KAMEDIN workstation using the DICOM 3 protocol. In addition, teleconferences were conducted from a KAMEDIN workstation in the intensive-care unit within the hospital by local area network, to a radiology department at a distance of 5 km by ISDN and to a KAMEDIN PC by ISDN, located at a radiologist on duty at a distance of 22 km. An average of 36 CT slices per patient were transferred. The overall costs (costs for hardware, software, support, ISDN fees and staff) were compared to the possible reduction of transportation costs.

The three scenarios were integrated into the daily routine. Communication based on a workstation and PC, could successfully be performed by a local area network and ISDN. Due to different reductions in transportation costs two applications (intensive-care unit, external PC) showed a breakeven at 1817 and 528 teleconference/year respectively. Improved cost effectiveness would be obtained if existing hardware could be used and data could be transferred automatically without human intervention. Combining all optimization factors the breakeven decreased to a minimum of 167 and 77 teleconferences/year respectively.

Different teleradiology scenarios, based on workstations and PCs can be realized by the KAMEDIN system. Teleconferences can be cost-effective under certain conditions, particularly by using existing hardware or reducing transportation costs. The optimization of patient management is an additional advantage of teleradiology.

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