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Title **Picture Archiving and Communication Systems: A Systematic Review of Published Studies of Diagnostic Accuracy, Radiology Work Processes, Outcomes of Care, and Cost**

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Aim

To evaluate the clinical performance and economics of picture archiving and communications systems (PACS).

Conclusions and results

The results suggest that radiology should be the service area in which to pilot the use of information technologies to improve clinical production and efficiency. To date, PACS workstation imaging has not been demonstrated to be equivalent to conventional film for accurate primary diagnosis of all types of illnesses that present in the veteran population. The data suggest that generating, retrieving, and delivering images and starting patient treatment are performed more rapidly in a PACS environment. No study demonstrated that the use of PACS improved patient outcomes or decreased costs. It remains to be demonstrated if PACS result in more efficient clinical and production processes, or if those efficiencies translate into improved quality, increased access, or reduced cost of health care.

Recommendations

Evidence of the productivity, efficiency, or cost effectiveness of picture archiving and communications systems does not answer critical questions about this technology.

Methods

A systematic review of the literature was conducted using MEDLINE, Health Planning Administration databases, EMBASE and Current Contents Institute for Scientific Administration from 1990 through 1997. The search included the following terms: PACS, teleradiology, telemedicine, radiology, and radiology information systems. Twenty-two studies met the inclusion criteria in the following areas of study: diagnostic accuracy, process efficiency, clinical and patient outcomes, and cost savings.

Further research/reviews required

High-quality studies of the effectiveness, outcomes, and cost benefit of picture archiving and communication systems are needed. Suggested areas for research are discussed in detail in the report.

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