



Title	Digital Mammography versus Film-Screen Mammography: Technical, Clinical, and Economic Assessments
Agency	CCOHTA, Canadian Coordinating Office for Health Technology Assessment 865 Carling Avenue, Suite 600, Ottawa, ON, K1S 5S8 Canada; tel: +1 613 226 2553, fax: +1 613 226 5392
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Aim

- To compare the technical aspects of digital mammography (DM) and film-screen mammography (FSM)
- To compare the clinical effectiveness of DM and FSM
- To model the potential costs and effects of DM and FSM within the context of the Canadian health system

Conclusions and results

Technical Benefits: This report considered two digital mammography (DM) systems: digital radiography-mammography (DR-M) and computed radiography-mammography (CR-M). Operational and technical benefits of DM over FSM include improved diagnostic accuracy; ease of image manipulation, transmission, and archiving; and suitability for computer-aided diagnosis.

Clinical Effectiveness: Although DM offers some potential clinical benefits over FSM, including shorter examination time and lower radiation dosage, these benefits have not been demonstrated in a clinical setting. The ability to detect cancer is comparable for DR-M and FSM; there is insufficient data on the clinical effectiveness of CR-M.

Economic Analysis: DR-M was found to have significantly higher annualized costs than either FSM or CR-M. Assuming that DR-M and CR-M are, at best, clinically equivalent to FSM, the minimum-cost system is preferred. Therefore, conventional FSM is preferable to DM at this time. As the costs of CR-M are comparable to those of FSM, CR-M may be preferable to DR-M once acceptable clinical performance has been demonstrated.

Recommendations

Not applicable.

Methods

For each of the three aims of this study, relevant studies were independently selected by two reviewers from the results of a systematic search of multiple electronic databases. The technical review was based on 37 relevant articles; the clinical review on 7; and the economic analysis on 17. Since only a few heterogeneous studies were available for the clinical review, the literature was summarized qualitatively rather than analyzed quantitatively. Cost minimization analysis compared the costs of providing mammography using conventional (FSM), digital (DR-M), or hybrid (CR-M) systems.

Further research/reviews required

Large studies are needed to demonstrate any clinical advantages of DM.