

Title	1.5 Tesla magnetic resonance imaging scanners compared with 3.0 Tesla magnetic resonance imaging scanners: Systematic review of clinical effectiveness
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Aim

To assess the clinical benefits, limitations, and safety associated with using 1.5 Tesla (T) magnetic resonance imaging (MRI) scanners compared to 3.0 T MRI scanners and to examine differences in service delivery, personnel, and structural requirements.

Conclusions and results

The evidence on clinical test parameters shows that 3.0 T MRI, in general, performs as well as or better than 1.5 T MRI for the studies included in this review.

Relative clinical effectiveness of 3.0 T MRI compared with 1.5 T MRI cannot be determined and there is a lack of evidence on the safety of using 3.0 T MRI with implanted devices.

Factors to consider in choosing between the two are the extent to which a facility with a 1.5 T MRI requires renovation to house a 3.0 T MRI, the MRI experience of staff, the need for research applications, and the need for current and future clinical applications.

Recommendations

Statements providing guidance in the purchasing of 1.5 T or 3.0 T MRI scanners are available from: http://www.cadth.ca/media/pdf/mri_science-guide-doc_rapid-r_e.pdf

Methods

A systematic review was conducted to answer questions related to clinical benefits, limitations and safety associated with the use of 1.5 T MRI and 3.0 T MRI systems.

A peer-reviewed search strategy was used to identify studies available between January 2005 and November 2010, written in French or English. Two independent reviewers selected and assessed the results of the search according to pre-defined criteria.

To address the service delivery, personnel, and structural questions, information was obtained from a number of sources including the Canadian Institute for Health Information (CIHI), relevant review articles identified in the initial search and web-based sources. In addition, questionnaires were sent to the five original equipment manufacturers in Canada.

Further research/reviews required

None

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