

# The cost-effectiveness of Magnetic Resonance Imaging (MRI) for investigation of the knee joint

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 25/04/2003	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
<b>Last Edited</b> 02/09/2009	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data

**Plain English summary of protocol**  
Not provided at time of registration

## Contact information

**Type(s)**  
Scientific

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## Additional identifiers

**Protocol serial number**  
HTA 93/26/16

## Study information

**Scientific Title**

## **Study objectives**

This study considered the role of Magnetic Resonance Imaging (MRI) in the diagnosis of knee injuries in a District General Hospital (DGH) setting. The principal objective was to identify whether the use of MRI had a major impact on the clinical management of patients presenting with chronic knee problems, in whom surgery was being considered, whether it reduced overall costs and whether it improved patient outcome.

In addition, the research:

1. Explored the 'diagnostic accuracy' of initial clinical investigation of the knee by an orthopaedic trainee, consultant knee specialist and consultant radiologist
2. Considered the variability and diagnostic accuracy of interpretations of knee MRI investigations between radiologists
3. Measured the strength of preference for the potential diagnostic/therapeutic impact of knee MRI (i.e. the avoidance of surgery)

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

Not provided at time of registration

## **Study design**

Single centre, randomised controlled trial

## **Primary study design**

Interventional

## **Study type(s)**

Screening

## **Health condition(s) or problem(s) studied**

Musculoskeletal injury

## **Interventions**

The research was based on a single-centre randomised controlled trial conducted at Kent and Canterbury Hospital.

Patients were randomised to:

1. Investigation using an MRI scan (MRI trial arm), or
2. Investigation using arthroscopy (no-MRI trial arm)

Investigation of diagnostic accuracy:

For the investigation of diagnostic accuracy of initial clinical investigation, the sample comprised 114 patients recruited in a separate study conducted at St Thomas Hospital. The sample was drawn from patients presenting at the Accident and emergency Department with an acute knee injury. All study patients received an MRI scan, but initial diagnosis was made without access to the scan or the radiologists report. After 12 months, all clinical notes and MRI scans of study patients were reviewed and a final reference standard diagnosis for each patient was reached. Comparison was made between the diagnosis recorded by each clinician (i.e. orthopaedic trainee, knee specialist and consultant radiologist) and the reference diagnosis.

Investigation of the generalisability of results:

For this substudy, the MRI images from 80 patients (recruited at St Thomas Hospital) were interpreted independently by seven consultant radiologists at DGHs and the St Thomas Hospital MRI radiologist. For each area of the knee, the level of agreement (measured using weighted kappa) between the responses of the eight radiologists and the reference standard diagnosis was assessed.

Investigation of preferences:

The investigation of potential patient preferences for the diagnostic/therapeutic impact of MRI was explored using a discrete choice conjoint measurement research design. Choices involved selecting between two alternative scenarios described using four attributes, and data were collected from 585 undergraduate sports science students and analysed using a random-effects probit model.

### **Intervention Type**

Other

### **Phase**

Not Specified

### **Primary outcome(s)**

The study investigated the benefits of knee MRI at two levels:

1. Diagnostic/therapeutic impact (i.e. avoidance of surgery)
2. Patient outcome (using the 36-item Short Form questionnaire [SF-36] and the EuroQoL quality-of-life measurement instruments [EQ-5D]); quality of life was assessed at baseline and at 6 and 12 months

Costs were assessed from the perspectives of the NHS and patients. All analyses were by intention to treat.

### **Key secondary outcome(s)**

No secondary outcome measures

### **Completion date**

31/12/1998

## **Eligibility**

### **Key inclusion criteria**

Patients attending with knee problems in whom surgery was being considered were recruited from routine orthopaedic clinics.

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Not Specified

**Sex**

All

**Key exclusion criteria**

No exclusion criteria

**Date of first enrolment**

01/01/1996

**Date of final enrolment**

31/12/1998

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre**

**Health Services Management Centre**

Birmingham

United Kingdom

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**Sponsor information****Organisation**

Department of Health (UK)

**ROR**

<https://ror.org/03sbpja79>

**Funder(s)****Funder type**

Government

**Funder Name**

NIHR Health Technology Assessment Programme - HTA (UK)

# Results and Publications

## Individual participant data (IPD) sharing plan

IPD sharing plan summary  
Not provided at time of registration

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/03/2004		Yes	No
<a href="#">Other publications</a>	HTA monograph	01/12/2001		Yes	No