



**Title** A Systematic Review of the Clinical Effectiveness and Cost Effectiveness and Economic Modeling of Minimal Incision Total Hip Replacement Approaches in the Management of Arthritic Disease of the Hip

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## Aim

To assess the clinical and cost effectiveness of minimal incision approaches to total hip replacement (THR) for arthritis of the hip.

## Conclusions and results

Compared to standard THR, minimal incision THR has small perioperative advantages in terms of blood loss and operation time. It may offer a shorter hospital stay and quicker recovery. It appears to have a procedure cost similar to standard THR, but evidence on its longer term performance is limited. Further long-term follow-up data on costs and outcomes, including analysis of subgroups of interest to the NHS, would strengthen the current economic evaluation.

Nine randomized controlled trials (RCTs), 17 non-randomized comparative studies, 6 case series, and 1 registry were useful in comparing single mini-incision THR with standard THR. One RCT compared two mini-incision THR with standard THR, and 2 RCTs, 5 nonrandomized comparative studies, and 2 case series compared two mini-incision with single mini-incision THR. The RCTs were of moderate quality. Most had fewer than 200 patients and follow-up less than 1 year. The single mini-incision THR may have some perioperative advantages, eg, blood loss and shorter operative time, of uncertain practical significance. It may also offer a shorter recovery period and greater patient satisfaction. Evidence on long-term outcomes is too limited to be useful. Lack of data prevented subgroup analysis. With respect to the two-incision approach, the data suggested shorter recovery compared to single-incision THR, but conclusions must be treated with caution. Two economic evaluations were identified, but added little value to the evidence base owing to their limited quality. In the economic model, the costs to the health service, per patient, of single mini-incision THR depended on assumptions made, but were similar at 1 year (7060 pounds sterling [GBP] versus GBP 7350 for standard THR). For a 40-year time horizon the costs were GBP

11 618 for mini-incision and GBP 11 899 for standard THR. The mean QALYs at 1 year were 0.677 for standard THR and 0.695 for mini-incision THR. For both the 1- and 40-year analyses, mini-incision THR was less costly and provided slightly more QALYs. See Executive Summary link at [www.hta.ac.uk/project/1598.asp](http://www.hta.ac.uk/project/1598.asp).

## Recommendations

See Executive Summary link at [www.hta.ac.uk/project/1598.asp](http://www.hta.ac.uk/project/1598.asp).

## Methods

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## Further research/reviews required

Data on long-term outcomes of single mini-incision or two mini-incision THR are needed. The sparse effectiveness data limit subsequent economic analysis. Further long-term follow-up data on costs and outcomes including analysis of subgroups of interest to the NHS would strengthen the economic evaluation, as would data on costs of long-term events and management, such as failure. In relation to utilities, short-term differences in recovery are required, in addition to long-term differences in outcomes that depend on both subsequent failures and differences in quality of life, caused by long-term implications of different degrees of dissection. If a large RCT addressing long-term effectiveness is conducted, a full economic evaluation should be incorporated as an integral part of the study from design to dissemination. Further careful work would be required to explore the value of such a large RCT more formally.