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Review

The methodological quality of health economic evaluations for the management of hip fractures: A systematic review of the literature



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ABSTRACT

Background and objectives: Approximately 76,000 people a year sustain a hip fracture in the UK and the estimated cost to the NHS is £1.4 billion a year. Health economic evaluations (HEEs) are one of the methods employed by decision makers to deliver healthcare policy supported by clinical and economic evidence. The objective of this study was to (1) identify and characterize HEEs for the management of patients with hip fractures, and (2) examine their methodological quality.

Methods: A literature search was performed in MEDLINE, EMBASE and the NHS Economic Evaluation Database. Studies that met the specified definition for a HEE and evaluated hip fracture management were included. Methodological quality was assessed using the Consensus on Health Economic Criteria (CHEC).

Results: Twenty-seven publications met the inclusion criteria of this study and were included in our descriptive and methodological analysis. Domains of methodology that performed poorly included use of an appropriate time horizon (66.7% of studies), incremental analysis of costs and outcomes (63%), future discounting (44.4%), sensitivity analysis (40.7%), declaration of conflicts of interest (37%) and discussion of ethical considerations (29.6%).

Conclusions: HEEs for patients with hip fractures are increasing in publication in recent years. Most of these studies fail to adopt a societal perspective and key aspects of their methodology are poor. The development of future HEEs in this field must adhere to established principles of methodology, so that better quality research can be used to inform health policy on the management of patients with a hip fracture.

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Introduction

Advances in medical technology and an ageing population contribute to the widespread view that rising healthcare expenditure in the 21st century is inevitable.^{1,2} The 2007 global financial crisis and the economic downturn that followed has brought attention to the sustainability of existing healthcare systems.³ The National Audit Office in the United Kingdom (UK) has recommended that the National Health Service (NHS) achieve efficiency savings of up to £20 billion between 2011 and 2015.⁴ In the current fiscal climate, the importance of healthcare policy that is based on clinical and economic evidence is acute. Health economic evaluations (HEEs) are one of the apparatuses that decision makers rely on to deliver evidence-based policy.

An economic evaluation in healthcare can be defined as the comparative analysis of alternative courses of action in terms of both their costs and consequences.⁵ There are two distinguishing characteristics for any analysis to meet the defined criteria of a HEE. There must be a comparison of two or more alternatives and both the costs as well as the consequences of the alternatives must be examined.⁵ Although these evaluations are of great importance in healthcare policy, many have serious methodological flaws that weaken the validity of their conclusions.⁶ Recognition of this problem has led to the development of a number of guidelines that describe appropriate methodology in the development of HEEs.⁷

Approximately 76,000 people a year sustain a hip fracture in the UK and the estimated cost to the NHS is £1.4 billion a year.⁸ This represents a sizeable proportion of the total annual budget for musculoskeletal disease, which has been valued at £10 billion.⁹ The prevalence of this condition, and its associated mortality has contributed to a research drive that has identified aspects of care such as expediting time to surgery,¹⁰ the use of spinal anaesthesia¹¹ and physician led management that improve survivorship.¹² The importance of effective deployment of financial, technical and workforce resources to deliver evidence based approaches that improve clinical outcomes and provide value for money cannot be overstated in this field of medicine. The objective of this study was (1) to identify and characterize HEEs performed for management strategies in patients with hip fractures, and (2) to examine their methodological quality using established standards in health economics.

Methods

Review protocol

This study was performed in accordance with the guidelines from the preferred reporting items for systematic reviews and meta-analyses (PRISMA).¹³

Information sources and search strategy

A literature search was performed in MEDLINE, EMBASE and the NHS Economic Evaluation Database for English language studies that contained the words “cost” or “economic” in

combination with “hip”, “femoral neck” or “neck of femur”. The search was conducted for studies published between January 1990 and December 2013. The last date of the search was performed on the 20th of April 2014. A summary of the search strategy is show in Fig. 1.

Inclusion and exclusion criteria

Only publications that described 2 or more alternatives, and included both costs as well as consequences, were included in the evaluation. Cost description, cost analysis and non-comparative cost-outcome studies do not meet the requirements of a full economic evaluation⁵ and were therefore excluded. The HEEs of interest in this study were those that focused on management strategies for patients with a hip fracture, therefore studies that described bone protection measures and hip fracture prevention were excluded.

Data extraction

The following data was extracted using a standardized spreadsheet: study title, authorship, year of publication, country of origin, source of funding, type of health economic evaluation, level of evidence according to Oxford Centre for Evidence based Medicine,¹⁴ economic model perspective, use of age to define population of interest and study attributes related to the system used for methodological evaluation of quality (Table 1).

Health economic evaluation nomenclature

There are various ways of classifying a HEE, however this study categorizes them into 4 groups that are commonly

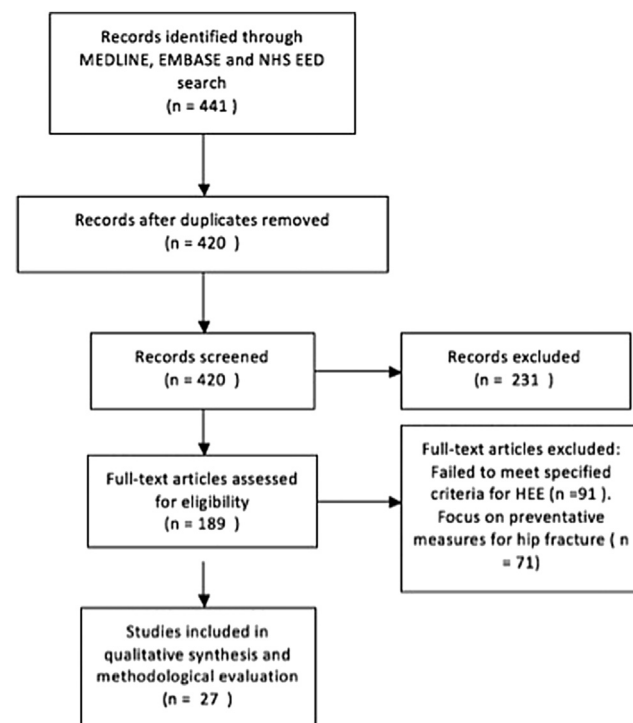


Fig. 1 – Flow diagram showing systematic search strategy for study selection.

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