

REVIEW ARTICLES

Richard P. Cambria, MD, Section Editor

The role of cost-effectiveness for vascular surgery service provision in the United Kingdom

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Objective: The cost of health care is increasingly becoming an international issue, with many health care systems requiring evaluation of cost when agreeing to fund health care. In the United Kingdom (UK), for example, the National Institute for Health and Care Excellence highlights the importance of using cost-effectiveness analyses to facilitate the effective use of resources. This study evaluates the use of cost-effectiveness analyses and the provision of vascular surgery.

Methods: A systematic review of published literature was performed. UK-based studies assessing cost-effectiveness or cost-utility of superficial venous interventions, abdominal aortic aneurysm (AAA) repair, and carotid endarterectomy (CEA) were included. All included studies were quality assessed to determine the overall strength of UK economic evidence for each intervention.

Results: Four superficial venous, six AAA, and two CEA studies met the inclusion criteria. After quality assessment, the UK evidence supporting the cost-effectiveness of superficial venous intervention was graded strong. The economic evidence for asymptomatic and symptomatic CEA was graded limited and insufficient, respectively, owing to a paucity of UK literature in this field. There was strong UK economic evidence affirming that endovascular aneurysm repair (EVAR) is unlikely to be a cost-effective alternative to open repair.

Conclusions: There is strong economic evidence for symptomatic superficial venous intervention. However, funding for varicose vein treatments remains controversial. Future economic analyses are required for symptomatic and asymptomatic CEA to better advise national policy. Despite strong economic evidence, current UK guidance is for EVAR over open repair in the elective setting, with the majority of elective AAA repairs being EVAR. (*J Vasc Surg* 2015;61:1331-9.)

Existing cost-effective analyses do not appear to be a major factor when decisions are made on vascular surgical services in the United Kingdom (UK). This may be analogous to other health care systems outside the UK, necessitating further research in this field and questioning the purpose of health economic analyses if recommendations are not implemented.

Health care costs are soaring globally. In 2012 alone, £121 billion and \$1.81 trillion were spent on domestic health care by the UK and United States, respectively,

making up >8% of the gross domestic product in both countries.^{1,2} Similar levels of expenditure are echoed across Europe.³ With the recent global economic crisis, there is increasing financial pressure to make health care savings and to increase efficiency.⁴ In the UK, as part of the drive to promote national health care savings and efficiency, local health care budgets for medical specialties have come under considerable scrutiny; and with the increasing trend toward centralization of care, rationing is a major element, resulting in limited financial resources.^{5,6} This sentiment is echoed in America, with the Affordable Care Act aiming to expand access to affordable health care and to reduce rising health care costs.

Owing to this financial pressure, health economics has played an increasingly important role in identifying cost-effective interventions. Cost-effectiveness and cost-utility studies are regarded as the most relevant types of health economic evaluation to health care professionals.

Cost-utility studies measure outcome in terms of cost per quality-adjusted life-year (QALY) or incremental cost-effectiveness ratio (ICER). QALYs measure health as a combination of duration of life and health-related quality of life (HRQoL), whereby 1 QALY represents 1 year spent in perfect health. The ICER is the ratio of additional cost

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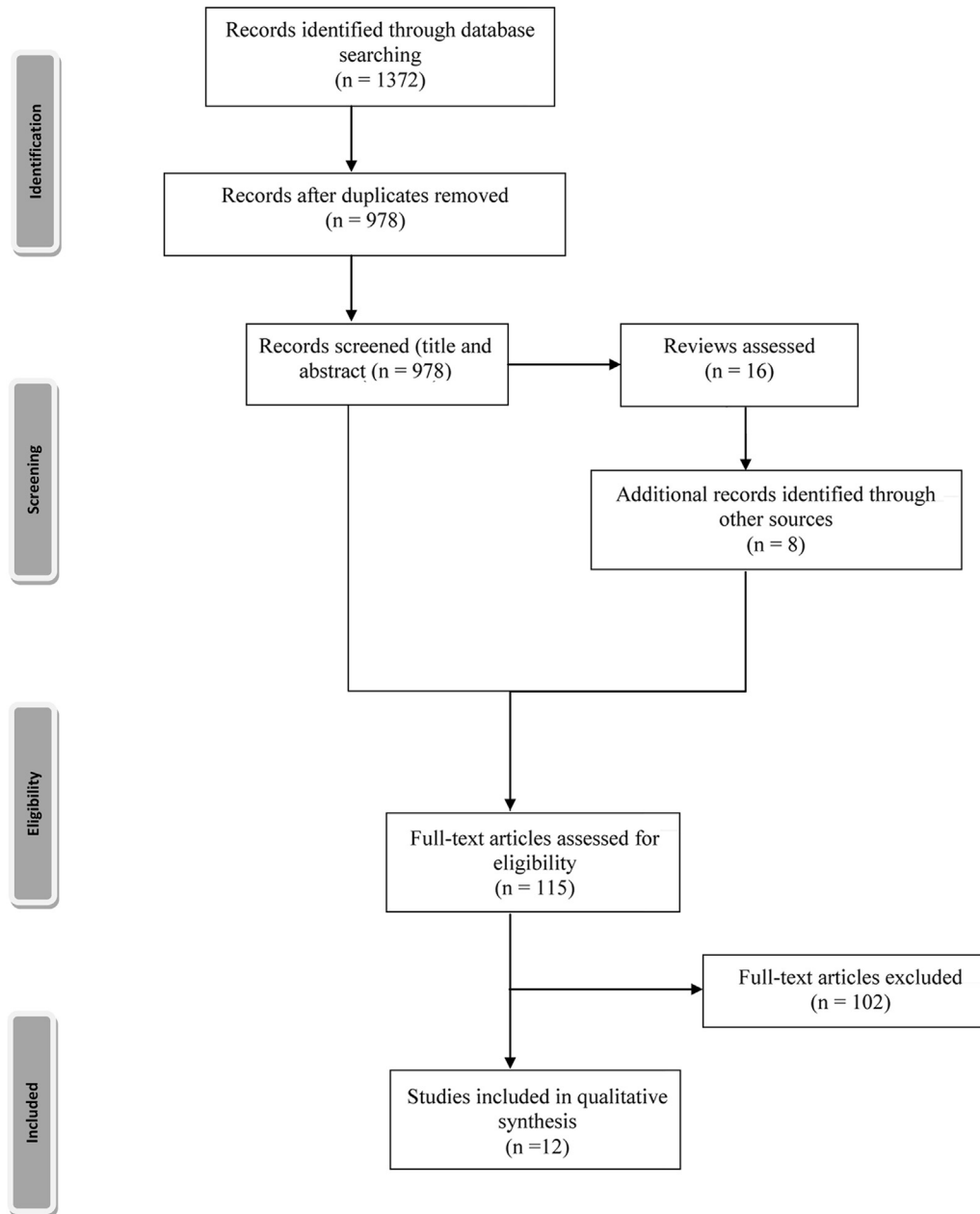


Fig. Summary of search strategy following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidance.⁷

to additional health benefit (eg, QALY) in comparison to the next best alternative.

Cost-effectiveness studies express costs as cost per unit of health effect, whereby the outcome is common to the treatment options assessed (such as life-years gained).

In the UK, a treatment strategy is typically considered cost-effective if the ICER is less than £20,000 per QALY.⁴ Similarly in the United States, a figure of \$50,000 per QALY is often suggested as a threshold for cost-effectiveness. The National Institute for Health and Care

Excellence (NICE) highlights the importance of using cost-effectiveness analyses to determine resource allocation in the UK National Health Service (NHS). However, it is unclear whether cost-effective analyses actually influence national guidance and service provision.

This study summarizes and quality assesses the UK evidence for the cost-effectiveness and cost-utility of three common vascular surgery interventions, namely, superficial venous interventions, abdominal aortic aneurysm (AAA) repair, and symptomatic and asymptomatic carotid

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