



Title **The Clinical Effectiveness and Cost effectiveness of Surgery for People with Morbid Obesity: A Systematic Review and Economic Evaluation**

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Aim

To systematically review the clinical effectiveness and cost effectiveness of surgery for managing morbid obesity and to develop a cost effectiveness model using the best available evidence to determine cost effectiveness in a UK setting.

Conclusions and results

- 17 RCTs and 1 nonrandomized clinical trial were included in the systematic review of clinical effectiveness. Methodological quality in the studies varied. Surgery was more effective than conventional treatment in achieving long-term weight loss (23–37kg more weight, maintained to 8 years) and improving quality of life (QoL) and comorbidities. Gastric bypass surgery was more beneficial than gastroplasty or jejunoileal bypass, with laparoscopic placement producing fewer complications than open procedures. Four economic evaluations, all of poor quality, were included in the systematic review of cost effectiveness. Surgery was shown to be cost-effective or cost-saving compared with nonsurgical treatment or no treatment.
- Comparing surgery to nonsurgical management over a 20-year period showed that surgery offered additional quality-adjusted life-years (QALYs) at an additional cost. When compared to nonsurgical management, gastric bypass had a net cost per QALY of £6289 while vertical banded gastroplasty and silicone adjustable gastric banding had net costs per QALY of £10,237 and £8527, respectively. Gastric bypass appears to have a modest net cost per QALY gained compared to vertical banded gastroplasty (£742/QALY). In contrast, silicone adjustable gastric banding has a large net cost per QALY gained compared to gastric bypass (£256,856/QALY). Caution should be taken when comparing surgical procedures as the economic evaluation is based on several unsophisticated assumptions, and evidence of clinical effectiveness varies among procedures.
- Surgery was found to be more effective than conventional treatment in achieving long-term weight loss. Expert opinion suggests that any service would need to be provided within specialist facilities with adequately trained multidisciplinary teams to operate and provide long-term support to patients.
- If implemented, the additional total cost to the NHS in England and Wales may be £136.5 million over the 20-year life-expectancies of the 50 000 patients estimated to be morbidly obese and who may meet the criteria for surgery. An estimated 800 morbidly obese people may meet the criteria for surgery each year, at an additional cost of £2.2 million over their 20-year-life expectancies.

Recommendations

Further research is required addressing long-term consequences of surgery, incorporating economic evaluations on the different surgical interventions.

Methods

A systematic review of the literature and an economic evaluation were undertaken. Sixteen electronic databases were searched. Relevant bibliographies were assessed, and experts were contacted for advice, peer review, and to identify other published/unpublished references. Manufacturer submissions to the National Institute for Clinical Excellence were reviewed.



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Systematic reviews of RCTs and/or prospective controlled clinical trials and RCTs and/or prospective controlled clinical trials were included, as were economic evaluations of surgery for people with morbid obesity that included a comparator and both the costs and consequences of treatment. Studies in non-English languages, abstracts, and conference poster presentations were excluded. A model using the best available evidence was constructed to determine cost effectiveness in a UK setting. Sensitivity analyses were performed.

Further research/reviews required

Although surgery appears effective in treating weight change, evidence on long-term consequences and influence on QoL in patients is limited. Few economic evaluations have compared the different surgical options, and the availability of costing and resource use data is limited. Good quality research of these issues would be beneficial.