
Semaglutide vs Endoscopic Sleeve Gastroplasty - Economic Viability?



Obesity is a global pandemic, with prevalence in the U.S. reaching 42.4% in 2018 and projected to rise to around 50% by 2030. It is linked to chronic medical conditions that increase morbidity and mortality, imposing a substantial burden on annual healthcare spending. Given the high prevalence and adverse impact of obesity on health and healthcare economics, it is crucial to understand the cost-effectiveness of available interventions.

Lifestyle interventions and bariatric surgery represent opposite ends of obesity treatment, with lifestyle changes often burdened by efficacy limitations and surgery underutilised due to its perceived invasiveness and cost. Alternatively, endoscopic bariatric and metabolic therapies have emerged as effective, safe, and minimally invasive options. Endoscopic sleeve gastroplasty (ESG) is a notable example, employing full-thickness sutures to reduce gastric capacity and alter motility without incisions. Recently, new weight-loss medications like semaglutide and liraglutide, known as glucagon-like peptide-1 receptor agonists, have gained attention for their mechanisms, including delayed gastric emptying. Semaglutide, in particular, is favoured for its noninvasiveness and weekly injection. However, despite their increasing adoption, the comparative cost-effectiveness of these treatments remains unknown.

The Multicenter ESG Randomized Interventional Trial (MERIT) demonstrated that ESG combined with lifestyle adjustments led to a 49.2% excess weight loss at one year, compared to 3.2% in the control group. Conversely, the Semaglutide Treatment Effect in People With Obesity (STEP 1) study showed that semaglutide, alongside lifestyle changes, resulted in a 14.9% total body weight reduction over 68 weeks, with 86.4% of recipients experiencing over 5% weight loss.

These findings establish the effectiveness and safety of semaglutide and ESG, prompting an economic evaluation study to compare their cost-effectiveness in treating obesity. The study evaluated the cost-effectiveness of semaglutide versus ESG over a 5-year period for individuals with class II obesity. The study compared two strategies: treatment with semaglutide and ESG, and evaluated costs in 2022 US dollars, quality-adjusted life-years (QALYs), and the incremental cost-effectiveness ratio (ICER) using a willingness-to-pay threshold of \$100,000 per QALY. It utilised a 5-year time horizon with a monthly cycle length and a 3% discount rate. Probabilities, costs, and quality-of-life estimates were obtained from published literature. Additionally, the study conducted one-way, two-way, and probabilistic sensitivity analyses.

The model showed that over a 5-year period, ESG was more cost-effective than semaglutide, with an ICER of –\$595,532 per QALY. ESG provided an additional 0.06 QALYs and reduced total costs by \$33,583 compared to semaglutide. These findings remained robust in sensitivity analyses. ESG also resulted in greater weight loss over five years compared to semaglutide (BMI of 31.7 vs. 33.0). To make semaglutide cost-effective compared to ESG, its annual price, currently \$13,618, would need to be reduced to \$3,591.

The study indicates that ESG is cost-saving compared to semaglutide for treating class II obesity. Price threshold analysis reveals that semaglutide's price would need to decrease threefold to achieve cost-effectiveness parity with ESG.

Source: [JAMA](#)

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