

Cost-effectiveness of GLP-1 RA Medications in Non-Diabetic Obesity Population

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Background

- Obesity is one of the most prevalent chronic conditions in the US. In 2022, more than 1 in 5 adults were obese (BMI \geq 30) in the US.
- A growing use of glucagon-like peptide 1 receptor agonists (GLP-1 RA) medications for weight loss was observed in the past few years. Previous studies have shown that the public interest in GLP-1 medications have grown exponentially since

Objectives

- This study aimed to assess the cost-effectiveness of two GLP-1 RAs (once-weekly subcutaneous semaglutide 2.4 mg plus lifestyle counselling, vs once-daily subcutaneous liraglutide 3.0 mg plus lifestyle counselling) in non-diabetic adults with obesity.

Methods

- **Model and Cohort:** In a Markov model, people entered at age 49.13 years with an initial BMI of 37.1; 50% of the cohort were female. People could transit between four different states on a monthly cycle (Figure 1). TreeAge Pro software was employed to develop the Markov model.

- **Perspective:** Payer's perspective

- **Time Horizon:** 5 years

- **Discount Rate:** 3.0% annually

- **Sensitivity Analysis:** Deterministic 1-way and multi-way

- **Model Inputs:** Transition probabilities and baseline characteristics were derived from the STEP 8 clinical trial. Cost values were obtained from Red Book 2023, reporting in 2023 \$US. An increase in utility was incorporated per 1-unit decrease in BMI. Short-term disutility from severe adverse events was also included (Table 1). Utilities were reported in quality-adjusted life years (QALYs).

- **Willingness To Pay (WTP):** \$100,000 per QALY gained

Methods

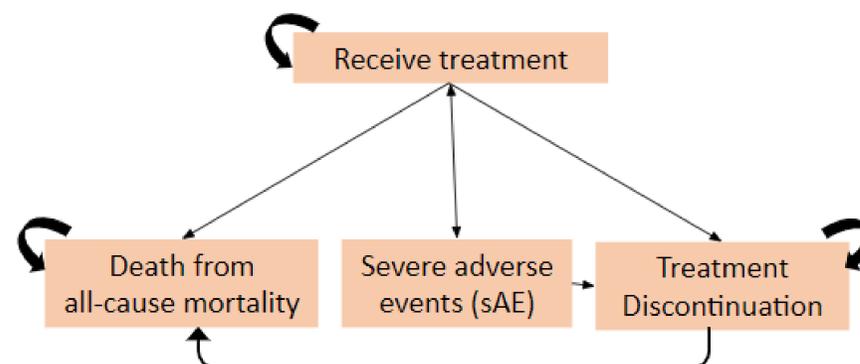


Figure 1. Four-state Markov Model

Parameter	Value	Range	Distribution	References
Initial utility for severe obesity alone	0.67	0.639 to 0.701	β	Schwimmer et al, 2003
Increase in utility per 1-pct decrease in BMI	0.002	-	β	Dennet SL et al, 2008
Severe Adverse Events	-0.1	-0.13 to -0.08	β	Bress et al, 2017

Over a 5-year time horizon, once-weekly semaglutide 2.4 mg plus lifestyle counselling was projected to yield more QALYs, but with an unfavorable ICER of \$1.2 million per QALY gained.

Results

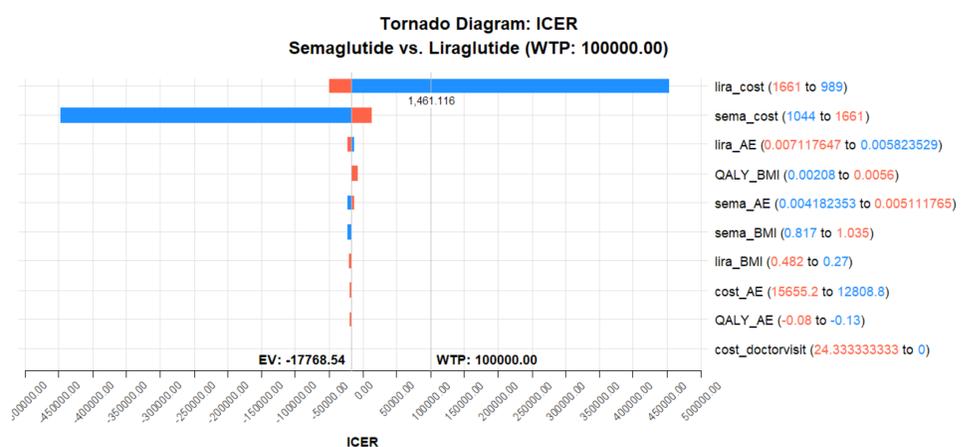


Figure 2. Sensitivity Analysis

Results

- In the base case analysis, at five years, once-weekly semaglutide 2.4 mg plus lifestyle counselling was the preferred strategy with an unfavorable ICER of \$1.2 million per QALY gained vs once-daily liraglutide 3.0 mg plus lifestyle counselling.
- However, a \$1.2 million per QALY gained is greater than the willingness-to-pay threshold (\$100,000 per QALY gained).
- Model results were most sensitive to the cost of medications and the rate of severe adverse events for both arms (Figure 2).

Conclusions

- The result indicates that, after 5 years, semaglutide plus lifestyle counseling is cost-effective compared to liraglutide plus lifestyle counseling for non-diabetic adults with obesity. However, the ICER value was \$1.2 million per QALY gained, which is over the willingness-to-pay threshold.
- This study did not consider other health benefits related to weight loss, so the QALY gained from both interventions might be underestimated.

Contact Information

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Key References

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