

Cost-Effectiveness and budget impact of Bariatric Surgeries to Reduce Obesity in Egypt

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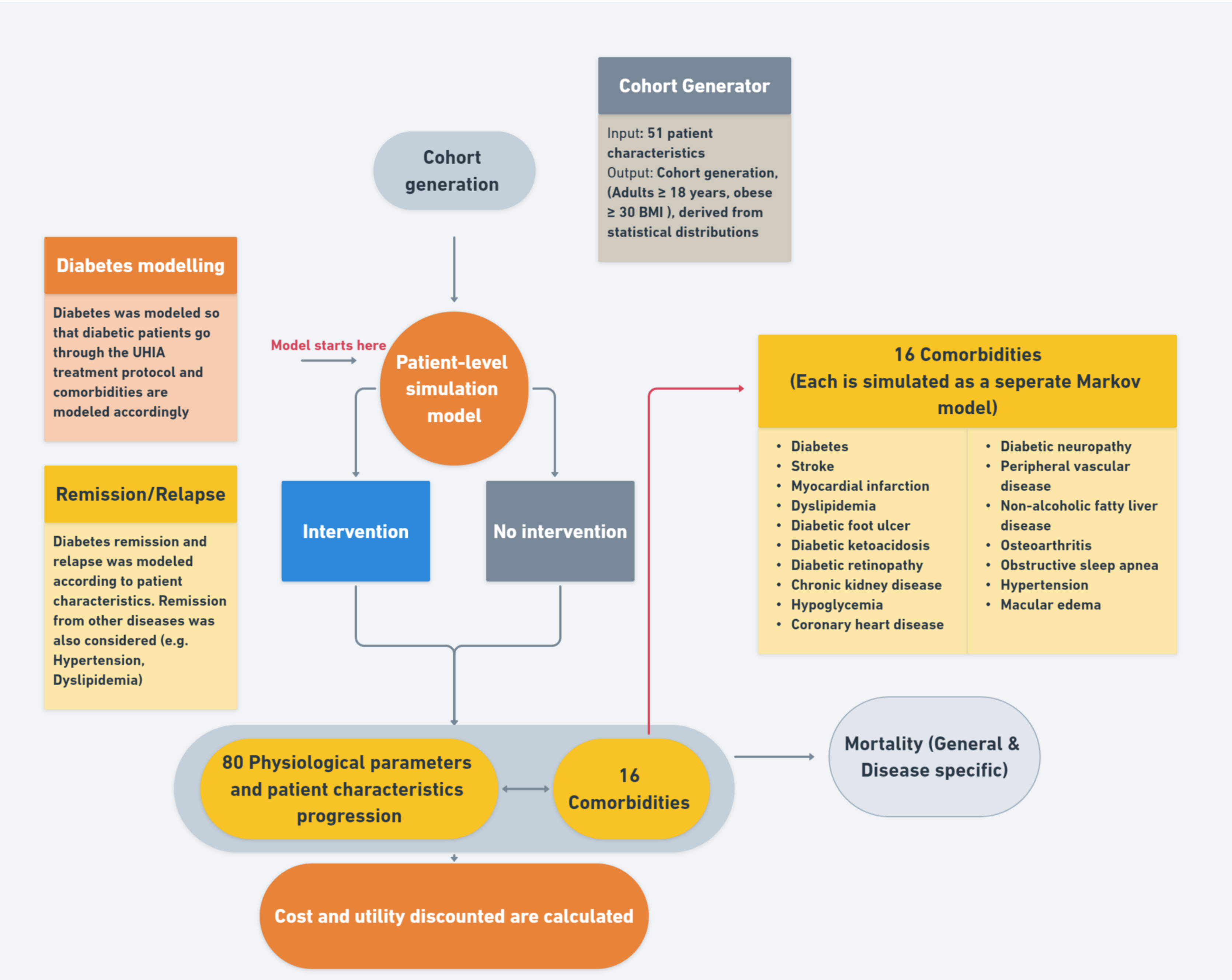
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INTRODUCTION

Obesity is a critical public health issue in Egypt, contributing to 1 out of every 5 deaths. With approximately 40% of the population classified as obese (Body Mass Index > 30), it is a major risk factor for the development of several life-threatening conditions, including diabetes mellitus, hypertension, obstructive sleep apnea, and fatty liver disease.⁽¹⁾ The economic burden of obesity in Egypt is staggering, costing the healthcare system an estimated 62 billion Egyptian pounds (EGP) in 2020.⁽²⁾

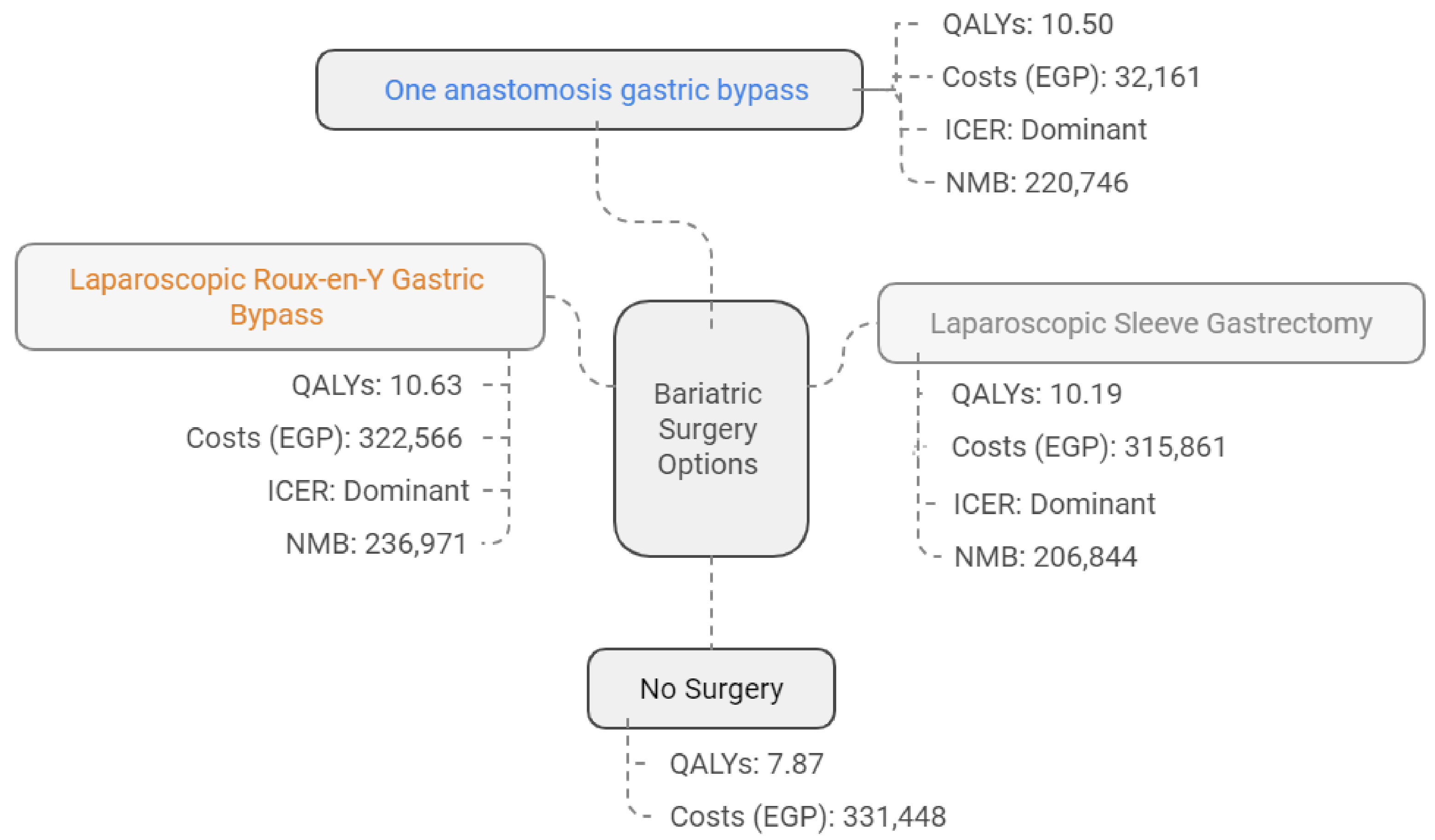
This study aims to evaluate the **cost-effectiveness** of bariatric surgery, weighing its long-term benefits against the financial and medical risks, as well as the **budget impact** of adopting the technology to inform reimbursement decisions and improve healthcare resource allocation.

METHODS



RESULTS

All surgical interventions **dominated** no intervention, proving both **more effective and cost-saving**. Average patient survival increased by 3.4 years with laparoscopic gastric sleeve, 3.9 years with Roux-en-Y, and 3.8 years with one-anastomosis gastric bypass. Additionally, **event-free survival for comorbidities improved in surgical groups**. Below is the quality adjusted life years (**QALYs**), costs, net-monetary benefits (**NMB**) with the different interventions.



Year	1% of the eligible population	Budget Needed to cover 1%
2024	5711	329,107,892
2025	980	56,474,476
2026	3245	186,999,669
2027	8249	475,365,260
2028	10671	614,937,895

Table 1: Budget Impact in targeting 1% of the eligible population for metabolic surgery

CONCLUSION

1. Metabolic surgeries are **highly cost-effective** compared to no surgery. It is **dominant for most patients** (cost less than no surgery and yield more benefits).
2. The **cost** of the intervention is **paid upfront**, and the **benefits are harvested over several years**.
3. The **eligible population is huge** (Year 1: 571,000. Year 5: 1,000,000).
4. Therefore, it is **challenging to fund the surgery for all existing eligible population**.
5. However, the **health and financial benefits from the surgery is great not to be reimbursed**.
6. So, **limiting reimbursement to those patients who will yield more QALYs** seems to be the plausible approach.

REFERENCES

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Methodology summary

Model type: Patient-level simulation model
Cohort: Representing obese population in Egypt
Perspective: Payer (Universal Health Insurance Authority of Egypt)
Time horizon: Lifetime
Cycle lengths: 6 months
Intervention: Laparoscopic (Sleeve gastrectomy/Roux-en-Y/One anastomosis gastric bypass)/No treatment
Mortality: General and disease-specific mortalities considered
Outcomes:
Average cost per patient
QALYs per patient
Life years per patient (average life expectancy)
Time-to first event
Co-morbidities in each arm
Number of acute events: Myocardial infarction, Stroke, DKA, Hypoglycemia
Years with chronic conditions: Hypertension, Diabetes, Dyslipidemia
Note: Costs and QALYs are discounted at 3.5%