

Supplementary Online Content

Klebanoff MJ, Chhatwal J, Nudel JD, Corey KE, Kaplan LM, Hur C. Cost-effectiveness of bariatric surgery in adolescents with obesity. *JAMA Surg*. Published online October 26, 2016. doi:10.1001/jamasurg.2016.3640.

eTable 1. Three-year BMI percent decrease from the Teen-LABS study

eTable 2. Long-term total body weight percent decrease from the SOS study

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Three-year BMI percent decrease from the Teen-LABS study

Year	Gastric Bypass			Sleeve Gastrectomy		
	Estimate	Low	High	Estimate	Low	High
0.5	-26.1%	-25.0%	-27.2%	-26.5%	-24.8%	-28.3%
1	-31.4%	-30.0%	-32.8%	-31.6%	-29.2%	-34.0%
2	-31.0%	-29.2%	-32.9%	-29.9%	-26.7%	-33.2%
3	-29.5%	-27.1%	-31.9%	-27.1%	-23.2%	-31.0%

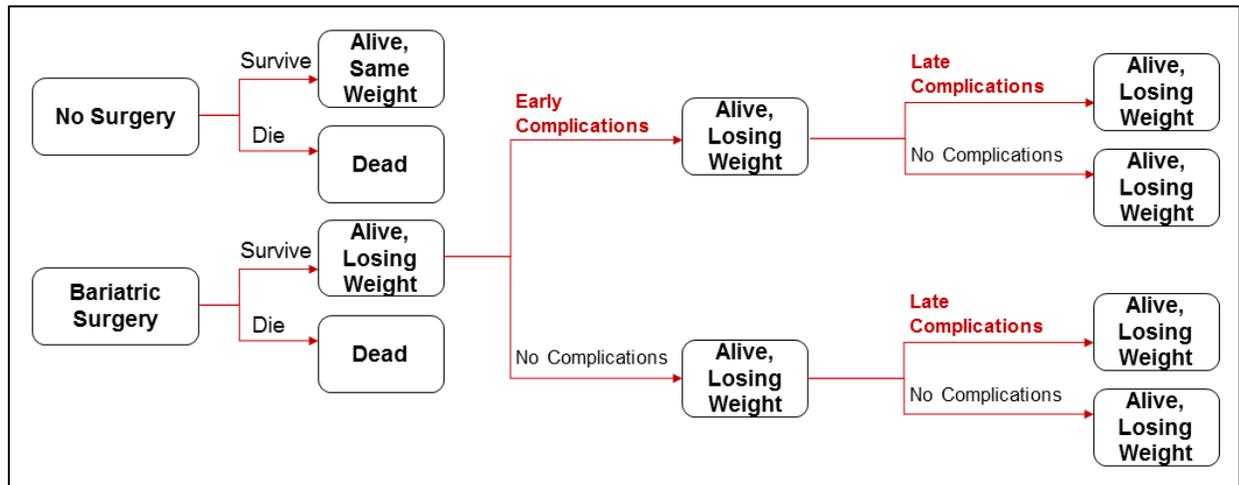
eTable 2. Long-term total body weight percent decrease from the SOS study

Year	SOS Change in Weight (%)		
	Estimate	Low	High
1	-32.2	-33.2	-31.2
2	-31.5	-32.7	-30.4
3	-29.4	-30.7	-28.1
4	-28.5	-29.8	-27.2
6	-26.0	-27.5	-24.6
8	-23.9	-25.9	-21.9
10	-24.8	-27.8	-21.9
15	-27.0	-34.4	-19.7

For the first three years after surgery, we obtained weight loss data for each surgery from the Teen-LABS study (eTable 1). We derived long-term weight loss data after three years using data after gastric bypass surgery from the Swedish Obese Subjects (SOS) study (eTable 2). (The SOS study did not include any participants who underwent sleeve gastrectomy.) We list changes in body weight at 1, 2, 3, 4, 6, 8, 10, and 15 years after surgery from the SOS study, because the SOS study reported weight changes at these time intervals.

In the SOS study, patients achieved 29.4% total body weight (TBW) loss at year 3; in Teen-LABS, gastric bypass patients achieved a 29.5% decrease at year 3, and sleeve gastrectomy patients achieved a 27.1% decrease. In our analysis, we assumed that these differences in weight loss between the Teen-LABS and SOS studies persisted beyond three years.

eFigure 1. Simplified model schematic

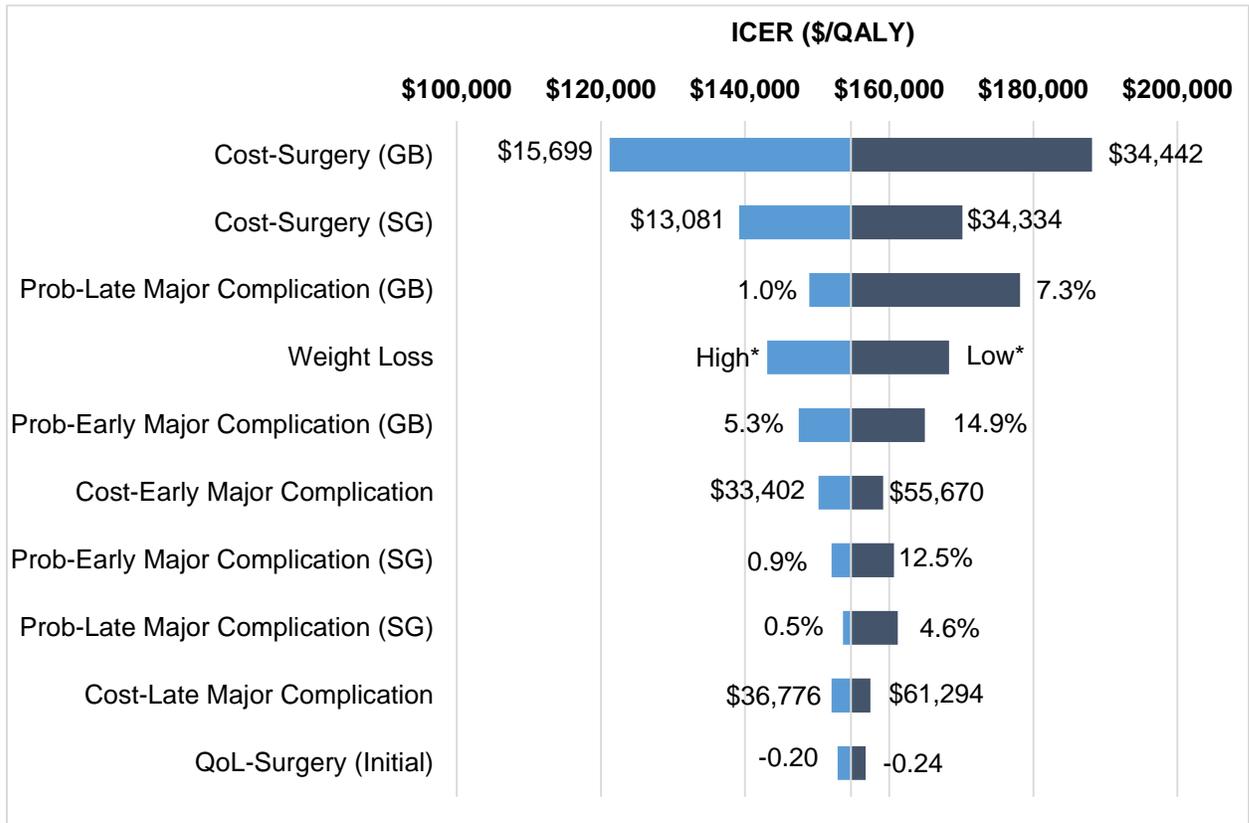


Clarifications on model structure

- The cycle length of the model was one month.
- All utilities and costs were discounted at a 3% annual rate.
- In our model, patients receive either gastric bypass or sleeve gastrectomy; the corresponding complication rates, mortality risks, and costs are different for each surgery.

Note that the events in bold red text involve a quality-of-life decrement. Also note that this model schematic provides a *highly simplified* depiction of our model structure; the actual model involves additional transition probabilities, costs, and quality-of-life changes.

eFigure 2. One-way sensitivity analysis over 3-year time horizon

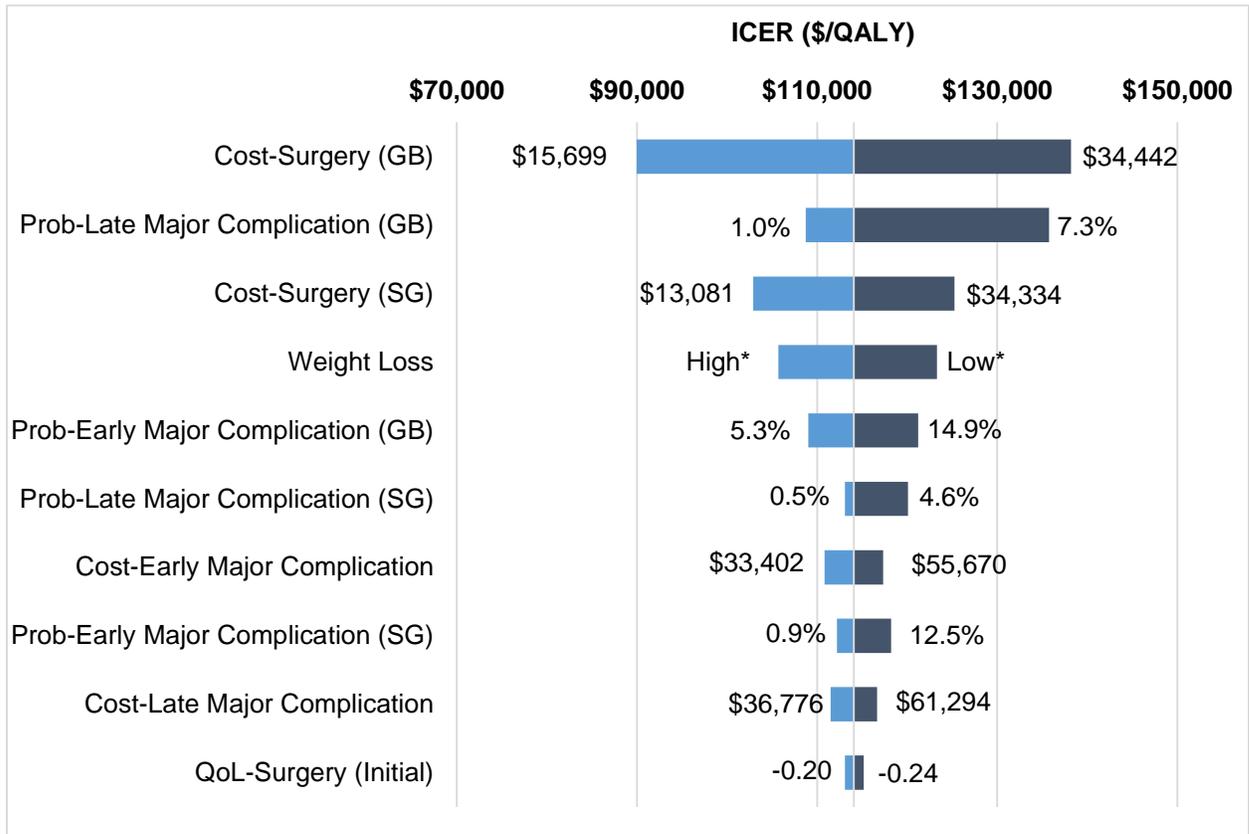


eFigure 2 shows the results of one-way sensitivity analyses performed over a three-year time horizon. One-way sensitivity analysis involves adjusting the value of one model parameter at a time in order to assess the impact on study outcomes. This figure includes the ten parameters that led to the largest effect on ICER values when modified. The numbers on either side of the bars indicate the extreme parameter values that led to the resulting ICER shown in the figure. This figure is centered around the base-case ICER of \$154,684/QALY.

*High and low parameter values for weight loss can be found in eTables 1 & 2.

QoL = quality of life; GB = laparoscopic Roux-en-Y gastric bypass; SG = laparoscopic sleeve gastrectomy; Prob = probability

eFigure 3. One-way sensitivity analysis over 4-year time horizon



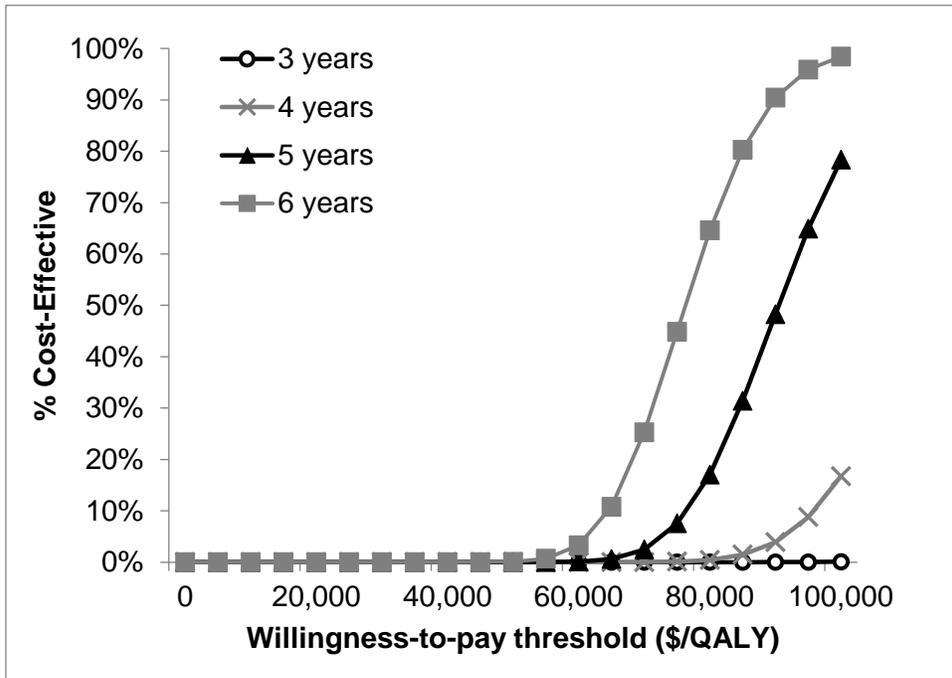
eFigure 3 shows the results of one-way sensitivity analyses performed over a four-year time horizon. One-way sensitivity analysis involves adjusting the value of one model parameter at a time in order to assess the impact on study outcomes. This figure includes the ten parameters that led to the largest effect on ICER values when modified. The numbers on either side of the bars indicate the extreme parameter values that led to the resulting ICER shown in the figure. This figure is centered around the base-case ICER of \$114,078/QALY.

*High and low parameter values for weight loss can be found in eTables 1 & 2.

QoL = quality of life; GB = laparoscopic Roux-en-Y gastric bypass; SG = laparoscopic sleeve gastrectomy; Prob = probability

Note: Results of one-way sensitivity analysis over a five-year time horizon are displayed in the manuscript.

eFigure 4. Probabilistic sensitivity analysis over varied time horizons



The results of probabilistic sensitivity analysis, performed over three-, four-, and five-year time horizons, are shown in eFigure 4. The model was run using second-order sampling for 100,000 iterations for each time horizon; the percent of these times that surgery was cost-effective, using a willingness-to-pay threshold of \$100,000/QALY, is shown in this figure.