

# ANALYSIS OF COST-EFFECTIVENESS IN SWITZERLAND FOR A NEW IMPLANTABLE DEVICE TO TREAT CHRONIC GASTROESOPHAGEAL REFLUX DISEASE

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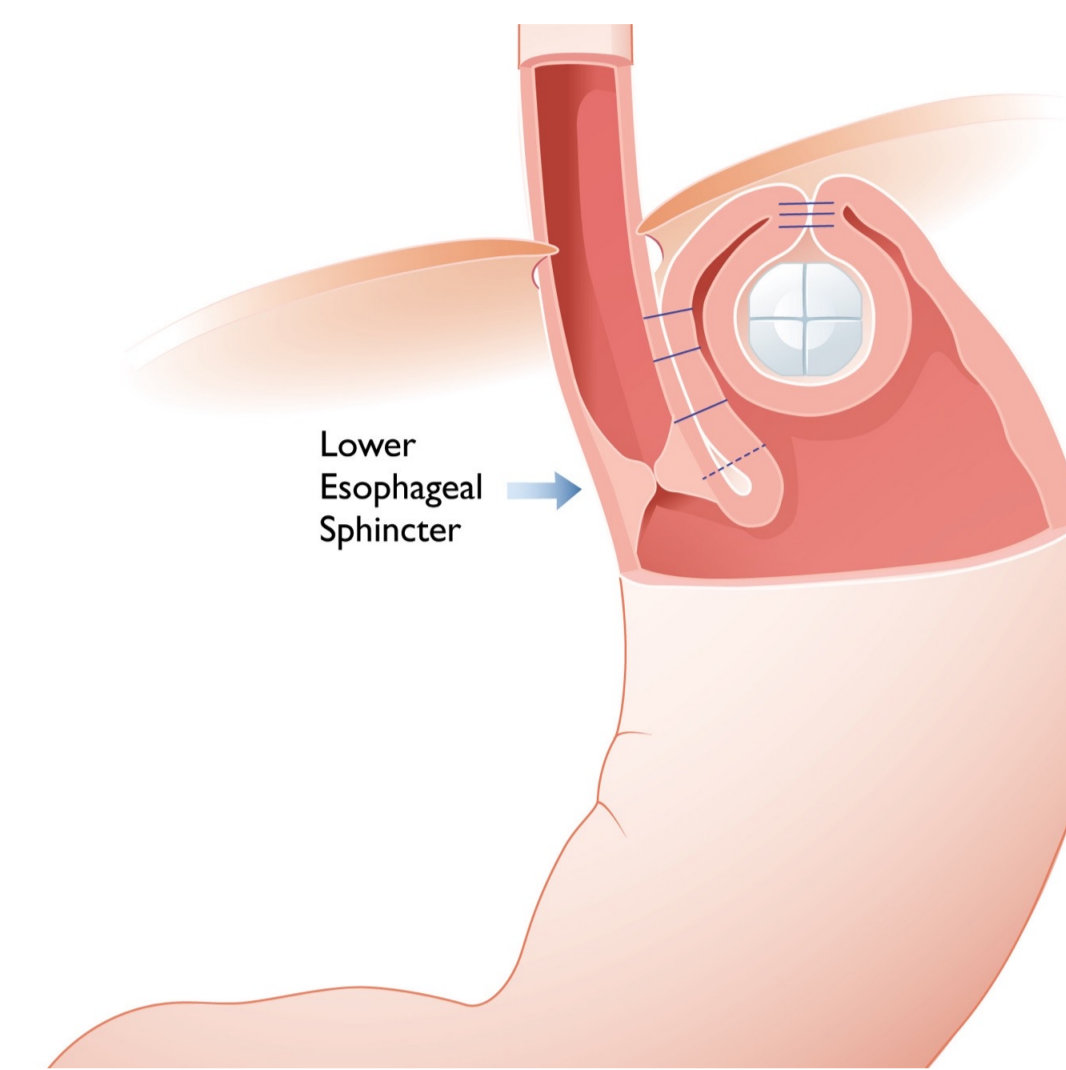
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## INTRODUCTION

Gastroesophageal reflux disease (GERD) is one of the most prevalent conditions in Western societies, characterized by heartburn, chest pain, and regurgitation. Proton pump inhibitor (PPI)-based medical management is standard treatment in Switzerland, but surgical options like Nissen fundoplication and magnetic sphincter augmentation (MSA) are considered when medical therapy fails. The RefluxStop procedure, with a silicon implant in a fundic pocket, offers an alternative solution.

**Objective:** This study aims to evaluate the cost-effectiveness of RefluxStop compared to existing surgical treatments and PPIs from the Swiss healthcare perspective.



**Figure 1** RefluxStop device reinstates the antireflux barrier through: realigning the fundus and LES; reinstating the flap valve; obtaining an acute angle of His; and preventing protrusion of the LES into the chest cavity.

## METHODS

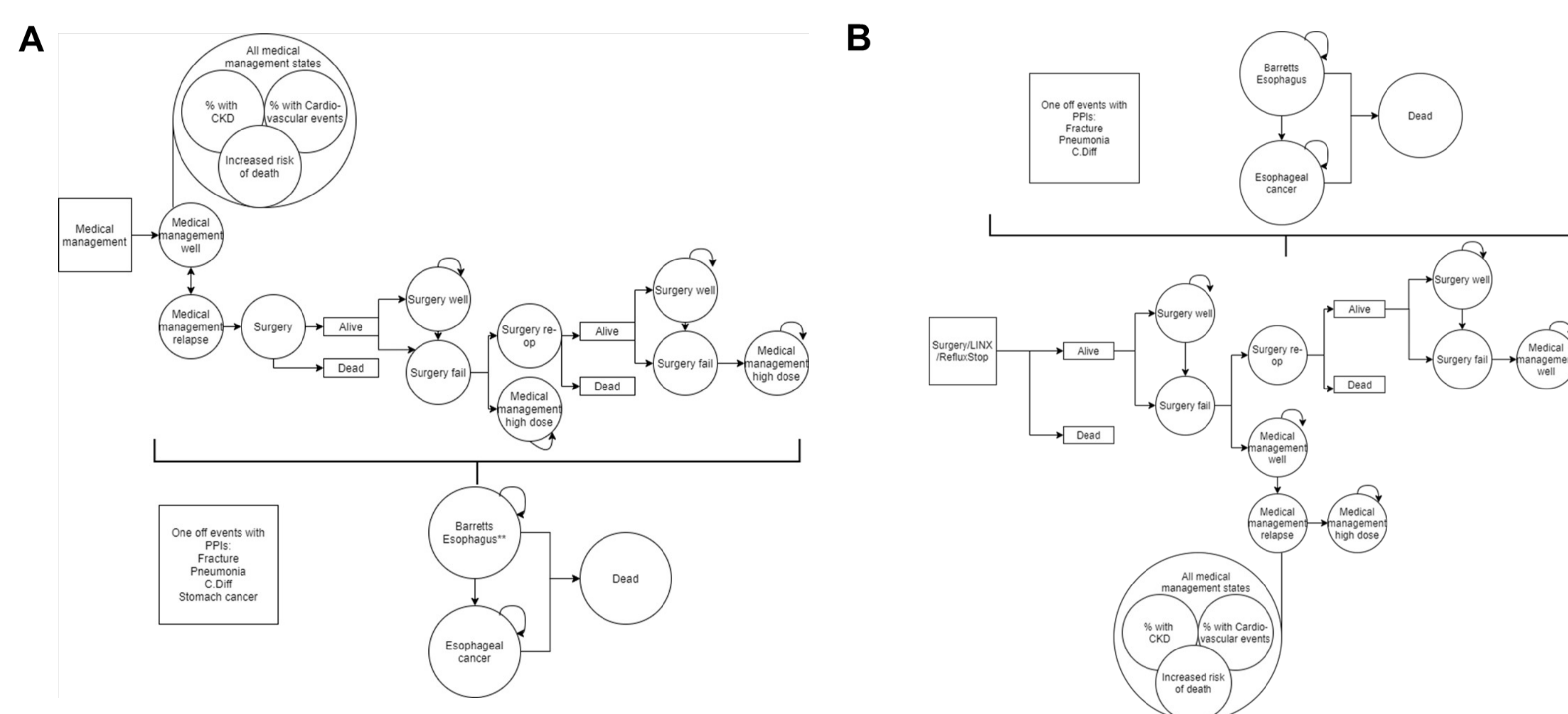
### OVERVIEW

- Markov model developed based on a recently published economic model (United Kingdom)<sup>1</sup>
- Swiss healthcare payer perspective
- Lifetime horizon
- 3% annual discount rate for costs and benefits

### MODEL STRUCTURE

- Health states: relevant to GERD during disease course
- Treatment-specific AEs incorporated
- Benefits measured in QALYs
- Unit costs derived from Swiss DRG databases and literature
- Efficacy/safety data from published literature
- Uncertainty explored through deterministic and probabilistic sensitivity analyses

**Figure 2A** Model structure applied to PPI-based medical management. **B** Model structure applied to surgical treatment options.

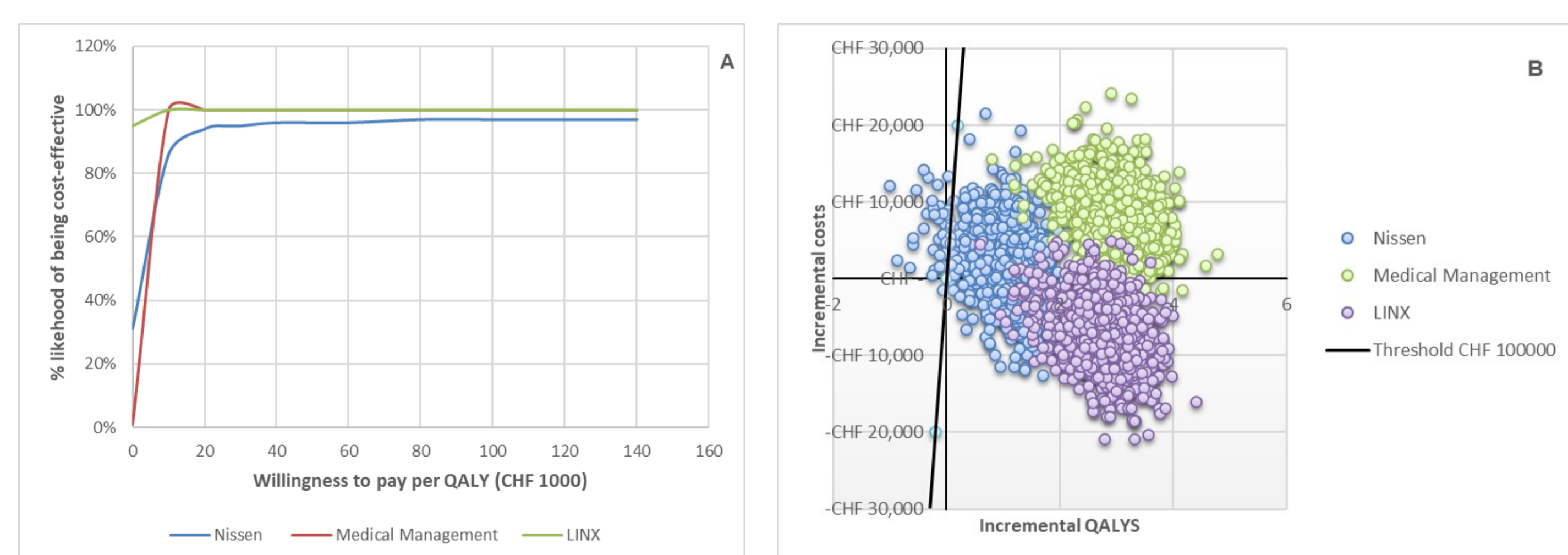


## RESULTS

**Table 1** Cost-effectiveness outcomes estimated in the base case analysis, per patient

	RefluxStop	MM	Δ vs. MM	Nissen	Δ vs. Nissen	MSA	Δ vs. MSA
<b>Cost/patient</b>	CHF 33,780	CHF 27,493	CHF 6,286	CHF 33,844	-CHF 65	CHF 42,715	-CHF 8,936
<b>QALYs/patient</b>	17.55	14.58	2.97	16.51	1.04	14.81	2.75
<b>ICER</b>		CHF 2,116		Dominant		Dominant	

**Figure 3A** Cost-effectiveness acceptability curves. **B** Cost-effectiveness plane showing the spread of individual iterations of probabilistic sensitivity analysis.



### SUMMARY

- RefluxStop provided higher QALYs at lower costs compared to Nissen fundoplication and the MSA
- In comparison to PPIs, the ICER for RefluxStop was CHF 2,116 that is much lower than the Swiss cost-effectiveness threshold, making RefluxStop a cost-effective treatment options against PPIs.

### PROBABILITIES OF COST-EFFECTIVENESS

- Cost-effectiveness threshold CHF 100,000 per QALY gained
- Considering this cost-effectiveness threshold in Switzerland, RefluxStop had high probability of being cost-effective; probabilities of 100%, 97%, and 100% against PPIs, Nissen fundoplication, and the MSA, respectively

### ADDITIONAL ANALYSIS

- Both deterministic and probabilistic sensitivity analyses provided robustness to the analysis
- In a scenario analysis of a 10-year time horizon, RefluxStop was still cost-effective compared to other options
- In a scenario analysis with Swiss-specific clinical parameters, ICERs were CHF 4,565 (vs PPI) and CHF 8,570 (vs Nissen fundoplication), dominant against MSA

## CONCLUSIONS

**RefluxStop is highly likely to be a cost-effective treatment for GERD in Switzerland against Nissen fundoplication, Magnetic Sphincter Augmentation, and PPI-based medical management.**

### References

1. Harper S, Grodzicki L, Mealing S, Gemmill L, Goldsmith PJ, Ahmed AR. Cost-effectiveness of a novel, non-active implantable device as a treatment for refractory gastro-esophageal reflux disease. J Med Econ. 2023 Jan-Dec;26(1):603-613.

### Abbreviations

AE, adverse event; DRG, diagnostic-related group; GERD, gastroesophageal reflux disease; ICER, incremental cost-effectiveness ratio; LES, lower esophageal sphincter; MM, medical management; MSA, magnetic sphincter augmentation (LINX); NHB, net health benefit; NMB, net monetary benefit; PPI, proton pump inhibitor; QALY, quality-adjusted life-year.