XXVIII IFSO World Congress
9-12 September 2025 | Santiago, Chile

Cost-effectiveness of endoscopic sleeve gastroplasty for weight-loss among individuals with and without diabetes

Authors: Chay J., Wang C., Lim C. H., Ravi R., Asokkumar R., Tham K. W., Wong C., Lee C.Y., Finkelstein E.

Presenter: Geri Cramer, PhD, MBA, BSN

IFSO 2025 Santiago
Combined Therapies, The Dawn of a New Era
ifso2025.org

Disclosure

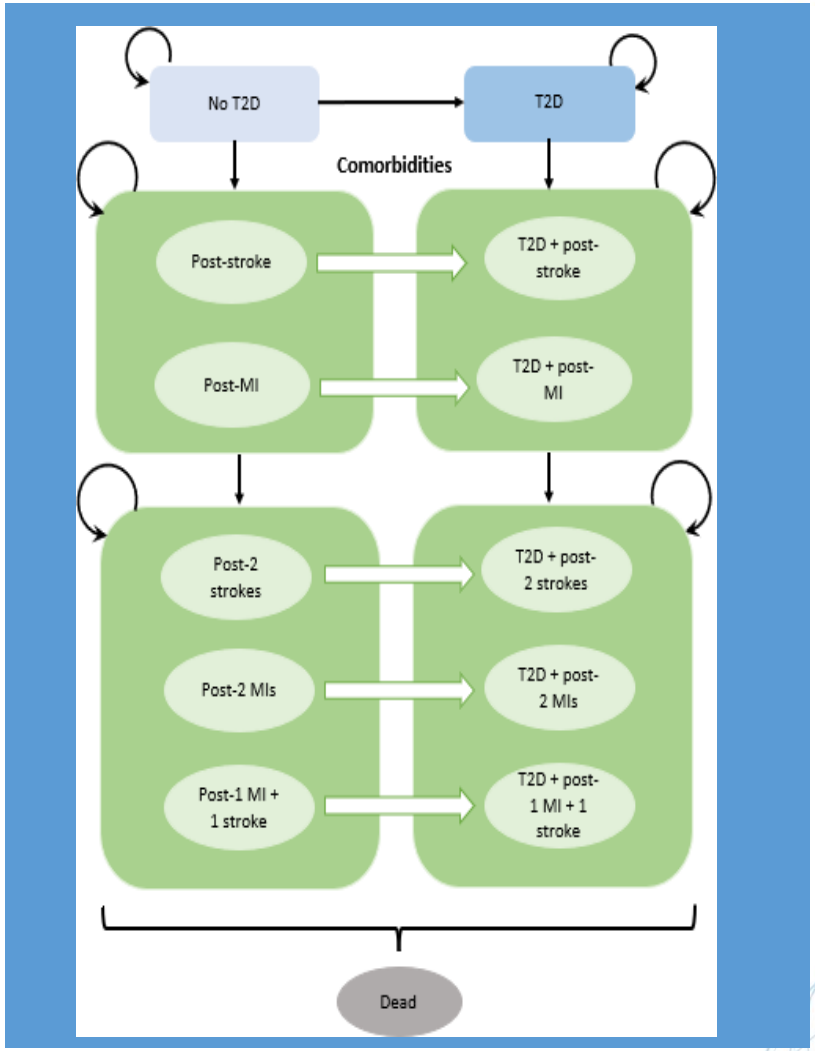
This study was funded by Boston Scientific

Wong C. and Lee C.Y. are employees of Boston Scientific

Study objective and design

- **Objective**: Evaluate the lifetime incremental cost-effectiveness of ESG plus lifestyle management (ESG+LM) relative to lifestyle management alone (LM) for individuals with obesity **in Singapore**
- A Markov model was developed to simulate the incidence of T2DM, MI and stroke
  - Risk was function of age, gender, weight, and other related clinical risk factors
- Multiple prior CEAs of ESG focused on short- and medium-term impacts

Figure 1: Markov State Transition Diagram



CEA: Cost-effectiveness analyses; ESG: Endoscopic Sleeve Gastroplasty; LM: Lifestyle management; T2DM: Type II Diabetes Mellitus; MI:myocardial infarction

Study summary

Perspective	Singapore's healthcare system perspective
Population	ESG-eligible individuals in Singapore, aged 42 years with obesity Subgroups: Patients with and without T2DM at baseline, and no prior history of CVD
Intervention	ESG in combination with LM
Comparator	LM only
Outcomes	Incremental cost-effectiveness ratio (ICER)
Time Horizon	Lifetime time horizon

ESG: Endoscopic Sleeve Gastroplasty; T2DM: Type II Diabetes Mellitus; LM: Lifestyle management; CVD: Cardiovascular disease; QALY: Quality-adjusted life- year

Results

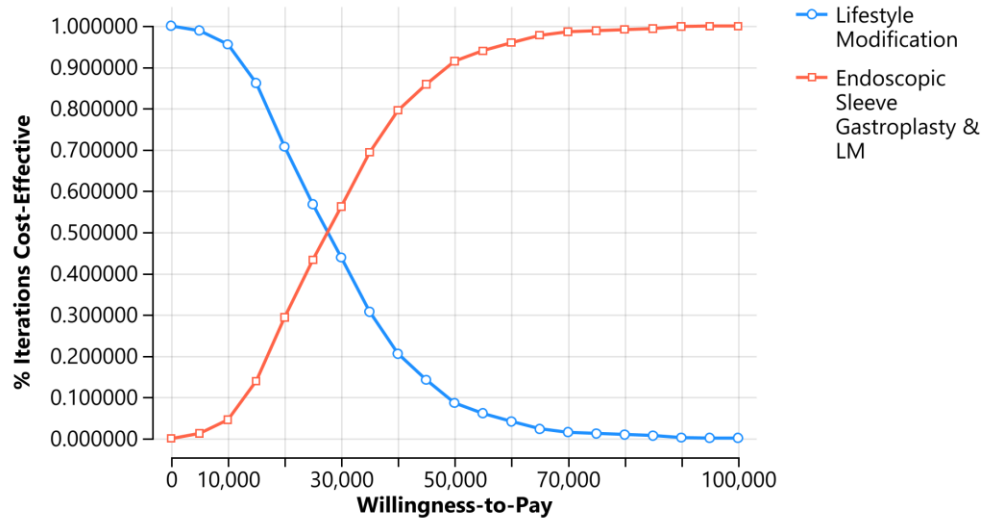
Cohort	Strategy	Cost (SG$)	Effectiveness (QALY)	ICER (SG$/QALY)
Combined	LM only	34,100	20.13	
	ESG + LM	43,220	20.50	**24,580**
Without T2D at baseline	LM only	21,990	20.51	
	ESG + LM	29,040	20.88	**19,320**
With T2D at baseline	LM only	65,110	19.16	
	ESG + LM	79,490	19.54	**37,320**

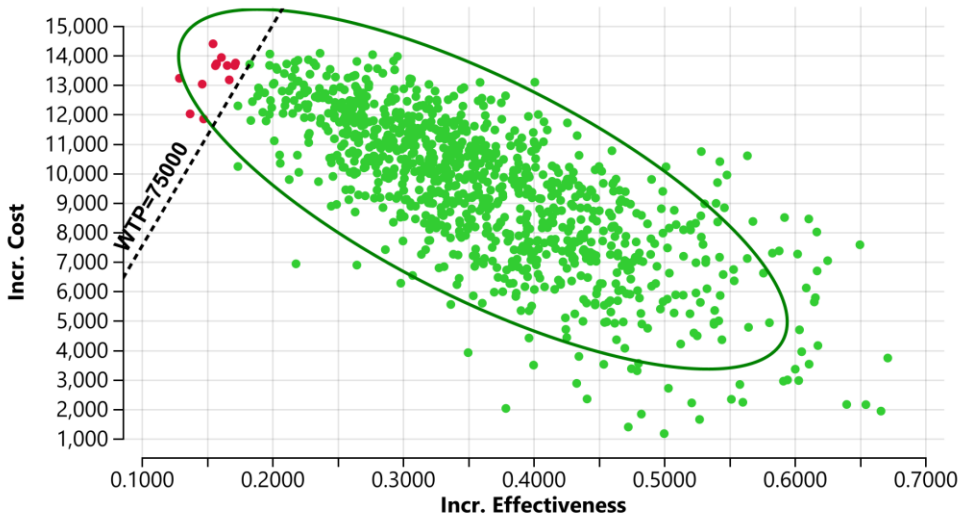
Condition/ Event	Hazard ratio
T2D	0.50
MI	0.78
Stroke	0.78
CVD Death	0.71

Over a lifetime horizon, ESG

- Was found to be **highly cost-effective** relative to a willingness-to-pay (WTP) threshold of SG$ 75,000/QALY
- **Reduced the risk of T2D, CVD and CVD-related mortality**

Probabilistic Sensitivity Analysis





- At a WTP threshold of SGD 75,000/QALY, ESG was cost effective 98.8% of the time
- Results were most sensitive to baseline age with ESG being less cost-effective when performed at older ages

Conclusion

- ESG should be considered a high-value intervention within the obesity care pathway in Singapore.
- ESG cost-effectiveness is most pronounced when used at younger ages.
- These findings can help inform both clinical practice and reimbursement policy in Singapore.