

Cost-Effectiveness of Metabolic Bariatric Endoscopy

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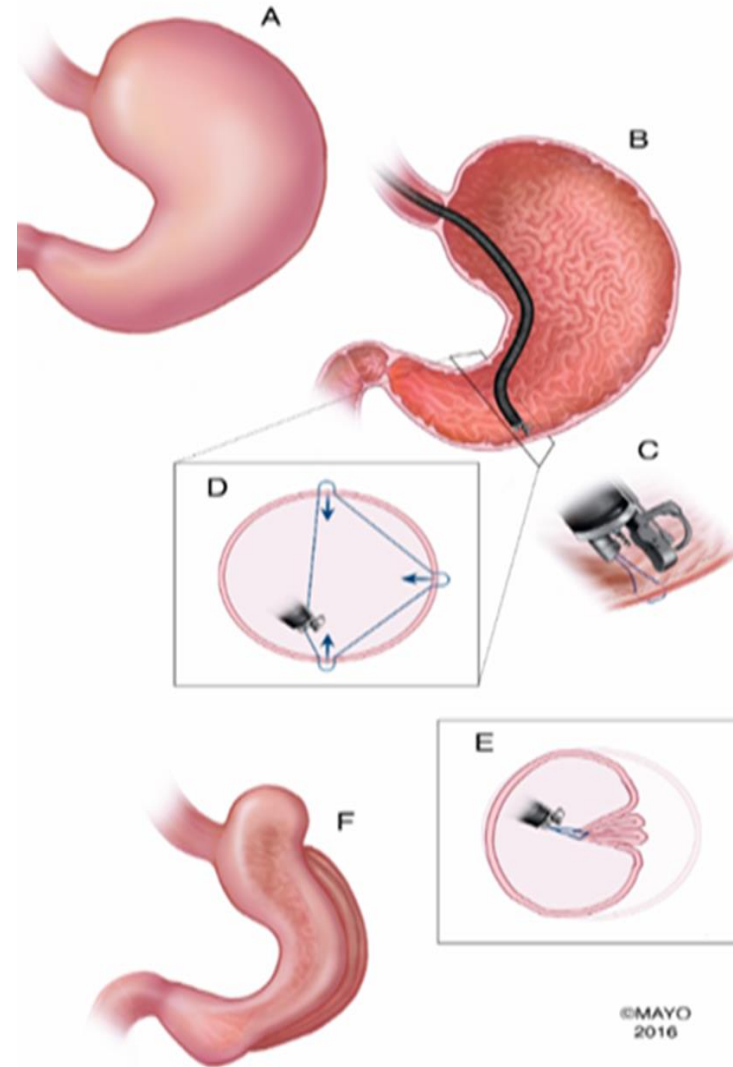
Disclosures

Consultant: Boston Scientific, Olympus, Intuitive

Co-inventor (Licensed Mayo Technology): Endogenex

Research Support: MERIT Medical

Endoscopic Sleeve Gastroplasty



Abu Dayyeh and Gostout GIE 2013 Sep;78(3):530-5

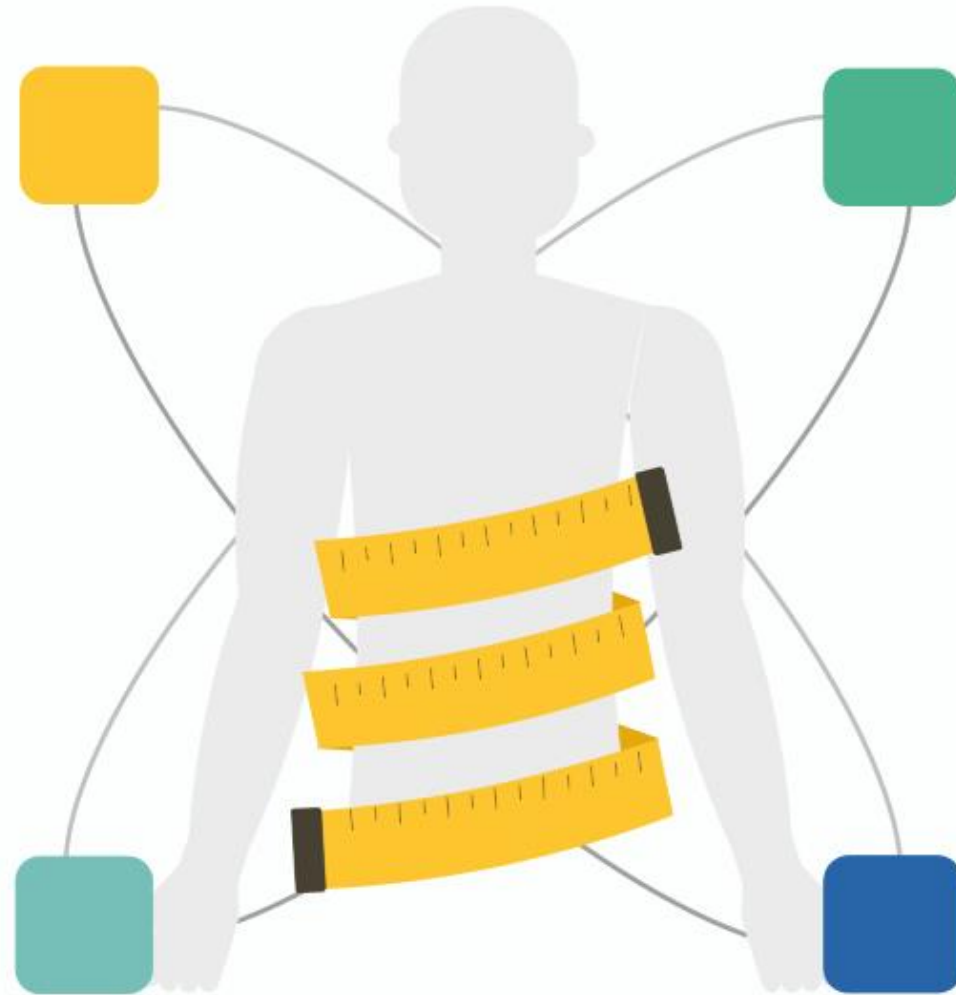
Abu Dayyeh BK, et al. Clin Gastroenterol Hepatol. 2017 Jan;15(1):37-43

**Organ
Sparing**

**Safe
Effective**

**No Long-Term
Consequences**

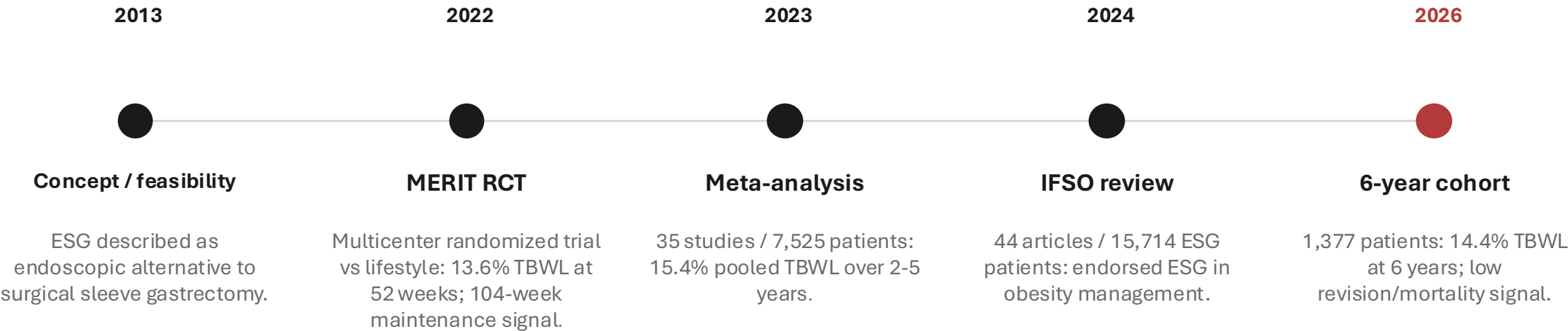
**Minimal
Disruption**



STATE OF THE EVIDENCE



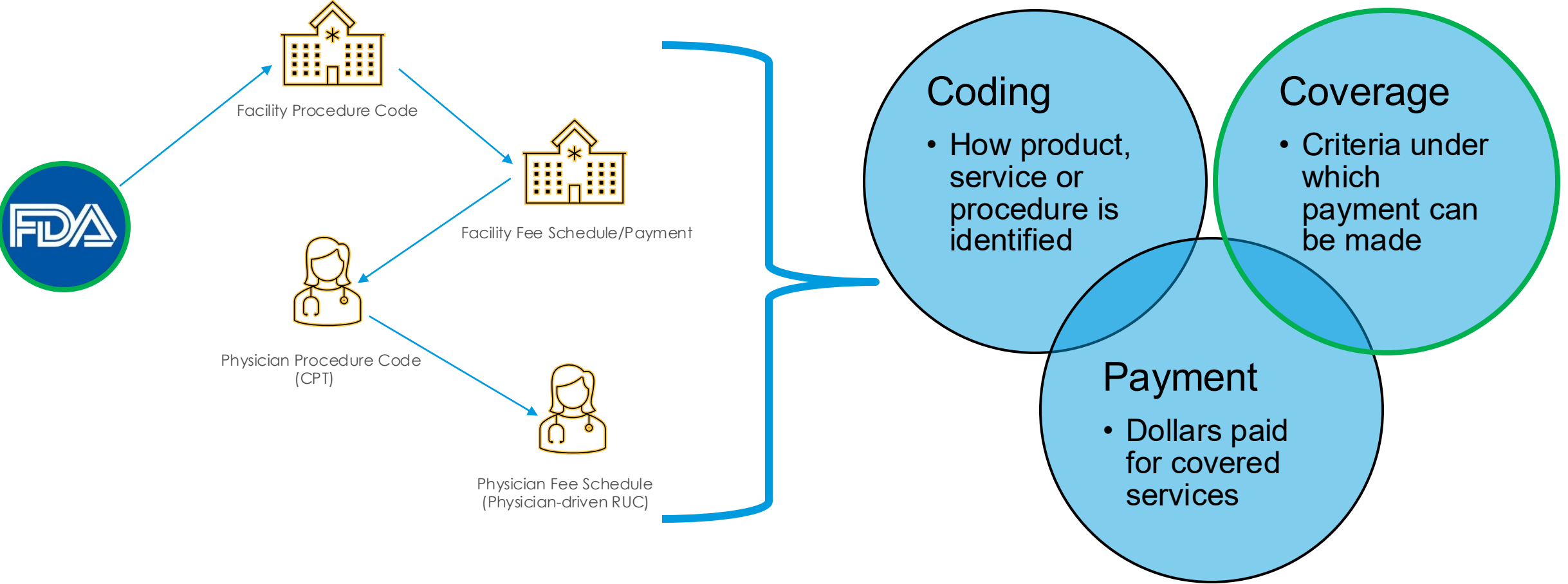
Evidence base has matured from feasibility to longitudinal outcomes



IFSO 2024 (PMID: 39482444) ; The LANCET MERIT 2022 (PMID: 35908555) ; Fehervari 2023 (PMID10602997) ; Neto 2026 (PMID41703242)

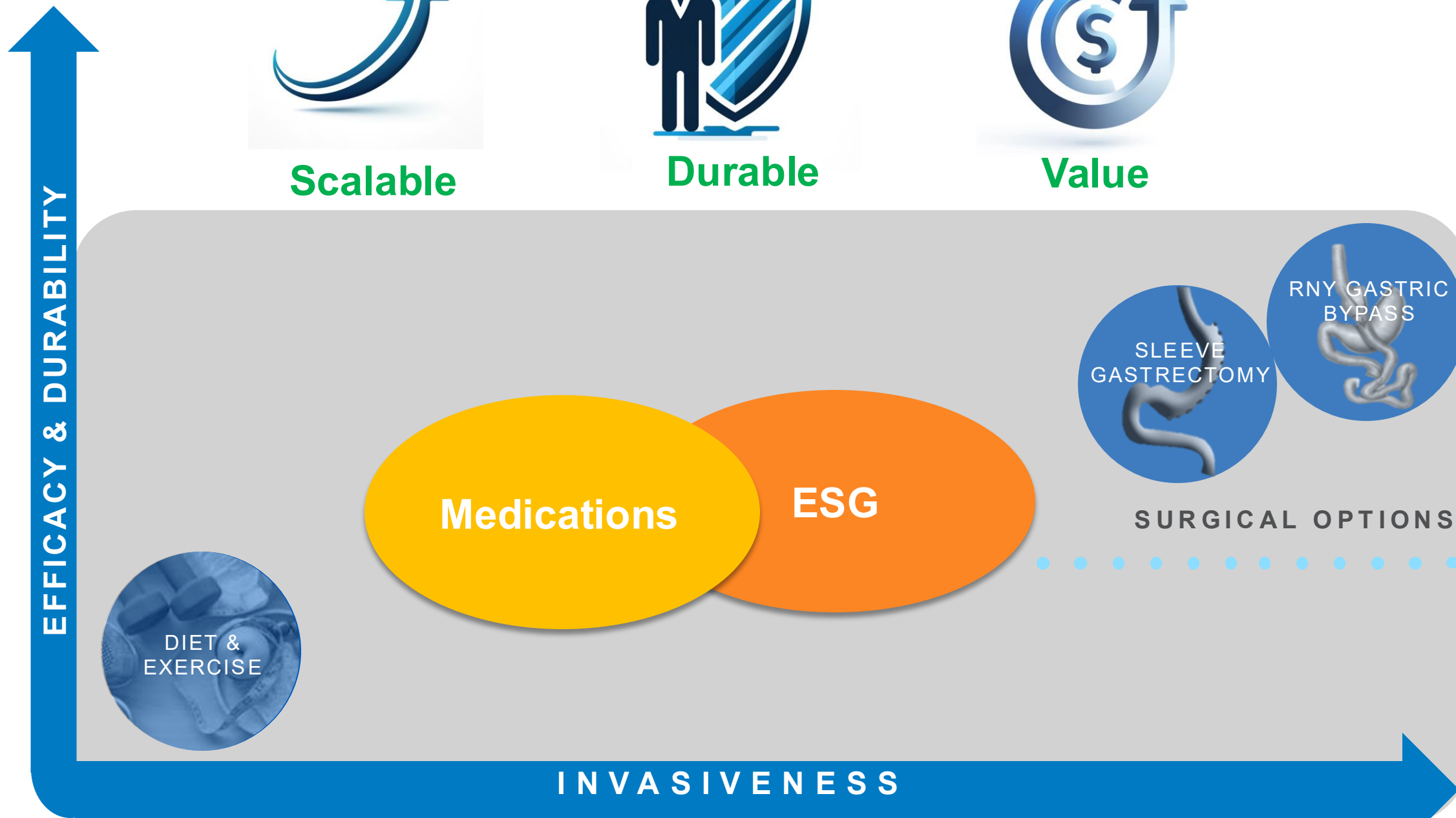
REIMBURSEMENT

END HERE



VALUE ADDED TO METABOLIC DISEASE CARE





GLP-1S ADVERSE EVENTS

nature medicine

Article

<https://doi.org/10.1038/s41591-024-03412-w>

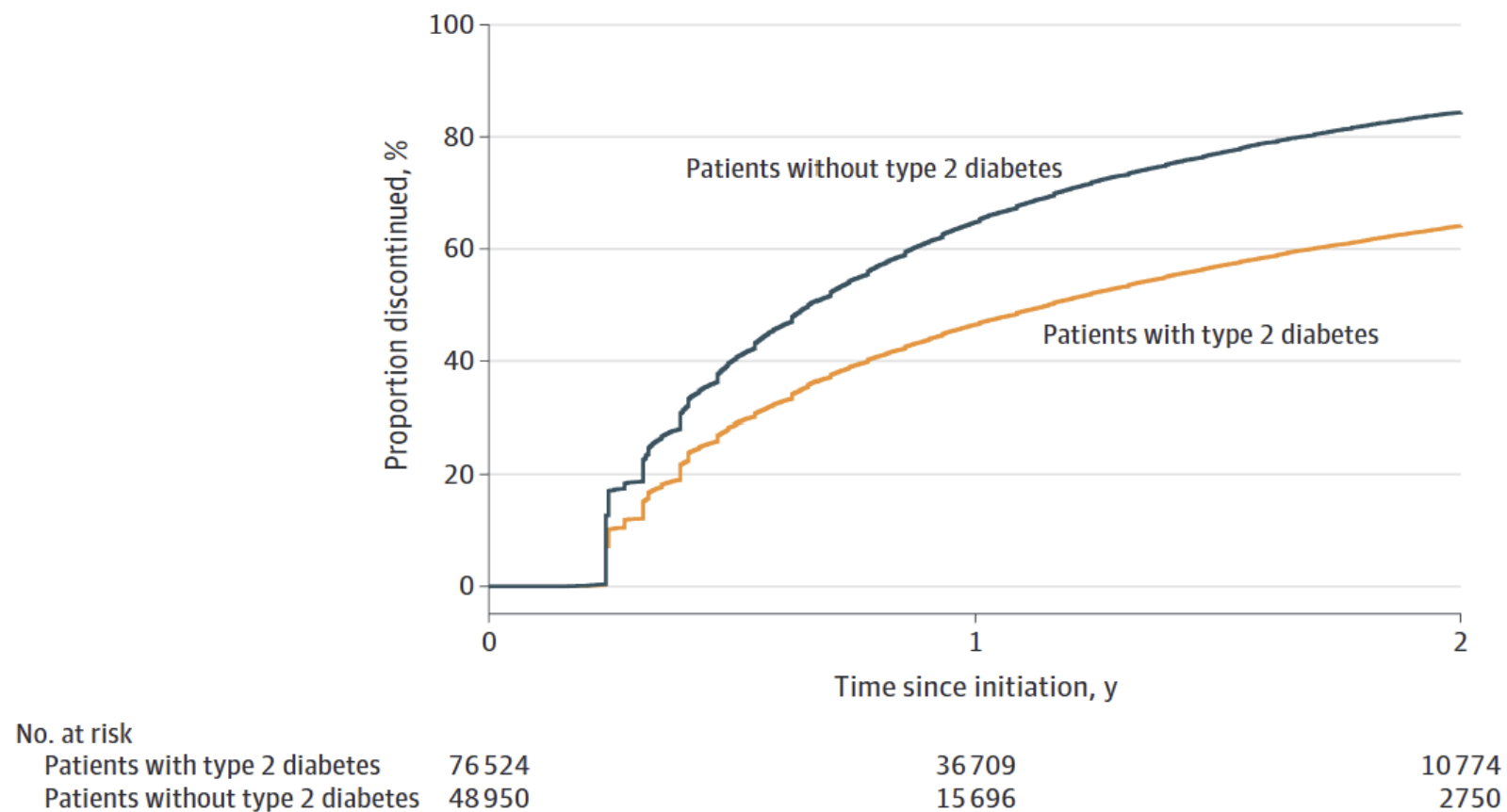
Mapping the effectiveness and risks of GLP-1 receptor agonists

Received: 14 June 2024

Yan Xie^{1,2,3,4}, Taeyoung Choi^{1,2} & Ziyad Al-Aly^{1,2,5,6,7}✉

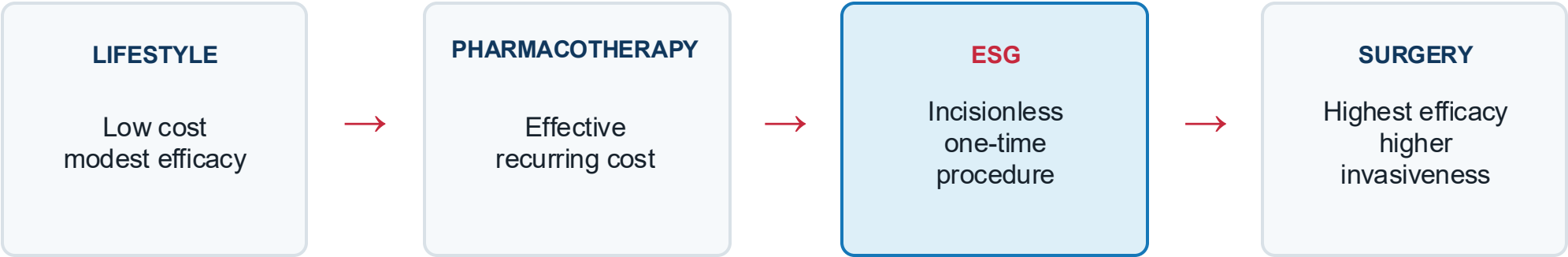
- **Study Design:** VA databases to compare GLP-1RA (n=215,970) with other diabetes treatments and usual care across 175 health outcomes.
- **Benefits:** GLP-1RA use reduced risks of neurocognitive disorders, cardiometabolic disorders, infectious diseases, and respiratory conditions.
- **Risks:** Increased risks of GI disorders, hypotension, syncope, nephrolithiasis, and pancreatitis.

GLP-1S DISCONTINUATION



ESG fills the value gap in obesity care

The access paradox Surgery delivers the greatest weight loss—yet fewer than 1% of eligible patients receive it.



VALUE QUESTION

Where does ESG sit on the cost–effectiveness frontier?



Core thesis

ESG is a high-value bridge for class I–II obesity; surgery retains the economic advantage as disease severity rises.

WTP = willingness-to-pay. Thresholds shown are conventional decision benchmarks.

Value shifts with obesity class

Saumoy M, et al. Gut. 2023;73:45–54

MOST COST-EFFECTIVE STRATEGY

CLASS I	ESG	\$4,105 / QALY
CLASS II	SLEEVE GASTRECTOMY	\$5,883 / QALY
CLASS III	SLEEVE GASTRECTOMY	\$7,821 / QALY

SEMAGLUTIDE AT LIST PRICE

\$350k–\$508k

per QALY across obesity classes

Not cost-effective vs lifestyle

at a \$100,000/QALY threshold

Drug price would need to fall markedly to compete on value.

US TAKEAWAY

ESG occupies the economic “middle”: strongest value in class I, while surgical durability wins in class II–III.

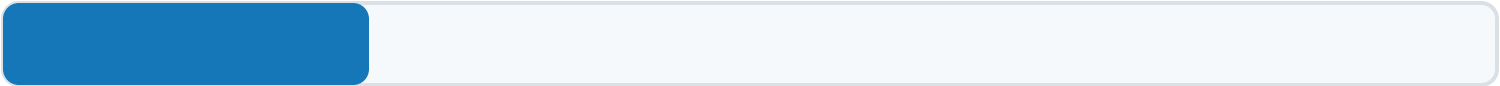
Base-case microsimulation; 40-year-old cohort; US healthcare perspective; WTP \$100,000/QALY.

ESG remains far below accepted value thresholds

Kelly J, et al. Int J Obes. 2023;47:1189–1197
Vannucci M, et al. Surg Endosc. 2025. PMID:39789230

ICER: ESG vs lifestyle modification

ENGLAND



£2,453 / QALY

+1.23 QALYs 98.25% cost-effective

FRANCE



€4,901 / QALY

+1.33 QALYs 99.29% cost-effective

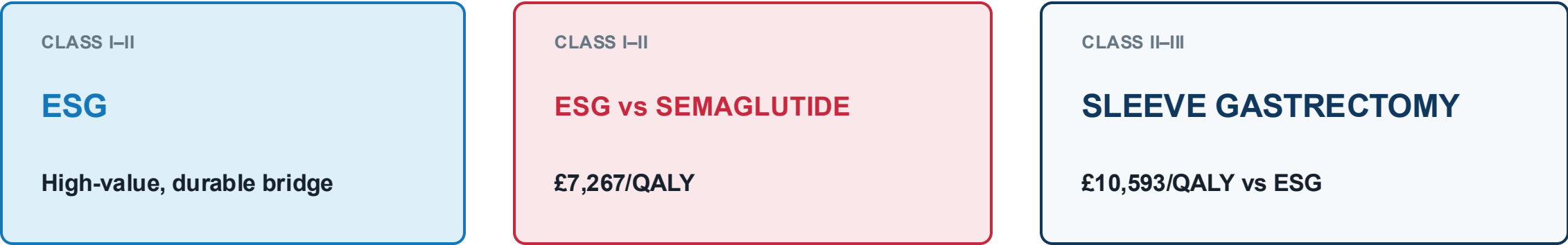
£20,000/QALY NICE threshold

LONGER HORIZONS

French model: ESG becomes cost-saving at 10 years and over a lifetime.

Match treatment intensity to disease severity

Haseeb M, et al. JAMA Netw Open. 2024;7:e246221. doi:10.1001



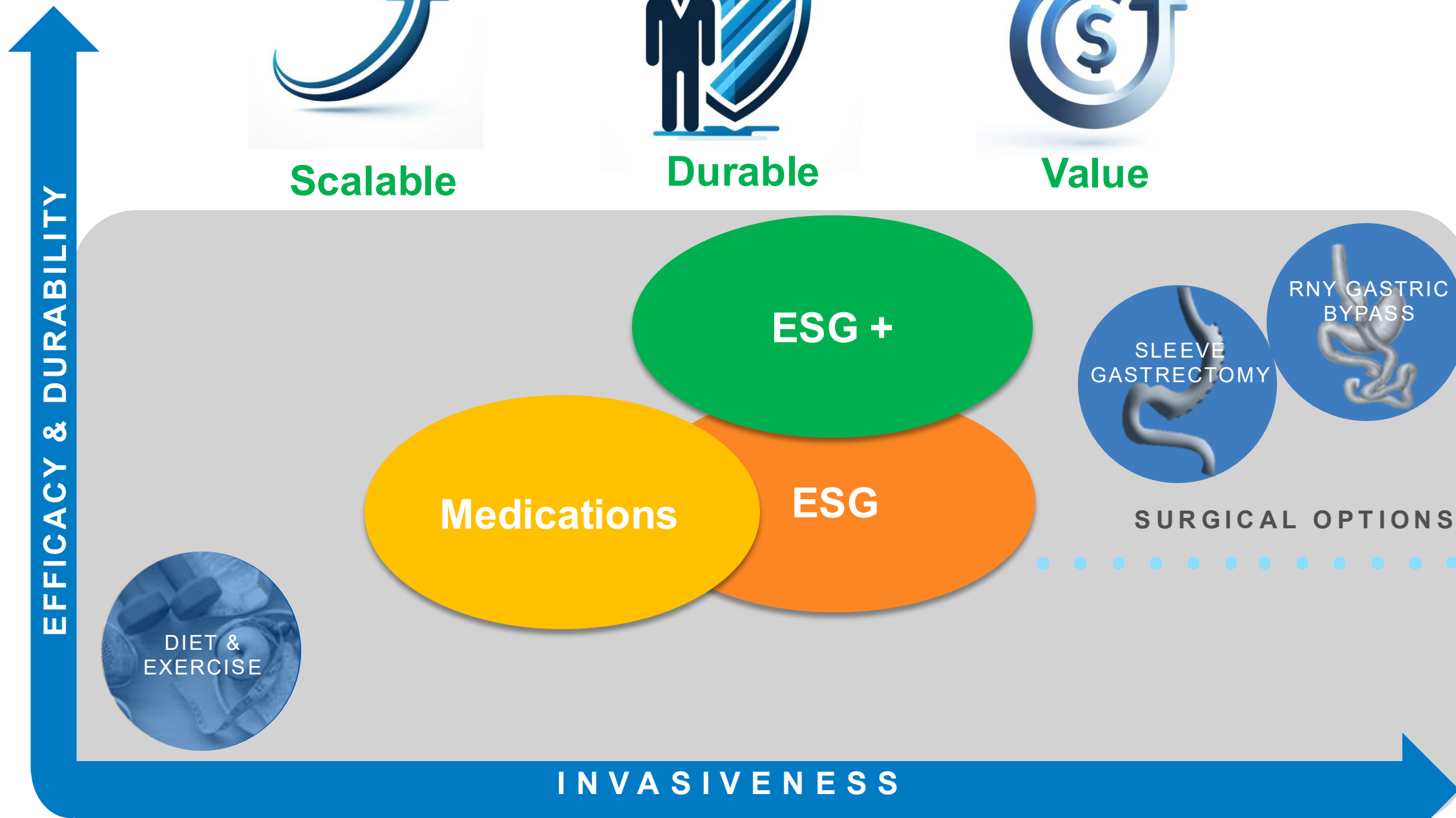
WHAT THE MODELS AGREE ON

- One-time ESG costs are offset by fewer obesity-related comorbidities.
- Time horizon matters: 5-year models undercount durable downstream benefit.
- Evidence is modeled and largely indirect—not a substitute for head-to-head trials.

COVERAGE PRINCIPLE

Use value and disease severity—not a single BMI cutoff—to guide access.

HTA estimates are comparator- and assumption-specific; recurrent weight gain and intervention costs drive uncertainty.



COMBINATION WITH MEDS

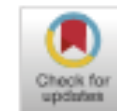
Obesity Pillars 11 (2024) 100112



Contents lists available at ScienceDirect

Obesity Pillars

journal homepage: www.journals.elsevier.com/obesity-pillars



Outcomes of concomitant antiobesity medication use with endoscopic sleeve gastropasty in clinical US settings

Khushboo Gala^a, Wissam Ghushn^a, Vitor Brunaldi^a, Christopher McGowan^b, Reem Z. Sharaiha^c, Daniel Maselli^b, Brandon Vanderwel^d, Prashant Kedia^e, Michael Ujiki^f, Eric Wilson^g, Eric J. Vargas^a, Andrew C. Storm^a, Barham K. Abu Dayyeh^{a,*}

OUTCOMES OF CONCOMITANT ANTI-OBESITY MEDICATION USE WITH ENDOSCOPIC SLEEVE GASTROPLASTY IN CLINICAL US SETTINGS

Retrospective cohort study



Total n: 1506

AOM use: 147

No AOM use: 1359



7 centers in the US



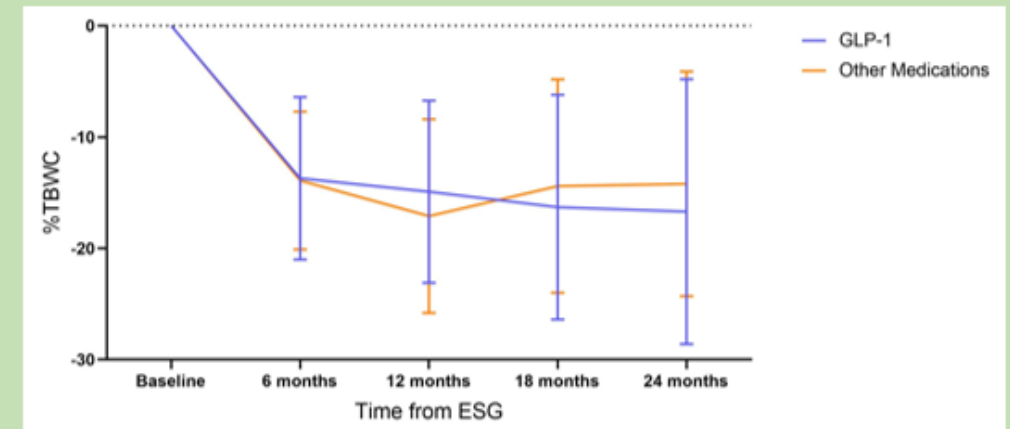
Follow up: 2 years



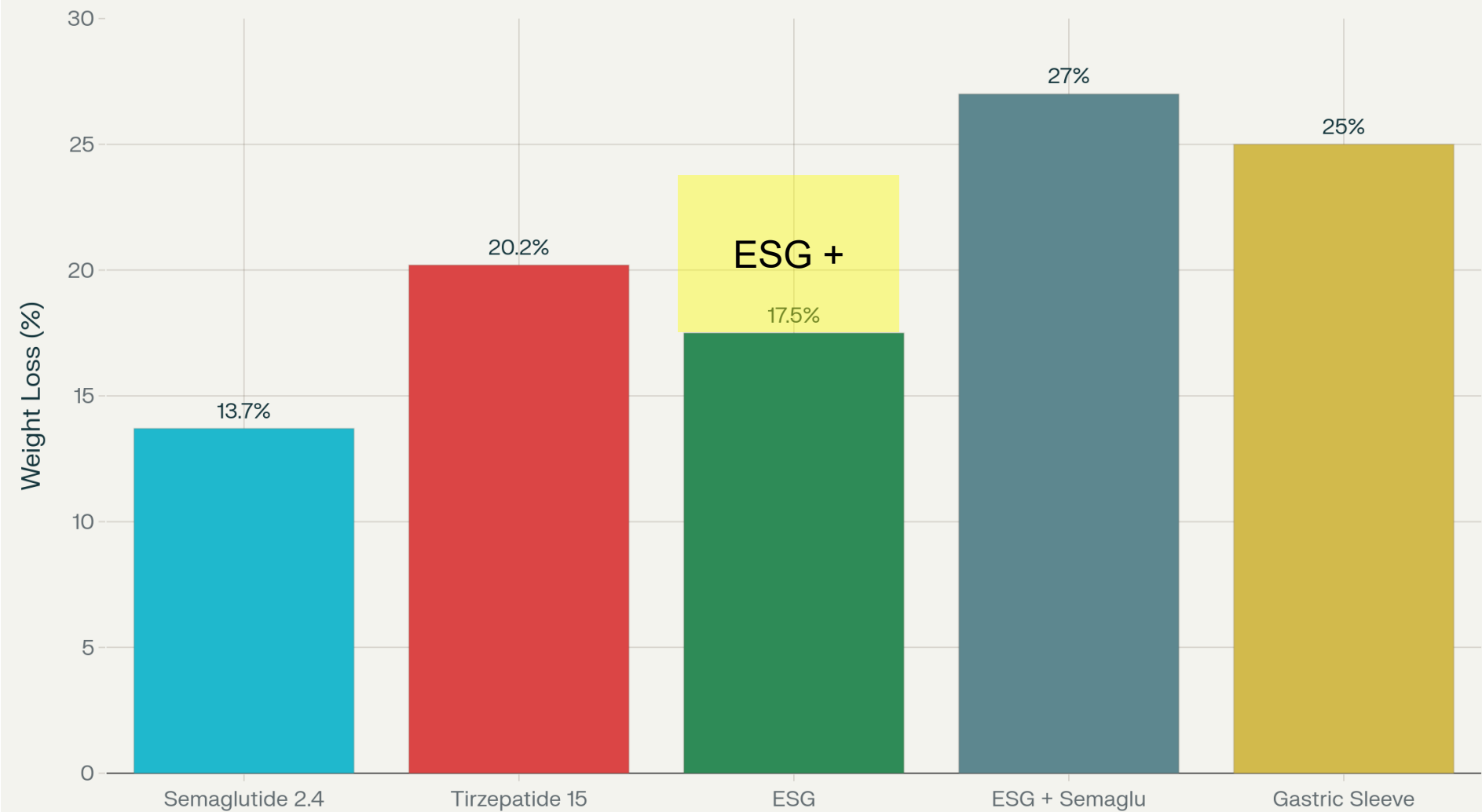
%TBWL
at 24 mo

No AOM: $15.4\% \pm 9.6$
AOM <6 mo from ESG: 10.4 ± 10.8
AOM 6-12 mo from ESG: 14.8 ± 10.1
AOM >12 mo from ESG: $21.1 \pm 10.0^*$

%TBWL by AOM class



12-Month Weight Loss Outcomes



GLP-1S RESISTANCE

> *Diabetologia*. 2025 May 22. doi: 10.1007/s00125-025-06448-w. Online ahead of print.

Heterogeneity in response to GLP-1 receptor agonists in type 2 diabetes in real-world clinical practice: insights from the DPV register - an IMI-SOPHIA study

4,467 adults with type 2 diabetes starting GLP-1 receptor agonist (GLP-1 RA) therapy

Martin Heni ^{1 2}, Lisa Frühwald ³, Wolfram Karges ⁴, Michael Naudorf ⁵, Kathrin Niemöller ⁶, Frank Pagnia ⁷, Jörg Reindel ⁸, Jochen Seufert ⁹, Gisa Ufer ¹⁰, Christian Wagner ¹¹, Reinhard W Holl ^{12 13}, Nicole Prinz ^{12 13}

Patient Response Groups at 6 Months

Response Group	% of Patients	Median HbA1c Reduction (%)
Both HbA1c & Weight Loss	14%	≥0.5%
HbA1c Reduction Only	36%	≥0.5%
Weight Loss Only	7%	<0.5%
Neither	43%	<0.5%

INNOVATION & NEW BOUNDARIES



NEW THERAPEUTIC PARADIGM

THE GUT IS A DISEASE-MODIFYING TARGET

Intervening in gut biology can reshape the systemic drivers of metabolic disease—not simply manage downstream consequences.

NUTRIENT SENSING • ENDOCRINE • IMMUNE • NEURAL

LIVER • PANCREAS • ADIPOSE TISSUE • BRAIN



The phenotype called “T2D” conceals divergent biology and risk

589M

adults living with diabetes worldwide
(2024 estimate)

1 in 4

develops macrovascular
complications

≈1 in 2

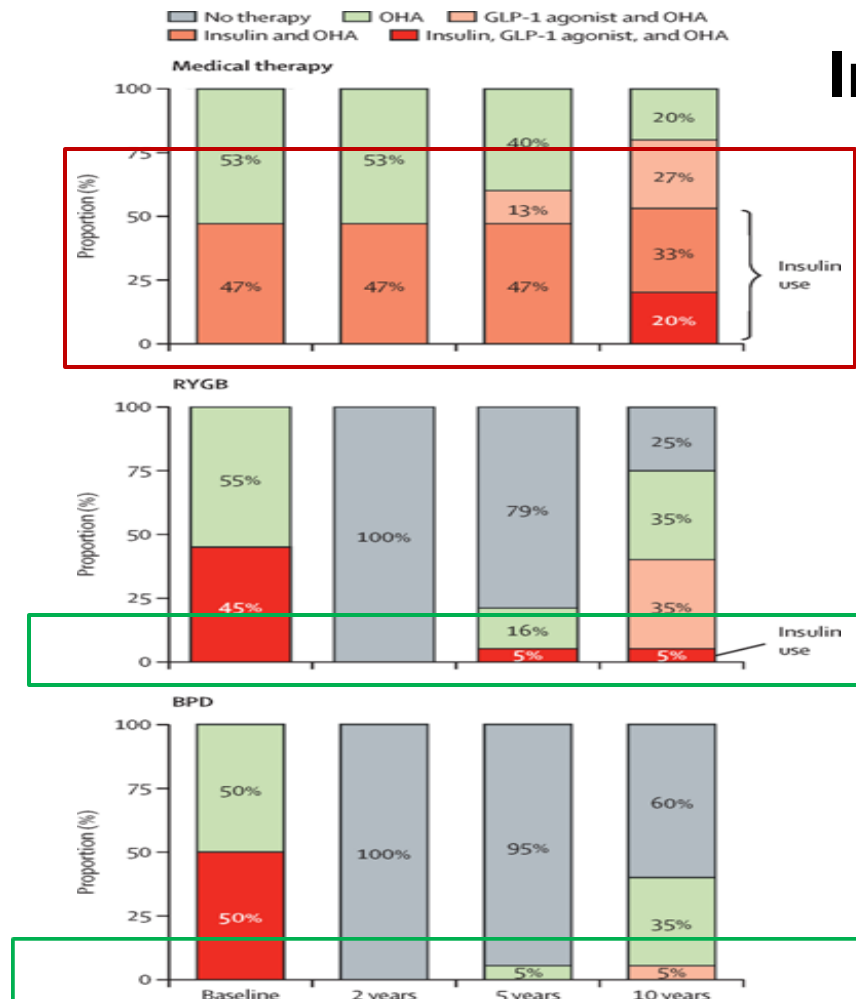
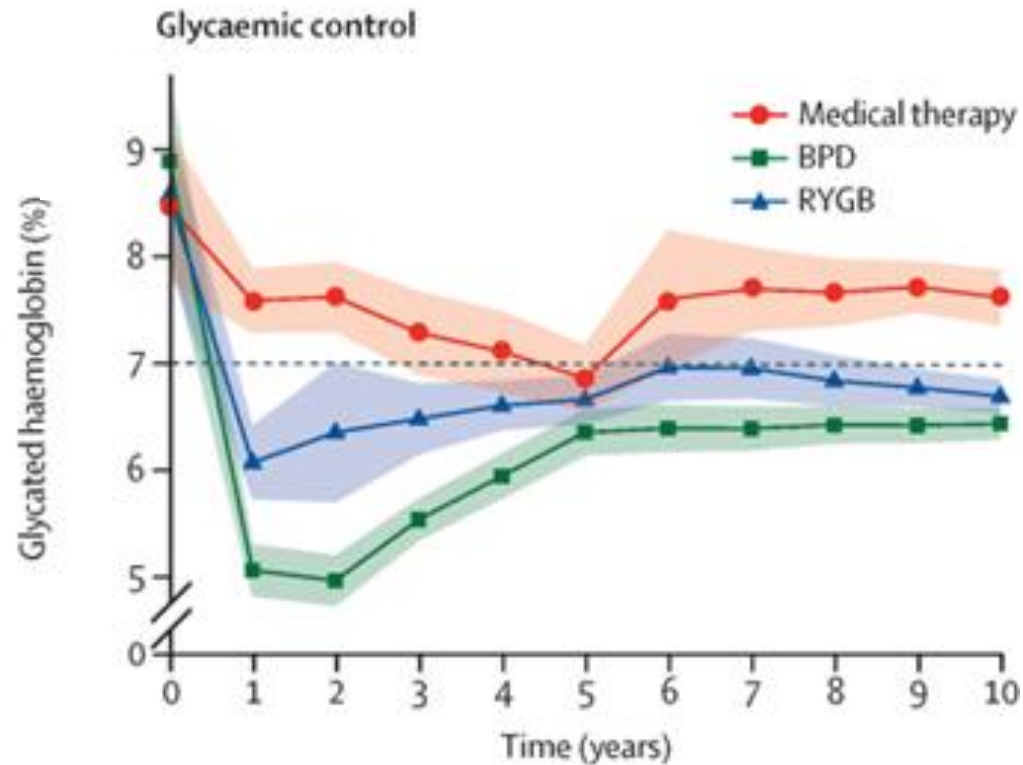
develops microvascular complications

We intensify glycemic therapy using a largely uniform disease label, while vascular, renal and mortality trajectories separate early.

THE LANCET

Metabolic surgery versus conventional medical therapy in patients with type 2 diabetes: 10-year follow-up of an open-label, single-centre, randomised controlled trial

The Lancet Volume 397 Issue 10271 Pages 293-304 (January 2021)

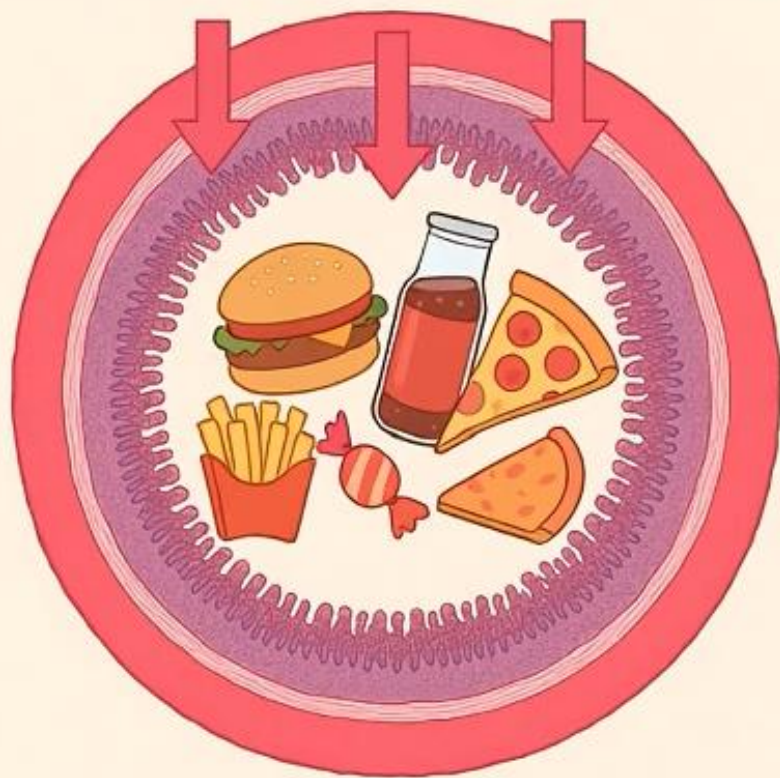


Insulin Use

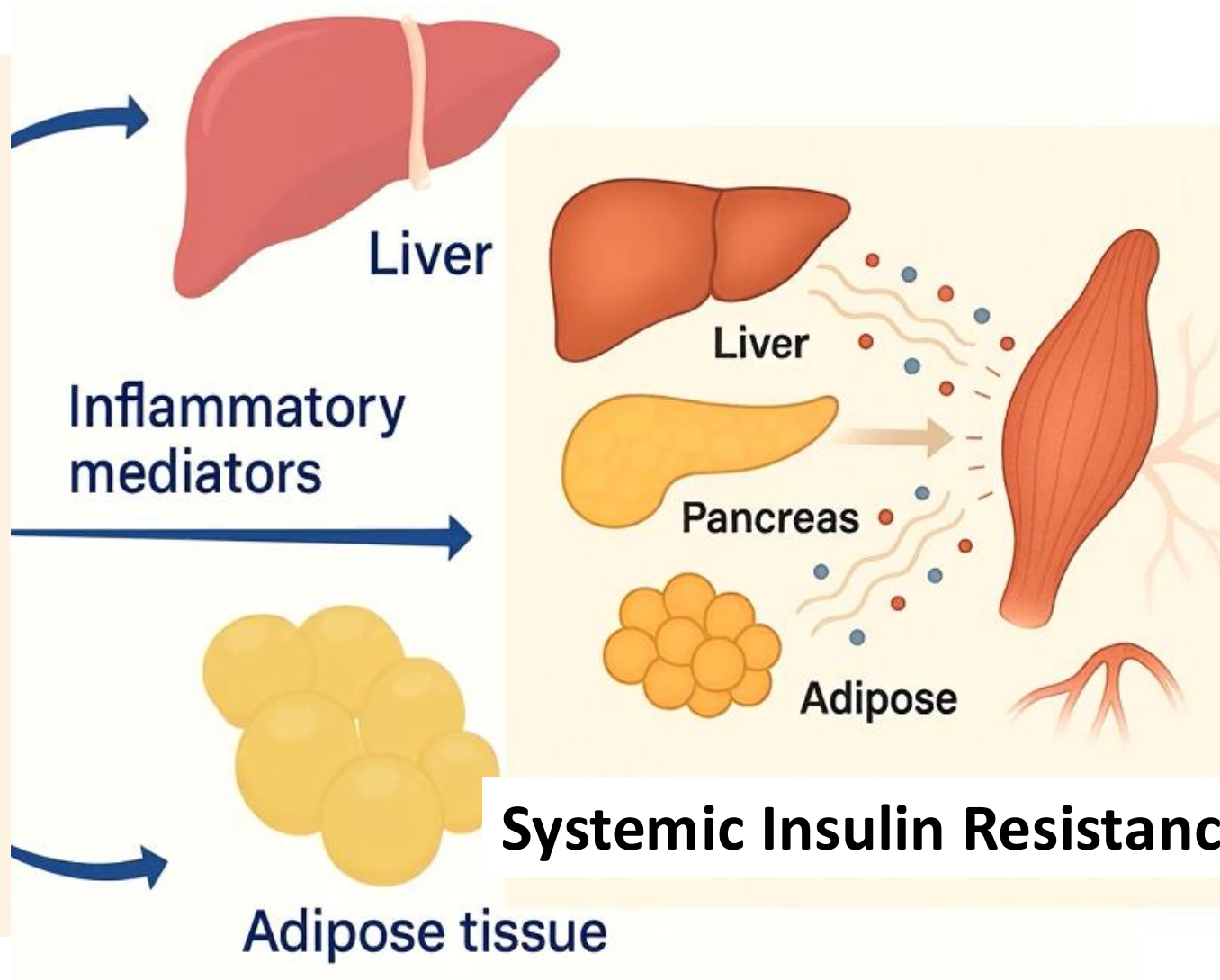
50%

5%

0%



Western-Style Diet



Metabolic Duodenopathy



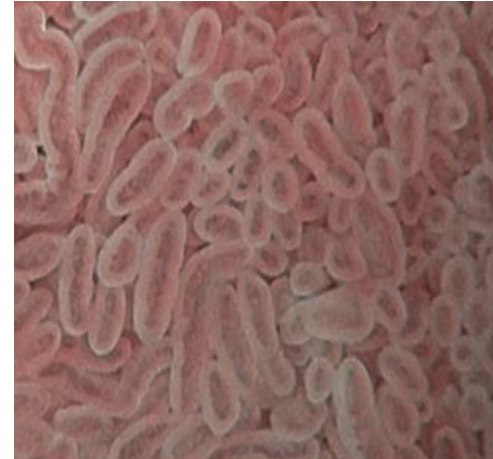
Non-Diabetic

Duodenum

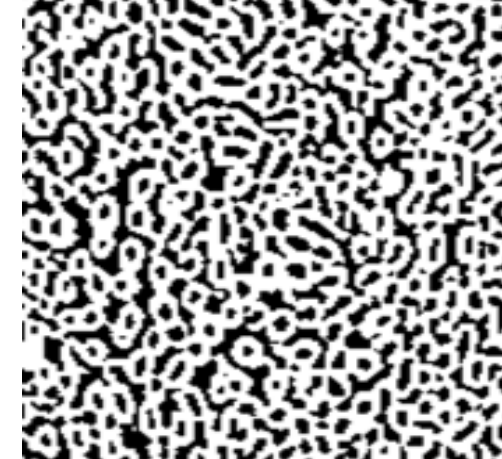


Type II Diabetes

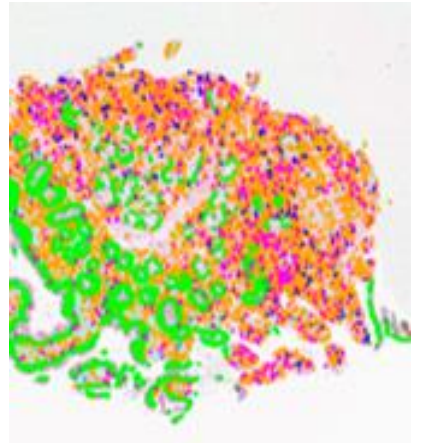
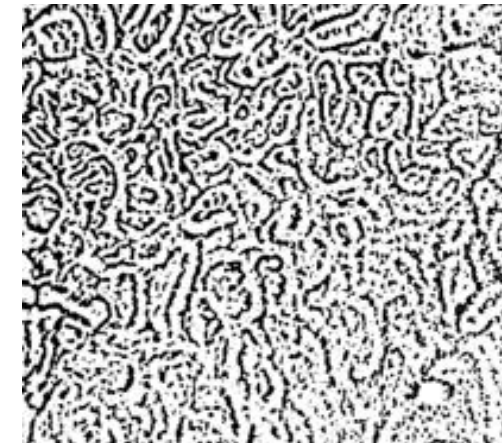
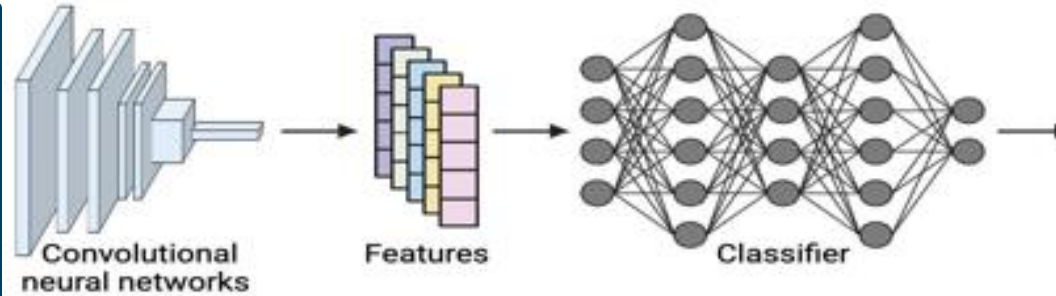
Endoscopy



AI Fingerprinting Analysis



AI Cellular / Molecular

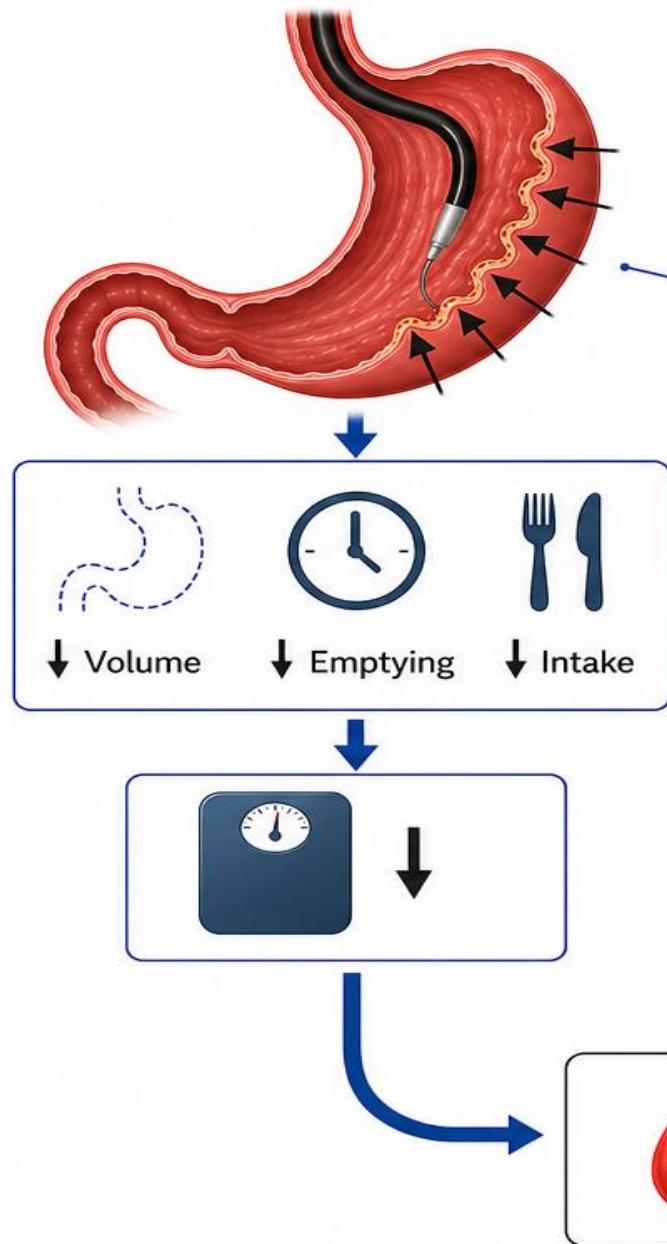


The pulsENDO System

by Endogenex

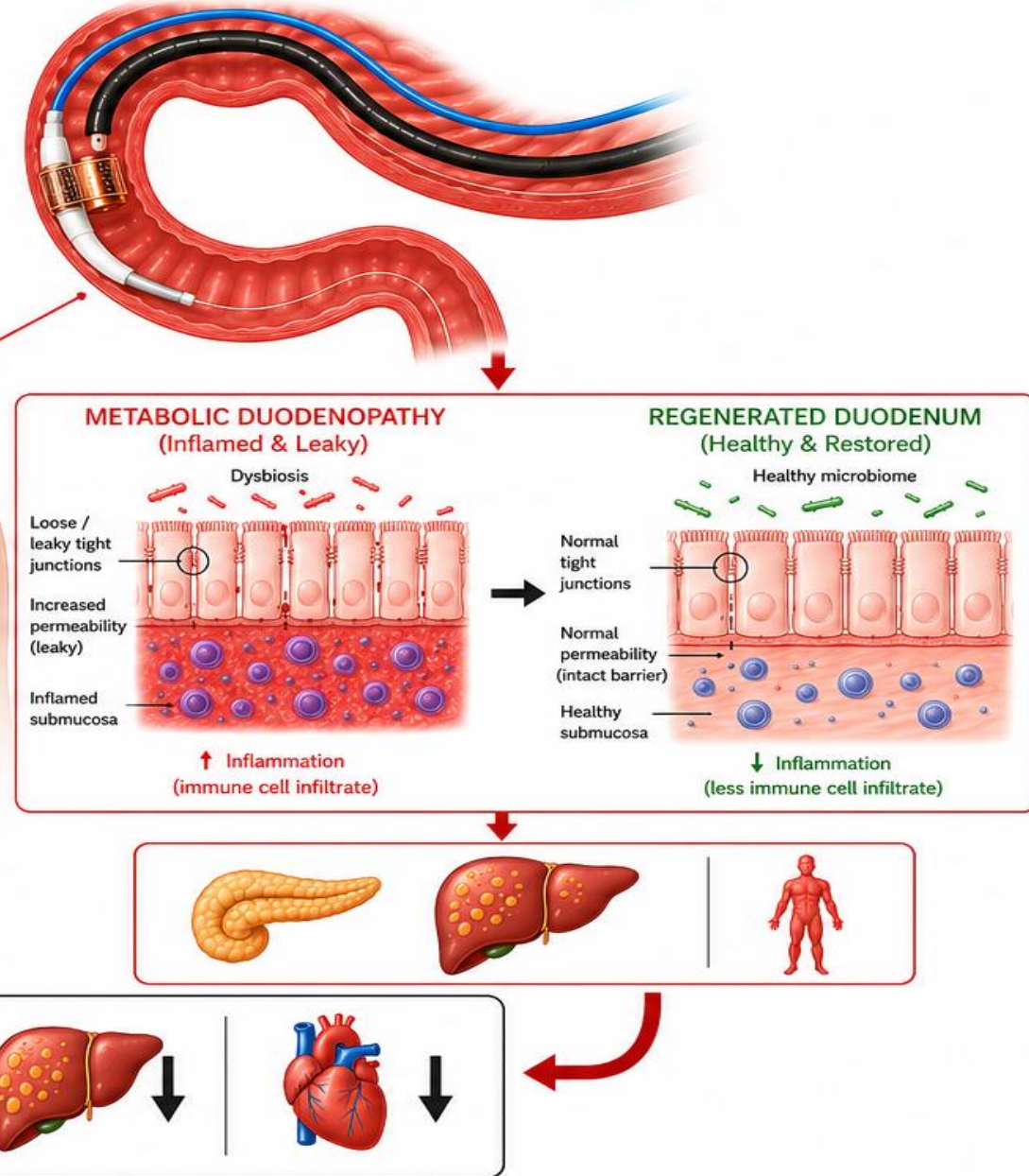
WEIGHT-DEPENDENT PATHWAY

ESG (Stomach Remodeling)



WEIGHT-INDEPENDENT PATHWAY

Duodenal PEF (Duodenal Regeneration)



Questions

