

XXVIII IFSO World Congress

9-12 September 2025 | Santiago, Chile



Out-of-Pocket Costs among Commercially Insured Individuals with Type 2 Diabetes and Obesity: Comparison between GLP-1 RAs and Roux-en-Y Gastric Bypass

Michael Edwards, MD, FACS
Associate Professor, Surgery
Mayo Clinic, Jacksonville, FL

IFSO 2025 Santiago

Combined Therapies, The Dawn of a New Era

ifso2025.org

Authors and Conflicts of Interest

Authors: Sibi Thiyagarajan, Elizabeth Wall-Wieler, Yuki Liu, Feibi Zheng, Michael A. Edwards

Conflicts of Interest: Dr. M. Edwards is a recipient of an Intuitive Foundation Research Grant Award, speaker honorarium. Dr. E. Wall-Wieler, Ms. Y. Liu, and Dr. F. Zheng are employees of Intuitive Surgical who works within the Global Health Economics and Outcomes Research Group.

Funding: Intuitive Surgical Inc. funded access to the Merative™ MarketScan Research Databases.



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

Background



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

- ❑ Strong association between Obesity and T2D.
 - Class 2 and 3 Obesity = 2.5-fold and 3.6-fold increased risk of T2D

- ❑ Both Obesity and T2D are associated high healthcare costs.

- ❑ Evolution of treatment options for patients with obesity/T2D
 - Lifestyle modification
 - MBS
 - EBT
 - Medications

- ❑ Vary in effectiveness, durability, and cost.





XXVIII IFSO World Congress

9-12 September 2025
Santiago, Chile

GLP 1-RA EVOLVING LANDSCAPE

Drug	Estimated Approval	Targets	Manufacturer
CargiSema	Early 2026	GLP-1/Amylin	Novo Nordisk
Orforglipron	Early 2026	GLP-1	Eli Lilly
Retatrutide	2027	GIP/GLP-1/Glucagon	Eli Lilly
Suvodutide	2027	GLP-1/Glucagon	Boehringer Ingelheim/Zealand Pharma
Maridebart cafraglutide	After 2027	GLP-1/GIPR	Amgen
Pemvidutide	2027 or later	GLP-1/Glucagon	Altimimmune



ifso2025.org

Background



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

GLP-1 RA MEDICATIONS

CHANGING

LANDSCAPE



Background



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

- ❑ Risks, benefits, costs of these treatment options are becoming more documented, still a lot of unknown.

Original article

Unveiling the cost-effectiveness of bariatric surgery: insights from a matched cohort study

S. Julie-Ann Lloyd, MD, PhD^{a,*}, Elizabeth Wall-Wieler, PhD^b, Yuki Liu, MSc^b,
Feibi Zheng, MD, MBA^{a,b}, Teresa LaMasters, MD^{c,d}

- MBS vs Non-Surgical Treatment
- Cost over 2-years
- **22% Healthcare Cost Savings**

Original Investigation | Gastroenterology and Hepatology

Semaglutide vs Endoscopic Sleeve Gastroplasty for Weight Loss

Muhammad Haseeb, MD, MSc; Jagpreet Chhatwal, PhD; Jade Xiao, MSc; Pichamol Jirapinyo, MD, MPH; Christopher C. Thompson, MD, MSc

- Incremental Cost-effectiveness Ratio
- ICER = $-\$595532/\text{QALY}$.
- ESG added 0.06QALYs
- ESG reduced cost (vs. GLP-1 RA)
- **Equivalency: GLP-1 RA price reduced over 3.5-fold**

- ❑ Gap: “**Real-world patient costs**” of treatment options are largely unknown.





XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

Study Aim:

Compare out-of-pocket costs in a **commercially insured** population in the two years after RYGB and after initiating GLP-1 RAs among individuals who have **T2D** and **Class 2 or 3 Obesity**.





XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

Methods: Data Source

- ❑ **Data Source:** Merative™ Marketscan Research Databases

- ❑ **Study Period:** 2017-2023

- ❑ **Employer-based Retrospective Claims Database**
 - Aggregated data of insured employees and dependents
 - All enrollment, inpatient, outpatient, and prescription drug service use

INCLUSION CRITERIA

Type 2 Diabetes
BMI of at least 35

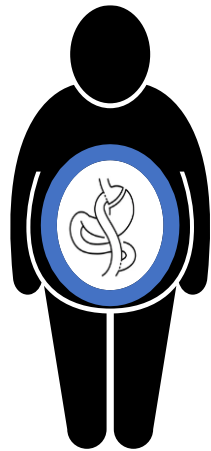
Continuous enrollment from 1 year before to 2 years after



Methods: Study Cohort

Inpatient Admission and Outpatient Service Claims

Roux-en-Y Gastric Bypass
(no GLP-1-RA)
N = 1,350



GLP-1-RA
(2 years of continuous use, no
Bariatric Surgery)
N = 2,908



1:1 PSM
N = 506/cohort

Matching Covariates: BMI, Age, Number and type of Obesity-related Comorbidities (hypertension, dyslipidemia, GERD, OSA, NAFLD/NASH, knee osteoarthritis), OOP healthcare costs in year before index date



Methods: OOP Cost



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

- Total OOP costs were examined at the end of 1 and 2 years after start of treatment.
- For those who had a RYGB, the OOP cost of the RYGB was included in the first year after start of treatment.
- OOP costs include all the dollar amounts paid by patients directly to their health care provider or pharmacy.





XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

Methods: Statistical Analysis

Baseline	Characteristics	RYGB (N= 506)	GLP-1 RA (N= 506)	Absolute SMD
BMI, Mean (SD)		41.5 (4.6)	41.5 (4.6)	0.003
Age; Mean (SD)		50.5 (6.9)	50.6 (6.8)	0.013
Out-of-Pocket Healthcare Costs, Mean (SD)		1755 (998)	1753 (999)	0.001
Male Sex, n (%)		167 (33.0)	190 (37.6)	0.100
Obesity-Related Comorbidities, n (%)				
Hypertension		393 (77.7)	398 (78.7)	0.024
Dyslipidemia		383 (75.7)	380 (75.1)	0.014
OSA		241 (47.6)	234 (46.3)	0.029
Knee OA		50 (9.9)	57 (11.3)	0.044
GERD		161 (31.8)	132 (26.1)	0.131
MAFLD/MASH		78 (15.4)	50 (9.9)	0.154
Number of Obesity-Related Comorbidities, n (%)				
1		12 (2.4)	23 (4.6)	0.123
2		72 (14.2)	66 (13.0)	0.035
3+		422 (83.4)	417 (82.4)	0.027





Results: RYGB vs All GLP-1 RAs

Differences in Out-of-Pocket (OOP) Costs

Time Frame After Index Date	RYGB; mean \$	GLP-1 RA; mean \$	Difference	
			\$ (95% CI)	p-value
0-12 Months	2,301	2,179	-122 (-305, 61)	0.15
12-24 Months	1,277	2,104	827 (657, 996)	<0.01
0-24 Months	3,578	4,283	704 (408, 1001)	<0.01





Results: RYGB vs. GLP-1 RA Types

Differences in Out-of-Pocket (OOP) Costs

GLP-1 RA Type/ Time Frame	RYGB; Mean \$	GLP-1 RA; Mean \$	Difference	
			\$ (95% CI)	p-value
Semaglutide (GLP-1 RA) Only (N = 472 matches)				
0-12 Months	2,314	2,206	-108 (-278, 61)	0.21
12-24 Months After	1,296	2,125	829 (670, 988)	<0.01
0-24 Months After	3,611	4,331	721 (459, 983)	<0.01
Semaglutide (GLP-1 RA) and Tirzepatide (GLP-1-GIP RA) (N = 34 matches)				
0-12 Months	2,113	1,799	-314 (-1023, 395)	0.37
12-24 Months After	1,012	1,805	793 (388, 1199)	<0.01
0-24 Months After	3,143	2,049	479 (-479, 1437)	0.32





Results: RYGB vs Specific GLP-1 RA Prescription(s) Filled

GLP-1 RA Type/ Time Frame	RYGB; Mean \$	GLP-1 RA; Mean \$	Difference	
			\$ (95% CI)	p-value
Ozempic Only (n = 399 matches)				
0-12 Months	2,392	2,201	-191 (-375, -8)	0.04
12-24 Months After	1,304	2,112	808 (639, 978)	<0.01
0-24 Months After	3,697	4,313	616 (338, 895)	<0.01
Rybelsus or Wegovy Only (n = 50 matches)				
0-12 Months	1,774	2,280	506 (-65, 1079)	0.08
12-24 Months After	1,162	2,322	1,161 (593, 1728)	<0.01
0-24 Months After	2,936	4,603	1,667 (739, 2596)	<0.01
Ozempic and (Wegovy and/or Rybelsus) (n= 23 matches)				
0-12 Months	2,142	2,135	-734 (-668, 653)	0.98
12-24 Months After	1,442	1,920	478 (-324, 1281)	0.23
0-24 Months After	3,584	4,056	471 (-824, 1766)	0.46





XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

Key Finding(s) and Discussion

- ❑ Within 2 years of treatment initiation, OOP healthcare costs were significantly lower among individuals who had a RYGB compared to treatment with GLP-1 RAs, in aggregate.
 - Semaglutide (Ozempic)

- ❑ No conclusion can be drawn regarding Tirzepatide, given small sample.

- ❑ Need for ongoing evaluation of treatment impact and cost
 - Given the evolving landscape with pending new medications
 - Expected downward pricing trend for GLP-1 RAs



Study Limitations



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

- Claims data fidelity (completeness/accuracy), lack relevant clinical data
- Did not address impact of treatment modalities adverse outcomes, TWL, and disease remission
- Though a match analysis, relatively small sample



Acknowledgement and Thank You!



XXVIII IFSO
World Congress

9-12 September 2025
Santiago, Chile

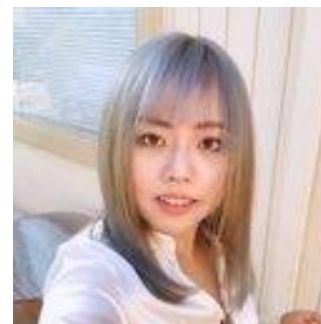


Dr. Sibi
Thiyagarajan
Research
Trainee
Mayo Clinic

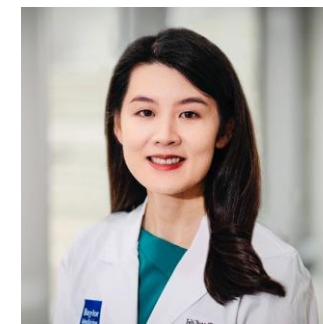


Dr. Elizabeth
Wall-Wieler
Epidemiologist

Global Health Economics and Outcomes Research



Ms. Yuki Liu
Data Scientist



Dr. Feibi Zheng
Baylor



Dr. Ricardo Cohen
IFSO President

IFSO
Program
Committee Chairs
and Members



ifso2025.org



XXVIII IFSO World Congress

9-12 September 2025
Santiago, Chile

Questions?