Cost-Effectiveness of Fixed-Ratio Combination iGlarLixi versus Insulin Degludec/Insulin Aspart in the Management of Type 2 Diabetes Inadequately Controlled on Oral Agents in Turkiye: A Modeling Study Using the Metabo-Reno Cardiovascular Disease Model (MRCDM)

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OBJECTIVE

- iGlarLixi — combining insulin glargine 100 U/mL with lixisenatide (GLP-1 RA) — addresses the dual defects of insulin deficiency and incretin resistance. In Türkiye, iGlarLixi is currently reimbursed only for patients with BMI ≥35 kg/m² and its main competitior is a premix insulin, iDegAsp.. A recent network meta-analysis (Home et al., 2025) demonstrated that iGlarLixi provides superior HbA1c and BMI reductions compared to iDegAsp, with lower insulin requirements.
- The objective of this study evaluates the lifetime cost-effectiveness of iGlarLixi versus iDegAsp from the Turkish Social Security Institution (SSI) perspective.

METHODS

Parameter	Detail
Model	MRCDM© — Metabo-Reno Cardiovascular Disease Model (MRCDM©), a validated, stochastic agent-based simulation model
Perspective	Turkish Social Security Institution (SSI)
Time Horizon	50 years (lifetime)
Outcomes	Life expectancy, quality-adjusted life years (QALYs), complication incidence, and total costs.
Discount rate	3% annually
WTP Threshold	600,440 TRY (1× GDP per capita)

Study Population	Baseline characteristics from SomiLix trial: Mean age: 59.8 years | HbA1c: 8.6% | Diabetes duration: 13 years Cohort 1 — Base Case: BMI 29.9 kg/m² Cohort 2 — Reimbursement: BMI ≥35 kg/m²

Table 1. Cost Effectiveness Results for Base Case Cohort (BMI 29.9 kg/m²)

	iGlarLixi		iDegAsp		Incremental	
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
BMI 29.9 kg/m²						
Life Years	13.7287	0.0181	13.4990	0.0163	0.2297	0.0226
Life Years (undiscounted)	18.3673	0.0300	17.9471	0.0263	0.4201	0.0370
QALYs	6.0041	0.0066	5.8165	0.0059	0.1876	0.0084
QALYs undiscounted	9.7264	0.0153	9.3020	0.0128	0.4244	0.0187
Direct costs (TRY)	327,807	520	244,779	461	83,028	639
Direct costs (undiscounted, TRY)	454,412	883	341,849	771	112,563	1,071
ICER (Direct costs/LYs)	**361,492**	**35,754**				
ICUR (Direct costs/QALYs)	**442,574**	**20,001**				
Net health benefit	0.0493	0.0078				
Net monetary benefit	29,616	4,674				

Table 2. Cost Effectiveness Results for Base Case Cohort (BMI 35 kg/m²)

	iGlarLixi		iDegAsp		Incremental	
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
BMI 35 kg/m²)						
LYs undiscounted	17.3230	0.0269	16.8846	0.0285	0.4384	0.0377
QALYs	5.2363	0.0058	5.0300	0.0060	0.2063	0.0077
QALYs undiscounted	8.2724	0.0124	7.8380	0.0127	0.4344	0.0166
Direct costs (TRY)	326,746	537	246,863	477	79,883	736
Direct costs (undiscounted, TRY)	449,363	882	342,262	789	107,101	1,211
ICER (Direct costs/LYs)	**317,570**	**29,731**				
ICUR (Direct costs/QALYs)	**387,226**	**14,826**				
Net health benefit	0.0733	0.0070				
Net monetary benefit	43,985	4,179				

RESULTS

- iGlarLixi improved lifetime health outcomes versus iDegAsp across BMI subgroups. At a baseline BMI ~30 kg/m², iGlarLixi led to ~0.23 additional life years and 0.19 QALYs gained per patient compared to iDegAsp.
- While drug costs were higher with iGlarLixi, the incremental cost (~TRY 80,000) was partly offset by fewer diabetes complications.
- The resulting incremental cost-effectiveness ratio was ~TRY 400,000 per QALY, well below Turkey's willingness-to-pay threshold.
- Clinically, iGlarLixi was associated with slightly fewer cardiovascular and other complications than iDegAsp. Scenario analyses confirmed these findings: under varied assumptions, iGlarLixi remained cost-effective in all tested cases.

Table 3. Cumulative Incidence of Selected Complications

Complication	iGlarLixi (%)	iDegAsp (%)	Relative Risk Reduction (approx.)
Cardiovascular			
Myocardial Infarction	20.47%	21.93%	-6.7%
Stroke	20.18%	20.63%	-2.2%
Heart Failure	36.33%	37.29%	-2.6%
Renal			
Hemodialysis	3.33%	4.05%	-17.8%
Renal Transplant	0.05%	0.07%	-28.6%
Ocular			
Blindness	3.80%	4.01%	-5.2%

Table 4. Scenario Analysis

Scenario	Clinical / Model Assumption	Result (ICER / ICUR)	Key Findings
Alternative dosing regimen 1	40% (33 µcg) + 60% (50 µcg) pen distribution	ICUR: 173,041 TRY/QALY	Significant reduction in daily iGlarLixi cost
Alternative dosing regimen 2 (lower effective doses)	iGlarLixi: 32 IU (20%) + 20 IU (80%); iDegAsp: 39 IU	Dominant (iGlarLixi)	+0.19 QALYs, −3,534 TRY total cost
Disease progression (UKPDS 90)	HbA1c progression: 7.3%→8.9% vs 7.69%→9.0% over 10 years	ICUR: 518,518 TRY/QALY	Higher complications, reduced life expectancy, increased costs
UKPDS 82 risk equation	BMI included only as predictor of heart failure	ICER: 424,760 TRY ICUR: 473,828 TRY	Increased life-years and QALYs, but higher total costs
BMI-related mortality excluded	BMI effect on mortality removed	ICER: 517,692 TRY ICUR: 480,489 TRY	Reduced BMI advantage for iDegAsp; iGlarLixi remains cost-effective
Including weight-related complications	Added NAFLD, sleep apnea, and cancer costs	ICUR: 430,166 TRY/QALY	iDegAsp costs increase significantly due to weight-related burden

CONCLUSIONS

- This analysis demonstrates that iGlarLixi is a cost-effective treatment option compared to iDegAsp for Turkish patients with T2D inadequately controlled on oral agents, with significant health gains (QALYs) and downstream cost offsets justifying the higher acquisition cost.
- The drug remains cost-effective even in patients with BMI <35 kg/m², suggesting that expanding access beyond the current reimbursement criteria may enable earlier intervention and prevent progression to high-cost, multi-morbid states.

REFERENCES

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CONFLICTS OF INTEREST

Kagan Atikeler, Secil Ileri and Cigdem Duran are employee of Sanofi and may hold shares and/or stock options in the company.

Mafalda Ramos and Mark Lamotte do have a conflict of interest. Thay are co-owners of Th(is)²Modeling and Th(is)²Modeling received consulting fees of Sanofi to conduct the analyses.

Elif Hilal VURAL and Bülent GÜMÜŞEL have no conflict interest

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