

EXECUTIVE MEMO

Cost-effectiveness of tirzepatide versus lifestyle modification as first-line therapy for patients with obesity in South Africa

Executive Summary

Tirzepatide was compared to lifestyle modification for adults with obesity in South Africa. With an ICER of ZAR 1.5M/QALY (exceeding the ZAR 121.1K/QALY threshold), it does not represent good value at current pricing. **Coverage is not recommended**, though clinical benefits may warrant reconsideration if prices decrease.

The Decision Problem

Should tirzepatide be reimbursed over structured lifestyle modification for adults with obesity (body mass index [BMI] ≥ 30 kg/m²) and no cardiometabolic complications in South Africa?

How It Was Assessed

A health economic model was used to evaluate health and economic impacts of tirzepatide vs lifestyle modification. The model is a replicated version of the Diabetes, Obesity, and Cardiovascular Disease Microsimulation (DOC-M) model by Kim et al., 2023¹, and was adapted to South Africa to solve this decision problem.

What Was Done

The model simulated 100,000 adults with obesity and no prior cardiometabolic complications, with baseline characteristics reflecting the population of South Africa. Each simulated patient was modeled under both tirzepatide and lifestyle modification, with their health projected over a lifetime—tracking weight changes, risk factors, disease onset, healthcare costs, quality of life, and survival. The analysis adopted a healthcare payer perspective, discounting future costs and quality-adjusted life-years (QALYs) at 3.0% per year. The model also tracked life expectancy, obesity persistence, and lifetime risk of type 2 diabetes, heart attack, stroke, and heart failure.

What Was Found

Tirzepatide cost ZAR 2.5M per patient over a lifetime, compared to ZAR 1.6M for lifestyle modification—an incremental cost of ZAR 913.8K. Tirzepatide provided 12.3 QALYs versus 11.7 for lifestyle modification, a gain of 0.6 QALYs. This translates to an ICER of ZAR 1.5M/QALY, which exceeds the ZAR 121.1K/QALY threshold. Tirzepatide was also associated with differences in average life expectancy (+1.35 years), obesity persistence (−30.0 percentage points [pp]), and lifetime risk of type 2 diabetes (−9.9 pp), heart attack (+2.0 pp), stroke (+1.7 pp), and heart failure (−11.9 pp). Some complication risks increased due to longer life expectancy—patients live more years during which complications can occur.

What This Means

Economic Impact

The higher cost does not buy proportional gains in quality-adjusted survival. At current pricing, the investment required to achieve health gains exceeds what healthcare systems typically consider acceptable value, with a less than 1% probability of representing good value.

Health Impact

Tirzepatide extended life expectancy. Longer life expectancy can increase lifetime risk of some complications, as patients have more years of exposure.

Recommendation

Based on these findings, coverage at current pricing is not supported. Tirzepatide has an unfavorable ICER. Improved survival is accompanied by higher lifetime risk of some non-fatal events from longer exposure.

Path to Value

Price threshold analysis indicated that no price within the tested range achieved cost-effectiveness for Tirzepatide at the ZAR 121.1K/QALY threshold.

¹Kim DD, Basu A, Engstrom A, Meltzer DO, Ollendorf DA, Neumann PJ (2023). Diabetes, Obesity, and Cardiovascular Disease Microsimulation (DOC-M): Model Development and Validation. *Med Decis Making*. <https://doi.org/10.1177/0272989X231196516>