

Cost per Clinical Weight-Loss Goal Achievement with Semaglutide 2.4 mg versus Liraglutide 3 mg from a Colombian Insurer Perspective

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Aim

To evaluate the economic efficiency of semaglutide 2.4 mg versus liraglutide 3 mg using a cost-per-clinical-goal framework and to complement the analysis with clinical efficiency measures expressed as number needed to treat (NNT).

Introduction

Obesity is a chronic disease associated with substantial cardiometabolic and economic burden. Clinically meaningful weight loss thresholds of 5% to 15% are associated with improvements in obesity-related complications and may reduce healthcare expenditure. In STEP 8, semaglutide achieved greater weight loss than liraglutide at week 68, with higher odds of achieving clinically relevant thresholds.

To compare semaglutide 2.4 mg once weekly versus liraglutide 3.0 mg once daily using a cost-per-clinical-goal framework from a Colombian insurer perspective, and to complement this assessment with intermediate clinical efficiency estimates expressed as number needed to treat (NNT).

Methods

A cost-per-clinical-goal achievement analysis was conducted from the perspective of a Colombian insurer over a 12-month horizon without discounting.

Annual treatment costs included drug acquisition and dose-escalation periods.

Drug costs were obtained from the Colombian national drug price database (SISMED 2025). Semaglutide annual cost was COP 13,502,500 and liraglutide annual cost was COP 9,405,400.

Clinical effectiveness was derived from the STEP 8 trial and defined as the proportion of patients achieving $\geq 10\%$, $\geq 15\%$, and $\geq 20\%$ weight loss. Outcomes included cost per responder, relative cost ratio (liraglutide/semaglutide), and NNT.

NNT was calculated as the inverse of the absolute difference in response rates between treatments, reflecting incremental clinical benefit.

Results

- Semaglutide demonstrated higher response rates across all weight-loss thresholds.
- This translated into low NNT values, indicating high incremental clinical efficiency.
- From an economic perspective, semaglutide showed lower cost per responder across all thresholds.
- The economic advantage increased as weight-loss targets became more stringent.

Table 1: Clinical Outcomes

Weight-loss threshold	Semaglutide (%)	Liraglutide (%)	Diferencia absoluta (%)	NNT (Semaglutide vs Liraglutide)*
$\geq 10\%$	70.9	25.6	45.3	1.93
$\geq 15\%$	55.6	12.0	43.6	3.23
$\geq 20\%$	38.5	6.0	32.5	4.47

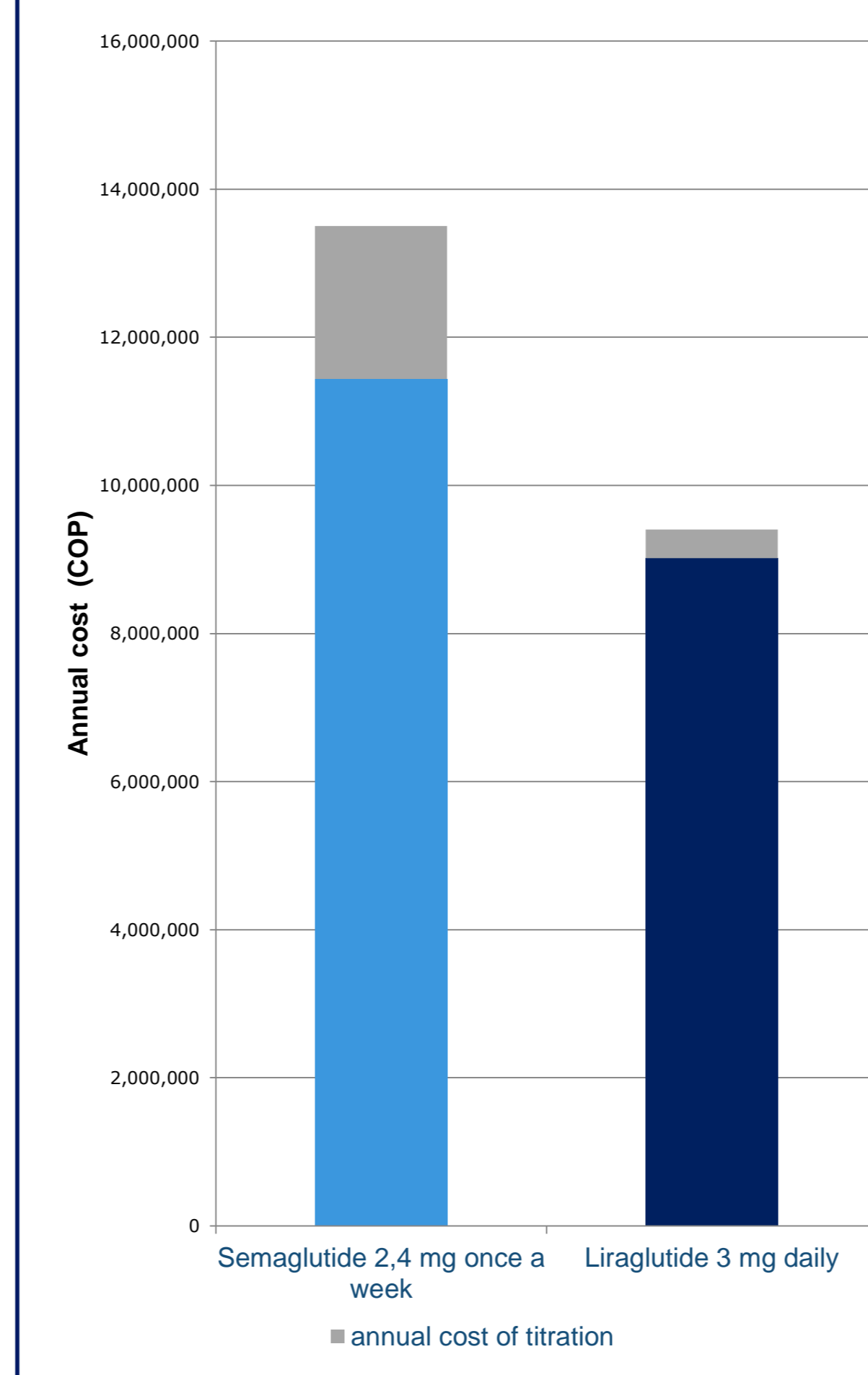
* NNT: represents the number of patients needed to be treated with semaglutide instead of liraglutide to achieve one additional responder. Calculated as the inverse of the absolute difference in response rates.

Semaglutide achieved higher response rates than liraglutide across all clinically relevant weight-loss thresholds.

These large differences (32.5%–45.3%) resulted in low NNT values, showing that only a few patients need to be treated to obtain an additional responder. In practical terms, treating about 2 patients leads to one additional responder at $\geq 10\%$ and $\geq 15\%$ weight loss, and about 3 patients for $\geq 20\%$.

Overall, these results show a consistent and clinically meaningful advantage of semaglutide, even at more demanding weight-loss targets.

Figure 1: Annual Treatment Cost Including Drug Acquisition and Titration



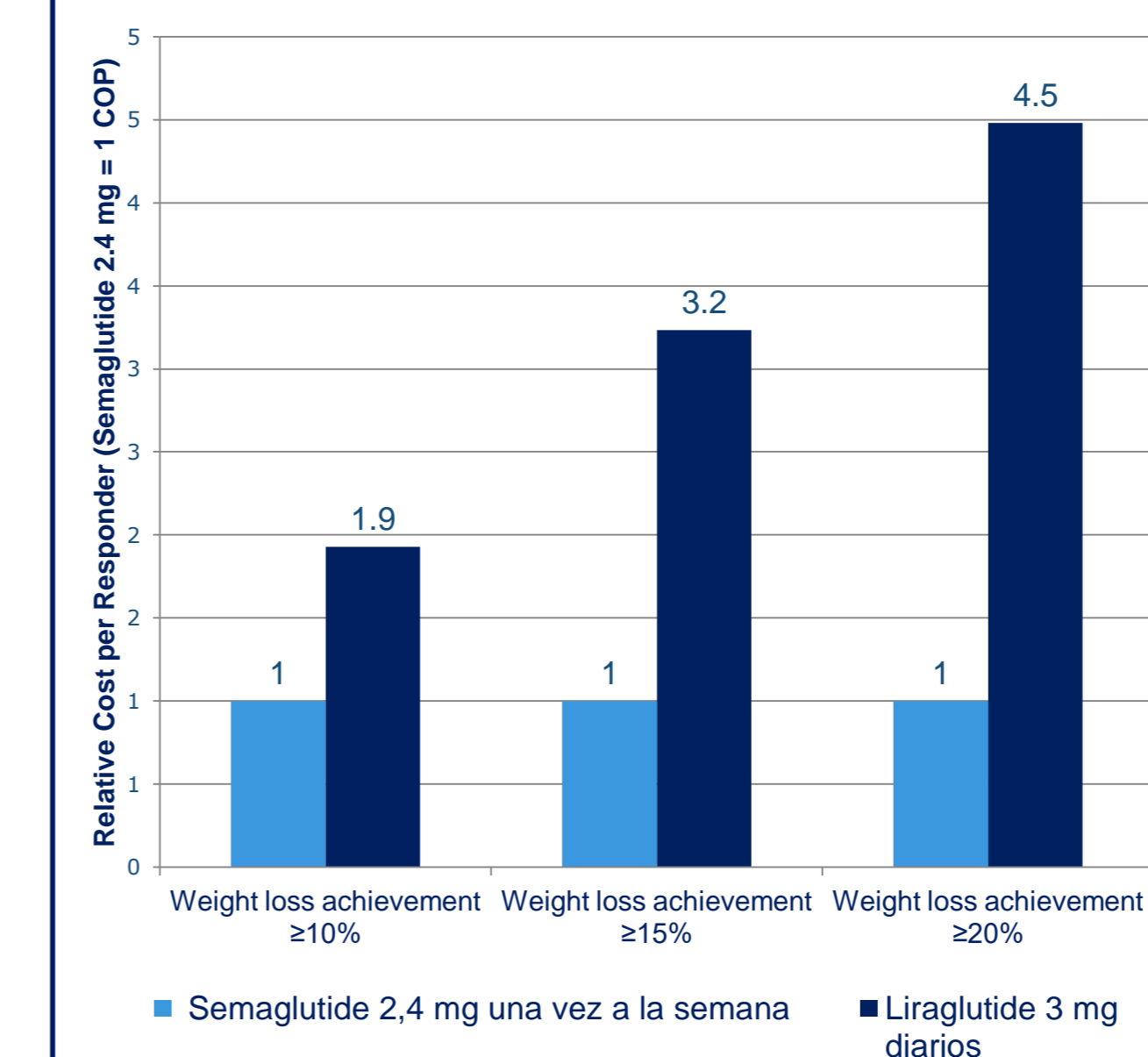
Annual treatment costs include drug acquisition and dose-escalation periods. Semaglutide costs incorporate a longer titration phase compared with liraglutide. Costs were derived from SISMED 2025.

Table 2: Economic Efficiency Across Weight-Loss Thresholds

Weight-loss threshold	Cost per responder Semaglutide (COP)	Cost per responder Liraglutide (COP)	Relative cost (Liraglutide/Semaglutide)
$\geq 10\%$	19.000.000	36.700.000	1.9
$\geq 15\%$	24.300.000	78.400.000	3.2
$\geq 20\%$	35.100.000	156.000.000	4.5

Costs derived from SISMED 2025. Cost per responder calculated as annual treatment cost divided by response rate. Relative cost represents the ratio of liraglutide to semaglutide cost per responder.

Figure 2: Relative Cost per Responder (Liraglutide vs Semaglutide) Across Weight-Loss Thresholds



Semaglutide showed consistently lower cost per responder across all weight-loss thresholds.

While liraglutide has a lower acquisition cost, its lower clinical effectiveness resulted in substantially higher cost per patient achieving each target.

The relative cost increased from 1.9 at $\geq 10\%$ to 4.5 at $\geq 20\%$, indicating that liraglutide requires up to more than four times the expenditure to achieve the same outcomes at higher thresholds.

Summary

Semaglutide demonstrated superior clinical and economic efficiency compared with liraglutide.

Higher response rates translated into low NNT values, indicating strong incremental clinical benefit.

From a payer perspective, semaglutide also showed lower cost per responder, despite higher acquisition costs.

Importantly, the economic advantage increased as weight-loss targets became more stringent, highlighting semaglutide as a high-value intervention in obesity management.

Conclusion

These findings indicate that semaglutide provides a more efficient strategy for achieving clinically meaningful weight loss compared with liraglutide.

Its consistent performance across increasingly stringent targets supports its role when substantial weight reduction is required.

From a health system perspective, improved efficiency in achieving treatment goals may contribute to better resource allocation.

Overall, semaglutide represents a high-value option for obesity management, informing both clinical and payer-oriented decision-making.

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References:

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