The Five-Year Budget Impact of Introducing Semaglutide 2.4 mg for Obesity Management at the Ministry of Defense and Aviation, Saudi Arabia: A Real-World Patient Flow and Complication-Driven Model

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KEY LEARNINGS

Introducing Semaglutide 2.4 mg into the MODA obesity care pathway can reduce total health system spending over five years in the Kingdom of Saudi Arabia

BACKGROUND

- Obesity is a chronic, relapsing condition strongly associated with type 2 diabetes, dyslipidemia, hypertension, nonalcoholic fatty liver disease, osteoarthritis, sleep apnea, and cardiovascular disease. Saudi Arabia faces high obesity prevalence, driving substantial clinical and economic burden in the public payer system, including MODA.[1-4]
- Medication and role: semaglutide 2.4 mg is a GLP-1 receptor agonist indicated for chronic weight management as an adjunct to a reduced-calorie diet and increased physical activity. Clinical evidence shows clinically significant weight loss and cardiometabolic risk reduction, translating to fewer downstream complications and health resource use.[5-12]
- Unmet need and rationale: Despite high disease burden, real-world treatment engagement is limited; applying national engagement estimates to the MODA population, approximately 3.3% of adults with overweight or obesity progress to physician discussion of anti-obesity medications. Existing pharmacotherapy and bariatric capacity constraints leave a large gap between need and access. A medicine that delivers greater and sustained weight loss offers the potential for complication cost offsets and budget sustainability.[13-15]
- MODA, as a public payer, bears high costs for obesity-related complications, particularly cardiovascular events and diabetes management. Bariatric surgery volumes remain constrained relative to eligible demand, and pharmacotherapy use is low.[15-16]

OBJECTIVE

- To evaluate the financial impact of introducing Semaglutide 2.4 mg from the MODA payer perspective by incorporating locally adapted treatment pathways, a patient-flow model informed by local experts, comorbidity burden, and complication-specific cost offsets using a localized real-world flow model.

CONCLUSIONS

- Incorporating semaglutide 2.4 mg into MODA's obesity care pathway is associated with lower drug acquisition costs, modest complication cost offsets, and favorable five-year budget implications (SAR 1.31 million saved; −13.13%).
- Targeted adoption among eligible MODA beneficiaries supports value-based decision-making and long-term sustainability of obesity-related healthcare budgets.

METHODS

- A budget impact model was developed to assess the financial impact of introducing semaglutide 2.4 mg for obesity management from the MODA payer perspective, over a 5-year time horizon (2026–2030).
- The model's inputs were sourced from published literature, local expert (KOL) opinion, national datasets, and Saudi public procurement pricing (NUPCO tender and SFDA price). No patient-level data were used.
- Input parameters included drug acquisition costs (titration and maintenance), bariatric surgery costs, discontinuation rates, and obesity-related complication costs (cardiovascular events, diabetes care, asthma, sleep apnoea, hip/knee osteoarthritis, chronic kidney disease, hypertension and dyslipidemia management).
- The obesity-eligible population (BMI ≥27 kg/m²) over 5 years was estimated from the MODA adult population, stratified by treatment-engagement steps derived from national surveys and validated by local experts including weight discussion with HCPs (58%), diagnosis (22.3%), follow-up (44%), and treatment discussions (58%), with 2% annual growth.
- The model compared the budget impact for two scenarios: the current scenario without Semaglutide 2.4 mg using existing anti-obesity treatments (tirzepatide 76%, liraglutide 3.0 mg 20%, bariatric surgery 4%); and a hypothetical scenario where semaglutide 2.4 mg is added to the treatment mix (50% in Year 1, rising to 70% by Year 4). (Figure 1)
- To account for uncertainty, probabilistic sensitivity analysis (10,000 iterations) was conducted by varying the input parameters for drug costs, cardiovascular outcomes, and complication costs by ±10%.

RESULTS

1. In 2026, an estimated 269 MODA adults with obesity discussing anti-obesity medication were identified as eligible candidates; 27 were treated in Year 1, rising to 58 by Year 5.
2. Semaglutide 2.4 mg showed an annualized per-patient drug cost of SAR 12,414 ($3,310), approximately 38% lower than the current anti-obesity medication mix (SAR 19,999; $5,333), reducing therapeutic management costs by 29.55% over five years. (Figure 3)
3. The projected cumulative cost savings from introducing semaglutide 2.4 mg over five years totaled SAR 1,313,790 ($350,344) for the eligible MODA population. (Figure 5)
4. The budget analysis demonstrated progressive and sustained cost savings over time, from SAR 49,516 in 2026 to SAR 409,595 in 2030, with a 13.13% overall reduction in total healthcare budget requirements. (Figure 2)
5. Overall complication costs declined by SAR 5,612, driven by cardiovascular events (heart failure, non-fatal stroke and MI; SAR 29,336 saved), while costs for dyslipidemia, type 2 diabetes, hypertension and osteoarthritis increased slightly over the five-year period. (Figure 5)
6. The probabilistic analysis shows consistent outcomes across 10,000 simulations, with 100% of iterations cost-saving and a deterministic value of −13.13% (mean −13.07%), indicating cost savings rather than cost increases.

Figure 1. | Model structure

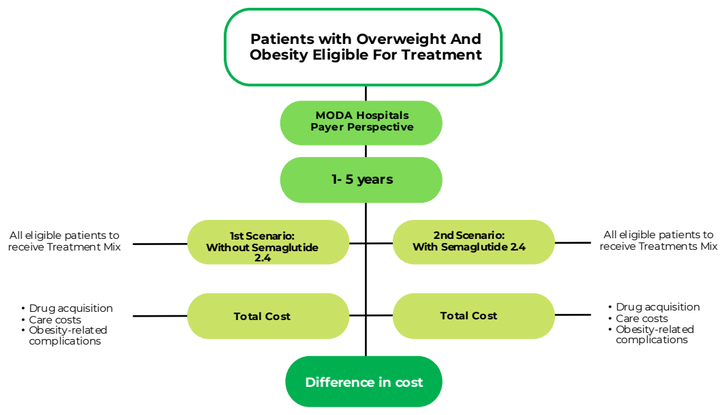

Figure 2. | Budget Impact 1-5 Year in MODA

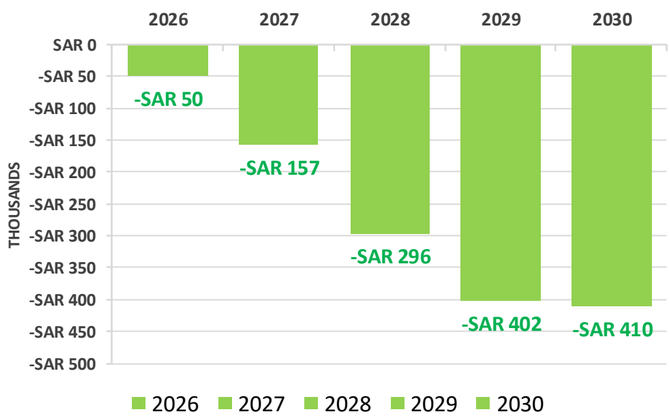

Figure 3. | Annual drug cost per patient (SAR)

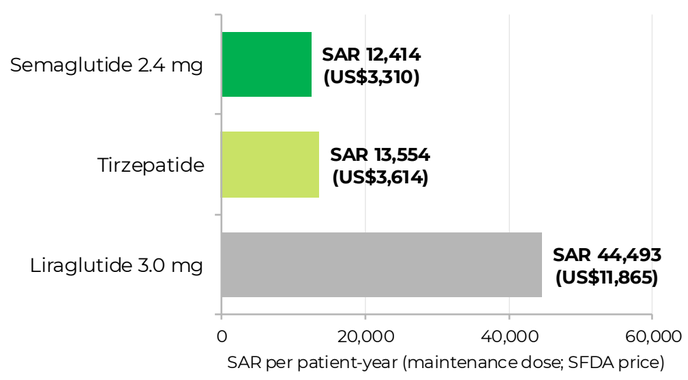

Figure 4. | Annual total cost by scenario (SAR M)

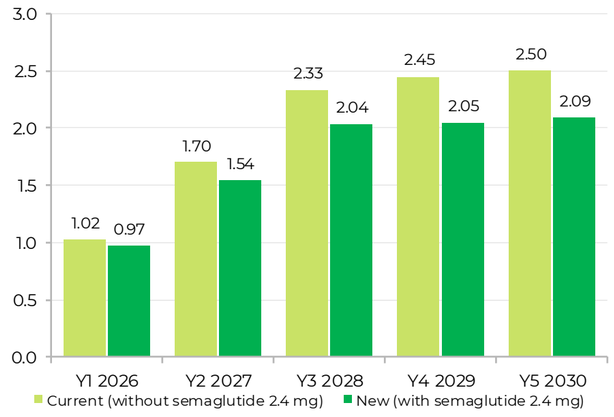

Figure 5. | Disaggregated 5-Year Costs of Managing Obesity after the Introduction of Semaglutide

Parameter	Current scenario (without Sema. 2.4 mg)	New Scenario (with Sema. 2.4 mg)	Difference (Value in SAR)	Difference (%)
Therapeutic management cost	SAR 4,426,646 ($1,180,439)	SAR 3,118,468 ($831,591)	-SAR 1,308,178 (-$348,848)	-29.55%
Surgical management cost	SAR 227,356 ($60,628)	SAR 227,356 ($60,628)	SAR 0 ($0)	0.00%
Obesity-related complications cost	SAR 5,350,070 ($1,426,685)	SAR 5,344,458 ($1,425,189)	-SAR 5,612 (-$1,496)	-0.10%
Total	SAR 10,004,072 ($2,667,753)	SAR 8,690,282 ($2,317,409)	-SAR 1,313,790 (-$350,344)	-13.13%

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