

# Hospital pharmacist evaluation of natalizumab biosimilar adoption in multiple sclerosis: budget impact and cost-minimization analysis

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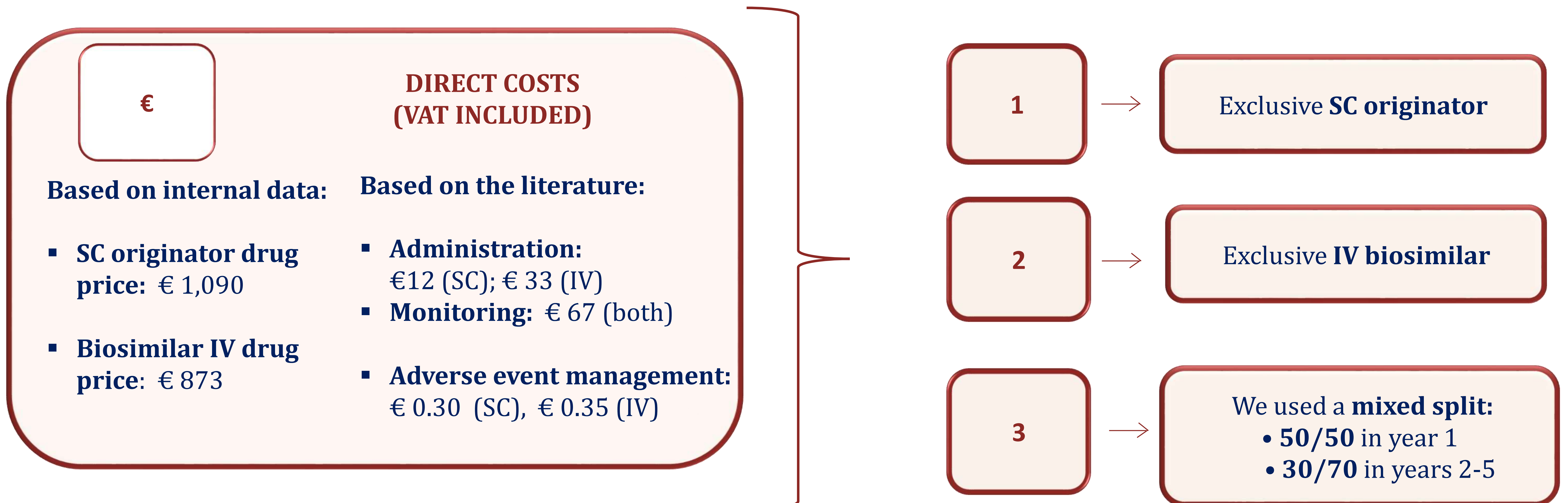
## BACKGROUND

Natalizumab is an effective therapy for relapsing-remitting multiple sclerosis (MS), usually reserved as a **second-line treatment due to its high cost**. The availability of an **intravenous (IV) biosimilar** improves sustainability, while the subcutaneous (SC) originator offers shorter administration time but its patent has not yet expired. Evaluating **their economic impact** is crucial for evidence-based and sustainable decisions. To conduct a five-year **budget impact analysis (BIA)** comparing IV natalizumab biosimilar with the SC originator in a hospital setting, and a **cost-minimization analysis (CMA)** to identify the lowest-cost option per dispensation, assuming therapeutic equivalence.

## MATERIALS AND METHODS

➤ *The BIA model considered 1,168 annual dispensations (2024 baseline).*

Scenarios were:

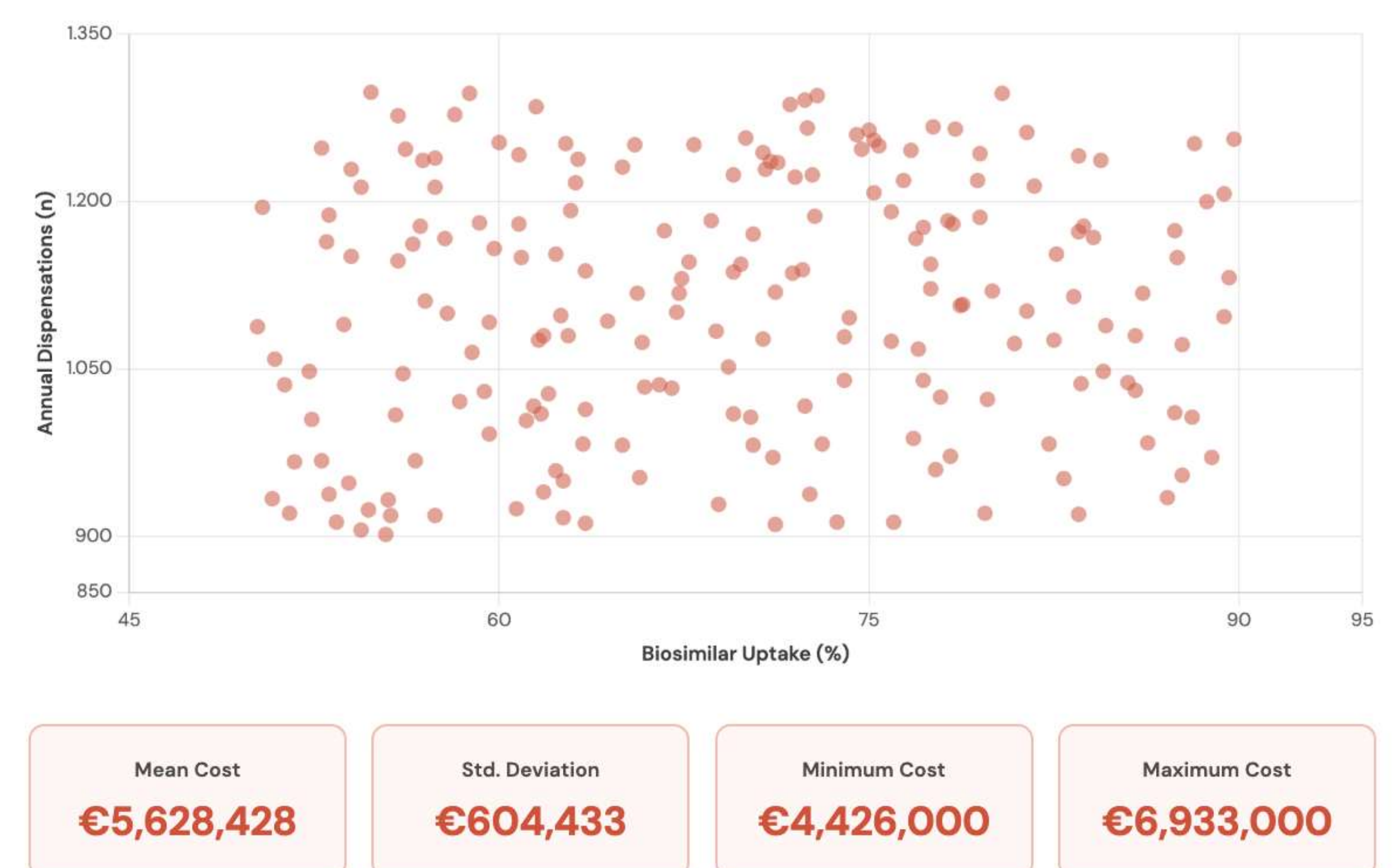
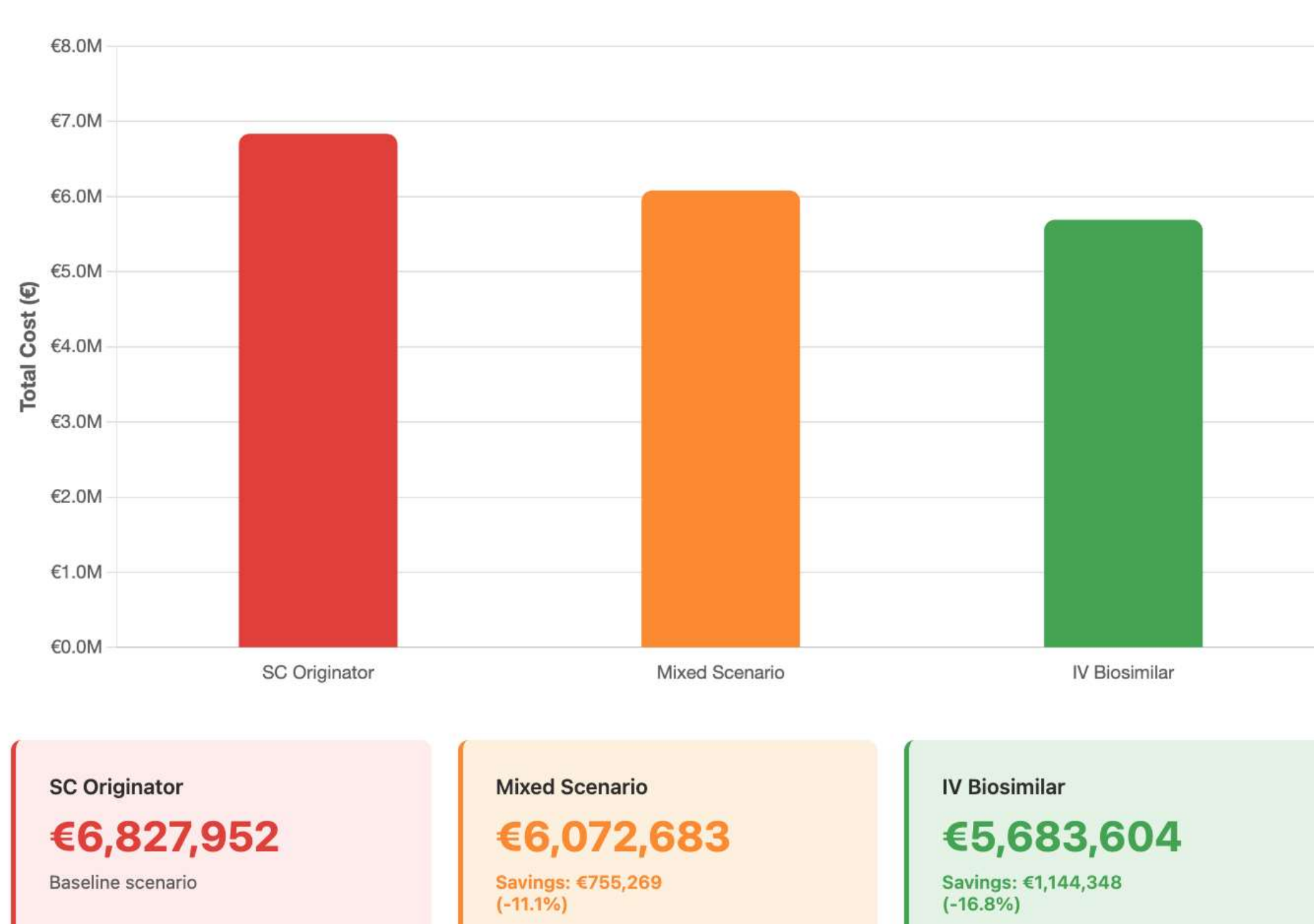


➤ *The CMA compared unit costs to estimate per-dispensation savings.*

*BIA was performed in R (version 4.3.3) using RStudio.*

## RESULTS

- The unit cost per dispensation was **€1,170** for the SC originator and **€975** for the IV biosimilar, resulting in savings of **€195** per dispensation. With 1,168 annual dispensations, this corresponded to approximately **€228,000 per year** and **€1.14 million over five years**.
- Over the same time horizon, total costs were:
- **Sensitivity analysis** of the mixed scenario, based on 10,000 Monte Carlo simulations varying biosimilar uptake (50–90%) and annual dispensations (900–1,300), ensuring **economic predictability**.



## CONCLUSION

The CMA confirmed a €195 per-dispensation saving with the IV biosimilar (–16.8%), while the BIA identified **mixed adoption** as the pragmatic optimum, **yielding €755,269 in five-year savings** without compromising therapeutic continuity for patients with intolerance to the biosimilar formulation. These evaluations may support sustainable decision-making and improve patient access in MS care.

Conflicts of interest: none declared

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