

Budget Impact Analysis of Incorporating PlGF in Preeclampsia Screening in Catalonia

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/ INTRODUCTION

Preeclampsia screening is critical in early pregnancy to reduce complications in high-risk pregnancies. In Catalonia, the standard screening combines maternal risk factors, blood pressure, uterine artery Doppler, and PAPP-A (optional). Recent evidence suggests that adding Placental Growth Factor (PlGF) to the screening algorithm may enhance early detection and reduce healthcare costs associated with managing preeclampsia and preterm births.

/ METHODS

1 Perspective

The analysis was conducted from the perspective of the Catalan Health Service, assessing costs that the public health system would bear.

3 Intervention

The intervention involved adding the Placental Growth Factor (PlGF) biomarker to the existing preeclampsia screening protocol.

5 Outcomes

The primary outcomes included: (1) number of high-risk pregnancies identified, (2) reduction in preterm births, and (3) budget impact of adding PlGF to the screening algorithm.

7 Cost components

- Costs included:
- Screening Costs:** Calculated by multiplying the per-test cost of PlGF with the number of pregnant women screened.
 - Treatment Costs:** For high-risk pregnancies, the cost of daily low-dose Aspirin (AAS) treatment was included, calculated per patient for the duration of pregnancy until week 36.
 - Maternal and Neonatal Care Costs:** Medical costs associated with preterm births were estimated separately for severe cases (<34 weeks) and moderate cases (34–37 weeks) based on the average care requirements in each category.

/ OBJECTIVES

This budget impact analysis evaluates the financial implications of integrating PlGF into the existing preeclampsia screening model in Catalonia. It compares costs across two scenarios: screening with and without PlGF. Specifically, this analysis aims to quantify the incremental costs and potential savings associated with the use of PlGF, focusing on maternal and neonatal healthcare expenditures related to reduced preterm births and fewer severe preeclampsia cases.

2 Population

The target population included 56,344 pregnant women in Catalonia.

4 Comparison

Standard screening without PlGF.

6 Time Horizon

One-year, with no cost discounting applied given the short-term horizon

8 Sensitivity Analysis

A univariate sensitivity analysis was conducted to test the robustness of the model to variations in key parameters, such as the cost of PlGF testing, rates of preterm birth reduction, and Aspirin costs. This analysis helps assess the financial impact under different cost and effectiveness assumptions.

/ RESULTS

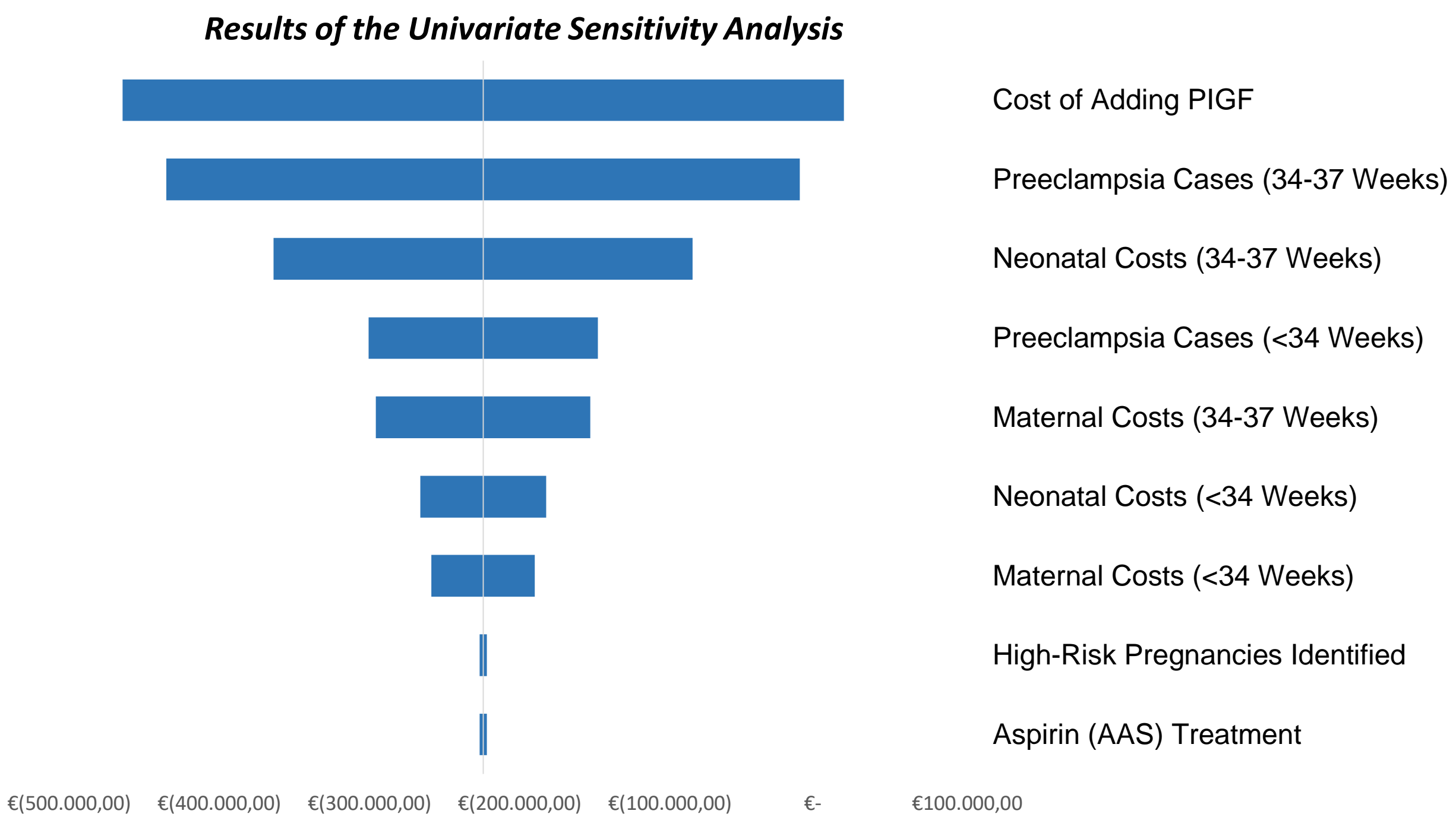
1 Estimated Preeclampsia Cases to Different Screening Strategies

Outcome	Standard Screening	PlGF Screening	Difference
Total Pregnant Women Screened	56,344	56,344	-
High-Risk Pregnancies Identified	7,437	8,452	1,014
Preeclampsia Cases (<34 Weeks)	101	85	-17 cases
Preeclampsia Cases (34–37 Weeks)	355	299	-56 cases

2 Results of the Budget Impact Analysis

Cost Component	Standard Screening	PlGF Screening	Difference
Cost of Adding PlGF	€ 0	€1,200,690.64	+€1,200,690.64
Aspirin (AAS) Treatment	€90,587.63	€102,940.49	+€12,352.86
Maternal Costs (<34 Weeks)	€1,033,025.49	€860,854.57	-€172,170.91
Maternal Costs (34–37 Weeks)	€2,247,620.77	€1,890,855.57	-€356,765.20
Neonatal Costs (<34 Weeks)	€1,255,648.80	€1,046,374.00	-€209,274.80
Neonatal Costs (34–37 Weeks)	€4,394,770.81	€3,697,188.14	-€697,582.67
Total Cost	€9,021,653.51	€8,798,903.42	-€222,750.09

3 Sensitivity Analysis



/ CONCLUSIONS

- Cost Savings:** Integrating PlGF into preeclampsia screening in Catalonia showed a net saving of €222,750.09, mainly due to reduced costs in managing preterm births.
- Improved Detection:** The addition of PlGF identified 1,014 more high-risk pregnancies, leading to earlier interventions that reduced preterm births before both 34 and 37 weeks.
- Healthcare Impact:** PlGF-enhanced screening lowered maternal and neonatal complications, supporting its value as a cost-saving addition to standard screening.
- Recommendation:** Given these economic and health benefits, adopting PlGF screening may offer a sustainable approach to improving pregnancy outcomes within the Catalan healthcare system.