

isuog2026.3720588

Economic impact of sFlt-1/PlGF ratio testing in the management of suspected pre-eclampsia: a systematic review

E. J. Lodewijks^A, B. Verhaar^A, M. L. E. Hendrix^A, J. A. P. Bons^B, S. Al-Nasiry^A, H. C. J. Scheepers^A

^A Department of Obstetrics & Gynecology, GROW School of Oncology and Developmental Biology, Maastricht University Medical Centre (MUMC+), Maastricht, The Netherlands.

^B Central Diagnostic Laboratory, Maastricht University Medical Centre, Maastricht (MUMC+), The Netherlands.

Introduction

The diagnosis and management of **pre-eclampsia** (PE) remain challenging and are associated with substantial maternal, neonatal and healthcare burden

Angiogenic biomarkers, **sFlt-1** and **PlGF**, may improve clinical decision-making, yet their economic impact remains unclear.

What is pre-eclampsia?

Gestational hypertension

Proteinuria

End organ dysfunction

Utero-placental dysfunction

What is sFlt-1/PlGF?

The sFlt-1/PlGF ratio combines the anti-angiogenic factor soluble fms-like tyrosine kinase-1 with the pro-angiogenic factor placental growth factor. This imbalance reflects **placental dysfunction** and **endothelial imbalance**.

In women with suspected pre-eclampsia, higher ratios indicate increased short-term risk of pre-eclampsia and adverse pregnancy outcomes, whereas low ratios can help rule out pre-eclampsia within 7 days.

Outcome measures

Primary outcome

Cost savings per patient

Secondary outcomes

Retesting sFlt-1/PlGF

Emergency admission

Neonatal care

Corticosteroids

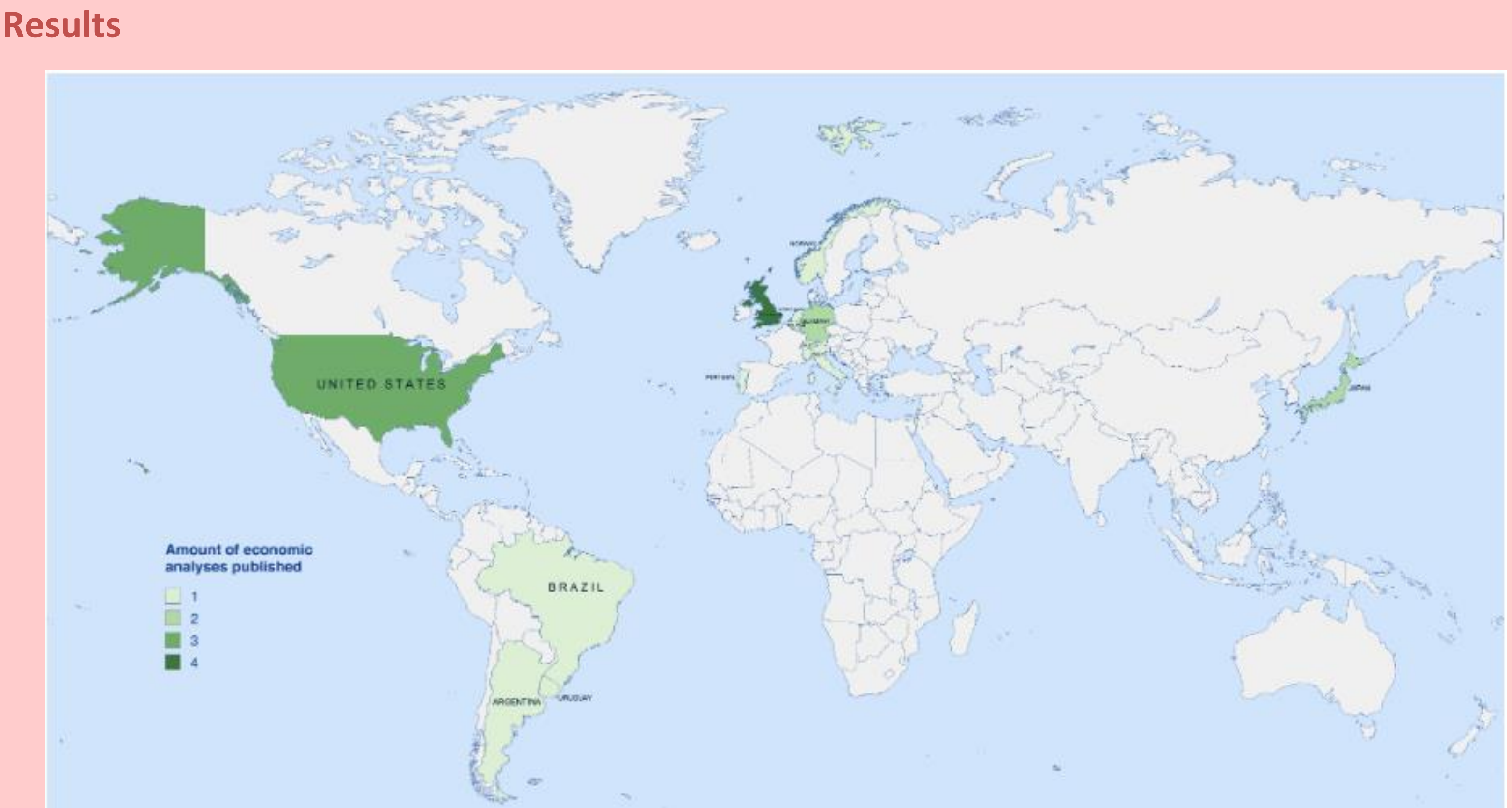


Figure 1: World map showing the distribution of studies per country

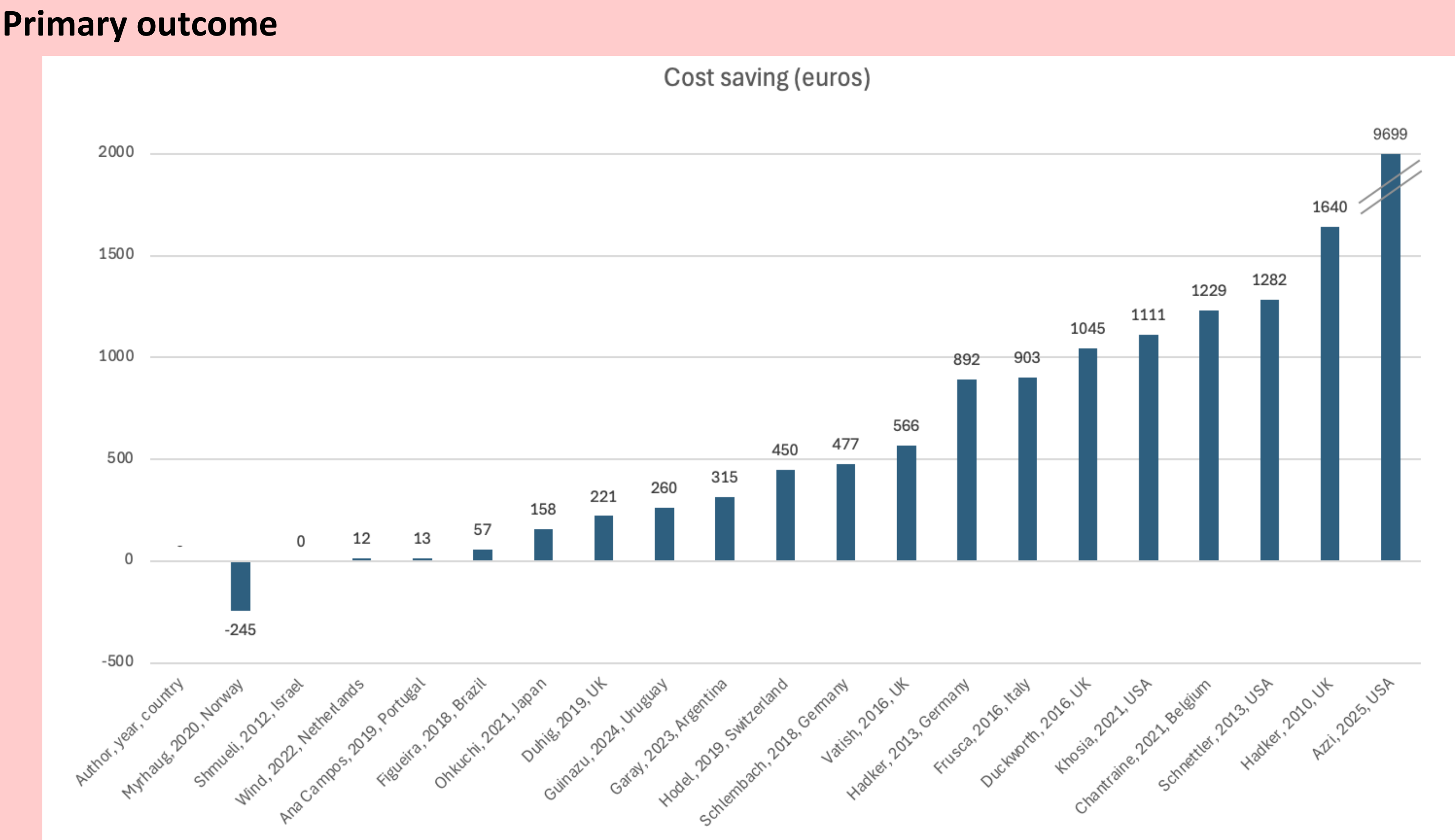
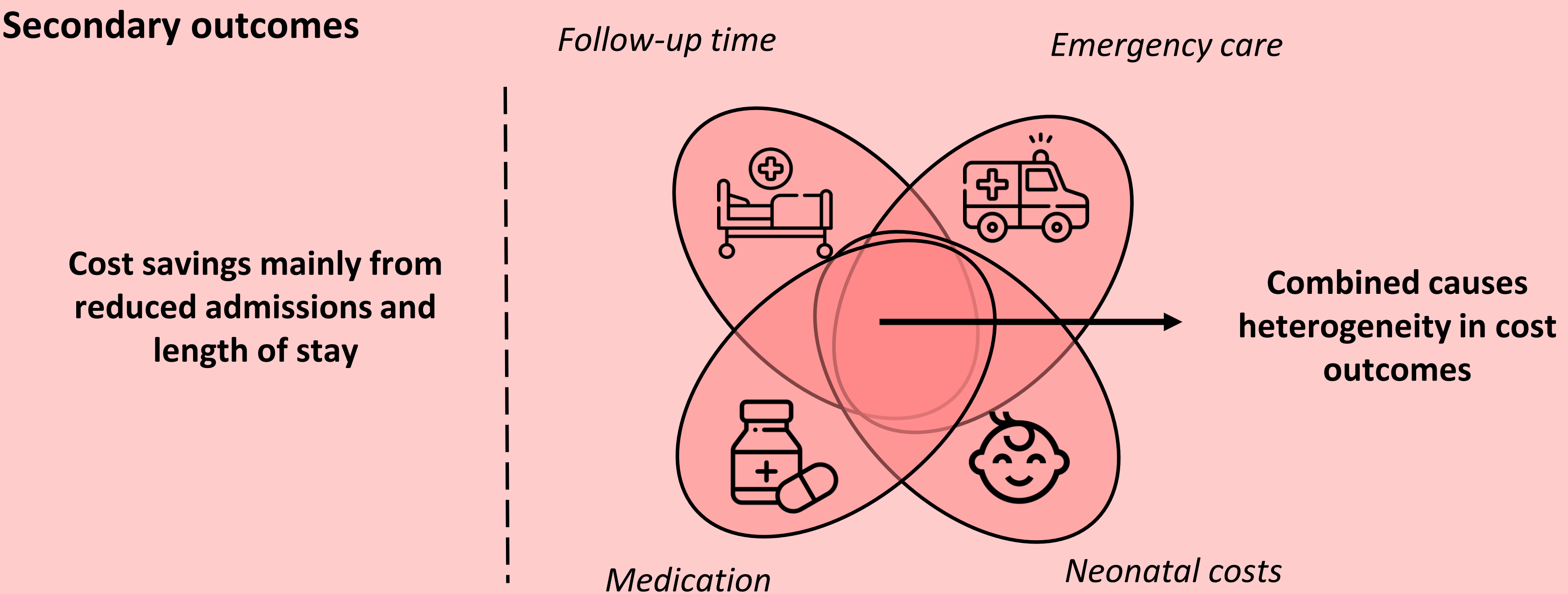


Figure 2: Cost differences per patient per included study



Methods

Databases

PubMed
Embase®

Screening

2 reviewers independently

Inclusion criteria

Pregnancy after 20 weeks of gestation
Economic evaluation

Records

131 records → 20 studies
14 countries

References

- World Health Organization (WHO) Pre-eclampsia 2025 [Available from: <https://www.who.int/news-room/fact-sheets/detail/pre-eclampsia>].
- Hutcheon JA, Lisonkova S, Joseph KS. Epidemiology of pre-eclampsia and the other hypertensive disorders of pregnancy. Best practice & research Clinical obstetrics & gynaecology. 2011;25(4):391-403.
- Stepan H, Hund M, Andrzejek T. Combining biomarkers to predict pregnancy complications and redefine preeclampsia: the angiogenic-placental syndrome. Hypertension. 2020;75(4):918-26.
- Magee LA, Brown MA, Hall DR, Gupta S, Hennessy A, Karumanchi SA, et al. The 2021 International Society for the Study of Hypertension in Pregnancy classification, diagnosis & management recommendations for international practice. Pregnancy hypertension. 2022;27:148-69.
- Lecarpentier E, Tsatsaris V. Angiogenic balance (sFlt-1/PlGF) and preeclampsia. 2016;77:97-100.
- Maynard SE, Min J-Y, Merchan J, Lim K-H, Li J, Mondal S, et al. Excess placental soluble fms-like tyrosine kinase 1 (sFlt1) may contribute to endothelial dysfunction, hypertension, and proteinuria in preeclampsia. The Journal of clinical investigation. 2003;111(5):649-58.
- Obstetricians Aco G. Hypertension in pregnancy. Report of the American College of Obstetricians and Gynecologists' task force on hypertension in pregnancy. Obstet gynecol. 2013;122(5):1122.

Conclusion

✓

sFlt-1/PlGF testing is generally associated with cost savings

🌐

Findings are consistent over multiple countries

⚠️

Results depend on study design and cost components

Future perspectives

Define optimal patient selection

Clinical decision making based on sFlt-1/PlGF