

Economic evaluation of the sFlt-1/PIGF ratio test to guide the management of Chinese suspected pre-eclampsia women

Zhen HUANG¹, Yingyao CHEN¹

1 Key lab of Health Technology Assessment, National Health Commission (Fudan University), Shanghai, China

Introduction

- Pre-eclampsia (PE) is a pregnancy complication characterized by high blood pressure and signs of damage to another organ system, most often the liver and kidneys. Here below is the brief introduction of PE and the soluble fms-like tyrosine kinase (sFlt-1) to placental growth factor (PIGF) ratio test.

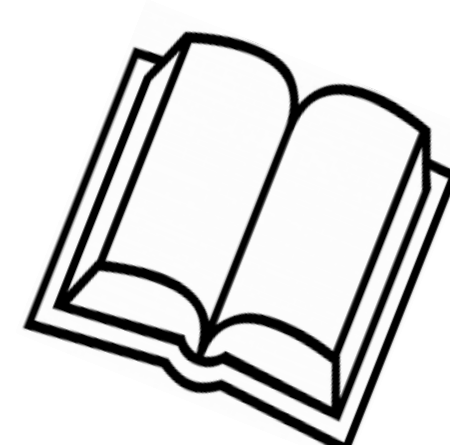


PE affects about 5% of pregnancies and it accounts for more than 4 out of every 10 maternal deaths each year globally.

PE can lead to serious or even fatal complications for mother and baby. The most effective treatment for preeclampsia is delivery.

Current practice does not provide specific, reliable diagnosis and is poor at predicting which women will develop PE.

The sFlt-1/PIGF ratio can aid in short-term prediction of PE using a cut-off ratio of 38.



- The study aims to estimate the economic impact of introducing sFlt-1/PIGF ratio test into current clinical practice in guiding the management of pregnant women with suspected PE in China.

Methodology

- An economic model is developed to compare the costs from first suspicion to birth of 'no-test' scenario in line with current diagnostic standards and 'test' scenario based on sFlt-1/PIGF ratio test besides current standard practice.

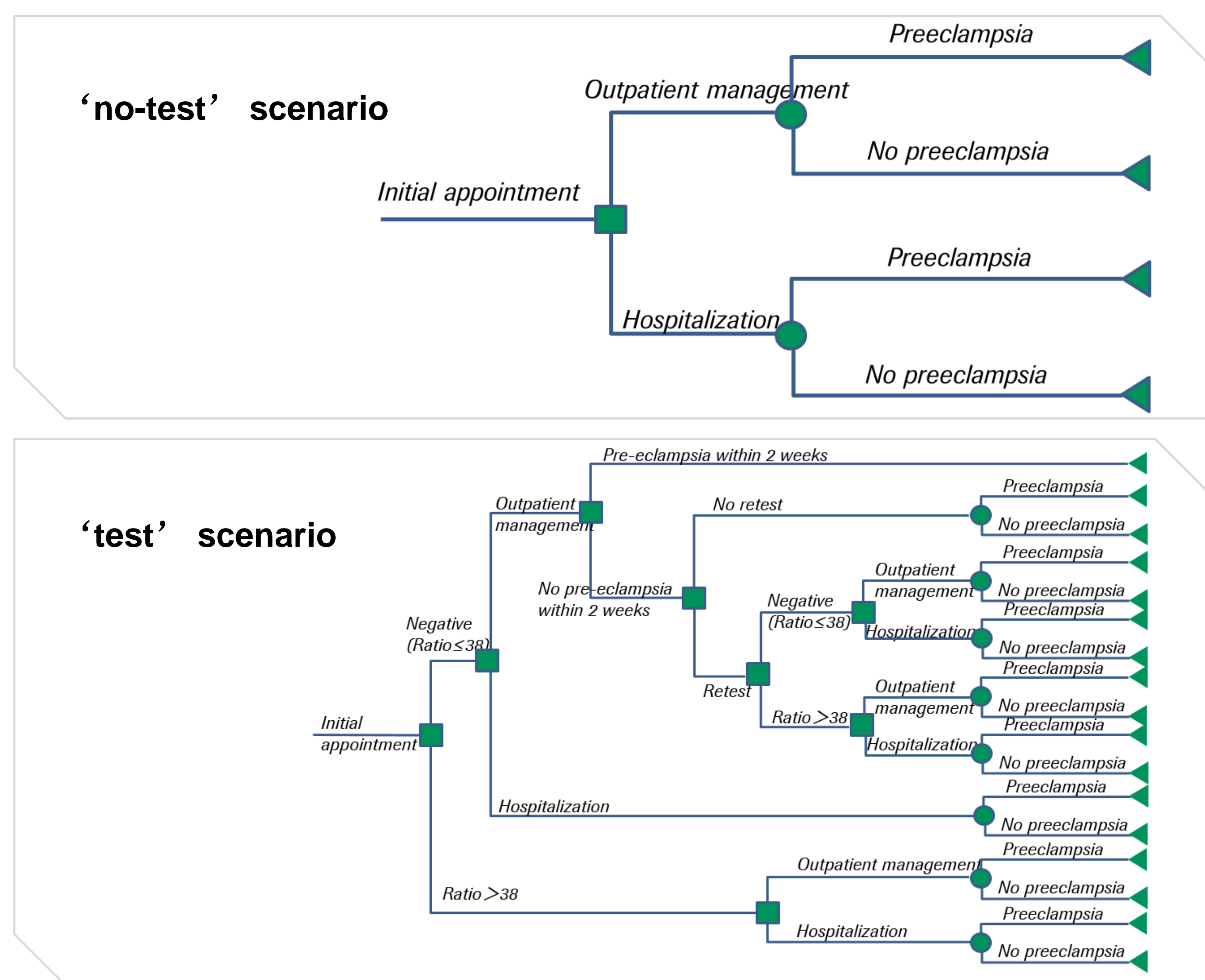


Fig. 1 Economic model structure

- All suspected pre-eclampsia patients between 24+0 and 36+6 weeks' gestation are assumed to be managed as either outpatient or inpatient management. Sensitivity analyses were performed to testify the robustness of the results.

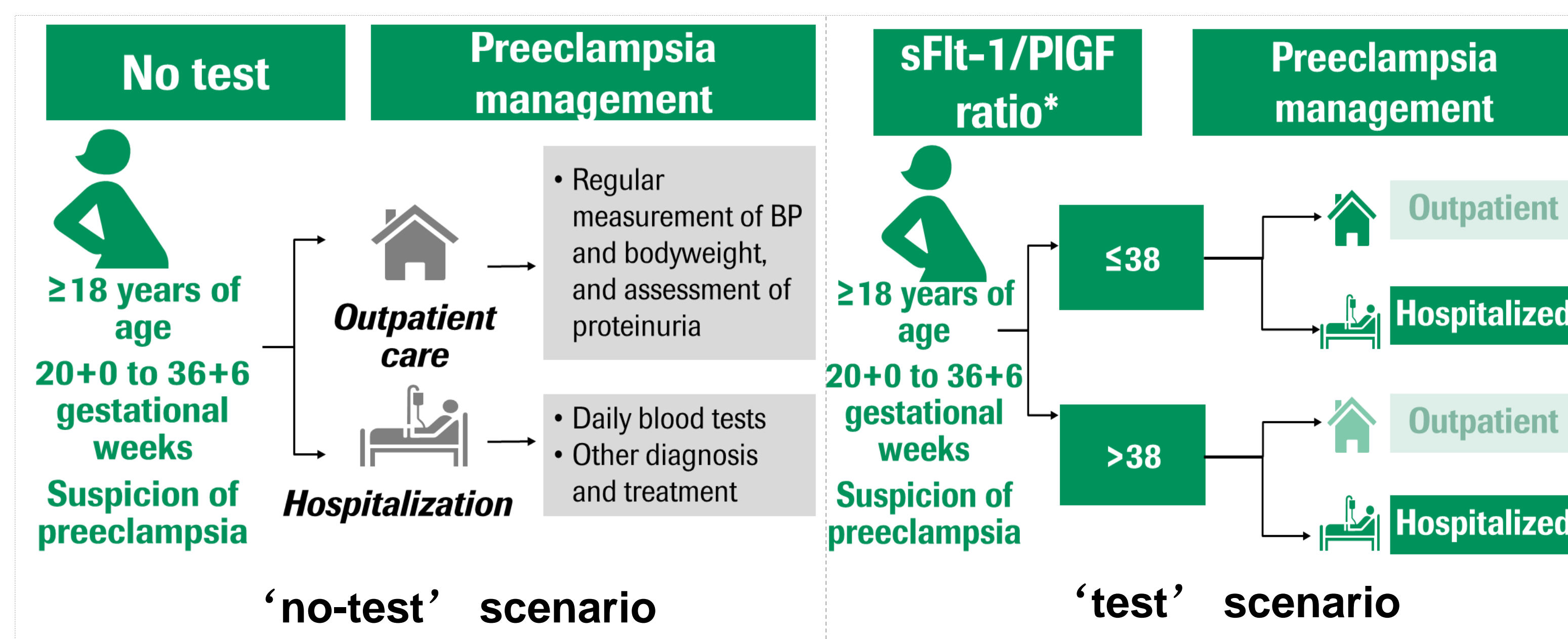


Fig. 2 Economic model treatment pathway

- Clinical indicators and test characteristics are derived from Chinese data in PROGNOSIS Asia study, and resource use data are retrieved from a real-world study on the resource use in five maternity and infant hospitals in China.

Results

- The pre-eclampsia cost 'no-test' group about €1,638 per patient and it cost 'test' group €1,450 per patient. Compared with 'no-test' scenario, the inclusion of the sFlt-1/PIGF ratio test into current clinical pathway could help save €188 per patient mainly due to the avoidance of unnecessary hospitalization because of accurate rule out of suspected pre-eclampsia patients who won't develop pre-eclampsia.
- All scenarios remain cost-saving in sensitivity analysis.

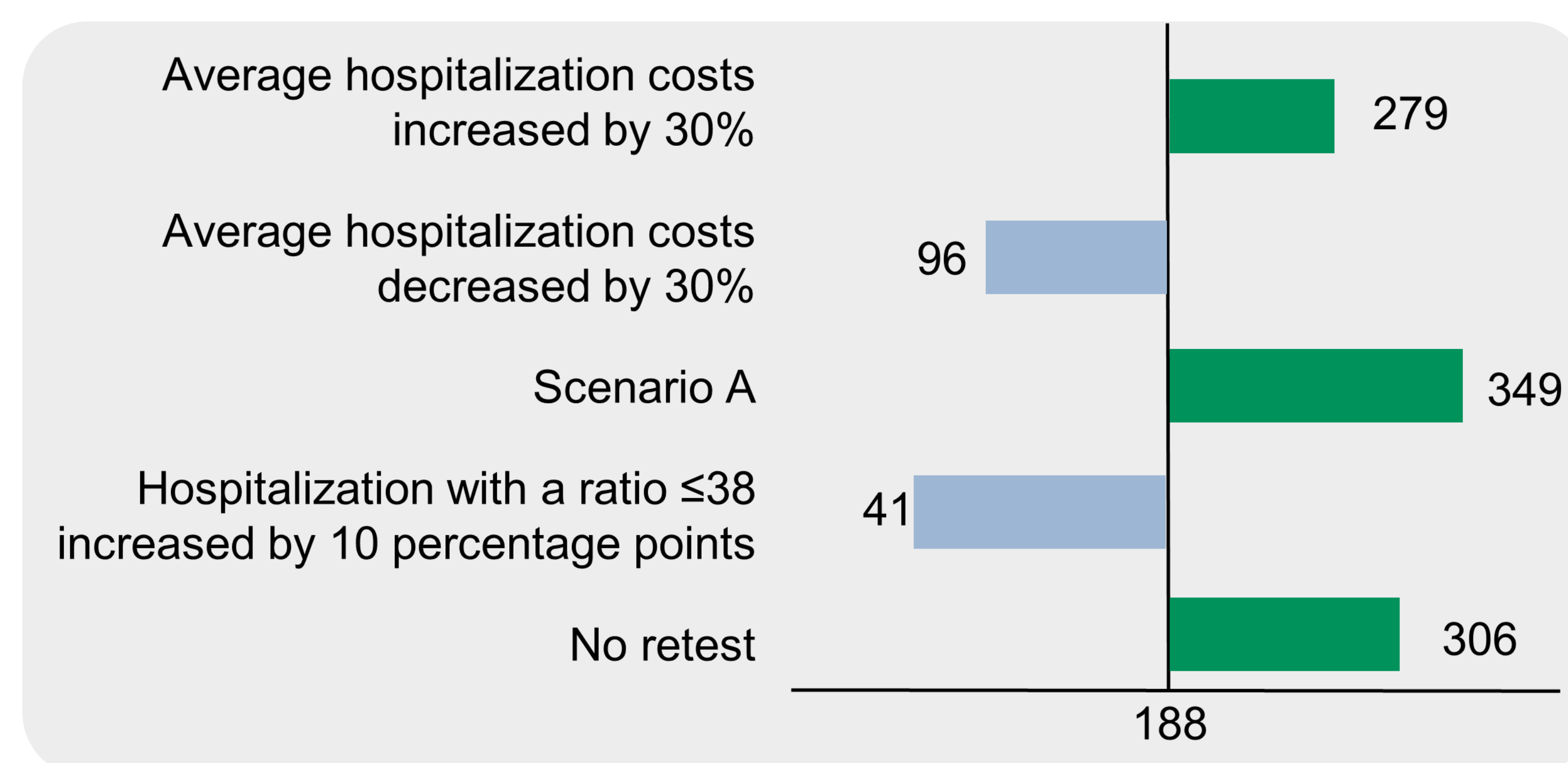


Fig. 3 Results of sensitivity analyses (savings in Euro)

Change the proportion of women hospitalized with the ratios of >38 and ≤ 38 based on a randomized interventional study (the ratio of >38 ranging from 51.5% to 41.4% and the ratio of ≤ 38 ranging from 8.04% to 0.8%) in scenario A

Conclusion

- Introducing the sFlt-1/PIGF ratio test into Chinese clinical practice is shown to be cost-saving compared with the current diagnostic procedures.

Reference

- Verlohren et al (2010). Am J Obstet Gynecol 202 (161): e1-11.
- Powe et al (2011). Circulation 123:2856-2869.
- Hund et al (2014). BMC Pregnancy and Childbirth 14:324.
- Cerdeira et al (2019). Hypertension 74(4):983-990.
- Bian et al (2019). Hypertension 74:164-172.

Acknowledgements

- This health economic study was funded by Roche Diagnostics.

