

# High-throughput non-invasive prenatal testing for fetal rhesus D status in RhD-negative women not known to be sensitised to the RhD antigen: a systematic review and economic evaluation

Pedro Saramago,<sup>1</sup> Huiqin Yang,<sup>2</sup> Alexis Llewellyn,<sup>3</sup> Ruth Walker,<sup>3</sup> Melissa Harden,<sup>3</sup> Stephen Palmer,<sup>1</sup> Susan Griffin<sup>1</sup> and Mark Simmonds<sup>3\*</sup>

<sup>1</sup>Centre for Health Economics, University of York, York, UK

<sup>2</sup>Peninsula Technology Assessment Group (PenTAG), University of Exeter Medical School, Exeter, UK

<sup>3</sup>Centre for Reviews and Dissemination, University of York, York, UK

\*Corresponding author [mark.simmonds@york.ac.uk](mailto:mark.simmonds@york.ac.uk)

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## Plain English summary

Non-invasive fetal RhD status testing in RhD-negative women

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## Plain English summary

About 3 in 20 women in the UK have a blood type called rhesus blood group (D antigen) (RhD) negative. If they become pregnant, around 6 in 10 of these women will have babies who have the opposite blood type (RhD positive) and the woman's immune system can react to the baby's blood (a process called 'sensitisation'). Following sensitisation, commonly in a subsequent pregnancy, the woman's immune system may attack the baby's blood, which potentially has severe consequences, such as a need for blood transfusions or even the death of the baby. The risk of sensitisation can be substantially reduced by injecting women with a blood-based product called anti-D immunoglobulin. Currently, all pregnant women with RhD-negative blood are offered this injection during later pregnancy and after birth. However, women carrying a RhD-negative baby do not need this injection. Non-invasive prenatal testing (NIPT) may determine the blood type of the baby during pregnancy and so the anti-D injection can be avoided in women who do not need it.

This report investigated whether or not using NIPT was a reliable, effective and safe way to manage RhD-negative pregnant women and whether or not it could reduce costs for the NHS. Based on eight studies, the test was found to be highly accurate, with an incorrect result in about 2% of women, which translates to between 3 and 27 additional sensitisations per 100,000 pregnancies compared with current practice, and a small risk of loss in health. However, the test is inconclusive in around 7% of women who could still be offered the anti-D injection, and there is an increased risk of adverse health outcomes for sensitised women. The evidence suggests that using NIPT would reduce the number of women receiving anti-D unnecessarily but would lead to a small increase in the number of additional sensitisations and that this may or may not be cost saving depending on the additional cost of NIPT.

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