

# Third trimester screening for blood group antibodies in Rhesus c-negative pregnant women

## executive summary



In the Netherlands, all pregnant women are offered blood testing in the first trimester of pregnancy. One of the main goals of this prenatal screening for infectious diseases and erythrocyte immunisation (PSIE) is to detect maternal alloimmunisation – a condition in which a pregnant woman develops antibodies against the red blood cells of her unborn child. This immune response can cause the child's red blood cells to break down, potentially leading to a serious condition known as haemolytic disease of the fetus and newborn (HDFN). In severe cases, HDFN can be life-threatening. However, early detection and treatment can significantly reduce the risk of serious health complications for the child.

As part of the PSIE programme, all pregnant women are screened around the 12<sup>th</sup> week of pregnancy for the presence of blood group antibodies. In week 27, some women – those with certain blood types and who did not have antibodies in the initial test – are offered a repeat screening. This is because women with certain blood types carry a risk of developing antibodies later in pregnancy, which can still pose a danger to the unborn child.

In the Netherlands, third trimester screening has been offered since 2011 to pregnant women who are Rhesus c-negative, following a recommendation from the Health Council of the Netherlands. Now that more than a decade of experience with this policy has been gathered, the Ministry of Health, Welfare and Sport has asked the Health Council of the Netherlands whether third trimester screening should continue in its current form or be limited to women in their second and subsequent pregnancies. This question has arisen because late antibody formation is extremely rare during a first pregnancy. The Health Council's permanent committee on Preconception, Prenatal and Neonatal Screening has reviewed the matter.



### **Continued third trimester screening advised**

The committee advised continuing third trimester screening for blood group antibodies in Rhesus c-negative pregnant women, citing substantial health benefits for the child and minimal disadvantages.

Available scientific evidence shows that third trimester screening has effectively reduced the number of severe cases of HDFN and its long-term complications from an average of one per year to zero. Early detection also leads to less invasive and less burdensome treatments, as cases are identified and managed shortly after birth.

The main disadvantage of third trimester screening is that some women may give birth in a hospital setting or undergo labour induction when, in hindsight, it might not have been medically necessary. Since the introduction of this repeat testing, this has occurred in approximately four cases per year. However, the committee concluded that the health benefits clearly outweigh this disadvantage, and therefore assessed the risk-benefit ratio of third trimester screening as favourable.

In addition, the cost per additional year of life in good health gained through this screening remains below the €50,000 threshold. On this basis, the committee also considers third trimester screening to be cost-effective.

### **Narrowing the target population for third trimester screening**

The committee also recommends narrowing the target population for third trimester screening to Rhesus c-negative pregnant women who have previously been pregnant. According to the committee, there are insufficient grounds for third trimester screening in women in their first

pregnancy, as the risk of developing serious HDFN due to late antibody formation during a first pregnancy appears to be very low. Based on the available data, no more than 15% of Rhesus c-negative pregnant women who tested positive for blood group antibodies during third trimester screening were possibly in their first pregnancy. In most cases, antibody levels suggested a low risk of HDFN.

By focussing third trimester screening on women who are more likely to benefit, the programme becomes more targeted and effective. This not only benefits individuals but also improves the already favourable benefit-risk ratio of the screening overall. The recommendation aligns with the reasoning put forward by the Health Council of the Netherlands in its 2009 advice. A further advantage of narrowing the target population is a significant reduction in the number of repeat tests performed each year, resulting in estimated cost savings of approximately €420,000 annually.

To implement this approach, selection will need to be based on self-reported information from pregnant women. The committee advises asking about any previous pregnancies, regardless of their duration, complications, or outcome. This method is expected to minimize the risk of overlooking a high-risk pregnancy.

### Monitoring and research

Finally, the committee recommends ongoing monitoring of the programme and continued research into the long-term benefits and potential disadvantages of blood group antibody screening, including repeat testing in the third trimester. It notes that shifting the repeat screening to week 30 of pregnancy could further increase health benefits. Future developments in the PSIE programme may make this adjustment feasible.

This publication can be downloaded from [healthcouncil.nl](https://healthcouncil.nl).

Preferred citation:

Health Council of the Netherlands. Third trimester screening for blood group antibodies in Rhesus c-negative pregnant women.

The Hague: Health Council of the Netherlands, 2025; publication no. 2025/11.

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