

Your Blood Group is RhD-negative

What does that mean for the care of you and your baby?



The National Maternity Hospital
Vita Gloriosa Vita – Life Glorious Life



This leaflet explains the standard of care given to pregnant women who have been identified as having an RhD-negative blood group. It explains the following:

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The information in this leaflet is not designed to replace the professional guidance provided by your clinician, hospital midwife or community midwife. Your clinician or midwife should explain your treatment plan (including alternatives) and associated risks, including risk of injury.

Please ask your doctor or midwife to explain any part of your treatment that you remain unsure of.

If you have a recommendation to receive Anti-D Immunoglobulin, you need to remember:

If you have an ACCIDENT (e.g. minor car accident or fall) or experience BLEEDING (vaginal bleeding) while you are pregnant then:

You must attend the Emergency Room in the NMH

Anti-D Immunoglobulin needs to be given within 72 hours of the event.

Why is it important to know your blood group?

When you attend hospital for the first time during your pregnancy you will have several blood samples taken. One is used to determine your blood group and check for antibodies; which is very important for the prevention of *Haemolytic Disease of the Fetus and the Newborn* (HDFN). Your blood will be typed for the most clinically important groups: the ABO blood groups (O, A, B or AB) and the RhD blood group (RhD-positive or RhD-negative).

If you are RhD-negative you can potentially develop anti-D, an antibody your body can make against RhD-positive red blood cells (RBCs). Anti-D is the most clinically significant red blood cell antibody involved in HDFN.

Women who are RhD-positive will not develop anti-D.

Haemolytic Disease of the Fetus and Newborn

Haemolytic Disease of the Fetus and Newborn, is a condition that can affect the blood of a fetus or a new-born baby. You may hear it being called Rhesus Disease.

HDFN can happen where there is an incompatibility between the blood groups of a mother and her unborn baby. The mother can make substances called antibodies that attack the baby's RBCs.

This is important when a RhD-negative mother is carrying a RhD-positive baby. If any of the RhD-positive baby's RBCs get into the blood of a RhD-negative mother, her immune system may recognise the baby's RhD-positive RBCs as 'foreign' and produce anti-D.

The anti-D can cross from the mother's blood into the baby's blood (still in the womb), and destroy the baby's RBCs. This destruction causes anaemia, jaundice and in severe cases brain damage or even death. This can happen in the womb or after delivery.

Normally the first pregnancy is not affected. However, the antibodies remain in the mother's blood and they may damage the RBCs of subsequent babies (who have the same blood group as the first baby).

Anti-D Prophylaxis

The development of anti-D in women who are RhD-negative can be prevented. This is done by injecting RhD-negative women with Anti-D Immunoglobulin (Rhopylac™). This Anti-D Immunoglobulin stops women developing anti-D, even though her baby's RhD-positive RBCs have entered her blood.

This has been done in many countries since the 1960s. At the National Maternity Hospital, Anti-D Immunoglobulin is offered under three situations:

- **Antenatal Anti-D Prophylaxis:** Anti-D Immunoglobulin is given in response to a recognisable event (known as a Potential Sensitising Event; PSE) that could result in your baby's RBCs going into your blood (e.g. trauma, vaginal bleeding). Anti-D Immunoglobulin must be given each time you have a PSE. *Anti-D Immunoglobulin should be given within 72 hours of the PSE.*
- **Routine Antenatal Anti-D Prophylaxis:** A dose of Anti-D Immunoglobulin is given at 28-weeks gestation. This is called Routine, as it happens whether or not there is any recognisable PSE. It is designed to catch PSEs that you were not aware of.
- **Postnatal Anti-D Prophylaxis:** When your baby is born, and is confirmed RhD-positive you will be given more Anti-D Immunoglobulin. *Anti-D Immunoglobulin should be given within 72 hours of delivery.*

Anti-D Immunoglobulin and Associated Risks

Anti-D Immunoglobulin is made from human plasma, collected from carefully selected donors. The donors are screened for specific markers of infectious agents including HIV, HBV and HCV. However, as with all human-derived medicines, the possibility of transmitting infective agents cannot be totally excluded.

You may experience some soreness at the injection site. This is common and can last from a few hours to a day or two. Less commonly you may experience a mild fever, headache or rash. Very occasionally women can experience an allergic reaction to anti-D injections.

Anti-D Immunoglobulin will not harm your baby in any way. If you have any concerns, please speak to your midwife or doctor.

Does every RhD-negative pregnant women need to get Anti-D?

The answer is no. Only pregnant RhD-negative women who are carrying an RhD-positive baby need to get Anti-D Immunoglobulin.

At the National Maternity Hospital approximately 40% of pregnant RhD-negative women carry an RhD-negative baby and therefore do not need Anti-D Immunoglobulin at anytime during their pregnancy

The National Maternity Hospital has introduced a system of targeted Anti-D Prophylaxis, where the RhD blood group of your baby will be determined at either your Booking Visit (if you are known to be RhD negative) or if of unknown group you will be invited to re-attend for the test. This allows Anti-D Immunoglobulin to be given only to those women who require it.

How will your unborn baby's RhD blood group type be determined?

When you are pregnant, a small amount of your baby's DNA can be found in your blood. This is known as cell-free fetal DNA (cffDNA). By testing this cffDNA from your blood, it is possible to determine the unborn baby's RhD blood group, in a very safe way. The test is called the Fetal *RHD* Screen (sometimes it is referred to as Fetal Genotyping or Noninvasive Prenatal Diagnosis for *RHD* (NIPD-*RHD*)).

You should have the Fetal *RHD* Screen, even if you carry more than one baby. If at least one of your babies is RhD-positive you will need anti-D.

Testing will be carried out by the Blood Group Genetics Laboratory, at the Irish Blood Transfusion Service.

If your RhD type is already known to be RhD-negative, from a previous pregnancy, then a blood sample will be taken at your Booking Visit (provided you have reached at least 11 weeks of pregnancy).

If it is your first pregnancy, then your blood group will be determined first; if you are RhD-negative, then you will be asked to return to another clinic, for a second sample to be taken to perform the Fetal *RHD* Screen.

Test Result: Baby is RhD-positive

If the test identifies your baby as being RhD-positive, then it is recommended that you receive Anti-D Immunoglobulin.

If a RhD-positive result is obtained for your baby, a report will be issued.

Due to the biology of *RHD*, approximately 2% of these babies will actually be RhD-negative. However, if there was no DNA testing performed all RhD-negative women would be offered Anti-D Immunoglobulin. The injection will not harm your baby.

Test Result: Baby is RhD-negative

If the test identifies your baby as being RhD-negative, then it is recommended that you do not receive Anti-D Immunoglobulin.

If a RhD-negative result is obtained for your baby, a report will be issued only when gestation is ≥ 11 -weeks.

If the Fetal *RHD* Screen suggests that your baby is RhD-negative, but the sample was taken at <11 weeks gestation; then the result issued will be Inconclusive, with a request for a repeat sample to be taken after 11 weeks gestation. Anti-D Immunoglobulin will be recommended until the RhD-negative result can be confirmed.

Test Result: Inconclusive

If the test gives an Inconclusive result, you will be offered Anti-D Immunoglobulin.

There is no risk to your baby. Inconclusive results are generally due to technical reasons. A repeat sample will be required 2-4 weeks later, in order to re-test.

Test Accuracy

The Fetal *RHD* Screen is a very accurate test, capable of detecting very small amounts of your baby's DNA. However, there is a very small chance (0.1%) that your baby might be found to be RhD-positive at birth (even though the test said RhD-negative). You will be given Anti-D Immunoglobulin at birth.

There is a risk of producing anti-D if you do not get Anti-D Immunoglobulin, due to an incorrect RhD-negative test result. About

1% of RhD-negative women will develop anti-D, if they miss their Anti-D Immunoglobulin at 28-weeks' gestation (but do receive it at delivery). When you get Anti-D Immunoglobulin at both 28-weeks' gestation and at birth, then this falls to 0.35%.

Please Note: The result applies to the current pregnancy only. The test should be repeated in each pregnancy.

Receiving Anti-D Immunoglobulin (or not) is your choice

You can ask to receive Anti-D Immunoglobulin, even if the Fetal *RHD* Screen result predicts that your baby is RhD-negative.

Similarly you can ask not to receive Anti-D Immunoglobulin, even if the Fetal *RHD* Screen result predicts that your baby is RhD-positive.

Your midwife or doctor will help you understand the implications of the result from the Fetal *RHD* Screen and will discuss your treatment options.

What Happens if you Attend a Different Hospital in Ireland?

All hospitals in Ireland will give Anti-D Immunoglobulin for potentially sensitising events and at birth. However, not every hospital in Ireland has a RAADP program.

Also currently not all hospitals send samples for the Fetal *RHD* Screen test. They may not be familiar with the result and the implications of the result.

It is possible that if you attend a different hospital, they may want to give you Anti-D Immunoglobulin, even if your baby is RhD-negative. Please show them your Fetal *RHD* Screen result and this leaflet. You may wish to ask them to ring and talk to your midwife or doctor at the National Maternity Hospital.

Further Information

If you have any questions about the information in the leaflet, or if you have any other concerns, please discuss these with your doctor or midwife.

Both the National Maternity Hospital and the Irish Blood Transfusion Service keep records of all tests results.

The National Maternity Hospital and the Irish Blood Transfusion Service retains these for a period of 30 years. (as required by EU Directive 2002/98/EC).

Both the National Maternity Hospital and the Irish Blood Transfusion Service are subject to, and comply with, Data Protection Acts 1988 and 2003.

The Irish Blood Transfusion Service will retain plasma from each sample, for the duration of the pregnancy and a period of up to 8 weeks after delivery. This is to allow investigation of any discrepant results identified at birth. If not required all plasma will be discarded after this time.

For More Information on your care at the National Maternity Hospital:

Phone: +353-1-6373100

Web: www.nmh.ie

For More Information on technical aspects of the Fetal RHD Screen:

Visit: www.giveblood.ie/Clinical-Services/Blood-Group-Genetics/Our-Tests/Fetal-RHD-Screen-cffDNA/

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