

**Guidance on  
the use of  
routine  
antenatal  
anti-D  
prophylaxis for  
RhD-negative  
women**

May 2002

Further information on NICE, and the full guidance issued to the NHS is available on the NICE website ([www.nice.org.uk](http://www.nice.org.uk)).

The guidance can also be requested from 0870 1555 455, quoting reference N0091.

If you have access to the Internet and would like to find out more about anti-D prophylaxis visit the NHS Direct website: [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk) If you would like to speak to NHS direct please call them on 0845 46 47.

This leaflet is also available in Welsh, (Ref no. N0094).

**Mae'r daflen hon hefyd ar gael yn Gymraeg (rhif cyfeirnod N0094).**

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**Further  
information**

The healthcare professional should discuss the situations where anti-D prophylaxis would be neither necessary nor cost effective. Such situations might include those where a woman:

- has opted to be sterilised after the birth of the baby
- is in a stable relationship with the father of the child, and it is certain that the father is RhD negative
- is certain that she will not have another child after the current pregnancy.

You should be offered RAADP even if you have already had AADP for a potentially sensitising event earlier in your pregnancy. You should be offered postnatal anti-D prophylaxis whether or not you have had AADP or RAADP.

NICE recommends that high-quality information, which has been produced and checked at a national level, should be available to RhD-negative women and the relevant healthcare professionals.

If you are pregnant and RhD-negative then you can discuss this advice with the midwife, obstetrician or GP at your next appointment.

Yes. The guidance will be reviewed in March 2005.

**What has NICE  
recommended  
about the use  
of anti-D  
prophylaxis?**

This NICE guidance covers only RAADP (that is anti-D prophylaxis given routinely usually at weeks 28 and 34 of pregnancy). It does not cover AADP or postnatal anti-D prophylaxis – both of these types of anti-D prophylaxis are covered by the Royal College of Obstetricians and Gynecologists' 'Green Top' 1999 guideline: Use of Anti-D Immunoglobulin for Rh Prophylaxis.

NICE has made the following recommendations about RAADP.

If you are pregnant and are RhD negative you should be offered RAADP if you have not already been 'sensitised', this means that you have already have antibodies to the D antigen in your blood that can be detected by a blood test at the beginning of your pregnancy.

If you are pregnant and are RhD-negative, your midwife, obstetrician or GP (that is whoever is responsible for your antenatal care) should discuss RAADP with you and explain the options available so that you can make an informed choice about treatment. The difference between RAADP and AADP should be clearly explained to you.

**What should I  
do?**

**Will NICE  
review its  
guidance?**

## What is NICE guidance?

The National Institute for Clinical Excellence (NICE) is a part of the NHS. It produces guidance for both the NHS and patients on medicines, medical equipment, diagnostic tests and clinical and surgical procedures and where they should be used.

When the Institute evaluates these things, it is called an appraisal. Each appraisal takes around 12 months to complete and involves the manufacturers of the drug or device, the professional organisations, and the groups who represent the people that the guidance concerns.

NICE was asked to look at the available evidence on routine antenatal anti-D prophylaxis and provide guidance that would help the NHS in England and Wales decide where it should be used in rhesus (RhD)-negative women.

The rhesus factor is found in the red blood cells. People who are rhesus positive have a substance known as D antigen on the surface of their red blood cells – they are said to be RhD positive. People who are rhesus negative do not have the D antigen on their blood cells – they are RhD negative. Whether a person is RhD positive or RhD negative is determined by their genes – that is, it is inherited from a parent.

## What does RhD negative mean?

## Why does RhD status matter?

RhD status matters if a woman who is RhD negative becomes pregnant with a baby who is RhD positive. This can only happen if the baby's father is RhD positive – but not all children who have an RhD-positive father will be RhD-positive, because the father may have both RhD-positive and RhD-negative genes.

If any of the blood cells from an RhD-positive baby get into the blood of an RhD-negative woman, she will react to the D antigen in the baby's blood as though it is a foreign substance and will produce antibodies. This is not usually dangerous in a first pregnancy, but in later pregnancies the antibodies in the mother's blood can cross the placenta and attack the blood cells of an RhD-positive unborn baby. This can cause 'haemolytic disease of the newborn', which is also known as HDN. HDN can be very mild and only detectable by laboratory tests. But it can be more serious and cause the baby to be stillborn, severely disabled or to die after birth as a result of anaemia (lack of iron in the blood) and jaundice.

Each year in England and Wales there are about 62,000 births of RhD-positive babies to RhD-negative women.

## What is anti-D prophylaxis?

In England and Wales, about 500 babies develop HDN each year, and must be closely monitored. Each year about 25–30 babies die from HDN. About 15 children each year will have major permanent developmental problems as a result of HDN, and a further 30 will have minor developmental problems.

The most common time for a baby's blood cells to get into the mother's blood is at the time of birth. But it can happen at other times, for example during a miscarriage or abortion, or if something happens during the pregnancy such as having an amniocentesis, chorionic villus sampling, vaginal bleeding or external cephalic version (turning the baby head down). An event that could cause the mother to produce antibodies against the D antigen is called a 'potentially sensitising event'.

Prophylaxis is the word given to a medicine that is used to prevent something happening. Anti-D prophylaxis means giving anti-D immunoglobulin to prevent a woman producing antibodies against RhD-positive blood cells and so to prevent the development of HDN in an unborn baby. Anti-D immunoglobulin is made from a part of the blood called plasma

that is collected from donors. The production of anti-D immunoglobulin is very strictly controlled to ensure that the chance of a known virus being passed from the donor to the person receiving the anti-D immunoglobulin is very low – it has been estimated to be 1 in 10,000 billion doses.

Routine antenatal anti-D prophylaxis (RAADP) is given by injection to pregnant women who are RhD-negative usually at weeks 28 and 34 of their pregnancy. After the birth, a blood sample will be taken to test the baby's blood group. If the baby is RhD positive, a mother who is RhD negative will be given a further injection of anti-D immunoglobulin – this is known as postnatal anti-D prophylaxis and is not the subject of this NICE guidance. If an RhD-negative woman has a potentially sensitising event during the pregnancy she will be offered anti-D prophylaxis at the time of the event: this is known as antenatal anti-D prophylaxis or AADP.

Occasionally anti-D prophylaxis causes allergic responses in the mother, but these are rare.