

# Red Cell Antibody Testing



## 1. Purpose

This document outlines the guidelines and procedure details required for the testing of the presence and type of red cell antibodies during pregnancy.

## 2. Definitions

Not applicable.

## 3. Responsibilities

**Clinicians (medical and midwifery staff)** responsible for the testing of the presence and type of red cell antibodies during pregnancy should follow this guideline.

## 4. Guideline

A blood sample is taken from all pregnant women at their first antenatal visit in order to:

- test for the presence of red blood cell antibodies
- establish ABO and Rh D blood group types

If red cell antibodies are not detected, a repeat blood sample for the same tests is required in the third trimester, generally at 26 weeks gestation. Women who are known to be Rh Negative should have their testing performed through the Women's and Children's pathology service onsite.

A very small number of women are found to have antibodies which are more likely to affect the baby, e.g. Rh anti-D, anti-c and anti-K. More frequent blood samples will be necessary if these antibodies are present, or if there is any other cause for concern regarding the baby's wellbeing.

### 4.1 *The objectives of testing in pregnancy*

The objectives of routine blood group and antibody testing in pregnancy are to:

- identify Rh D negative women who would then require anti-D immunoglobulin prophylaxis
- detect and identify red blood cell antibodies
- identify pregnancies at risk of fetal and neonatal haemolytic disease resulting from clinically significant maternal antibodies crossing the placenta and entering the fetal circulation
- to identify antibodies which may be relevant to the safe provision of blood should it be required for transfusion.

### **When clinically significant red blood cell antibodies are present during pregnancy, follow-up antibody testing is necessary to:**

- identify a fetus that may require treatment before term
- predict which infants might require treatment and should be monitored closely after birth
- detect and identify new antibodies, as those who develop one antibody are more likely to develop additional antibodies.

If an antibody is confirmed and is of clinical significance to the fetus, the antibody will be quantified or titrated and follow-up tests performed.

### **The follow-up investigations are:**

- monitoring maternal red blood cell antibody levels
- identifying possible additional antibodies
- red blood cell phenotyping and genotyping (DNA analysis) of the father when necessary
- fetal genotyping (DNA analysis) if required.

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## 4.2 Guide to routine red cell antibody screening

The results of the 1st screen at booking, guides the management pathway (see table below):

- those women with any Group 1 or Group 2 antibodies detected are to be referred to the MFM Consultant within the team for advice/ ongoing care
- Women with Group 3 antibodies can continue routine care. They require a group and antibody screen prior to caesarean birth, induction of labour or on admission to birth suite to facilitate safe blood provision should it be required.
- Women with no antibodies detected can continue routine care.
- Women whose blood group result is Rh D negative may be eligible to receive RhD Immunoglobulin.

Any concerns or queries should be raised with the on-call haematologist. Refer to CPG: [Anti D Immunoglobulin Use in Maternity Patients](#)

Testing for All Women at Pregnancy Booking Clinic	
Group and Antibody screen	
No Antibodies Detected	Antibodies Detected
Repeat antibody screen on all women at 26 weeks gestation- visit at the Royal Women's Hospital or Community Clinics	<p>If the Antibodies are:</p> <p><b>Group 1 antibody:</b> (-D, -c, -E, -e, -C, -Fy<sup>a</sup>, -K, -k)</p> <p><b>OR</b></p> <p><b>Group 2 antibody:</b> (-C<sup>w</sup>, -Fy<sup>b</sup>, -Jk<sup>a</sup>, -Jk<sup>b</sup>, -JK<sup>3</sup>, -S, -s, -M, -Ge<sup>a</sup>)</p> <p><b>OR</b></p> <p><b>Previous history of infant affected by HDN</b></p> <p>Refer to MFM consultant for advice/ pregnancy management.</p>
	<p><b>Group 3 antibody detected</b> (-P1, -N, -H, -Le<sup>a</sup>, -Le<sup>b</sup>, -Le<sup>a+b</sup>, -Sd<sup>a</sup>, -HLA)</p> <p>Patient will require early group and screen when they come into labour or for CS</p>

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## 5. Evaluation, monitoring and reporting of compliance to this guideline

- Critical/notifiable results: when testing is performed at the RWH blood bank, a new group 1 antibody, or a two-fold rise in titre of a group 1 or 2 antibody will be phoned to the requesting clinician or team registrar.
- Management plans for women with clinically significant antibodies are reviewed at the monthly alloimmunisation group meeting.

## 6. References

Guidelines for Blood Grouping and antibody screening in the antenatal and perinatal setting, 3<sup>rd</sup> edition March 2007. Australian and New Zealand Society of Blood Transfusion Ltd.

## 7. Legislation/Regulations related to this guideline

Not applicable.

## 8. Appendices

Not applicable.

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