Anti-D prophylaxis

Target audience	Maternity staff in NHS Lanarkshire
Patient group	Pregnant women in NHS Lanarkshire

Summary

This guideline is for all staff involved in authorising, supplying and administering anti-D immunoglobulin (Ig) throughout NHS Lanarkshire (NHSL). It should be used in conjunction with the NHSL Clinical Blood Transfusion Policy. The aim of the Clinical Transfusion Policy is to ensure that the correct blood component or blood product is given to the correct patient at the correct time, every time.

This guideline focuses on those D negative pregnant individuals who have a requirement for anti-D Ig and it aims:

- To provide healthcare professionals with clear guidelines on when anti-D Ig is required
- To outline the process of notification to the Hospital Transfusion Laboratory (HTL), of individuals requiring anti-D Ig
- To outline how this information will be disseminated between maternity teams
- To outline how errors should be reported if they arise.

Advice on anti-D Ig may be obtained from:

- Biomedical Scientist (BMS) staff in the HTL
- haematology and obstetric medical staff
- transfusion practitioner.

Contents

Lead author	S Maharaj	**Date approved**	13/8/25
Version	9	**Review date**	13/8/25

Introduction

Anti-D antibodies develop following fetomaternal haemorrhage in D negative individuals carrying a D positive fetus. Maternal sensitisation is rare before 12 weeks of gestation. The post-delivery immunoprophylaxis programme introduced in 1969 has resulted in a dramatic decline of deaths due to alloimmunisation.

Intramuscular anti-D immunoglobulin (Ig) should be given to D negative individuals within 72 hours of a potentially sensitising event (PSE) but doses given up to 10 days may still provide some protection and administration should be considered in these circumstances. Individuals who are already sensitised (i.e. have circulating anti-D antibodies) should not be given anti-D Ig.

As of 13/8/25, NHSL will issue Rhophylac 1500 units for all events where anti-D Ig is required (a small stock of D-Gam 500 units will be held for those individuals that have an intolerance for Rhophylac 1500 units).

The full dose/vial of Rhophylac 1500 units must be administered.

1500 units of anti-D Ig is capable of suppressing immunisation of up to 12ml of D positive red cells. Intramuscular anti-D Ig is best given into the deltoid muscle.

These guidelines should be followed irrespective of whether RAADP is due or has been recently given. Contact the Hospital Transfusion Laboratory (HTL) at UHW if there is any doubt (extension 7261/7262).

Anti-D Ig usually lasts up to 6 weeks. For repeated PSE's a Kleihaeur should be performed at every PSE and further anti-D administered as recommended by the HTL.

Anti-D is a blood product and carries a small theoretical risk of localised or generalised allergic reaction.

It is extracted from donor blood, and although blood donors are carefully screened for transmissible infections, there is always a small risk of blood-borne infections.

An electronic patient information leaflet (PIL) is currently in the BadgerNet PIL library for eligible D negative individuals. The PIL (NATL 405) can be ordered as a hard copy from UHW Central Stationery Stores by the healthcare teams for those unable to access the electronic version.

Pregnancy loss

Spontaneous complete miscarriage and termination of pregnancy:

- **Under 12+0 weeks of gestation** – Rhophylac 1500 units anti-D Ig is only required for medical intervention beyond 10+0 weeks of gestation. If, however, they have a surgical intervention, Rhophylac 1500 units anti–D Ig should be administered whatever the gestation.

- **12+0 weeks of gestation onwards** – Rhophylac 1500 units anti-D Ig should be given to all non-sensitised D negative individuals who have had a spontaneous complete or incomplete miscarriage. This applies to those undergoing medical and surgical management.

Medical management of miscarriage and therapeutic termination of pregnancy:

- **After 10+0 weeks of gestation** - Rhophylac 1500 units should be administered (World Health Organisation – Abortion Care Guideline 2022).

Threatened miscarriage:

- **Under 12+0 weeks of gestation** – Anti-D Ig is not required for medical management. Anti-D should be considered if there is heavy or repeated bleeding or associated abdominal pain as gestation approaches 12+0 weeks. Gestational age should be confirmed by ultrasound. If, however, they have a surgical intervention, Rhophylac 1500 units anti–D Ig should be administered whatever the gestation.

- **12+0 weeks of gestation onwards** – Rhophylac 1500 units anti-D Ig should be given to all non-sensitised D negative persons with a threatened miscarriage.

Pregnancy of unknown location:

- Anti-D Ig is not required for medical management.
- However, Rhophylac 1500 units anti-D Ig should be administered if surgical intervention is required.
- Once an ectopic pregnancy, miscarriage or pregnancy of unknown location is confirmed and treatment commenced, anti-D Ig should be given to all D negative non-sensitised persons if there has been surgical intervention.
- A Kleihauer test is not required.

Therapeutic termination of pregnancy (TOP):

- Rhophylac 1500 units anti-D Ig should be given to all non-sensitised D negative persons if they are having a surgical TOP, regardless of gestation.

- For TOPs after 20 weeks, Rhophylac 1500 units anti-D Ig should be administered and a Kleihaeur test performed.

Potentially sensitising events (PSE's)

Anti-D Ig should be given to all non-sensitised D negative individuals following (see appendix 2):

- when a needle test is done through the abdomen during pregnancy e.g., amniocentesis, chorionic villus sampling, intrauterine transfusion/surgery/laser
- other invasive procedures e.g. embryo reduction, insertion of shunts, intrauterine transfusion (IUT)
- antepartum haemorrhage
- external cephalic version
- if the abdomen is bumped or injured e.g. in a road traffic accident or a fall directly onto the abdomen
- pregnancy loss (complete or incomplete miscarriage) – please see specific guidance on page 4 under “Pregnancy loss”
- termination of pregnancy (abortion) – please see specific guidance on page 4 under “Pregnancy loss”
- recurrent PV bleeding with an ongoing pregnancy
- surgical management of ectopic or molar pregnancy
- intrauterine death - administer anti-D within 72 hours of IUD diagnosis (regardless of aetiology), with individuals receiving the post-natal dose as well (if undelivered at first dose)
- transabdominal cerclage
- cervical or abdominal surgery
- delivery of a D positive baby
- intra-operative cell salvage

Recurrent bleeds due to threatened miscarriage

<12+0 weeks of gestation

- Anti-D is not necessary in individuals with threatened miscarriage with a viable fetus where bleeding completely stops before 12 weeks of gestation, unless bleeding is unusually heavy and/or is associated with abdominal pain.

12+0–19+6 weeks of gestation

- Rhophylac 1500 units anti-D Ig should be given at a minimum of 6 weekly intervals. Further doses should only be given after consultant review.

20+0 weeks of gestation onwards

- Rhophylac 1500 units anti-D Ig should be given at a minimum of 6 weekly intervals. For recurrent bleeds, a Kleihaeur should be performed and further anti-D administered as recommended by the HTL. See below for details on Kleihauer testing.

PSEs should be considered separate events in individuals who are already having recurring APH. They should then have Kleihaeur testing and anti-D Ig.

Patients attending maternity triage

Following a PSE, a G&S sample will be sent to the lab for analysis. Anti-D Ig may be issued at this point. If patients request to go home, there is a small risk they may fail to re-attend for anti-D Ig within the 72-hour period. In order to reduce the potential for late or missed anti-D Ig administration, use the red 1-hour, rapid anti-D label and call the HTL to discuss. The lab will endeavour to issue the anti-D Ig within 1 hour or will advise if this is not possible due to workload.

If the patient has gone home, mark the anti-D book located in maternity triage which allows follow-up the next day. Calls should be made to the patient advising of the need to attend. If the patient fails to attend, inform the lab who will update their system to record “failure to attend”.

Kleihauer testing

This is not available under 20+0 weeks of gestation but should be considered if bleeding is particularly heavy, or the procedure considered traumatic. Discuss with the HTL.

Routinely after 20+0 weeks of gestation, a Kleihauer should be requested following a PSE and at delivery of a D positive baby in order to assess the extent of any fetomaternal haemorrhage and ensure sufficient anti-D Ig has been administered. When the Kleihauer indicates a bleed > 2ml, the appropriate additional dose of anti-D Ig (as calculated by the lab) should be administered within 72 hours.

Repeat Kleihauer should be undertaken after 72 hours of final dose to determine if a further dose of anti-D Ig is required.
Rarely, there is a massive feto-maternal haemorrhage requiring a large volume of anti-D Ig.

In such circumstances **intravenous administration** of anti-D may be appropriate.

Intravenous (IV) anti-D Ig administration has been shown to be more efficacious than intramuscular anti-D, however it is only the commercially available anti-D preparation Rhophylac that is currently licensed and available in the UK for intravenous administration.
Always seek advice prior to IV administration.

Administration in women with BMI≥30:
The supplier of Rhophylac has amended their wording in that IV administration should be considered (previously worded as recommended) in these individuals. It has been locally agreed that this cohort of patients will be administered anti-D Ig intramuscularly unless the FMH is >4ml.

The laboratory must always be informed when anti-D Ig is used intravenously to allow appropriate follow-up.

Postnatal anti-D

Cord bloods must be taken on all D negative individuals to establish the D status of the baby. Care must be taken to ensure the maternal and cord bloods are not swapped as repeat samples will be required and will lead to delays to issue anti-D Ig.

Ensure that following delivery, an entry into BadgerNet exists, to ensure the result is followed up and anti-D given (only with the birth of a D positive baby) within 72 hours of delivery and before discharge.

If anti-D Ig is required after the birth of a D positive baby, Rhophylac 1500 units anti-D Ig will be issued. The lab will liaise with the healthcare team if more anti-D Ig is required.

If the baby's blood group is inconclusive or unable to be confirmed and anti-D Ig is not given within the recommended 72-hour window post event, anti-D is still effective if given within 10 days post-birth.

Routine Antenatal Anti-D Prophylaxis (RAADP)

There is good evidence that antenatal anti-D Ig prophylaxis achieves a significant reduction in the incidence of maternal sensitisation to D. RAADP has been shown to

reduce the risk of antenatal sensitisation incidence from 1% to 0.35% of pregnancies. However, it should be noted that there is a reported failure rate of 0.37% (NICE Technology Appraisal Guidance- No 41. May 2002. Revised August 2008 https://www.nice.org.uk/guidance/ta156).

- RAADP should be offered to all non-sensitised pregnant women who are D negative.
- RAADP use should not be affected by other antenatal anti-D prophylaxis earlier in pregnancy.
- If doubt exists, contact the Wishaw Blood Transfusion Laboratory for advice.

Once identified by booking bloods, the D negative non-sensitised patient should be given a Patient Information Leaflet (NATL-405) at the next visit, usually at 12 weeks of gestation. Document this in BadgerNet.

RAADP should be discussed at the next visit, usually at 16 or 22 weeks of gestation. If the person gives consent, this should be noted in the relevant section in BadgerNet.

Arrangements for ordering RAADP can then be made using a routine transfusion request form using the completed RAADP label. The label must clearly indicate date required. All D negative individuals are currently being asked to attend the Day Bed Assessment Unit, UHW to be administered their RAADP.

The intended date of RAADP administration should be clearly documented in the BadgerNet record

We recommend a single dose Rhophylac 1500 units at 28-30 weeks of gestation. Ensure patient samples have been taken to be sent to the HTL prior to the anti-D Ig being administered. (A maximum timeline of 7 days between patient sample and RAADP administration for samples taken in the community setting; 24 hours for inpatients regardless of reason for requirement).

Anti-D Ig will be dispatched from the laboratory on a NAMED patient basis only. For traceability purposes it is vital that the anti-D Ig is not used for any other patient. If not used, it must be returned to the lab with all the accompanying paperwork, including the blue/pink compatibility label. Mark the front of the brown envelope with reason for non-use, i.e. did not attend, patient refusal etc.

Anti-D Ig will be administered and recorded by the attending midwife. The usual checks should be done as per PGD practice.

<u>All documentation must be completed</u>:

- Complete and sign the pink label and affix to Kardex where prescribed. If not prescribed, ensure pink label is attached to a blank piece of paper with patient label attached so this can be sent to medical records.
- For all anti-D Ig administered please enter the details into BadgerNet using the anti-D tab (maternity staff administering RAADP will also ensure the pink sticker is sent to medical records for scanning into clinical portal).
- Complete and sign the blue tag (ensuring all details are clear and legible) and return to the laboratory.

Additional key points

- Inform the laboratory of impending anti-D Ig requirements in good time to ensure there is no delay in the issue and subsequent collection of RAADP (please refer to appendices 3 & 4 for guidance). The date of patient's clinic attendance at Day Assessment Unit within the 28-30 week window should be clearly indicated.
- If there are any concerns, phone the Blood Transfusion laboratory at UHW on 01698 361100 ext. 7261 or direct dial 01698 366626.
- Patient Information Leaflets will be accessible via BadgerNet or the healthcare team.
- Rhophylac anti-D Ig must be kept refrigerated (2-8^{o}C) as per manufacturer's recommendations. It should be brought to room temperature before use (approximately 1 hour). Rhophylac anti-D Ig should **never** be returned to the fridge but should be returned to the HTL for discarding if removed from controlled storage and unused.
- RAADP should still be offered even if the individual recently had anti-D Ig, for clinical reasons such as a new PSE or recurrent APH. Contact the HTL if there is any doubt.
- All learn blood transfusion (LBT) modules, including the anti-D module, will be available via TURAS and LearnPro. The anti-D module should be completed prior to the member of staff being involved in this aspect of the individual's care. To maintain transfusion training compliance, all relevant modules should be completed prior to participating in any part of the transfusion process and must be revalidated every 2 years.
- Individuals who have been administered RAADP may demonstrate anti-D antibodies for many weeks, even up to delivery. We, therefore, do not recommend that blood be taken for routine G&S after administration of RAADP.

Late or missed administration of anti-D

- Anti-D Ig must be given prophylactically between 28-30 weeks of gestation and within 72 hrs of a PSE or delivery of a D positive baby.
- Failure to do this requires submission of an InPhase which requires subsequent reporting to Serious Hazards of Transfusion (SHOT). The adverse event must be fully documented by the staff involved. A full investigation and report will follow to ensure learning and preventative actions are put in place.
- Anti-D Ig may still be beneficial when given up to 10 days post event.
- If missed at 28-30 weeks, RAADP should be considered up to delivery.
- If missed following a PSE, anti-D can still be administered up to 10 days.
- The named consultant should be notified of any patient with missed or late administration and this should be documented. The blood bank will send a request for follow up samples to be taken within 6 months of delivery for antibody screening.

References

1. Joint Working Group of the British Blood Transfusion Society and the Royal College of Obstetricians and Gynaecologists. Recommendations for the use of Anti-D immunoglobulin for Rh prophylaxis. Transfusion Medicine 1999, 9: 93-97.
2. Routine antenatal anti-D prophylaxis for women who are rhesus D negative. NICE technology appraisal guidance 156 (2008).
3. RCOG Guideline No 22. Use of Anti-D immunoglobulin for Rh prophylaxis. Revised March 2011.
4. World Health Organisation – Abortion Care Guideline 2022. Clinical services Recommendation 8: Rh isoimmunization for abortion at gestational ages < 12 weeks (3.3.3) - Abortion care guideline.
5. NICE Technology Appraisal Guidance- No 41. May 2002. Revised August 2008.
6. (NICE 2019) Ectopic pregnancy and miscarriage: diagnosis and initial management. Clinical guideline [NG126] Published date: April 2019.
7. (BCSH 2014) BCSH guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the fetus and newborn. H. Quresh, E. Massey et al, First Published January 2014.

Appendix 1

NHS Lanarkshire Administration of Anti-D Immunoglobulin (Ig) for Potentially Sensitising Events (PSE) in D Negative Individuals Aide Memoire

Potentially Sensitising Events (PSE) in Pregnancy (see appendix 1)

Gestation less than 12+0 weeks

Samples Required - Group and Save* (G&S)

For the following PSEs administer Rhophylac 1500 units anti-D Ig within 72 hours of the event**

Termination of Pregnancy	Ectopic pregnancy, molar pregnancy and miscarriage
• Anti-D required for termination of pregnancy after 10+0 weeks gestation • Anti-D required for surgical termination of pregnancy/manual vacuum aspiration of pregnancy up to and including 10+0 weeks gestation • Anti-D **NOT** required for a medical termination of pregnancy up to and including 10+0 weeks gestation	• Anti-D required for surgical procedures to manage ectopic and molar pregnancies and miscarriage • Consider anti-D in non-sensitised D negative individuals if PV bleeding is recurrent, heavy and/or associated with severe abdominal pain • Anti-D **NOT** required solely for medical management of miscarriage/ectopic pregnancy • Anti-D **NOT** required for threatened miscarriage; complete miscarriage; or pregnancy of unknown location

Gestation 12+0 to 19+6 weeks

Samples Required – G&S*

For any PSE (appendix 1) administer Rhophylac 1500 units anti-D Ig within 72 hours of the event**

For continual uterine bleeding which is clinically judged to represent the **same sensitising event**, with no features suggestive of new presentation or suggestive change in pattern of severity of bleeding, Rhophylac 1500 units to be given at 6 weekly intervals.

Gestation 20+0 weeks to term

Samples Required – G&S* and Kleihauer Test

- For any PSE (appendix 1) administer Rhophylac **1500 units** anti-D Ig within 72 hours of the event (irrespective of whether RAADP been administered)**
- As above for continual uterine bleeding but must also have 2 weekly Kleihauer testing.

Routine Antenatal Anti-D Ig Prophylaxis (RAADP)

Samples Required – G&S* (must be taken prior to anti-D administration)

- Do not wait for Group and Save results before administering RAADP
- Administer Rhophylac 1500 units anti-D Ig at 28-30 weeks (irrespective of whether anti-D has already been given for PSE)**

At delivery ≥ 20 weeks

Samples Required	• **Maternal Samples – G&S* and Kleihauer Test***** • **Cord Sample – use CHI generated for baby and request G&S**

- If cord samples cannot be obtained, document on the maternal request form. The neonatologist must be contacted to obtain a newborn G&S from the baby. Every effort should be made to obtain a cord sample to avoid unnecessary invasive sampling of the baby.
- If the baby's blood group is confirmed as D Positive, administer Rhophylac 1500 units anti-D Ig within 72 hours of delivery**
- If the Kleihauer indicates further anti-D is required (≥12mls) please discuss with the blood bank. Send follow up Kleihauer Test 72 hours after additional dose if given IM and 48 hours if given IV until all fetal cells are cleared.

Intrauterine Death (IUD) ≥ 20 weeks

Samples required at diagnosis and post-delivery – G&S* and Kleihauer Test***

- Administer Rhophylac 1500 units anti-D Ig at diagnosis unless the patient presents in advanced labour
- Administer Rhophylac 1500 units anti-D Ig within 72 hours of delivery**
- If the Kleihauer indicates further anti-D Ig is required (≥12mls) please discuss with the blood bank. Send follow up Kleihauer Test 72 hours after additional dose if given IM and 48 hours if given IV until all fetal cells are cleared.

Please note that diagnosis and delivery of IUD are considered as 2 separate sensitising events - anti-D Ig should be given at diagnosis and after delivery as there could be variable and significant delay between the two events******

*Ensure request form has clinical details of PSE and gestation
**Confirm correct product batch number/expiry date, dosage and patient details with the compatibility label. Document date and time given.
***The Kleihauer sample should be taken when sufficient time has elapsed to allow fetal cells to be distributed in the maternal circulation following delivery or manual removal of the placenta. A period of 30-45 minutes is considered adequate.
****Blood Bank will issue anti-D Ig urgently when called or 1 hour turnaround sticker is applied to request form

Other Important Points:

- Individuals who are confirmed as having immune (allo) anti-D do not require anti-D Ig
- Following PSE (appendix 1) anti-D should be administered with 72 hours of the event. However, some protection may still be offered if the anti-D Ig is given up to 10 days of the event. After this, please contact the Consultant Obstetrician.
- Each new sensitising event should be managed with an additional dose of anti-D Ig regardless of timing or dose of anti-D that has been administered for a previous event
- If the presence of immune anti-D is suspected by the Blood Bank, this must be discussed with a Consultant Obstetrician to ensure appropriate follow up
- Individuals who decline anti-D or were not given anti-D must be documented in BadgerNet and discussed with a Consultant Obstetrician. Blood Bank should be informed that the dose of anti-D is no longer required
- Individuals with anomalous or indeterminate D typing should be treated as D negative until confirmatory testing is complete.

Appendix 1 Potentially Sensitising Events in Pregnancy

Evacuation of molar pregnancy	Recurrent vaginal bleeding	Surgical management of ectopic pregnancy
Antepartum haemorrhage/ PV (intrauterine) bleeding	Miscarriage, threatened miscarriage	Amniocentesis, chorionic villus biopsy and cordocentesis
External cephalic version	Intrauterine death and stillbirth	In-utero therapeutic interventions (transfusion, surgery, insertion of shunts, laser therapy for TTTS)
Abdominal trauma (blunt/sharp, open/closed, RTA)	Therapeutic termination of pregnancy	Delivery, normal, instrumental or Caesarean section
Cell Salvage	Abdominal cerclage	Evacuation of retained products of conception(ERPC)/ instrumentation of uterus/ Manual Vacuum aspiration

NHS Lanarkshire Overarching Transfusion Committee Aug 2025

Lead author	S Maharaj	Date approved	13/8/25
Version	9	Review date	13/8/25

Appendix 2

Anti-D Immunoglobulin (Ig) Ordering - Aide Memoire EPAS

D Neg individual identified as requiring anti-D Ig * (not required if already sensitised)

→ Ensure one valid G&S sample ** is resulted in laboratory information management system (LIMS)

→ Medic prescribes

→ Midwife/CSW calls ahead to blood bank and then delivers request for anti-D Ig to blood bank (may also be sent via pneumatic tube)

↓

Midwife/CSW contacts blood bank to enquire if anti-D Ig has been issued and ready for collection

← Blood collection slip is completed and taken to blood bank for collection of anti-D Ig

← Midwife/CSW returns to clinical area with correct dosage of anti-D Ig and is administered per protocol

← Pink sticker is attached to Kardex and blue tag is returned to the blood bank along with the yellow collection slip

***All staff involved in the administration of anti-D immunoglobulin (Ig) should ensure they have valid and current training which includes completing all units of the LBT: Anti-D module. This should be revalidated every two years.**

****All staff involved in the transfusion process should ensure they have valid and current training which includes completing all units of the LBT: Safe Transfusion Practice module. This should be revalidated every two years.**

Developed as part of NHSL Anti-D Guideline 12/05/25 version 1

Appendix 3

Anti-D Immunoglobulin (Ig) Ordering - Aide Memoire Women's Health Unit

NHS Lanarkshire

D Neg individual identified as requiring anti-D Ig * (not required if already sensitised)

Ensure one valid G&S sample ** is resulted in laboratory information management system (LIMS)

Medic prescribes

Nurse/CSW will deliver request (and sample if required) to the blood bank

Blood bank calls clinical area to let them know anti-D Ig is issued and ready for collection

Blood collection slip is collected from the clinical area by the porter who then attends blood bank

Porter returns to clinical area with correct dosage of anti-D Ig and is administered by registered staff per protocol

Pink sticker is attached to Kardex and blue tag is returned to the blood bank along with the yellow collection slip

*All staff involved in the administration of anti-D immunoglobulin (Ig) should ensure they have valid and current training which includes completing all units of the LBT: Anti-D module. This should be revalidated every two years.

**All staff involved in the transfusion process should ensure they have valid and current training which includes completing all units of the LBT: Safe Transfusion Practice module. This should be revalidated every two years.

Developed as part of NHSL Anti-D Guideline 12/05/25 version 1

Clinical governance

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Endorsing body:	Maternity Clinical Effectiveness Group
Version number:	9
Approval date:	13/8/25
Review date:	13/8/28

Consultation/distribution record	
Contributing authors:	Anti-D SLWG, S Maharaj, M Caldwell, H Daniels
Consultation process:	Maternity CEG, obstetric blood transfusion group, anti-D SLWG
Distribution:	All in maternity

Change record			
Date	**Lead author**	**Change**	**Version**
Jan 2005	D McLellan	Original	1
Jul 2007	S Maharaj	Routine update	2
Jan 2013	S Maharaj	Routine update	3
Jul 2017	S Maharaj	Routine update	4
Dec 2018	S Maharaj	Update following SHOT report	5
Jul 2020	S Maharaj	Update following SHOT report	6
Feb 2021	S Maharaj	Update following SHOT report	7
Jan 2025	S Maharaj	Local and national changes in practice	8
Aug 2025	S Maharaj	National change from D-Gam to Rhophylac	9