University Hospitals of Leicester NHS
NHS Trust

Department of Transfusion Medicine

BLOOD TRANSFUSION USER HANDBOOK VERSION 7

Changes from Version 3

- Changes to laboratory opening times
- Addition of Marie Browett and Malcolm Chambers to key staff list
- New requirements for timing of samples
- New requirements for completion of request forms
- Annual training including GMP update

Changes from Version 4

- Small changes in text and formatting

Changes from Version 5

- New laboratory opening times
- Site maps for blood bank locations
- Malcolm Chambers contact number changed to ext 4557
- Availability of Clinical advice
- ABO titres, Octaplex & Novoseven issue added to available tests
- Contact details for Northampton GH (antenatal testing)
- Contact details for Leeds (referral laboratory)
- Timings of pre-transfusion samples updated
- Transport of specimens (Health & Safety)
- Changes to Blood Transfusion Request form
- Reference to pink K28 Receipt form
- DMS document IDs added
- Hyperlinks to Transfusion policy and Integrated care pathway
- Patient consent updated
- Transport of blood and blood components
- New compatibility tags/ Orange Blood Fate Documentation Cards
- Transfusion reactions updated
- New blood transfusion Request form (appendix 1)

Changes from Version 6

- Inclusion of new laboratory contact details (p4)

Contents

Introduction

This handbook is intended to serve as a quick user guide to the services available from the University Hospitals of Leicester NHS Trust, Department of Transfusion Medicine. It is aimed for use by all staff groups involved with the process of blood transfusion.

The Blood Transfusion User Handbook does not replace the UHL Blood Transfusion Policy, which remains the primary source of comprehensive transfusion guidance in the Trust.

Useful Contacts Numbers

- Blood Bank Leicester Royal Infirmary: 0116 258 **6605**
- Blood Bank Leicester General Hospital: 0116 258 **4564**
- Blood Bank Glenfield Hospital: 0116 256 **3577**

Intranet access to our service information is also available at: http://insite.xuhl-tr.nhs.uk/homepage/clinical/clinical-directorates/clinical-support/clinical-support-services/pathology

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Hours of Business

Routine blood transfusion service:

- Monday – Friday 08:00 – 23:00 LRI
  08:00 – 20:00 LGH & GH
- Saturday 09:00 – 12:00 limited service ONLY

Blood Transfusion Laboratory Contact information			
	LRI	**GH**	**LGH**
Tel No	6605	3577	4564
8am to 8pm weekday	Phone	Phone	Phone
8am to 8pm weekend	Bleep	Bleep	Bleep
8pm to 8am	Bleep	Bleep	Bleep
Activation of Major Haemorrhage protocol via bleep at all times			

Massive haemorrhage:

- Contact the Blood Transfusion BMS by bleep via switchboard

For medical advice and authorisation of requests for coagulation products:

- Contact the appropriate Haematology Specialist Registrar or Consultant Haematologist via the UHL Hospital switchboard.

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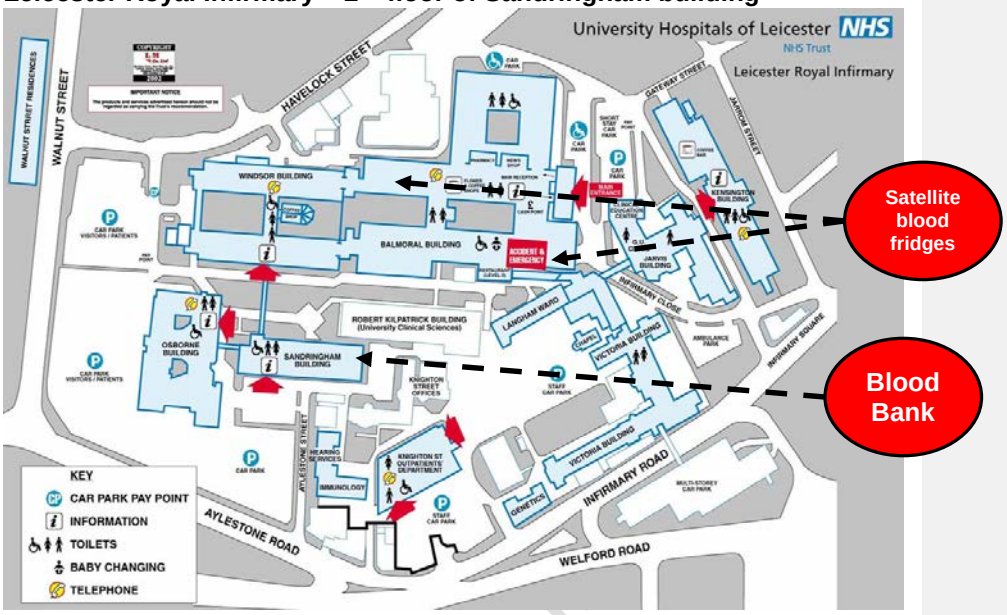
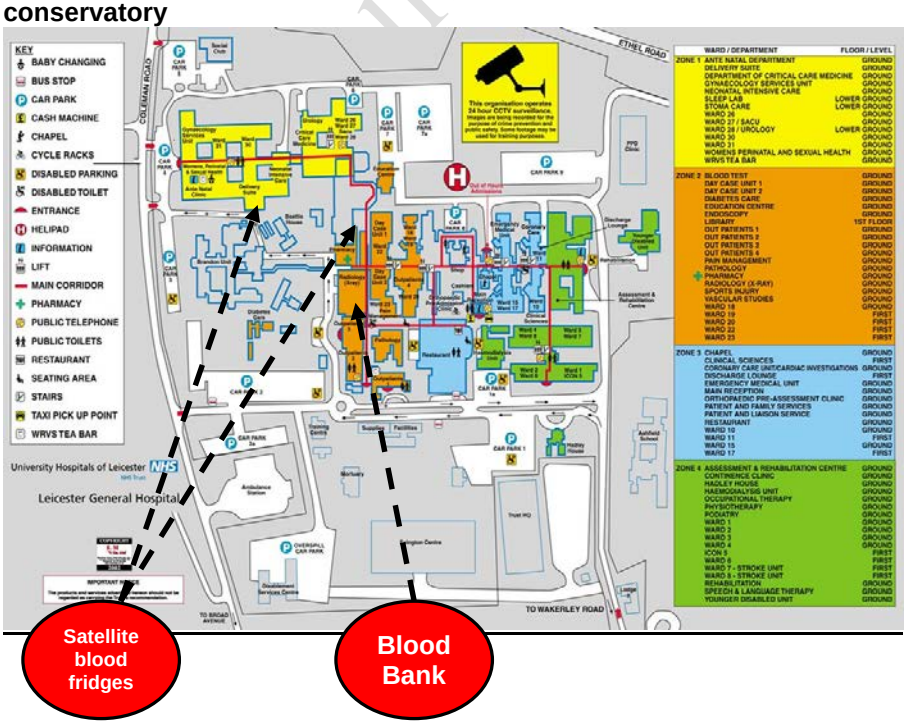
Location of Blood Transfusion Laboratories

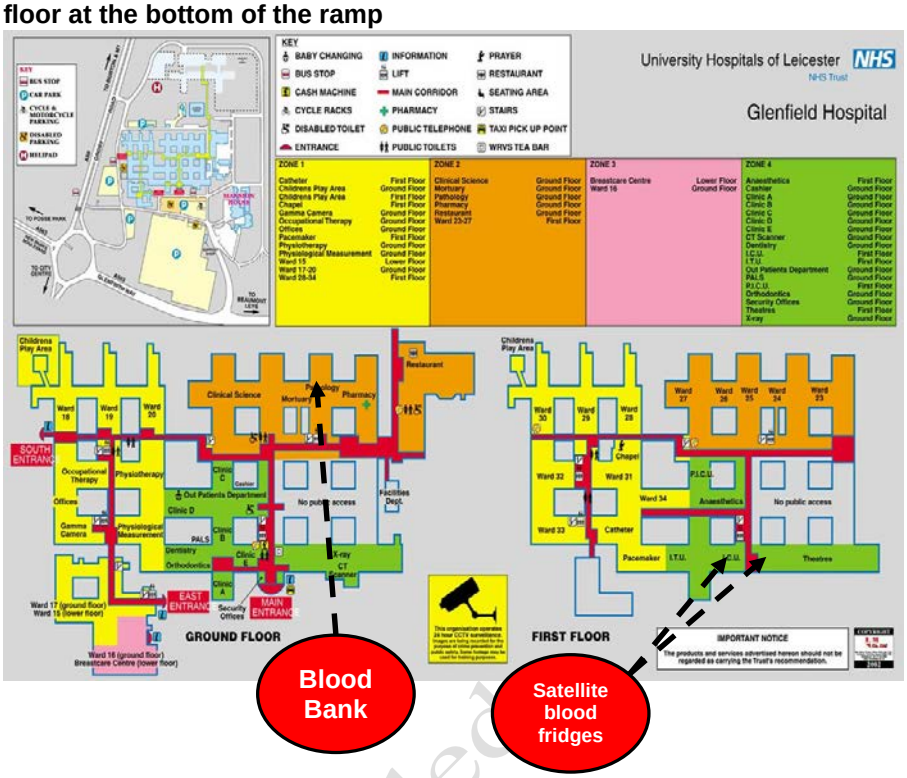
Leicester Royal Infirmary – 2nd floor of Sandringham building



Leicester General Hospital – entrance to pathology laboratories towards the end of the link corridor off the main corridor before the WRVS conservatory



Glenfield Hospital – entrance to Pathology Laboratories is on the ground floor at the bottom of the ramp



Key Staff

Jot Hyare	Service Manager, Blood Transfusion jot.hyare@uhl-tr.nhs.uk **Ext: 6604**
Gregg Byrne	Specialty Manager, Blood Transfusion gregg.byrne@uhl-tr.nhs.uk **Ext: 7944**
Amanda Gardner	Quality Manager, Blood Transfusion amanda.gardner@uhl-tr.nhs.uk **Ext: 7945**
Marie Browett	Lead Transfusion Practitioner marie.browett@uhl-tr.nhs.uk **Ext: 7876**
Pavlina Aneva	Transfusion Practioner pavlina.aneva@uhl-tr.nhs.uk **Ext: 3985**
Fiona Waller	Transfusion Practitioner fiona.waller@uhl-tr.nhs.uk **Ext: 4557**
Malcolm Chambers	Transfusion Practitioner malcolm.j.chambers@uhl-tr.nhs.uk **Ext:4557**
Dr. Hafiz Qureshi	Consultant in Transfusion Medicine hafiz.qureshi@uhl-tr.nhs.uk **Ext: 6612** Air Pager: 07699 613428
Pathology Duty Manager	**07961 729901**
Clinical Advice	Clinical advice relating to blood transfusion issues is available by contacting the on-call Haematology Registrars. An on-call Haematology Registrar is available 24hrs/day and can be contacted via switchboard

Available Tests

The Department of Transfusion Medicine provides a comprehensive range of blood transfusion services 'in house'. For requests outside our available range of tests, samples will be forwarded to an appropriate CPA accredited reference laboratory.

The following tests are performed within the Department:

Tests requested on 'Routine' blood transfusion request form - see Appendix 1:

- APTs test (used to identify the source of blood present in the stool, gastric contents or vomitus of newborns)
- Blood group (ABO and RhD)
- Red cell allo-antibody screen
- Red cell phenotyping
- Red cell crossmatch and issue- abbreviated
- Red cell crossmatch and issue- with IDC test
- Platelet issue
- Fresh frozen plasma / Octaplas issue
- Cryoprecipitate issue
- Albumin solution issue
- Novoseven issue can be issued on receipt for transfusion fluids form following telephone requests
- Octaplex issue (request form available on DMS)
- Red cell allo-antibody identification
- Direct antiglobulin test (DAT) / Direct coombs test (DCT)
- AIHA investigations
- Cold red cell agglutinin screen
- ABO antibody Titres

Tests requested on gold 'Kleihauer' request form - see Appendix 2:

- Foetal/maternal haemorrhage estimation
- Request for prophylactic anti-D immunoglobulin issue - at delivery
- Request for prophylactic anti-D immunoglobulin issue - other

Tests requested on pink 'K28' Receipt Form- see Appendix 3:

- Retrospective issue of prophylactic anti-D immunoglobulin at 28 weeks gestation

Please note Antenatal testing is not performed by Blood Transfusion UHL. Any queries regarding antenatal testing can be made by contacting the Northampton General Hospital Blood Transfusion Department

Northampton General Hospital NHS Trust
Cliftonville
Northampton
NN1 5BD

Tel: Antenatal Testing 01604 523303

The following tests are referred to the National Blood Service (NBS):

Unless specifically agreed all specimen should initially be sent to the blood transfusion lab for forwarding to NBS. Samples should not be sent directly.

They will be sent initially via the Sheffield Centre unless specifically told otherwise.

NHSBT **Trent** Centre
Longley Lane
Sheffield
South Yorkshire
S5 7JN

Tel: Hospital Services 0114 2034800

All positive Kleihauer samples will be sent to the Leeds centre for confirmation of result and dosing by flow cytometry.

NHSBT **Leeds** Centre
Bridle Path,
Leeds
LS15 7TW

Tel: Hospital Services 0113 214 8607
Fax: Hospital Services 0113 214 8738
Main Reception 0113 214 8600

National Blood Service Hospitals – Reference Services

Each group of tests referred to the National Blood Service has its own request form, See attached form (appendix 4) and National Blood Service User guide 2002 (Diagnostic and Cellular Therapy Services) for details.

If samples are referred directly these will be charged straight to the sending Clinical Business Unit (CBU)

- Routine antenatal blood group and red cell allo-antibody screen
- HLA typing (not HLA B27 alone)
- Anti-HLA antibody investigations
- Granulocyte Immunology
- Large feto/maternal haemorrhage estimation
- Platelet immunology
- IgG and IgM anti-A and B levels
- Red cell allo-antibody identification - complex

Sample Requirements

Adults: The standard adult requirement for an adult group & save and crossmatch is a 7.5ml EDTA red topped sample labelled "FOR BLOOD TRANSFUSION".

Adult samples for Kleihauer testing: as above, but the maternal samples need to be taken at least 30 to 45 minutes post event to allow for any Feto-maternal bleed to disperse.

Cord blood samples: same as for adults – above, at time of delivery– otherwise a small heel prick EDTA sample will be required.

Neonates <4 months of age: require a 1.7ml EDTA sample together with maternal samples at first presentation only.

Children <10kg: require a 1.7ml EDTA sample for group & save and crossmatch

Children >10kg: same as for adults - above.

Sample Labelling Requirements

The Department of Transfusion Medicine will reject any samples that are incorrectly labelled and they will have to be retaken.

- NEVER pre-label sample bottles
- NEVER use addressograph labels on the sample tubes
- Ensure that the patient is positively identified, especially with the unconscious patient
- Ensure that **3** points of identification are placed on the sample bottles:
    1. FULL NAME including surname and forename (middle names should NOT be used as this may lead to duplication of records)
    2. Date of Birth
    3. Hospital / NHS Number
- Date and Time of blood collection and signature of phlebotomist
- Tubes must be in date and filled to correct volume
- ONLY use the monovette system

Emergencies

The minimum identification for an unconscious or trauma patient is the emergency unique number, approximate age and gender. The sample should be taken, labelled, and the form and sample signed and dated by the prescribing doctor.

For MAJAX patients an allocated emergency number together with an assigned name will be used as per the MAJOR INCIDENT PLAN to label samples and forms.

Timings of Pre-Transfusion Samples in Relation to Previous Transfusions of Cellular Components (time limits for requesting a cross match)

There are strict guidelines in place regarding the frequency of transfusion samples. This is because exposure to blood and blood components predisposes patients to transfusion complications, including the potential to develop significant antibodies.

- In the absence of recent pregnancy, or transfusion within the previous 3 months, samples may be taken up to 6 weeks prior to planned transfusion. Samples are then valid for 3 days from the start of transfusion.
- If received transfusion in the previous 3-14 days, new samples must be sent within 72 hours in advance of next transfusion
- If received previous transfusion in the last 15-28 days, new samples must be sent within 96 hours in advance of next transfusion.
- If a transfusion has been given more than 28 days ago, but within the last 3 months, new samples needed within 7 days in advance of next transfusion
- For neonates under the age of 4 months, samples are required from the neonate and the mother on the initial request only.
- During pregnancy cross match samples must be taken within 7 days in advance of planned transfusion.

Transportation of Samples to the Laboratory

Samples from hospital inpatients or outpatients are normally conveyed to the laboratory specimen reception by the hospital clinical distributors. These are then passed on to the Blood Transfusion department on a regular basis. By the nature of the system there are time delays and samples can take a number of hours to get from the ward to the laboratory.

If the sample is urgent it can be hand delivered directly to the laboratory by a member of the ward staff or if available (at the LRI and GH) by the air tube system.

The Blood Transfusion laboratory should always be contacted when urgent samples are being sent so they can be prioritised (see section – Sample Processing Times).

Samples from the Community can be sent via the daily pathology pick up runs or in an emergency can be hand delivered by a taxi or a relative.

Transport of Specimens (Health & Safety)

The following guidance should be adopted by Hospital Staff and serious breaches should be reported to relevant Managers as a Datix incident:

- All specimens to be carried upright in trays and a secondary bag or in individual sealed leak proof bags. The specimens are to be in a separate pocket to request form to avoid accidental contamination of form. Known or query high risk; hazard group 3 or derogated group 3 as Advisory Committee Dangerous Pathogens (ACDP) classification, should be delivered in a clearly labelled leak proof biohazard bag with request form labelled appropriately with relevant information for biological risk. This may also include relevant clinical details e.g. travel abroad, febrile etc.
- All specimens should be transported on/in an appropriate trolley and tray or receptacle that would contain leaks and spills. It is recommended that all trolleys used for conveyance of specimens have available spill kits, including an approved disinfectant and absorbent mopping up material.
- Leaking specimens should not leave the treatment area and should be immediately retaken.
- Specimens should be transported in such a way to maintain patient confidentiality.
- All specimens to be taken directly from source (or distribution route) to laboratory or laboratory specimen reception area so to be delivered in a timely manner.
- If a specimen leaks into the tray or box, report for assistance if required, to the nearest Pathology laboratory reception.
- If a specimen is dropped and spilt, and if a spill kit is not readily available; it must not be touched or left unattended. Send a messenger to the nearest Pathology laboratory reception for assistance.
- All spillages must be reported as an incident using the Datix reporting system on INsite.

Points to remember when using the air tube system:

- The air tube systems in UHL are maintained by the local Facilities Departments and may only be used by authorised members of staff.
- It is the responsibility of the 'sender' to operate the system correctly, and to have back-up systems in place for when the system is unavailable, or not performing normally.
- Steps must be taken to ensure the health and safety of the recipient and anyone who works on the system.
- Glass containers must not be sent in the air tube.
- Specimens must be placed into a sealed plastic bag (specimen bag) before sending in an air tube carrier.

- Leaking samples must not be sent in the system.
- The carrier lid must be secure before sending.
- The air tube system must not be used for blood for transfusion or for blood components (e.g. platelets, FFP etc).
- High Risk Samples: Risk Assessment DD52R performed by Facilities Engineers LRI and advice from Pathology Safety Advisor.
- High risk samples can be sent by the LRI and GH air tube systems. They need to be correctly packaged /bagged and follow all points above.

Request Forms

The Department uses 2 different request forms:

- **'Routine' blood transfusion request form** - for group and save, blood and blood products and direct antiglobulin tests (appendix 1).
- **Gold 'Kleihauer' request form** - for feto-maternal bleed estimation and request for anti-D immunoglobulin (appendix 2).

Samples referred to the National Blood Service Sheffield for testing have their own request forms that must be completed by the requesting doctor. Copies of these are obtainable from the Blood Transfusion laboratories. See Appendix 3 and National Blood Service User guide 2002 (Diagnostic and Cellular Therapy Services) for details.

Completion of request forms

It is important that request forms are fully completed - we wouldn't ask for information if we didn't need it. Incomplete request forms can lead to delays in transfusion.

'Routine' blood transfusion request form - for group and save (G&S), blood and blood products and direct antiglobulin tests (DAT)

The requestor should fully complete the top black area of the form noting that all unshaded areas are mandatory. If mandatory fields are not completed the request will be rejected.

Mandatory fields are:

- Surname and forename
- Date of birth
- Gender
- Hospital number and NHS number
- Patient location
- Patient's consultant
- Requesting doctor including signature and bleep number

- Special requirements (i.e. irradiated blood, CMV negative, etc.) **This must be specified either way,** with a reason if either special requirement is needed.
- Is the patient pregnant?
- Diagnosis/ Reason for Request (avoid unqualified terms such as anaemia)
- Tick Test (G&S only, DAT or other) or indicate product required (see below *)
- Sample taken by and patient positively identified by

*If a transfusion is required the following information should be completed:

- The number of units (or mls) required should be indicated on the form. (An Optimal Surgical Blood Order Schedule (OSBOS) is provided to aid clinicians in the requesting of blood for elective surgical operations and medical procedures, see DMS Document ID: 4978447288).
- Date and time required. Please give a time and avoid use of vague comments such as ASAP. (Please also see section on sample transportation above).

Clinical details are important to assist in the correct testing strategy, the interpretation of results and to produce a useful and meaningful report. Include the reason for requesting the investigation, for 'pre-op' or 'post-op' please state the nature and date/time of the operation.

The laboratory will reject unsigned requests. If they are rejected the patient's medical team will be contacted to give them the opportunity to send repeat samples. All such communication will be recorded.

Gold 'Kleihauer' request form - for feto-maternal bleed estimation and request for anti-D immunoglobulin
The following fields are mandatory

- Surname and first name
- Date of birth
- Hospital number or NHS number
- Patient location
- Patient's consultant
- Clinical details/ event
- Confidentiality concerns for home issue. If there is a confidentiality problem then this should be indicated on the form.
- Date and time of sample

Kleihauer forms must include relevant information on the nature and time of event and gestation period. Home address and GP are also required. A contact telephone number for the patient (to be used by the community midwives) must also be given.

Patient identity and demographic information is vital (see notes specific to the transfusion department as detailed in the UHL Blood Transfusion Policy).

Clinical details are important to assist in the correct testing strategy, the interpretation of results and to produce a useful and meaningful report. Include the reason for requesting the investigation; for 'pre-op' or 'post-op' please state the nature and date/time of the operation.

The name of requesting clinician (with bleep number) and the name of Consultant/GP (if different from above) must be included on the request form. For transfusion specimens, the person requesting the investigation must sign the request form. Please do not "pp" for another person (we may need to ask exactly how the specimen was obtained or request further information about the patient).

Please include the address for the report i.e. ward, GP practice or secretary. If patients are being admitted through the **Accident and Emergency department**, always state to which ward the patient will be transferred.

If request forms and/or specimen containers are received unlabelled or inadequately labelled, the laboratory reserves the right to discard the specimen for medico-legal reasons.

Sample Processing Times

All the Blood Transfusion laboratories are busy and have to prioritise their work. This can only be done if requesting doctors are realistic about when the patient needs a transfusion.

It is important that samples are sent in a timely manner to give the laboratory time to analyse their samples. This is also in your best interest as it will give the laboratory time to resolve any problems they discover such as blood group antibodies.

Urgent requests must be phoned through to the laboratory or on-call Biomedical Scientist.

Whilst we endeavour to achieve faster turnaround in most cases, the times indicated below must be considered the minimum guaranteed turnaround times for non-urgent samples (see 'Hours of Business' above for routine opening times).

Group and Screen (Group and Save)	• 1 routine working day unless the patient has an anomalous blood group antibody. If the patient has an antibody this time will be extended depending on the ease of determining the specificity of the antibody.
Kleihauer Test and Anti-D Immunoglobulin Issue	• 1 routine working day.
Direct Antiglobulin (Coombs) Tests	• 1 routine working day. • Urgent samples can be processed more

	quickly by arrangement with the laboratory.
Routine crossmatching of red cells where the patient does not have a valid group and screen	• For patients without blood group antibodies – 1 routine working day. • Crossmatch requests for the same day are dealt with according to their degree of urgency. Turnaround times of less than 5 hours must be agreed with the laboratory. • If the patient has one or more blood group antibodies this time will be extended depending on the ease of determining the specificity of the antibody and the ease of sourcing antigen negative blood.
Routine crossmatching of red cells where the patient has a valid group and screen and no blood group antibodies	• These requests will take a maximum of 3 hours during the routine working day. Requests for peri-operative patients can be turned around in 10 minutes if the need arises.

Urgent Samples

It is essential to contact the laboratory or the on-call Biomedical Scientist if you are sending an urgent request. If we do not know a sample is urgent it is likely to be processed with routine samples. **This requirement also applies during normal working hours.** Urgent requests should be communicated by telephoning Blood Bank during normal working hours, and by bleeping the on-call Biomedical Scientist out of hours and during weekends. This will allow appropriate prioritisation of urgent requests.

Urgent Red Cell Issue

An urgent red cell crossmatch given the maximum priority takes about 40 minutes from receipt of the sample in the laboratory, provided no red cell antibodies are detected. If antibodies are found, this will lead to delays in providing compatible blood. The extent of delay depends upon the nature of antibody (ies) and the availability of suitable blood.

Group specific blood (ABO compatible – uncrossmatched) can be issued in emergencies within 20 minutes of receiving samples.

Emergency O NEGATIVE blood is available for use in dire emergencies. The laboratory must be informed immediately if any O negative blood is used so that stock can be promptly replaced. The forms included with the blood should be fully completed and returned to Blood Bank without delay. The sticker on the form should also be fully completed and placed in the patient notes, (see Appendix 5).

High Risk Specimens

Samples from High Risk (danger of Infection) patients should be appropriately marked in line with Trust Policy.

Associated Pathology Directorate procedure documents available on INsite documents (DMS):

- Notification of Hazard Group 4 Pathogen Specimens within Pathology DMS ID: 13299
- Notification to Wards of Incorrectly Identified Hazardous Samples DMS ID: 13294

Available Blood Components

Red Cells	Available on request.
Platelets, Fresh Frozen Plasma (FFP) and Cryoprecipitate	Available only with the agreement of Haematology Specialist Registrar or Haematology Consultant, or in compliance with Massive Transfusion Policy.
4.5% and 20% Human Albumin Solution (HAS)	Available on request from blood banks.
Octaplex and Novoseven (see below)	Available only with the agreement of Haematology Specialist Registrar or Haematology Consultant.

Octaplex is used for the rapid reversal of patients over anticoagulated with warfarin who have a life threatening bleed. Issued by blood banks at all three UHL sites. The accompanying documentation and audit forms must be completed and returned to Blood Bank.

Novoseven concentrate is used for some patients who continue to bleed despite correcting their clotting abnormalities with blood products and where the need for further surgical haemostasis has been ruled out.

The issue of these products is mostly requested as an emergency. They are available about 10 minutes from the receipt of the appropriate documentation in the laboratory.

Any unused product must be returned to the Blood Bank within 2 hours of issue or it will be wasted and the ward charged.

Storage of Blood Components

Red cells:
Stored at 4-6ºC. Transfusion must commence soon after leaving the blood bank fridge, and be **completed within 4 hours.**

Red cells removed from the fridge cannot be returned to storage once out for >30 minutes. However, the transfusion may be commenced after this 30-minute period as long as it can still be safely completed within the 4 hour time period of leaving the blood bank fridge.

Platelets, Fresh Frozen Plasma (FFP) and Cryoprecipitate:
Prepared and issued on a named patient basis. This should not be collected from the blood bank until the patient is ready for infusion.

Human Albumin Solution (HAS):
Stored at room temperature and can be kept on the ward for a few hours as long as the temperature does not go outside +2ºc to +25º C.

Prescription of Blood Components

Blood components can only be prescribed by qualified medical staff.

Consider whether a transfusion is appropriate. Do the benefits of a transfusion outweigh the risks to the patient?

If a transfusion is necessary, all blood components must be appropriately prescribed on the UHL Blood Component Prescription and Administration Chart (please see DMS document: Blood Transfusion - Policy for Prescribing Collection Storage and Administration of Blood and Blood Products
Old DMS ID: 11825, Document ID: 2131214054.

A valid prescription must include the following information:

- Type of component
- Volume to be transfused
- Rate of transfusion
- Special requirements e.g. irradiated, CMV negative, etc (the laboratory also needs to be informed)

Special requirements must be specifically indicated on the request form. Failure to complete this detail will result in the request form being rejected due to the risk of random products being erroneously issued.

Patient Consent

Blood transfusion carries potential risks and some risks may be serious or, very rarely, life threatening. The Department of Health's Better Blood Transfusion 3 circular (HSC 2007/001) requires NHS Trusts to implement a number of actions to improve appropriate use of blood and safety of blood transfusion. One of these actions is to ensure patients are well informed of the risks and benefits of blood transfusion and that this discussion is clearly documented in the patient case notes. However local audits of blood transfusion show that this process is very rarely documented in the patient case notes, and patients are rarely given adequate information about risks and benefits of transfusion. Where this information is provided, its quality and content is variable.

Therefore as a Trust we have made the decision to implement a formal consenting process to ensure that patients are fully informed and aware of the implications (risks and indeed benefits) of receiving an allogeneic (donated) blood transfusion. As of **4th May 2011**, all patients must give written consent to receive a Blood Component Transfusion. Where the patient is unable to give written consent the clinician must proceed in the best interests of the patient as with any other emergency situation.

The consenting process is outlined on the Blood Transfusion Integrated Care Pathway, which also contains 2 'peel-off' stickers which are intended for use on the standard UHL Consent form, of which the patient will be given a copy.

Click here to see the Blood Transfusion - Policy for Prescribing, Collection, Storage and Administration of Blood and Blood Products (Old DMS ID: 11825, Document ID: 2131214054).

Click here to view the 'Consent' section of the Integrated Care Pathway (DMS Document ID: 58175).

Location of Blood Fridges for Red Cells

Red cells must only be stored in designated blood bank refrigerator as listed below:

- Fresh frozen plasma, cryoprecipitate and platelets are issued on a named patient basis for immediate transfusion. They should not be placed in any blood fridge.
- All blood components no longer required must be returned to the Blood Bank within 30 minutes of removal from a designated blood bank refrigerator but can still be transfused as long as the transfusion is completed within 4 hours of removal from the fridge.
- Do not place any blood component in a domestic refrigerator or drug fridge

LRI

- Blood Bank, level 2, Sandringham Building
- Main Theatres, outside the training room
- Delivery Suite
- Haematology Day Ward (this fridge cannot be used for overnight storage of blood as it is not fully alarmed)
- Accident and Emergency Department

LGH

- Blood Bank, Pathology corridor, ground floor
- Main Theatre reception
- Delivery Suite
- Orthopaedic theatres, recovery (this fridge cannot be used for overnight storage of blood as it is not fully alarmed)

GH

- Blood Bank, ground floor, Pathology entrance
- Outside Main Theatres (CICU)
- Cardiac Theatres 1 and 2 (this fridge cannot be used for overnight storage of blood as it is not fully alarmed)

Collection/Transport of Blood and Blood Components

- All blood and blood components should be delivered to the ward immediately *(If the patients situation changes and the blood can no longer be given at that time, it must be returned to Blood Bank within 30 mins)*
- Hand blood to a qualified member of ward staff
- Blood should never be stored anywhere other than *designated blood bank fridges*
- All blood components should be handled with care – red cells especially are easily damaged
- Always alert Blood Bank staff when returning unused components to ensure that they can be returned to controlled storage in a timely manner
- *Platelets* are stored at room temperature – under no circumstances should they be put into the fridge
- Where available, carry Blood Components in the (red) transport bags provided

Use of BloodTrack

Before collection of any blood component from Blood Bank, to avoid unnecessary wastage and delays, check the following:

- Patients' IV access is patent
- Prescription
- Availability of relevant paperwork e.g. crossmatch form
- Informed verbal consent
- Pre-transfusion observations have been completed

Always ensure a receipt form is completed for ALL transfusion fluids (including albumin solution).

Ensure that the individual collecting the component has been adequately trained to carry out this duty, and is fully competent in the use of the BloodTrack system. Staff bar codes for use with the BloodTrack system are unique to the individual and must not be shared. If you require training contact the Blood Bank to arrange a mutually convenient time.

Red transport bags are provided for the confidential transport of blood to the wards.

The blood component should be taken, without delay, to the ward/theatre location. Red cells should be collected 1 unit at a time unless exceptionally, the clinical urgency is such that more than one unit of blood is to be transfused simultaneously through separate IV lines.

Most ward areas do not have the facility to store blood components safely. Blood components must **NEVER** be stored, however temporarily, in a ward drugs or domestic fridge.

If a blood component is no longer required it must be returned to the Blood Bank within 30 minutes of removal from a designated blood bank refrigerator.

Orange Blood Fate Documentation Cards

New compatibility tags replaced the sticky labels used on blood components from 11th July 2011.

The tag is in two halves (one white; one peach), folded in the middle.

The white section replaces the sticky label that was previously attached to the bag of blood, platelets, FFP or cryo, or to the cardboard box for HAS. A peel-off section on this side contains the donation number and should be peeled off and stuck onto the integrated care pathway.

The orange section replaces the old orange card. The person hanging the blood must complete the top section of the accompanying orange tag at the **START** of transfusion.

Please detach along the perforations, fill in the required details, and return it to your nearest Blood Bank as soon as transfusion commences either via the air tube or the specimen porter's service. Do not return the cards using the internal mail – this can be slow and cause delays.

Remember, this is a legal requirement.

Administration of Blood Components

Administration of blood components is fully covered in the UHL Blood Transfusion Policy.

Consider: Is a transfusion really the best treatment option for the patient?

If you have any concerns about the blood component, **DO NOT TRANSFUSE**. Use the contacts list at the front of this document for further advice.

Do not add any drugs or fluid to a blood component. A fresh giving set should be used with each separate blood component, i.e. when switching from red cells to platelets or FFP.

In the interest of patient safety, overnight transfusions should be avoided unless deemed absolutely necessary.

On completion of a transfusion, only 0.9% normal saline should be used as a flush, this includes blood warmers. No other fluid should be mixed with blood components, or blood components mixed with other blood components.

Disposal of Blood Bags

On completion of a trouble-free transfusion episode, all used blood component packs should be placed back into the red transport bag which should be marked on the white panel with the patients name and the date of transfusion.

These bags must then be kept in a designated area on each ward/theatre for at least 24 hours. This will make it possible to investigate any possible delayed transfusion reactions. After 24 hours, the bags should be disposed of as per the Waste Management Policy.

The giving sets are disposed of into a sharps bin.

In the event of a serious transfusion reaction, the implicated blood component pack should be sent to the blood transfusion laboratory, with the giving set still attached to the blood component pack, and the cannula end of the giving set sealed using an appropriate bung.

Transfusion Reactions

Detailed guidance on transfusion reactions is fully covered in the UHL Blood Transfusion Policy and included in the Blood Transfusion Integrated Care Pathway.

Advice for ward and clinical staff when reporting a suspected transfusion reaction: -

- The transfusion should be stopped immediately.
- The cannula should be kept patent with a slow running drip of 0.9% saline until the medical staff has reviewed the patient.
- Staff should seek immediate advice from the patients own medical team. The patient's own medical team may in turn seek advice from the Haematology SpR on call if necessary.
- The patient's clinical team must refer to the algorithm on the Blood Transfusion Integrated care pathway (i.e., blood transfusion prescription chart) for further guidance on the immediate management of a transfusion reaction.
- Details of the transfusion reaction must be discussed with the blood transfusion laboratory.

If after review by the patient's medical team, the reaction is considered to be significant then proceed with the following: -

- The ward / clinical staff should take **blood cultures, a group and save, FBC, U+Es** and a **clotting screen** from the patient irrespective of the symptoms of transfusion reaction

- The implicated unit must be sent **IMMEDIATELY** to Blood Bank WITH THE GIVING SET STILL ATTACHED.

- Clinical staff must complete a **Datix** incident form. Report the Datix reference number to Blood Transfusion staff or to the Blood Transfusion Quality Manager, ext: 7945.

Incident Reporting

It is a legal requirement that any incidents or events related to blood transfusion are reported. This must include suspected transfusion reactions and post transfusion infections.

A DATIX incident form must always be completed - even if it was just a near miss, and notified to the Blood Transfusion Quality Manager.

The Blood Transfusion Quality Manager will report to SHOT (Serious Hazards of Transfusion and SABRE (Serious Adverse Blood Reactions and Events) as appropriate.

Training

It is a mandatory requirement for all staff involved in the Transfusion process, from collection through to administration, to receive annual training including training in GMP (Good Manufacturing Practice) to ensure compliance with National Guidelines and to address issues of patient safety and product liability.

Within UHL each Clinical Business Unit (CBU) has a mandatory training programme and blood transfusion must be a fundamental part of this.

In addition, the National Patient Safety Agency (NPSA) stipulates that every member of staff involved in any part of the transfusion process must have a Competency Assessment every 3 years. Within UHL, all relevant staff groups must successfully complete the blood transfusion e-learning modules before registering for a face-to-face Competency Assessment. The assessments will be carried out by a qualified LCAT (Leicester Clinical Assessment Tool) assessor competent in blood transfusion.

E-learning modules can be found by visiting www.euhl.nhs.uk

To register for Competency Assessments visit www.euhl.nhs.uk

Transfer of Patients Receiving a Transfusion

Within UHL:

If a patient undergoing a transfusion is to be transferred to another ward/department within UHL, a qualified member of staff trained in IV administration and competent in transfusion must accompany them.

Any untransfused blood components must remain in a designated blood bank or blood fridge for the receiving ward/department to collect as necessary. It is against UHL policy to send any blood components with a patient unless they are in progress at the time of transfer. Exceptionally, blood bank can arrange to package blood components in a transfer box for you. Liaise with blood bank staff if this service is absolutely necessary.

Outside of UHL:

Contact the blood bank to arrange this.

Within the Trent region, we have the Trent Regional Policy for the Transfer of Blood and Blood Components Between Hospitals.

If you are to be involved in the transfer of a patient to a hospital outside of the UHL NHS Trust, consider if they will need to have crossmatched blood components sent with them. If so please refer to the UHL Blood Transfusion Policy (Old DMS ID: 11825, Document ID: 2131214054) for details of the Trent transfer policy, or contact the blood bank.

When receiving blood into UHL ensure that 3 patient identifiers are used to check the blood i.e. the patient's FULL name, date of birth and the referring hospital's patient identification number. Ensure that the accompanying paper work is checked to verify if the products are in date and are safe to be administered.

Blood bank MUST be notified of any blood or blood components that enter the UHL. This is part of the **Legal** requirement to ensure 100% compliance with traceability of blood and blood components.

Alternative Transfusion Strategies

A transfusion isn't always the best treatment option for patients. We should not underestimate the potential risks of transfusing blood and blood components. With this in mind, always consider if an alternative to transfusion is available and more appropriate e.g. treating iron deficiency anaemia with iron supplements.

To Transfuse or Not To Transfuse?

Always assess the patient's clinical state AND laboratory values. Refer to UHL Blood Transfusion Policy (Old DMS ID: 11825, Document ID: 2131214054) for clinical guidelines on the use of red cells, platelets, FFP and cryoprecipitate.

Treat the patient, not the laboratory result. If a patient remains asymptomatic and otherwise stable with no further blood loss anticipated (such as post-operatively), it is strongly advisable to avoid exposing them to the potential hazards of allogeneic (donated) blood.

Haematinics / Iron Preparations

The patient's haemoglobin and red cell count are optimised prior to surgery using iron, folate or other drug treatment.

Cell Salvage

The patient's own blood, lost during surgery, is collected (usually via suction), cleaned, processed, and returned to the patient. This may be done using a variety of methods/systems. The technique can be applied during surgery (intra-operative cell salvage) or in some cases after surgery (post-operative).

Intra-Operative Cell Salvage (ICS)

At UHL, although being encouraged in other types of surgery, Intra-Operative Cell Salvage is mainly used in:

- Cardiac surgery
- Orthopaedic surgery
- Liver surgery
- Vascular surgery
- Complex obstetric surgery

Post-Operative Cell Salvage (POCS)

Post-operatively, the patient's blood loss is collected via a surgical drain into a special dual-purpose bag. When the drain is closed off, this bag can be inverted and contents transfused back to the patient through an integral filter using a blood giving set.

This technique is used mainly in knee surgery, but is not currently being used within UHL.

For further information about cell salvage, please contact a blood transfusion nurse or refer to the UHL Blood Transfusion Policy (Old DMS ID: 11825, Document ID: 2131214054).

Other Items of Interest

Private Patients

Requests on private patients must be clearly labelled as such. A fee is payable for these tests - a list of charges is available on request.

Clinical Trials

Before undertaking any investigations which are part of a clinical trial protocol, the Heads of Department must be approached and permission sought. The Directorate may charge for such work.

Results

Under no circumstances can results be released to or discussed with the patient or relatives on the telephone. Doctors are requested not to inform patients that they can ring the laboratory to obtain the results of any blood or other test.

Frequently Asked Questions

I have just found a unit of blood on the nurses' station; it has probably been there for more than 30 minutes…

Red cells cannot be returned to stock once they have been out of the blood fridge for more than 30 minutes. However, if you have a unit of red cells on the ward which has been out of the fridge for more than 30 minutes (therefore cannot be returned) but that can be safely transfused within the maximum time period of 4 hours from leaving the blood fridge, then it is safe to go ahead with the transfusion.

Doctor has prescribed red cells for my patient over 6 hours…

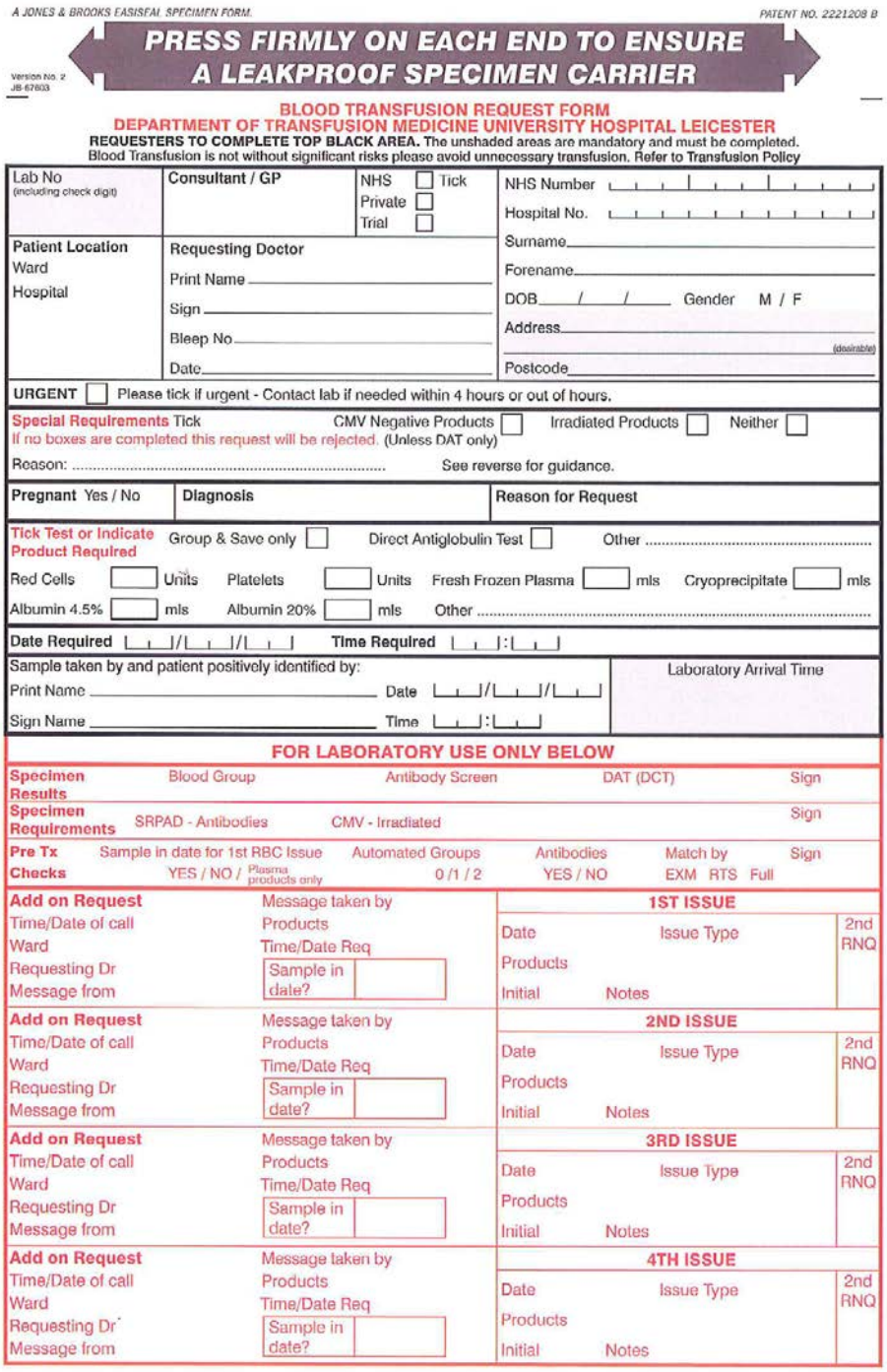
The maximum time period for transfusing any single unit of blood component is 4 hours from the time of issue, primarily due to the risk of microbial growth

at room temperature, but there is also the risk of red cell breakdown in the pack and consequent risk of hyperkalemia, particularly in the neonate.

We have got empty blood bags in the sluice which seem to have been there for weeks…

Used, empty blood component bags must be retained on the ward for 24 hours only. Delayed transfusion reactions usually occur within this initial 24 hour time period, thus the bags can be recovered and sent for testing for contamination etc.

Appendix 1. 'Routine' Blood Transfusion Request Form



A JONES & BROOKS EASISEAL SPECIMEN FORM. PATENT NO. 2221208 B

PRESS FIRMLY ON EACH END TO ENSURE A LEAKPROOF SPECIMEN CARRIER

Version No. 2 JB-67603

BLOOD TRANSFUSION REQUEST FORM
DEPARTMENT OF TRANSFUSION MEDICINE UNIVERSITY HOSPITAL LEICESTER
REQUESTERS TO COMPLETE TOP BLACK AREA. The unshaded areas are mandatory and must be completed.
Blood Transfusion is not without significant risks please avoid unnecessary transfusion. Refer to Transfusion Policy

Lab No (including check digit)	Consultant / GP	NHS ☐ Tick Private ☐ Trial ☐	NHS Number Hospital No. Surname Forename DOB / / Gender M / F Address (desirable) Postcode
Patient Location Ward Hospital	Requesting Doctor Print Name Sign Bleep No Date		

URGENT ☐ Please tick if urgent - Contact lab if needed within 4 hours or out of hours.

Special Requirements Tick CMV Negative Products ☐ Irradiated Products ☐ Neither ☐
If no boxes are completed this request will be rejected. (Unless DAT only)
Reason: ..... See reverse for guidance.

Pregnant Yes / No	**Diagnosis**	**Reason for Request**

Tick Test or Indicate Product Required Group & Save only ☐ Direct Antiglobulin Test ☐ Other .....

Red Cells ☐ Units Platelets ☐ Units Fresh Frozen Plasma ☐ mls Cryoprecipitate ☐ mls
Albumin 4.5% ☐ mls Albumin 20% ☐ mls Other .....

Date Required __/__/__ **Time Required** __:__

Sample taken by and patient positively identified by:
Print Name ..... Date __/__/__
Sign Name ..... Time __:__

Laboratory Arrival Time

FOR LABORATORY USE ONLY BELOW

Specimen Results	Blood Group	Antibody Screen	DAT (DCT)		Sign
Specimen Requirements	SRPAD - Antibodies	CMV - Irradiated			Sign
Pre Tx Checks	Sample in date for 1st RBC Issue YES / NO / Plasma products only	Automated Groups 0 / 1 / 2	Antibodies YES / NO	Match by EXM RTS Full	Sign

Add on Request Time/Date of call Ward Requesting Dr Message from	Message taken by Products Time/Date Req Sample in date?	**1ST ISSUE** Date Issue Type Products Initial Notes	2nd RNQ
Add on Request Time/Date of call Ward Requesting Dr Message from	Message taken by Products Time/Date Req Sample in date?	**2ND ISSUE** Date Issue Type Products Initial Notes	2nd RNQ
Add on Request Time/Date of call Ward Requesting Dr Message from	Message taken by Products Time/Date Req Sample in date?	**3RD ISSUE** Date Issue Type Products Initial Notes	2nd RNQ
Add on Request Time/Date of call Ward Requesting Dr Message from	Message taken by Products Time/Date Req Sample in date?	**4TH ISSUE** Date Issue Type Products Initial Notes	2nd RNQ

Appendix 2. Gold 'Kleihauer' Request Form

Please note that the Kleihauer request form (appendix 2) is currently under review. The new version will be included in this document at next review.

BLOOD TRANSFUSION DEPARTMENT — **LEICESTERSHIRE PATHOLOGY SERVICES**

HOSPITAL | WARD

IF HOME DELIVERY OR PATIENT DISCHARGED HOME, STATE:-
NAME AND ADDRESS OF G.P.

MOTHER'S SURNAME | FORENAME(S)

CONSULTANT

ADDRESS

REQUESTING SIGNATURE (PRINT NAME)

DATE OF BIRTH | UNIT No.

CLINICAL DETAILS/EVENT

ANY CONFIDENTIALITY CONCERNS FOR HOME ISSUE? YES/NO

KNOWN BLOOD GROUP

ATYPICAL ANTIBODIES YES/ NONE KNOWN (Delete as Applicable)

GESTATION

HOME TEL. No.

HAS ANTI-D IMMUNOGLOBULIN BEEN GIVEN DURING THIS PREGNANCY YES/NO (IF YES (Give Dates))

TIME AND DATE OF EVENT:-

TIME AND DATE OF SAMPLE:-

FOR LABORATORY USE ONLY

MOTHER'S BLOOD GROUP

KLEIHAUER TEST:- FETAL CELLS

MATERNAL ANTIBODIES:-

BABY'S BLOOD GROUP

ANDTI-D Immunoglobulin ISSUED/NOT ISSUED (DOSE iu)

DCT | Du | Alk. Denat.

DATE AND TIME | SIGNED

W.412 Issue 2 **REQUEST FOR ANTI-D IMMUNOGLOBULIN** GARTREE PRESS LTD.

Appendix 3. K28 Form

RECEIPT FOR 28 WEEK PROPHYLACTIC ANTI-D IMMUNOGLOBULIN /

(REASON FOR DECLINING ANTI-D PROPHYLAXIS RETURN)

All requested information including the GP must be fully completed to allow for replacement and full traceability of the product

Laboratory Number (leave blank)	NBA Number
	NHS or Hosp number
	Surname
	Forename
GP and Surgery Code (all requests)	Address Date of Birth
Blood group from NBA report	Any known blood group antibodies on NBA report? No / Yes (If yes refer to Blood Bank)
Patient suitable for prophylactic anti-D issue?	Yes / No Sign Date
Patient information leaflet given?	Yes / No
Informed consent given?	Yes / No
Anti D immunoglobulin given	Time Date
Batch number	
If the injection is not given, please state the reason	1. Husband known RhD Neg 2. No further children planned 3. Worry over infection risk 4. Needlephobic 5. Other (specify)
Clinic given in	ANC LRI / PAS LGH
Signed Dr / Midwife	
Print name	

FOR LABORATORY USE

Date of Receipt in Lab	NBA Blood group	NBA Ab Screen	Checked by	Date of comp entry	Issued by

Blood Transfusion UHL Pathology Directorate

Top Copy - Send completed form to Blood Transfusion, LRI / LGH to receive replacement anti-D injection.
Bottom Copy - Put in patient's notes.

Anti-D receipt v2ii 4.1.07

Appendix 4. NBS Request Forms

The home page for NBS Histocompatibility & Immunogenetics request forms is:

http://hospital.blood.co.uk/library/request_forms/hi/index.asp

Appendix 5. Uncrossmatched Emergency Blood Form

UNCROSSMATCHED
Emergency O Rh Negative Blood

No compatibility tests have been performed with this blood, it should be used for EMERGENCIES only & at the discretion of medical staff

IMPORTANT!
Contact Blood Bank IMMEDIATELY by phone or bleep, when removing this blood from the blood fridge so they can replace emergency stocks. Other patients may be put at risk if this is not done promptly.

Bag Number			
Blood product			
Confirm rr, HT Neg , K neg	Yes / No		
CMV Neg	Yes / No		
Date released			
Blood fridge location		BMS Initials	

ON TRANSFUSION PLEASE

1. **FULLY COMPLETE ALL PARTS OF BOTH THE FORM AND LABEL BELOW.**
2. **PEEL OFF THE LABEL AND STICK IT IN THE PATIENT'S NOTES**
3. **SEND THE COMPLETED FORM TO BLOOD TRANSFUSION WITHOUT DELAY**

TRANSFUSED TO

Name	
Hospital number	
DOB	
Date and time used	
Prescribing doctor	
Administered by	**Print** **Sign**

Emergency O neg Blood Transfused	
Bag Number	
Patient's Name	
Hospital number	
Date/ time used	
Prescribing Dr.	
1st checker sig & print name	
2nd checker sig & print name	

PEEL HERE

WASTED.
If none given tick here ☐

PEEL OFF THE LABEL AND STICK IT IN THE PATIENT'S NOTES

FOR LAB USE ONLY

Entered into Bapex
Sign / date

Dear Colleague,

This guide has been prepared to inform users of the Transfusion Laboratory Service within University Hospitals of Leicester, with the aim of giving users essential information about the range of services available, and how best to use these.

It is appreciated that with the ever increasing range of tests and blood products available, it is difficult for the user to know which request form, specimen container, type of specimen and particular procedure is needed to request a particular investigation and how and when to expect results. Hopefully, this guide will address these issues. In addition, the guide also contains lists of relevant telephone numbers to facilitate easy access to appropriate medical and other senior staff for advice.

Any laboratory is, to a large extent, only as good as the user allows it to be. It is important that all request forms and specimen containers are labelled properly with the relevant demographic and clinical details. Care must also be taken to follow any necessary protocol where a result could otherwise be adversely affected. If any doubt exists, it is advisable to contact the laboratory personnel who will be pleased to help.

Finally, any views that users may have about how this guide could be improved would be welcome for incorporation into future editions. Please send your comments to Amanda Gardner, Blood Transfusion Quality Manager (amanda.gardner@uhl-tr.nhs.uk).

Any compliments or complaints related to the Blood Transfusion Laboratory service should be directed to Lizzi Clark, Pathology CBU Management Assistant, Level 2 Sandringham Building, LRI.

On behalf of the Support Services Clinical Business Unit (Pathology)

Dr Hafiz Qureshi (Consultant Haematologist)
Mr Jot Hyare (Blood Transfusion Service Manager)