BLOOD TRANSFUSION
USER HANDBOOK
VERSION 3
Changes from V2.4

◊ Hyperlinking of contact page
◊ Inclusion of contact details for sending tests to NBS Sheffield
◊ Removal of contact details for KH and RM
◊ Statement that if the special requirements box on the request form is not completed it may result in random products being issued
◊ P10 ‘For MAJAX patients an allocated emergency number together with an assigned name will be used as per the MAJOR INCIDENT POLICY to label samples and forms’,
◊ P18 ‘Do not place any blood component in a domestic refrigerator or drug fridge’. ‘All products no longer required must be returned to the Blood Bank within 30 minutes of removal from a designated blood bank refrigerator’. Addition of new Accident & Emergency blood fridge
◊ P12, completion of ‘Confidentiality’ details on the Kleihauer form
◊ P19, regarding the Orange Cards, changed to “As soon as transfusion commences ensure that the fate is recorded……..”
◊ P24 Training (Is this the best place?)
◊ Hyperlink to the home page for NBS Histocompatibility & Immunogenetics request forms (appendix 3)
◊ Emergency O neg form changed to appendix 4
◊ The Blood Transfusion request form (Appendix 1) is currently under review.
◊ Any new versions of forms and labels will be included in this document at next review.
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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 handbook does not replace the UHL Blood Transfusion Policy, which remains the primary source of comprehensive transfusion guidance in the Trust.
Location of Blood Transfusion Laboratories

There are Blood Transfusion Laboratories at all three UHL hospitals.

- Leicester Royal Infirmary (LRI) – Located on the second floor of Sandringham Building.
- Leicester General Hospital (LGH) - near the Pathology Laboratories at the end of the link corridor off the main corridor.
- Glenfield Hospital (GH) – near entrance to Pathology Laboratories on the ground floor at bottom of ramp.

The main Blood Transfusion Laboratory is located at the Leicester Royal Infirmary.

Hours of Business

Routine blood transfusion service:

- Monday - Friday 09.00 – 17:30
- Saturday 09.00 - 12.00 limited service ONLY

Out of hours emergency service:

- Contact the appropriate hospital department's on-call Biomedical Scientist via switchboard.
- For medical advice and authorisation of requests for coagulation products please contact the appropriate Haematology Specialist Registrar or Consultant Haematologist via the UHL Hospital switchboard.

Useful Contacts Numbers

- Blood Bank Leicester Royal Infirmary (LRI): 0116 258 6605
- Blood Bank Glenfield Hospital (GH): 0116 256 3577
- Blood Bank Leicester General Hospital (LGH): 0116 258 4564

Intranet access to our service information is also available at http://insite.uhl.nhs.uk/pathology
Key Staff

Jot Hyare, Blood Transfusion Service Manager:  EXT: 6604
e-mail: jot.hyare@uhl-tr.nhs.uk

Gregg Byrne, Specialty Manager, Blood Bank:  EXT: 7944
e-mail: gregg.byrne@uhl-tr.nhs.uk

Amanda Gardner, Transfusion Quality Manager:  EXT: 7945
e-mail: amanda.gardner@uhl-tr.nhs.uk

Fiona Waller, Blood Transfusion Nurse:  EXT: 4557
e-mail: fiona.waller@uhl-tr.nhs.uk

Pavlina Aneva, Blood Transfusion Nurse:  EXT: 3985
e-mail: pavlina.aneva@uhl-tr.nhs.uk

Hafiz Qureshi, Consultant in Transfusion Medicine:
Air Pager: 07699 613428  
e-mail: hafiz.qureshi@uhl-tr.nhs.uk
Available Tests

The department 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 (is 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
- Platelet issue
- Fresh frozen plasma issue
- Cryoprecipitate issue
- Human Albumin solution issue
- Red cell allo-antibody identification
- Direct antiglobulin test (DAT) / Direct Coombs Test (DCT)
- Cold red cell agglutinin screen

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

Please note that the Blood Transfusion request form (appendix 1) is currently under review. Any new versions of forms and labels will be included in this document at next review.

The following tests are referred to the National Blood Service

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

0114 2034800
National Blood Service Hospitals - Public and Customer Services (PCS)  
Hospital Liaison Function

Each group of tests has its own request form, See attached form (appendix 3) and National Blood Service User guide 2002 (Diagnostic and Cellular Therapy Services) for details.

*If samples are referred directly these will be charged directly to the sending Directorate*

- Routine antenatal blood group and red cell alloantibody screen
- HLA typing (not HLA B27 alone)
- Anti-HLA antibody investigations
- Granulocyte Immunology
- Large foetal/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 samples need to be taken at least 30 to 45 minutes post event to allow for any Feto-maternal bleed to disperse.

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.

Cord samples: same as for adults – above, if possible – otherwise a small heel prick EDTA sample.

Sample Labelling Requirements

The Blood Transfusion Department 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 POLICY to label samples and forms,
Timing of Samples

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.

Sample validity

- In the absence of recent pregnancy or transfusion, samples may be taken up to 6 weeks prior to planned transfusion.
- If transfused within the last 3-14 days, a new sample must be submitted within 72 hours in advance of the next transfusion.
- If transfused within the last 15-28 days, new samples must be submitted within 96 hours (4 days) in advance of the next transfusion.
- If a transfusion has been given more than 28 days previously, a new sample is required within 7 days in advance of the next transfusion.
- In pregnancy, the crossmatch sample should be collected within 7 days prior to the transfusion.
- Neonates <4 months old are unlikely to mount an immune response. A sample from the baby is required for blood group of the neonate, at first presentation only. Maternal samples will normally be required if the baby is likely to be transfused.
Request Forms

The department uses 2 different request forms:

- **UHL Blood Transfusion request form** - for blood and blood products (see Appendix 1)
- **Kleihauer request form** - for feto-maternal bleed estimation and request for anti-D immunoglobulin (see Appendix 2)

Please note that the Blood Transfusion request form (Appendix 1) is currently under review.
Any new versions of forms and labels will be included in this document at next review.

Samples referred to NBS Sheffield for testing have their own request forms that must be completed by the requesting doctor. These are obtainable from the blood transfusion laboratories.

**Completion of request forms**

Requests for blood products must be signed by a medical practitioner or they will be rejected. 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.

Ensure that the sample forms are **fully** completed and that all information is provided in the shaded areas. These areas are mandatory for completion in order to process your requests.

The request form must contain the following information:

- Surname and first name
- Date of birth
- Gender
- Hospital number or NHS number
- Patient location
- Indication for transfusion (avoid unqualified terms such as anaemia)
- Test and/or blood components required (a maximum blood order schedule is provided to aid clinicians in the requesting of blood for elective surgery)
- Date & time blood component required. Please give time - comments such as ASAP are meaningless
- Any special requirements (i.e. irradiated blood, CMV negative, etc)

If this box is not completed it may result in random products being issued

- Previous transfusion history and blood group (if known)
- Signature of the doctor
- Date and Time of specimen collection
- When completing a Kleihauer request form the ‘Confidentiality’ details must always be completed

Any forms which are not correctly completed with the mandatory information will be returned to the requestor and no blood products will be issued.
**Patient identity and demographic information is vital** (see notes specific to the transfusion department as detailed in the Hospital 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 the 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.

**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 next section – Time Taken to Process Samples).

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.
Time Taken to Process Samples

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.

**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 Investigations 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. Routine requests for the next day must be in the laboratory by 2pm. Later requests need to be specifically agreed with the laboratory.
- 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 perioperative 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** can be issued in emergencies within 20 minutes of receiving samples. Changes in the laboratory methodology aim to bring this time down to 15 minutes during 2009.

**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 patients’ notes, (see Appendix 4).

**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
- Notification to Wards of Incorrectly Identified Hazardous Samples
Availab le Blood Products

<table>
<thead>
<tr>
<th>Blood Product</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Cells</td>
<td>Available on request</td>
</tr>
<tr>
<td>Platelets, Fresh Frozen Plasma (FFP) and Cryoprecipitate</td>
<td>Available only with the agreement of Haematology Specialist Registrar or Haematology Consultant, or in compliance with Massive Transfusion Policy</td>
</tr>
<tr>
<td>4.5% and 20% Human Albumin Solution (HAS)</td>
<td>Available on request from blood banks</td>
</tr>
<tr>
<td>Beriplex and Novoseven (see below)</td>
<td>Available only with the agreement of Haematology Specialist Registrar or Haematology Consultant</td>
</tr>
</tbody>
</table>

**Beriplex** 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 Products**

**Red cells:**
Stored at 4-6°C. 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 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.

**Albumin:**
Stored at room temperature and can be kept on the ward for a few hours as long as the temperature does not go outside +2°C to +25°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 (W7 or W8).

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)

This should be specifically indicated on the request form. Failure to do so may result in random products being issued.

**Patient Consent**

Before prescribing any blood component, ensure that the patient has been offered appropriate information about the risks and benefits of blood transfusion.

Their verbal consent MUST be recorded in the case notes.

The patient must also be offered a patient information leaflet. This may be used to help explain the risks and benefits of blood transfusion. Paediatric and adult patient information leaflets should be available in all clinical areas where blood transfusion is prescribed or given.

Replacement stocks are available through Blood Banks.
**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.

Do not place any blood component in a domestic refrigerator or drug fridge

All products no longer required must be returned to the Blood Bank within 30 minutes of removal from a designated blood bank refrigerator

**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 from August 2009

**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)

**GGH**

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

Including Use of BloodTrack

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

- Patients’ IV access
- Prescription
- Availability of relevant paperwork e.g. crossmatch form
- Informed verbal consent
- Pre-transfusion observations

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. Individual 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 not be stored – however temporarily – in a ward drugs fridge.

Orange Blood Fate Documentation Cards

The person hanging the blood must complete the top section of the accompanying orange card at the start of transfusion.

As soon as transfusion commences ensure that the orange card, is promptly returned to blood bank, either via 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 Products

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

In brief summary:
This is also listed in the Blood Transfusion Integrated Care Pathway.

- The transfusion must immediately be stopped and the giving set disconnected from the cannula.
- The Medical staff responsible for the patient must be contacted immediately.
- Discuss the transfusion reaction with the Haematology Specialist Registrar and the Blood Transfusion laboratory.
- Take further action as per the Blood Transfusion Policy
- The cannula should be kept patent with a slow running drip of 0.9% saline until medical staff has reviewed the patient.

Incident reporting

A suspected transfusion reaction must be reported to Blood Bank.

It is a legal requirement that any incidents or events related to blood transfusion must be reported. This should also include post transfusion infections.

An incident form should always be completed - even if it was just a near miss, and notified to Blood Bank.

Training

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

Within UHL each directorate 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.org.uk

To register for Competency Assessments visit www.clinicalskillstraining.com
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 (via the DMS on the UHL intranet) for details of the Trent transfer policy, or contact the Blood Bank using the list at the front of this document.

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.
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 might be more appropriate e.g. treating iron deficiency anaemia with iron supplements.

To transfuse or not to transfuse?
Always assess patient’s clinical state AND laboratory values. Refer to UHL Blood Transfusion Policy (available on the intranet) 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.

If you require further information about cell salvage, please contact a blood transfusion nurse or refer to the UHL Blood Transfusion Policy.
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 Transfusion Request Form –

<table>
<thead>
<tr>
<th>REQUIREMENTS (tick)</th>
<th>DEPARTMENT OF TRANSFUSION MEDICINE</th>
<th>CLINICAL INFORMATION</th>
<th>PATIENT IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP &amp; SAVE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIRECT COAGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER TEST (see over)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRESCRIBING CLINICIAN**

- **DIAGNOSIS**: ______________________
- **FORENAME(S)**: ______________________
- **DATE OF BIRTH**: ______________________
- **SEX**: M / F
- **ADDRESS**: ______________________

**SPECIAL REQUIREMENTS (see over)**

- **Afxia Addressograph Labels on All Copies**

**THE SHADED AREAS ARE MANDATORY**

**OOD TRANSFUSION IS NOT WITHOUT SIGNIFICANT RISKS. PLEASE AVOID UNNECESSARY TRANSFUSIONS.**

| BLOOD COMPONENT(S) NEEDED (PLEASE INDICATE): |  |
|---------------------------------------------|  |
| * units of RED CELLS | FFP TRANSFUSION Hb |  |
| PLAQUELET COUNT | INR |  |
| CRYOPRECIPITATE | APPT |  |

**IRA** | **APPT** | **FIBRINOGEN** | **PATIENT WEIGHT (Kg)**

<table>
<thead>
<tr>
<th>Laboratory No.</th>
<th>PROVISIONAL GROUP</th>
<th>DIRECT COAGS</th>
<th>CONFIRMED GROUP</th>
<th>DIRECT COAGS</th>
</tr>
</thead>
</table>

---

* Haematology SRS/Consultants Prior Approval Required

Please See Overleaf for Guidance Notes
## Appendix 2. ‘Gold’ Kleihauer Request Form

<table>
<thead>
<tr>
<th>Blood Transfusion Department</th>
<th>Leicestershire Pathology Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ward</strong></td>
<td></td>
</tr>
<tr>
<td><strong>If home delivery or patient discharged</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Home state</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Name and address of G.P.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Consultant</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Requesting signature (print name)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mother’s surname</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Given names</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Date of birth</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Unit no.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Clinical Details**

- **Any confidentiality concerns for home issue?**
  - Yes/No

**Kleihauer Request Form**

- **Known blood group**
- **Atypical antibodies**
  - Yes/No
- **Intravenous immunoglobulin**
  - Yes/No

**For Laboratory Use Only**

- **Mother’s blood group**
- **Baby’s blood group**
- **DCT**
- **Du**
- **All D Blood**

**Request for Anti-D Immunoglobulin**

- **Date and time**
- **Signed**
Appendix 3 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 4. Uncrossmatched Emergency Blood Form

UNCROSSED MATCHED
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

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

Page 27 of 28
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, to Amanda Gardner, Blood Transfusion Quality Manager (amanda.gardner@uhl-tr.nhs.uk).

On behalf of the Directorate of Pathology

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