BLOOD TRANSFUSION POLICY

Royal Alexandra Hospital
and
Islay Hospital, Accord Hospice, St Vincent's Hospice, Johnstone Hospital

May 2007
Contents

1 INTRODUCTION ...................................................................................................3
  1.1 Who is this policy for? ..................................................................................3
  1.2 Why do we need a policy? .............................................................................3
  1.3 Transfusion Training ......................................................................................4
  1.4 The Hospital Transfusion Committee ........................................................4
  1.5 The Emergency Blood Planning Group ............................................................5
  1.6 The hospital blood transfusion service .....................................................5

2 SPECIMEN COLLECTION & BLOOD ORDERING ..........................................6
  2.1 The Blood Transfusion Request Form........................................................6
  2.2 The blood transfusion specimen: ................................................................7
  2.3 Telephone requesting of blood and blood products................................7
  2.4 Avoiding overnight transfusions .................................................................8

3 RED CELL TRANSFUSION REQUIREMENTS................................................9
  3.1 Number of units required.............................................................................9
  3.2 Urgency of request ...................................................................................... 10
  3.3 Timing of Sample in Relation to Planned Transfusion.......................... 12
  3.4 Special blood requirements – irradiated, CMV negative, paediatric recipients.................................................................................................................... 12
  3.5 Autologous pre deposit..................................................................................... 14

4 RELEASE, COLLECTION & STORAGE OF RED CELLS............................... 14
  4.1 Release of matched red cells..................................................................... 14
  4.2 Collection of blood product ........................................................................ 14

5 ADMINISTRATION OF BLOOD COMPONENTS ........................................16
  5.1 Prescription of blood ................................................................................... 16
  5.2 Bedside checking procedure ........................................................................ 16
  5.3 Observation of patient during transfusion............................................. 19
  5.4 Traceability .................................................................................................... 19
  5.5 Completion of the transfusion........................................................................ 20
  5.6 Blood spillage ................................................................................................ 20
  5.7 Transfer of units of blood between hospitals, accompanying critically ill patients................................................................................................................... 20
5.8 Transfer of units of blood from RAH to a Hospice or to Islay Hospital for elective transfusion

6. BLOOD TRANSFUSION REACTIONS
   6.1 Acute haemolytic reactions
   6.2 Febrile non haemolytic transfusion reactions
   6.3 Allergic reactions
   6.4 Severe anaphylaxis

7. BLOOD PRODUCTS
   7.1 Ordering blood products
   7.2 Indications for use of FFP and Cryoprecipitate
   7.3 Indications for use of platelets

8. Additional Information
   8.1 Informed consent
   8.2 Professional Accountability
   8.3 Record Keeping
   8.4 Infusion Devices

9. Major Haemorrhage (adapted from Handbook of Transfusion Medicine, 3rd Edition, 2001)

10. Further Information (References and Bibliography)

11. Appendices
   Appendix 1 - Anaphylaxis Guideline for anaphylactic reactions caused by blood products
   Appendix 2 - Location of Blood Fridges and Sites of Emergency Blood Provision at RAH
   Appendix 3 - RAH - Blood Transfusion Request Form
   Appendix 4 - MSBOS
   Appendix 5 - RAH - Blood Collection Form
   Appendix 7 - RAH - Membership of the Hospital Transfusion Committee
   Appendix 8 - NHS Greater Glasgow and Clyde
1 INTRODUCTION

1.1 Who is this policy for?

This policy is for all staff involved in the process of requesting, prescribing, supplying and administering blood and blood product components. It is for all staff involved in getting:

“the right blood to the right patient at the right time”

The general principles in this document represent safe and appropriate transfusion practice regardless of place of work. In addition there are specific details on how the transfusion services functions within Royal Alexandra Hospital, Paisley (RAH) and in other sites supplied by RAH, including Accord Hospice, St Vincent's Hospice, Islay Hospital and Johnstone Hospital.

1.2 Why do we need a policy?

Despite wide publicity, errors in requesting, supplying and administering blood and blood products continue to occur. In the UK, approximately 1 unit in every 30,000 transfused units is given to the wrong patient, with a fatality rate of 5-10%. This is a much greater risk than the risk of transmitting an infection from blood, for example.

Transfusion errors are **HUMAN ERRORS** and most commonly occur because of:

- Errors in the collection or labelling of the pre-transfusion blood sample
- Failure of the final pre-transfusion bedside checks
- Laboratory error

The aim of this protocol is to document acceptable transfusion practice. This, combined with continuing education of all hospital staff involved in the transfusion process, is crucial if the above errors are to be avoided.

**Unacceptable transfusion practice has consequences for the staff involved as well as the patient!**

In 2005, an EC Directive - *Blood Safety and Quality Regulations 2005 (Directive 2002/98/EC)* was transposed into UK law as *The Blood Safety and Quality Regulations 2005*. This Directive is aimed at improving the safety and quality of transfusion throughout the process from donor to recipient. This made it mandatory for the CEOs of all hospital to ensure, amongst other requirements, that:

- There is absolute traceability of blood component from donor to recipient and vice versa
• There are standard operating procedures for the storage, distribution and transport of blood and blood components within and outwith the Hospital.
• All staff involved in transfusion process have received training
• All training records for staff are available for inspection
Ensuring compliance with these LEGAL REQUIREMENTS is the remit of the Medicines and Health Care Regulatory Authority (MHRA) who have the authority to inspect hospitals and apply sanctions if non-compliance is found.

This policy for Royal Alexandra Hospital (RAH) has been adapted, with local modifications from published national and regional guidelines.

The policy has been prepared on behalf of the Royal Alexandra Hospital Transfusion Committee and represents standards which can be realistically achieved at the present time, but will inevitably evolve to accommodate future changes in provision and demand for blood.

This policy has been adapted from a template developed by the Scottish National Blood Transfusion Service Effective Use of Blood Group.

1.3 Transfusion Training

Specific training in Safe Transfusion Practice is mandatory for all staff involved in the transfusion process. While a number of face-to-face training sessions are held throughout the year, mainly for nursing staff, it is recommended that, wherever possible, staff take advantage of the e-learning training facility available at www.learnbloodtransfusion.org.uk where the Safe Transfusion Practice modules are available. These can be completed in easily manageable sections and the training record will be linked to your National Insurance number. You can print off a certificate of completion and this is therefore transferable between employers. Your training should be updated every two years. Additional training modules are available for those who wish to extend their transfusion knowledge further. You have a professional responsibility to ensure that you have undertaken this training if you are involved in any phase of the transfusion process including drawing cross-match samples, collecting blood packs, administration and prescribing of blood components.

1.4 The Hospital Transfusion Committee

There is a multidisciplinary hospital transfusion committee (HTC) (Appendix 7) that has defined responsibilities and accountability to the chief executive via the clinical governance structure. The HTC has a number of roles and responsibilities as outlined in MEL(1999)9 and HDL(2003)19. These include:
• Promoting best transfusion practice.
• Leading multi-professional transfusion audit
• Provision of feedback on audit of transfusion practice and the use of blood to all hospital staff involved in blood transfusion.
• Promoting the education and training of all clinical, laboratory and support staff involved in blood transfusion, including the collection of specimens.
• Modifying transfusion protocols as necessary to improve practice.
• Being a focus for local contingency planning for and management of blood shortages.
• Consulting with local patient representative groups where appropriate.
• Contributing to the development of clinical governance.
• Implementation of the NHSScotland Better Blood Transfusion Programme
• Reviewing all reports of adverse events and near miss incidents relating to blood transfusion and, in response, implementing changes in practice where necessary.

1.5 The Emergency Blood Planning Group

In addition to the HTC, there is an Emergency Blood Planning Group for Clyde Region (Appendix 8) which has drawn up contingency plans for dealing with blood shortages. In the event that stocks of blood within Scotland fall below the three-day average requirement restrictions of supply to hospital blood banks will be implemented which will have implications for planning of elective surgery and elective transfusions in the first instance and, at worst, will restrict blood provision to only those cases where the transfusion need has been unpredictable and is needed to save life (e.g. acute trauma).

1.6 The hospital blood transfusion service

Within the Royal Alexandra Hospital, blood banking services are provided by the hospital transfusion laboratory which receives its blood component and blood product supplies from the West of Scotland Blood Transfusion Service, based on the Gartnavel General Hospital site in Glasgow. The Hospital Transfusion Committee, which represents a multi-disciplinary group and is mandated by the Scottish Executive, is responsible to oversee all aspects of transfusion practice.

Transfusion advice relating to technical matters of transfusion medicine is available from Biomedical Scientific (BMS) staff in the Transfusion Laboratory. Clinical advice regarding transfusion issues can be obtained by discussion with the hospital Consultant Haematologist during office hours, or by contacting the “on-call” Consultant Haematologist via switchboard out of hours.

Note that it is essential to ascertain prior to admission for elective surgery or as soon as possible after admission to hospital or attendance for obstetric care whether or not the patient has any fundamental objections to blood product
administration, on religious grounds or for other reasons. A patient’s refusal to accept blood transfusion should be clearly documented. Special consent forms/advance directives for Jehovah’s Witnesses are available and should be used wherever possible for these patients.

2 SPECIMEN COLLECTION & BLOOD ORDERING

All requests for blood or blood products must be made on a fully completed Blood Transfusion Request Form and accompanied by a hand written, and signed, transfusion blood specimen. In cases of urgency, if the lab has already received a sample and form for Group & Screen or Cross-match, a telephone request, giving the full identification details of the patient, what is required, when and where, is acceptable.

Blood can only be issued against adequately identified specimens and request forms as outlined below. Laboratory staff are correct in their refusal to accept inadequately labelled samples or forms. Accuracy and consistency in the spelling of the patient’s name is vital if the sample is to be linked to previous records on the transfusion database giving important information about earlier grouping and antibody screening.

2.1 The Blood Transfusion Request Form
(Appendix 3)

- Should be completed and signed by the requesting medical officer or designated nursing staff and must contain full patient identification, including:
  - Full name (Surname and Forename)
  - Date of birth
  - CHI number (or other unique identifier e.g. Hospital record number or A&E "EDIS" number in full)

Should clearly state:

- The transfusion requirements (product type, number of units, any special requirements e.g. irradiated)
- The clinical diagnosis (+ indication for transfusion, if different)
- The date & time blood is required
- Patient’s ward and consultant (+ site blood required, if different)
- Any relevant transfusion history (e.g. positive antibody screen)

- Should be sent along with the specimen to the Transfusion Laboratory without delay. Urgent requests should be despatched by emergency porter and the laboratory notified by phone.
After hours (5pm–9.00am), requests for all blood products and procedures relating to blood transfusion should be directed to the “on-call” haematology BMS via switchboard.

The service available on Saturday mornings is limited to the hours 9.00am-12.00pm, and Sunday mornings, 9am-12pm. All blood transfusion requests (Group & Screen and Cross-Match specimens) should be discussed with the BMS on duty.

All transfusion requests on weekends out of hours, Saturday 12.00pm – Monday 9.00am must be discussed with the "on-call" BMS via switchboard.

2.2 The blood transfusion specimen:

- Should be sent in a 4.9ml Monovette (blue top, EDTA)
- **Pre-labelling of tubes is extremely dangerous and must be avoided**
- Addressograph labels will not be accepted - the specimen must be hand written at the bedside after the patient is bled into the sample tube
- Patient details on the sample tube must correspond to the identity band of the patient bled and should be confirmed by verbal communication where possible
- This information should then be checked against the request form and only when all three correspond, should the form be counter signed by the individual taking the sample

**NOTE:** See Appendix 3 for labelling of CORD BLOOD samples and request forms. Special care should be taken with "Mother and Baby" samples as these are a recurring cause of errors due to failure to correctly identify these samples.

2.3 Telephone requesting of blood and blood products

In certain circumstances a patient blood sample is not required by the transfusion laboratory e.g., requirement for additional units of blood, conversion of 'group and save' to a cross match etc. A common practice has been to accept verbal request by telephone. It is essential that full and correct patient identification details are given to, and recorded by, the laboratory officer. This should include – full forename, surname, DOB and CHI number (or hospital number or A&E number if no hospital number). In addition, ensure that the correct location for delivery of the components is given.
A Telephone Requesting of Blood and Blood Products form is completed by the BMS in the transfusion laboratory, which is retained for future reference.

2.4 Avoiding overnight transfusions

It is considered bad practice to carry out elective transfusions overnight or in the late evening unless this is clinically essential. Staffing levels are lower and this creates excessive demands for monitoring and identification checks which may have an impact on patient safety and create excessive strains on nursing staff. It also interferes with the patient's rest. Transfusions should commence in the morning or early afternoon wherever possible. Clearly state on the request form the date and time the cross-matched blood is actually needed.
3 RED CELL TRANSFUSION REQUIREMENTS

3.1 Number of units required

Blood and blood products are precious commodities and are frequently in short supply. It is therefore essential that excessive and unnecessary ordering be avoided.

- For many operations the likelihood of requiring blood is low and only a “Group & Save” request is necessary. RAH operates a Maximum Surgical Blood Ordering Schedule (MSBOS), which acts as a guideline to the appropriate request of blood products according to the relevant surgical procedure. (Appendix 4). Please state the surgical procedure clearly on the form. If you are ordering more than the MSBOS tariff for a specific operation you must give the reason for this (e.g. coagulopathy, preoperative anaemia).

- “Group & Save” specimens are screened for the presence of red cell antibodies and retained in the blood bank for 7 days. If no antibody is detected, blood can be matched within a few minutes of a telephoned request.

- If an antibody is identified the clinician will be notified in order that alternative transfusion arrangements are made and at least 2 units of blood will be cross-matched, even if only a Group & Save has been requested.

- Note that G&S samples arriving out-of-hours will not be processed as a priority unless it is made clear to the BMS that the patient is going to theatre imminently.

- For patients requiring cross-matched blood the number of units ordered for a proposed procedure should comply with that stated in the MSBOS.

- Blood requirements for anaemic or bleeding patients can be difficult to predict. On average transfusion of one unit of red cells will raise the haemoglobin by approximately 1g/dl.

- An ideal post-operative haemoglobin is a matter of debate and suggested trigger levels for transfusion are discussed in SIGN Guideline 54 (Peri-operative Blood Transfusion for Elective Surgery Patients). In general post operative patients with a Hb > 10g/dl do not require transfusion while those with a Hb < 7 g/dl will.

- Transfusions should be avoided where alternative measures are available and appropriate (e.g. iron supplements, folate or B12 supplements, erythropoietin, cell salvage and autologous pre-donation, see section 3.4).

- Transfusion can obscure investigation of anaemia and if the cause of anaemia is unknown, transfusion should not be given without investigation.
3.2 Urgency of request

**Routine requests** for elective surgery or transfusion should be sent to the hospital transfusion laboratory at least 24 hours before the intended transfusion date and time. If there is a known positive red cell antibody screen, at least 48 hours notice is required prior to the intended transfusion date and time.

**Urgent requests** for matched red cells should be referred to the transfusion laboratory by telephone. Blood will normally be available for collection at the transfusion laboratory within 1 hour of receipt of specimen - but compatible units can be made available within minutes if the sample has already been “grouped & saved”.

**Very urgent requests** If it may be unsafe to delay transfusion for more than 40 minutes (time for matching, issuing and transport of blood to the patient), consider using unmatched, “group-compatible” blood - issued only according to the patient's known ABO and RhD group, determined on a current sample. This will rarely cause ANY incompatibility reaction and the risk of this will be less than the complications of life-threatening haemorrhage.

There are two options:

- **Group specific blood** (blood of a group which is known to be ABO compatible with the patient's blood but not serologically cross-matched)
  - Available at the transfusion laboratory within 10 minutes if specimen already grouped & saved
  - OR available within 10 minutes of receipt of a cross-match specimen

- **Group O RhD Negative blood** (unmatched)
  In an emergency setting you may need to use the Group O Rh D Negative Blood which are stored in selected blood fridges in RAH.
  (See Section 11, and Appendix 2) for "Emergency Provision of Blood and Blood Products" and "Location of Blood Fridges".

  - Inform the Transfusion Laboratory immediately if any of these units are removed so that stock can be replaced before the next emergency arises.
CODE RED (emergency procedure at ROYAL ALEXANDRA HOSPITAL)

- **Within Normal Lab Hours (9am-5pm, Mon-Fri)**
  - Phone Blood Transfusion on CODE RED EXTENSION 47358
  - Phone Switchboard on Emergency number 222, advise you have a “Code Red”, notify them of the location, relevant extension number and ask for the porter to be contacted on the Emergency Tone Page.

- **Outside Normal Lab Hours**
  - Phone Switchboard on Emergency number 222, advise them you have a “Code Red”, advise of location, relevant extension number and ask them to contact the Haematology BMS and the Porter on the Emergency Tone Page.
  - The Haematology BMS will contact the relevant hospital ward/department for more details.

In every instance the Haematology BMS will ask for FULL IDENTIFICATION DETAILS on the patient, WHAT IS REQUIRED and HOW SOON it is required – ensure that ward/theatre staff who will be dealing with this call are FULLY AWARE OF THESE DETAILS.
3.3 Timing of Sample in Relation to Planned Transfusion

Patients who have been transfused or pregnant within the three month period before the planned transfusion may be in the process of developing red cell antibodies at the time the blood sample for pre-transfusion testing is drawn. For this reason the following table showing timing of sampling in relation to time of PLANNED COMPLETION of the transfusion must be adhered to. This will minimise the risk of transfusing blood which is now incompatible with the patient.

<table>
<thead>
<tr>
<th>When was last transfusion or pregnancy?</th>
<th>Sample should be drawn not more than:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the last 3-14 days</td>
<td>24 hrs before planned transfusion</td>
</tr>
<tr>
<td>Within the last 14-28 days</td>
<td>72 hrs before planned transfusion</td>
</tr>
<tr>
<td>Within the last 28d-3 months</td>
<td>7 days before planned transfusion</td>
</tr>
</tbody>
</table>

In cases of ongoing pregnancy it is necessary to take a more pragmatic approach – it is recommended that for pregnant patients at increased risk of bleeding a fresh sample is sent for pre-transfusion testing not more than one week before the intended transfusion.

In some individuals, e.g. thalassaemic patients, who have been repeatedly transfused for several years and who have not had an antibody response, a more tolerant approach may be taken.

It may be possible to hold blood samples for more than one week (to a maximum of 14 days) to facilitate the running of pre-admission clinics. This should be discussed with the hospital transfusion laboratory staff. It is the responsibility of the consultant who is requesting this service to ensure that all staff using this facility are aware of the need to determine a recent transfusion and/or pregnancy history. Patients who are currently pregnant are NOT suitable for prolonged storage of pre-transfusion sample. Failure to adhere to these recommendations may lead to a life-threatening transfusion reaction.

3.4 Special blood requirements – irradiated, CMV negative, paediatric recipients

All red cell units supplied by SNBTS (Scottish National Blood Transfusion Service) are leucodepleted and stored in additive solution. Such units, containing minimal donor white cells and plasma, are suitable for the majority of recipients. However, specific patient groups (e.g. immuno-compromised patients) may require separate and additional red cell specifications (e.g. CMV negative, irradiated etc.). Such special requirements must be clearly indicated on the request form and the transfusion laboratory given sufficient notification, since provision of these components may take longer.
Irradiated cellular products (red cell, platelet or granulocyte concentrates) are required when there is significant risk of the recipient developing Transfusion-Associated Graft-Versus-Host Disease\(^8\), an almost universally fatal condition. The following situations merit the use of irradiated products:

- If the recipient is immuno-compromised secondary to current or previous:
  - Hodgkin's Disease
  - Treatment with purine analogues (Fludarabine, Cladribine, deoxycoformycin) or Campath 1H
  - all granulocyte transfusions
  - all donations from family members (1\(^{\circ}\) and 2\(^{\circ}\)) and all HLA-selected donations
  - If the recipient has a congenital immunodeficiency state (of cell-mediated immunity)
  - Any cellular transfusion during the 7 day period before a Peripheral Blood Stem Cell (PBSC) or Bone Marrow Collection
  - Allogeneic BMT/PBSCT from conditioning until 1 year post transplant or longer if GVHD prophylaxis / treatment continues
  - Autologous BMT/PBSCT from mobilisation or conditioning until 6 months post transplant
  - All intra-uterine transfusions, as well as subsequent exchange or top-up transfusions

Previously irradiated red cell concentrates may contain higher levels of extracellular potassium; thus their shelf life is limited to 14 days following irradiation. However, neonates should receive red cells within 24 hours of irradiation.

Non cellular blood products (e.g. FFP and Cryoprecipitate) do not require irradiation.

All irradiated components should have a RAD-SURE label adhered to the unit. This should be examined to confirm the unit has been irradiated before commencing the transfusion.

Patients under the age of 16 who require FFP must receive virally-inactivated (MB-FFP) plasma imported from non-UK donors to minimise any theoretical risk of vCJD.
3.5 Autologous pre deposit

In some cases it may be possible for patients to donate their own blood prior to an elective surgical procedure. This should only be considered if the operation would normally require \( \geq 2 \) units of blood to be matched and the patient has a definite date for surgery. The patient should have a reasonable Hb (>11.5g/dl) prior to commencement of pre-donation and should have no history of epilepsy or delayed faints after previous blood donation. The presence of active infection, current therapy with \( \beta \)-blockers, a known history of ischaemic heart disease or moderate/severe aortic stenosis would also preclude donation. Donations are collected within the 4-5 week period prior to the operation, in the Clinical Apheresis Unit at Glasgow Royal Infirmary. Referrals should be made to this unit on extension 0141 211 1126/4034. Referral forms, patient information leaflets and selection guidelines are available from the Apheresis Unit on request.

4. RELEASE, COLLECTION & STORAGE OF RED CELLS

4.1 Release of matched red cells

When compatibility testing is complete, each matched unit will have a **Compatibility and Traceability Label** (appendix 6) attached, stating:

- the identification of intended recipient (the patient)
- a description of the red cell unit (including specifications)
- an expiry date

In order to comply with European regulations, the traceability label contains a separate section to enable you to document that the blood has been administered to the patient. It is a legal requirement that this is completed once any of the pack has been administered to the patient and it MUST be returned to the lab so that the fate of the blood can be positively documented. Note that, in the near future we anticipate changing from our current white labels to the national coloured label. Both types are shown in Appendix 6.

A **Blood Transfusion Compatibility Report** (appendix 6) is issued with the first unit of the intended number of units to be transfused. The compatibility report should be used as the patient identification when subsequent units are collected.

4.2 Collection of blood product

- All matched units are stored in the Transfusion Laboratory or a satellite fridge.
- Units collected must be taken directly to the patient’s location for immediate transfusion. Only one unit should be removed from the fridge at a time. However, in an emergency it may be necessary to remove more than one
unit. Except in dire emergencies, staff should not remove blood from storage fridge until there is a functioning venous access.

- If the blood is not used within 24 hours of the request date, it will be removed from the satellite or transfusion laboratory fridge and returned to general stock unless discussed with the laboratory.
- Blood should only be removed from the transfusion laboratory or satellite fridges by a member of staff (medical, nursing, or portering) who has a completed blood collection form (Appendix 5) or who is in possession of a patient identifier with the following patient details:
  - full name (Surname & Forename)
  - date of birth
  - hospital number.

The auto issue standard operational procedure within RAH must be followed when collecting blood products. If this is not in operation, due to equipment failure, all staff collecting blood products from a satellite fridge or the laboratory must document the date, time and legibly sign for each unit collected.

- Staff collecting the product must deliver it immediately to the clinical area.
- When the blood component arrives in the ward/clinical area, the member of staff responsible for the transfusion should ensure that the correct blood or blood product has been collected for the intended patient, i.e. “the right blood for the right patient”.
5 ADMINISTRATION OF BLOOD COMPONENTS

The indication for transfusion must be clearly recorded in the patient's case sheet. Where practical, patients should be informed of their need for transfusion and the potential risks involved, including symptoms that should be reported during the infusion. They should be given the opportunity to discuss concerns and to discuss alternatives to transfusion. All patients receiving blood should be in a clinical area where resuscitation facilities are available.

Transfusion is potentially hazardous and all patients' transfusion needs should be carefully assessed. Top-up transfusions should not be routinely cross-matched or administered overnight.

After a blood product has been withdrawn from an approved blood storage fridge and taken to the patient’s bedside (refer to section 4.2) the following procedures should be strictly adhered to:

5.1 Prescription of blood

A medical practitioner, using the correct Intravenous prescription form, must prescribe blood and blood product transfusions. The prescribing practitioner should ensure that the blood delivered meets all the patient's transfusion requirements. The infusion time for a single unit of blood should not exceed 4 hours (after this time the risk of bacterial infection of the blood becomes unacceptably high).

5.2 Bedside checking procedure

Two registered medical/nursing personnel must check and administer blood and blood products. The date and time and signatures must be recorded on a Compatibility form.

- **This is the final check and the single most important step in ensuring the safety of the transfusion and must be carried out AT THE PATIENT’S BEDSIDE**

- **All Patients receiving a transfusion must have an identity band on.**
The most important part of the procedure is that the information on the **COMPATIBILITY LABEL AND REPORT** attached to the unit should be identical to the information on the **PATIENT’S IDENTITY BAND**:

- **Full Name (Surname & Forename)**
- **Date of Birth**
- **CHI Number (or Hospital Number).**

The donation number on the blood pack should be identical to the donation number on the compatibility label and compatibility report.

Where possible ask the **PATIENT** to state their:

- **Full name**
- **Date of birth**

  (It is important that the person administering the transfusion assesses the patient’s condition and ability to identify themselves)

The expiry date of the blood (product) must be checked.

The product should be examined for abnormalities e.g. discolouration.

If the patient has special requirements (e.g. CMV negative, irradiated blood) the unit should be checked to confirm its suitability.

**DO NOT** administer the unit of blood if there is any discrepancy identified in the above checking procedure. If there is a discrepancy discuss the matter with medical staff and blood transfusion BMS staff but ensure that the blood is returned to the blood fridge as soon as possible (within 30 minutes of removal) if there will be any difficulty in resolving this discrepancy. All discrepancies must be resolved prior to commencing the infusion.

**If in doubt ask!**

**Use of alternative unique identifier:** (Hospital Number/CHI number/A&E "EDIS" Number) – occasionally a sample will have been sent bearing a **CORRECT** CHI number or EDIS Number, for example, but the patient has been given an ID band bearing the RAH hospital number (or vice versa). If you can safely identify that this is the same patient (e.g. you have the A&E notes with the EDIS number as well as the hospital case sheet and the patient can identify themselves) you can apply a second identity band bearing the patient's name, DOB and unique identifier which was given on the transfusion sample and request. If there is ANY uncertainty the patient should be bled again with the appropriate identifiers applied to the sample and request form.

The nurse starting the transfusion should wash hands and wear gloves.
• Once the transfusion has been commenced, sign and date the Traceability section of the Compatibility Label (Appendix 6). It is recommended that this is not detached from the pack until the transfusion is completed.

• The transfusion compatibility form should remain at the patient’s bedside for the duration of the transfusion. On completion of the transfusion, the compatibility form should be filed in the patient’s medical record and consulted for a possible future transfusion history.

• Blood should be transfused via a giving set with an integral mesh filter (170-200 micron filter) unless otherwise indicated by medical staff or blood bank staff.

• Both peripheral and central venous access devices are suitable for transfusion purposes.

• It is not necessary to prime the blood giving set, however normal saline (not Dextrose etc.) can be used for priming and flushing if required.

• Once a unit has been delivered to a ward, if a delay in commencing transfusion can be foreseen it should be returned to the blood fridge until required.

• Any unit that has been out of the blood fridge in excess of 30 minutes, without infusion having commenced, should not be returned to a satellite fridge.

• If blood has been out of the fridge for more than 30 minutes but the transfusion can be completed within 4 1/2 hours of removal from the fridge the transfusion can proceed.

• If it is judged that the transfusion cannot be completed within 4 1/2 hours of removal from the fridge and the blood has been out of the fridge for more than 30 minutes it must be discarded by the transfusion laboratory. After contacting the haematology BMS, return the unit directly to the transfusion laboratory to be discarded. Staff can cross-match a further unit if required.

• Drugs must not be added to, or run simultaneously through the same infusion cannula as, blood or blood components except for RARE exceptions where the safety of the drug/ blood component combination has been definitely confirmed. The pH of many drug solutions will cause haemolysis of red cells or platelet aggregation and calcium-containing mixtures will cause clotting.
• Staff should be extra diligent in checking patient details with an unconscious or confused patient who will not be able to verbally confirm their identity.

• Caution is also required during a major incident where a unique emergency number may be the only source of identification. This will also apply to unidentified patients in A&E.

5.3 Observation of patient during transfusion

• All patients must be observed during a blood or blood product transfusion to enable staff to detect an adverse reaction as early as possible in order that immediate treatment is initiated. All blood products can potentially cause an adverse reaction. Check for extravasation at the commencement of the transfusion and at times of planned monitoring (see below).

• Patients should be informed of the possible symptoms of a transfusion reaction and instructed to notify staff if they feel unwell during the transfusion.

• Severe reactions most commonly occur in the first 15 minutes of a transfusion and the patient should be monitored more closely during this period.

• Prior to commencing EACH UNIT, baseline observations; Temperature, Pulse and Blood Pressure should be recorded on the appropriate chart.

• Temperature and pulse should then be measured and recorded 15 minutes after commencing each new unit and then every 30-60 minutes depending on clinical condition of the patient. Observations must be performed and documented for each unit of blood commenced.

• Additional recording of vital signs are essential if the patient becomes unstable or develops signs and symptoms of an adverse reaction (Refer to section 6).

• A transfusion should NOT be withheld simply because the patient has a temperature, tachycardia or hypotension before the transfusion begins. The pre-transfusion observations enable you to determine more readily if a subsequent fever, for example, has been precipitate by the blood component.

5.4 Traceability

On completion of the transfusion, the entire Compatibility label (including the Traceability section) (Appendix 6) must be detached and returned to the Transfusion Laboratory by placing the label inside a specimen bag and placing in the container used for specimen uplift from the ward/department. If the label has not already been signed and dated this must be done by the individual completing the transfusion. Returning the completed traceability label is a LEGAL REQUIREMENT.
5.5 Completion of the transfusion

On completion of the transfusion all blood or blood product packs should be disposed of in orange clinical waste bags unless there has been a suspected transfusion reaction. In this latter situation they should be returned to the transfusion laboratory, immediately, for investigation (Refer to Section 6).

Upon completion of the transfusion the Blood Transfusion Compatibility Report should be filed in the patient’s case notes and the doctor should record the outcome of the transfusion in the case sheet.

5.6 Blood spillage

In the event of spillage of blood or a blood component please follow infection control guidelines on ‘Disinfectants for Environmental Use Following Body Fluid Contamination’.

5.7 Transfer of units of blood between hospitals, accompanying critically ill patients

Blood being transferred with a patient to another hospital must be in an insulated container, validated for the purpose and bearing the time and date at which it was removed from a blood fridge and placed in the transport box. The Haematology BMS will liaise directly with the receiving hospital blood transfusion laboratory to advise that these units are being transferred. Only units sufficient to cover the period of transfer should be sent. Blood should only be transfused if it can be given within 4 1/2 hours of the stated time on the validated transport box. Otherwise it should be sent to the receiving hospital blood bank where staff will be able to check its suitability for reissue. A cross-match sample from the patient should be sent to the transfusion laboratory as soon as the patient arrives in the hospital with clear communication of when, where and how much more blood is needed. It may be necessary to use emergency O Negative units as an interim measure while awaiting further units of compatible blood. If in doubt contact the blood transfusion laboratory.

5.8 Transfer of units of blood from RAH to a Hospice or to Islay Hospital for elective transfusion

Blood will be packaged in a transport box which will maintain the core temperature between 2-10C for a specified time period. The box will be labelled clearly to indicate the latest time at which transfusion of the blood can be commenced. Only one unit should be removed from the box at a time and the box should be securely closed after removing the unit to maintain the remaining
units at the appropriate temperature. The transfusion of ALL units must be completed within 4½ hours of the time stated on the transport box. Traceability labels (Appendix 6) MUST be completed and returned as stated in 5.4. Any unused units MUST be returned to the RAH transfusion laboratory for logging and disposal.

6. BLOOD TRANSFUSION REACTIONS

Any adverse event experienced by a patient in association with a transfusion should be considered a possible transfusion reaction. A mild reaction may be the early signs of a severe reaction – Don’t Ignore It!

All adverse reactions must be recorded in the patient’s medical and nursing notes.

6.1 Acute haemolytic reactions

A major haemolytic reaction is almost always due to the infusion of ABO incompatible blood. The reaction is usually most severe if Group A blood is infused into a Group O patient. These reactions are almost always due to clerical error, or to failure of adequate checking of patient identification before transfusion. This may affect more than one patient on the same ward or unit. Acute haemolytic reactions are generally accompanied by an acute deterioration in the patient’s condition with severe apprehension, rigors, chest pain, loin pain, abdominal pain, dyspnoea, shock, hypotension, oliguria and at times haemoglobinuria.

Immediate reaction is required:

- **Stop** transfusion
- **Check** patient identification (and those of other patients who may have sampled or transfused at the same time)
- **Take down** the blood pack and blood administration set
- **Replace** with fresh administration set and keep line open with saline
- **Immediately report** the incident to the nurse in charge and medical staff, including the on-call consultant haematologist.
- **Maintain airway**
- **Catheterise** and **measure** hourly urine volume
- **Notify BMS staff** in transfusion laboratory. The blood pack, blood administration set and a fresh cross-match specimen (4.9ml – EDTA), should be sent to the transfusion laboratory immediately. Relevant clinical details must be completed on the transfusion request form and sent with the cross-match specimen. A coagulation screen, full blood count and biochemistry including U&E, LFT must be sent to the relevant laboratories as soon as possible providing relevant clinical details.
• For all suspected transfusion reactions you will also be asked to complete an “Investigation of Transfusion Reaction” form which will be sent up to you by the laboratory staff.

• Return any remaining untransfused units and empty donor units to the transfusion laboratory in order that their compatibility is confirmed.

• Further investigation, treatment and need for transfusion, requires discussion with the on-call Consultant Haematologist.

• For all transfusion errors and serious reactions a blood transfusion incident report will be completed by the Hospital Transfusion Practitioner and/or Transfusion Consultant for the attention of the Hospital Transfusion Committee.

• It is a legal requirement that all serious transfusion reactions or serious adverse events are reported to the Medicines and Health Care Products Regulatory Agency and/or the Serious Hazards of Transfusion Scheme. This will be undertaken by Haematology medical or laboratory staff.

6.2 Febrile non haemolytic transfusion reactions

Fever and rigors or shivering at the commencement of transfusion are highly suggestive of an acute haemolytic transfusion reaction. [See above]. Similar symptoms developing later during the transfusion may be the result of leucocyte antibodies, however such reactions are much less common following the introduction of universal leucodepletion of red cells and platelets.

If a febrile non-haemolytic mild transfusion reaction is suspected or occurs:

• Slow the transfusion and observe the patient

• Give antipyretic e.g. Paracetamol 1 gram orally unless otherwise contraindicated by a pre-existing medical condition.

• Re-commence the transfusion at the prescribed rate if the fever settles after 30mins.

• Document the event and record all intervention initiated.

• Discuss. Patients experiencing recurrent febrile reactions may require pre-medication using an antipyretic +/- an antihistamine.

6.3 Allergic reactions

Most allergic reactions consist of urticaria and itch occurring within minutes of starting the transfusion. These reactions are more likely following platelet or FFP infusions and result from infusion of proteins to which the patient has preformed antibodies. Symptoms usually settle if the transfusion is slowed and an antihistamine given e.g. Chlorpheniramine 10mg by slow i.v. injection +/-
Hydrocortisone 100mg i.v by slow injection is administered. The transfusion may be continued if there is no progression of symptoms after 30 minutes.

6.4 Severe anaphylaxis

This is a rare complication and occurs most commonly with the administration of fresh frozen plasma. The transfusion should be stopped and supportive and anti-anaphylactic measures applied. Expert advice from an anaesthetist may be required. (See Appendix 1).
7. BLOOD PRODUCTS

The term "blood product" is used in this document to refer to all therapeutic materials made from blood.

Blood Products (non Red cell)
Fresh Frozen Plasma (FFP)
Cryoprecipitate ("cryo")
Platelets
Human Albumin 4.5% or 20%
Human Immunoglobulin (for Intravenous Use)
Human Normal Immunoglobulin (IM)
Human Hepatitis B Immunoglobulin
Human Tetanus Immunoglobulin
Human Anti-D Immunoglobulin
Human Varicella-Zoster Immunoglobulin
Human Rabies Immunoglobulin
Prothrombin Complex Concentrate (Octaplex).

7.1 Ordering blood products

Particular care is required to ensure accurate identification of the patient on the blood product request form. Sufficient information must be supplied, on both specimen and request form, for positive identification of the recipient (Refer to Section 2). Blood products can only be issued against an adequately identified blood product request form. Some will require discussion with the on-call Haematologist.

- A transfusion sample is required for FFP, cryoprecipitate and platelets to enable the correct group to be issued.
- A current blood sample is required before most anti-D issues.
- Ordering of a blood product is a medical practitioner or midwifery (for anti-D) responsibility.
- The request form should give the blood product requirements, the clinical diagnosis, date and time required, ward, Consultant and if a theatre, specify the latter.
- The blood product request form should be forwarded to transfusion laboratory.

If urgent, the laboratory should be notified by telephone. The laboratory should also be notified of any change in the patient’s circumstances e.g. change of ward.
Administration of Blood Products

Blood products other than red cells and occasional anti-D supplies, will not be stored outwith the Blood Bank and should be taken to the patients bedside where the standard procedure for administration of blood components should be followed (see section 5).

7.2 Indications for use of FFP and Cryoprecipitate

Fresh frozen plasma (FFP) and Cryoprecipitate are prepared from plasma recovered from fresh blood donations. As such they do not routinely undergo any viral inactivation step. Supplies of Methylene-Blue treated (i.e. virus-inactivated) FFP and Cryoprecipitate prepared from plasma from non-UK donors are available and must be used for any child up to the age of 16 years. These components are also recommended for individuals with congenital coagulation factor deficiencies for whom a specific factor concentrate is not available.

FFP is available in single donor units (approximately 200-300mls) containing most plasma proteins, including all coagulation factors (Fibrinogen 2-5g/l, Factor VIII > 70 iu/dl), albumin and immunoglobulins.

 Accepted clinical indications for use (usually at a dose of 12-15ml/Kg) include:

- Replacement therapy in patients with single coagulation factor deficiency, for which a specific factor concentrate is not available (MBT-FFP preferred)
- Reversal of warfarin effect (Vitamin K and prothrombin complex concentrate are preferred in this circumstance)
- Thrombotic Thrombocytopenic Purpura (TTP)
- Acute DIC
- Other situations where coagulation test indicate a coagulopathy (e.g. massive transfusion, liver disease)

FFP has a shelf life post thawing of 24 hours (if stored in a blood fridge) and would normally be transfused over 30mins and at all times compatible with patient safety (e.g. fluid overload).

Cryoprecipitate is available in pools of five donor units (approximately 50-100ml) containing predominantly Fibrinogen (150-300mg), Factor VIII (80-120iu) and Von Willebrand Factor. Cryoprecipitate is usually issued as 2-4 pools of 5 units and is indicated for:

- Fibrinogen replacement therapy in congenital deficiency/dysfunctional states
- Severe coagulopathy (DIC), in addition to FFP, when Fibrinogen < 1g/l

Cryoprecipitate has a shelf life post thawing of 24 hours (if stored in a blood fridge). It should be transfused as soon as possible after reaching the ward and generally transfused over 30 minutes (not >4hours from puncturing pack).
7.3 Indications for use of platelets

Platelets are normally supplied in single bags containing one adult dose (>250 x 10^9 platelets). This will have been prepared either from a single donor by apheresis or recovered from 4 whole blood donations with a total volume of 200-300mls. Platelet preparations contain <5 x 10^6 WBC and do not undergo viral inactivation treatment.

Recognised indications for use include:

- **Therapeutic**
  - Massive bleeding/red cell transfusion (if platelets < 50 x 10^9/l)
  - Significant bleeding with marrow failure (if platelets ≤ 30-50 x 10^9/l)

Significant bleeding with dysfunctional platelets irrespective of the platelet count (e.g. patients on aspirin or clopidogrel)

- **Prophylactic**
  - Pre-operatively: lumbar puncture, epidural anaesthesia, gastroscopy and biopsy, insertion of indwelling lines, transbronchial biopsy, liver biopsy, laparotomy or similar procedures, the platelet count should be raised to at least 50 x 10^9/l
  - Pre-neurosurgery or eye surgery: the platelet count should be raised to at least 100 x 10^9/l
  - Marrow failure: platelet count should be maintained >10 x 10^9/l (> 20 x 10^9/l if septic or other risk factor for bleeding)

Platelet transfusions are generally contra-indicated in patients with Haemolytic Uraemic Syndrome (HUS), TTP or Heparin Induced Thrombocytopenia (HIT).

**In patients with immune thrombocytopenic purpura (ITP) platelet transfusion is not indicated unless there is life-threatening bleeding. This should always be discussed with a haematologist.**

Platelets should be transfused through a specific platelet transfusion giving set provided by the transfusion laboratory. There should be minimal delay in commencing the transfusion once the platelets arrive in the ward area (these do not have to be agitated following receipt). Administration is usually over a period of 30-60mins and must be no longer than 4 hours.

**Under no circumstances should platelet concentrates be refrigerated.**

Platelet packs that have been inadvertently refrigerated must not be used and should be returned to the transfusion laboratory for disposal.
8 Additional Information

8.1 Informed consent

Although the task of gaining consent for a blood transfusion is not a legal requirement within the UK, it is considered a required standard of good transfusion practice to ensure that the patient receives adequate information regarding their transfusion. This standard is laid down in the Quality Improvement Scotland “Clinical Standards – Blood Transfusion 2006” and compliance will be monitored. This should include information pertaining to the risks and benefits of transfusion as well as information relating to available alternatives, for example, iron supplementation. Nurses and doctors therefore, have a professional duty to ensure that they have adequate knowledge of transfusion related issues or that they can access the information and support required by patients undergoing transfusion therapy. Blood transfusion information leaflets for patients and relatives are available in all ward areas and should be used to support the process of informing the patient. Patients who have been transfused while unconscious, without prior discussion, MUST be informed about the transfusion as soon as their clinical condition allows.

8.2 Professional Accountability

Nurses and doctors are accountable to their respective professional bodies, to their patients and to their employing authority to provide safe and appropriate care during the transfusion process and for the provision of care appropriate to their level of knowledge and skills.

8.3 Record Keeping

Details of all blood components transfused, the clinical and laboratory indications for transfusion and the laboratory compatibility record form should be recorded in the patient’s medical record.

All staff involved in the checking of blood or blood components should ensure that they have signed the appropriate documentation to say that they have done so. On completion of the transfusion staff should ensure that all records are filed in the correct patient’s health record.

The BCSH Guidelines: ‘The administration of Blood and Blood Components and the Management of Transfused Patients (1999)’, recommend that a permanent record of the transfusion of blood components should be kept in the patient’s health record, and a comprehensive and accurate record of the transfusion event and any adverse effects documented. The following information is required:

- Pre Transfusion Hb or platelet count
• Reason for transfusion
• Baseline observations
• Compatibility form/Component type and number
• Prescription form
• Time transfusion commenced
• Duration of Transfusion
• Signature of person(s) administering transfusion
• Transfusion observation chart
• Fluid balance chart
• Record of any adverse event/ Complication of transfusion
• Post transfusion FBC: haemoglobin and platelet counts.

This information is essential for a number of reasons, including the investigation of a serious adverse event e.g. transfusion reaction, look back for transfusion-transmitted infection.

8.4 Infusion Devices

Blood Warmers are most commonly required in:

• Large volume rapid transfusion
  > 50ml/kg/hour for adults
  > 15ml/kg/hour for infants

• Exchange transfusion in infants

• Patients with cold-agglutinins requiring transfusion

If a blood warmer is required, then the person responsible for the transfusion should strictly follow the manufacturer’s guidelines. Blood must not be warmed by any other means.

Infusion Pumps
Infusion pumps are commonly used in intensive care to achieve optimum flow rates. Always check that the manufacturer’s specification to ensure that the pump and the infusion set are suitable for the infusion of red cells, and that the doctor responsible for the patient’s care approves of its use.

Pressure Devices
In large volume rapid transfusion, the use of a pressure device is recommended. The maximum pressure that should be applied to a blood transfusion pack is 300mmHg.
9 Major Haemorrhage (adapted from Handbook of Transfusion Medicine, 3rd Edition, 2001)

In the event of major haemorrhage (e.g. likely need for >6 units within 6 hours) inform the transfusion laboratory as soon as possible of the need for blood and ensure that a correctly labelled pre-transfusion sample and form are sent immediately by the most rapid route.

Consider instituting a "Code Red" for these events (see Section 3.2).

Carry out the following general measures:

- Insert large IV cannula.
- Infuse crystalloid rapidly until an acceptable systolic blood pressure is restored.
  - Certain patients e.g. blunt chest trauma, ruptured aortic aneurysm do better with a lesser degree of volume restoration and rapid surgical management of bleeding
- Manage other aspects of the patient's condition (oxygen, maintain temperature, pain relief etc).
- Request coagulation screen.
- Transfuse red cells to maintain adequate blood oxygen transport.
- Surgically control bleeding as soon as possible.
- Warm IV fluids if large volumes given.
- Monitor vital signs and urine output.

Simple dilutional coagulopathies are not expected until >1-1.5 blood volumes have been lost. Coagulopathy due to DIC may appear earlier, manifested as micro-vascular bleeding and bleeding from cannulation sites, if there has been massive trauma, obstetric haemorrhage due to amniotic fluid embolism, brain injury etc. In these instances FFP and/or platelets may be needed – discuss with the on-call consultant haematologist.

<table>
<thead>
<tr>
<th>Loss of blood volume</th>
<th>Replacement fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20%, up to 1 litre (adult)</td>
<td>Crystalloid e.g. 0.9% saline</td>
</tr>
<tr>
<td>&gt;20% more than 1 litre (adult)</td>
<td>Red cell and crystalloid or colloid</td>
</tr>
<tr>
<td>&gt;1 blood volume</td>
<td>Consider + FFP and platelets</td>
</tr>
</tbody>
</table>
10 Further Information (References and Bibliography)


Serious Hazards of Transfusion Annual reports SHOT Office Manchester Blood Centre, Plymouth Grove, Manchester.

- Standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood components.

The Blood Safety and Quality Regulations 2005 No. 50 (SI 2005/50)

British Committee for Standards in Haematology, Blood Transfusion Task Force. The administration of blood and blood components and the management of transfused patients. Transfusion Medicine, 1999; 9: 227-238.


11 Appendices

Appendix 1 - Anaphylaxis Guideline for anaphylactic reactions caused by blood products.

The following advice is modified from a guideline prepared by The Association of Anaesthetists of Great Britain and Ireland and The British Society of Allergy and Clinical Immunology. Note that doses given are not appropriate for paediatric use.

In patients with suspected acute anaphylaxis resulting from blood component infusion:

- **Initial Therapy**
  1. **Stop administration of blood/blood product** likely to have caused the anaphylaxis.
  2. **Maintain airway** and give 100% oxygen if indicated
  3. **Maintain venous access**
  4. **Lay patient flat** with feet elevated.
  5. **Give adrenaline.**
     - 0.5 mg to 1 mg (0.5 to 1 ml of 1:1,000) intramuscularly
     - (May be repeated every 10 min according to cardiovascular status until improvement occurs)
     - **or**
     - 50 to 100μg (0.5 to 1 ml of 1:10,000) intravenously over 1 min has been recommended for hypotension with titration of further doses as required.
  6. **Start intravascular volume expansion** with crystalloid.

- **Secondary Therapy**
  1. **Contact Duty anaesthetist**
  2. **Antihistamines** (chlorpheniramine 10-20 mg by slow intravenous infusion)
  3. **Corticosteroids** (100-300 mg hydrocortisone iv)
  4. Consider bicarbonate (0.5-1.0 mmol/kg iv) for acidosis
  5. **Bronchodilators** (nebulised) may be required for persistent bronchospasm
  6. **Contact haematologist regarding advice for further investigation of the episode.**
  7. Return the unit being transfused and any unused units to the blood bank
Appendix 2 - Location of Blood Fridges and Sites of Emergency Blood Provision at RAH

Royal Alexandra Hospital

Location of Blood Fridges

- Transfusion Laboratory, Laboratory Block
- Maternity Unit
- Operating Theatre Suite

Sites for Emergency Provision of O Negative Blood

- Maternity Unit
- Operating Theatre Suite
NOTE – CORD SAMPLES: When sending cord samples from a newborn infant it is VITAL that the baby’s details are given correctly at (1). This MUST include the baby’s sex and date of birth (it is accepted that newborn may not have a hospital number at this point and the forename will be “Baby” or “Male Infant” or “Twin 1” etc as appropriate). MATERNAL details MUST be given in full at (2). Sample labelling must make it clear that this is the baby’s sample and the date of birth MUST be applied to the tube. If the baby has no Hospital Number or CHI number, apply the mother’s number to form and sample writing “Maternal CHI” or “Maternal HN”
Appendix 4 – MSBOS

Note that the MSBOS may be revised from time to time as surgical techniques and transfusion triggers change. In particular the cross-match of a single unit for elective procedures should rarely, if ever, be indicated

### Appendix 4 RAH - Maximal Surgical Blood Ordering Schedule

<table>
<thead>
<tr>
<th>General Surgery</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.P. Resection</td>
<td>2</td>
</tr>
<tr>
<td>Anterior Resection</td>
<td>2</td>
</tr>
<tr>
<td>Colectomy</td>
<td>2</td>
</tr>
<tr>
<td>Haemorrhoidectomy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Bowel Surgery</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Splenectomy</td>
<td>2</td>
</tr>
<tr>
<td>Whipples/Partial</td>
<td></td>
</tr>
<tr>
<td>Pancreatectomy</td>
<td>4</td>
</tr>
<tr>
<td>Oesophageal Resection</td>
<td>4</td>
</tr>
<tr>
<td>Oesophageal Biopsy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Vagotomy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Liver Biopsy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Mastectomy (Simple)</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Gastrectomy (Partial)</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Thyroidectomy</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Pyloroplasty</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Perforation</td>
<td>G&amp;S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vascular Surgery</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Vascular</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Amputation</td>
<td>G&amp;S</td>
</tr>
<tr>
<td>Aortic Aneurysm</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orthopaedics (cont.)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R.T.A. As Req’d – 4 units for multiple injuries</td>
<td></td>
</tr>
<tr>
<td>Synovectomy G&amp;S</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematemesis</td>
</tr>
<tr>
<td>Malaena</td>
</tr>
<tr>
<td>G.I. Bleeding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gynaecology &amp; Obstetrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antepartum Haemorrhage As req’d</td>
</tr>
<tr>
<td>Ectopic Pregnancy (ruptured)</td>
</tr>
<tr>
<td>Ectopic pregnancy (stable)</td>
</tr>
<tr>
<td>Caesarean Section</td>
</tr>
<tr>
<td>Foetal Distress</td>
</tr>
<tr>
<td>Meconium Staining</td>
</tr>
<tr>
<td>Breech/Multiple Pregnancy</td>
</tr>
<tr>
<td>Trial of Labour</td>
</tr>
<tr>
<td>PPH As req’d</td>
</tr>
<tr>
<td>Retained Placenta</td>
</tr>
<tr>
<td>Placenta Praevia (antenatal)</td>
</tr>
<tr>
<td>Placenta praevia (delivery)</td>
</tr>
<tr>
<td>Hysterectomy</td>
</tr>
<tr>
<td>Hysterectomy (malignancy)</td>
</tr>
<tr>
<td>Laparotomy</td>
</tr>
<tr>
<td>Pelvic Floor Repair</td>
</tr>
<tr>
<td>Laparoscopy</td>
</tr>
<tr>
<td>TOP</td>
</tr>
<tr>
<td>Ovarian Cystectomy</td>
</tr>
<tr>
<td>EUA (in maternity theatre)</td>
</tr>
<tr>
<td>Evacuation</td>
</tr>
<tr>
<td>Miscarriage</td>
</tr>
<tr>
<td>Cervical/Cone Biopsy/LLETZ</td>
</tr>
<tr>
<td>Hydrotubation</td>
</tr>
<tr>
<td>Tubal Ligation</td>
</tr>
<tr>
<td>Colposuspension</td>
</tr>
</tbody>
</table>
Appendix 5  RAH - Blood Collection Form

This will be completed by portering staff who have been called to collect units of blood. It is very important the spelling of the name is given correctly and that the DOB and CHI number or hospital number are correct.
Appendix 6a RAH Compatibility and Traceability Label

This shows the compatibility and traceability which is currently in use at the time of printing this policy. See Appendix 6b for new label which should be introduced in the near future.

COMPATIBILITY FORM

This form is issued with the first unit of blood and should be used at the bedside for checking the unit details against those of the patient.
Note that this new national label is likely to be introduced in the course of 2007, replacing the label shown in Appendix 6b. It is MANDATORY that the blue traceability section is completed and returned to the laboratory.

Note that to facilitate documentation the label on the right will also be issued in case of failure of the automated blood issue system. The attached stickers can be used to record the unit number on removal of the pack from cold storage.
Appendix 7  RAH – Membership of the Hospital Transfusion Committee

Dr. Andrew Thomson
Consultant Obstetrician. Royal Alexandra Hospital (chairperson)

Mr. Ron Alexander
Consultant Urologist. Royal Alexandra Hospital.

Dr. Guy Fletcher
Consultant Anaesthetist. Royal Alexandra Hospital.

Mrs Cath McDonald
Theatre Sister. Royal Alexandra Hospital.

Dr. Audrey Todd
Consultant Haematologist. Royal Alexandra Hospital.

Mrs Jackie McKendrick
Theatre Nurse Manager. Royal Alexandra Hospital.

Dr. Charles Allister
Accident & Emergency Consultant. Royal Alexandra Hospital.

Mr. Mark Rodgers
Theatre Charge Nurse. Royal Alexandra Hospital.

Mr. Jim Wilson
Laboratory Manager. Royal Alexandra Hospital.

Tina King
Specialist Practitioner of Transfusion
### Appendix 8  NHS Greater Glasgow and Clyde

#### Membership of the Emergency Blood Planning Group for Clyde Region

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive</td>
<td>Karen Murray</td>
<td>01505 821058</td>
</tr>
<tr>
<td>Medical Director</td>
<td>Dr Liz Jordan</td>
<td>01505 821067</td>
</tr>
<tr>
<td>Clinical Lead for Acute Medicine</td>
<td>Dr Graham Currie</td>
<td>01475 504977</td>
</tr>
<tr>
<td>Clinical Lead for Surgery</td>
<td>Mr Mike McKirdy</td>
<td>0141 314 6877</td>
</tr>
<tr>
<td>Clinical Lead for Accident and Injury</td>
<td>Dr Frank Westerduin</td>
<td>0141 314 7267</td>
</tr>
<tr>
<td>Clinical Lead for Head and Neck Spt</td>
<td>Miss Aileen White</td>
<td>0141 314 6872</td>
</tr>
<tr>
<td>Clinical Lead for Orthopaedics</td>
<td>Mr Paul Allcock</td>
<td>0141 314 6897</td>
</tr>
<tr>
<td>Clinical Lead for Obstetrics and Gynae</td>
<td>Mr Andrew Quinn</td>
<td>0141 314 6723</td>
</tr>
<tr>
<td>Director of Nursing</td>
<td>Mrs Cathy MacGillivray</td>
<td>01505 821065</td>
</tr>
<tr>
<td>Acute Services General Manager</td>
<td>Mary Morgan</td>
<td>0141 314 6100</td>
</tr>
<tr>
<td>Clinical Lead for Critical Care/Lead Clinical Anaesthetist</td>
<td>Dr John Dickson</td>
<td>0141 314 7092</td>
</tr>
<tr>
<td>Haematologist Responsible for Transfusion</td>
<td>Dr Audrey Todd</td>
<td>1041 314 7422</td>
</tr>
<tr>
<td>Blood Transfusion Laboratory Manager</td>
<td>Mr Jim Wilson</td>
<td>0141 314 6162</td>
</tr>
<tr>
<td>Specialist Practitioner of Transfusion</td>
<td>Tina King</td>
<td>0141 314 6732</td>
</tr>
<tr>
<td>Clinical Risk Manager</td>
<td>David Ross</td>
<td>01389 812330</td>
</tr>
<tr>
<td>Emergency Planning Officer</td>
<td>Yvonne McGrinder</td>
<td>0141 314 0277</td>
</tr>
</tbody>
</table>